STRENGTHENING TRANSPORT CONNECTIVITY FROM / TO PORT FOR SELECTED COUNTRIES

April 2018
**Acknowledgment:**

The Workshop on Strengthening Integrated Intermodal Transport Connectivity for Southeast and South-Southwest Asia took place in Bangkok on 08-09 March 2018. The Workshop was attended by a total of 30 participants from Ministries of Transport and Maritime Administrations from invited countries; some delegations also included representatives from other entities: Logistics and Forwarder association, Harbor association, Maritime institutes and ICT specialists.

The participants reiterated the importance of port development and transport connectivity enabled through integrated intermodal transport systems to achieve Sustainable Development Goals in the region. In this sense, issues of port efficiency, container cargo movement, logistics information system were discussed at length. The meeting acknowledged that the correlation between ports and hinterland connections are essential to develop national economies.

The Workshop discussed the status and challenges of port development regarding policies, planning and strategy in the ESCAP region. The participants detailed on the numerous initiatives being undertaken for operationalizing transport connectivity and enhancing hinterland connectivity among the participating countries. Some of them include the development of national land and maritime transport policies, national integrated multimodal transport policies, dry ports, intermodal facilities, national transport development and logistics master plans, national transport infrastructure development strategies and related action plans, and development of railway or waterway transport.

The delegation of Republic of Korea expressed their willingness to continue strengthening its cooperation with ESCAP for sustainable transport development and strengthening its cooperation with member countries through consulting on the development of port and transport connectivity to the hinterland.

The participants thanked ESCAP secretariat for organizing and hosting, and the Ministry of Oceans and Fisheries from the Republic of Korea for financing the workshop.
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INTRODUCTION

1.1 Background

This paper has for objective to embrace different issues that matters for the understanding of the situation regarding transport connectivity in selected countries. In addition to this, aspects of port development and hinterland connectivity are considered vital to better comprehend region’s needs. Short economic background helps explain existing bottlenecks regarding not only infrastructure, but also political cooperation. The maritime infrastructure is crucial for the development of every region in the world, and it is of even more importance in the region studied, where sea plays a crucial role in trade and transportation.

Sea-borne trade flows at global scale have decreased. Even in Asia and the Pacific, the growth of sea-borne routes has either flattened or slightly declined in some part of the region. This is partly illustrating the slowdown of China’s ports, even though medium-term growth is forecasted to be positive and should contribute to strengthen GDP of countries in the region.\(^1\)

Ports connectivity represents a significant trade enabler as it is considered that around 90 per cent of global trade is sea-borne.\(^2\) Port can be defined as entry point of logistical platform where ports represent logistics nodes on the logistics chain. Along the channel, intermediaries store their cargos in ports in the form of bulk, break-bulk or unitized loads such as containers. Therefore, enhancing port capacity and unlocking their full potential has become a priority for governments as constrained ports have a direct consequence of inhibiting trade. Whereas it might be thought that because sea bed and land around ports are state-owned it could be easier to implement facilitation and trade policies, the theory is often challenged for fiscal reasons. Competing calls on government capital increasingly mean that governments do not have the cash to spend, or the inclination to commit available funds, to unlock capacity constraints and to improve efficiency.

The main challenge for global port development is to unlock capacity-constraint and improve the efficiency at ports and to every stakeholder involved in port’s trade in associated landside logistics. This can be resolved through infrastructure development, improving maritime and

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landside operations. In addition to this, growth of maritime trade implies competition between ports and terminals, facilitating price competition, which in turn drives efficiency.\textsuperscript{3} The global shipping industry evolution has a significant impact on port development. These companies, often part of alliances themselves, pressure on port operators to invest to facilitate the use of bigger vessels to which ports can respond through development of trans-shipment port for example.

With ports becoming increasingly valuable, port capacity by extension is now a critical asset. The private sector has now recognized the value of ports and is keen on investing in the sector. Illustration of this is the construction of new trans-shipment ports around the globe (including the world’s largest, Singapore), demonstrating the value of trans-shipment port capacity to the shipping industry. Growing private sector involvement in port industry is illustrated through its participation in infrastructure construction, where lie opportunities to enhance best practices in increasing service levels, improved efficiency of operations and appropriate allocation of public spending.\textsuperscript{4}

1.2 Objectives of the report

Although various studies illustrate the importance of port connectivity and maritime trade, it is interesting to focus on port development in a region where sea-borne trade is a priority and foreseen to gain even more momentum in the upcoming years.

Port development and connectivity has been growing in the region intensively as a result of stronger commercial traffic by population growth, and trade activity in and out of the region in a context of reinforced globalization. Ever increasing demand to enhance port capacity and traffic can often lead to an accumulation of projects. However, these number of projects are sometimes carried out without proper long-term visions and might result underused or where costs outweigh benefits in some cases.

It is already acknowledged that multiplying port next to each other is no longer a valid option, because of financial, space and environmental reasons. “Integrated Intermodal Transport”, in this regard, has received thoughtful attention worldwide as a tailor-made measure to address capacity-constraint issues in ports. Other ports enhancements have also shown substantial capabilities on efficiency and smooth operation of containers transshipment for example.

Although Asian countries are familiar with port and maritime trade as it has historically been an economic pillar, port development is still fragmented and largely different across the Asia-Pacific region. Main reasons behind such a situation are different level of economic advancement, financial resources, technical capacity and a lack of effective implementation. Despite major modern and high technological ports in the region, among global leaders, this unevenness can lead to potentially inconsistent development. This will also eventually limit the benefit that can be delivered by numerous ports with the same level of effectiveness. In order to unlock the full potential, it is important that port-related policies are established with definable outputs, proper governance, respecting an implementation strategy. Regional


cooperation and coordination is also key to ensure optimized use of port space and potential through interoperable operations tailored to regional conditions. The benefits of Integrated Interoperability can be maximized when port stakeholders are efficiently aligned with policies and directions.

For all the aforementioned reasons, this report focuses on port transport connectivity in Asia-Pacific focusing on Least Developed Countries (LDCs) and Landlocked Least Developed Countries (LLDCs) of the region, with special attention given on integrated intermodal transport connectivity. The details are as follows:

- Explore port development status in the region.
- Provide an overview of identified new (dry) port projects.
- Identify regional challenges and issues in port connectivity and implementation.
- Identify countries’ limitations
- Provide possible recommendations to enhance port transport connectivity for seaborne trade in the Asia-Pacific region.

Because this study is based on accessible sources it represents a brief overview/summary of port evolution. Complementary research is expected to enlarge this scope and strengthen the precision of this report. Also, suggested recommendations are only a ground basis that would need to be integrated with national needs and resources.
AS IS ANALYSIS ON TRANSPORT CONNECTIVITY FROM/TO PORT IN SELECTED COUNTRIES (LDCs and LLDCs)

For this report we chose to focus on Least Developed Countries (LDCs) countries: Bangladesh, Cambodia, Myanmar and Land-locked Least Developed Countries (LLDCs) countries: Bhutan, Lao PDR and Nepal.

Least developed countries (LDCs) are low-income countries confronting severe structural impediments to sustainable development. They are highly vulnerable to economic and environmental shocks and have low levels of human assets.\(^5\)

Currently there are 47 countries on the LDCs list\(^6\) which is reviewed every 3 years by the Committee for Development (CDP). LDCs countries have exclusive access to certain support measures from the international community, particularly in the areas of development assistance and trade.

Landlocked Developing Countries (LLDC) experience economic and other disadvantages caused by their geographic remoteness. This makes the majority of Landlocked Countries Least Developed Countries as well (LDC) as their transoceanic trade cost more than their maritime neighbors and overall transport costs are higher due to physical distance, no direct access to the sea and isolation from world markets.

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\(^6\) Accessible from: [http://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/UN-list-of-Least-Developed-Countries.aspx](http://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/UN-list-of-Least-Developed-Countries.aspx)
2.1 **BANGLADESH**

A. **Overview of Bangladesh**

GDP in the country is forecasted around 7 per cent this year, benefiting from a sustained growth with this on course to achieve over $50bn in value per year by 2021.7

The geographical location of Bangladesh can be considered as attractive to international shippers as it positioned just beside the Bay of Bengal which comprises two natural ports: Chittagong and Mongla. Chittagong is the principal port located at the East Bank of Pussur River in Khula.

To mitigate the derived demand, the Prime Minister Sheikh Hasina inaugurated the Seaport of Payra. The latest is Bangladesh’s third seaport, located at the Rabnabad Channel in Kalapara.

The actual expansion of market economy and the soaring movement of goods is demanding an efficient transportation network, especially sea-borne. Also, regional requirements of port transportation are top priorities to avail the opportunities in a correct way.8

Bangladesh is an interesting case as the country benefit from an increasing international trade but is not yet equipped with any deep-sea port.

Major export of Bangladesh includes readymade garments, Jute and Jute Products, Leather Products, Tea, Frozen Foods, Urea etc. And major import includes Textiles, Raw Cotton, Food Stuffs, Chemicals, Machinery, Steel/Iron products, Electronic products.

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Figure 2.1A – **Bangladesh GDP Growth**


### B. Ports: Governance, Traffic Volumes, Facilities

#### 1. Governance

Ports in Bangladesh are managed by governmental agencies in charge of the authority in each port.

The most important one being: Chittagong Port Authority (CPA).

#### 2. Traffic Volumes (containers)

Bangladesh two existing commercial ports, Chittagong and Mongla together handle trade estimated around $60bn per annum.\(^9\)

According to Port Strategy Magazine, Chittagong -the main port of Bangladesh- is handling 98% of the country’s container cargo resulting in around 1.8m TEU per annum and 92% total cargo volume (which includes 30m tons of bulk cargo per annum).\(^10\)

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In Chittagong, the actual cargo growth is said to be as high as 15% per year but on the other side it is forecasted that available capacity might be exhausted as early as 2018. This capacity enlargement adds up to the requirement of the construction of a deep-sea port. As a matter of fact, the maximum draft available at Chittagong is 9.2m and deep water is required to provide lower freight rate costs that come with larger ships; Capacity as well has to be adjusted since current capacity is running out rapidly.

Different places have been identified as potential deep-sea locations in order to build to provide Bangladesh with a platform for economic growth: Chittagong, Sonadia, Matarbari, and Payra. In Chittagong and Sonadia it was China that proposed new port plans, in Matarbi it was Japan through JICA and concerning Payra it was China and then India.

Within these numerous countries that want to take part in port development in Bangladesh lies one of the challenges that the country is facing: geopolitical influence when implementing these projects.

3. Facilities

Main ports include Chittagong, Mongla, Payra located at the center of the Bay of Bengal in between India and Myanmar.

Below some more details on each selected port.

Information from the Ministry of Shipping of Bangladesh:

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➢ **Chittagong**

The Port of Chittagong is the largest seaport in Bangladesh, located by the estuary of the Karnaphuli River in Patenga, near the city of Chittagong.\(^{12}\)

- It handles over 92% of Bangladesh maritime trade
- Close to the Bay of Bengal
- Around 70% of freight movements originates and are destined for Dhaka region and rest 30% for Chittagong region

### Containers handled in Chittagong Port (TEUs)

<table>
<thead>
<tr>
<th>FY</th>
<th>Import (TEUs)</th>
<th>Export (TEUs)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>675796</td>
<td>667612</td>
<td>1343408</td>
</tr>
<tr>
<td>2012-13</td>
<td>743547</td>
<td>725166</td>
<td>1468713</td>
</tr>
<tr>
<td>2013-14</td>
<td>812918</td>
<td>812591</td>
<td>1625509</td>
</tr>
<tr>
<td>2014-15</td>
<td>940827</td>
<td>926115</td>
<td>1867062</td>
</tr>
</tbody>
</table>

Source: Ministry of Shipping

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\(^{12}\) Ministry of Shipping. *Development of Port Infrastructure: Bangladesh Perspective.*
CargoHandled (MT)

<table>
<thead>
<tr>
<th>FY</th>
<th>Import (MT)</th>
<th>Export (MT)</th>
<th>Total (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>36184935</td>
<td>4716374</td>
<td>40901309</td>
</tr>
<tr>
<td>2012-13</td>
<td>38312028</td>
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<tr>
<td>2013-14</td>
<td>41960170</td>
<td>5338377</td>
<td>47298547</td>
</tr>
<tr>
<td>2014-15</td>
<td>48941406</td>
<td>5839986</td>
<td>54781392</td>
</tr>
</tbody>
</table>

Source: Ministry of Shipping.

According to the Ministry of Shipping in Bangladesh, the forecasting container traffic in Chittagong Port is as below:

• Chittagong Port has projected the container traffic to 2.7, 4.4, 5.1 and 5.4 million TEUs for the year 2020, 2025, 2030 and 2040 respectively.

• Dhaka’s expectation to and from container traffic may be 1.89, 3.08, 3.57 and 3.78 in million TEUs in the year 2020, 2025, 2030 and 2040.

➢ Mongla

The Mongla seaport is situated in the Bagerhat District of south-western Bangladesh:

- It was formerly located at Chalna, about 18 km upstream on the Pasur river, but it is now located 48 km south of Khulna city, as established on 11 December 1954
- River and road transport facilities available comparatively at lower cost from Mongla port to all over the remote places of the country.
- Constraint free large channel available for anchorage and loading/unloading facilities on both sides for 33 ships at a time.

Container Handled (TEUs)

<table>
<thead>
<tr>
<th>FY</th>
<th>Inbound (TEUs)</th>
<th>Outbound (TEUs)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>13699</td>
<td>13424</td>
<td>27123</td>
</tr>
<tr>
<td>2011-12</td>
<td>15460</td>
<td>14595</td>
<td>30055</td>
</tr>
<tr>
<td>2012-13</td>
<td>21994</td>
<td>21879</td>
<td>43873</td>
</tr>
<tr>
<td>2013-14</td>
<td>21947</td>
<td>21060</td>
<td>43007</td>
</tr>
<tr>
<td>2014-15</td>
<td>21036</td>
<td>21101</td>
<td>42137</td>
</tr>
</tbody>
</table>

Source: Ministry of Shipping

CargoHandled (MT)

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13 Ministry of Shipping. Development of Port Infrastructure: Bangladesh Perspective.
14 Ministry of Shipping. Development of Port Infrastructure: Bangladesh Perspective.
Future plan for Mongla Port include enhancing port capacity through procurement of equipments and roval of wreck from the Pussur Channel.

➢ **Payra:**

Payra port is located in the Meghna Estuary at Rabnabad channel. Payra Sea Port will have following facilities:

- Jetty area has depth of water 12-25 m where deep draught and bigger size vessel can be accommodated
- 11 km long jetty/terminal facilities can be developed
- 4 km wide channel
- Plenty of hinterland to develop a seaport with modern infrastructure
- Planned Navy base and Coast Guard close to the proposed port area will provide necessary safety and security
- Protected from natural disaster
- Located in regional and international shipping friendly position

C. Port development

1. National / Master Plan

*National MP:*

There is no national master plan yet produced concerning maritime transport specifically.

Regarding the policy environment below is an illustration summarizing the situation in Bangladesh:

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25 Ministry of Shipping. *Development of Port Infrastructure: Bangladesh Perspective.*

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Figure 2.1.C. **Policy and Legal environment in Bangladesh.**


The above table depicts the different plans and strategies designed by the government of Bangladesh concerning transport policies and policy reform bills in order to enhance the legal environment of each modes and policies of transport at national level.

**Chittagong Master Plan:**

Chittagong port, the biggest in the country, is to be extended. Situated in the southern part of the country, the port handles approximately 92% of the country’s maritime traffic.\(^{16}\)

In June 2017, Bangladesh developed a Strategic Master Plan for its port development of Chittagong, prepared by HPC Hamburg Port Consulting, a Hamburger Hafen und Logistik AG (HHLA) subsidiary, Sellhorn Engineering and the local partner KS Consultants from Dhaka (Bangladesh). This MP \(^{17}\) funded by the ADB, was budgeted at USD 1.9 billion in developments costs to carry out the entire project; it also included a possible development of integrated intermodal port development. The Chittagong port authority (CPA) has now requested a “feasibility study for the Bay Terminal, which was started in September 2016. The plan is to construct a port facility that focuses on containers on the Patenga coast, close to


\(^{17}\) ADB. Accessible from: [https://www.adb.org/projects/45078-001/main](https://www.adb.org/projects/45078-001/main)
the existing port, which is located 16 km inland. Moreover, the master plan provides for another container terminal and a multi-purpose terminal”\textsuperscript{18}

The Karnaphuli Container Terminal (KCT) in Chittagong aims to “make the terminal modern, safe and environmentally friendly, while meeting international standards”\textsuperscript{19}. The terminal is due to play a leading role in enhancing national trade and commerce while promoting Bangladesh regional connectivity.

Plans were developed by the Ministry of Shipping of Bangladesh in order to cope with future demand.

They are as follow:\textsuperscript{20}

- Develop General Cargo Berths (10-13 No berth) area into a full independent container terminal by 2020; in capacity to handle 770,000TEU per annum and licensed to a private operator.
- Planning to build a new Bay Container Terminal (BCT) to meet the volumes with a capacity of 2.8 million TEUs. Bay Terminal located at the seaside approx. 8-10 miles north of the estuary. It could handle larger vessels of the panamax and postpanamax type i.e. up to 5000 TEUs.
- Procure necessary equipment to add to the capacity of the port

Finally, following the Maritime Silk Route for both maritime and land transportation, there is an option to choose Chittagong as a center for southern trade. It is calculated that the route connecting East India and NE India through Bangladesh is reducing by around 60% the transport distance in comparison with the actual transport systems via Siliguri.\textsuperscript{21}

\section*{2. Projects & Development opportunities}

Because deep-draft vessels are unable to enter Chittagong or Mongla Port, these ships are lightered at the outer anchorare which causes higher freight rates, lowering down at the same time sea-borne trade productivity. For this reason, the construction of a deep-sea port is now a priority for Bangladesh in order to handle deeper draft, long-length vessels. This would also allow to reduce freight costs.

\begin{itemize}
  \item Payra deep-sea port
\end{itemize}

The government has recently made a move to prepare the Master Plan and the design of Payra deep-sea port.\textsuperscript{22} The Bangladesh University of Engineering and Technology has been engaged in this regard.

\begin{flushleft}
\textsuperscript{18} Accessible from: https://www.transportjournal.com/en/home/news/artikeldetail/master-plan-for-port-of-chittagong.html\
\textsuperscript{19} Accessible from: https://www.porttechnology.org/news/bangladesh_container_terminal_master_plan\
\textsuperscript{20} Ministry of Shipping, F. Akhtar. Development of Port Infrastructure: Bangladesh perspective.\
\textsuperscript{21} Razon Chandra SAHA. Port Development in Bangladesh. Vol.7, No.7, 2015. European Journal of Business and Management. ISSN 2222-1905 (Paper) ISSN 2222-2839\
\textsuperscript{22} Accessible from: https://southasianmonitor.com/2017/09/20/bangladesh-master-plan-payra-deep-sea-port-cards/\
\end{flushleft}
❖ **Matarbari Port** 23

Construction of a deep-sea port and a terminal for liquefied natural gas (LNG) is underway at Matarbari. “Daily requirement of coal will be over 60,000 tons and should obviously be imported by 'Handymax' or 'Supramax'-sized vessels drawing 12-15 meters draft”.

❖ **Sonadia deep-sea port**

The Sonadia location has also been proposed as a potential strategic place to build a deep-sea port. 24

❖ **Development of Rail based ICD**

A feasibility study for the construction of a new ICD facility close to Dhirassram Railway Station (Dhaka) was financed by the World Bank and conducted by the Chittagong Port Authority in 2007. This study suggested implementing first stage with a capacity of 354,000 TEUs with a gradual expansion up to 860,000TEUs. Besides, the study also suggested the necessity of converting existing Chittagong Port Railway Yard (CGPY) into an off-dock terminal. 25 “According to BR the construction of Dhirassram ICD would be important because of the current physical limitation of Dhaka ICD would then be about 450,000TEUs” 26.

❖ **Pangaon Inland Container Terminal**

Pangaon Inland Container Terminal was jointly built by the Chittagong Port Authority (CPA) and Bangladesh Inland Water Transport Authority (BITWA). It is located on the bank of Buriganga river close to Dhaka in order to reduce the container vehicle’s share on the Dhaka-Chittagong highway.

The annual handling capacity of the terminal is currently of 116,000 TEUs. As mentioned by the Ministry of Shipping 27, this capacity could gradually be extended up to 160,000 TEUs.

Opportunities are awaiting Bangladesh if it uses efficiently its geostrategic position because Bangladeshi seaports have the ability to provide access for regional landlocked countries. Improving port facilities, construction of deep-sea port and infrastructure development using modern equipment, setting transport network of rail, road and waterways would turn Bangladesh into a regional hub.

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25 Ministry of Shipping, F. Akhtar. *Development of Port Infrastructure: Bangladesh perspective.*

26 Ibid.

27 Ministry of Shipping, F. Akhtar. *Development of Port Infrastructure: Bangladesh perspective.*
D. Hinterland Connectivity

Chittagong and Monga represent proper setting of port facilities and act as maritime load centers from the hinterlands within Bangladesh. Due to poor infrastructure facilities, port services are expanded to the major cities of country by setting Inland container off-dock, RICT, ICD that added value in the port industry and viable to the port users.28

Figure-2.1.D(i) Port evolution in Bangladesh developed by Author (Map: Infoplease, 2015)


In order to reach multimodal transportation and convenient load/unload operations, intermodal facilities and port specialization is required. Efficient connectivity with hub port is possible if provided with dedicated service. Furthermore, connecting riverways, road and rail networks will facilitate integrated intermodal transportation. Same for fuel, gas or coal supplying. In line with port functional specialization and integration, South Asia region offers a wide scope of growth and cooperation where Bangladesh occupies a centric role to catalyze this dynamic because of its situation in the region.

It is to be noted that Bangladesh forms part of initiatives such as The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), which establishes “a platform for intra-regional cooperation between SAARC and ASEAN members. The BIMSTEC region is home to around 1.5 billion people which constitute around 22% of the global population with a combined gross domestic product (GDP) of 2.7 trillion economies”29.

29 Accessible from: https://bimstec.org/home/
Other efforts are also made through The Kaladan Multi-Modal Transit Transport Project which is a project connecting the eastern Indian seaport of Kolkata with Sittwe seaport in Rakhine State, Myanmar by sea.

Figure-2.1.D(ii) **Dryports in Bangladesh.**

Source: Reconnecting Asia.\(^{30}\)

\(^{30}\) Accessible from: [https://reconnectingasia.csis.org/map/](https://reconnectingasia.csis.org/map/)
E. Challenges

Political context and international interests makes it challenging for the country:

Bangladesh still has to recognize that port development is a necessity for the economy and that there is a need to formulate a National Port Master Plan that would serve national interest first and putting second other parties that would like to participate in Bangladesh port development.31

Also, as highlighted in the newspaper The Diplomat 32, during its 45 years as independent state, Bangladesh never built a new port in its history. This results in a lack of experience regarding port development. “While $60 billion of annual trade currently pours through the country’s two existing seaports, Chittagong and Mongla, both are too shallow for large container ships and require costly load transfers to smaller vessels to get cargo in and out — an added step that can cost an additional $15,000 per day and severely decreases the ports’ global competitiveness”33.

However, solutions to this issue are hard to find for Bangladesh. Not because there are few options, few investors or even lack of international aid but on exactly the opposite. “too many powerful players are pushing for too many contending plans. This has left Bangladesh geopolitically stalemated, making and breaking deals, going with one project and then changing position and going with another. Ultimately, this plethora of options has pitted China, Japan, and India in direct competition with each other to build Bangladesh’s first deep sea port”34.

Sometimes it turns out that many projects assessments and powerful players around the table is more of a challenge than a blessing.

At an infrastructure level, challenges for Bangladesh are the lack of border facilities, the absence of efficient multimodal integration or harmonization of standards. At some land ports (e.g. Benapole), the capacity needs to be enhanced to cater increased demands. Regarding hinterland connectivity, ICD could help overcome physical limitations but require large funding.35

At an operation and facilitation level, transshipment at land ports is still a time-consuming process. Bangladesh will spend 5.85 billion taka ($69.46 million) to establish a single window for customs with the goal of easing pressure on regularly congested infrastructure.

From an institutional aspect, there is a lack of a regulatory framework and government proactive actions to promote public/private partnerships in transport infrastructure financing and management for example.36 Lack of enforcement of current regulations is the main reason

32 Accessible from: https://thediplomat.com/2016/06/bangladeshs-deep-sea-port-problem/
33 Accessible from: https://thediplomat.com/2016/06/bangladeshs-deep-sea-port-problem/
34 Accessible from: https://thediplomat.com/2016/06/bangladeshs-deep-sea-port-problem/
behind truck-overloading deteriorating routes for example\textsuperscript{37}. Financially, support from development partners need to continue to bridge financing gap in transport development projects.

\textsuperscript{37} Ibid.


2.2 CAMBODIA

A. Overview of Cambodia

Below is a short recap on circumstance surrounding port sector in Cambodia.

Cambodia counts a population of around 14 billion and is increasing at a rate of more than 2% per year. Population is concentrated in the central plain, including the capital Phnom Penh. Many people in rural areas are in a situation of poverty. It is forecasted that total population would be of around 18 billion by 2020.

Cambodia is characterized by plains in central part, as well as Tonle Sap Lake, Bassac River and the Mekong River that crosses the country. The southwest part of the country faces the Gulf of Siam.

GDP has risen on average at a rate of 11.2% over the last 5 years. GDP per capita is considered low among ASEAN countries. Since the end of the war in 1991, the country joined the world economy through its affiliation to ASEAN in 1999 and WTO in 2004. It is forecasted that GDP in 2020, based on a growth rate of 6% or 8% per year, shall reach US$17 million (2.75 times that of 2005)\(^{38}\).

By sector, “GDP share of agriculture, fisheries and forestry in 2005 is 34%, that of Industry is 27% and that of Services is 39%. GDP value of each sector is steadily increasing.

In the industrial sector, share of textile, garments and footwear is approximately 50%. Share of construction is 25%. In the service sector, share of trade in 2005 is 23%. That of hotels and restaurants is 11% and that of transport and communication is 17%. GDP of each sector is expected to show large growth in future.”\(^{39}\)

Concerning trade, both exports and imports have seen double-figure growth over the last few years. The value of exports reached US$30 billion and US$25 billion for imports. “But according to a certain report, there may be uncounted import goods and there may in fact be a trade deficit. Garment industry accounts for the majority of exports while products processed from materials”.\(^{40}\)

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\(^{38}\) JICA. *The Study on the Master Plan for Maritime and Port Sectors in Cambodia-Final Report.*

\(^{39}\) JICA. *The Study on the Master Plan for Maritime and Port Sectors in Cambodia-Final Report.*

\(^{40}\) JICA. *The Study on the Master Plan for Maritime and Port Sectors in Cambodia-Final Report.*
B. Ports: Governance, Traffic Volumes, Facilities

1. Governance

Ports, like most infrastructure facilities, are also deeply involved in the ownership, development and operation of the government, and port facilities may entrust some operations to the private sector as needed. Sihanoukville Autonomous Port (PAS), which is the owner and operator of the port, is under the control of the government and the provincial government and manages with various tasks ranging from port development to port operation.
2. Traffic Volumes

Waterways in Cambodia is around 1,750km, which 850km are navigable in the dry season. The Sihanoukville Autonomous Port (SAP) is the country’s only commercial and international deep seaport. The latter is state-owned and has been undergoing major development recently. “More than 3.8 million tons of cargo moved through the port in 2015, an increase of nearly 10% from the year before. Ship numbers coming through the port rose 17% year to year, and cruise ship visits rose from 25 to 36”.

The country’s second largest is the state-owned Phnom Penh Autonomous Port located in Kien Svay district of Kandal province. The Chinese government funded in 2013 a $28 million container terminal in the port. On one hand agriculture (rice) and garment are keys exports.

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41 Accessible from: https://opendevelopmentcambodia.net/topics/infrastructure/
43 Accessible from: https://opendevelopmentcambodia.net/topics/infrastructure/
44 https://opendevelopmentcambodia.net/topics/infrastructure/
loaded while on the other hand construction materials, agricultural machinery, raw materials for garment industry and consumer goods are keys importations.\textsuperscript{46}

In 2016, both Sihanoukville and Phnom Penh Autonomous Ports experienced a slowdown in container traffic.\textsuperscript{47} According to newly released port data, a fall in import traffic induced slower growth in container traffic in 2016; although garments and agricultural products exports continued to rise.\textsuperscript{48}

“Total container throughput at Cambodia’s sole deep-sea port, Sihanoukville Autonomous Port (SAP), amounted to 400,187 20-foot-equivalent units, or TEU, in 2016, an increase of 2.1 percent compared to 2015. Meanwhile, the publicly listed Phnom Penh Autonomous Port (PPAP) recorded a total throughput of 151,781 TEU, a 4.8 percent increase from the previous year. Both ports saw a significant slowdown in container traffic after nearly five years of double-digit annual growth”.\textsuperscript{49}

3. Facilities

Main ports of Cambodia are Sihanoukville and Phnom Penh ports. More details on each port below:

➢ **Sihanoukville Port**\textsuperscript{50}

Sihanoukville Port is the only one deep-sea port in Cambodia, acting as the main logistics hub supporting the logistics economy. The strategic location of the port on the Southern Economic Corridor makes it valuable as it has been a focus of support from Japan the port is forecasted to become a regional logistics transfer hub for the ASEAN.

The demand for container cargo is to be increasing at fast pace in the upcoming years due to solid economic growth and national manufacturing development. However, the demand is forecasted to exceed the port cargo handling capacity in the near future.\textsuperscript{51}

Current Infrastructure & capacity:

1. Container Terminal:  
   • Capacity of Container Throughput: 350,000TEUs/Year  
   • Capacity of Container Storage: 114,000TEUs  
   • Handling Productivity: 25 Boxes/hour

2. General/Bulk Cargo Terminal:  
   • Capacity of Cargo Throughput: 900,000Tons/Year

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\textsuperscript{47} Hor Kimsay, 2017. “Slowdown in port container traffic”, *Phnom Penh Post*, 17 February 2017.

\textsuperscript{48} Ibid.


\textsuperscript{50} MoPWT, 2014. *Cambodia’s Infrastructure Improvements and Future Plans*.

• Capacity of Cargo Storage: Warehouse: 6,000Tons

3. Passenger Terminal:
• Capacity of Passenger Throughput: 1,500pax/Day or 270,000pax/Year

4. Oil Terminal:
• Concrete Wharf: (Length: 53m; Depth: -4.2m)


More details data on Sihanoukville Port:

➢ Phnom Penh Autonomous Port (PPAP)³²

PPAP is an international port under the supervision of the Ministry of Public Works and Transport and the Ministry of Finance and Economic. The port zone is covering from Phnom Penh to Neak Leoung (lower part of Mekong river) and Phnom Penh to Tonle Bet (Upper part of Mekong river).

Phnom Penh Autonomous Port is covering many provinces in Cambodia in order to distribute goods, commodities and exporting agriculture oversea. The port has one local terminal connected to domestic’s port along main rivers in other provinces: Phsar Krom Port in Kompong Chhnang province, Chong Kneas port in Siem Reap province, Tonle Bet in Kompong cham province, Stung Treng Port in Stung Treng province, Kratie port in Kratie province.

C. Port development

1. National / Master Plan

Port development in Cambodia is historically strongly linked with help from JICA ODA loans. The agency has been a long sponsor of port development in the country since the post-conflict reconstruction of Cambodia.

JICA has identified priority projects and mid-term to long-term objectives to reach. Based on their report, priority should be given to the following projects: ³³

- Efficient Operation of New Container Terminal in Port of Sihanoukville
- Development of Port of Sihanoukville according to Long-term Plan

- Development of Port of Phnom Penh
- Appropriate Development and Use of Coastal Zone
- Efficient Port Management
- Securing Port Security
- Development of SEZ at the Port

Also, beside ODA Loan projects, JICA provided Technical Cooperation Program (TCP) and Grant Aid (GA) as follows:54

- The Study on Master Plan and Feasibility Study of the Sihanoukville Port (1996-1997),
- The Study on Regional Development for the Phnom Penh and Sihanoukville Growth Corridor (2002-2003),
- The Study on Master Plan for Maritime and Port Sectors in Cambodia (2006-2007),
- The Project for the Improvement of Security and Equipment in Main International Port in the Kingdom of Cambodia (2008-2009) by using Grant Aid with the total of JPY927,000,000.
- The Project for the Study on Strengthening Competitiveness and Development of Sihanoukville Port in the Kingdom of Cambodia (2011-2012), and

Recently, in February 2017, Cambodia’s Ministry of Public Works and Transport has been mapping and implementing new National Logistics Master Plan in order to chart out Cambodia’s logistics direction for the next 5 years. “The services sector, which includes logistics, is the biggest contributor to Cambodia’s GDP, accounting for 42.3 percent in 2015”55. This Master Plan will not neglect ports and waterways that account for a large amount of handled logistics in the country, in order to revitalize transportation and enhance travel of goods in the region.

2. Projects & Development opportunities

The growing export trade is accelerating port development in Cambodia and foreign investors are looking for potential opportunities as box volumes soars.56

❖ Sihanoukville New Container Terminal Project

In August 2017, an agreement was signed between the Government of the Kingdom of Cambodia and JICA to provide Japanese ODA loan of up to 23.502 billion yen for the Sihanoukville Port New Container Terminal Development Project.57

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The government-run Japan International Cooperation Agency (JICA) gave green light to $209 million low-interest loan for the new container terminal in exchange for the purchase of a direct equity stake of 13.5 per cent. Construction is due to start in 2019, and when completed in 2023, it should raise port’s capacity to around 450,000 TEU per year.\(^{58}\)

JICA has been a longstanding sponsor of Sihanoukville port development through ODA loans to fund restoration and rehabilitation of the neglected port during Cambodia’s conflicts. The Japanese aid-agency funded the Sihanoukville Port Multipurpose Terminal Development Project, a new bulk terminal for vessels of up to 50,000 DWT. Through this project, Cambodia’s ability to participate in global trade has improved significantly, allowing GDP to grow at a consistent level of 7 percent a year, driven by strong garment industry and rising exportations.\(^{59}\)

Currently, Sihanoukville port handles around half a million TEU a year and is becoming capacity constraint with rising cargo trade. Thailand’s seaports in Laem Chabang, Klong Yai and S.Kittawan handle a share of Cambodia’s cargo but they enforce an added layer of customs checks on Cambodia’s shippers. The Vietnamese port of Cai Mep also handles significant volumes of Cambodia goods.\(^{60}\)

“Separately, Chinese operator Tianjin Union Development Group says that it has nearly completed a greenfield breakbulk port in Cambodia’s Botum Sakor National Park, a protected area on a peninsula adjacent to Sihanoukville.”\(^{61}\)


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\(^{59}\) Ibid.

\(^{60}\) Ibid.

\(^{61}\) Ibid.
Phnom Penh Port New Container terminal capacity


D. Hinterland Connectivity

Multipurpose Terminal

The Multipurpose Terminal Development Project is a program designed to encourage “various fields of agriculture, agroindustry, industry, trade, and especially for the export of such Cambodian agricultural products such as dried tapioca and dried bulk cargo, and to respond to the Royal Government market expansion strategy for milled rice export and to provide logistics service for the offshore oil exploration in the territory of Cambodian sea as well as for the economic growth of Cambodia”.

This project is financed by the JICA using soft loans. The construction process has started early 2015 and expected to be completed in July 2017.

Following some more details from the Sihanoukville Autonomous Port:

Main Facilities:
- Multi-purpose terminal; Length: 330m and alongside depth: -13.50m
- Terminal for Oil Exploration Logistic Base: 200m and alongside depth: -7.50m
- Navigation Channel; Water depth: -12m, Length: 3,900m, Wide: 150m and total volume 1,800,000m³
- Dry bulk cargo storage yard: 28,000m²
- Coal Storage Yard: 13,000m², General Cargo Storage Yard: 14,000m² and other main port facilities.

E. Challenges

There are several challenges that Cambodia need to face in order to improve transport connectivity from/to ports.

On an infrastructure level it appears that congestions on road is due to limited road segments in some areas, deficient existing infrastructure and poor maintenance. Also, there is a need to enhance the overall network strategy to make it holistic as it seems that rail is sometimes competing with road network. Also, concerning big scale projects, such as ports, there is still a high reliance on external aid for further development. As for dry ports and hinterland connectivity, transport hubs are yet not effectively organized and a lack of integrated plan for multi-modal transport.

Regarding operation and facilitation, better cooperation and comprehension is required for customs process for example. Expertise is transport management is to be further gained, with an increasing need for skilled workers. Adoption and comprehension of mutual agreed standards is needed among neighboring countries. In this regard the development of ICT ecosystem is required as it is still poor, in order to implement and operate fully Single Window technologies.

At an institution level, government still has to negotiate for external aid in order to fund costly infrastructure projects. Because transport network development requires a huge budget for the public sector to finance on its own there is a need to involve more private sector and other stakeholders.
2.3 MYANMAR

A. Overview of Myanmar

Myanmar is a developing country that ranks 136 out of 187 countries in terms of (PPP-adjusted) GDP per capita. Since 2010, when Myanmar introduced a series of political and economic reforms, the country grew rapidly at 7.57 percent per year, which is among the fastest growth rates in the region. Despite this growth, the country’s agricultural sector accounts for 30 percent of its GDP. Industrial sector (mining, manufacturing, construction, electricity, water, and gas) accounts for 32 percent of its GDP.64

The economy expansion relied on growing trade. Since 2010, containers volume arriving in Myanmar’s ports is up three times. It has reached a level of 1 million TEUs in 2017.65 The IMF estimates that this momentum is to be pursued with a GDP growth of around 7.3 per cent in the upcoming 5 years.

With soaring trade, sea port become even more important node in the logistics network as the bulk of cargo is moved by sea. Also, it must be noted that Myanmar’s trade is still imbalanced with imports exceeding by around 4 times exportations.

Thus, it is essential that Myanmar can operate efficiently and productively ports in order to lower down overall logistics costs for ship liners and shippers alike. Even though, according to the World Bank’s Doing Business Ranking, Myanmar ranks 167 out of 189 countries and 177 out of 192 countries in the World Bank’s assessment of the country’s logistics.

Figure 2.3A – Myanmar GDP Growth

![Myanmar GDP Growth Graph](image)


**B. Ports: Governance, Traffic Volumes, Facilities**

1. **Governance**

Myanmar Port Authority (MPA) is “solely responsible for port planning under the direction of Ministry of transport and Communications”.66

Below is the System of Fund-raising for Port Development .67

(i) 100% National investment

(ii) 100% Investment under Build, Operate and Transfer basic by Foreign and/or local investors.

(iii) Joint-Venture between MPA and Foreign and/or local Investors.

(iv) Grant aids or soft loan financed by international financial institute.

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Figure 2.3.B.1 **Role of Myanmar Port Authority**


### 2. Traffic Volumes

Below is a Table providing data on the TEU traffic of the ports handled by the Myanmar Port Authority.

**Table 2.3.B.2 Trade Statistics (2000 to 2016) - Containerized Cargo**

<table>
<thead>
<tr>
<th>Year</th>
<th>Import (TEU)</th>
<th>Export (TEU)</th>
<th>TOTAL (TEU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>78 508</td>
<td>77 840</td>
<td>156 348</td>
</tr>
<tr>
<td>2001</td>
<td>89 760</td>
<td>85 640</td>
<td>175 400</td>
</tr>
<tr>
<td>2002</td>
<td>93 645</td>
<td>97 586</td>
<td>191 231</td>
</tr>
<tr>
<td>2003</td>
<td>88 753</td>
<td>91 813</td>
<td>180 566</td>
</tr>
<tr>
<td>2004</td>
<td>80 394</td>
<td>77 553</td>
<td>157 947</td>
</tr>
<tr>
<td>2005</td>
<td>83 030</td>
<td>79 330</td>
<td>162 360</td>
</tr>
<tr>
<td>2006</td>
<td>93 962</td>
<td>95 782</td>
<td>189 744</td>
</tr>
<tr>
<td>2007</td>
<td>113 059</td>
<td>109 953</td>
<td>223 012</td>
</tr>
<tr>
<td>2008</td>
<td>125 364</td>
<td>121 348</td>
<td>246 712</td>
</tr>
<tr>
<td>2009</td>
<td>149 472</td>
<td>148 482</td>
<td>297 954</td>
</tr>
<tr>
<td>2010</td>
<td>168 335</td>
<td>167 011</td>
<td>335 346</td>
</tr>
<tr>
<td>2011</td>
<td>192 102</td>
<td>188 573</td>
<td>380 675</td>
</tr>
<tr>
<td>2012</td>
<td>239 397</td>
<td>234 903</td>
<td>474 300</td>
</tr>
<tr>
<td>2013</td>
<td>284 686</td>
<td>282 470</td>
<td>567 156</td>
</tr>
<tr>
<td>2014</td>
<td>361 605</td>
<td>355 321</td>
<td>716 926</td>
</tr>
<tr>
<td>2015</td>
<td>419 213</td>
<td>408 126</td>
<td>827 249</td>
</tr>
<tr>
<td>2016</td>
<td>503 710</td>
<td>522 506</td>
<td>1 026 216</td>
</tr>
</tbody>
</table>

Source: Myanmar Port Authority.\(^{68}\)

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In Myanmar, cargo is concentrated mainly at Yangon and Thilawa ports, where around 95% of cargo is handled.69

3. Facilities

Main ports of Myanmar are found in 9 cities: Sittwe, Thandwe, Kyuak Phyu (Rakhine State), Pathein (Ayeyarwaddy Division), Yangon (Yangon Division), Mawlamyine (Mon State), Dawei, Myeik and Kawthaung (Tanintharyi Division).

The most part of international cargo is handle at Yangon port while other ports are mainly used for inland transportation. Besides, other ports are not accessible for large ocean going vessels (only for drafts to 4-5m) and there is no presence of mechanical cargo handling equipment.70

Figure 2.3.B.3 Ports in Myanmar


- Yangon Port (main port)

70 Accessible from: http://dlca.logcluster.org/display/public/DLCA/2.1+Myanmar+Port+Assessment
Yangon port is the major port that handles more than 85% of Myanmar’s exports and imports.\textsuperscript{71}

Private investments have been allowed in the port industry since 1998.

### Container Handling Capacity

**TERMINAL CAPACITY**

**AREA OF EACH TERMINAL AND THEIR CAPABLE STORAGE CAPACITY**

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Terminal</th>
<th>Length (m)</th>
<th>Width (m)</th>
<th>Backup Area (Acre)</th>
<th>Storage Capacity (TEU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AWPT/ HPT</td>
<td>1044</td>
<td>155.5</td>
<td>53.27</td>
<td>17000</td>
</tr>
<tr>
<td>2</td>
<td>BSW</td>
<td>457</td>
<td>60.4</td>
<td>24.37</td>
<td>2000</td>
</tr>
<tr>
<td>3</td>
<td>MIP</td>
<td>770</td>
<td>72</td>
<td>65.231</td>
<td>20000</td>
</tr>
<tr>
<td>4</td>
<td>MITT</td>
<td>1000</td>
<td>150</td>
<td>185</td>
<td>48000</td>
</tr>
<tr>
<td>5</td>
<td>AIP</td>
<td>600</td>
<td>370</td>
<td>15</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>88000</strong></td>
</tr>
</tbody>
</table>

### Container Throughput

- Container handling throughput in last five fiscal years

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Fiscal Year</th>
<th>Import (TEU)</th>
<th>Export (TEU)</th>
<th>Total (TEU)</th>
<th>Progression %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2011-2012</td>
<td>209,932</td>
<td>203,445</td>
<td>413,377</td>
<td>(+) 19 %</td>
</tr>
<tr>
<td>2</td>
<td>2012-2013</td>
<td>239,347</td>
<td>238,993</td>
<td>478,340</td>
<td>(+) 16 %</td>
</tr>
<tr>
<td>3</td>
<td>2013-2014</td>
<td>309,767</td>
<td>303,804</td>
<td>613,571</td>
<td>(+) 28 %</td>
</tr>
<tr>
<td>4</td>
<td>2014-2015</td>
<td>377,557</td>
<td>367,232</td>
<td>744,789</td>
<td>(+) 21 %</td>
</tr>
<tr>
<td>5</td>
<td>2015-2016</td>
<td>459,037</td>
<td>434,164</td>
<td>893,201</td>
<td>(+) 20 %</td>
</tr>
</tbody>
</table>

### General Cargo Throughput

- General cargoes handling statement in last five fiscal years

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Fiscal Year</th>
<th>Import (Tonnage)</th>
<th>Export (Tonnage)</th>
<th>Total (Tonnage)</th>
<th>Progression %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2011-2012</td>
<td>3132302</td>
<td>1876712</td>
<td>5009014</td>
<td>(-) 33 %</td>
</tr>
<tr>
<td>2</td>
<td>2012-2013</td>
<td>6289316</td>
<td>3871211</td>
<td>10160527</td>
<td>(+)2.8%</td>
</tr>
<tr>
<td>3</td>
<td>2013-2014</td>
<td>7202162</td>
<td>5047790</td>
<td>12249952</td>
<td>(+) 20 %</td>
</tr>
<tr>
<td>4</td>
<td>2014-2015</td>
<td>9670919</td>
<td>2437193</td>
<td>12108112</td>
<td>(-) 1 %</td>
</tr>
<tr>
<td>5</td>
<td>2015-2016</td>
<td>11525748</td>
<td>775002</td>
<td>12300750</td>
<td>(+) 1.6%</td>
</tr>
</tbody>
</table>

---

C. Port development
1. National / Master Plan

Since end of 2016, a master plan is being drawn for the Parliament to build a seaport, an industrial zone, an economic zone and an international airport in southern districts of Yangon.\(^{72}\)

Early 2017, the Japan International Cooperation Agency (JICA) handed over an updated version of its 2040 master plan for Yangon’s development to the region government. The latest is considering these recommendations, and those from other agencies, before deciding what to implement.\(^{73}\)

This February (14\(^{th}\) Feb. 2018), the Ministry of Transport and Communications and JICA organized a seminar as part of the program to develop Myanmar’s national logistics master plan. “The transport and construction ministries and JICA are collaborating on devising a National Logistics Master Plan Study. The partnership started in July 2016 and will end in December this year. The collaboration seeks to map out a “strategic and workable logistics development master plan”, which aligns with the National Transport Master Plan finalised in 2014.”\(^{74}\)

This Master Plan is based on analysis of growth trends in economy and trade, cargo demand, transport, industrial/logistics development as well as current issues to be addressed in the sector in Myanmar. It aims to set a series of priorities divided in short/medium/long term projects.

2. Projects & Development opportunities

Following is a short recap of historical port development stages that happened in Myanmar:\(^{75}\)

- Yangon Port Act, 1905 / Yangon Port Act, 2015 (amended subsequently)
- Foreign Investment Law- 1998
- Myanmar Citizens Investment Law-1998
- Myanmar Companies Act 1914 under 100% Foreign Investment by BOT basic
- Joint venture subject to the approval of the Myanmar Investment Commission (MIC).

*The New Foreign Investment Law favors to the foreign investor by granting exemption and tax relief.

❖ Inner Harbor Area Development of International Port/Terminals

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\(^{72}\) Accessible from: [http://elevenmyanmar.com/local/7200](http://elevenmyanmar.com/local/7200)


\(^{74}\) The Myanmar Times, 23 Feb. 2018. *Drafting of national logistics master plan to conclude year-end.*

Figure 2.3.C.2a Harbor development


❖ Port EDI System for Port Modernization (grant aids projects)

Port Electronic Data Interchange implementation is part of the strategy for port modernization. Different milestones and schedule phases have already been settled over 2016-2017.

❖ Deep Sea Port Projects in Myanmar

Figure 2.3.C.2b Deep Sea Port Projects in Myanmar

Various locations have been proposed for the construction of a deep-sea port, each having its own set of issues. The sites proposed include Kyaukphyu, Dawei and Pathein. Fundamental issues are that these positions are located far away from main hinterland in Yangon or Mandalay. Therefore, it means that stakeholders would have to develop inland transport connections to overcome logistical challenges of connecting port to hinterland. Accordingly, the infrastructure cost is likely to be high and unlikely to be provided by the private sector.\(^{76}\)

Appropriate approach to designate a location accordingly to logistics costs is to consider the cost to the various stakeholders such as shippers, shipping lines, terminal operators and government and then choose the lowest cost option. But this process requires numerous feasibility studies and the decision-making process is likely to take years.\(^{77}\)

Deep sea ports in Myanmar would also be valuable regarding East West Corridor trades.

As Myanmar has potential to achieve fast development by connecting and integrating with neighboring countries it is essential to support this growth with adopting appropriate policies and implementing coherent measures.

Currently, manufacturing development is constrained by the lack of deep sea port to serve as a logistical gateway of Yangon. The absence of deep sea port in Myanmar is a bottleneck restraining the country to facilitate the movement of goods for both sales and supplies while serving export and import operations.\(^{78}\) An infrastructure capable of accommodating large loaded ships could boost regional trade.

“Two existing deep-sea ports are along the northwest coastal line of Myanmar; however, their locations are far from the central region of Myanmar (and East-West Economic Corridor). Apart from the necessary upgrading of their facilities and capacities, their expected roles in manufacturing are likely to be limited to serving as regional logistics hubs for specific development purposes (e.g. gateways to and investment destinations for South Asia and China)”\(^{79}\).

Several options exist for the construction of additional deep-sea ports, sometimes included in the plans of the implementation of Special Economic Zones.


\(^{79}\) Ibid.
Special Economic Zones

Myanmar, being a developing country is ranked among the most difficult market to operate a business. However, since 2010, the government launched political and economic reforms aiming to stir growth and increase Myanmar’s participation in the global economy, first relying on the manufacturing sector. Hence, to achieve this objective, efforts are focused on the creation of Special Economic Zones (SEZs), “designated enclaves that facilitate imports, exports and foreign direct investment”. ⁸⁰

Enacted in 2014, these SEZs states that one objective is to improve socio-economic status of the country and providing job opportunities for locals. ⁸¹

Over the years, three SEZs have been developed: Thilawa, Dawei, and Kyaukphyu. The Central Body, Central Working Body and Management Committee was created under the SEZ law in order to manage administration and supervision works in these sites.

- **Thilawa Special Economic Zone**
  
  Located in the Yangon Division where lies the main national port, with practical access to Yangon International Airport and business center. The SEZ targets multinationals from the manufacturing, technology, forest products and agriculture sectors. ⁸²

- **Dawei Special Economic Zone**
  
  Located in the region of Taninthari with land and sea routes to neighboring countries (Thailand, Cambodia, Viet Nam). The SEZ targets leather products, furniture, steel production, oil refinery and vehicle manufacturing sectors. ⁸³

- **Kyaukpyu Special Economic Zone**
  
  Located on the country’s western coast, with connected routes to India and China, land and air transport are being implemented in the SEZ to enhance logistics flow between China and Myanmar. The SEZ targets oil and gas, logistics, exportation, and service industry sectors. ⁸⁴

Figure 2.3.C.2c **Industrial Zones and Special Economic Zones in Myanmar**

⁸³ Ibid.
⁸⁴ Ibid.
In addition to the 3 development plans for deep-sea ports, two projects for deep-sea ports closer to Yangon were being planned in Pathein and on Kalargote Island. Pathein area should include a new deep-sea port, along with expressway and railway routes between the capital and Pathein.
D. Hinterland Connectivity

According to the Myanmar Times, two dry ports in Ywar Thargyi (Yangon) and Myit Nge (Mandalay) will be completed by April 2019. “The project, under which freight trains will run from Ywar Thargyi to Myit Nge, will commence in April this year and be complete within 12 months”.  

A freight train is currently running from Yangon’s Wardan warehouse to Paleik station in Mandalay since August 4, 2017.

Also, eight cities are designated as appropriate locations to build dry ports. “Myanma Railways under the Ministry of Transport and Communications is endeavouring to build dry ports in addition to running container trains on Yangon-Mandalay railroad. It also plans to link railroads and ports in Yangon and Thilawa.” Arrangements are undergoing to implement dry port projects in Ywathargyi in Yangon Region and Myitnge in Mandalay Region. The government is approving these initiatives as it is an opportunity to contribute to national development through an increase in foreign trade, domestic transport and logistics services.

The previous Table 2.3.C.2c on Industrial Zones and Special Economic Zones in Myanmar gives a snapshot of the different hinterland projects connecting Myanmar with the rest of the region.

E. Challenges

Among the key issues identified that need to be addressed to facilitate port development:  
- Cargo bottleneck issues
- Size problem: both the Yangon and Thilawa ports are restricted by drafts of up to ten metres, allowing ships of no more than 2,100 TEUs in size to serve the market.
- Thirdly, vessels calling at the ports are restricted by navigation issues. (Related to changing tides, inducing lower productivity)

In addition to this, as detailed by the Myanmar Port Authority challenges in Port Infrastructure Development include:  

- No long-term development or holistic strategy
- Poor Maintenance on existing access structure to the port (poor existing hinterland connectivity).

• Most of terminals are located close to the downtown area which caused congestion as well as traffic and port congestion.

To summarize the different challenges:

At an infrastructure level Myanmar is experiencing heavy congestions, cargo transport and handling capacity shortcomings in meeting the increase in cargo traffic demand. Overall poor maintenance of transport infrastructures such as roads or rails affect transport use. For example, turnaround time and dwell time is very long and there is a need to improve design of expressway to enable heavily loaded vehicle operations. As for dry ports there is a need to expand container terminals and implement scheduled cargo handling operations.\textsuperscript{89}

From an operation and facilitation perspective, there is a low containerization ratio, as well as shortage of heavy loaded road trucks and number of skilled drivers. In addition to this, there is less familiarity with international best practices for Cross Border Transport Operation. Regarding ICT use, there are less capacity building in border management and formalities. Also, few data and studies are available compared to neighboring countries to implement facilitation measures. ICT ecosystem is still poor.

At an institution level there is a lack of overall policy concerning transport connectivity compared to neighboring countries. Rules and regulations must be updated. From a financial aspect, lack of resources is a major obstacle to further transport development. Currently Infrastructures are being developed with Private (Local and Foreign) Investment, Loans/Grants and State Budget.

\textsuperscript{89} Nyi Nyi Swe, Myanma Railways. \textit{Country presentations of Myanmar}, Bangkok, 8-9 March 2018.
2.4 BHUTAN

A. Overview of Bhutan

Bhutan is a landlocked least developed country located between China and India. Economic growth has been of annual average of 7.5% for the last 35 years and total growth of around 16% for the last 15 years.\(^{90}\)

Besides, Trade Openness Index has grown from 60% in 1998 to 80% in 2015.\(^{91}\) There are four major trade routes (Phuntsholing, Gelephu, Sandrup Jongkhar, and Samtse). Phuntsholing being the major commercial gateway hub, with 74% of Bhutan’s total trade happening through the city in 2015.\(^{92}\)

GDP is around USD 2.2 billion but is one of the fastest growing economy with a GDP growth of 6.9% in 2016.\(^{93}\)

Major trading partners of Bhutan are India (82.91%), Bangladesh (4.13%) and Thailand (1.71%). Having bilateral trade arrangements with these neighboring countries, the nearest seaport is located in Kolkata in India. Besides, Bhutan is a member of SAFTA and BIMSEC.

Figure 2.4A – Bhutan GDP Growth

![Bhutan GDP Growth](image)


\(^{90}\) Workshop on Development of Dry Port through Public Private Partnership presentation.
\(^{91}\) Workshop on Development of Dry Port through Public Private Partnership presentation.
\(^{92}\) Workshop on Development of Dry Port through Public Private Partnership presentation.

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B. Ports: Governance, Traffic Volumes, Facilities

1. Governance

Governmental agencies are in charge of the authority concerning transport facilities.

2. Traffic Volumes

No recent data available.

3. Facilities

There are currently no inland facilities such as dry ports or bonded warehouses inside Bhutan. There are however, 2 “mini dry ports” set up in Phuentsholing and Pasakha industrial area. “Further, the road connecting Pasakha Industrial Area to Phuentsholing LCS is congested and not in good condition for movement of large cargo vehicles including trailers”.

- **Phuentsholing**

Phuentsholing is a Mini Dry Port (MDP) with financial support of the ADB under the South Asia Sub-regional Economic Cooperation (SASEC) Road Connectivity Project. MDP function is to help in customs clearance process for import and export traffic. Providing storage facilities, loading/unloading facilities for containerized import/export, container stuffing/de-stuffing and conducting other exports/imports inspections (SPS).

Benefits from using MDP is that it is a one-stop point for all customs clearance and related services such as cargo idle time savings resulting from reduced dwell time, appropriate transshipment for cargo trucks and overall efficiency in cross-border movement of goods.

Project completion date is due end of December 2018.

- **Pasakha**

Dry Port in Pasakha is another dry-port project, supported financially by the World Bank under the Regional Connectivity Project.

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94 National Transport Policy of Bhutan 2017.
C. Port development

1. National / Master Plan

Bhutan developed a transport strategy through its *Bhutan Transport 2040 Master Plan – Integrated Strategic Vision* covering “both the implementation of transport infrastructure as well as the execution of institutional and management functions associated with the delivery of transport services”.

Road Transport Vision 2020 milestones:\(^95\)

“Bring 75% of rural population within half-day’s walk from nearest road

- Upgrade current national trunk roads to carry 30-ton capacity trucks
- Complete second transnational highway (Southern E-W Highway)
- Construct “dry ports” at Phuentsholing, Gelephu, and Samdrupjongkhar
- Introduce domestic air services”

2. Projects & Development opportunities

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Dry ports have been the main projects undergoing in Bhutan for a few years, pushed by institutions such as the ADB or World Bank. In fact, Bhutan 2020 Master Plan includes a number of milestones to be achieved by 2020 such as dry ports constructed at Phuentsholing, Gelephu, and Samdrup Jongkhar.

❖ **Future projects** include the completion of Pasakha (Phuntsholing) Dry Port, Gelphu (Sarpang) Dry Port, Nganglam (SamdrupJongkhar) Dry Port.

### D. Hinterland Connectivity

**Regional transport connectivity**

With trade accounting for 84% of country’s GDP, nearly all trade goes through land borders with India. The latest being the major trade partner (80% of the trade value), most exports/imports from third countries are transiting along Kolkata. There is in fact no direct transport routes linking Bhutan and the People’s Republic of China.\(^\text{96}\)

Besides, despite the potential for rail links to Indian railways to export bulk haulage of minerals, construction has been delayed.

**Sub-regional and regional trade facilitation initiatives**\(^\text{97}\)

Automated Customs Systems (ACS) being replaced by Revenue Administration Management Information System (RAMIS) being developed under ADB.

SAARC Regional Multimodal Transport Study adopted in 2007.

Bay of Bengal Initiative for multi-sectoral Technical and Economic Cooperation or BIMSTEC Transport Infrastructure and Logistics Study covering Bangladesh, Bhutan, India, Myanmar, Sri-Lanka and Thailand.

### E. Challenges

Bhutan is facing a number of challenges\(^\text{98}\) related to its geography making it land-locked with no direct access to the sea. For this reason, Bhutan is highly dependent on Indian seaports, used as maritime gateways for international trade. Logistics Performance Index (LPI) ranking in 2010 was 128/155 and 143/160 in 2014.

At an infrastructure level, one issue is the high construction and maintenance costs due to the geographic situation. The lack of existing dry ports and warehouse facilities makes hinterland connectivity more challenging. The rugged mountainous and steep gradient terrain, added to extreme weather conditions can turn transport connectivity into a complicated task.

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\(^{97}\) Ministry of Works & Ministry of Finance, 2013. *Bhutan’s Status of Transport Connectivity including Transit Facilitation in South and South-West Asia,* presentation.

\(^{98}\) Ministry of Works & Ministry of Finance, 2013. *Bhutan’s Status of Transport Connectivity including Transit Facilitation in South and South-West Asia,* presentation.
Regarding operation and facilitation, there is still a lack of appropriate construction technology and skilled workers. Single Window is at an early stage but under development as there is an existing will and commitment from the government side. However, ICT infrastructure and connectivity need to be sufficient to ensure inter-operability of coordinated border management. Also, it must be noted that because of small cargo volumes it makes it unfeasible to use larger containers to and from the sea port. Bhutan market having a small domestic market.

At an institution level, there is a need for more transport integration with neighboring countries regarding transport agreements. As for funds, Bhutan is still relying on international aids for development projects.
2.5 **LAO PDR**

A. **Overview of Lao PDR**

The Lao PDR is among the world least developed countries and is also the only land-locked country in the South East Asian Region. It is part of the Land-locked Countries (LLDC) list in the world.  

Located at the center of the Greater Mekong Subregion (GMS), the economy is still mainly based on agriculture (which accounts for more than 50% of GDP), mines hydro power and services, with a GDP growth of 7% pa.  

The goal of Lao PDR is to transform the country from a land-locked to a land-linked country in the Greater Mekong Sub-region. Improving roads, rail, air, transport and inland waterways is part of this strategy. Transport connectivity overall is all set to improve by first “providing sufficient and reliable transport infrastructure and facilities, particularly on transit routes, and second, facilitating cross border transport of goods and people with its neighboring countries”.

“There are also various investment opportunities in the transport sector. Currently, 4 expressways projects, 4 airports projects, 4 river ports projects and 9 logistics parts projects are under development”.  

Among the main donors supporting the Ministry of Public Works and Transport are MDB’s, ODA agencies, Governments of China, Viet Nam and Thailand.  

Taking in account the increasing population, volume of trade, and growing industrialization, there is a need for Lao to develop its logistics facilities in order to rely on efficient process.

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100 MoT, 2016. *Status on Dry Ports Development in Lao PDR.*

101 The 5th ASEAN Connectivity Forum, 29-30Nov. 2017. Seoul, Republic of Korea

102 The 5th ASEAN Connectivity Forum, 29-30Nov. 2017. Seoul, Republic of Korea
Figure 2.5A – Lao PDR GDP Growth


B. Ports: Governance, Traffic Volumes, Facilities

1. Governance

Governmental agencies are in charge of all transport facilities. Since Laos is a landlocked country with no ports, most of the import and export cargo is carried through neighboring countries such as Viet Nam and Thailand. The main railway and road connections are managed by the government.

2. Traffic Volumes

The volume of international freight is relatively low with around 2 million tons yearly. Most part is commodities like minerals, grains, fertilizer, shipped in bulk. The volume of container traffic is estimated around 40 thousand loaded TEU.103 Besides, there is an important imbalance between import and export containerized cargo volumes.

In fact, “volume of containerized import cargo is more than double the volumes of exports in terms of weight. As a result, there is a significant amount of empty backhauls for containers, but the volume is much larger than can be explained by the trade imbalance”.

Most of transit cargo via Lao PDR is the cargo between Thailand and Vietnam. The major transit commodities: being vegetable and plant product (35%), manufactured goods (22%) and sugar (16%). Also, major importing goods to Lao PDR include petroleum (38%), industrial materials (31%), and manufactured goods (21%)

As noted by the World Bank, one major parameter to total logistics costs of Lao PDR is the movement of empty containers.

Figure 2.5.B.1 Future Freight Volume in GMS and Lao PDR

![Graph showing future freight volume in GMS and Lao PDR]

Source: MPWT-Lao PDR, 2013. Transport Logistics Development in Lao PDR.

3. Facilities

Lao PDR does not have any Inland Container Depot.

However, road infrastructure is being developed rapidly by the government. “The trade corridors linking Lao PDR with Thai seaports and airports perform well in terms of time and reliability. Transit times between Laem Chabang and Vientiane, Savannakhet and Pakse are predictable and trucks can complete a one-way trip in a day (travel time is typically 12 hours).”

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Several proposals for facilities to be built in Lao PDR or close to its borders have been presented recently. Including road-based intramodal facilities or rail-based intermodal facilities.

Concerning public road transport network, it is divided into:107

- National roads and highways connecting the capital to the province, economic locations and neighboring countries
- Provincial roads connecting province capitals and special economic zones to district centers
- District roads connecting district economies to villages
- Urban roads, internal to cities
- Special roads for tourism, and other purposes

C. Port development

1. National / Master Plan

Lao PDR has developed a Land Transport Master Plan with a specific vision concerning Transport Logistics Strategy: “Lao PDR to be Regional Logistics Service Hub in the GMS”. Development Strategy:108

- “Cargo flow should be strategically combined/integrated into certain routes, such as routes between Thailand and China, and Thailand and Vietnam, to increase logistics volume, to mitigate the problem of empty return haulage and the reduce of logistics cost by utilizing advantages of Loa PDR.
- Logistics market should be expanded to target not only domestic market (import, export and transit via Lao PDR) but also GMS market.
- Promoting logistics business targeting Laos and GMS to serve as logistics service hub”.

This development plan is due to be implemented by phase from Integration of Cargo Flow to Business Simulation.

Beyond transportation, the main goal being to “graduate from least developed country by 2020”.109

2. Projects & Development opportunities

❖ Dry Ports

9 Dry Ports have been nominated under the Intergovernmental Agreement on Dry ports.

107 ADB, 2010. Transport Sector in the Lao PDR
108 MPWT-Lao PDR, 2013. Transport Logistics Development in Lao PDR.
109 MoT, 2016. Status on Dry Ports Development in Lao PDR.
Among them: \(^{110}\)

- **Thanaleng, Vientiane**
- **Nateuy, Luangnamtha**
- **Seno, Savanakhet**
- Houyxai, Bokeo
- Laosao, Borikhamxai
- Luangprabang, Luangprabang
- Oudomsai, Muangxai
- Pakse, Champasack
- Thakhek, Khammouane

Thanaleng Vientiane, Nathuey Luangnamtha and Seno Savanakhet being the priority for detailed feasibility study and construction od Thanaleng Dry Port under the 5 years development plan (2016-2020).

❖ **Green Freight and Logistics capacity building program**

- Green Freight Project under ADB (completed)
- Project on Development of Sustainable Freight Transport and Logistics in the Mekong Region under GIZ-EU program (on-going)
- Green Logistics under ASEAN-Japan (on-going)

D. **Hinterland Connectivity**

Transport policy guidelines to transform from a land-locked to a land-linked country are by: \(^{111}\)

- “Providing efficient and reliable transport infrastructure and facilities, particularly on transit transport routes;
- Facilitating cross border transport of goods and people between and among neighboring countries”

And in order to realize this policy the government strongly pushes infrastructure development.

At a larger scale Lao aims to develop international/regional logistics hubs.

Also, Vietnam announced in 2017 that “it will continue to create favorable conditions for the transit of Lao goods via Vung Ang Port in central Vietnam’s Ha Tinh province” \(^{112}\), Vietnam’s Vung Ang port being vital for shipment of Lao goods.

\(^{110}\) MoT, 2016. *Status on Dry Ports Development in Lao PDR.*

\(^{111}\) MoT, 2016. *Status on Dry Ports Development in Lao PDR.*
E. Challenges

In Lao PDR, road transport is dominant because of its land locked situation. However, • The existing road network is rather complicated, and it has not been integrated sustainable planning. Improving existing might be lengthy and costly. In addition to this there is an issue of empty return haulage, and limited transport volume.113

At an infrastructure level, infrastructures are often below standards and there is an absence of transportation node to support multimodal transport. Lack of or inadequate dry ports, ICD or logistics centers must be tackled in order to improve hinterland connectivity.114

At an operation level, there is a need of assistance to strengthen the Government officials and transport operators. It must be noted as well that • Customs procedures are heavy, lengthy at border posts (causing congestions concerning road transport) and that ICT ecosystem is still poor.

From an institutional perspective, regulation and legislation need to be improved to facilitate for goods transport and to prevent existing heavy reliance on neighboring countries’ policy. On a financial aspect, challenges remain in limited budget for road network and transport system improvement. Lack of financial mechanism, access and resources mobilization. And difficulties in re-investing due to financial limitation of logistics companies.115

114 MPWT-Lao PDR, 2013. Transport Logistics Development in Lao PDR.
115 MoT, 2016. Status on Dry Ports Development in Lao PDR.
2.6 NEPAL

A. Overview of Nepal

Transport management in Nepal is affected by topographical condition of the country. For this reason, the only means of transport operated in the Nepal are road and air transport.

Nepal is located between India and China and has no direct access to the sea (land-locked). This geography deprives the country from seaborne trade and has a direct impact on extra transit cost which is high up to 40% in Nepal’s case, then inflating commodities price in import/export.

Nepal relies almost solely on Indian ports for its overseas trade; using Kolkata port and Haldiya port.

Figure 2.6A – Nepal GDP Growth


B. Ports: Governance, Traffic Volumes, Facilities

1. Governance

Concerning the institutional framework, the Ministry of Labor and Transport Management (MOLTM) is the government body in charge of formulating transport policies and programs in the country. The Ministry of Environment, Science and Technology (MOEST) is in charge of formulating environmental policies and setting guidelines and standards to control pollution emissions from vehicles. Also, the Department of Transport Management and 13
Transport Management Offices work under MOLTM across the country to implement transportation programs and projects.\textsuperscript{116}

Besides, the Government of Nepal established the “Nepal Intermodal Transport Development Board” (NITDB) in accordance with the provisions of the Development Board Act 2013 BS. The NITDB is chaired by the Secretary in the Ministry of Industry, Commerce and Supplies and consisted of members from public and private sector entities. The main purpose of the NITDB is to oversee economical and efficient management of Inland Clearance Depots (ICDs) to facilitate national foreign trade.\textsuperscript{117}

As mentioned by the Ministry, the functions of the NITDB are as follows:\textsuperscript{118}

- To develop, manage and promote ICD terminals for the facilitation of Nepal's exports and imports;
- To enter into agreement with private sector company, selected on the basis of competitive bidding, for leasing out the management of ICD terminals;
- To prescribe criteria in determining the service charges of the terminal operation;
- To conclude railway operation agreement with Indian Railways for rail movement of cargo to/from ICD.

Nepal counts 3 ICDs: Biratnagar, Birgunj and Bhairahawa. Management and Operation is handled by the Nepal Multimodal Transit and Facilitation Project after completion of their construction.

2. Traffic Volumes

In 2001, from traffic tonnage figures of the Calcutta Port Trust (CPT), UNCTAD calculated that Nepal throughput through Calcutta Port was about 425,000 tons per year, mainly imports. Nepal being a significant client for the CPT with in 2001, “Some 12 to 15 per cent (more in some years) of the 175,000 TEUs handled annually is Nepal cargo.”\textsuperscript{119}

“Transport links were reviewed in the context of the dry port traffic forecasts. It is envisaged that container throughput in 2017 will be about 23,000 TEUs in the import direction. This is equivalent to about 500 containers a week.”\textsuperscript{120}

3. Facilities

\textsuperscript{116} Accessible from: http://www.uncrd.or.jp/content/documents/4EST-B1G204.pdf
\textsuperscript{117} Accessible from: http://www.nitdb.org/introduction.html
\textsuperscript{118} Accessible from: http://www.nitdb.org/introduction.html
\textsuperscript{120} UNCTAD, 2001. Review of progress in the development of Transit Transport Systems in the India, Nepal and Bhutan subregion.
27 traditional check-post at border and 5 Inland Clearance Depots (ICDs) located at Nepal-India border were developed in 2000 with the WB assistance:

➢ **Biratnagar**

Road-based

➢ **Birgunj**

Rail linked with gateway port and other Indian rail head

➢ **Bhairahawa**

Road-based

Also, forth dry port at Nepal-India border was developed in 2010 with ADB assistance: **Kakarvitta** (road-based).

And a fifth one at Nepal-China border, with technical and financial assistance from government of PR China: **Tatopani** (road-based)

### C. Port development

#### 1. National / Master Plan

The concept of establishing a dry port in Bhutan emerged from a series of workshops held during in 1996 by the Royal Government of Bhutan (RGoB) with the support of the United Nations Development Programme (UNDP) aiming the identification of economic activities that could increase private sector participation in the economy. Following this, consensus appeared that a dry port should be established in Bhutan to catalyze the growth of exports and to reduce transaction costs of external trade.121

As defined by UNCTAD, “a dry port can be envisaged as a publicly accessible facility equipped with appropriate cargo-handling and storage facilities under Customs control, with associated capabilities for clearing and forwarding goods, warehousing, transshipment, transit etc. A dry port provides the same facilities as a seaport, except that it functions at a landlocked location. For a dry port to be attractive it must be efficient and streamlined”.122

During the Tenth Plan Period, guidelines in management of vehicle transport was implemented.

Nepal developed a transport management plan along with a long-term vision to make “transport system safe, affordable, organized, non-polluting and service oriented, through

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qualitative increase in vehicle and transport services, thereby making a contribution towards the overall development and prosperity of the country.\textsuperscript{123}

2. Projects & Development opportunities

❖ **Dry Ports / ICD**

Number of policies for the development of dry ports have been developed:\textsuperscript{124}

- Eighth Five Year Plan (1992-97)
- Environment Policy
- Investment Policy
- Transit and Logistics Policy
- Transport and Trade Facilitation Policy
- Bilateral/Multilateral Trade and Transit Treaties
- GATT/WTO, SAFTA, BIMSTEC
- Nepal India Rail Services Agreement

The Nepal Intermodal Transport Development Board (NITDB), which has representatives from the public as well as the private sector, is the regulatory body overseeing all ICDs in Nepal.\textsuperscript{125}

- **Birgunj ICD, Nepal**

The Birgunj ICD in Nepal was built by the Government of Nepal with support from the World Bank. “It has a 12 km rail link to the ICD from the Raxaul railhead near the border with India, and it connects further to the Kolkata/Haldia ports in India.”\textsuperscript{126} Equipped with an automated system for customs data (ASYCUDA), it took some time for Nepal to sign a rail service agreement for the operation of dry ports as majority of rail links are located in India.

Operation is leased to the private sector for operation. It handles containers, tank wagons for liquid cargo and flat wagons for bilateral break-bulk cargo.

*More info on Birgunj ICD at:*

http://dlca.logcluster.org/display/public/DLCA/2.1.2+Nepal+Birgunj+Dry+Rail+Port;jsessionid=662A0E42EAE90B38A2AE65568D20E07C

\textsuperscript{124} MoT. *Development and Operation of Dry ports in Nepal.*
Other dry ports include Biratnagar, Bhairahawa, and Kakarbhitta, which are located close to Indian border and at Kodari, near China border. Promotion of intermodal transport rail was pushed through initiatives such as feasibility study of an east–west railway, a 60-km-long Kathmandu–Birgunj railway, and connections to the four railheads in India. In addition to this, discussions have been underway to extend the railway line from Lhasa in the Tibet region of China to the dry port at Kodari and further south to Kathmandu.127

D. Hinterland Connectivity

Inland Clearance Depots (ICD), also known as Dry Ports are of vital importance for landlocked countries like Nepal. It has been proved to improve transport services through the introduction of multimodal transport and containerization. That is why ICD form the core transport strategy of Nepal which relies on its benefits to promote the concept of multimodal transport. As container seal can remain unbroken from a location close to the consignor to the location close to the consignee, this changes the concept of transport on a physical and organizational level. That is why ICDs have been promoted by the Government of Nepal so that it could have a positive impact on trading activities of the country.128

The Government of Nepal launched the Nepal Multimodal Transit and Trade Facilitation Project (NMTTFP) in 1998. The estimated total cost was US$28.5 million which included 23.5 million credit from the World Bank and US$ 5.0 million from the Government.129 The objective was to build “rail-based ICD in Birgunj and road-based ICDs in Biratnagar and Bhairahawa, procure four Reach Stackers for Birgunj ICD, operation of Automated System for Customs Data (ASYCUDA) and Advance Cargo Information System (ACIS), trade and transport facilitation, reform and introduction of transport and multimodal legislation”130. Besides, the railways routes from Raxaul to ICD-Birgunj were built under the support of the Indian Government.

In 2017, according to the Times of India, Visakhapatnam Port Trust (VPT), which manages India’s second largest port, announced “it will begin full-scale container transfer to landlocked Nepal by early May 2017”.131

Also, recently in 2016, China agreed to allow Nepal to use Chinese ports, “putting an end to the landlocked country’s dependency on India for international trade”.132

Table 2.6.D Dryports in Nepal.

128 Accessible from: http://www.nitdb.org/icd_dry_port.html
129 Accessible from: http://www.nitdb.org/introduction.html
130 Accessible from: http://www.nitdb.org/introduction.html
E. Challenges

As mentioned in a study on bilateral transit relations with India, while the latest used the transit issue as a political leverage, Nepal claimed its right to have access to the sea, undermining India’s security concerns. Observation was made that Nepal did not benefit much from its export to third countries because of both deficient transit facilities in India and lack of internationally acceptable bulk exported commodities.

At an infrastructure level, transport is largely impacted by the complex geographic/geological conditions. Thus, quality of roads and railways infrastructure and service need to be enhanced. Overall, there is a need for better holistic transport strategy as well as more investment in infrastructure hardware as well as software.

From an operation and facilitation aspect, border facilities including customs could be improved. As Nepal is now entered in to a federal system, the government is reviewing the entire network and dividing the administrative role among Federal, Provincial and Local government. Also, use of ICT should be pushed. Currently, Nepal National Single Window (NNSW) is being developed as a component of Nepal-India Regional Trade and Transport Project (NIRTTP) through grants from IRBD and IDA.

At an institution level, Prevailing transportation policy shall be substantiated with comprehensive integrated transport policy. Existing policies dealt the different transportation

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133 Accessible from: https://reconnectingasia.csis.org/map/
system separately. This shall be dealt in integrated way, with one system that may be complementary to another. But there as well some national financial constraints to consider.
Following extensive literature review, this chapter presents a short recap of regional challenges and issues that selected countries face regarding port transport connectivity and hinterland connectivity.

3.1 Summary of regional challenges and issues

Maritime industry and trade activities have been evolving rapidly following the pace of globalization and growth of logistics activities. However, although adopting an integrated national logistic plan is a widespread concept in the region to resolve bottleneck issues, a policy gap remains among the selected countries in this paper.

The rapid expansion of trade leads to fast growth of throughput in most ports. As a result, many gateway ports face new challenges from port management, cargo handling, provision of infrastructure to environmental issues. Among the shared challenges concerning port transport for selected countries are:

- The lack of commitment from government and public entities for long-term development and holistic strategy regarding the maritime industry
- The lack of advanced commitment on hinterland logistics and infrastructure for multimodal transport purposes (road, rail, and marine highways)
- Deficient maintenance on existing access structure to ports
- Locations of terminals need to be redesigned as they often create port/traffic congestions close to downtown area
- Inadequate dredging capacity (depth of channel)
- Need to upgrade port facilities (Inadequate cargo-handling equipment to meet current port demand)
- Lack of private investment in port infrastructure and development
- Need for upgrade regarding safety standards
- Lack of skilled/trained workers in relation with the port trade industry
- Lack of port monitoring
- Lack of space concerning cargo (back up areas)
- Scarce public awareness regarding the impact of maritime industry on the environment

In more details in the following part of this chapter, challenges have been categorized on different layers regarding freight mobility: infrastructure, facilitation and operation and finally hinterland connectivity.

Below is a table summarizing some of these findings regarding connectivity issues for selected countries (including different modes of transport):

<table>
<thead>
<tr>
<th>Countries</th>
<th>Summary of challenges</th>
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<tbody>
<tr>
<td><strong>Bangladesh</strong></td>
<td><strong>Infrastructure</strong></td>
</tr>
<tr>
<td></td>
<td>• Road</td>
</tr>
<tr>
<td></td>
<td>• Road Geometry to allow regional traffic</td>
</tr>
<tr>
<td></td>
<td>• Harmonization of Standards</td>
</tr>
<tr>
<td></td>
<td>• Border facilities</td>
</tr>
<tr>
<td></td>
<td>• Multimodal integration</td>
</tr>
<tr>
<td></td>
<td>• Rail</td>
</tr>
<tr>
<td></td>
<td>• Insufficient Budget since independence to 2010</td>
</tr>
<tr>
<td></td>
<td>• Load Constraints on Bangabandhu Railway Bridge</td>
</tr>
<tr>
<td></td>
<td>• Gauge Unification</td>
</tr>
<tr>
<td></td>
<td>• Single Line</td>
</tr>
<tr>
<td></td>
<td>• Over-aged Obsolete Signalling</td>
</tr>
<tr>
<td></td>
<td>• Scarcity of Rolling Stocks. ie. Locomotives, passenger coaches and wagons</td>
</tr>
<tr>
<td></td>
<td>• Ports</td>
</tr>
<tr>
<td></td>
<td>• At some land ports (e.g. Benapole), the capacity needs to be enhanced to cater increased demands</td>
</tr>
<tr>
<td></td>
<td>• Testing facilities at ports needs to be introduced for enhanced. For Akhura ports exported goods are checked at Shillong</td>
</tr>
<tr>
<td></td>
<td>• Dry Ports and hinterland connectivity</td>
</tr>
<tr>
<td></td>
<td>• ICD could help overcome physical limitations but require large funding</td>
</tr>
<tr>
<td></td>
<td><strong>Operation &amp; Facilitation</strong></td>
</tr>
<tr>
<td></td>
<td>• Expertise / Customs</td>
</tr>
<tr>
<td></td>
<td>• Transshipment at land ports is time consuming process</td>
</tr>
<tr>
<td></td>
<td>• SW</td>
</tr>
</tbody>
</table>
| | • Bangladesh will spend 5.85 billion taka ($69.46 million) to establish a single window for customs with the goal of easing

---

Pressure on regularly congested infrastructure.

| Institutions | | • Law / Regulation  
| | • Lack of a regulatory framework and government proactive actions to promote public/private partnerships in transport infrastructure financing and management for example.  
| | • Lack of enforcement of current regulations is the main reason behind truck-overloading deteriorating routes for example  
| | • Financing:  
| | • Projects are financed by Government and Development partners  
| | • Where possible, PPP options is being explored  
| | • Support from development partners need to continue to bridge financing gap  

| Cambodia | Infrastructure | • Road  
| | • Limited road segment in some areas  
| | • Traffic congestion  
| | • Rail  
| | • Rail has little regulatory protection  
| | • Rail is competing with road network  
| | • Ports  
| | • High reliance on external aid for further development  
| | • Dry Ports and hinterland connectivity  
| | • Transport hubs are not effectively organized  
| | • No integrated plan for multi-modal transport  

| Operation & Facilitation | • Expertise / Customs  
| | • Better cooperation and comprehension is needed  
| | • Adoption and comprehension of mutual accepted standards is needed  
| | • SW  
| | • ICT ecosystem could be enhanced  

| Institutions | • Law / Regulation  
| | • Need mutual agreement with neighboring countries to achieve full efficient integration strategy  
| | • Financing:  
| | • Transport Network development requires a huge budget for the government to support on its own  

| Myanmar | Infrastructure | • Road  
| | • Low ratio of existing infrastructure  
| | • Although the YGN-MDL Expressway exists it is not used for  

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139 Ibid.

cargo transport
- Need to widen the roads
- Poor maintenance
- Road condition is poor and affected by bad weather
- Need to improve design of expressway to enable heavily loaded vehicle operations
- Turnaround time and dwell time is very long

- Rail
  - Poor maintenance
  - Missing rail links (GMS priority ones): MYA-PRC, MYA-THA

- Ports
  - Congestion, cargo transport and handling capacity or efficiency have shortcomings in meeting the increase in cargo traffic demand
  - Congestion: long queue of trucks
  - River port: manual cargo handling

- Dry Ports and hinterland connectivity
  - Need to expand container terminals
  - No schedules cargo transport operation

Operation & Facilitation
- Expertise / Customs
  - Lay time of transportation equipment
  - Low containerization ratio
  - Shortage of heavy loaded trucks and number of skilled drivers
  - Less familiarity with international best practices for Cross Border Transport Operation

- SW
  - Less infrastructure development and Border Control Facilities compared with neighboring countries
  - Less Capacity building in border management and formalities
  - Almost no regular/scheduled cargo service on road, rail, water and air
  - Few data and studies available compared to neighboring countries to implement facilitation measures
  - ICT ecosystem is still poor

Institutions
- Law / Regulation
  - Lack of overall policy concerning transport connectivity compared to neighboring countries
  - Rules and Regulations are necessary to be updated

- Financing:
  - Lack of resources
  - Currently Infrastructures are being developed with Private (Local and Foreign) Investment, Loans/Grants and State Budget.

Bhutan
- Road
  - Poor road condition

- Rail

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141 Ms Pema Chetso, Ministry of Information and Communication. Workshop on Strengthening Integrated Intermodal Transport Connectivity for Southeast and South-Southwest Asia, 8-9 March 2018.
| **Operation & Facilitation** | • **Expertise**  
- Landlocked countries of the region have special development needs and connectivity  

| **Customs**  
- Transit transport from point A in Bhutan to point B in Bhutan take place through India  
- Transport connectivity and transit to other neighbouring countries, namely Bangladesh and Nepal, also take place through India.  

| **SW**  
- SW is at an early stage. Under development  
- Political will and commitment from the Government;  
- Gaps in the current regulatory frameworks and legal instruments that may require adjustment;  
- Identification of a lead agency for the national single window; and  
- Sufficient ICT infrastructure and connectivity to ensure interoperability of coordinated border management and an NSW system.  

| **Institutions** | • **Law / Regulation**  
- No formal Transport Agreement with India or other neighboring countries  

| **Financing:**  
- Bhutan is still dependent/relying on international aids for development projects  

| **Lao PDR** | • **Infrastructure**  
- Road  
  - Road transport is dominant because of its land locked status  
  - Limitation of infrastructure and facilities  
  - The existing road network is rather complicated, and it has not been integrated sustainable planning. Improving existing might  

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The railway subsector in the Lao PDR has not been developed, restricting the transport of bulk and heavy freight at lower costs. This has contributed to slow growth of large industries in rural areas.\textsuperscript{144}

### Operation & Facilitation

- **Expertise / Customs**
  - Knowledge and capacity in the transportation fields (road, rail, air and waterway) to cope with the Implementation of GMS and ASEAN Agreements.
  - Need an assistance to strengthen the Government officials and transport operators
  - Customs procedures are heavy, lengthy at border posts (causing congestions concerning road transport)

- **SW**
  - ICT ecosystem could be enhanced

### Institutions

- **Law / Regulation**
  - Regulation and legislation need to be improved to facilitate for goods transport
  - Heavy reliance on neighboring countries' policy

- **Financing**
  - Limited budget for road network and transport system improvement
  - Lack of financial mechanism, access and resources mobilization
  - Difficulties in re-investing due to financial limitation of logistics companies

### Nepal\textsuperscript{145}

- **Road**
  - Transport network expansion in complex geographic/geological conditions
  - Traffic Congestion in Urban area
  - Traffic Safety
  - Improving urban mobility
  - Assurance of connectivity within and outside (rural also) urban area
  - Preservation of environment

- **Rail**
  - Geographical complexity, difficult terrain to build infrastructure
  - Gauge compatibility for railways\textsuperscript{146}

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\textsuperscript{144} ADB, Lao PDR: Transport Sector, 2010.

3.2 Part A: Infrastructure

Infrastructure is inseparable from the concept of transport and port connectivity. Southeast Asia is an archipelagic region, consisting of thousands of islands poorly connected that have strategic value for many countries outside the region. And the ASEAN also deals with heterogeneity problems due to different level of development, infrastructure and connectivity. In fact, many areas of the region lack significant road, railway infrastructure giving maritime connectivity huge importance for the development of these regions.\(^{148}\)

\(^{147}\) Ibid.
The infrastructure layer involves exploitation of basic structures for both links and nodes in the transport system. “This is where the intrinsic accessibility is valorized since a port site has little meaning unless capital investment is provided. The availability of adequate infrastructure in transport nodes (seaports and inland terminals) and on the links/corridors in the network is a prerequisite for the development of activities by transport operators and logistics players. Infrastructure should act as a strong enabler of port-related market dynamics that lead to efficient and sustainable co-modal freight transport services. Ports commonly face a range of freight mobility challenges at the infrastructural layer.”

Among the key challenges at an infrastructure level:

*Funding constraint*
- The lack of investment to finance costly and projects that will take years to implement
- The realization of infrastructure takes (too much) time
- Scarce incentives for the private sector to invest
- Budget limitation for infrastructure and transport development projects (heavy burden on loans)
- Pressure on the availability of government funds
- High dependence on external assistance

Concerning LLDC, despite large investment to develop national roads and highways, the network remains less developed due to funding shortages for rehabilitation.

*Specific issues*
- One of the crucial issues in the region is the depth of ports and straits: depths prevent bigger ships from passing.
- Infrastructures are below standard and inadequate
- Lack of efficient road / rail networks concerning land-locked countries
- Location of the port must be assessed in order to benefit from trade routes and overcome competition from other ports: geographical position to global shipping lanes and nautical accessibility
- Lack of modern tools and use of IT to optimize infrastructure use regarding traffic management.

### 3.3 Part B: Facilitation & Operation

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Among key challenges regarding institutional capacity at a facilitation and operation level:

*Facilitation*

- Investments in infrastructure hardware and software
- Road and rail quality and service
- Border facilities including customs, infrastructure
- Provision of multimodal transport facility
- Use of ICT in trade administration
- Quality control and quarantine related issue
- Illegal trade regulation
- Non-tariff barrier
- No harmonization of clearance system
- Unrealistic provisions in the treaties

*Operation*

“The transport layer involves the operation of transport services on links and corridors between the port and other nodes within the multimodal transport system and the transshipment operations in the nodes of the system. It is a matter of volume and capacity.”

- Matching supply and demand: bottlenecks and instable capacity supply
- Cargo bundling
- The mix of passenger and freight
- Need of human resource development: lack of trained personnel to plan, implement, monitor and maintain transport projects
- Gaps in project management, safeguard monitoring, rehabilitation, maintenance planning, procurement
- Need of support on technical cooperation
- Need of technology transfer both hardware and software
- Financial assistance from international development partners
- Proper maintenance for a better use of infrastructure: insufficient due to lack of funding by governments

Also, regarding governance, the current diversity in governance models and management arrangements in port and supply chain business “poses a problem for the development of

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systematic responses to negative impacts. In order to deal with these impacts, higher level authorities need to be involved and appropriate incentive structures are required.\textsuperscript{151} For example, local effects like air contamination affect local communities and not only the port area. Local authorities must be in a strong position to discuss these topics with port authorities.

3.4 Part C: Hinterland connectivity

Competitiveness of a seaport depends mostly on the extent of cargo handled reaching hinterland destination. Importance of hinterland connections have been highlighted as critical issues in port competitiveness and development in most ports around the globe. The upgrade of facilities, privatization of port operations and growth of modernization of berth planning resulted in drastic reduction of ship turnaround times over the last decade.\textsuperscript{152}

However, the smoothness of port-hinterland connectivity did not follow the same pace. With increasing vessel’s size and the emergence of maritime hubs and spokes, bottlenecks are being exacerbated when discussing hinterland connectivity. One main issue being the need to coordinate multiple stakeholders with conflicting mandates governing hinterland infrastructure development.

To this adds up the issues imposed by poor existing hinterland connectivity, increasing traffic, decreasing public funds, competition for road and rail use from passenger and personal vehicle and also the proximity of many ports in dense urban areas.\textsuperscript{153}

\textsuperscript{151} OECD/ITF, 2009. \textit{Port Competition and Hinterland Connections.}
\textsuperscript{152} International Transport Forum, OECD 2015. \textit{Port Hinterland Connectivity.}
\textsuperscript{153} International Transport Forum, OECD 2015. \textit{Port Hinterland Connectivity.}
4

RECOMMENDATIONS TO STRENGTHEN PORT CONNECTIVITY
- In selected countries

Based on lessons learned from workshops’ presentations and extensive literature reviews, the following chapter provides feasible recommendations policy suggestions that could overcome the capacity-constraint port and fragmented transport network at cross-border points.

4.1 Regional recommendations

Port development is not new, and it is fair to acknowledge that Asia-Pacific has been a leading region on the topic for some time with major ports in Singapore, China or Malaysia for example.

As sea-borne trade is expected to prevail on global trade flows, Asian economies will carry on being a major platform for growth and world trade. For this reason, ports located in the Asia and Pacific are expected to offer new opportunities for investment. In fact, domestic regional economies such as Indonesia will be “hot spots” as governments seek to enable domestic trade throughout the archipelago. One objective should be to assist ESCAP member countries in maximizing these opportunities in the port industry so that it would benefit the most across the region.

In fact, Asia-Pacific has the highest share of global port construction projects with a total of $165.1bn, according to Timetric’s Construction Intelligence Center $154 new report.$155 This Port Construction Projects report shows that that 36% of the total global value of port projects belongs to the Asia-Pacific region$156, making the region lead the global port

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154 Accessible from: [https://www.construction-ic.com/](https://www.construction-ic.com/)
construction thanks to a vibrant economy and developing markets with countries like India or Australia investing in high value projects to build up their overseas trade.\(^\text{157}\)

Asia Pacific is then followed by the Middle East and Africa with $145.2bn, the Americas with $98.2bn and Europe with a project pipeline of $50.4bn.

The Port industry has changed as maritime freight transport has experienced strong growth and profound changes over recent decades. In particular, freight volumes and container traffic have intensified along with global trade and the geographical dispersion of production.\(^\text{158}\) Port business has become more challenging and many stakeholders involved in the supply chain have engaged in horizontal and vertical integration of activities, thus leading to more efficiency when moving cargos and reducing number of players with an attendant risk of “abuse of market power”.

The industry has changed and ports transforming themselves in logistics hubs centers are illustrating these new characteristics. In an era of “global shipping contractions and alliances and intense intra-regional port competition, ports have to find smarter, greener and automated ways of operating to remain competitive under squeezed margins”\(^\text{159}\). Also, better connectivity leads to lower freight rates and more liner services to lower maritime transport costs.

❖ **Way Forward**

To strengthen port connectivity in an integrated manner here are some guidelines based on extensive review of literature and previous experiences:

- Countries must adopt a visionary Master Plan in the long-term including aspects of smarter, greener, automated and optimized operations
- Work to build reliable infrastructure focusing on lowering trade costs
- Participate in multilateral, regional or bilateral aid for trade initiatives: capacity development in order to share, identify, evaluate and monitor shared issues
- Leveraging resources and support of development partners and donors in respect with national objectives and Master Plan. Coordinate assistance in assisting in knowledge sharing
- Build a business environment that promotes domestic and foreign trade

### 4.2 Part A: Infrastructure


\(^{159}\) Accessible from: [https://portdevelopmentasia.iqpc.sg/](https://portdevelopmentasia.iqpc.sg/)
Improving physical maritime connectivity in Asia-Pacific is crucial for countries to compete and consolidate their regional and global trade integration. Improving maritime connectivity would also reinforce the position of Asia-Pacific as a central point. While Asia-Pacific countries are tightening their economic ties between then, a demand for more maritime connectivity is needed, since the greatest part of trade is made through the sea. For this reason, it is essential to maintain effectiveness of shipping services and appropriate conditions of ports in the region. “According to the Master Plan on ASEAN Connectivity (ASEAN 2010), ASEAN has selected 47 ports as the main destiny for port development investment. Each one of these ports has different conditions, and one of the objectives of the plan is to create equality among them” 160. With many ports aspiring to become hubs in the region, there is an urge for higher flows of investments. It is also important to provide less developed countries with access to these hubs by enhancing connectivity and integration with economic centers of the region.

In the long-term, an objective should be to reach a “port regionalization”, bringing perspective of port development to a higher geographical scale (beyond the port perimeter). “The port regionalization phase is characterized by a strong functional interdependency and even joint development of a specific seaport and (selected) logistics platforms in its hinterland. The transition towards the port regionalization phase is a gradual and market-driven process that mirrors the increased focus of market players on logistics integration” 161. Securing funds is the main objective when discussing infrastructure project. Implementing incentives for private sector investment should be a priority for countries if port development projects are discussed.

Plans could be in the short-term to develop port capacity and facilitate existing infrastructure. Upgrade and develop road infrastructure for rural-urban connectivity and road linkages to neighboring countries. Also, to provide sufficient and quality transport infrastructure to enable better facilitation as the transit service country in the region. General upgrade also goes through implementation of ICT tools such as Single-Windows strategies for better integration of useful services.

In the mid-term infrastructure should enhance container terminal, equipment, aisle port (off-dock container yard) and development new terminals.

In the long-term, new port development to handle growing cargo demand.

### 4.3 Part B: Facilitation & Operation

Facilitation and Operation play a key role in enhancing port connectivity, improving overall logistics process and increasing trade efficiency. For this reason, policy focus should be made on these aspects.

*Facilitation*

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Policy directions are essential to push forward transport connectivity.

The implementation of Free Trade Zones (FTZ), the definition of Public-Private Partnerships frameworks and policies regarding private sector involvement are facilitation measures that could help development of port industry.

The development of logistics information system such as the National Single Window (NSW) will largely improve logistics progress and the CBTA that should be completed in the near future might improve connectivity as a whole in the Asia-Pacific region.

As trade volume in Asia-Pacific is forecasted to grow in accordance with the maturity level of regional economic cooperation and integration, strengthening the private and public sector should be an objective to support business.

Operation

Cooperation and coordination should be encouraged to promote capacity-building and information sharing. There is also a need to promote safety, security, efficiency and environmental and social responsibility of ports. In many cases, the integration is achieved through close partnerships with other players.

Initiatives such as APEC Port Services Network (APSN) are already undergoing for these missions. The mission statement of the APSN is "Networking for Stronger Port Industry and Better Community"\(^{162}\), and to promote the development of APEC port industry by fostering a more cohesive and cooperative partnership among APEC port and port-related industries. In addition to this, a Roadmap toward an Integrated and Competitive Maritime Transport (RICMT) has also been implemented to set an action plan to achieve a “more open, efficient and competitive ASEAN maritime transport system covering elements as movement of freight and passengers and liberalizing maritime transport services in ASEAN, connecting with the objective of establishing ASEAN as a single market. Related to the Roadmap is the implementation of an ASEAN Single Shipping Market (ASSM), in order to enhance competitiveness and efficiency of the shipping market in the region”\(^{163}\).

Gradually, in the short-term countries should aim at simplifying process through automation, ICT tools in order to improve logistics flows and modernize supply chains. In the medium-term, implementing Single-Window projects, container yards/aisled ports to enhance capacity and pushing connectivity initiatives at a regional scale could help transport development significantly. Finally, in the long-term all new constructed ports should integrate ICT and logistics advancements to be able to handle growing cargo demand.

Also, it must be noted that human resource development needs to be developed to increase know-how, expertise, guidance and technology transfer on sustainable freight development to both public and private sectors.

Besides, unless old ships are scrapped, the oversupply will remain, or rather, increase, as carriers build new and larger ships.

\(^{162}\) Accessible from: [http://www.apecpsn.org/](http://www.apecpsn.org/)

4.4 Part C: Hinterland connectivity

Connectivity

Hinterland connections in an extensive intermodal network of rail, road and inland waterways ensuring that the cargo will efficiently and easily find its way from and to the rest of the region.

Many modes help improving this connectivity might it be by rail shuttles for containers, general cargo and chemical products, shipping lines or road transport. National involvement in port connectivity often unfolds in form of investment in port infrastructure or any port-related infrastructure like hinterland corridors.

Ports around the globe have developed numerous strategies to improve their hinterland connections in order to respond to issues imposed by growing traffic, shrinking public budgets, competition for road and rail use from passenger and personal vehicle and the proximity of multiple ports to high urbanized areas.\textsuperscript{164}

These strategies have resulted in a variety of policies such as “the development of dry-ports, improving stakeholder management, developing appointment systems to improve port gate efficiency, extending operation times, extending the borders of the port beyond the port precinct or influencing the port modal split”\textsuperscript{165}.

Port competitiveness is highly influenced by trade corridors. The main objective is to integrate port system in a multimodal transport network as to expand market access, trade flow and integration into an industrial webbing. In this context, port must include interfaces “between major oceanic maritime trade and economic activities of ports and inland terminals that provide intermodal structures and connections between the forelands and hinterlands”\textsuperscript{166}. The capacity augmentation of transport modes is enabling the diffusion of trade. These bonds of mutual causality are now present in the traffic of port cities. The quality and capacity of hinterland modalities, roads and relays are essential to any expansion of trade.

The OECD also suggested a “port modal split strategies” to manage hinterland traffic in port-cities. In order to reduce port-related congestion, shifting towards different hinterland transport modes such as rail, inland waterways or short sea shipping might be a solution as most ports are dominated by trucks. “Even the ports with the highest shares of non-truck hinterland traffic rarely manage to achieve more than half of its traffic by other means than trucks” \textsuperscript{167}. However, it is truck traffic that causes most congestion in and around port zones and generate external costs.

\textsuperscript{165} Ibid.
\textsuperscript{166} Ibid.
\textsuperscript{167} Ibid.
Annex 1. **Liner Shipping Connectivity Index (LSCI) for Bangladesh, Cambodia, Myanmar**

The Liner Shipping Connectivity Index (LSCI) aims at capturing “a country’s level of integration into the existing liner shipping network by measuring liner shipping connectivity”. LSCI can be considered a proxy of the accessibility to global trade. The higher the index, the easier it is to access a high capacity and frequency global maritime freight transport system and thus effectively participate to international trade. Therefore, LSCI can be jointly considered as a measure of connectivity to maritime shipping and as a measure of trade facilitation. It reflects the strategies of container shipping lines seeking to maximize revenue through market coverage. The countries that have the highest LSCI values are actively involved in trade.

The Liner Shipping Connectivity Index is an indicator which components include:

- Ships
- TEU capacity
- Shipping companies
- Services
- Maximum ship sizes

Below is a table of the LSCI index of selected countries with access to the sea:

### Annex 1 - Liner Shipping Connectivity Index

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>5.2</td>
<td>5.1</td>
<td>5.3</td>
<td>6.4</td>
<td>6.4</td>
<td>7.9</td>
<td>7.5</td>
<td>8.2</td>
<td>8.0</td>
<td>8.0</td>
<td>8.4</td>
<td>9.3</td>
<td>11.3</td>
<td>10.8</td>
</tr>
<tr>
<td>Cambodia</td>
<td>3.9</td>
<td>3.3</td>
<td>2.9</td>
<td>3.3</td>
<td>3.5</td>
<td>4.7</td>
<td>4.5</td>
<td>5.4</td>
<td>3.5</td>
<td>5.3</td>
<td>5.5</td>
<td>6.7</td>
<td>8.8</td>
<td>8.0</td>
</tr>
<tr>
<td>Myanmar</td>
<td>3.1</td>
<td>2.5</td>
<td>2.5</td>
<td>3.1</td>
<td>3.6</td>
<td>3.8</td>
<td>3.7</td>
<td>3.2</td>
<td>4.2</td>
<td>6.0</td>
<td>6.3</td>
<td>6.2</td>
<td>9.3</td>
<td>13.8</td>
</tr>
</tbody>
</table>

Source: UNCTAD Stat.

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168 Definition by UNCTAD.
Annex 2. Port Container Projects in ESCAP region

### Annex 2 - Port Container Development Project - Start Year 2016

<table>
<thead>
<tr>
<th>Country</th>
<th>Project</th>
<th>Start Year</th>
<th>Type / Status / Total reported costs &amp; additional info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippines</td>
<td>New Cebu International Container Port</td>
<td>2016</td>
<td>Seaport / Announced-Under Negotiation / 9.2 billion PHP - - Modern international container port facility needed to sustain Cebu’s development; official development assistance as recommended by the Korean International Cooperation Agency (KOICA).</td>
</tr>
<tr>
<td></td>
<td>San Fernando Port RoRo Upgrade</td>
<td>2016</td>
<td>Seaport / Announced-Under negotiation / 358.0 million PHP Complete the central backbone of roll-on and roll-off (RORO) ferry services.</td>
</tr>
<tr>
<td></td>
<td>Port of Zamboanga Wharf and Crane Construction</td>
<td>2016</td>
<td>Seaport / Preparatory Works / 480.7 million PHP</td>
</tr>
<tr>
<td>India</td>
<td>V.O. Chidambaranar Port - Construction of North Cargo Berth-IV</td>
<td>2016</td>
<td>Seaport / Announced-Under Negotiation / 5.2 billion INR V.O. Chidambaranar Port aims to expand its capacity by 600,000 TEUs and 1.42 MTPA by constructing a fourth north cargo berth.</td>
</tr>
<tr>
<td></td>
<td>V.O. Chidambaranar Port - Conversion of Berth No. 8 as Container Terminal</td>
<td>2016</td>
<td>Seaport / Under construction / 3.1 billion INR V.O. Chidambaranar Port is expanding its capacity by 7.20 MTPA by converting its berth no. 8 to a container terminal.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Myitnge Dry Port Construction</td>
<td>2016</td>
<td>Intermodal / Preparatory Works / X The Myitnge Dry Port provide logistical support for the Mandalay region, the 2nd largest city in Myanmar.</td>
</tr>
<tr>
<td></td>
<td>Ywartharyi Dry Port (Yangoon)</td>
<td>2016</td>
<td>Intermodal / Preparatory Works / X Ywartharyi Dry Port is the logistical hub for the Yangon region.</td>
</tr>
<tr>
<td>Russia</td>
<td>Port of Magadan Berths (Reconstruction)</td>
<td>2016</td>
<td>Seaport / Under construction / 500.0 million RUB The port was originally constructed in the 1930-40s, so this renovation is expected to significantly increase competitiveness and efficiency.</td>
</tr>
<tr>
<td></td>
<td>Samarga Port project</td>
<td>2016</td>
<td>Seaport / Announced-Under construction / 400.0 million RUB The port will be connected to Kharabovsk by a rail line that will cut more than 500 kilometers off the journey to the coast, a high value add for a country with vast amount of territory otherwise inaccessible to maritime routes.</td>
</tr>
<tr>
<td>Thailand</td>
<td>Pattani Port Commercial Upgrade</td>
<td>2016</td>
<td>Seaport / Under construction / 116.0 million THB To develop Pattani Port and into a commercial port serving cargo ship size up to 5,000 tonnes gross in the year 2020.</td>
</tr>
<tr>
<td></td>
<td>Sattahip Commercial Port Upgrade</td>
<td>2016</td>
<td>Seaport / Announced-Under construction / 2.0 billion THB The Navy’s projects will include a business area covering five acres, along with two quays for ferries and cruise liners, a ferry terminal and multimodal transport links. And the port will be expanded to handle cruise liners.</td>
</tr>
<tr>
<td>Iran</td>
<td>Chahabar Port Project (Phase I)</td>
<td>2016</td>
<td>Seaport / Under construction / X India is developing Chahabar port in Iran as a counterweight to China’s investment in Gwadar Port and CPEC</td>
</tr>
<tr>
<td>Japan</td>
<td>Yokohama Port Daikoku</td>
<td>2016</td>
<td>Seaport / Under construction / 8.9 billion JPY</td>
</tr>
<tr>
<td>Location</td>
<td>Project Details</td>
<td>Implementation Details</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Wharf Area Wharf Reorganization and Improvement Project</td>
<td>In order to appropriately respond to the increase in automobiles produced in Japan that are transported via Yokohama Port, to reduce the cost of their marine transportation, and to increase international competitiveness of automobile producers located in Kanto region</td>
<td></td>
</tr>
<tr>
<td>Port of Masan Development Project – 2.1 (Entry Road)</td>
<td>2016 Road / Announced-Under negotiation / 39.7 billion KRW</td>
<td>This project seeks to speed up the movement of goods into the piers, reduce logistical costs, and improve transport efficiency.</td>
<td></td>
</tr>
</tbody>
</table>

Source: This table is based on data available from [https://reconnectingasia.csis.org](https://reconnectingasia.csis.org), accessed on December 2017.