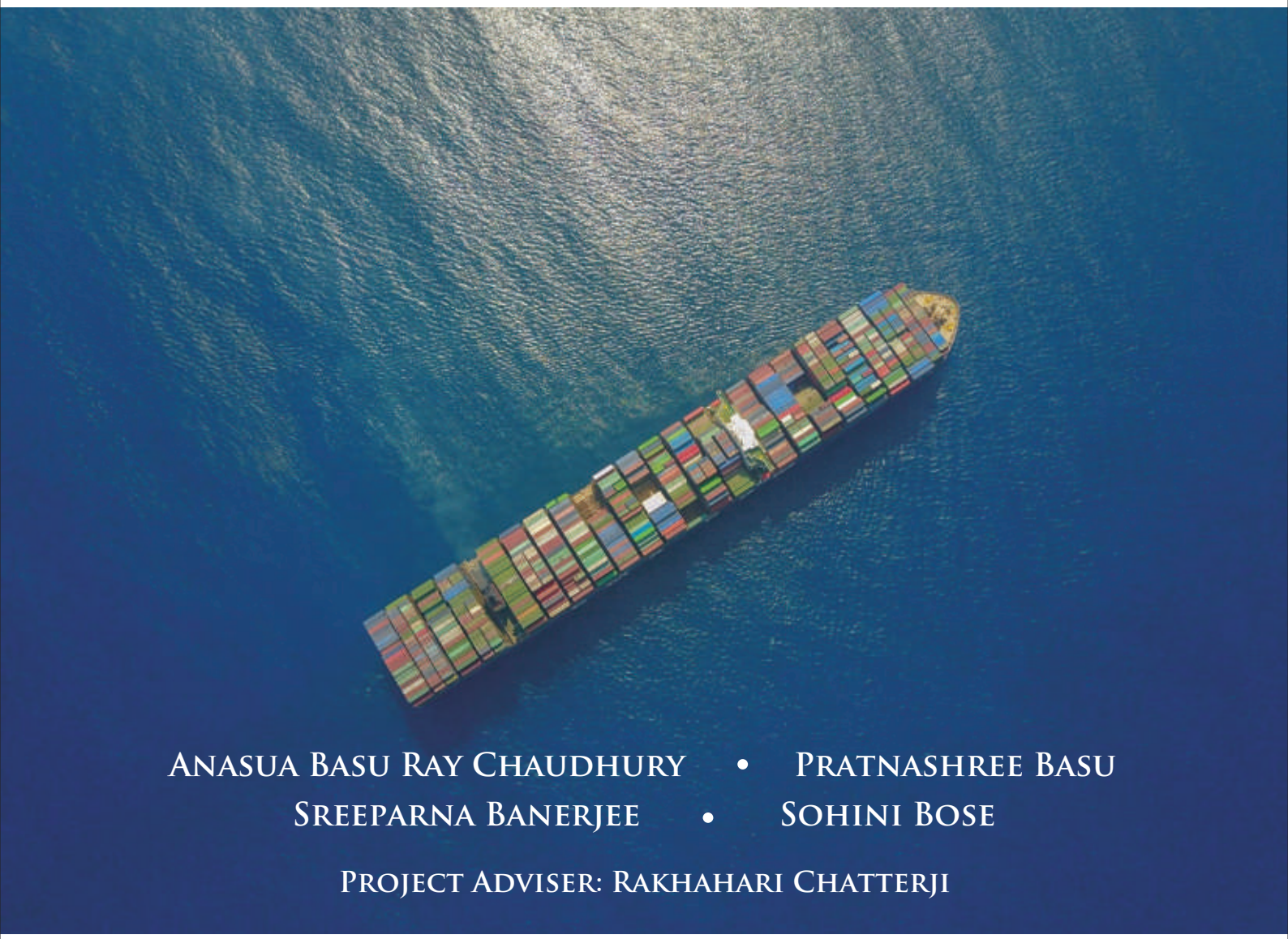
# INDIA'S MARITIME CONNECTIVITY:

## Importance of the Bay of Bengal

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# Foreword

Since its inception, ORF Kolkata has undertaken a research programme that aims to contribute to the strengthening of connectivity between India and its neighbours. We have completed three phases of the programme and published reports on the same: *India-Bangladesh Connectivity: Possibilities & Challenges*; *India-Myanmar Connectivity: Possibilities & Challenges*; and *India's Connectivity with its Himalayan Neighbours: Possibilities & Challenges*. These reports have covered varied themes such as land and inland waterway connectivity, energy cooperation, border management, and people-to-people ties.

One of the challenges we faced while conducting these studies was the integration of India's Northeast with the neighbourhood, and the emerging opportunities for maritime trade. We therefore decided that the next phase of the project will focus on maritime links covering the Bay of Bengal—to assess the importance of the Bay for India's eastern seaboard and littoral countries of Sri Lanka, Bangladesh and Myanmar. The necessity of a sea link for the landlocked states of Bhutan and Nepal was also studied. The research team conducted field visits and extensive stakeholder discussions. To deliberate on the findings of the study, the draft report was tabled at an international conference organised in collaboration with the Consulate General of Japan in Kolkata.

It is hoped that the report would be found useful and encourage scholars to extend the study of maritime connectivity and take up Malaysia, Indonesia and Thailand in the next phase.

**Ashok Dhar**
Director, ORF Kolkata
March 2018

# Preface

Connectivity is the subject of one of the major ongoing research projects of ORF Kolkata. This report is a study of the Bay of Bengal as a platform for maritime connectivity with important ramifications for not only the littoral states and their particular regions (such as India's Northeast) but also beyond, to the landlocked countries of Nepal and Bhutan. The report focuses on three aspects of maritime connectivity: port logistics, potentialities of inland waterways, and issues of strategic convergences and divergences. Among the littorals, it covers India, Bangladesh, Myanmar, and Sri Lanka. While historical discourse has largely been about land-based national histories, in recent decades, studies of the seas appear to be receiving more attention amongst scholars. A variety of perspectives are appearing on the Indian Ocean, especially the area extending from the Bay of Bengal to the South China Sea.

Indeed, the Bay of Bengal is deserving of scholarly scrutiny; after all, the Bay once played a key role in global history, serving as a maritime highway between India and China and helping the movement of troops and traders, workers and slaves over centuries. During the colonial period too it became a crucial arena for competing colonial powers. If it gradually lost its centrality post-1945, in the new millennium and with the rise of China and India, the Bay is reemerging as an arena of connectivity and conflict.

Like our previous reports on connectivity, this one is also based on field work. Through direct interaction with relevant institutions and stakeholders in the littoral states we hope to see this largest Bay in the world emerge more as a source of economic and cultural dialogue than as a space for hegemony and dominance.

**Rakhahari Chatterji**
Adviser, ORF Kolkata
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# Abbreviations

| | |
|---|---|
| AAGC: | Asia–Africa Growth Corridor |
| ANC: | Andaman Nicobar Command |
| ANI/A&N: | Andaman and Nicobar Islands |
| ASEAN: | Association of Southeast Asian Nations |
| AWPT: | Asia World Port Terminal |
| BAK: | Bo AungKyaw Street Wharf |
| BBG: | Bay of Bengal Gateway |
| BBIN: | Bangladesh, Bhutan, India, Nepal |
| BECA: | Basic Exchange and Cooperation Agreement |
| BD: | Bharathi Dock in Chennai Port |
| BIMSTEC: | Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation |
| BIWTA: | Bangladesh Inland Water Transport Authority |
| BP: | British Petroleum |
| BPCL: | Bharat Petroleum Corporation Ltd. |
| BRI: | Belt and Road Initiative |
| BSC: | Bangladesh Shipping Corporation |
| BSPL: | BhorSagar Port Ltd. |
| CBIC: | Chennai–Bangalore Industrial Corridor |
| CCG: | Chennai–Colombo–Gulf |
| CCTNS: | Crime and Criminal Tracking Network System |
| CCTPL: | Chennai Container Terminal Pvt Ltd. |
| CEZ : | Coastal Economic Zones |
| CFS: | Container Freight Station |
| CITPL: | Chennai International Terminal Pvt. Ltd. |
| CIWTC: | Central Inland Water Transport Corporation |
| CKIC: | Chennai–Kanyakumari Industrial Corridor |
| CONCOR: | Container Corporation of India Ltd. |
| CORPAT: | Coordinated Patrols |

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| CP/CPA: | Chittagong Port/Chittagong Port Authority |
| CSA: | Coastal Shipping Agreement |
| CSC: | Ceylon Shipping Corporation |
| DP Rail: | Dhaka–Payra Rail |
| DPD: | Direct Port Delivery |
| DPR: | Detailed Project Report |
| DWT: | Deadweight Tonnage |
| ECEC: | East Coast Economic Corridor |
| EEZ: | Exclusive Economic Zone |
| EMRIP: | Ennore–Manali Road Improvement Project |
| ER: | Eastern Railways |
| FDI: | Foreign Direct Investment |
| FIFI: | Federation of Indian Fisheries Industries |
| GDP: | Gross Domestic Product |
| HADR: | Humanitarian Assistance and Disaster Relief |
| HDC: | Haldia Dock Complex |
| ICD: | Inland Container Depot |
| ICT: | Inland Container Terminal |
| IMO: | International Maritime Organisation |
| INR: | Indian Rupee |
| INS: | Indian Naval Ship |
| IONS: | Indian Ocean Naval Symposium |
| IOR: | Indian Ocean Region |
| IORA: | Indian Ocean Rim Association |
| ITLOS: | International Tribunal for the Law of the Sea |
| IWAI: | Inland Waterways Authority of India |
| IWT: | Inland Water Transport |
| JD: | Jawahar Dock in Chennai Port |
| JICA: | Japanese International Cooperation Agency |
| JNPT: | Jawaharlal Nehru Port Trust |
| KDS: | Kolkata Dock System |
| KMTTP: | Kaladan Multimodal Transit Transport Project |

| | |
|---|---|
| KoPT: | Kolkata Port Trust |
| KPD: | Khidderpore Dock |
| LNG: | Liquefied Natural Gas |
| LPG: | Liquefied Petroleum Gas |
| LOA: | Length Over All |
| LPG: | Liquefied Petroleum Gas (An LPG carrier or LPG tanker is a gas carrier/gas tanker ship designed for transporting liquefied petroleum gas in bulk.) |
| MDA: | Maritime Domain Awareness |
| MEA: | Ministry of External Affairs |
| MIO: | Maritime Interdiction Operations |
| MIP: | Myanmar Industrial Port |
| MITPL: | Myanmar Integrated Port |
| MITT: | Myanmar International Terminal Thilawa |
| MMT: | Million Metric Tonnes |
| MMTPA: | Million Metric Tonnes Per Annum |
| MoU: | Memorandum of Understanding |
| MPA: | Myanmar Port Authority |
| M-SAR: | Maritime Search and Rescue Operations |
| MSMC: | Maritime Security Multilateral Cooperation |
| MSR: | Maritime Silk Route |
| MT: | Million Tonnes |
| MW: | Mega Watts |
| NGO: | Non-Governmental Organisation |
| NH: | National Highway |
| NITI Aayog: | National Institution for Transforming India |
| NSD: | Netaji Subhash Dock |
| NTB: | Non-Tariff Barriers |
| NTPC: | National Thermal Power Corporation Ltd. |
| NW: | National Waterway |
| OBOR: | One Belt One Road |
| OT: | Outer Terminal/Outer Riverine Terminal |
| PDC: | Project Development Consultant |

| | |
|---|---|
| PIWT&T: | Protocol on Inland Water Transit and Trade |
| POL: | Petroleum Oil and Lubricants |
| PPP: | Public–Private Partnership |
| PSA: | Singapore Port Authorities |
| PSO: | Peace Support Operations |
| QMS: | Quality Management System |
| ReCAAP: | Regional Cooperation Agreement on Combating Piracy and Armed Robbery |
| RICT: | River-side Inland Container Terminal |
| RIS: | River Information System |
| Ro Ro: | Roll-on Roll-off vessels |
| SAARC: | South Asian Association for Regional Cooperation |
| SCI: | Shipping Corporation of India |
| SEZ: | Special Economic Zones |
| SLR: | Sea-Level Rise |
| SLOC: | Sea Lanes of Communication |
| SOP: | Standard Operating Procedure |
| SPV: | Special Purpose Vehicle |
| SPW: | Sule Pagoda Wharf |
| TAMP: | Tariff Authority of Major Ports |
| TEU: | Twenty-foot Equivalent Unit |
| UAV: | Unmanned Aerial Vehicle |
| UNCLOS: | United Nations Convention on the Law of the Sea |
| USA: | United States of America |
| USD: | US Dollars |
| VCTPL: | Visakha Container Terminal Pvt. Ltd. |
| VGCB: | Vizag General Cargo Berth Pvt Ltd. |
| VPT: | Visakhapatnam Port Trust |
| WBTC: | West Bengal Transport Corporation |

# Introduction

*Source: https://www.shipmap.org/.*

**Major Shipping Routes**

The tale of the Bay of Bengal is the saga of the rise, fall and re-awakening of a turbulent sea and its littoral countries as the hub of connectivity and livelihood. Long before the colonial era, the countries surrounding the Bay of Bengal were linked together through cultural and commercial ties. Along with the trade of staple commodities and high-value luxuries, trans-border connections facilitated the exchange of the ways of life.[1] Over time, as the bonds of connectivity strengthened, ethnic conflict and cultural cosmopolitanism began to co-exist in the subregion of Bay of Bengal.

In the 15th century, the Bay experienced the influx of European powers in its waters and thus began a race for colonies. The beginning of the 18th century marked the onset of the colonial era and Britain's consolidation of its position as the colonial master of most of the littoral countries surrounding the Bay of Bengal, namely India, Burma and Sri Lanka. The French and the Dutch, too, asserted a stronghold around the Bay's coastal arc. The colonial era reinforced the already existing connectivity amongst the Bay littoral countries through new military and strategic bonds (movement of soldiers and the circulation of officials).[2]

The fertile coast of the Bay proved excellent for cultivation, and soon, the littoral countries under their respective colonial masters became large exporters of agricultural goods. This had twin implications. First, the region became home to one of the largest migrations in the world as there was mass migration of workers across the Bay, from one colony to

another of the same master. Second, this commercial boom facilitated the economic integration of the subregion. New capital investments started flowing in, and the use of steam ships made crossing the Bay easier. Thus, the Bay of Bengal soon became the heart of the imperial economy.[3]

Throughout the first half of the 19th century, the shekels of colonialism kept the Bay littoral countries closely bound to one another.[4] However, by the second half of the 19th century, imperialism began to weaken, and as a natural corollary, the bonds of connectivity holding the Bay together began to falter.

During World War I, the colonies were soon engaged in fighting for their masters in far off lands. This marked the beginning of the shift of focus from trade and connectivity. The period that followed was marked by the rise of the spirit of nationalism against colonial rule, amidst the countries outlining the Bay. Slackening of the colonial grip only facilitated them in their efforts.

The beginning of the 20th century brought with it World War II, the end of colonialism and the independence of the Bay littoral countries. "The end of the empire spelled the inevitable disintegration of the Bay."[5] During the 1930s and 1940s, each of these newly independent country—cautious of their newly found sovereignty and precarious economic status—adopted an inward-looking attitude and began to prioritise their own development. From the 1950s to the 1980s, a period of simultaneous industrial growth transformed the Bay from an 'economical hub' to being the arena of 'ecological interdependence'.[6] A struggle for self-sufficiency came to replace the erstwhile trade ventures. Gradually, the Bay ceased to be the lifeblood of commerce and began to fade from human memory as a hub of connectivity. The common past was forgotten, and the newly independent nation states fragmented the identity of the Bay of Bengal subregion. Thus began the period of dormancy of the Bay of Bengal.

After World War II, there was a re-drawing of mental maps in Asia, and soon, a line of sharp distinction ran down the middle of the Bay of Bengal. The Eastern half was recognised as 'South-East Asia' and the newly independent states of the Indian subcontinent, which formed the Western and Northern coasts of the Bay of Bengal, were grouped along with a few other countries into a region called 'South Asia'.[7] Several factors perpetuated this division, including World War II, India's inward-looking economic policies, Bangladesh's poverty after two wars of independence, Sri Lanka's suspicion of India's expansionist tendencies, Cold War alignments, and Myanmar's relative isolation.[8] The Bay of Bengal gradually became a strategic backwater. India adopted an entirely continental approach and remained largely unresponsive to its eastern neighbours. Its isolation coupled with the Non-Aligned stance completely alienated India from the other littoral states of the Bay of Bengal.

South East Asia, despite being divided into two power blocs due to the Cold War, clamoured for a joint forum to voice their grievances. Thus, in 1965, Association of Southeast Asian Nations (ASEAN) was formed, which other members joined in the 1980s and 1990s. This was the first step towards revitalisation of regionalism in the area.

In South Asia too, the need for regionalism was patent. The South Asian Association for Regional Cooperation (SAARC) was formed in 1985. A few years later, a shift was visible in India's foreign policy as it tried to uphold the essence of Non-Aligned Movement but sought to engage in multilateralism and the revitalisation of ties with the neighbouring countries. In the 1990s, India's drive for multilateralism was further strengthened by the launch of its Look East Policy and its partnership with ASEAN. "India initiated the re-linking of South and South East Asia and the opportunity of renewal of Bay of Bengal connectivity re-emerged."[9]

The Bay of Bengal has now once again gained tremendous strategic and economic significance. It is located at the intersection of strategic interest of China and India[10] and is the key transit zone between India and the Pacific Oceans. The importance of the Bay's maritime security was first understood during the 1971 Bangladesh war, when a Pakistani naval submarine was captured near the shores of Visakhapatnam.[11] Economically viable, it has become an arena for competition between the major powers due to its strategic centrality and economic potential. The governments of the region's littoral states are therefore committed to reintegrating the Bay and have launched a number of cross-border bilateral and multilateral agreements to this end.[12] As Robert Kaplan recently stated, "The Bay of Bengal is starting to become whole again and is returning to the centre of history... No one interested in geopolitics can afford to ignore the Bay of Bengal any longer."[13]

The Bay stretches from Sri Lanka, up the coast of eastern India, curving under Bangladesh and Myanmar and heading south along Thailand and Malaysia until it reaches the northern coast of Sumatra in Indonesia. For long considered the north-eastern offshoot of the Indian Ocean, the Bay's growing strategic and economic imperatives necessitate that it be officially recognised as a geopolitical region.

Maritime trade and maritime connectivity has been one of the oldest forms of cross-cultural and cross-civilisational interactions. The waterways have been used as the primary medium of trade and have provided the impetus for the growth of maritime enterprises for the densely populated littoral countries.

Ensuring reliable, uninterrupted and safe movement of people, goods, energy and resource supplies throughout the Indian Ocean has become a major concern for India. Given that oceans have a transnational character, the report on "India's Maritime Connectivity:

Importance of the Bay of Bengal" intends to focus on the dynamics of India's maritime connectivity in the Bay. The report attempts an appraisal of the geopolitical, geostrategic and geoeconomic dimensions of the connectivity linkages between India and the Bay-adjacent countries such as Bangladesh, Myanmar and Sri Lanka, along with India's Andaman and Nicobar Islands with respect to trade connectivity. Exchange of information, capacity-building and the provision of technical assistance amongst the Bay-adjacent countries are important elements for cooperation in enhancing the political will to address the challenges of maritime safety and security. Against this backdrop, this report in its first phase deals with the countries forming the initial coastal arc of the Bay as "Bay littoral countries," namely India, Bangladesh, Sri Lanka and Myanmar.

The report also takes into account Nepal and Bhutan, as these forms the hinterland of the 'Bay littoral countries'. While the rise of Asia has been a topic of much deliberation over the past few decades, it is now that the presence of this rise is felt stronger than ever, not only within the region but also worldwide. It is in response to these geopolitical forces that multilateral approaches, such as the Asia Pivot led by the US, the One Belt and One Road Project put forward by China, and the Sagarmala project envisioned by India, are coming about. As 'major powers', this report takes into account the US (because of its recent Asia-centric policies), China (because of its growing assertive interest in the Indian Ocean, comprising the Bay of Bengal), Japan (because of its endeavour to establish connectivity beyond South East Asia and its conceptualisation of the Bay as an integral part of the Indo-Pacific) and Australia (because of its growing interest in the Bay in the context of a rising China and a developing Indo-Pacific).

The report seeks to understand the present and potential maritime connectivity through three separate themes, which are as follows:

1. Port Logistics: The Bedrock of Connectivity. Understanding the connectivity facilitating the infrastructure of the ports and around the Bay, the measures undertaken to improve connectivity, and the obstacles hindering such endeavours.

2. Linking India's Northeast with the Bay: Importance of Inland Waterway. Understanding inter and intra-regional connectivity through inland waterways and attempting an estimation of the possibility to revive India's Northeast by linking it to the Bay of Bengal through rivers.

3. Strategic Convergence and Divergence: Understanding Bay of Bengal as a geostrategic space and the various complexities prevalent in the Bay; an analysis of the ocean diplomacy initiatives of the Bay littoral states; a focus on the strategic role of Andaman and Nicobar Islands and the subregional organisations; study of the interest, existing

and potential role of the 'major powers' in the Bay and India's relation with each in the context of the Bay of Bengal.

The report also offers specific recommendations that can enhance connectivity across the Bay.

**ENDNOTES**


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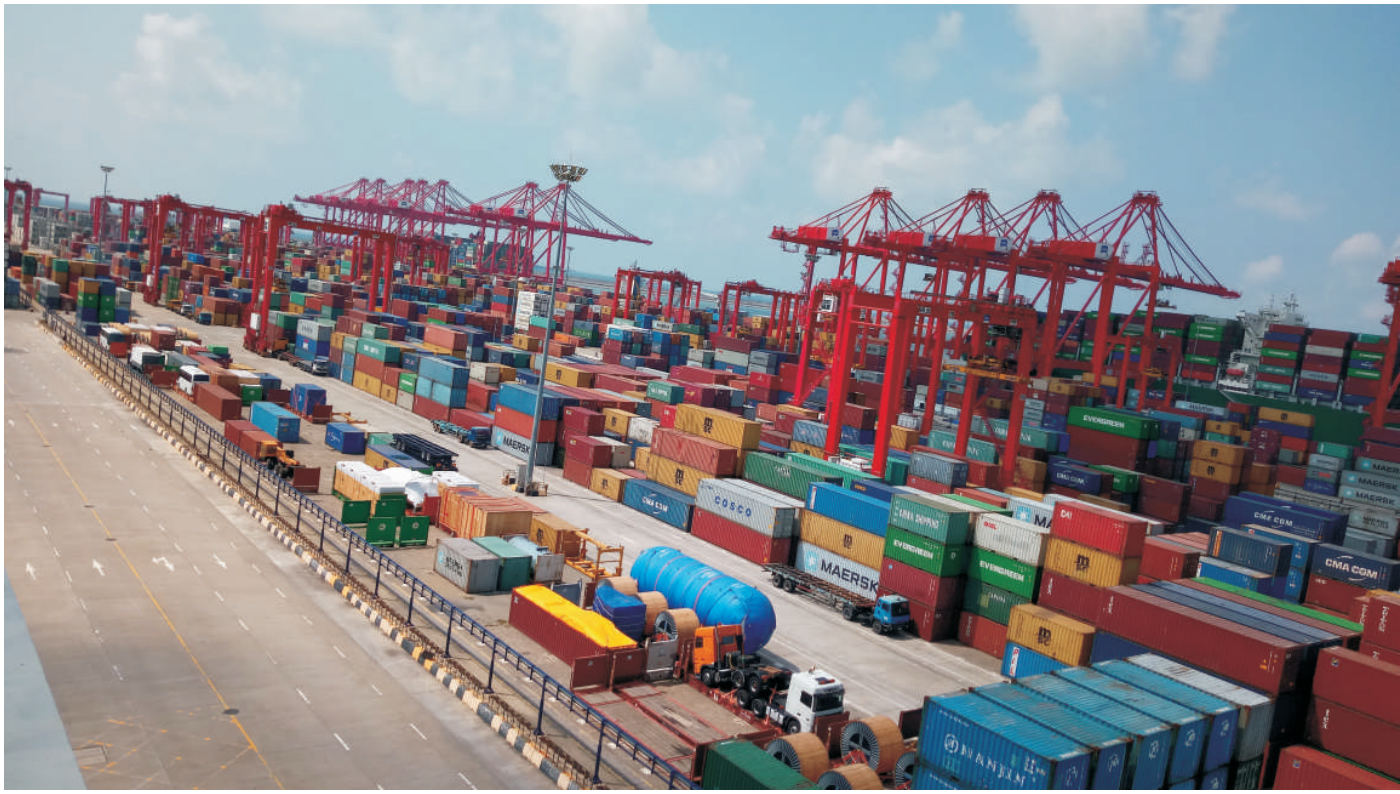
# 1

# Port Logistics: The Bedrock of Connectivity




**Containers at the Port of Colombo**

*Photograph taken by researchers during field visit, November 2017*

Maritime transport is the most cost and energy-efficient mode of transportation in the world, and shipping industries play a key role in establishing and sustaining commerce and growth. Historically, the Bay of Bengal has been a flourishing site of maritime exchange. However, traffic—both container and cargo—has been limited in the Bay of Bengal for years. Since the foundation of maritime linkages is port and fiscal connectivity, this section will examine the operational status of existing ports and analyse the potential of proposed ports to arrive at an understanding of maritime connectivity in the Bay of Bengal region. It will attempt an estimation of the existing infrastructure's capacity to serve the purposes of connectivity in the Bay of Bengal, the key difficulties in existing infrastructure and how can they be

addressed, and the key areas of improvement for establishing better connectivity in the Bay.

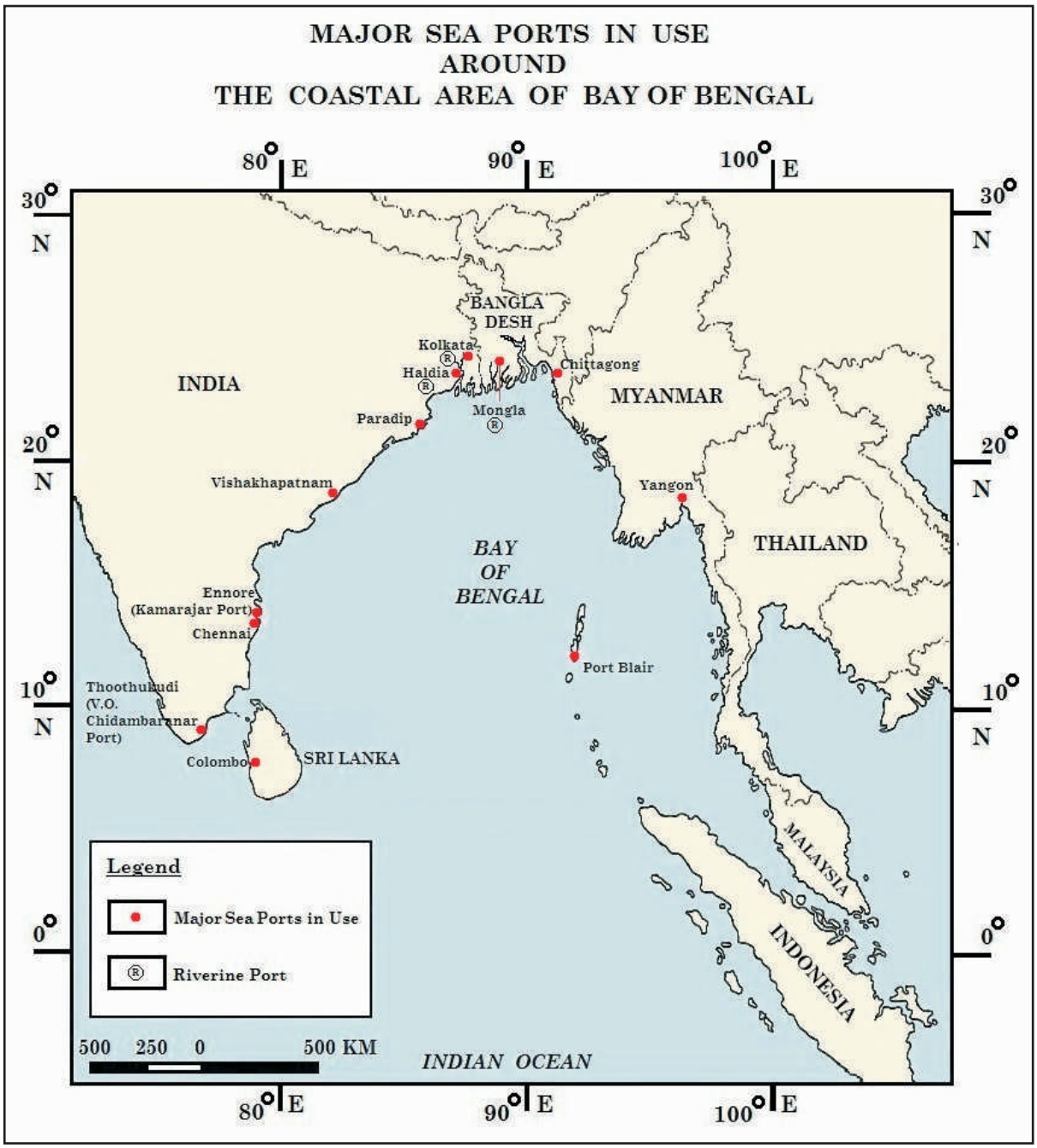
## 1.1 INDIA

With a 7,517-km-long coastline, India has 13 major ports and about 200 non-major, or intermediate, ports that contribute to the economy of the country. These ports handle the lion's share of foreign trade the country is engaged in. Although India has been trying to privatise ports since the 1990s, the task has faced numerous obstacles. Therefore, major ports failed to grow to their projected potential and began losing their business to non-major ports, which were more efficient. This led the government to initiate alternate modes of port development through public–private partnership, wherein private developers were invited to build terminals inside major ports. Challenges related to the expansion, augmentation and development of ports, such as limited land area, restricted draft, silting and lack of adequate hinterland connections, have remained.

The Ministry of Shipping proposed the Central Ports Act in 2016 to replace the existing Major Port Trust Act, 1963 to enable more major ports to exercise autonomy, flexibility and professionalism in their governance and operations.[1] The government has also allowed 100 percent FDI for port developments, along with tax exemptions to companies investing in port infrastructure.

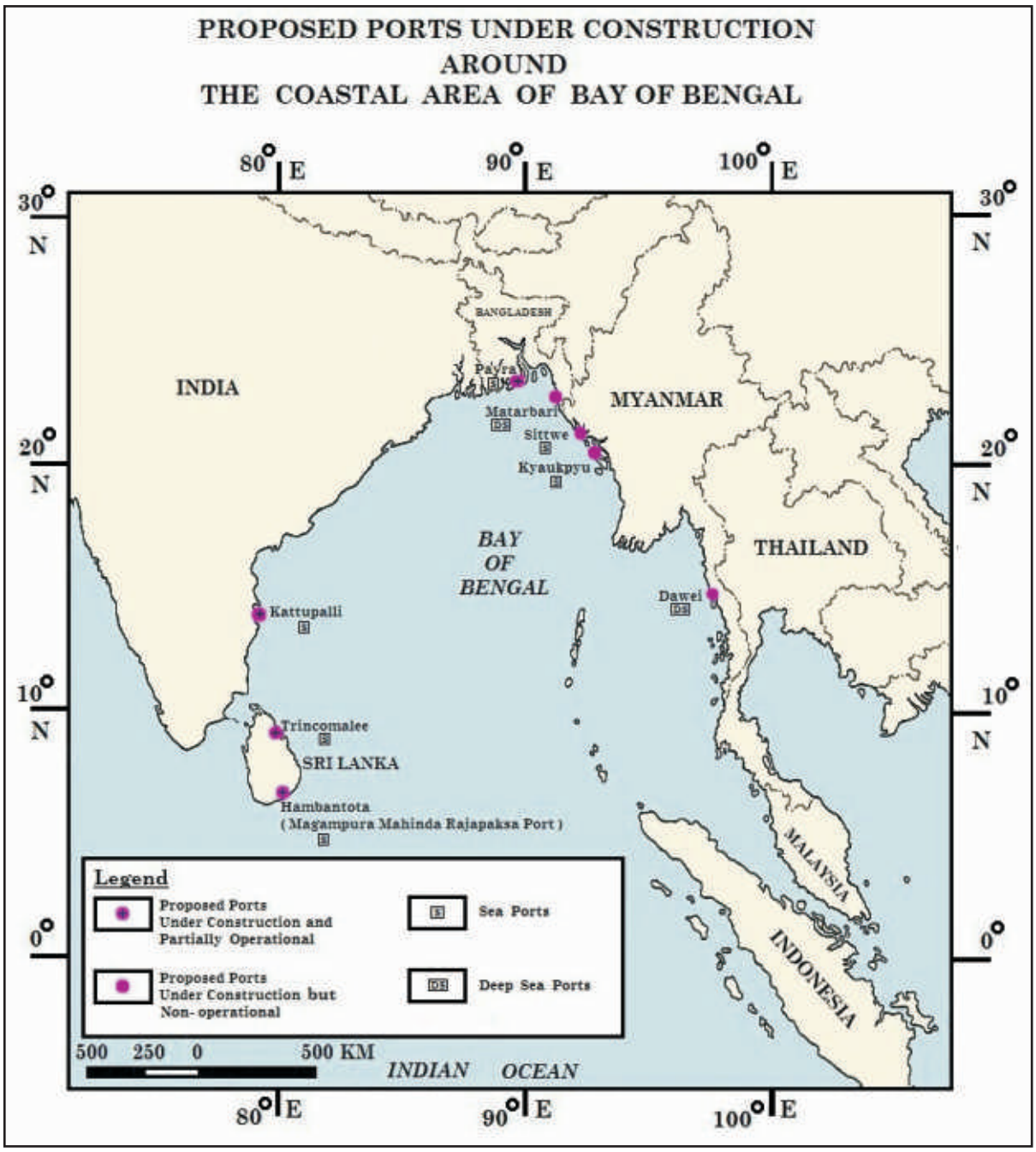
Of the 13 major ports, seven are located along the country's eastern coast, including the Andaman and Nicobar Islands. This study focuses primarily on the ports of Kolkata–Haldia, Paradip, Visakhapatnam, Kattupalli (since it is a promising new private port on the east coast), Chennai and Port Blair, with a brief look at Krishnapatnam, Kamarajar and Tuticorin. Before discussing the Kolkata Port in detail, it is important to list the locations of the major ports around the Bay. Maps 1, 2, 3 and 4 show the sites of major ports, proposed ports awaiting construction, existing and potential transhipment ports, and proposed ports under construction around the Bay of Bengal.

**Map 1: Major Seaports in Use around the Bay of Bengal**



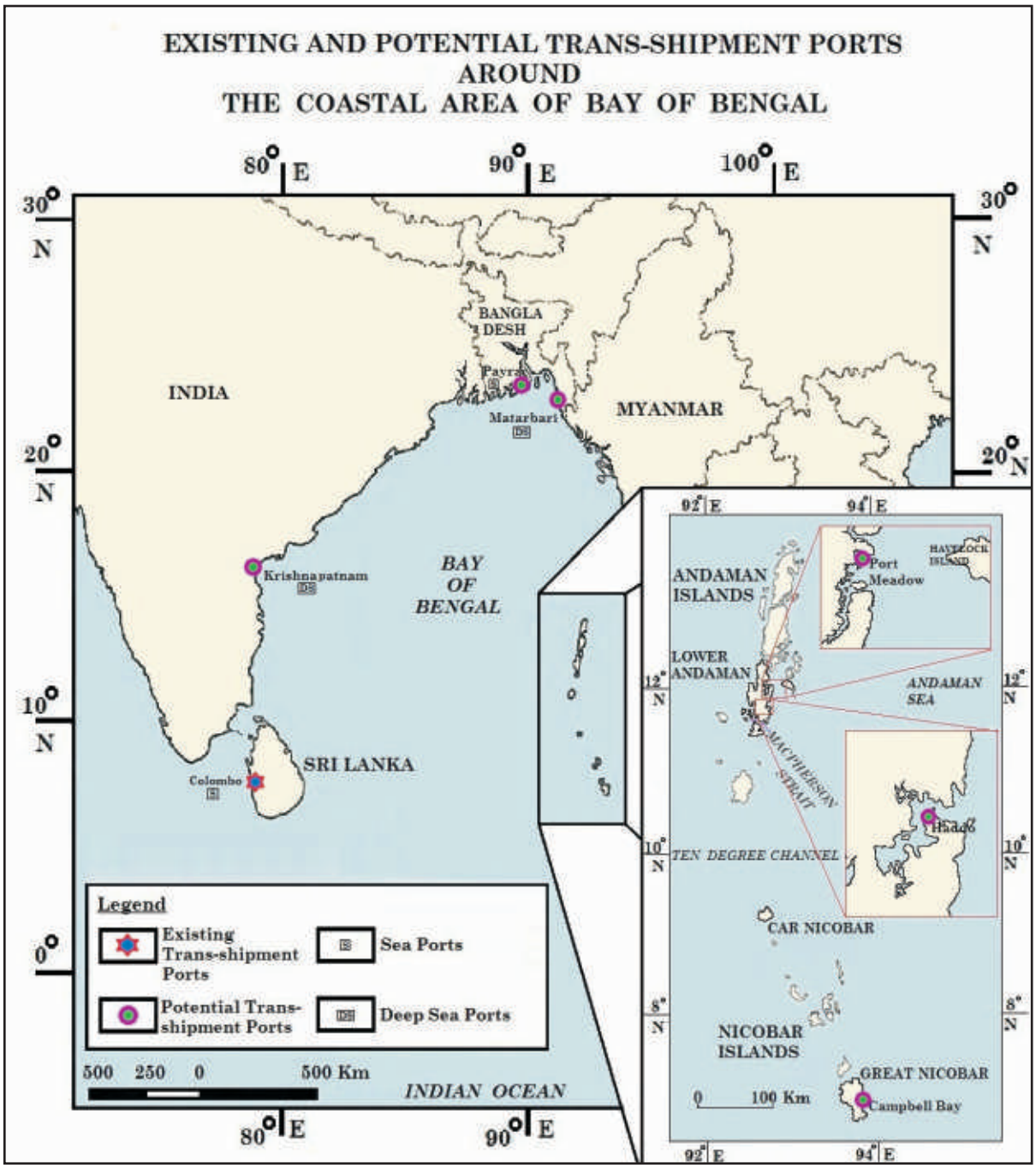

*Source: Prepared by Jaya Thakur, Junior Fellow, ORF Kolkata.*

**Map 2: Proposed Ports Awaiting Construction around the Bay of Bengal**



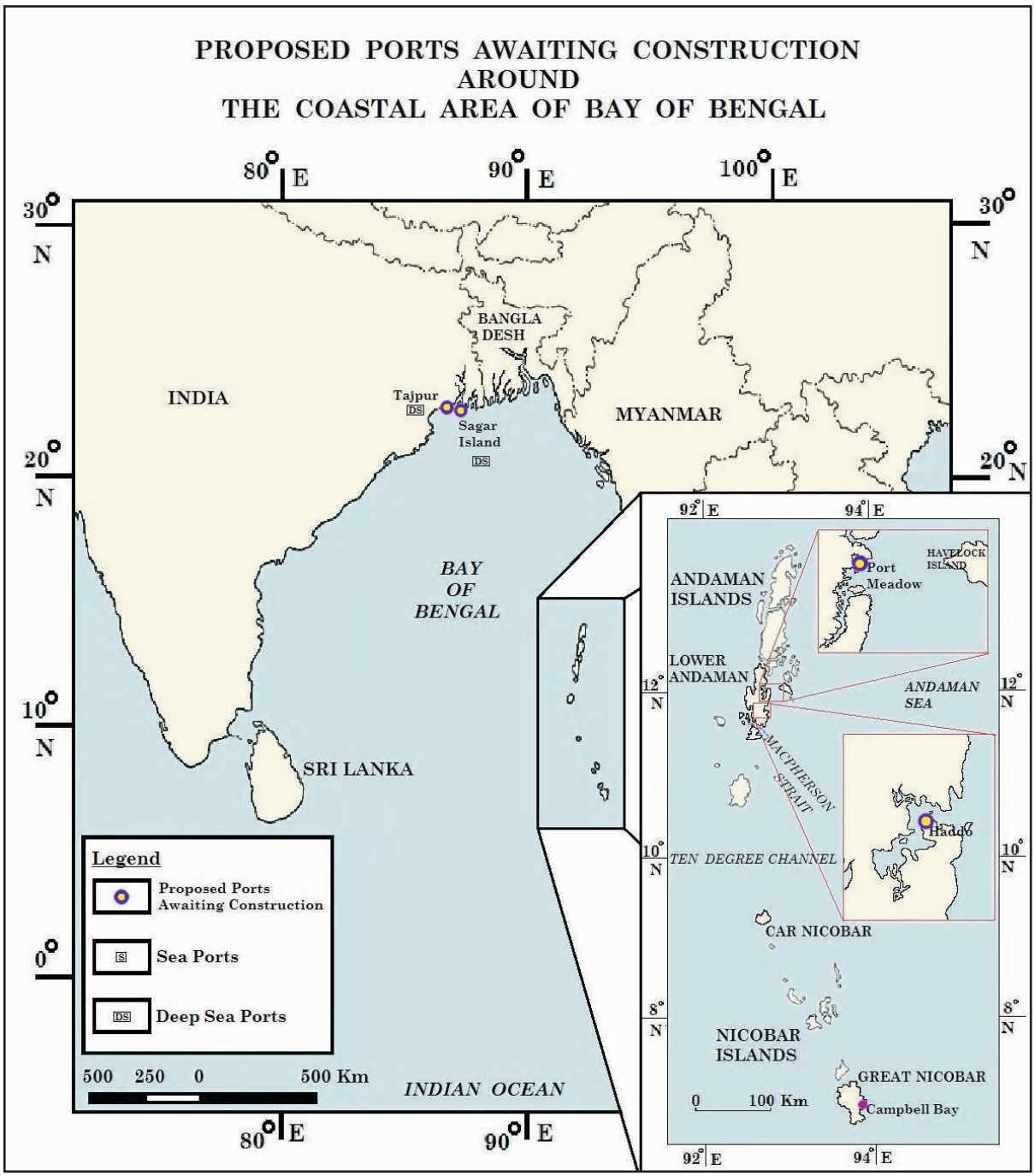

*Source: Prepared by Jaya Thakur, Junior Fellow, ORF Kolkata.*

**Map 3: Existing and Potential Transhipment Ports**




*Source: Prepared by Jaya Thakur, Junior Fellow, ORF Kolkata.*

**Map 4: Proposed Ports under Construction**

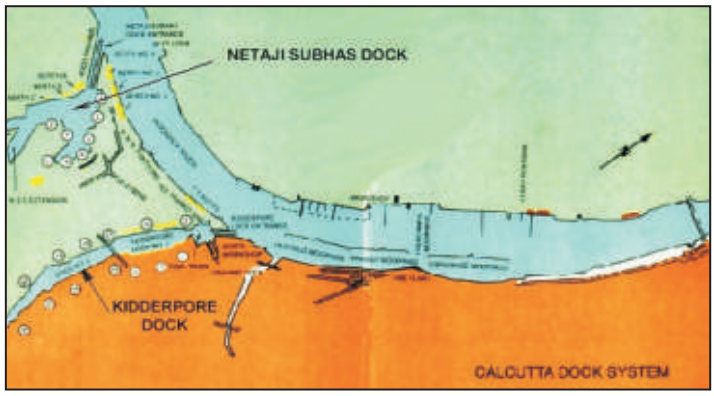



*Source: Prepared by Jaya Thakur, Junior Fellow, ORF Kolkata.*

### 1.1.1 Kolkata Port (KoPT)

The Kolkata Port with a legacy of 138 years is one of the oldest ports on India's east coast.[2] Located on the Hooghly river, it comprises two docks, one at Kolkata and the other at Haldia. The Kolkata Dock system (KDS) requires only maintenance dredging. While it is a highly profitable port with an operating ratio of 64 percent, and also one of the best among the major ports[3] in the country, much of the profit is lost to the cost of maintenance dredging.

**Figure 1: Layout of the Kolkata Dock System**




*Source: Map of KDS, Kolkata Port Trust, http://kolkataporttrust.gov.in/index1.php?layout=1&lang=1&level=2&sublinkid=652&lid=566*

The average draft of the Kolkata Port is 7.2 m.[4] The advantage of the rise of tide is utilised to ensure maximum draft for the commuting ships. Vessels from the sea enter the port via the Eastern channel. The pilotage distance is 223 km, which includes 148 km of river and 75 km of sea pilotage.[5] The Kolkata Dock System (KDS) has 33 berths and handles different types of cargos, including containers.[6] About 30–35 percent of Ecola's (bulk carriers) call at the port.[7] KDS consists of the Khidderpore Dock (KPD), Netaji Subhash Dock (NSD) and Budge Budge Oil Jetties.[8] The Bascule Bridge is an essential component of the Kolkata Port.

| Table 1: PROJECTS UNDER SAGARMALA AT KOLKATA PORT | |
|---|---|
| **Port Development** | Creation of Second Trans-loading arrangement within KoPT limits, development of Multipurpose Berth outside the Dock Basin at Kolkata Port and development of a New Major Port at Sagar Island. |
| **Port Modernization** | Mechanisation of Berth 3 at Kolkata Port |
| **Port led Development** | Development of an Integrated Port based leather and footwear cluster in Kolkata. |
| **Ship Building, Ship Repair and Ship Breaking** | Modernization of Ship Repairing Facilities at Kolkata Dock System. |
| **Inland Water Transportation and Coastal Shipping** | Construction of IWT jetties in lieu of existing Inland Wharves/ jetties on River Hooghly. |

| | |
|---|---|
| **Cruise Shipping and Lighthouse Tourism** | Seaplane Operations on Hooghly River |
| **Hinterland Connectivity and Multimodal Logistics** | Creation of New ICD Development in Darjeeling , improvement of existing road connecting Kolkata Port Trust to NH6, rail connectivity between proposed Sagar Port and Kashinagar Rail Station, road connectivity between proposed port at Sagar Island and Muriganga bridge and proposed rail yard at Kashinagar. |

*Source: Advantage Maritime India, Maritime India Summit 2016, Ministry of Shipping, Government of India.*

## Hinterland Connectivity

Kolkata Port has a vast hinterland comprising the entire Eastern India and the two neighbouring landlocked countries, Nepal and Bhutan.[9] It is well connected by road and railways with the rest of the country.[10]

**Table 2: Kolkata Port and Hinterland Connectivity**

| Road Connectivity | Rail Connectivity |
|---|---|
| City roads connect the port to National Highways 2 and 6 and to the junction of National Highway 34.[11]<br><br>Corridor of Certainty highways connecting all the ports- this will be connecting Kolkata, Haldia, Vizag and Chennai up to Kanyakumari[12] | KDS is connected to Eastern Railway (ER) at Majherhat Railway Station. The railway system serves berths number 27, 28 and 29 at KPD. [13]<br><br>Apart from these, there are other public/private sidings which have rail linkage with KDS railway and receive rail borne traffic. [14] |

*Source: Table prepared by researchers*

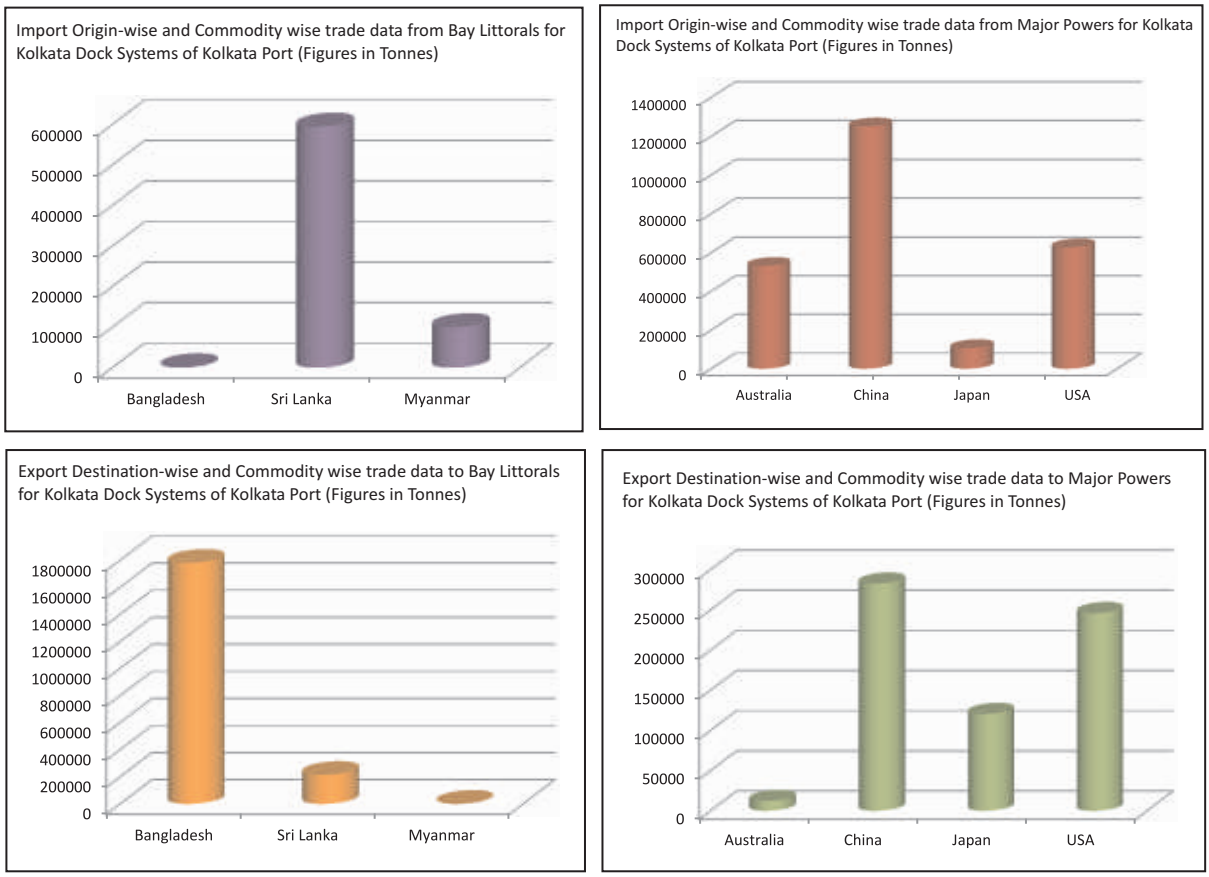
## Connectivity with Bay Littoral Countries and Major Powers

There is presently no coastal shipping from Kolkata Port to Myanmar, but it is desirable.[15]Feeder operators are set to begin with direct services via Kaladan–Multimodal–Transit Transport Project (KMTTP), expected to be completed soon. Direct access from Kolkata to Sittwe will take about two days through the KMTTP. At present, there is a lack of imports from Bangladesh to the Kolkata Port. With Sri Lanka, there are mostly feeder operations.[16] The Kolkata Port offers connectivity to the sea for the landlocked countries of Nepal and Bhutan. It already handles most of Nepal's cargo, and recently, this has received a boost owing to the large dispatches of construction and polling material to the country. The demand for both commodities was because of its attempt to

rebuild itself post the 2015 earthquake and the recent elections. While the Nepali consulate has duly appreciated the port for its efficient services, the need for more rail rakes to dispatch bulk cargo without the delays has also been pointed out, as it leads to an extravagant loss of money. To this effect, the port has convinced Container Corporation of India Ltd. (CONCOR) to provide extra rail rakes to a siding close to the port.[17] There have also been demands asking the Kolkata Port to handle coal for Nepal.[18]

Bhutan relies on the port for most of its sea freight imports. The Royal Government of Bhutan custom authorities have protocols for all food items that are to be imported into Bhutan via the Kolkata Port, free of all duties and other charges.[19] Figure 2 represents the distribution of Import and Export Cargo (major powers and Bay littorals) region wise at Kolkata Port (see Annexure 1 for data).Besides the Bay littorals, dry break bulk is imported in the Kolkata Port from the US.[20]

**Figure 2: Distribution of Import and Export Cargo (Major Powers and Bay Littorals) Region Wise at Kolkata Dock System**




*Source: Table made by research from data received from Kolkata Port.*

### What Makes the Port Marketable?

In case cargo gets stalled at Kolkata Port due to damage of one transport route, alternative routes are immediately arranged to ensure rapid transportation to the cargo's destination point,[21] thereby ensuring timely cargo transportation.

### Challenges Faced by the Port

- **Dependency on Private Enterprise:** There is dependency on private enterprise to work out commercial settlements.[22]
- **Generation of 'Empty's':** At Kolkata Port 'empty's'[23] are generated more due to lack of imports from Bangladesh, leading to double expenditure.[24]
- **Expensive Dredging:** Dredging at the Kolkata Port is very expensive. Though a subsidy is provided by the central government, the port loses most of its profit to dredging.[25]
- **Shallow Draft:** The port is not able to handle deep draft vessels because of shallow water patches (sand bars) along the channel.[26] A low draft can make it difficult or impossible to anchor here, forcing some cargo to be unloaded from ships at other ports. This leads to increased shipping expenditure and low operational efficiency.
- **Congestion:** Being a city-based port, there is also the problem of perennial congestion in the port area. Traffic restrictions negatively impact cargo handling.[27]

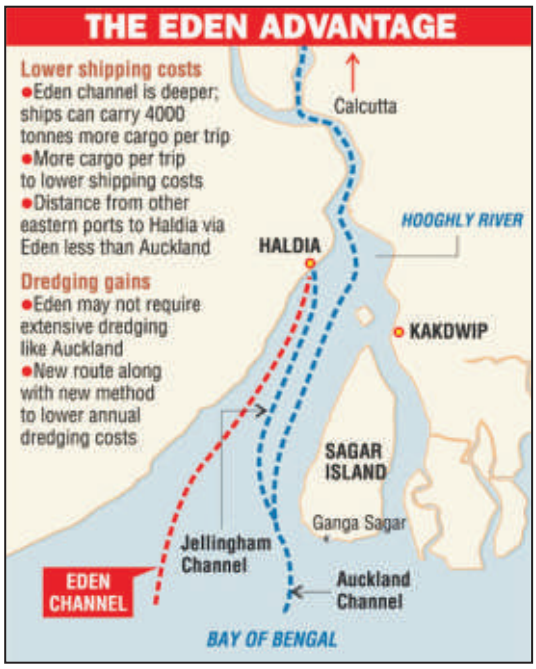



**Figure 3: Advantages of the Eden Channel**

*Source: 'Twin gains from new Haldia route', The Telegraph, 7 September 2015, https://www.telegraphindia.com/1150907/jsp/business/story_41162.jsp*


**Figure 4: Layout of the Haldia Dock Complex**

*Source: Kolkata Port Trust, http://kolkataporttrust.gov.in/index1.php?layout=1&lang=1&level=2&sublinkid=653&lid=567*

### 1.1.2. Haldia Dock Complex

The Haldia Dock Complex (HDC) is an all-weather port with a 300.2-m-long and 39.6-m-wide lock gate and a turning basin of 450 m diameter. The average draft availability at HDC is 8 m.[28] It has 17 berths with a mix of conventional and mechanised handling at various berths. HDC has sufficient storage area for the serviced cargo.[29]

The Eden Channel is now operative, and ships sail through it. The entrance to the dock system is controlled by lock gates and the river passage of 70 nautical miles from the sea (Sandheads) is utilised depending on the available draft caused by tidal waves.[30] The pilotage distance to Haldia is 125 km, out of which 75 km is sea pilotage.[31] For container vessels leaving the Dock, the transhipment is done at either Colombo or Singapore. Bulk and break bulk require no transhipment and are often sent in smaller vessels.[32] There is an additional opportunity of coastal shipping that could be tapped. Commodities that can be traded through coastal shipping are thermal coal, cement and steel.[33]

| Table 3:PROJECTS UNDER SAGARMALA AT HALDIA DOCK COMPLEX | |
|---|---|
| **Port Development** | Setting up a fully mechanised cargo handling jetty with back-up facility), setting up of a Multipurpose Dry Cargo handling Jetty with back up facility, setting of a fully mechanised cargo handling jetty with back up facility at Haldia Dock II and renovation and development of Oil Jetty outside Dock Basin at Haldia. |
| **Port Modernization** | Installation of Marine Unloading Arms for handling LPG at 1st, 2nd and 3rd Oil Jetty of Haldia Dock Complex including associated facilities. |
| **Ship Building, Ship Repair and Ship Breaking** | Building barge jetties to support anchorage operations at Haldia. |
| **Inland Water Transportation and Coastal Shipping** | Setting up of Outer Riverine Terminal (OT-1), setting up of Outer Riverine Terminal (OT-2) and construction of Multimodal Terminal at HDC. |
| **Hinterland Connectivity and Multimodal Logistics** | Expressway from Panagarh (Durgapur) to Haldia. |

*Source: Advantage Maritime India, Maritime India Summit 2016, Ministry of Shipping, Government of India.*

#### Hinterland Connectivity

The Haldia Dock Complex (HDC) is well connected to the hinterland through broad, well-maintained roads with no traffic congestion, ensuring easy movement of cargo.

**Table 4: Haldia Dock Complex and Hinterland Connectivity**

| Road Connectivity | Rail Connectivity |
|---|---|
| HDC is connected to NH-41 which links it to NH-6 and the rest of the country.[34]<br><br>Work is on for Four laning of 52.2 kms stretch of NH-41 from Kolaghat-Haldia.[35]<br><br>A Rail Over-bridge is being constructed at Ranichak, 700 metres away from the Main Gate of HDC. It is aimed to reduce congestion and assure smooth movement of road borne cargo between HDC and NH-41.[36] | Internally, port railways connect HDC well and are equipped to handle different types of cargo.[37]<br><br>Externally HDC is connected with Durgachak (DZK) station of South Eastern Railway.[38]<br><br>Panskura-Haldia Branch Line connects the docks to the Howrah-Kharagpur main line i.e. the Trunk Railways thereby providing the link to the all India rail network.[39] |

*Source: Prepared by researchers.*

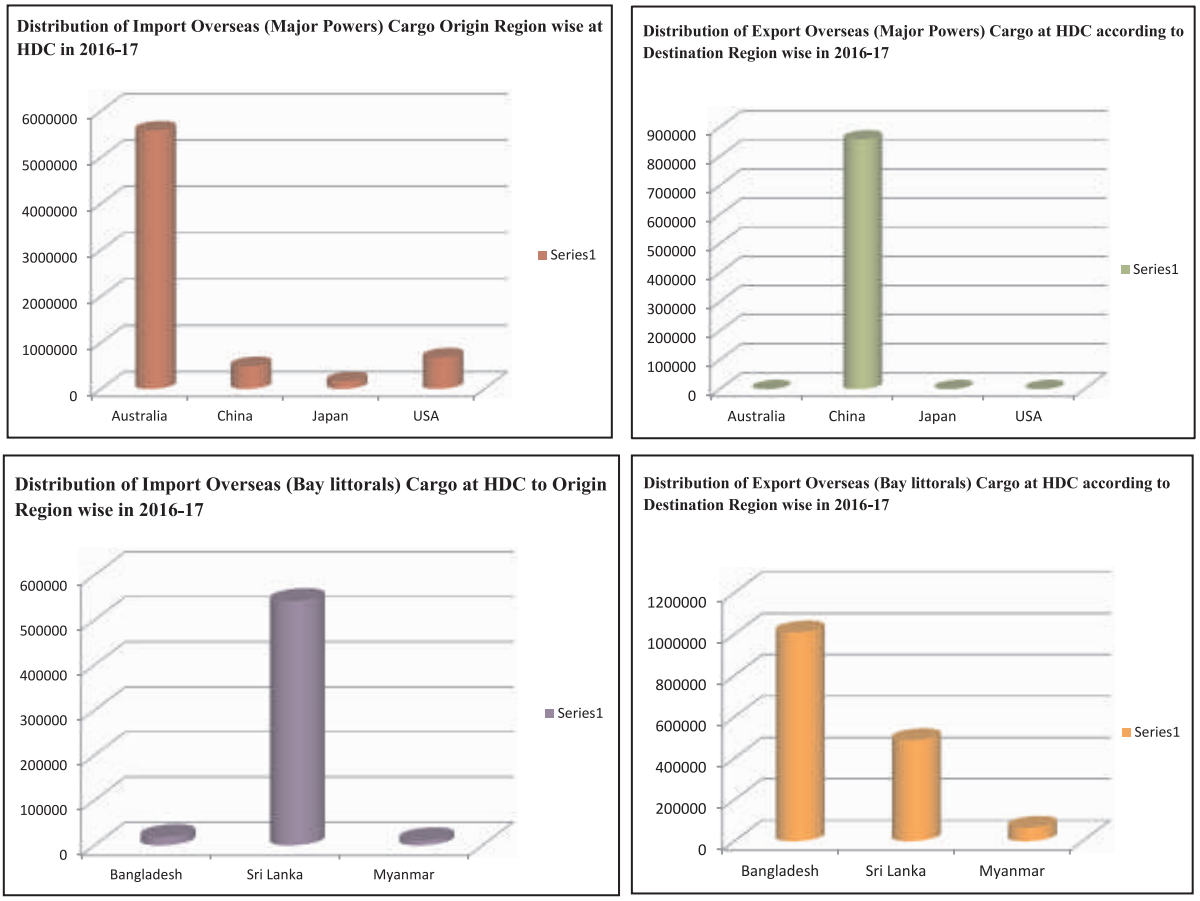
**View of Haldia Dock**

*Source: Photograph taken by researchers*

## Connectivity with Bay littorals and Major Powers

Large ships carrying cargo from the transhipment port of Colombo, Sri Lanka find it difficult to make the Haldia Dock a port of call[40] as the latter suffers from a lack of adequate draft. However, containerised cargo-feeder services do exist between the two ports and may be further enhanced. Haldia imports around 3,500 tonnes of manganese ore from Sri Lanka and exports steel in return.[41] Figure 5 (in tonnes) represents HDC's trade with the major powers and Bay littorals (see Annexure 2 for data).

**Figure 5: Distribution of Import and Export Cargo (Major Powers and Bay Littorals) Region Wise at Haldia Dock Complex**




*Source: Prepared by researchers*

## What Makes the Dock Marketable?

- **An LNG Terminal** will be set up near the first oil jetty and a **second LNG terminal** area is under construction on the upstream of River Hooghly near the Lock Gate.[42]
- **A fully mechanised dry bulk cargo handling terminal** will be set up on the upstream of River Hooghly near the third oil jetty.[43]
- **A Floating Cargo Handling Terminal** for handling barges and mini bulk carriers is going to be set up near River Hooghly.[44]
- **World Bank** has recommended the setting up of a **Multimodal IWT terminal** at Haldia with rail connectivity under the Rashtriya Jal Marg Vikas Pariyojna, to cater to the projected Inland Waterway Traffic. For this, 61 acres of land has been allotted to IWAI near the Haldia Dock for setting up terminal infrastructure.[45]
- **BPCL** is supposed to set up an **LPG Terminal** comprising facilities for storage, distribution and bottling in 45 acres of Kolkata Port Trust (KoPT) land at HDC.[46]

### Challenges Faced by the Dock

- **Shortage of Barges:** There is a shortage of barges on the hinterland rivers, and it is believed that providing concessions to the barge operators will solve the problem.[47]
- **Mixed Cargo Handling:** Mixed cargo handling at most berths take place in the HDC. Segregation would help in handling cleaner cargo on the town side and handling cargo with dust potential on the river side. This would significantly bring down pollution levels.[48]
- **Expensive Dredging:** At HDC, a lot of money is spent on maintenance dredging, and since Haldia is not a natural port, and there is as yet no technological solution that can help avoid dredging or increase the draft of the Haldia Channel.[49]
- **Shallow Draft:** Due to the shallow draft, larger ships may be unloaded using floating cranes at the anchorage to smaller vessels. These may then be transferred to HDC, which has good hinterland connectivity.[50]

Currently, talks are going on for separating the Kolkata and the Haldia docks as most of the revenue generated at Haldia goes into paying the pensioners of Kolkata Port.[51]

As the draft of the Kolkata and Haldia docks are comparatively shallow and require long navigational channels—compared to the other ports on India's East coast—the construction of two deep-sea ports were envisaged. Bhor Sagar Port Ltd. (BSPL), a joint venture by Kolkata Port and Government of West Bengal, will take up the development of Tajpur Port as Phase 1 and the Sagar Port as Phase 2.[52]


**Map 5: Location of Sagar Port and Tajpur Port**

*Source: "Delhi rejects minority port role- Centre uses Sagar as a handle for greater control in Tajpur project," The Telegraph, 7 October 2016, https://www.telegraphindia.com/1161007/jsp/bengal/story_112373.jsp.*

**Table 5: A Brief Look at the Tajpur and Sagar Ports**

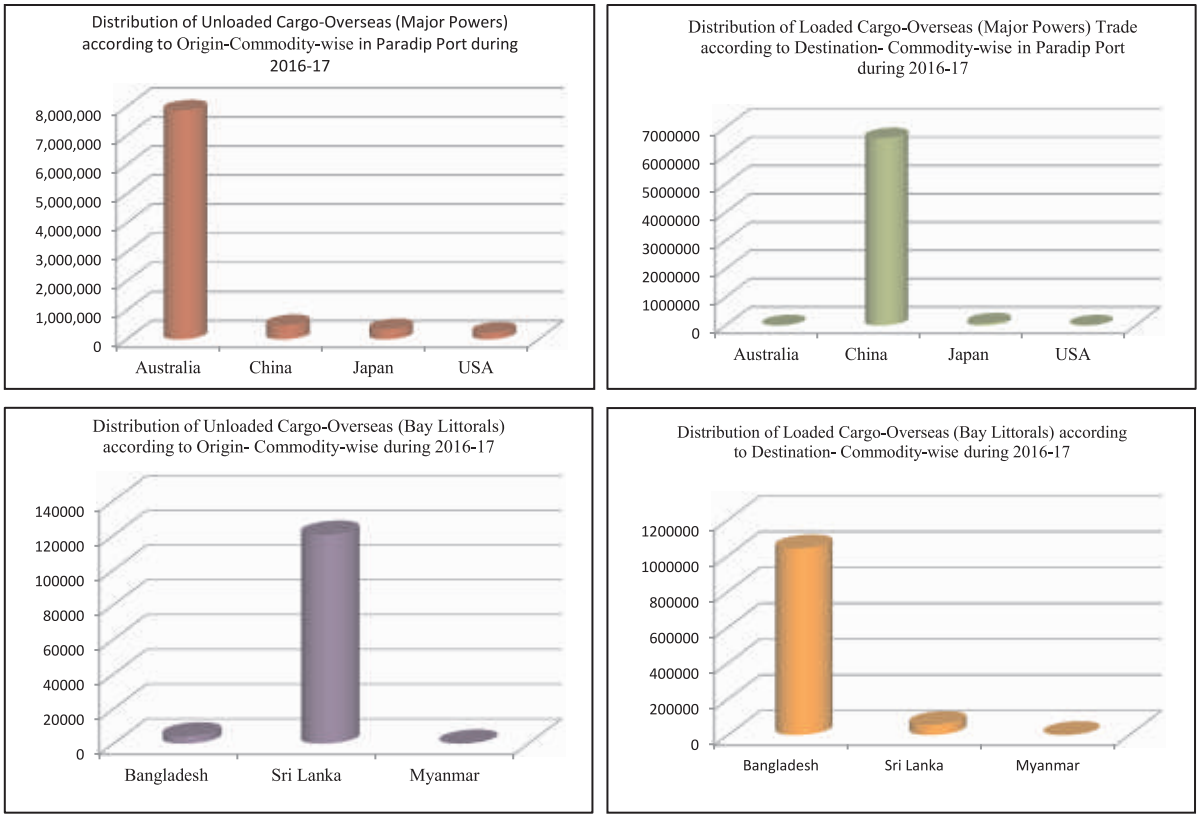
| TAJPUR PORT | SAGAR PORT |
|---|---|
| • To be developed as a deep water major port under Phase I by an SPV (Special Purpose Vehicle) Bhor Sagar Port Ltd. (BSPL) of the Kolkata Port and the West Bengal government as a junior partner.[53]<br>• Located 150 km from Haldia<br>• Expected draft of 12.8 to 15 meters.[54]<br>• Presence of shoals will hinder it from berthing cape size or fully laden Panamax vessels.[55]<br>• Mainly spill over cargo from Kolkata and Haldia is likely to be handled here.[56]<br>• It has an edge over Sagar Port as it requires no river to be crossed for hinterland connectivity.<br>• Nearest main railway network is 7 km away and road (NH 116 A) is 5km away from proposed port area.[57] | • To be developed as a deep water port under Phase II, by BSPL after completion of Tajpur Port.[58]<br>• located 100 km downstream from Kolkata<br>• Separated from mainland by Muriganga River.[59]<br>• Estimated draft is 9.5-10.5 meters. It is expected to handle Panamax carriers of 80,000 DWT.[60]<br>• It requires no dredging.<br>• It is likely to handle the excess containers of Kolkata and Haldia. [61]<br>• It shares the hinterland of Kolkata and Haldia including Nepal and Bhutan.<br>• It requires a Rail cum River Bridge over the Muriganga River to be linked to NH 117 to facilitate connectivity.[62] |

### 1.1.3 Paradip Port

Located in Odisha, Paradip was the first major port in India to be commissioned on the country's eastern coast after Independence. The port has an entrance channel of 17.1 depth, one Ro-Ro jetty, 16 berths, and three single point moorings.[63] There is also a mechanised coal-handling plant for thermal coal traffic. The handling capacity of the port is 21 million tonnes (MT) per annum, with plans for an additional 325.00 MMT per annum to be developed by 2020. Currently, Paradip Port handles about 118.50 MMT per annum.[64]

The port has rail and road connectivity with the hinterland via the East Coast Railway and National Highway No. 5 and State Highway No. 12. The port also has its own railway system with a route length of about 7.4 km and track length of 84 km.[65] It is connected through bus and train routes with Bhubaneshwar, Rourkela, Puri and Cuttack, and serves a vast hinterland comprising the states of Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh, Uttar Pradesh, Bihar and West Bengal.[66] Paradip Port handled traffic of 64.92 MT during the year 2016–17 (as on December 2016).[67] Figure 6 shows distribution of import and export cargo (major powers and Bay littorals) region wise at Paradip Port (see Annexure 3 for data).

**Figure 6: Distribution of Import and Export Cargo (Major Powers and Bay Littorals) Region Wise at Paradip Port**




*'Note: Unloaded cargo refers to Imports and Loaded cargo refers to Exports*

*Source: Data received from Annual Administration Report, Paradip Port, 2016–17, http://paradipport.gov.in/Writereaddata/Administrative/Annual_Admin_Report_PPT_2016_17.pdf.*

### 1.1.4 Visakhapatnam Port

The Port of Visakhapatnam is one of the leading major ports of India and is located on the east coast midway between Kolkata and Chennai. It has the highest draft amongst all the container terminals in India, 16.5 m,[68] and is the only Indian port with three international

accreditations.[69] The inner harbour, a natural bay, is shared by the port and the Eastern Naval Command for movement of vessels. The outerharbour can accommodate larger vessels. There are plans to develop another outerharbour to provide the Navy with deeper berths for their vessels.[70] The port is capable of handling super-cape vessels of 200,000 DWT in the outer harbour with a draft that can be dredged up to 18.1 m. Maintenance dredging is not a severe problem.[71] Fully laden Panamax vessels of draft up to 14.5 m can be handled in the harbour. Currently, the port has 24 berths and one single-point mooring. The port specialises in handling bulk cargo, but now handles break bulk cargo as well.

The Vishakha Container Terminal Pvt. Ltd. (VCTPL) is the only container terminal at Visakhapatnam Port with a capacity of nearly 1 million TEUs.[72] It is the deepest and longest (456 m) container berth in India that can berth the biggest container vessel in the world (2500 TEUs).[73] The terminal is congestion free, ensuring quicker turnaround time.

**Figure 7: Layout of the Visakhapatnam Port**


*Source: Obtained by researchers during field visit to Visakhapatnam, August 2017*

| Table 6: PROJECTS UNDER SAGARMALA AT VISAKHAPATNAM PORT | |
|---|---|
| **Port Development** | Construction and Commissioning of additional Liquid Bulk Berth for POL handling at VPT |
| **Port Modernization** | Additional coal stackyard at VGCB to increase the terminal capacity at VPT. |
| **Port led Development** | Creation of power complex, export based electronic cluster, export based apparel cluster and development of cement cluster in central Andhra Pradesh. |
| **Hinterland Connectivity and Multimodal Logistics** | Direct Connectivity to Mindiyard in Visakhapatnam Port from Eco. Railway |

*Source: Prepared by researchers from data compiled from Advantage Maritime India, Maritime India Summit 2016, Ministry of Shipping, Government of India.*

## Hinterland Connectivity

The port has constituted a business development team for expanding its business and exploring new hinterland connectivity. Road connectivity is better than rail, and the latter is mainly used for low-value commodities. The VCPTL terminal is congestion free, with good rail and road connectivity that provides faster turnaround time and competitive logistic cost.[74]

**Table 7: Visakhapatnam Port and Hinterland Connectivity**

| Road Connectivity | Rail Connectivity |
|---|---|
| Project has been taken up to connect the port to the bypass through a dedicated freight corridor to avoid city congestion. | The port is connected to the Chennai – Howrah main railway line of the East Coast Route. |
| Bypass lane from Nakkapalli to Anandapuram. Is being developed by the National Highways Authority (NHA) into a 6 lane dedicated express highway with two lanes of service roads on either side, allowing 24 hour cargo movement. | There are plans for an Express Highway connecting the northern part of the state to the south via a Coastal Corridor. But it is very expensive and only 15 km away from the National Highway. |

*Source: Prepared by researchers from field trip.*

## Connectivity with Bay Littorals and Major Powers

The Port of Visakhapatnam is perfectly located for trade with South East Asia and is poised to play a vital role in the economic integration of the subregion. Under the Indo-Bangladesh coastal shipping agreement, vessels from Bangladesh enjoy some of the privileges usually reserved for Indian coastal shipping. Thus, these ships are not classified as foreign flag vessels and get a 40 percent rebate at Visakhapatnam Port. The J.M. Bakshi

**A View of the Visakhapatnam Port**

*Source: Photograph taken by researchers*

Group, which currently runs the VCPTL terminal at Visakhapatnam Port, has sought to connect Chittagong, Kolkata, Paradip and Visakhapatnam through feeder service, but this is yet to be executed.[75] Visakhapatnam had good connectivity with Myanmar until about five years ago, when the latter was exporting a lot of timbre. However, currently there is no direct connectivity between Visakhapatnam Port and Myanmar.

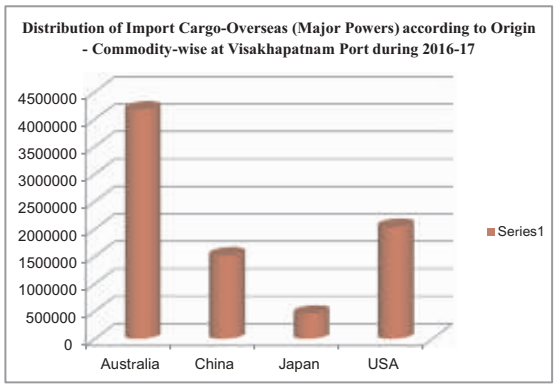
Nepal has requested that India handle Bulk Cargo along with sealed containers at Visakhapatnam as there is more demand for the former.

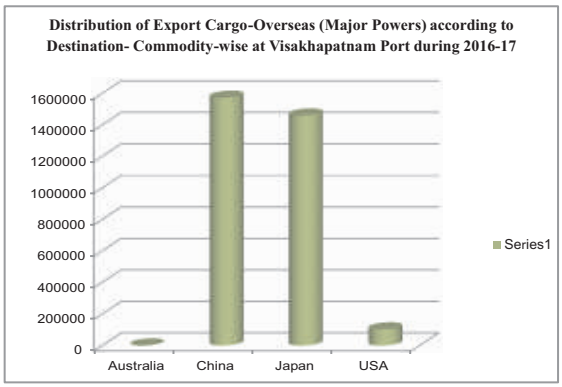
MAERSK has now offered a cheaper alternative to Nepalese exporters and importers through end-to-end service. This implies taking charge of the entire processing and handing over the cargo at Birganj ICD (Inland Container Depot) from Visakhapatnam.

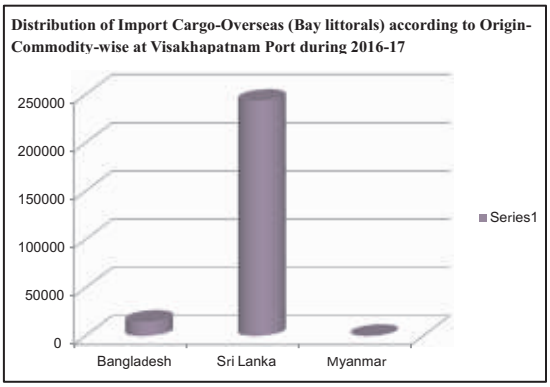
Following the Indo-Nepal agreement for an additional transit route for Nepalese cargo, for the first time, a rail rake will be directly connecting Visakhapatnam and Birgunj in Nepal. Visakhapatnam Port has now been designated as the second port of call for Nepal in 2016.[76]

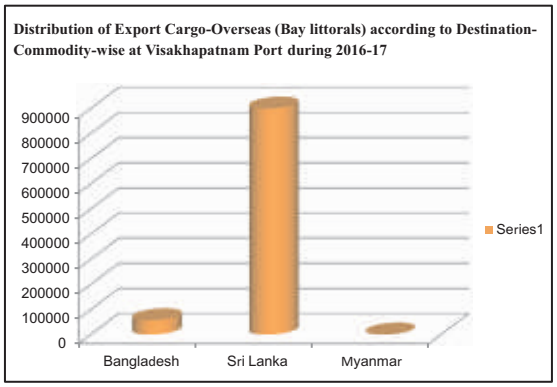
The Visakhapatnam Port is beneficial for Nepal as the sea route is closer and there is longer retention capacity at the port. Efforts are now in place to establish a Nepalese Consulate within the port premises. Raxaul and Birganj have been identified as the points for exchange of cargo. From there by road or rail (CONCOR-a subsidiary of Indian railways), this reaches the Visakhapatnam Port. Here the CFS's (Container Freight Stations) prepares the cargo for the next leg of movement to another port.[77] To overcome the chain of middlemen involved in Nepalese trade, the port must provide efficient cost-efficient services and concessions and spread awareness amongst Nepal's traders about the ease and transparency of business proceedings at Visakhapatnam. Figure 8 (in tonnes) represents Visakhapatnam Port's trade with the Bay littorals and major powers (see Annexure 4 for data).

**Figure 8: Distribution of Import and Export Cargo (Major Powers and Bay Littorals) Region Wise at Visakhapatnam Port**






*Source: Prepared by researchers from data collected during field visit to Visakhapatnam, August 2017*

## The Visakhapatnam Port as a Potential Container Hub

The Visakhapatnam Port with the deepest draft and longest container terminal in India is poised to take advantage of the projected trade in this region. If provided with the right infrastructure, the port can be at par with international standards and act as transhipment hub port. Efforts are being made to develop Visakhapatnam as a "Container Hub Port." Once developed, it can establish connectivity with other nearby ports and Yangon, too, can fall within that ambit. The cabotage law is the main shackle restraining Visakhapatnam from developing into a hub port. Once that is eased, foreign vessels will be allowed to carry cargo from Visakhapatnam Port to other nearby ports automatically, making the latter a hub port.[78]

## What Makes the Port Marketable?

- **Predictability:** As there are no hindrances, such as tidal waves or lock-gate systems, an element of predictability prevails. Ships can stick to their schedule without any undesirable delays.[79] The greatest advantage of the Visakhapatnam Port is its promise of dependability and predictability to its customers.

> To obviate inefficiencies, the Port of Visakhapatnam has embarked on capacity expansion, modernisation, deepening of harbour basins, channels, berths and improvements in logistics such as connectivity.

- **Greater Accommodation:** Being a natural port, ships can directly come within 2 km for anchorage and can be docked within a span of 45 minutes.
- **Lower Slot Rates:** The port offers lower slot rates, leading to lesser transaction costs.
- **Concessions:** Container vessels at Visakhapatnam get 50 percent concession on marine charges and bigger vessels (more than 50,000 DWT) get 70 percent concession on marine charges.

- **Facilitates industrial growth:** The developments at the port are aimed at facilitating the growth of industrial activity in its hinterland, thereby contributing to the growth of the Indian economy. Developmental activities taken up by the port would also facilitate effective implementation of the Act East Policy of the Government of India.[80]

**Challenges Faces by the Port**

- **Surplus Capacity:** While the Visakhapatnam Port was adapting to the government's prescribed PPP mode, some unusual discrepancies were revealed. It was found that instead of under-capacity, there was surplus capacity but without sufficient infrastructure to meet customer demands. Moreover, because of the surplus capacity, Visakhapatnam was getting much less cargo than desired, affecting the port's revenues.[81]
- **City Rules:** The city rules are very stringent, and the Visakhapatnam Port has to take extreme precautions in the movement of cargo from the port to the hinterland, which makes the whole process difficult and expensive. Violations will result in public outcry, and the cargo will be dramatically reduced.[82]
- **Cabotage Laws:** Cabotage laws prevent the movement of cargo from one Indian port to another Indian port by a foreign vessel. Therefore, shipping lines are forced to move containers from one Indian port to another Indian port via an international transhipment hub, leading to double handling and increase in cost, and the consequential impact on foreign exchange.[83]

### 1.1.5 Kattupalli Port

The Port of Kattupalli is a private port, located on the Coromandel Coast about 24 km north of the Chennai Port.[84] It was taken over by the Adani Group from Larsen and Toubro in October 2017. It now has a production of 43,000 TEUs.[85] The port presently has 2 berths (of which one is an L-shaped berth, originally built for captive ship-building but now used for commercial purposes); a third one is under construction, with plans for a liquid container terminal too.

There are 6 cranes, draft is about 14 m, and each berth is about 350–360 m. There are 5,000 ground slots. There are plans to build a liquid container terminal by the end of 2017 to accommodate liquid cargoes at the Kattupalli terminal.[86] The port is being developed as a multi-cargo (container, bulk cargo, liquid Ro-Ro) port with 24 x 7 navigation, tug boat and pilotage.

**Box 1: Krishnapatnam Port**

Krishnapatnam Port is the country's largest port with shipping, freight shipping and cargo services. It is an all-weather port located in Andhra Pradesh. Privately built and owned, itis the only port on the east coast that offers standard and economy international shipping services.

- The Krishnapatnam Port has a highest draft of 18.5 m.
- It can handle cape-size vessels, Panamax vessels and ultra large container vessels.
- It provides round-the-clock navigation and mechanised handling for Bulk and Break Bulk Cargo.
- The port with low tariff rates can become a transhipment hub and, therefore,in in competition with Colombo, the existing transhipment hub.
- The port has two weekly services to Colombo through private shipping lines.
- The first container vessel under the Indo-Bangladesh Coastal Shipping agreement sailed from this Port in March 2016.
- There is a fortnightly direct container shipping service between Krishnapatnam Port and Yangon Port in Myanmar.
- In 2014, a new service between Colombo, Chennai, Krishnapatnam and Yangon was proposed, offering India direct connectivity with Sri Lanka and Myanmar.

*Sources:"Krishnapatnam Port offers deepest draft on east coast," Business Line (The Hindu), 20 September2017, http://www.thehindubusinessline.com/economy/logistics/krishnapatnam-port-offers-deepest-draft-on-east-coast/article9866198.ece; About Port, Krishnapatnam Port, http://www.krishnapatnamport.com/about_port.html; "Krishnapatnam Port starts trans-shipment, vies with Colombo, S'pore," Hellenic Shipping News, 17 August2017, http://www.hellenicshippingnews.com/krishnapatnam-port-starts-trans-shipment-vies-with-colombo-spore/; N. Anand, "Krishnapatnam Port gears up for SCI's Yangon-Colombo service," The Hindu, 24 September 2017, http://www.thehindu.com/business/Industry/krishnapatnam-port-gears-up-for-scis-yangoncolombo-service/ article6430048.ece; "Krishnapatnam Port vessel undertakes historic maiden voyage from India to Bangladesh," Business Standard, 28 March2016, http://www.business-standard.com/article/news-ani/krishnapatnam-port-vessel-undertakes-historic-maiden-voyage-from-india-to-bangladesh-116032800629_1.html; V. Rishikumar, "Direct container shipping service to Myanmar flagged-off,"Business Line (The Hindu), 4 October 2014, http://www.thehindubusinessline.com/economy/ logistics/krishnapatnam-port-flags-off-direct-container-service-to-myanmar/article6470740.ece.*


**A vessel docked at the Adani Kattupalli Port**

*Source: Photograph taken by researchers*

### Hinterland Connectivity

Approach roads to the port are congestion free and accessible 24 x 7 accessible. The roads are also well connected to all national highways.[87]

### Connectivity with Bay Littorals and Major Powers

The Adani Group is considering connectivity with the Bangladesh market through small carrier vessels. However, there are a lot of infrastructural issues involved.[88] With Sri Lanka, there are currently two services: the MAERSK shuttle service between Colombo, Chennai, Kattupalli, Krishnapatnam and Salalah in Oman; the CCG (Chennai-Colombo-Gulf) service from Kattupalli to Colombo.

There is also a planned pick-up service from India's east coast to Colombo. Kattupalli, too, is looking for vessels that can directly connect the port to Colombo and through a weekly feeder movement to tap into the Sri Lankan market.

### What Makes the Kattupalli Port Marketable?

The Katuppalli Port holds a lot of potential for improvement as it is faces much less congestion than the Chennai Port, and it can do more business due to maintaining schedule, Direct Port Delivery (DPD) and other facilities.

- **No Congestion:** Free roads help in easy and swift movement of cargo. A truck completes two to three trips from the port to the CFS's in a span of 24 hours. Thus, it offers the possibility of improved trade.[89]
- **Predictability:** Because of lack of congestion, there are no unnecessary delays and ships can maintain their schedule. Additionally, containers can be connected up to the last minute, and things go as per schedule.[90]
- **Direct Port Delivery (DPD):** Under this service, customers can inspect the cargo and directly take it to the factories. This is useful particularly for automobile users.[91] The DPD system makes it the most preferred gateway port for automobiles and their ancillary industries.
- **Multi-Cargo Port:** Kattupalli will be a multi-cargo (container, bulk cargo, liquid Ro-Ro) port along with 24 x 7 navigation and its own pilotage, tug boat and pilotage services. This is an advantage over Chennai Port, which primarily handles containers.[92]
- **Plan to Develop SEZs:** Kattupalli is also planning to acquire more land to help develop SEZs (special economic zones). This will of course be undertaken after establishing proper rehabilitation measures.[93]

### Challenges Faced by the Port

Improved rail connectivity will advance the port's hinterland connectivity. The government must act to negate the chances of the port becoming inefficient.[94]

**Box 2 : Kamarajar (Ennore) Port**

The Kamarajar Port (formerly known as the Ennore Port) is located 24 km north of the Chennai Port, on the Coromandel Coast.

- It is a landlord port and one of the fastest growing seaports in India.
- The port handles 38 MMTPA with a projected capacity of 96 MMTPA by 2020–21. This is the only corporatised port in the country. It is equipped with two breakwaters and four berths, with a capacity to develop 20 berths for handling bulk, liquid, automobile and container cargo.
- The Kamarajar Port has developed from a primarily coal-handling port to a multi-cargo port with facilities for handling liquid bulk, iron ore, auto mobiles and general cargo. The port has 6 berths with a total capacity of 45 MT. In 2016–17, the port handled traffic of 22.18 MT.

*Sources: Kamrajar Port Limited, http://www.ennoreport.gov.in/content/innerpage/genesis.php; Annual Report 2016–17, Ministry of Shipping, Government of India, 26, http://shipping.nic.in/showfile.php?lid=2450.*

### 1.1.6 Chennai Port

Established in 1875, Chennai Port is an all-weather artificial harbour with one outer harbour and one inner harbour, and round-the-clock navigation facilities.[95] The port comprises two container terminals, three dock systems and 24 berths. The maximum draft is 17.4 m at some berths.[96] Plans are currently being made to develop an outer harbour for the Indian Navy. The Port has 10 Gates for entry and exit. Of these, gates 4, 6 and 9 connect the port to the Southern Railway lines.[97]

**Containers being moved at the Chennai Port**

**A view of the Chennai Container Terminal Pvt Ltd.**

*Source: Photographs taken by researchers*

Its location enables the port to handle a variety of cargo comprising dry bulk, liquid bulk and break bulk cargo.[98] Out of the total cargo handled here, 60 percent is container cargo, 20 percent is POL (petroleum, oil and lubes) products and the remaining 20 percent is other cargo.[99] Chennai offers a coastal concession of flat 40 percent on the tariff (all over India) and another concession on Ro-Ro coastal, of flat 80 percent. There are also concessions for containers, which vary from country to country. Chennai is strategically positioned to serve the large demand of the hinterland of Chennai and the adjoining areas, through coastal shipping. Commodities that can be involved in coastal shipping are steel and cement.[100] The Chennai Port carries out maintenance dredging to preserve the depths of various berths as per the declared drafts.

| Table 8: PROJECTS UNDER SAGARMALA AT CHENNAI PORT | |
|---|---|
| **Port Development** | Development of JD (East) Berths for Handling Bulk Cargoes, Development of BD II as Coal Terminal and setting up a single point mooring terminal at Chennai Port. |
| **Port led Development** | Creation of a Power Complex, Export based Electronic Cluster and development of Greenfield Refinery at Tamil Nadu. |
| **Hinterland Connectivity and Multimodal Logistics** | Development of road facilities inside Chennai Port for cargo evacuation, creation of Expressway from Whitefield industrial cluster (Bangalore) to Chennai Port. |
| **Green port Initiatives** | Development of 14.5 MW Wind Farm near Chennai Port |

*Source: Advantage Maritime India, Maritime India Summit 2016, Ministry of Shipping, Government of India.*

### Container Terminals at Chennai Port

There are two terminals in Chennai Port: Chennai Container Terminal Pvt. Ltd. (CCTL) and Chennai International Terminal Pvt. Ltd. (CITPL). The first is owned and run by DP World and the second by PSA. The Chennai Port provides the terminals with pilotage service, berth hire, tug charge, wharfage.[101]

### Chennai Container Terminal Pvt. Ltd. (CCTPL):

CCTPL has leased land from the Chennai Port Trust for the last 30 years. It is the oldest container terminal in India and has a quay length of 885 m. It can accommodate container vessels up to 6,400 TEU.[102] It has 240 reefer plugs. The yard also houses a container freight station. CITPL, however, has an edge over the CCTPL in terms of the port's internal connectivity.[103] This terminal trades with the US.

### Chennai International Terminal Pvt. Ltd. (CITPL)

CITPL is a hundred percent subsidiary of Singapore Port Authorities (PSA). It started operation in Chennai in September 2009. There are seven key cranes and 304 reefer plug points, so refrigerate cargos do not face any issues.[104] The yard space is about 3,500 ground slots.[105] The only advantage of CITPL over CCTPL is that it has direct rail connectivity from within the terminal operated by the Container Corporation of India Ltd. (CONCOR). This terminal primarily trades with the Far East, including Japan. Some cargo is trans-shipped to Colombo, but business with Bangladesh or Myanmar has not sustained.

**Table 9: Chennai Port and Hinterland Connectivity**

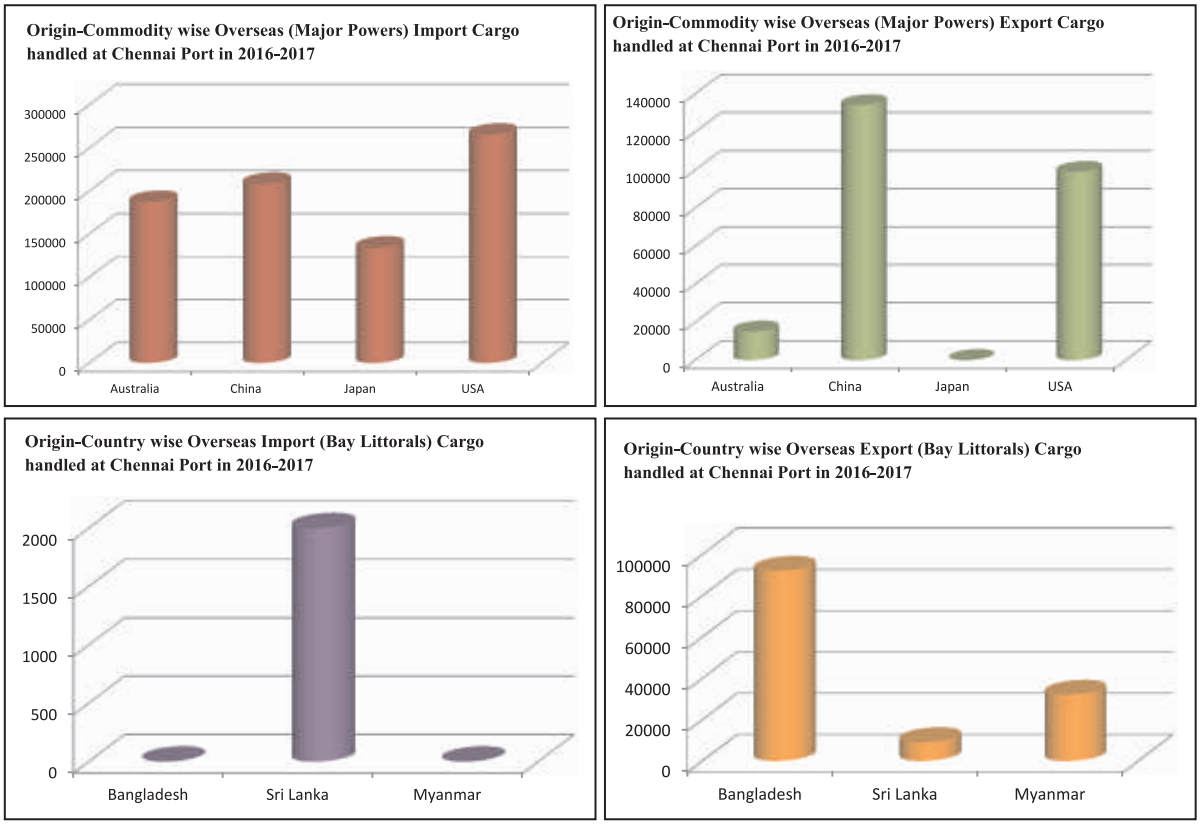
| Road Connectivity | Rail Connectivity |
|---|---|
| Hinterland connectivity from the Chennai port is mainly dependent on the road. Total cargo evacuated by road or rail is 18%-20%. | Chennai Port is well connected with the national railway network. The Port has access to the Southern Railway network connects to Kolkata, New Delhi etc. |
| The port is connected by road to NH-5 (Chennai-Kolkata), NH-4 (Chennai – Bangalore and NH-45 (Chennai –Tiruchirappalli). The east coast highway connects the city with Pondicherry. | However CONCOR does not prefer to use this part of the country. Some private operators tried operating the railways but because of the lack of ICD'S they soon lost out. |
| Of 4 gates only Gate 0 is open 24/7 but that too is under the restrictions of the police. 90% of the vehicular traffic going in and out of the port happens through this gate. | Also for CONCOR to offer discounts it has to undertake a painfully long proceeding of governmental formalities. |
| Projects which have been taken up to avoid traffic: The Elevated Express Highway of Muduravoyal, Chennai Ennore Port Road connectivity Project (EMRIP), Ennore- Manali Road Improvement Project (EMRIP Project), CBIC- Chennai Bangalore Industrial Corridor and the Chennai-Kanyakumari Industrial Corridor (CKIC). However some of these projects have been left incomplete. | Road transportation is far cheaper principally because roads have developed a lot in the last few years compared to the rails. Second the railway freight is very expensive. Only Bulk cargoes move by rail. |

*Source: Prepared by researchers from data gathered during field visit.*

### Connectivity with Bay Littorals and Major Powers

Figure 9 (in tonnes) represents Chennai Port's trade with the major powers and Bay littorals (see Annexure 5 for data).

**Figures 9: Distribution of Import and Export Cargo (Major Powers and Bay Littorals) Region Wise at Chennai Port**




*Source: Prepared by researchers from data collected during field visit to Chennai, August 2017*

Presently, the Chennai Port is making a dedicated coastal berth, and on government's orders it may also be reserved for Bangladesh and Myanmar, which will greatly reduce time in trade as a berth will always be ready for use. Colombo may be a competitor of Chennai along with the other neighbouring Indian ports. For Chennai to gain an edge, prices must be lowered and procedures simplified. Earlier, there was a dedicated SCI (Shipping Corporation of India) Kamal Container Service between Chennai and Myanmar, but now it has been stopped due to lack of demand. Timbre and pulses still come not in bulk but in packages. But if they come in containers, Chennai Port can accommodate it.

## Challenges Faced by the Port

- **Surplus Capacity:** Chennai Port suffers from the problem of surplus capacity. Its present capacity is 126 MT, but it handles only 50 MT.
- **No Clear Division of Cargo:** Within 250 km of the Chennai Port, there are five other ports, (Kakinara, Krishnapatnam, Kattupalli, Karaikal and Kamarajar) in addition to Tuticorin. Due to such congestion, the demand gets divided. The two government-owned ports do not have any clear division of cargo either.[106]

- **Imbalanced Competition:** Due to the close existence of so many ports—major and private—there exists an imbalanced competition as private ports can offer more concession in comparison to the Chennai Port. In such a situation, a price war may break out between the ports, causing a severe hindrance for revenue collection of the major ports. Higher cost and evacuation issues in Chennai have made customers move to Krishnapatnam.[107]
- **Tariff Authority of Major Ports (TAMP) Induced Irregularities:** Major ports under the regulations of TAMP do not have flexible tariff rates, which is not the case with private ports (which can offer attractive tariff rates). For Chennai Port, this has become a major hindrance with so many private ports in the vicinity. Even the private container terminals inside the major ports cannot offer very low tariff rates as they must pay a royalty charge to the ports. Though the new Major Port Authorities Bill (replacing Major Ports Act) places more authority in the hands of the major ports, repealing the TAMP is still a distant dream.
- **Customs:** Customs procedures are still to be improved compared to international standards. Inefficient computer networks are a frequently occurring problem. The customs office is gradually realising the need to shift from a policing approach to a facilitating approach. There is also a trend of duplicate collection of customs duties at Chennai Port, once at the container gate and then another at the main gate. This is an illegal practice and causes Chennai Port to lose traffic.[108]
- **Lack of Functional Gateways:** Chennai Port has only one functional gateway, which is operational 24 x 7.
- **Cabotage Locks**[109] are still strict in Chennai, but they have been relaxed in Mundra, Mangalore and Kochi. Thus, ships coming to the east coast are disappointed.
- **Lack of Proper Paperwork** amongst truck drivers coming inside the port for movement of cargo cause unnecessary delays.[110]
- **Indian Port Dues Are Too High** for the ports to become effective transhipment hubs. Comparing Jebel Ali, Colombo, Singapore and Chennai, Chennai is most expensive. If a big ship comes to a port, it should not cost the customer too much.[111]

**Box 3: V.O. Chidambaranar Port**

The V.O. Chidambaranar Port, formerly known as the Tuticorin Port, was declared as the 10thmajor port in 1974 and is one of the oldest ports in the country.

- It was one of the first ports to implement that Quality Management System (QMS) from 1996.The QMS system has enabled the port to adhere to streamlined processes and policies in its operations.

- Located on the southeast coast of India, the port has an artificial deep-sea harbour with two parallel breakwaters of about 4 km. Tuticorin has been a preferred port because of its proximity to the east–west international shipping route andis well connected by rail with its hinterland.
- The port has a 12.8 m draft, round-the-clock operations, night navigation, adequate storage facilities and surrounding open land area that may be further utilised for port-based industries.
- In FY 14–15, the port handled 32.41 MT of cargo, of which the share of coal was 13.80 MT (42.6 percent) and containers 11.03 MT (5,59,727 TEUS) (34 percent).

*Sources: V.O. Chidambaranar Port Trust, http://www.vocport.gov.in/why_voc.aspx.*
*Major Ongoing projects, V.C. Chidambaranar Port Trust, http://www.vocport.gov.in/Ongoing_Projects.aspx.*

### 1.1.7 Port Blair and Other Sites at the Andaman and Nicobar Islands

The 15-year national perspective plan mentioned previously comprises the development of an expanded dry-dock and ship-repair industry in Port Blair, besides the acquisition of vessels to run mainland–island services, the acquisition of tugboats for safe berthing and boosting docking capacity.[112] The plan will also include a new approach jetty at Havelock Island for the movement of cargo, the development of a new container yard at Mayabunder, cargo-handling equipment for Haddo Island and extension of the Jetty at Campbell Bay.[113]

The central government has adopted the 'Swiss Challenge System' to encourage the involvement of the private sector for ship repairing and port infrastructure development, allowing third parties to pitch viable offers over a specified period of time to ensure cost-effectiveness.[114]

The plan for building a transhipment port in the islands has been in existence since the 1980s, but the proposal could not move forward primarily because there was less exposure and a lack of a viable business model. And it was in the 1970s that the concept for developing a free port in the South Bay area in the Great Nicobar Islands was proposed. But the project did not see the light of day because of objections from the Ministry

**Aerial View of Port Blair**

*Source: https://www.masterbuilder.co.in/railways-set-approve-240-km-port-blair-diglipur-rail-line-project-andaman-nicobar/*

of Environment and Forests, which was strongly against the large-scale development in the area.[115] In 2009–10, the state administration conducted a study to assess the feasibility of establishing a Container-Transhipment Terminal in South Bay and, once again, the project was shelved due to the lack of basic infrastructural facilities and environmental concerns.

In early 2017, the NITI Aayog, in a memorandum[116] to the Government of India regarding the expression of interest for a transhipment port and free trade warehousing zone in the islands, stated that a site near Port Blair is better suited for this purpose instead of the Great Nicobar area. This is because of the seismic and ecological vulnerability of the latter. The memorandum also mentioned, "...any project in the Andaman and Nicobar Islands have to undergo rigorous environmental clearances which the A&N Administration should arrange to undertake along with relevant local and national environmental bodies."[117]

Overall, there are 24 ports in the ANI, of which seven are operational. All these ports handle cargo for local requirement. There is no outbound cargo, except coconuts and betel nuts. Port Blair is a mixed port with passenger-handling comprising most of the activity because of tourism and also because the port has a maximum draft of 10 m and cannot handle large vessels. There are some ports that have a draft of 50 m, and it is estimated that over the next couple of decades, these ports will have jetties and become operational.[118]

Port Blair provides communication facilities to all other islands with 14 communication centres that provide services to tourists as well as local inhabitants. Primary import commodities include food grains, petroleum, plastics, construction materials, meat products and so on. Outgoing or export cargo via maritime channels is very limited. The main concern regarding the operations at Port Blair is that there is a need for modernisation and increased mechanisation. This is because the handling capacity for bulk cargo is only 5,000 tonnes per day, which is comparable to that of the ports at Kolkata and Chennai but not to that of other, busier ports. Enhancing the capacity of Port Blair would also require better feeder roads.

There are a few locations in the ANI that can be considered ports for transhipment. These include Port Meadow, Campbell Bay, MacPherson Strait and Great Nicobar. For instance, Matsya (an Indian company) and Oldendorf (a German company) are interested in the development of offshore transhipment facilities at Port Midow for supplying coal and other materials to the Kolkata and Haldia ports. There is a similar proposal at Campbell Bay and at Great Nicobar, but there have been no movement on these yet. The setting up of an oil refinery at Great Nicobar is also being considered, which will serve a transhipment hub if developed.

While there are two very important and busy transhipment hubs to the east and west of the ANI—Colombo and Singapore respectively—the logic behind attempts at developing a transhipment hub in the ANI is that the most vital east–west shipping route passes just below the Indira point, and therefore, if it is possible to tap into at least five percent of this traffic, then it be very profitable for the islands.[119] This idea draws from the belief that if the infrastructure is built and industry prospect is created, then development will follow suit. These locations are more viable than Port Blair as they have greater draft than the latter and will be able to service larger vessels. In all, around 23 locations have been identified for the creation of ports under the 15-year plan for development of the ANI as a maritime hub and in addition, land has been allotted for commercial purposes such as tourism, agriculture, fisheries and handicraft.[120]

## 1.2. SRI LANKA

India must circumvent Sri Lanka in all its maritime activity and that makes Sri Lanka an integral part of India's geography, maritime commerce and security. Thus, maritime ties between the two countries are inevitably intertwined. For instance, it is estimated that about 30 percent outbound containers from India pass via Sri Lanka while 70 percent containers bound for India pass via Sri Lanka.[121] Despite these factors, there has been a lack of smartness in utilising the bilateral potential that is shared between India and Sri Lanka.

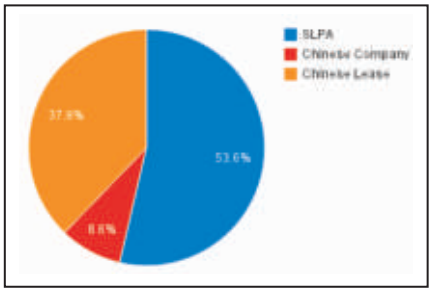
Shipping lines are like moths to a flame, if the demand is high, then shipping lines will automatically develop.

During interviews, it was found that there is one school of thought in Sri Lanka that believes that the fundamental issue is India's attitude of a win–win situation in which the win is entirely for India.[122] For instance, legal and procedural hurdles such as para-tariffs and NTBs are hampering maritime trade between India and Sri Lanka. Smuggling is a vital issue with garlic, alcohol and cigarettes being smuggled from Sri Lanka to India and sarees being smuggled on the way back. There is a strong need for conducting business freely, in the absence of which informal trade will continue. Other challenges include difficulties in non-acceptance of legal documents and bureaucracy. Moreover, there exists a professional lobby in Sri Lanka that does not hold a favourable view of India, and there is a lack of institutional frameworks in the country that hinders the realisation of long-term aspirations.[123] At the same time, however, another set of opinion seeks greater involvement of India in Sri Lanka, including Indian investment in the country's harbours and new terminals (East Terminal, for example) that are coming up.

Shipping lines are like moths to a flame—if the demand is high, then shipping lines will automatically develop.

There must be systems and processes that function smoothly. The maritime trade between India and Sri Lanka is about 250–300 containers per quarter or about four to five sailings per week, which is very little and not profitable for feeder operators. The main load comes from Mumbai and Chennai with hardly any connectivity between Kolkata and Colombo. Indian flag vessels do not ply often to Sri Lanka as the market in the country is not considered big enough.[124] The bilateral trade therefore is largely one way.

**Figure 10: Ownership of the Colombo Port**




*Source: https://www.yamu.lk/blog/the-colombo-port-city*

A tripartite proposal for opening borders among Sri Lanka, Bangladesh and India can enhance maritime interaction. It will be interesting to see Colombo, Chittagong and Kolkata connected on a multi-modal set up.[125] The key question is of stimulus in the region, which will offer the fillip for increased maritime trade and exchange.

### 1.2.1 Colombo Port

Straddling the east–west shipping route, the Port of Colombo is the primary port in Sri Lanka and the 25th busiest container port in the world, according to Lloyd's Register.[126] The port handles 87 percent of all ships coming to Sri Lanka, which roughly translates to about 86.2 MT of cargo. Container handling and transhipment comprise the core business of the port, although it handles other cargo as well. There are two harbours in the Port of Colombo: the first was a natural harbour built by the British over 300 acres with 27 berths and with a maximum draft of about 14.25 m, which is maintained throughout the year. The second harbour, which covers 600 hectares, was expanded during 2008–12 when 6.8 km of breakwater was built. There is a two-way channel with 20 m depth allowing a draft of about 18 m.[127]

Presently, the Colombo Port Expansion Project is underway, covering the south, west and east terminals of the port with an investment of US$15 billion, covering 269 hectares. As part of the project, a port financial city is being built, which will house regional shipping offices, hotels and so on. The project, being developed by the China Harbour Engineering Cooperation, envisions a financial special economic zone for attracting regional finance.

There is a 15-year timeline for the project. According to an evaluation document[128] by the Asian Development Bank, the estimated outcomes of the project are: (i) reduced transport costs for exporters, (ii) increased transhipment container volumes handled by Colombo Port, and (iii) increased container-handling capacity of Colombo Port. The expected outputs include (i) completion of dredging, reclamation, and breakwater construction; and (ii) completion of the south container terminal.

**Figure 11: Plan for the Colombo Port Expansion Project**

*Source: 'Colombo Port city to be among the most sought after locations', Sunday Observer, 3 November 2013, http://archives.sundayobserver.lk/2013/11/03/fea04.asp*

Maritime leadership in Sri Lanka has been quite farsighted and the Port of Colombo has always had a special incentive for cargo from the Bay of Bengal countries. For instance, there is a 10 percent rebate on the published tariff for cargo coming from these countries. Although maritime connectivity with Myanmar is picking up, there is room for a lot more. Scheduled container services have been planned between Sri Lanka and Myanmar, but it has not moved forward yet. Myanmar seems a little out of the loop as compared to other countries in the Indian subcontinent. There is a lot of untapped potential for maritime exchange with Myanmar, such as cargo comprising natural gas, bulk cargo, and hub-and-spoke cargo.

Interviews in Colombo revealed that India is welcome to own one of the terminals in the Colombo Port Expansion Project.

**Table 10: Feeder Network from Colombo Port to Bay Littoral Ports**

| | |
|---|---|
| To Chennai | 4 calls a week |
| To Chittagong | 3 calls a week |
| To Haldia and Kolkata | 4 calls a week |
| To Vizag | once every fortnight |

*Source: South Asia Gateway Terminals (Pvt.) Ltd., Port of Colombo, Sri Lanka, https://www.sagt.com.lk/Port_Of_Colombo.aspx?MnuId=3.*

**World War II Oil Tank Farms at China Bay, Trincomalee**

*Source: https://www.timeout.com/sri-lanka/attractions/trincos-lost-wwii-oil-tanks*

During interviews[129] at the South Asia Gateway Terminal at Colombo Port, we found that there exists a lot of hype about the fact that Sri Lanka competes with India. However, Sri Lanka actually adds to Indian competitiveness because it is just another gateway like JNPT or Mundhra. Apprehensions in this regard are, therefore, largely unfounded.

### 1.2.2 Trincomalee Port

With the second best natural harbour in the world, Trincomalee has 10 times more land and water area than Colombo. It was initially identified as a bulk and breakwater cargo port with related industrial setups. It served as an important port in Asia for the Allied Forces during World War II. Trincomalee holds a lot of potential as a bunkering port as well. The port has a berth at Ashraf Jetty, with a draft of 12.5m along with three side berths and three warehouses. The port is equipped to handle breakbulk cargo.

The number of ships calling at Trincomalee Port has risen, with around five to seven ships calling on a daily basis. This has led to an increased demand for oil during bunkering. Either

an LNG or a thermal power plant is required at Trincomalee, because the demand for oil during bunkering will rise, increasing social and environmental concerns. Nevertheless, some resettlement has begun and NTPC has expressed interest in a power plant. Earlier, bunker barges were there only at Colombo, but recently, they have started operating at Trincomalee as well.[130]

To aid the Allied Forces, the British had built an oil tank farm with 99 oil tanks, each with a capacity of 10,000 tonnes, at Trincomalee during World War II. One of these tanks was destroyed during the war, and over time, different oil corporations have used the remaining tanks. Among them, about 15 are in use today.

Government-to-government negotiations are going on between India and Sri Lanka regarding the operation of oil storage tanks at Trincomalee. In April 2017, the two countries agreed to operate the remaining 84 oil tanks in the World War II tank farm.[131] The port currently handles clinker (semi-manufactured material needed for grinding into final product, e.g. cement) cargo including cement, gypsum and coal. The prime objective of the

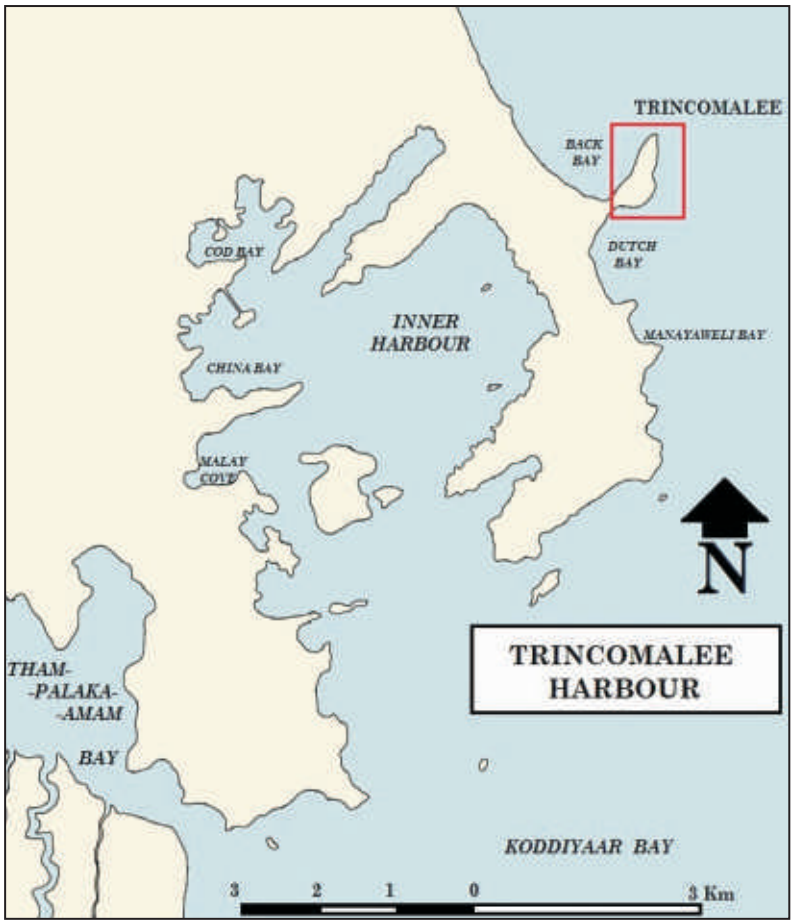



**Figure 12: The Inner Harbour at Trincomalee**

*Source: Prepared by Jaya Thakur, Junior Fellow, ORF Kolkata*

port is to function as a bulk port.[132] The inner harbour at Trincomalee is currently being developed to comprise the following:

1. East container terminals
2. Floating container terminal
3. Dockyard: 'Yardcove'
4. Jetty to be built with Japanese cooperation
5. Deep port on the western side for berthing
6. Ferry terminal towards the south
7. Multipurpose jetty.

There is scope for India's involvement in the development of Tourism at Trincomalee.

The Trincomalee Port will play a key role as the area is gradually emerging as a tourist destination with around 20–30 yachts coming annually. Therefore, a yacht marina is being planned at Trincomalee. However, for tourism to flourish, a lot of infrastructural development needs to take place.[133]

### 1.2.3 Hambantota Port

The Hambantota Port (also known as the Magam Ruhunupura Mahinda Rajapaksa Port) on the southeast coast of Sri Lanka has been planned as a major industrial and service port along with a free trade zone. The port development work has been spread across two phases,[134] of which Phase 1 has been completed and Phase 2 is underway. The location of the port is significant as it lies in proximity to the east–west international shipping route. In mid-2017, Sri Lanka handed over the port to China on a 99-year lease with the China Merchants Port Holdings having a 70 percent stake in the joint venture with Sri Lanka Ports Authority.

There is a Ro-Ro Terminal and two oil terminals that are functional at present with a multipurpose terminal and a container terminal being constructed. A 40,000-acre industrial park has been planned as well. The Hambantota port has been planned for multi-cargo handling, but it may eventually function as a container-handling port.[135]

The harbour area of the port has two breakwaters with an access channel of 210 m width and 17m depth. A 150 m jetty is also being built to facilitate berthing of foreign ships. The Port has a bunkering and tank farm facility 1.2 km from the waterfront, which will cater to port and offshore bunkering services.[136]

However, since the bottom of the channel is rocky, it cannot be dredged and the port will, therefore, not be able to accommodate very large vessels. A lucrative, viable option is to use

**Figure 13: An artist's representation of the Hambantota Port Development Project**

*Source: https://www.researchgate.net/figure/The-Hambantota-Port-Development-Project -on-south-coast-of-Sri-Lanka-artistic-view-of-the_fig1_276311661*

the refinery at Hambantota for refuelling ships at outer anchorage by motorised barges.[137] Apprehensions regarding Chinese involvement at Hambantota are also exaggerated, since the water column and harbour are protected by the Sri Lankan Navy. Therefore, entry of warships and naval activity will require clearance by the Sri Lankan authorities.[138]

### 1.2.4 Galle Port

The Port of Galle is one of the oldest in the entire subregion, and at one point, it occupied a very important place in history. At present, it is a small port that mainly caters to tourism, although it handles dry bulk cargo to an extent. Nevertheless, considering the increasing demand for freight handling, the Sri Lanka Ports Authority has plans for developing the port. There are other plans for developing a yacht marina, a deepwater passenger-vessel terminal, breakwaters, and an entrance channel and basin.

**Yachts calling at Galle port**

*Source: Sri Lanka Ports Authority, http://www.slpa.lk/port-colombo/galle*

## 1.3 BANGLADESH

Talks for enhancing maritime connectivity between India and Bangladesh have been underway for some time now, with the Coastal Shipping Agreement (CSA) being in discussion since 2012. The CSA signed between India and Bangladesh, launched at the New Mooring container terminal at Chittagong Port, is set to promote bilateral trade through ports directly, as opposed to having goods shipped via Colombo, Singapore or Klang, which was the process followed prior to the agreement. It has also made way for Indian goods reaching the Chittagong Port to be delivered to the Northeast. For instance, cargo from Kolkata to Chittagong or Mongla can be delivered through multimodal transport (rail, road or inland waterways) to either destinations within Bangladesh or India's Northeast. Bangladesh has allowed the use of the following routes for such purpose: Chittagong/Mongla to Agartala (Tripura), Chittagong/Mongla to Dawki (Meghalaya) and Chittagong/Mongla to Sutarkandi (Assam).[139]

Besides the CSA, there have also been agreements on maritime collaboration in the Bay of Bengal for capacity-building, joint research, training, establishment of joint working groups and cooperation in areas of blue economy and marine security. Bangladesh vessels are registered in India as river-sea vessels, by virtue of which it is subject to some relaxations reserved for Indian coastal vessels. This has promoted trade between India and Bangladesh.

Nevertheless, the volume of ships must be increased on the coastal shipping route. As of now, only container traffic is prevalent, and there is a need to introduce cargo ships as well, which will help in the reduction of prices.[140] Bangladesh is also in talks with Myanmar and Sri Lanka for CSAs. It has been difficult for Bangladesh to move ahead with the CSA due to the continuing political tensions in Myanmar. In the absence of such an agreement, small vessels often engage in illegal ferrying of goods to Bangladesh.

During the visit of President Maithripala Sirisena to Bangladesh in 2017, a Memorandum of Understanding (MoU) was signed between Bangladesh Shipping Corporation (BSC) and Ceylon Shipping Corporation (CSC)[141] for increasing the frequency of feeder vessels for short-sea shipping between the two countries. The MoU paves the way for state-owned container feeder services to operate as opposed to only private-owned vessels that ply at present.

There are two natural ports in Bangladesh—Chittagong and Mongla—with the former being the principal seaport located on the banks of the Karnafuli River. The port of Mongla is situated on the banks of the Pussur River in Khulna. Both these ports handle only international cargo. To meet the growing demands of the economy and relieve the pressure

on these two ports, a new port, Payra, was inaugurated at the Rabnabad Channel in Kalapara, Patuakhali.

### 1.3.1 Chittagong Port (CP)

The Chittagong Port is the major seaport in Bangladesh and is an important contributor to the country's economy with a container traffic growth that is double the country's GDP.[142] Known as 'Shetgang' to early mariners who docked here, Chittagong has a long history of maritime activities that can be traced back to the fourth century BC. The port is located eight nautical miles inshore on the estuary of River Karnaphuli.

Ranked 76th among the 100 busiest container-handling maritime ports in the world,[143] the Chittagong Port primarily handles containerised, manufactured products including garments, leather products, seafood, raw materials, fertilisers, among others. Passenger traffic at the port is very limited. It is estimated that around 5,000 trucks enter the port daily for transporting container cargo.[144] The port also handles bulk cargo, but small feeder vessels are used to transport the same from the port's outer anchorage.

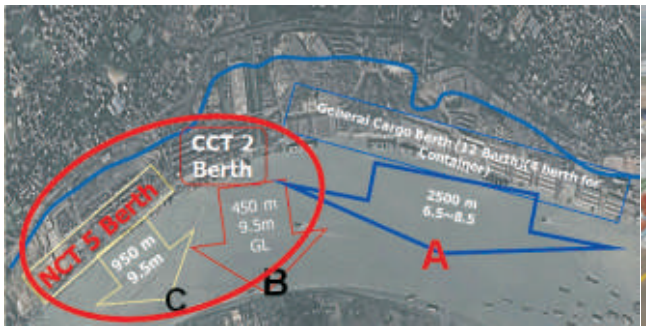



Figure 14: Chittagong Port Jetty Facility

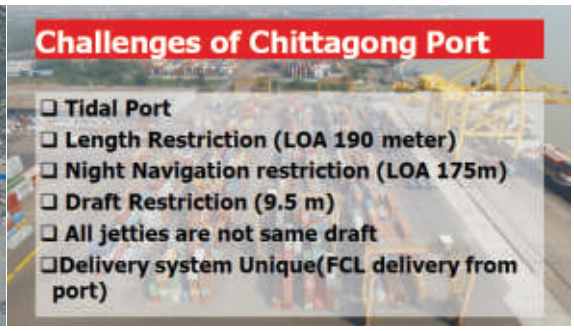



Figure 15: Challenges of the Chittagong Port

*Source: Zafar Alam, Member, Admin, Chittagong Port Authority.*

A tool port at present, the Chittagong Port is aspiring towards becoming a landlord port with full privatisation. The port is also preparing support for 100 SEZ locations on land, which is at present fallow. The CP faces several challenges, including congestion (the most vital), safety issues, and environmental and health concerns. Being a riverine port, operations are tide-dependent; it is not exactly a seaport.

A bay container terminal is being planned at Chittagong Port to increase the handling capacity of the port. The terminal will be over 190 m long with a 12 m depth. The terminal will also decrease the outer anchorage distance by 1 km. It is expected to be launched by 2021.[145] South Kattoli to Halishahar area has been identified as the possible location for the terminal.

Interviews at the Chittagong Port Authority revealed that while Bangladesh and India have coastal shipping agreements, and similar agreements also exist between Myanmar and Ranong (Thailand), it is not viable economically on a bilateral level, unless all coasts are linked with such agreements.[146] Also, as the KMMTTP is proving to be a difficult undertaking, officials at Chittagong Port Authority floated the idea that the port may be used in place of Sittwe and goods can travel to Ashuganj before being transported to the Northeastern states of India.[147]


**Figure 16: Cargo Handled by the Chittagong Port (2010–15)**

*Source: http://www.cpa.gov.bd/site/page/5c372007-0ee2-4335-8c5c-5400cfbee7da/Cargo-Handling-Statistics.*

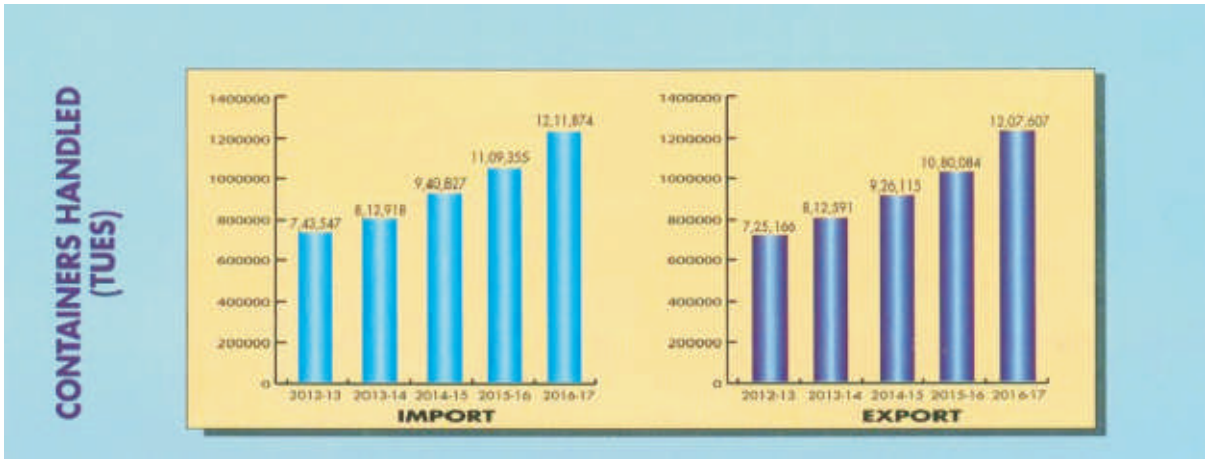



**Figure 17: Containers Handled by the Chittagong Port (2012–17)**

*Source: http://cpa.portal.gov.bd/sites/default/files/files/cpa.portal.gov.bd/page/ec61825e_0e1a_4655_882e_fdc7d4097738/Container%20Handled%20(1).jpg.*

The Chittagong Port is also being further developed as a "climate resilient" port, which can tackle risks of sea-level rise (SLR). All ships docked at the port are made to leave if there is any indication of a natural disaster. An idea discussed during the field trip was that of a port

disaster-management system, which can work as a common warning system to be shared by ports along the Bay of Bengal. The system can work as a hotline, and information regarding any imminent natural disaster detected by one port can be intimated in real time across all other ports.[148]

The system can work as a hotline, and information regarding any imminent natural disaster detected by one port can be intimated in real time across all other ports.

### 1.3.2 The Port of Mongla

Located in Bagerhat district in southwest Bangladesh, the port of Mongla is the second most important port in the country. Mongla is a river port with a natural harbour. However, due to low draft, the port has been unable to cater to large vessels and has remained under-utilised. Consequently, businesses have not preferred Mongla over Chittagong despite the severe traffic congestion and more turn-around-time in the latter.

The government has undertaken dredging of the 131-km-long Pashur channel to improve the ship-handling capacity of the port.[149] Completion of the Padma Bridge will reduce the distance between Mongla and Dhaka. Development of the Port of Mongla will be beneficial not only for Bangladesh but for the entire subcontinent, by facilitating trade.


**Figure 18: Cargo Handled at the Mongla Port (2012–17)**

*Source: 'Mongla not fit to take heat off Ctg port', The Daily Star, 3 August 2017, http://www.thedailystar.net/business/mongla-not-fit-take-heat-ctg-port-1442713*

In 2016, India and Bangladesh signed an MoU on the use of Mongla (and also of Chittagong) port for ferrying goods. The MoU comes in the wake of the coastal shipping agreement signed in 2015 and is part of the bilateral drive to increase traffic along the inland waterways.[150] The move will help decongest the traffic along the

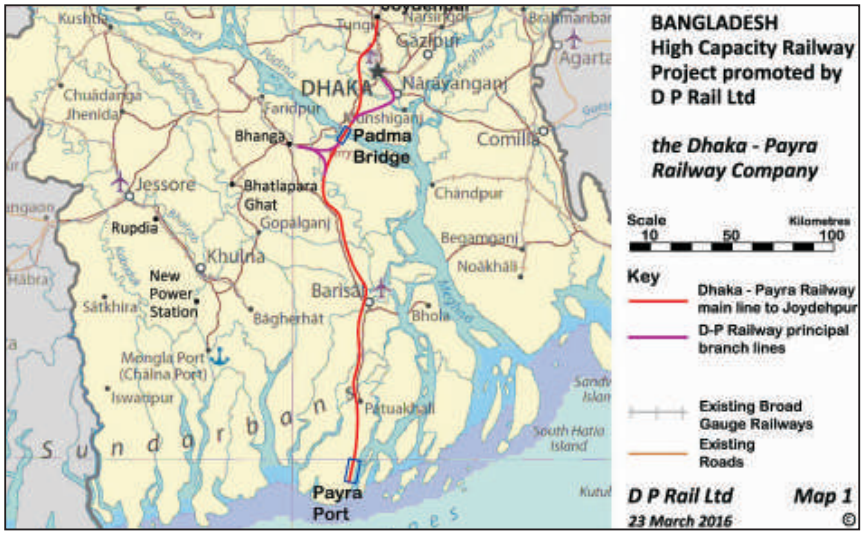
Benapole–Petrapole land border between the two countries. Following the agreement, in November 2017, a Ro-Ro export shipment of 240 Tata trucks bound for Mongla was flagged off from the Kolkata Port. The Kolkata Port expects to regularise the coastal-shipping service as it would save time and be cost effective.[151]

Bilateral coastal shipping is yet to gain traction as delays at ports, shortage of suitable vessels, and slow handling of cargo result in higher logistics cost in India. Reports suggest that wharfage-handling and other costs make coastal shipping 15–20 percent more expensive than transport via road.[152] However, with the renewed attention and vigour accorded to maritime infrastructure and operations, these challenges can soon be overcome.

### 1.3.3 Payra Port

The Payra Port is situated on the western bank of the Rabnadbad Channel at the confluence of River Galachipa–Tetulia. One of the main drivers behind the development of the Payra Port is to relieve the bottleneck at the Chittagong and Mongla ports. It is one of the government's 10 fast-track projects.

The Payra (deep-sea) Port (with a 16 m draft) will facilitate a new north–north economic corridor and help renovate the southern and central parts of Bangladesh. The Bangladesh government also plans to develop disaster-preparedness and maritime surveillance at the port. Operations with ship-to-ship cargo transfer in a limited capacity have commenced from 2016. Much dredging is required at the port and deliberations have been ongoing regarding the handling-capacity of the port.




**Map 6: Dhaka–Payra Rail Link**

*Source: 'Dhaka – Payra railway to be developed by UK company', Railway Gazette, 20 December 2016, http://www.railwaygazette.com/news/infrastructure/single-view/view/dhaka-payra-railway-to-be-developed-by-uk-company.html*

In December 2017, the Payra Port Authority signed an agreement with Jan De Nul Group, a Belgian company, for capital dredging of the main channel of the port. This will enable the entry of large vessels, which at present cannot enter the Chittagong or Mongla ports.[153] The capital dredging is expected to begin in 2018 and is the lead component of the Payra Port project. It is a precursor to the creation of a bulk-cargo handling terminal for coal, a container terminal, and also oil and LNG terminals.[154]

To enhance connectivity of the port with the country's hinterland, the 240 km Dhaka–Payra seaport rail link project was signed between Bangladesh Railway and DP Rail, a British company, in 2016.[155] The project will be crucial for the seamless movement of freight and will form an essential part of the Payra port, which is expected to become the primary seaport of Bangladesh by 2022. The Payra Port and its rail link will also be vital for connectivity with India's Northeast and the landlocked countries of Bhutan and Nepal. The port will have road and waterway links with Dhaka.

The importance of the Payra Port is acknowledged by neighbouring countries as well as regional countries with US$750-million investments for a multipurpose container terminal.[156] India and Bangladesh are already in talks regarding the construction of facilities at the port. Access to the Payra Port will be beneficial for India's Northeastern states as it will offset the traffic that passes through the Siliguri corridor. China, too, is keen on becoming involved with the Payra Port project. The China Harbour Engineering Company is set to develop the core port infrastructure and the China State Construction Engineering Corporation will be engaged with building housing, healthcare and education facilities in the port area.[157]

### 1.3.4 Matarbari Port

Financed by the Japan International Cooperation Agency, the Matarbari deep-sea port will be built in the Matarbari area, Cox's Bazar District, Chittagong Division. Despite talks on the port project being underway for years, the implementation has taken time primarily because of social and environmental concerns.[158] Nevertheless, in the wake of growing demands for port services rising from growing income and international trade, the Matarbari port is crucial.

Like Payra, the port at Matarbari will help with the tailback faced at the Chittagong and Mongla ports. With a draft of 18 m, the port will be able to cater to deep-draft vessels. The Bangladesh government plans an energy hub in the Matarbari area. In addition to the port, the Matarbari project comprises a 500–600 MW re-gasification LNG-based combined cycle power plant139 to be built jointly by Coal Power Generation Company Bangladesh Limited and Mitsui Company Limited, Japan and four 600MW coal-fired power plants.

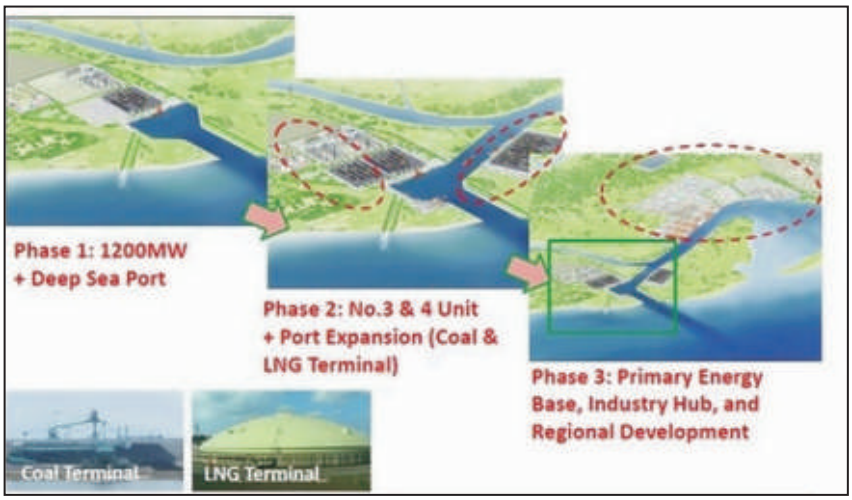



**Figure 19: Phases of the Matarbari Project**

*Source: 'Matarbari will become a power hub', Daily Sun, 11 August 2017, https://www.google.co.in/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&ved=2ahUKEwjwwtvD3PfZAhUSTI8KHfkwBrsQjhx6BAgAEAM&url=http%3A%2F%2Fwww.daily-sun.com%2Fpost%2F247130%2FMatarbari-will-become-a-power-hub%3A-Muhith&psig=AOvVaw1ulc3lQuYMm2AoiTo4DKKY&ust=1521526086902338*

Work on the Matarbari Port will commence from 2020, and once it becomes operational, it is expected to be able to compete with Colombo.[160] Part of the Bay of Bengal Industrial Growth Belt or Big-B initiative being pursued by Japan, this port is 25 km away from another deep-sea port (now stalled), which was to be built with Chinese support at Sonadia.

**Box 4: Pangaon River-side Inland Container Terminal (RICT)**

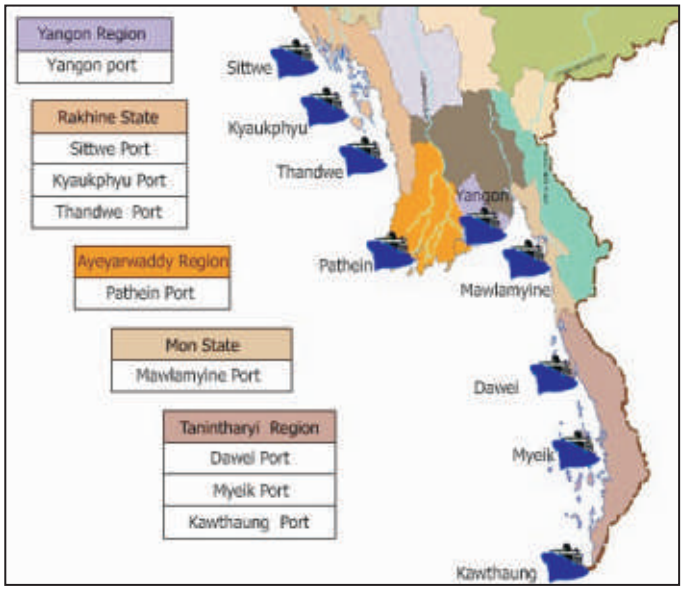
The Pangaon River-side Inland Container Terminal (RICT) at Keraniganj on the bank of River Buriganga was set up in 2013 to ease traffic on the Dhaka–Chittagong railway and highway corridors.

- The terminal has a storage capacity of 3,500 20-foot equivalent units (TEUs) of containers and handles 116,000 TEU containers annually with a potential handling capacity of 150,000 TEUs.
- Although initiallythe terminal had not attracted the estimated business due to lack of sufficient facilities and shortage of ships, it has grown substantially over the last couple of years. About 90 percent of the cargo that comes into the Chittagong Port is routed through the Pangaon Terminal, including cargo from India, such as DARCL Logistics, IVL Dhunseri and Hindalco.
- The first cargo vessel, Shonartori Nou Kalyan-1, from Kolkata to Pangaon arrived in February 2017 with 65 containers.
- ` It is estimated that cargo ships from India to Pangaon may be moving on a fortnightly basis. Shipment of cargo from Kolkata to Pangaon may be established as a scheduled service via coastal shipping and also the Indo-Bangladesh Protocol route.

*Sources: Pangaon Inland Container Terminal, http://pict.gov.bd/; Interviews held at Pangaon Inland Container Terminal, Bangladesh, November 2017; Sahidul Hasan Khokon, "First cargo vessel from India arrives at Pangaon Port in Bangladesh," India Today, 18 February 2017, http://indiatoday.intoday.in/story/pangaon-port-india-to-bangladesh-first-cargo-vessel/1/886000.html.*

## 1.4 MYANMAR

One-third of Myanmar's total perimeter forms an uninterrupted coastline of around 2,832 km divided into three areas: the Rakhine coastline (northwest area, 713 km), the Delta coastline (lower delta area, 437 km) and the Tanintharyi coastline (southern area, 1078 km) respectively, along the Bay of Bengal and the Andaman Sea.[161] The coastal ports in these zones are mostly river ports, which are not suitable for larger sea-going vessels. Given below are the coastal ports in Myanmar that are also known as 'out-ports'.




**Map 7: Ports in Myanmar**

*Source: Invest Myanmar, http://www.investmyanmar.biz/MyanmarInvestments.php?PageId=563*

The international seaborne trade is handled by the ports of Yangon, Sittwe, Pathein, Mawlamyine, and Myeik. The domestic trade is handled by Kyaukphyu, Thandwe, and Dawei ports. However, except for the country's principal port in Yangon, the rest are reportedly small coastal ports with limited port-handling capabilities.[162]

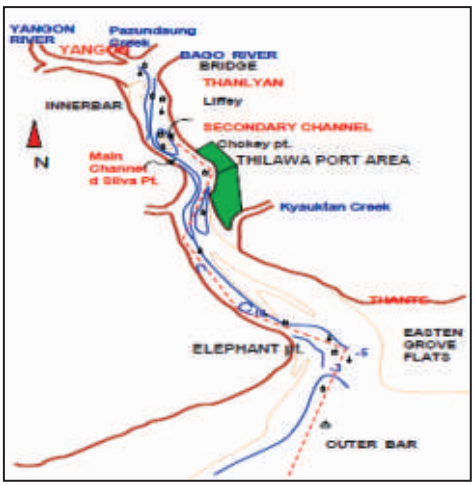
Myanmar is one of the fastest growing countries in the South East Asian region. It has registered seven percent average decadal growth.[163] The largest trade partners of Myanmar include China and Thailand. Much of this trade is carried across the border on land and it also involves natural gas exports, which are done through pipelines. Nonetheless, there has been an increase in container traffic coming into and going out of Myanmar. As Myanmar seeks to diversify its trade relationships, the container traffic across the seas is bound to increase. Therefore, efficient ports will play an important role in sustaining the growth momentum.[164]

### 1.4.1 Yangon Port

Among the ports cited above, Yangon is the chief port and handles 85 percent of the country's seaborne trade, both domestic and international. The port serves vessels up to 15,000–20,000 DWT, with works underway to increase it up to a 35,000-DWT vessel capacity. Yangon port is divided into two ports, namely, the Myanmar International Terminal Thilawa and the old Yangon Port area. The Myanmar International Terminal Thilawa is used mostly for Ro-Ro ships Figure 20: Yangon River Estuary

for transport of cars. This port is located 16 km from Yangon downtown and 16 km from Yangon river bay and remains next to the Thilawa SEZ developed by a Japanese joint-venture company. The international port consists of two terminals, Myanmar International Terminal Thilawa (MITT) and Myanmar Integrated Port (MIPL).[165]

**Figure 20: Yangon River Estuary**




*Source: "Myanmar Maritime Quickscan," Nederland Maritiem Land, 2016, https://www.yumpu.com/en/document/view/55431160/maritime-quickscan/3.*

The old Yangon Port area covers 4 terminals: Bo Aung Kyaw Street Wharf (BAK), Myanmar Industrial Port (MIP), Asia World Port Terminal (AWPT) and Sule Pagoda Wharf (SPW). Most general cargo vessels use MIP and AWPT, because they are located close to downtown at 32 km from the Yangon River Bay.

Navigation through the Elephant Point to the Yangon Port harbour is generally possible during high tide to ensure sufficient depths. The outer bar and inner bar are two shallow areas requiring timely dredging at regular intervals. Un-dredged, the inner bar would restrict the passage of larger ships to the ports. The access channel at outer bar has been changing in cyclic order, and the required depth is available without intensive dredging. Yangon Port can be accessible to vessels of 167m LOA (length over all), 9m draft and

15,000 DWT (deadweight) and vessels of 200m LOA, 9m draft and 20,000 DWT in the Thilawa area. To improve accessibility to Yangon's Port areas for bigger vessels and expand capacity to handle growing seaborne cargo traffic, the Myanmar Port Authority (MPA) has been taking initiatives to improve the Yangon River access channel.

In the Yangon port area, three inland container depots (ICDs) can be found: Botataung ICD No. (1), Botataung ICD No. (2) and MIP ICD.[166] There are 33 international wharves;[167] Yangon inner harbour area has 23 wharves and Thilawa area has 10 wharves. The storage capacity in each terminal is provided in Table 11.

**Table 11: Terminal Capacity at Yangon Port: Area in Each Terminal and Their Storage Capacity**

| Sr. | Terminal | Length (m) | Width (m) | Backup Area (Acre) | Storage Capacity (TEU) |
|---|---|---|---|---|---|
| 1 | AWPT/ HPT | 1044 | 155.5 | 53.27 | 17000 |
| 2 | BSW | 457 | 60.4 | 24.37 | 2000 |
| 3 | MIP | 770 | 72 | 65.231 | 20000 |
| 4 | MITT | 1000 | 150 | 185 | 48000 |
| 5 | AIPT | 600 | 370 | 15 | 1000 |
| TOTAL | | | | | 88000 |

*Source: Excerpts from a presentation on Improving Maritime Transport Safety and Development of Port Infrastructure, Myanmar Port Authority, 19–21 December 2016.*

**Table 12: General Cargo Handling at Yangon Port**

| Sr. | Fiscal Year | Import (Tonnage) | Export (Tonnage) | Total (Tonnage) | Progression % |
|---|---|---|---|---|---|
| 1 | 2011-12 | 209932 | 203445 | 413377 | (+) 19% |
| 2 | 2012-13 | 239347 | 238993 | 478340 | (+) 16% |
| 3 | 2013 -14 | 309767 | 303804 | 613571 | (+) 28% |
| 4 | 2014-15 | 377557 | 367232 | 744789 | (+) 21% |
| 5 | 2015-16 | 459037 | 434164 | 893201 | (+) 20% |

*Source: Excerpts from a presentation on Improving Maritime Transport Safety and Development of Port Infrastructure, Myanmar Port Authority, 19–21 December 2016.*

**Table 13: Container Throughput at Yangon Port**

| Sr. | Fiscal Year | Import (Tonnage) | Export (Tonnage) | Total (Tonnage) | Progression % |
|---|---|---|---|---|---|
| 1 | 2011-12 | 3132302 | 1876712 | 5009014 | (-) 33% |
| 2 | 2012-13 | 6289316 | 3871211 | 10160527 | (+) 2.8% |
| 3 | 2013 -14 | 7202162 | 5047790 | 12249952 | (+) 20% |
| 4 | 2014-15 | 9670919 | 2437193 | 12108112 | (-) 1% |
| 5 | 2015-16 | 11525748 | 775002 | 12300750 | (+) 1.6% |

*Source: Excerpts from a presentation on Improving Maritime Transport Safety and Development of Port Infrastructure, Myanmar Port Authority, 19–21 December 2016.*

The change in the political system, coupled with the economic reform, has helped the volume of general cargo and containers handled in Yangon Port to increase each year (see tables above).

### 1.4.2 Deep-Sea Ports

To cope with growing maritime trade and the emergence of larger vessels for seaborne traffic, the Myanmar Port Authority (MPA) has earmarked sites for construction of deep-sea ports in three areas: the Kyaukpyu area in Rakhine State, Kalegauk in Mon State, and Dawei in the Taninthayi region.

China has a keen interest in building the Kyaukpyu deep-seaport. Myanmar's government had pushed for a better deal in negotiations with a consortium led by China's CITIC Group over the Kyaukpyu deep-seaport, a signature project in China's "Belt and Road Initiative". Currently, China has agreed to take a 70 percent stake in this strategic seaport. The Kyaukpyu deep-seaport may remain a resource extracting port and may not be a vibrant economic port due to the minimum population density and minority ethnic composition. Resource-based industries may develop around Kyaukpyu port.[168]

Additionally, studies are being conducted to launch a new deep-sea port named Westport. It is located at the Ngayokekaung Bay in Ayeyarwady region.[169] Reports[170] suggest that the US$100-million project includes a port that will have a handling capacity of 50,000 tonnes per annumand will include the construction of access roads, warehouses, loading and unloading facilities.

**Table 14: Brief Look at the Kyaukpyu, Kalagauk and Dawei Ports**

| Kyaukphyu Deep Sea Port | Kalagauk Deep Sea Port | Dawei Deep Sea Port |
|---|---|---|
| Location:<br>Made Island 11.2 S/E. of Kyaukphyu<br><br>Approach channel:<br>LAD 24m, Tidal Range 2~2.7m<br><br>Harbor area:<br>LAD 20m, Sea Room 1000m~1600m<br><br>Prospertiy:<br>• Most appropriate approach to tie western corridor<br>• Saving sailing distance about 5000 km comparing with existing sea route through Malacca Straite to China East Coast<br>• Main outlet of ocean route for landlocked regions' trade<br>• Opportunity for transporting container, general cargo, crude oil, and gas<br>• Shortest trade route from India to China | Location:<br>Between Mawlamyine and Ye in Mon State<br><br>Approach channel:<br>LAD 15m, Tidal Range 3~5m<br><br>Harbor area:<br>LAD 18m, Sea Room 4.8 km<br><br>Prospertiy:<br>• Development of a deep sea port support with industrial estate at Kalagauk area, between Mawlamyine and Ye coast line in Mon State<br>• The route of the West-East Economic Corridor (WEC) will act as a land bridge linking Indian Ocean and the Pacific, cutting the distance of conventional sea route passing the Malacca Strait by almost two third<br>• The project will benefit the countries along the corridor such as Vietnam, Laos, Cambodia, Thailand, and China as well.<br>• This deep sea port will serve as a gateway of WEC on the West side | Location:<br>Lies at Nabule area, North-West of Dawei City<br><br>Approach channel:<br>LAD 15m, Tide Range 5m<br><br>Harbor area:<br>LAD 15m, Sea Room 3.2 km<br><br>Prospertiy:<br>• Dawei area will become a hub of GMS, Southern and South East Asian countries<br>• The project will provide a competitive advantage as a communication link with direct access from GMS countries and China to the Andaman Sea and Indian Ocean for the transportation of goods.<br>• The project will be multisectoral: industry, tourism, fisheries, mining and energy<br>• It will cover a deep sea port, ship yard, industrial estate, petro-chemical complex, oil refinery plant, steel mill, fertilizer plant, power plant, road and rail link to Thailand, oil and gas pipeline. |

*Source: "Myanmar Maritime Quickscan," Nederland Maritiem Land, 2016, https://www.yumpu.com/en/document/view/55431160/maritime-quickscan/3.*

### 1.4.3 Special Economic Zones

Myanmar expects to overcome infrastructure bottlenecks and promote foreign direct investment through SEZs, which will make Myanmar a potential location for exports. Three key SEZ projects have been announced in Myanmar:

(i) Dawei SEZ in the SEZs/industrial zones southern Taninthayi region, with Thai investors.

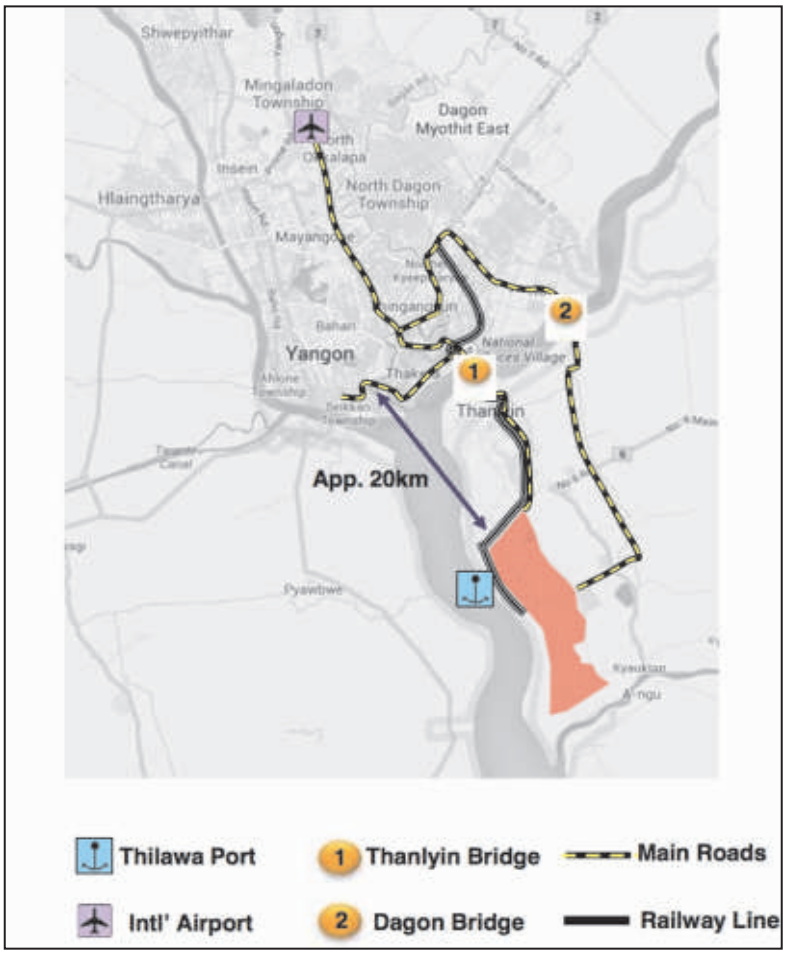
(ii) Kyaukpyu Economic and Technology Zone in the western Rakhine state, with investment from China.

(iii) Thilawa SEZ near Yangon, with assistance from Japan.

The Thilawa SEZ is the first one built in Myanmar. It is a joint venture between Japan and the Union of Myanmar Federation of Chambers of Commerce and Industry. It is functioning efficiently from September 2015. It is located at around 20 km southeast of Yangon, which is the biggest commercial city of Myanmar. Since one of the main ports is just next to the Thilawa SEZ, transportation time of cargos for exports and imports can be shortened substantially. The airport is located at around 30 km from the Thilawa SEZ, which is convenient for investors travelling frequently and also for the transportation of air cargos. The commercial and residential area, too, is located in the Thilawa SEZ, making it easily accessible to the investors and workers. In 2017, 79 companies from 17 countries have invested in this SEZ. Thilawa has attracted 1 billion in investment so far. A deep-sea port is required in this region.

*Source: "The Thilawa Special Economic Zone," Thilawa SEZ Management Committee, http://www.myanmarthilawa.gov.mm/*

**Map 8: The Thilawa Special Economic Zone**




*Source: "The Thilawa Special Economic Zone," Thilawa SEZ Management Committee, http://www.myanmarthilawa.gov.mm*

### 1.4.4 Dry Port

"Dry port" is a term with which Myanmar has not been very familiar, but many of the countries in the world including Myanmar's neighbouring countries have been engaged in the business for long. According to the Myanmar Investment Commission, dry ports will be built in Yangon, Mandalay and Myawady.[171] The Investment Commission has already allowed Kerry Logistics, a Hong Kong-based company, to build dry ports on 80 acres of land owned by Myanmar Railways in Ywathagyi, Yangon Region and 75.1 acres of land in Myitnge, Mandalay Region.[172]

### 1.4.5 Challenges

- The crippled capacity of Yangon Port restricts current handling of national as well as international trade.
- Bigger vessels are required to cope with the growing seaborne trade and also to control the logistical cost.
- Most of the terminals are located close to the downtown area, which causes port congestion and traffic. The hinterland connectivity is poor.
- Sedimentation remains an issue in some areas of Yangon Port. There is inadequate dredging capacity in the outer bar.
- Sittwe Port remains too premature to handle international trade.

### 1.4.6 Connectivity of Myanmar with Bay Littoral States

The change in the government of Myanmar has made way for reforms towards liberal democracy and mixed economy. Projects that were sitting idle for years have been approved. This dynamic regional context has allowed Nay Pyi Taw to deal with a plethora of new partners competing to enter its resource-rich market. The country has been leapfrogging since its recent reforms and experiencing unprecedented FDI growth.

For India, Myanmar is of great strategic importance. The country can become India's link to Southeast Asia as it is a part of ASEAN, vital for India's Act East Policy. Many Indian companies, for instance Essar Global Fund Limited, have invested in trade and infrastructure, e.g. the Kaladan project that will connect the Kolkata Port to Sittwe Port. The Kaladan multimodal project was envisaged to enhance sea connectivity between India and Myanmar. The project enables the expansion of Sittwe port to increase vessels up to 6000 DWT to berth. The MoU was signed between Indian and Myanmar government after 2008 and was set to be completed 2014. Currently, after around a decade, only a few jetties at the deep-sea Sittwe Port has been completed.[173]

The India–Myanmar Direct Shipping Service was launched with much fanfare by Shipping Corporation of India Limited (SCI) on 2 October 2014 from Chennai. The service plied the Colombo–Chennai–Krishnapatnam–Yangon route, calling on the Chennai port once every fortnight. This service hoped to boost bilateral trade relations between India and Myanmar by opening immense opportunities for exporters and importers in both the countries. The service completed 33 voyages between India and Myanmar, before being off hired as the subsidy for running the India Myanmar Service got exhausted in 2016. The total bulk carried between both the nations in this period will be approximately 16,700 TEUs.[174] The renewal of the subsidy may be beneficial for further enhancing trade relations. Keeping pre-Partition days' (1947) linkages in consideration, both countries can sign a coastal shipping agreement on the lines of the agreement India signed with Bangladesh. Table 15 shows the list of commodities traded between Myanmar and the Bay littorals.

**Table 15: Export and import commodities of Myanmar with Bay Littoral states**

| MYANMAR EXPORT AND IMPORT COMMODITIES | | | | | |
|---|---|---|---|---|---|
| India | | Bangladesh | | Sri Lanka | |
| Exports | Imports | Exports | Imports | Exports | Imports |
| Vegetables, Wood,Plywood,Fishery products, Spices, Human hair, Animal hides, Ores, Other concentrates[175] | Pharmaceutical products, Soyabean oil, Electrical equipments, Desks, Panels, Cotton yarn, Flat rolled products of iron or non-alloy steel, Tractors, Machineries, Insulated wire, Cables and other insulated electric conductors.[176] | Livestock, Animal products, Vegetable products, Prepared foodstuffs; White rice, Fish, Beverages, Spirits, Vinegar, Tobacco, Manufactured tobacco substitutes, Products of chemical or allied industries, Raw hides and skins (other than furskins) Leather, Wood | Frozen food, Agricultural products, Chemical products, Leather, Jute goods. | Beans (dried), Chickpeas (dried), Cumin seeds, Shrimps and prawns (fish frozen), Ginger/Saffron/Turmeric, Knitted or crocheted fabrics, Iron/steel, Wood, Non-coniferous (wood), Textile fabrics, Woven fabrics, Glass and glassware, Vegetable textile fibre, Paper yarn, Woven fabrics, Plastics, Plywood sheets Lifting, handling, loading/unloading machinery | Tea,Nutmeg, Mace, Used tyres (retreaded), Paints (enamels, lacquers, distempers), Articles of apparel and clothing accessories, Cotton fabrics, Boards, Panels, Consoles, Precious and semi-precious stones, Medicaments, Stuffed pasta |

*Source: Prepared by researchers.*

Pulses and beans from Myanmar are no longer imported due to high pricing. This is adversely affecting the farmers of Myanmar as the country is rich in pulses. During the

Indian Prime Minister Narendra Modi's recent visit to Myanmar, he was requested to abolish all restrictions on pulses and create a suitable solution to benefit both sides.[177]

It has been one of the major concerns of Myanmar in maritime trade that India has higher standards of quality specifications in comparison to China and Thailand. Thus, export to India becomes expensive. During Modi's recent visit to Myanmar, a MoU was signed for sharing white-shipping information between the Indian Navy and Myanmar Navy, which will strengthen the maritime security within the two nations.

The coastal shipping line between Bangladesh and Myanmar was supposed to be launched much earlier, but this was not possible due to political tension in the bordering areas in recent years. The relationship between the two has taken a down swing due to the current Rohingya crisis. Both the countries are trying to work out plausible solutions for the same. Most of the trade between the two countries has been both formal and informal in nature at the border areas. Nevertheless, the ratio of import and export has dropped drastically. Myanmar has recently signed an agreement to export 300,000 tonnes of rice to Bangladesh in September 2017. This is the first agreement between Myanmar and Bangladesh after more than two decades.[178]

> Though the recent escalation in violence has put most of this trade on hold, traders from both neighbouring countries are still selling fish and pharmaceuticals to each other.

Bangladesh's trade and other economic advantages are not enough to compete with Myanmar when it comes to the latter's geography. Myanmar is better placed than Bangladesh in terms of geographic location as it lies at the intersection of South East Asia and South Asia. The former has been successful in utilising its geography, creating a competitive space for China and India, among others. Both China and India are developing ports, including a deep-sea port, and SEZs in Rakhine. Despite this geopolitical situation, it will be a judicious move to have a coastal shipping agreement between the two nations to boost its maritime bases. The Myanmar–Sri Lanka relationship has witnessed an unprecedented improvement in the recent years. Sri Lanka features among the top 30 countries for Myanmar's export and import. Myanmar expects to export 2 MT of rice in 2017–18, via sea route. Both countries need to draw a coastal-shipping agreement to enhance and facilitate their sea movement and trade.

Ports will have implications for economic growth. It will have an impact on internal balance-of-power in Myanmar. Groups that control ports will wield economic power and, consequently, political power. Yangon, Thilawa and Dawei will develop better, since they are located in the ethnic majority area. International development agencies such as Japan are donating money to various ethnic groups. Thus, the impact of ports on interethnic relations must also be factored in.

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# 2 Linking India's Northeast with the Bay: The Importance of Inland Waterways

This section will deal with the prospects of enhancing connectivity between India's landlocked northeastern states through waterways (riverine and oceanic) and the feasibility of linking these areas with ports in Bangladesh and Myanmar. In what ways will the development of inland waterways benefit India's Northeast? What are the key requirements for upgrading inland waterway links with the Bay? Will the use of inland waterways be more logical and cost-effective? How will India play its role in developing these ports and fostering connectivity, trade and tourism? These are a few issues that this section will ponder. For analysis purposes, this section will be divided into two parts: a) Connecting India and Bangladesh through inland waterways; and b) India's Northeast and India-Myanmar linkages in inland waterways.

## 2.1 CONNECTING INDIA AND BANGLADESH THROUGH INLAND WATERWAYS

India and Bangladesh share a land border of 2,979 km and a riverine boundary of 1,116 km. Therefore, for both countries, maritime connectivity holds great potential for their economic and socio-cultural development.

**Map 9: India-Bangladesh Protocol Routes**

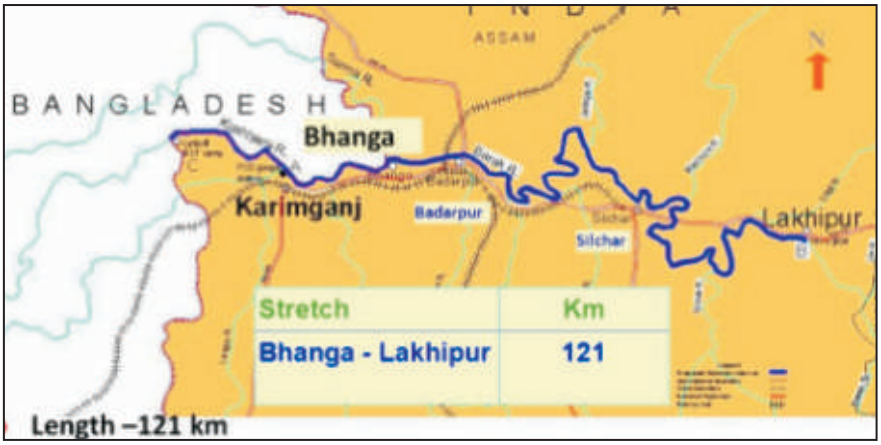

*Source: 'Bangladesh, India to extend water transit, trade protocol', Bangladesh Business News, 22 April 2015, https://businessnews-bd.net/bangladesh-india-to-extend-water-transit-trade-protocol/*

The India-Bangladesh Protocol on Inland Water Transit and Trade was first signed in 1972 and was renewable every two years. In April 2015, the two countries decided to renew the Protocol automatically after every five years. Under the protocol, India and Bangladesh agreed to use inland waterways for the passage of goods between two places of one country through the territory of the other, as well as for inter-country trade. The protocol provides for 50:50 ratio for sharing on tonnage basis for inter-country and transit cargo by Indian and Bangladeshi vessels.

In the Indian side, the designated inland water routes under this Protocol are as follows:

- Kolkata – Silghat - Kolkata
- Kolkata – Karimganj – Kolkata
- Rajshahi – Dhulian - Rajshahi
- Silghat – Karimganj - Silghat

**Map 10: National Waterway 16**




*Source : '106 New National Waterways', Inland Waterways Authority of India, http://iwai.nic.in/showfile.php?lid=1055*

Under this protocol, six ports of call in each country have been nominated for facilitating inter-country trade. The protocol is valid until 2020 with provision of automatic renewal. It is worth mentioning that the National Waterways Act of India 2016 has made provision for certain inland waterways to be national waterways (NW) and thus provide for the regulation and development of the said waterways for the purposes of shipping and navigation. As of today, 106 such waterways have been declared as National waterways, of which 19 are in the Northeast.[1]

NW 2 is the main protocol route between India and Bangladesh from Kolkata-Sundarban-Chalna-Khulna-Mongla,Kaukhali-Barisal-Narayanganj-Aricha-Dhubri-Pandu-Silghat.

Floating terminal for facilitating cargo movement have been provided and maintained at ten locations, namely, Dhubri, Jogighopa, Tezpur, Silghat, Vishwanathghat, Neamati, Bogibeel, Dibrugarh, Panbari and Oriumghat. Land for setting up terminals at Hatsingimari, Dhubri, Silghat, Vishwanathghat, Neamati, Dibrugarh and Oriumghat has been acquired. As far as connectivity between India's Northeast and Bangladesh is concerned, National Waterway 16 (River Barak) has also become highly important, connecting Northeast with Kolkata through India-Bangladesh Protocol routes. It covers the hinterlands of Manipur, Mizoram and Tripura, in addition to Assam. NW 16 diverges from Narayangaj towards Bhairabbajar-Ajmerganj-Karimganj-Lakhipur. This is the new route over Kusiyara and Barak rivers which are connected to Brahmaputra. But these are seasonal routes in nature. Further, for development of connectivity through inland waterways it has been decided that the Inland Waterways Authority of India (IWAI) would take initiatives to enhance facilities at Bhanga (19 km upstream of Karimganj), and at Badarpur.

**Ports of call:**

| **India** | **Bangladesh** |
|---|---|
| Kolkata | Narayananganj |
| Haldia | Pangaon |
| Karimganj, | Khulna |
| Dhubri, | Mongla |
| Silghat | Ashuganj |
| Pandu | Sirajganj. |

In this context it is worth mentioning that the coastal shipping agreement signed during the visit of Prime Minister Narendra Modi on 6 June 2015 was an exemplary step in strengthening maritime connectivity between these two neighbours. The agreement is expected to open trade opportunities for India's landlocked Northeast. It has also paved the way for Bangladesh to facilitate trade with Nepal and Bhutan through India. The agreement has designated the port of calls at the Pangaon (ICT) in Bangladesh and the Farraka and Bandel on National Waterway (NW)-1 on the Indian side. In November 2015, the Standard Operating Procedure for an Agreement on Coastal Shipping was finalised between the governments of India and Bangladesh. Based on Article XII, the Agreement makes way for the facilitation of use of bilateral waterways in consonance with the laws of either country. The agreement makes room for eight routes with the scope of further additions as deemed necessary or feasible by both governments. However, the cargo movements under the coastal shipping segment remain sluggish.

## 2.2 TRADE VIA THE INDIA BANGLADESH PROTOCOL ROUTE

India's overall exports to Bangladesh recorded a robust growth in 2016-17. The growth is attributed to a significant rise in export of equipment and high-value machinery for project implementation in Bangladesh. Some 2,598,023 MT of fly ash were moved to Bangladesh through the protocol route in 2016-17.[2] The demand for jute from Bangladesh

has drastically declined over the years due to the imposition of anti-dumping duties (since 2006) by Indian authorities. This is due to an apprehension regarding the impact of importing jute from Bangladesh on local jute cultivators as well as industries in India. The Indian prime minister has given assurance to look into the matter.[3]

There has been a decline in the demand of garments due to non-tariff barriers by India which has kept the trade volume significantly low.[4] Table 16 indicates commodity-wise cargo trade under PIWT&T since 2006 till 2017.

**Table 16: Commodity-wise Cargo Trade under PIWT&T between Bangladesh and India**

| Commodity wise Cargo Trade Under PIWT&T between Bangladesh and India since 2006 -07 to 2016-17 in M.Ton | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S.No.** | **Nature Of Cargo** | **2006-07** | **2007-08** | **2008-09** | **2009-10** | **2010-11** | **2011-12** | **2012-13** | **2013-14** | **2014-15** | **2015-16** | **2016-17** |
| 1 | General cargo | | | | | | | | 2124 | 2262 | 2025 | 352 |
| 2 | Jute | | | | | | | | | | | |
| 3 | Coal | | | | 1511 | | 610 | 2085 | | 1410 | | |
| 4 | Fly ash | 820046 | 908713 | 913328 | 1266220 | 1429576 | 1448562 | 1507357 | 1912751 | 1903467 | 2247773 | 2598023 |
| 5 | Sugar | | 2310 | | | | | | | | | |
| 6 | Gypsum | 3534 | | | | | | | | | | |
| 7 | Manganese ore | | | | | | | | | | | |
| 8 | Slag | 39034 | 69829 | 8583 | 7298 | | | | | | | |
| 9 | Steel coil | | 1914 | 1202 | | | | | 4873 | 4853 | 2984 | 9371 |
| 10 | M.S. Wire Rod | 18397 | 1647 | | 1407 | | | | 5987 | | 1004 | |
| 11 | Iron ore | | 4447 | 930 | | | | | | 1682 | 1483 | |
| 12 | Clay | | 1649 | | | | | | | | | |
| 13 | Lumps | | 511 | | | | | | | | | |
| 14 | Rice | | 3325 | 6051 | | | | | | | | |
| 15 | Hi-Speed diesel (HSD) | | 1900 | | | | | | | | | |
| 16 | Others/ Container | | | | 1000 | | 622 | | 2392 | 3215 | | 2363 |
| 17 | Over Dimensional Cargo (ODC) | | | | | 7298 | | | | 11506 | 1291 | |
| 18 | Wheat/ Food grain | | | | | | 34708 | 37171 | 3450 | 21059 | | 2535 |
| 19 | Cement | | | | | | 500 | | | | | 800 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | Steel grader | | | | | | | | | | 1999 | |
| 21 | Steel plate | | | | | | | | | | 1095 | |
| 22 | Stone chip | | | | | | | | | | | 7130 |

*Source: Statistics on Commodity-wise cargo trade under PIWT&T, Bangladesh, from2006-07 to 2016-17*
*http://www.biwta.gov.bd/site/page/e9b3ec96-b908-402f-bec8-e7171d927a9d/Statistics*

While Indian exports meet 11-12 percent of Bangladesh's total import needs, India shares less than two percent of Bangladesh's export basket.[5] The result is that most traffic carrying goods travel from India to Bangladesh, and return empty. This increases the cost incurred by private trading agencies. Though India and Bangladesh opened direct shipping since 2016 the cargo volume did not grow to the expected levels and one of the reasons is the congestion at Chittagong port in Bangladesh. Tables 17 and 18 show the number of trips and vessels (in metric tonnes) to carry inter-country trade under the Protocol routes.

**Table 17: Numbers of trips on inter-Country Trade under the Protocol**

| Year | Round Trip by Bangladeshi vessels | Round Trip by Indian vessels | Total Under Protocol Route |
|---|---|---|---|
| 2014-2015 | 2260 | 14 | 2274 |
| 2015-2016 | 2632 | 8 | 2640 |
| 2016-2017 | 3004 | 19 | 3023 |
| 2017-2018 (upto Dec 2017) | 1477 | 26 | 1503 |

*Source: Statistics of vessels and cargo movement Under PIWT&T, Bangladesh, from 2014-15 to 2017-18*

Though rice was ferried via Ashuganj river port to Tripura after the SOP was drawn, the trade bulk remains low.[6] At present, the Ashuganj river port has been unviable to the Indian businessmen since the rail connectivity between Guwahati and Agartala has improved. Moreover, the port is suffering from lack of infrastructural facilities. However, it is expected that with the operationalisation of the Agartala – Akhaura rail link the Ashuganj port will become profitable in future.[7] The inland container terminal (ICT) at Ashuganj, when completed, is expected to increase transhipment. Table 19 indicates the status of other ICTs (ongoing and proposed) apart from Ashuganj.

**Table 18: Inter-country cargo carried by Bangladesh and India vessels in metric tonnes (MT) and Ratio**

| Year | Carried by Bangladeshi vessels (M.ton) | Carried by Indian vessels (M.ton) | Total carried (M.ton) | Ratio (Bangladesh : India |
|---|---|---|---|---|
| 2014-2015 | 1936564 | 12890 | 1949454 | 99 : 01 |
| 2015-2016 | 2250974 | 8690 | 2259654 | 99.62:0.38 |
| 2016-2017 | 2602428 | 22186 | 2624614 | 99:01 |
| 2017-2018 (till Dec. 2017) | 1193352 | 25976 | 1219328 | |

*Source: Statistics of vessels and cargo movement Under PIWT&T, Bangladesh, from 2014-15 to 2017-18*

**Table 19: Status of Inland Container Terminals (Government-owned and Private)**

| Inland Container Terminal (Government owned) | |
|---|---|
| **Names of places** | **Status** |
| Pangaon | Completed |
| Ashuganj | Ongoing |
| Khanpur | Proposed |
| **Inland Container Terminal (Private)** | |
| **Names of Company** | **Status** |
| Summit Power at Munshiganj | Ongoing |
| Rupayan Group at Narayanganj | Ongoing |
| A. K. Khan | Proposed |
| Meghna Group | Proposed |

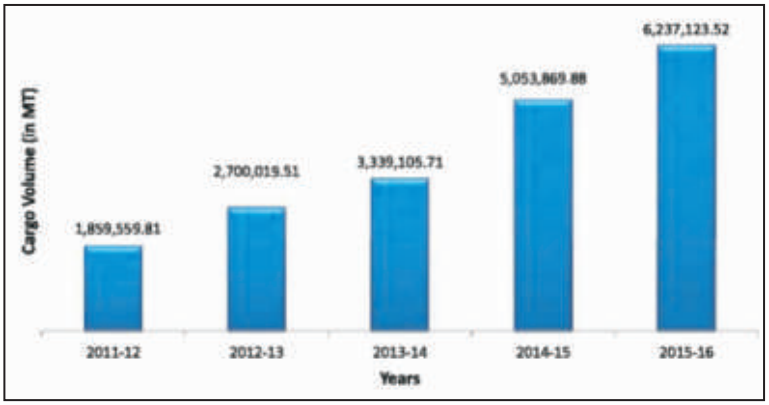
*Source: Data collected from field visit, November 2017*

The Bangladesh government is welcoming private-sector investments in developing the ICTs to ferry containers from Dhaka via river routes to seaports to avoid shipment delays caused by acute road congestion. The Rupayan Group and Summit Power have been roped in and are poised to start service shortly. Additionally, the government has approved construction of two other ICTs by Meghna Group and A.K. Khan group that will be built 15 kilometers (9.3 miles) from Dhaka.[8]

More seminar/workshops may be arranged jointly wherein members of the different industry and commercial associations, reputed carriers, firms etc. can be invited.

It is noteworthy that in a recent trend, Bangladeshi shipping lines started moving containerised cargo from Kolkata to the inland river port at Pangaon but the volume still remains quite low. As of now, Pangaon (26 km away from Narayanganj on river Sitalakkha) is the only ICT in Bangladesh. At present, rice, crude oil, leather, cosmetics, medicines and plastic are being ferried by Indian vessels to Bangladesh. This encourages economic linkage between both the countries.[9] Sending cargos like food grains and raw material for garments via sea routes may be explored by the Indian side to make bilateral trade more dynamic. To increase awareness among the stakeholders about the benefits of trade by waterways, a series of dialogues may be organised on both sides of the border. Bulk commodities and large cargo used for industrial production and large-scale construction projects can be transported through inland waterways from Kolkata/ Haldia. With access through the waterways in Bangladesh, transit route from Haldia port through Bangladesh to Assam and Tripura, linking to Chittagong sea port with southern tip of Tripura can be possible. This will provide tremendous gains in terms of reduced transport time and cost as well as for an alternative link for the northeastern region with the rest of the country as well as other destinations in Southeast Asia.

**Figure 21: Cargo movement through NW 1**




*Source: Annual Report 2015-16, Inland Waterways Authority of India, Ministry of Shipping, Government of India*

It is important to note that most of this cargo is, however, transported using Bangladesh vessels due to cheaper diesel cost, labour cost and lower capital cost of Bangladesh vessels vis-a-vis Indian vessels. These lower costs, in turn, are due to less stringent construction and safety standards adopted in Bangladesh. Despite the prescription of 50:50 cargo-ratio in the protocol, the share of Indian vessels in IWT inter-country trade remains insignificant.

The Bangladesh vessels plying in Indian routes belong to certain enlisted companies who apply for permission from the Bangladesh Inland Water Transport Authority (BITWA) and the Inland Waterways Authority of India (IWAI). Once verified, the permission letter is issued on an urgent basis in order to facilitate trade in the protocol route. Figure21 illustrates the cargo movement on NW 1 through the Protocol route which has significantly increased due to application of such prompt procedures. Authorities remain bullish regarding future improvement of trade once the major infrastructural projects are completed. Transhipment through Ashugonj to Northeast India using sea ports of Chittagong, Mongla and Pyra linking with inland Waterways will play a vital role in the economy of both countries.

**Map11: National Waterway 1, JalMargVikas Project**


*Source: Jal Marg Vikas Pioneering Navigation in India, Geography and You, https://www.geographyandyou.com/climate-change/water/jal-marg-vikas-pioneering-navigation-in-india/*

The delays in meeting deadlines due to slow release of funds as well as land acquisition are amongst the most pressing issues.

## 2.3 JAL MARG VIKAS PROJECT TO STRENGTHEN INDO-BANGLA CONNECTIVITY

With the help of the World Bank's INR 5369-crore (USD 867 million) Jal Marg Vikas project is under implementation in India for development of NW 1 from Benaras to Haldia.

The project entails the development of fairway with three-metre depth between Varanasi and Haldia covering a distance of 1,380 km with target for completion in six years. This project has been designed to minimise environmental damage and is aligned with the Inland Waterways Authority of India's operating principle of "working with nature". DST Germany has been commissioned to suggest vessel design for NW 1.[10] Special waste handling facilities, Liquefied Natural Gas (LNG) vessels, onshore electricity supply, bandals and submerged vanes made of bamboo are being installed in order to reduce dredging and channelise water. River Information System (RIS) is being set up for the first time in India in order to optimise traffic and transport processes in inland navigation. Night navigation is being installed too.

The NW 1 route is now being developed as a multi-modal terminal at Varanasi, Haldia and Sahibganj, with other inter-modal terminals and bunkering facilities. The route is supposed to connect Haldia to the Indo-Bangladesh protocol route.

A tripartite agreement between the Assam government, the Inland Waterways Authority of India and National Highways Authority of India was signed for dredging the Brahmaputra to make the river navigable.[11]

However, it is worth mentioning that budget allocation of India in last three years shows that grants to IWAI including aid to Bangladesh have increased from INR 367.22 crores (USD 57 million) in 2016-2017 to INR 508 crores in 2018-2019 (USD 78 million). However, this allocation is mostly for revenue expenditure and not for capital expenditure. Over last three years there is only one major allocation of INR 735.7 crores (USD 113 million) in 2017-2018 under capital head for IWAI. The cumulative allocation in budget is still way below the estimates of RITES study. Therefore, there is an urgent need to put more focus on capital expenditure to develop quality infrastructure as envisaged the IWAI study.[12]

### 2.3.1 Pressing Issues

- **Necessity of Dredging**

Promoting this protocol route requires the regular dredging of the rivers. There is no sufficient depth in Ganga; there is huge sedimentation every year and dredging the patches remains an annual and a costly affair. Bangladesh lacks enough resources to make dredging a meticulous and highly organised process. Still, work is at present being undertaken in Bangladesh to improve the navigability of rivers and increase the number of ports of call. BIWTA is ensuring considerable number of Fleets. Currently it includes 25 dredgers with four of them of the amphibian type.[13] By 2019, the total number of dredger is

aimed to be around 45.Bangladeshi authorities have reopened the crucial 31 km-long Mongla-Ghasiakhali channel on completion of required dredging for movement of bigger vessels in the route keeping waterways adjacent to the Sundarbans undisturbed. Another large-scale project of BD taka 3200 crores (USD 385 million) funded by World Bank, titled, "The Bangladesh Regional Waterways Transport project-1 (Dhaka-Ashugonj-Chitagong fairway) is underway.[14] The objective of the project is to improve transport efficiency, reliability and safety for passengers and cargo on priority inland waterways along the Chittagong-Dhaka-Ashuganj inland water transport corridor of Bangladesh. The project is also being implemented within the broader context of the BBIN / Eastern Corridor regional programme which aims to facilitate the movement of passengers and cargo on multimodal transport networks for the benefit of traders, transporters, producers, passengers and communities in Bangladesh, Bhutan, India, and Nepal.

It must be mentioned that a MoU was signed between India and Bangladesh to develop a fairway jointly on the basis of 80 percent and 20 percent fund-sharing. This will cover the dredging works of 175 km from Sirajganj to Daikhawa in the lower part of Brahmaputra basin and 295 km from Ashuganj to Zokiganj in the Kusiara-Meghna basin. The tender for dredging has been floated by Bangladesh Inland Waterway Transport Authority (BIWTA) and only Indian and Bangladeshi companies can take part in the tender. After completion of the project, ships of both countries having draft of 2.5 meter least available draft (LAD) will be able to ply through these routes round the year. Dredging will help improve cargo movement from Kolkata to Northeast through Bangladesh.[15] It is being estimated that the tender for dredging will be floated by the BIWTA and only Indian and Bangladeshi companies can take part in the tender.

From the Indian perspective, the Sirajganj-Daikhawa stretch is more important as it would help create a nearly 4,000 km-long fairway from Varanasi in Uttar Pradesh to Sadiya in upper Assam (bordering Arunachal Pradesh) through Bangladesh.

So NW 1 route is stretching from Benaras to Haldia to the Indo-Bangladesh protocol route going up to Ashuganj and Dhubri, where there is the NW2- Guwahati, up to Sadiya. From the Karimganj side it will go up to Shilchar. In the Indian side of this is Karimganj where the dredging work has already begun and terminals are being developed. A similar project for developing the NW-2 from Dhubri (bordering Daikhawa) to Sadiya, with World Bank assistance, is currently under consideration.

- **Lack of assured fairways**

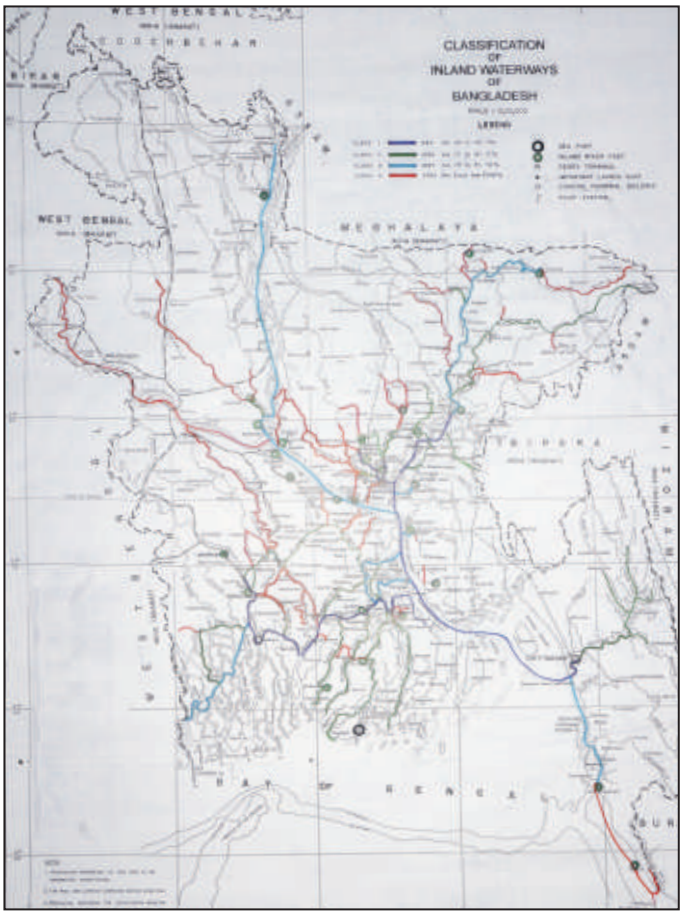
Assured fairway with desired depth and width is the key to year-round operation. Unsafe and uncertain fairways restrict speed and have been found to cause frequent groundings that, in turn, result in higher fuel costs: the system then becomes expensive and unreliable.

Sediment deposition is another factor that disturbs the riverbed and the waterway. Unpredictable shoal appear all along the entire river bed, which becomes detrimental for the passage of vessels, resulting in the disturbance to the grounding of vessels.

- **Night navigation facilities**

The night navigational facility remains a matter of concern. It is seldom availed by Indian vessels plying Bangladeshi routes. The provision of night navigation facility is essential for 24-hour navigation. The said facility has been provided by the Inland Waterways Authority of India between Dhubri and Pandu on NW-2. The inland water routes used within Bangladesh for trade and transit apparently have 24-hour navigational facilities between Chalna and Padma-Meghna confluence and Bhairab Bazar, covering a distance of 387.5 km.

**Map 12: Inland River Ports in Bangladesh**




*Source: Obtained from BIWTA, Dhaka November 2017*

- **Need of IWT vessels**

The Inland Waterway Transport (IWT) has few vessels to run services in eastern and North-eastern India. The Central Inland Water Transport Corporation (CIWTC) owns a number of vessels, and so do the WBSTC (West Bengal Transport Corporation), Vivada Transportation Corporation and IWTDA; they are not enough, though, to cater to proposed needs.

### 2.3.2 Inclusion of Nepal and Bhutan to strengthen sub-regional cooperation

It is well known that the roads and railways in this corridor have saturated. The cost factor remains enormous and cause excessive pollution. Thus the development of Inland Waterways is essential to revitalise connectivity in the region. It is of special importance for the landlocked countries as it provides them an outlet to the seas. Waterways are cheap

for both passenger and cargo movements. It consumes less fuel, is easy to maintain and is environment friendly. Some of the impediments are as follows:

The successful completion of the Jal Marg Vikas Project will likely benefit Nepal. The Kalughat Terminal would enable transportation of cargo from Kolkata to Nepal through this Waterway.[16] Further, the Gazipur terminal— which is dedicated to LNG (liquefied natural gas) trade—would facilitate the transportation of LNG to Nepal via Gazipur.[17] The Jal Marg Vikas Project will also procure 25 LNG fuelled vessels or barges to promote the use of the waterway. A total of 60–65 vessels will be procured under the project. Measures have also been undertaken to ensure that dredging results in a 3 Meter assured draft between Farakka and Kahalgaon in Bihar. A beginning has already been made, and goods are being transported through inland waterways. The cargo movement for the landlocked Nepal and Bhutan is partly taking place through the riverine route till Sahebgunj, from where trucks move goods to Nepal and Bhutan. It is estimated that it has reduced transport costs by 30 percent.[18]

There has been an attempt to turn Inland waterway transport (IWT) terminal at Jogighopa in lower Assam into a cargo movement hub to facilitate trade with Bhutan and Bangladesh. Jogighopa is a town situated on the bank of the Brahmaputra in Bongaigaon district. It falls under National Waterways 2, 891 km stretch of the Brahmaputra between Dhubri and Sadiya. The IWT terminal has the potential of becoming a major hub for cargo movement through waterways.[19]

The techno-feasibility studies of Ghagra, Gandak and Kosi rivers will also provide insights on the possibility of connecting Nepal and India through waterways. It may be suggested that the inclusion of trans-boundary inland waterways as an agenda in the bilateral meetings of Ministry of Water Resources of Nepal and India would pave the way for an inclusive discourse on the subject between two countries. The Detailed Project Report (DPR) of Kosi high dam which has been delayed over more than a decade also has a component of inland waterways connecting Kosi and Ganga.

It is important to undertake joint feasibility and hydro-morphological studies of waterways, basin management, joint dredging and silt management, user-friendly customs policies and data sharing which will lead to cooperation among riparian countries.

It would also be a sensible option to develop the irrigation sector along with dredging. This will increase the efficiency and reduce the irrigational water consumption allowing more water to flow in the rivers, resolving the problem of insufficient depth and thereby facilitating navigation. With deep irrigation the crop production will also increase. So there will be prosperity in both sectors.[20]

### 2.3.3 New routes to be explored

- It will be a feasible option to develop the Aricha-Dhulian-Rajshahi-Dacca route for navigation to reduce the distance and time between Kolkata and the Northeast. Opening of the Farakka-Dhulian-Rajshahi-Aricha route will further provide a direct link to the mainland through NW-I.
- A waterway link between Tripura's Gomti and Hooghly rivers and the Meghna river of Bangladesh has been funded by Indian government to help increase trade with the north-eastern states via Bangladesh. But the current status of this project remains unknown.[21] Thus, the development of river routes through Gomti - Meghana may be explored to establish trade opportunity between Tripura and Bangladesh.
- Also after becoming part of the national waterways, development of the tributaries of the Brahmaputra like Dhansisri (NW- 31), Subansiri (NW- 95) and Lohit (NW- 62) is essential.
- The inclusion of River Surma in the Protocol Route may be worked out. River Surma from Ashuganj – Chatak is navigable for 2.5m draft vessels. A detailed survey needs to be conducted from Chatak till Zakiganj stretch. Dredging will be required from Zakiganj till Karimganj. Dredging will also be required from SaheberAgla till Dhubri.[22]
- The Jogigopa-Pandu-Dhubri route with India can be turned into a tripartite one with the inclusion of Bhutan

### 2.3.4 Tourism and people-to-people links

In the tourism sector, the signing of MoU on operating cross-border river cruises along protocol routes and coastal route was a major achievement.[23] Cruise shipping involving pilgrimage and adventure cruise is supposed to be introduced in the Indo-Bangladesh Protocol Route in March 2018. This protocol route can link Bhutan to Assam. Port of Sittwe may also be connected to the protocol route. In this respect, an Assam cruise line named 'Charaidew' is scheduled to ply from September 2018 from Assam to Bangladesh.[24]

Also two rounds of discussion with cruise operators have taken place and the last is scheduled in November. Jetties are being built at Murshidabad, Hazaarduari and Khulna so as not to limit tourism only to the ports of call. Zodiac boats, made of rubber and which can anchor anywhere are going to be used. Cruise shipping will greatly boost the economic life of the people involved.

A MoU exists between Bangladesh and Bhutan for tourism and cargo movement. The SOP in this regard is also under process. According to a feasibility study conducted in 2013 a

multimodal transit can be made where two routes were identified, namely, Mongla till Daikhawa and another from Chittagong till Daikhawa which will eventually connect Jogighopa and then Bhutan via road. Inclusive development of Inland Waterways will create livelihood opportunities for people. Inland waterways cannot survive alone; thus a sub-regional multimodal agreement is recommended.

## 2.4 INDIA'S NORTHEAST AND INDIA-MYANMAR LINKAGES IN INLAND WATERWAYS

Before going into a detailed discussion on India-Myanmar inland water linkages it is important to understand the inland waterway system in Myanmar. The commercially navigable length of rivers in Myanmar is 6,951 km. Inland shipping mainly takes place at the rivers Irrawaddy, Chindwin, Thanlwin and Sittaung River. Table 20 shows the navigable length of the major rivers of the country.

**Table 20: Major rivers and its navigable length**

| Rivers | Navigable length |
|---|---|
| The Ayeyarwady | 1534 km |
| The Chindwin | 730 km |
| The Ayeyarwady delta | 2404 km |
| The Thanlwin and Mon state rivers | 380 km |
| The Rakhine state rivers | 1602 km |
| The Mekong (within Myanmar territory) | 265 km |
| Total | 6951 km |

*Source: Myanmar Maritime Quickscan Report, Nederland Maritiem Land, 2016, https://www.yumpu.com/en/document/view/55431160/maritime-quickscan/3*

The inland navigation fleet can be divided into two: the governmental Inland Water Transport (IWT) fleet and privately owned ships. IWT has a capacity of about 100,000 tons. With 11.239 million passengers and 1.375 million tons of cargo transported (April 2015 to March 2016) it is the largest transport company active on the waterways. The IWT fleet consists mainly of barges and mixed cargo and passengers ships.[25] On the other hand, the privately owned ships can serve around 500,000 tons.

Inland Water Transport (IWT) is one of the state-owned river transport enterprises under the Ministry of Transport. The main function is to carry out the transportation of

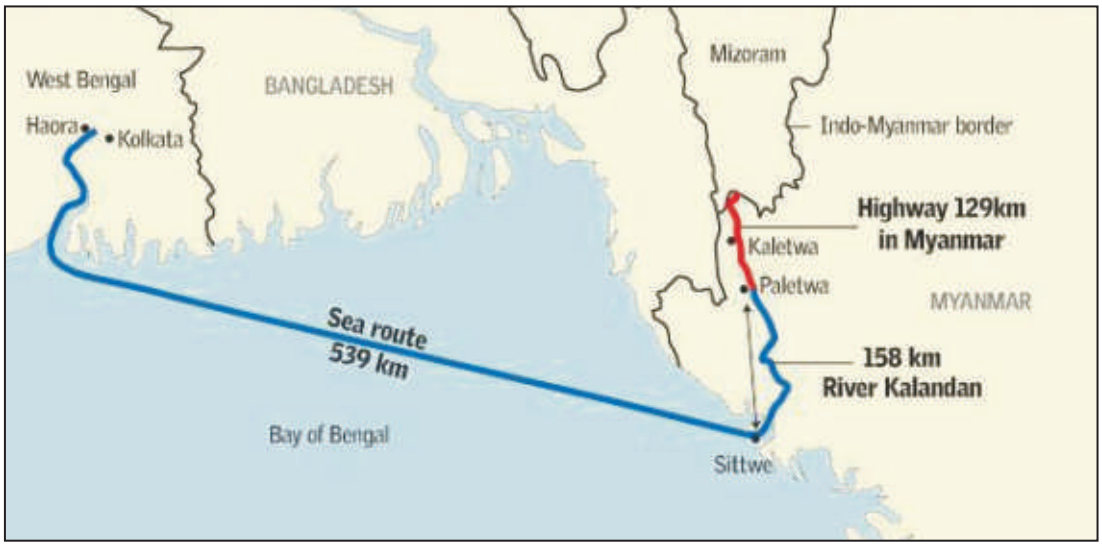
passenger and commodity at low cost along the navigable waterways of Ayeyarwady River, Chindwin River, Delta area, Mon, Kayin and Rakhine States. Bulk and special transports are also carried out. The short sea fleet additionally transports export goods such as timber logs and heavy imported equipment from Yangon port to upper Myanmar. IWT is currently facing financial issues due to the large private fleets.[26] More so, there are problems such as narrow and shallow water channels and in the rainy season difficulty in ship handling because of rapid currents, collisions with piers or bridges, lack of adequate waterway signals and modern equipment for night navigation. Furthermore, port facilities for inland waterways are poor. Cargo loading and discharging are still manually operated. Therefore, Myanmar requires innovative cargo loading and discharge possibilities and improvement of port facilities like jetties.[27]

### 2.4.1 Kaladan Multimodal Transit Transport Project (KMTTP)

The KMTTP provides a scope for the use of inland waterway in Myanmar. The project envisions road transport from Mizoram (India) to Paletwa (Myanmar), thereafter from Paletwa to Sittwe (Myanmar) by IWT and from Sittwe to Haldia or any other part of India through maritime and coastal shipping. The project is piloted and funded by the Ministry of External Affairs, India which appointed Inland Waterway Authority of India (IWAI) as their Project Development Consultant (PDC) for port and IWT component of the project. The work was awarded to Essar Projects Ltd. at a cost of INR 342 crore (USD 52 million) .[28]

Keeping pre-Partition days' (1947) linkages in consideration both countries can sign a coastal shipping agreement on the lines of the agreement India signed with Bangladesh.

**Map 13: Kaladan Multimodal Project**




*Source: http://www.insightsonindia.com/2015/10/15/insights-daily-current-events-15-october-2015/kaladan-multimodal-project/*

Since April 2017, the Sitwe port and IWT Paletwa jetty have become operationalised. India handed over the operation of the completed Sittwe port and Inland Water Terminal at Paletwa to Myanmar. In June 2017, India handed over six gas tanker cargo vessels worth US$81.29 million to the Myanmar government to transport gas to Northeast India via Manipur. Sittwe Port and IWT Paletwa are expected to be ready for regular operation by 2019.[29] Their operationalisation will be a catalyst for industrialisation in both Rakhine and Chin States. It is expected that the employment generation in various sectors along with promotion of exports of agricultural commodities, marine products, timber products and various other items will be enhanced. The plan of setting up Special Economic Zone in Sittwe by India, only when implemented, will build the entire zone as a comprehensive project captive market for Indian investments.[30]

Although negotiations are ongoing for the revival of the Kolkata-Rangoon freight service, there is no such possibility for passenger traffic due to Myanmar's existing law. Additionally, such a service will not be time- and cost-effective.

The development of National waterways Tizu- Chindwini - Irrawady to promote trade between Nagaland and Myanmar may be considered. For inclusion of this route and development of ports in Myanmar, a bilateral protocol with the Government of Myanmar will have to be taken up by MEA, India

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# 3 Strategic Convergences and Divergences


**Map: The Bay of Bengal**

*Source: Maritime Executive, https://maritime-executive.com/article/Bay-of-Bengal-the-New-Zone-of-Competition-2014-12-05*

This section of the report seeks to understand the Bay of Bengal as a zone of growing competition—and possible collaboration—between the littoral countries and major powers involved in the region. The focus is on treating the Bay as a common strategic space and an arena of resource-sharing between the powers involved. The Bay is intrinsically rich in hydrocarbons and minerals. Several major rivers of Asia flow into the Bay and the adjoining seas, creating vast sedimentary basins that have potential hydrocarbon deposits. The growing role of the Bay of Bengal as a reservoir of vital resources has contributed to the regional powers' ability to exert their influence in this arena. The changing dynamics are particularly relevant for India and China, whose rising economies are dependent on the steady flow of resources, most importantly oil.

The Bay is of vital strategic, economic and maritime importance, as the Andaman Sea and the Malacca Straits link South Asia and Southeast Asia. Since the major actors are largely dependent on the Sea Lanes of Communications (SLOCs) for their supplies, the protection of those routes has induced a rapid militarisation of the region. As the current scenario involves many stakeholders and strategic interests, the risks of competition are looming.[1] Given the Bay's strategic and economic significance, the role and interest of major powers like the United States, Australia, China and Japan are also dealt with in the report. Japan's role is being particularly examined because of its continued infrastructural engagements and its initiative in fostering political cooperation in the subregion. Japan's concept of 'Free and Open Indo-Pacific', the 'Asia Africa Growth Corridor', and the strategic confluence of its initiatives with India's 'Act East Policy' have been taken into consideration.

The vulnerability of the turbulent Bay to frequently occurring natural calamities is also discussed. These natural disasters are transnational in nature and often wreak havoc on the Bay littorals. Therefore, Humanitarian Assistance and Disaster Relief (HADR) offers tremendous potential for engaging in strategic cooperation for the involved countries.

This section will attempt to answer these questions: What is the significance of the Bay in the wake of resource management initiatives? In what ways will enhanced connectivity benefit the Bay adjacent states? What appropriate institutional mechanisms can be put in place for securing shared benefits?

## 3.1 UNDERSTANDING THE BAY OF BENGAL AS A GEOSTRATEGIC SPACE

As an inter-regional arena, the Bay of Bengal reflects many of the security complexities prevalent in the Indian Ocean Region (IOR) and in the Indo-Pacific, of which it forms a part. Therefore, it is susceptible to pressures from other security complexities, and the vibrations of dynamics of the greater regions have its repercussions here.[2] In that context, there are many different ways of understanding the Bay of Bengal as a strategic theatre, based on how each situates the Bay.[3] For this study considering the Bay as a geostrategic space under the broader gamut of the Indo-Pacific, is important as it incorporates within itself the Bay littorals and also the major powers. With each country trying to secure its national interest, the Indo-Pacific may be called a 'strategic geography'.[4] This implies the control of or access to spatial areas (land, water and air, including outer space) that has an impact—either positive or negative—on the security and economic prosperity of a nation.[5] Securing national interest is possible either through collaboration or competition. Based on which of the two is more preponderant, the Bay of Bengal may either develop as a Bay of Hope—with new and innovative partnerships, stress on human security and major actors as keepers of public good—or as a Bay of Fear, where the classical geopolitics takes

over and unanticipated scenarios come into play.[6] To secure the first, opportunities in the Bay must be looked into and therefore a concern analysis of the Bay is necessary.

## 3.2 PREVAILING CONCERNS IN THE BAY

### 3.2.1 Resource Politics in the Bay

Energy security has been the primary bone of contention in the Bay of Bengal, with each actor involved aspiring for economic prosperity. Occupying an area of 2,172, 000 square kilometres, the Bay is intrinsically rich in hydrocarbons and minerals. Several major rivers of Asia such as the Ganga, Brahmaputra, Mahanadi, Krishna, Cauveri, Irrawady and Salween, flow into the Bay and the adjoining seas, creating vast sedimentary basins that have potential hydrocarbon deposits.[7] Discovery of natural gas in Cauvery, Godavari and Krishna basins on India's east coast, in the offshore areas of Bangladesh and Myanmar (in the Gulf of Martaban and off the Rakhine coast) generated the hope that the Bay is likely to become "Asia's North Sea" in the near future. The SLOCs passing through the Bay are also important in terms of energy security as these are the routes through which India and China import oil from the Gulf countries.[8]

**Box 5: UNCLOS: Four areas of National Maritime Rights**

1. 12 nm: Territorial Sea, in which the state exercises full legal sovereignty.
2. 24nm: Contiguous Zone, in which the state exercises, limited sovereignty.
3. 200nm: Exclusive Economic Zone, in which the state exercises full economic sovereignty.
4. 350nm (maximum): Continental Shelf, in which the state exercises, limited economic sovereignty.

*Source: Bernard D. Cole, "Introduction", Sea Lanes and Pipelines Energy Sector in Asia, 2008, p.9.*

It is indeed interesting to note that this region has not emerged so far as a major oil and natural gas producing area. In terms of foreign investment in the energy sector, this region (barring Malaysia and Indonesia) also appears to have been neglected in the past. Perhaps the Cold War politics vitiated the atmosphere of this region. As a consequence, during that period Western oil multinationals did not make any significant investments in the oil and natural gas sectors in countries like India, Bang1adesh, Myanmar or Sri Lanka. However, this region has, of late, turned into one of the most explored or extracted offshore or onshore regions.

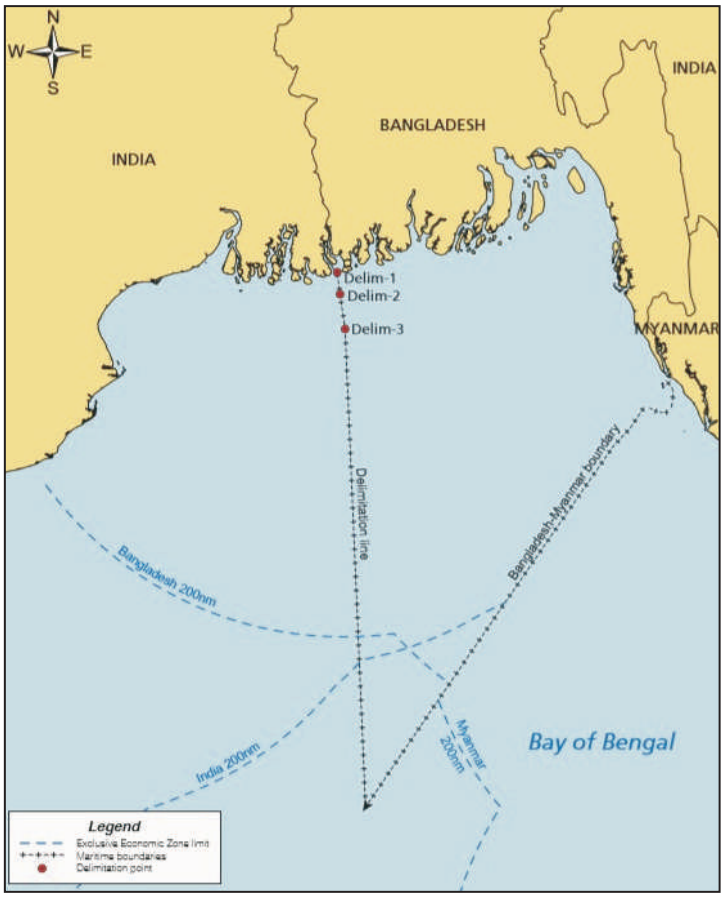
According to a British Petroleum's (BP) report, China's energy consumption grew by 1.3 percent in 2016. This was less than a quarter of the 10-year average growth rate of 5.3 percent. The report also revealed that China remained the world's largest energy consumer, accounting for 23 percent of global energyconsumption and contributing 27

percent to global energy demand growth in 2016. China's oil import dependency ratio rose to 68 percent in 2016, the highest in its history.[9] This trend is clearly indicating why China—with its annual GDP growth rate of 6.5 percent—is moving aggressively to secure its energy supplies from abroad.[10]

As India today emerges as one of the world's fastest growing economies with a GDP growth rate of 7.2 percent,[11] it cannot ignore its energy security. India's energy supply portfolio is still highly dependent on coal and this situation will remain the same in the near future. However, it is expected that natural gas will continue to increase its contribution to the supply portfolio. BP statistics reveals that India's energy consumption is set to grow by 4.2 percent per year by 2035, faster than that of all major economies in the world.[12] It is estimated that by 2032, India will be dependent on imports for most of its oil (90 percent) and natural gas (85 percent) needs.[13]

The bulk of India's natural gas production comes from the western offshore regions, especially Mumbai High, which provides about two-thirds of the total production. The

**Map 14: India-Bangladesh Maritime Border Dispute: The Tribunal's Award**



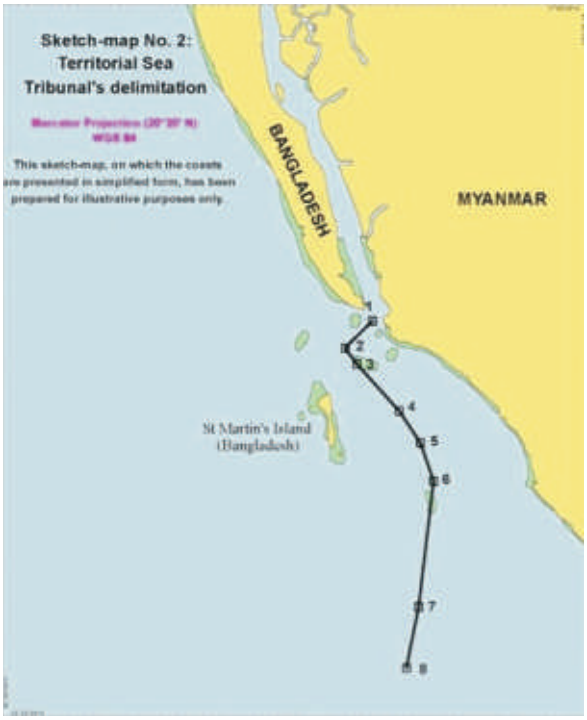

*Source: 'Bay of Bengal Maritime Boundary Arbitration between Bangladesh and India', Permanent Court of Arbitration, 8 July 2014, https://www.pcacases.com/web/sendAttach/410*

onshore fields in Assam, Andhra Pradesh, and Gujarat states are also major producers of natural gas. Smaller quantities of gas are also produced in the states of Tripura, Tamil Nadu and Rajasthan. The new discoveries of natural gas fields in the offshore Bay of Bengal over the last few years have raised hopes. According to a Ministry of Petroleum and Natural Gas report, at least 27 hydrocarbon discoveries have been made by the government in 2014–2015.[14] Recently, the state-owned Oil and Natural Gas Commission (ONGC), one of the largest companies by production volume, announced a discovery in Krishna Godavari basin deep-water block KG-D5. ONGC has divided 12 oil and gas finds in the block KG-DWN-98/2 or KG-D5 and gas discovery in an adjacent G-4 block of the Bay of Bengal into three clusters to quickly bring them to production.[15] According to the 2016 Annual report of the Oil Ministry, Reliance Industries Limited, the largest private company in India, was expected to produce 23 million standard cubic meters per day of more gas from five discoveries in the flagging KG-D6 block by 2016–2017.[16] Thus, the new discoveries of natural gas fields in the eastern coast of India have not only enhanced the strategic significance of the Bay but have also increased its political–economic importance.

In 2006 when India started exploring in the deep water within its EEZs in the Bay, these new explorations in deep-water blocks caused serious tensions in bilateral relationships between India and its eastern neighbour, Bangladesh. This issue was settled in 2014 by the special Tribunal of International Court of Justice at The Hague under the United Nations Convention on the Laws of the Sea (UNCLOS).[17] A similar situation of overlapping EEZs has occurred between Bangladesh and Myanmar. A negotiation at a political and technical level between Bangladesh and Myanmar was undertaken between 1974 and 1986, resulting in a provisional agreement on a territorial sea boundary.[18] The EEZ remained open for dispute and ensuing confusion over gas blocks led to minor naval standoffs between both countries. Therefore, Bangladesh took the case to the International Tribunal for the Law of the Sea (ITLOS) for jurisdiction. Ultimately, the line towards 215° azimuth was declared to be the final delimitation line in the EEZ and continental shelf within 200 NM.[19] These cases reveal that without clear demarcations of the EEZ of each of the countries, any exploration activity is bound to trigger tensions.

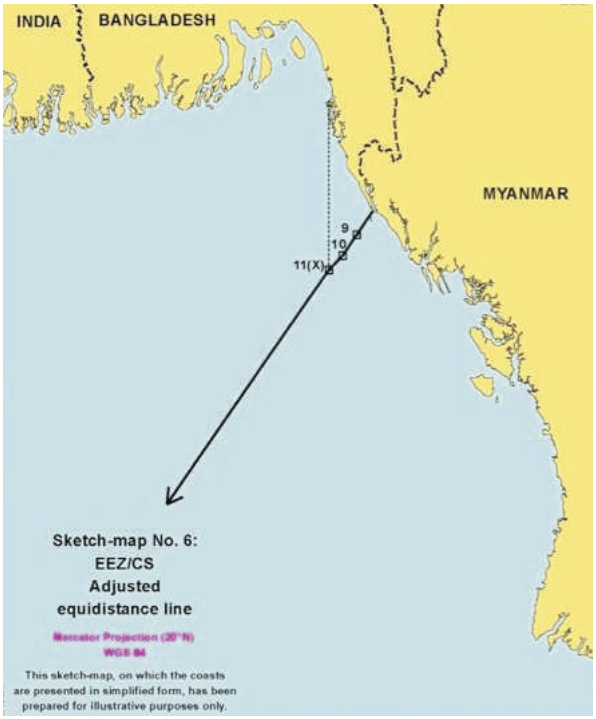
India's maritime boundary with Myanmar was settled in the 1980s.[20] As the maritime boundaries of these three adjacent Bay littorals have been delimited and are accepted universally, the only remaining overlapping EEZ that requires delimitation is the one that lies between India and northeast Sri Lanka. The rush for securing natural resources is not limited to the countries in the region as the world's major powers have aligned themselves for safeguarding the Bay; the interaction of these forces has spilled onto the geopolitical space as well.

**Map 15: Tribunal's Delimitation: Territorial Sea**




*Source: James Harrison, "Judgement in Bangladesh-Myanmar Maritime Boundary Dispute", International Law Observer, 2012, http://www.internationallawobserver.eu/2012/03/15/judgment-in-bangladesh-myanmar-maritime-boundary-dispute/*

**Map 16: Tribunal's Delimitation: EEZ/Continental Shelf**




*Source: James Harrison, "Judgement in Bangladesh-Myanmar Maritime Boundary Dispute", International Law Observer, 2012, http://www.internationallawobserver.eu/2012/03/15/judgment-in-bangladesh-myanmar-maritime-boundary-dispute/*

### 3.2.2 Undocumented migration

Bay of Bengalis regarded as both a "place and passage".[21] For centuries now it has been a thoroughfare of migration due to cultural and commercial exchanges amongst the people of the Bay littorals.[22] Recently, however, undocumented migration in the Bay of Bengal has increased, primarily due to persecution. Maintaining imperviousness of borders against illegal migrants continuously traversing the Bay of Bengal is increasingly becoming an ominous task for the governments of the littoral states. During the Sri Lankan civil war there were many cases of undocumented migration in the Bay. In 2015, there was a new wave of undocumented migration of the "stateless" Rohingya Muslims of Myanmar. To escape state persecution, some fled across the border to Bangladesh, while the rest embarked upon long arduous journeys across the Bay in search of shelter.[23] In Bangladesh they were identified as the "undocumented Myanmar nationals", whereas the Myanmar government called them "illegal Bengali migrants".[24] The Rohingya migration across the Bay continues till date and many have fallen victim to deadly diseases.[25]

### 3.2.3 Illegal fishing and poaching

A majority of the population living around the coastal arc of the Bay are dependent on fisheries as source of livelihood.[26] In the late 1990s fishing trawlers moved away from their home waters in search of new types of fishes. Thus began the era of illegal fishing. Sri Lankan authorities claimed in 2015 to have spotted 40,544 Indian trawlers in its territorial waters.[27] The Indian government countered with a similar claim and soon several trawlers were seized and fishermen arrested.[28] The Federation of Indian Fisheries Industries (FIFI) reported that foreign fishing trawlers, mainly from Bangladesh, often illegally enter India's territorial waters.[29] Indian fishermen are falling victim to pirates.[30] This automatically results in a scarcity of fishes and therefore soaring prices. It has also been reported that the Indian Coast Guard officials are bribed by the foreign fishing trawlers to enter India's coastal waters. The former, though, has strenuously rejected the claim and said that any illegal vessel entering India's waters are immediately arrested.[31] Fishing is becoming increasingly risky as well as unproductive in the Bay of Bengal.

### 3.2.4 Armed Robbery and Sea Piracy

There has been a marked increase in piracy in the Bay of Bengal, the worst victims of which are fishermen and ships carrying cargo.[32] However, despite several initiatives undertaken by the independent maritime forces of the littoral countries (e.g., The Bangladesh Coast Guard), piracy continues to be a serious concern.[33] Therefore, cooperation amongst the maritime forces of these countries is desirable. The Bay littorals along with the major powers participate in anti-piracy cooperative mechanisms—among them, the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP).[34] As the net security provider in the subregion, the Indian Navy and Coast Guard have taken strong measures to counter piracy, through continued anti-piracy operations.

## 3.3 HUMANITARIAN ASSISTANCE AND DISASTER RELIEF (HADR)

Natural disasters are rampant in the Bay of Bengal; as a corollary, HADR has become one of the core areas of cooperation amongst the littorals.[35] All the four littoral countries have varying measures of HADR capacity. India, with the largest HADR force and as the net security provider in the region, spearheads most HADR operations. It seeks to establish harmonious ties with its neighbours and conceives the idea of rendering assistance as "extending sympathy" to the disaster affected as a "goodwill gesture.[36] In India, ports such as Visakhapatnam take adequate precautionary measures to deal with disasters. It is to be recalled in this context that seaports are located in vulnerable areas, often making them

susceptible to the impact of climate change and the rise of sea levels. Thus the port community needs to come together to find solutions to these problems.[37] Ports also act in close coordination with the District Administration and Coast Guard in providing relief to affected, in disasters.[38] Chennai port, for instance, has a contingency plan to remedy natural and man-made calamities.[39]

**Box 6: For strengthening integrated HADR capacity in the Bay:**

- Organising joint HADR exercise drills within BIMSTEC;
- Standardising procedures for evacuation, a common legal framework, capacity building;
- Sharing best practices among the Bay littorals;
- Considering building an independent HADR brigade under BIMSTEC is necessary.

*Source: Anasua Basu Ray Chaudhury and Sohini Bose, Disasters without borders: Strengthening BIMSTEC cooperation in humanitarian assistance, ORF Issue Brief-207, November 2017, p. 7, http://cf.orfonline.org/wp-content/uploads/2017/11/ORF_Issue_Brief_207_BIMSTEC-HADR.pdf*

Bangladesh's armed forces, though quick to respond, face a problem of lack of coordination and mis-allocation of resources amongst the different agencies.[40] While the Sri Lankan National Council for Disaster Management is efficient, it faces problems such as the absence of committed community participation and the lack of political will.[41] For its part, Myanmar has inadequate capability to respond to disasters.[42] All the littorals, therefore,

**Box 7: Role played by the Andaman and Nicobar Islands (ANI) in HADR**

- Before the earthquake and tsunami that hit the island in 2004 which resulted in heavy loss of lives and destruction to infrastructure, there was a lack of awareness among the population regarding the measures to cope and procedures to follow in the event of such disasters.
- However, since then, there has been massive deployment of energy and focus in building the islands' resilience to such events in future.
- The Directorate of Disaster Management was set up in 2008. Disaster-preparedness levels have increased significantly at present and under the Directorate and training camps, table-top exercises and mock-exercises are held periodically to enhance capabilities and improve awareness levels.
- The Directorate also works in close collaboration with the ANC to conduct joint exercises and refine the existing SOPs towards Humanitarian Assistance and Disaster Response (HADR) activities.
- Because the islands are now capable of responding to natural catastrophes and have developed systems for addressing the same, there can be exchange of disaster management information and capacity building between the Directorate in the ANI and the Bay littorals.
- There is a lot of scope for joint operations between and among navies of the neighbouring countries of Southeast Asia and the tri-services command in the islands.

are dependent on India for HADR assistance in times of crises. There is a requirement for better exchange of ideas, HADR practices, and the initiation of new sub-regional collaborative ventures. The Sendai Framework for Disaster Risk Reduction 2015–30 that propagates an institutional approach to disaster mitigation at the macro and micro level may serve as an inspiration to the Bay littoral countries in this regard.[43] Annexure 6 shows how India's role has become crucial to mitigate natural disasters in the Bay in the recent past. It is worth mentioning that the BIMSTEC Disaster Management Exercise held in August and October 2017, organised by India and participated in by the Bay littoral countries, is a step in this direction.[44] It aims to strengthen regional response and coordination for disaster management in the Bay of Bengal.

Having analysed the concerns in the waters of the Bay of Bengal, one must understand how the countries' own strategically located areas may be developed so as to mitigate such threats. In this context a discussion on the strategic role of the Andaman and Nicobar Islands becomes important and is done in the next section.

## 3.4 STRATEGIC SIGNIFICANCE OF ANDAMAN AND NICOBAR ISLANDS

The Andaman and Nicobar Islands (ANI) are uniquely positioned at the mouth of the Bay of Bengal. This group of 526 islands has often been referred to as "one of the most strategically located island-chains in the world."[45] The ANI straddles the 10-degree channel and overlooks the 6-degree channel. The strategic importance of the location of the islands cannot be overemphasised. The islands are located close to the Strait of Malacca and make up the first land connect from the Strait and are also at a short distance from Myanmar and other Southeast Asian countries.

In 2015, the government of India announced an INR 10,000 crore plan (USD 1.58 billion)[46] for transforming the islands into the first maritime hub of the country. The project will be handled by the Andaman and Lakshwadeep Harbour works and funded jointly by the Ministry of Shipping and the ANI administration. The Ministry of Shipping has estimated a 15-year timeline for the completion of the project. It encompasses not only infrastructure pertinent for the establishment of a maritime hub but also plans for the overall enhancement of infrastructure and related facilities such as telecommunications, electricity and water supply, and others.

The Andaman and Nicobar Command (ANC) is the first tri-services command set up by the central government in 2001 with a view to strengthening the country's naval presence in the Bay of Bengal and Indian Ocean region. Among its other responsibilities, the ANC is mandated to monitor vessels passing through ten-degree and six-degree channels and also guaranteeing freedom of navigation through Malacca, Sunda and Lombok straits.[47] Over

the years the ANC has faced tailbacks due to lack of sufficient funds and repeated opposition from environmental groups which have prevented it from its undertaking its endeavours.[48] The 15-year plan announced by the government is expected to clear some of the challenges and make it easier for the ANC to assume its role in a more substantial manner.

It needs to be borne in mind that of the 500-odd islands, only 37 are inhabited which makes the rest vulnerable to narcotics smuggling, incursion by foreign vessels, and other intrusions.[49]

Underscoring the strategic significance of the ANI, a 2016 Study Group Report on Comprehensive and Sustainable Development of Andaman & Nicobar Island surges the resumption of projects such as the Kamorta Composite Military Base, an airstrip at the Hut Bay and an air force base at South Bay.[50] The report also emphasises boosting of naval capability, reconnaissance abilities, strengthening of the police force, biometric cards for the local population, the establishment of a Forensic Sciences Laboratory and a Crime and Criminal Tracking Network System (CCTNS), among other proposals, to strengthen security in the island chain. The present central government also cleared the establishment of a long held-up radar station on the Narcondam islands located near the controversial Coco islands where China set up a listening station years ago along with an airstrip.[51]

Spread across the Bay of Bengal and the Andaman Sea, the group of islands comprises 30percent of the country's Exclusive Economic Zone (EEZ). The ANI thus forms the gateway to the Indian peninsula from the Far East. The location of the islands accords it remarkable geo-political significance "in the maintenance of an effective balance of power in Asia and Far East Asia."[52] Because of this there is also the need for the islands to be adequately patrolled by the Navy, Air Force, and marine police. This is important because security is crucial to economic development. As India looks to engage increasingly with its immediate neighbours and as its economy capability enhances, it is important for the country to acknowledge the necessity of utilising as well as safeguarding the ANI.


**Vision of the Sagarmala Initiative**

## 3.5 MARITIME DIPLOMACY INITIATIVES AND NAVAL ENDEAVOURS AROUND THE BAY

Security cannot be ensured by a single nation even if it is a strong maritime power; thus there is a need for maritime or ocean diplomacy. Maritime diplomacy in the Bay of Bengal, achieved through effective diplomatic cooperation, is critical for all the Bay littoral states.[53] The Government of India launched two maritime initiatives in 2015: Project Mausam and Sagarmala. Project Mausam has a pan-littoral scope while Sagarmala is an ambitious 20-year programme with a more in-depth scale of agendas. The expansion witnessed in India's maritime trade and the increasing acknowledgement of the need to develop competencies to monitor and govern the neighbouring waters, have inspired these two initiatives.

### 3.5.1 Project Sagarmala:

- Project Sagarmala is the most comprehensive development plan undertaken in the history of free India envisioned to harness the potential of the country's 7,500 km-long coastline.
- It comprises four pillars of connectivity: tapping resources, skill development, connecting local coastal areas and port modernization.
- The project is yet confined to developing the infrastructures of the Indian ports but in the future it may expand further into the Bay of Bengal. Thus, Project Sagarmala has full potential to facilitate regional integration.
- Collaboration of the Sagarmala and the MSR would be greatly effective in developing the region

*Source: Suchak Patel and Abhijit Singh, "What is the strategic importance of Project Sagarmala and Project Mausam?", Ask an Expert, Institute for Defence Studies Analyses (IDSA), 5 May 2015, https://idsa.in/askanexpert/sagarmalandmausamprojectsv*

### 3.5.2 Project Mausam

- Project Mausam aims to focus on the fundamental procedures and phenomena that link the littorals of the Indian Ocean and also connect the coastal hubs with their hinterlands
- It promotes better understanding of cultural values and norms amongst the IOR countries. At a more localised level it seeks to foster a better understanding of national cultures in the context of a 'regional maritime milieu'.
- It emphasises on sharing of knowledge and ideas amongst India and the several 'coastal centres', connecting it to its maritime neighbourhood and thereby facilitating connectivity.
- Maritime doctrines and the navies around the Bay also significantly contribute to improving connectivity in the sub-region.

*Source: Suchak Patel and Abhijit Singh, "What is the strategic importance of Project Sagarmala and Project Mausam?", Ask an Expert, Institute for Defence Studies Analyses (IDSA), 5 May 2015, https://idsa.in/askanexpert/sagarmalandmausamprojectsv*

It is not only maritime diplomacy initiatives that contribute to improving connectivity in the sub-region; maritime doctrines and the navies around the Bay also help.

## India

Indian naval doctrine elucidates the value of collectively countering common threats at sea.[54] It propagates enhancing mutual understanding through maritime engagements such as port visits, personnel exchanges, staff talks, joint exercises,[55] and strategic cooperation for net maritime security.[56] Such endeavours have created goodwill amongst the navies[57] of the Bay littoral countries. It also advocates a synergised approach to maritime security as it strengthens bilateral ties and maritime interoperability.[58]

**An aerial view of the Malabar Exercise**

*Source: 'In photos: India, US and Japan showcase their naval might at the Malabar 2017 war games', Scroll.in, 19 March 2018, https://scroll.in/latest/844252/in-photos-india-us-and-japan-showcase-their-naval-might-at-the-malabar-2017-war-games*

India has its Eastern Naval Command at Vishakhapatnam[59] and a Joint tri-service Command in the Andaman and Nicobar Islands.[60] It has intense engagement with the littoral countries and joint exercises are regularly conducted, focusing on capacity building, hydrographic cooperation and joint HADR operations.[61] Collaborative naval activities recently undertaken by the Bay littorals and major powers in the Bay include:the International Multilateral Maritime Search and Rescue Exercise (2017);[62]

**Box 8: Services provided by the Indian Navy which helps foster connectivity:**

Coordinated Patrols (CORPAT), JointAnti-Piracy Operations, Humanitarian Assistance and Disaster Relief Operations, Non-combatant Evacuation Operations, Maritime Interdiction Operations (MIO), Peace Support Operations (PSO) and Maritime Search and Rescue (M-SAR) Operations.

*Source: "Strategy for Shaping a Favourable and Positive Maritime Environment", Ensuring Secure Seas: Indian Maritime Security Strategy, Indian Navy, Naval Strategic Publication (NSP) 1.2, New Delhi, October 2015, p. 96.*

'Malabar 2017';[63] the International Fleet Review (2016) that was hosted by India in by the Eastern Naval Command;[64] and the Milan exercises. The Indian Navy indulges in regular naval exercises, hydrographic surveys and staff visits with the Bangladesh and Sri Lankan and Myanmar Navy.[65]

**Bangladesh**

Due to its location, Bangladesh is also vulnerable to maritime blockades as witnessed in 1971.[66] The Bangladesh Navy therefore is engaged in strengthening the country's naval and surveillance capabilities including the acquisition of submarines from China. The Navy is being developed as a "three dimensional force", with air, surface, and subsurface combat capabilities. The country, however, has to balance its naval outreach in the Bay with that in the Indian Ocean region.

**Sri Lanka**

Sri Lanka enjoys a unique position in the Bay of Bengal which gives it the advantage of projecting maritime power in the subregion. The country hopes to develop a proactive strategy to protect its maritime interests.[67] In consortium with the other littorals, Sri Lanka seeks to develop the Bay as a secure maritime space, capable of fostering economic development. To achieve this goal, maintaining peace and stability in the Bay is crucial.[68] Sri Lanka also desires a strategic expansion of the Indian project of Sagarmala, whereby ports of the littoral countries would also be entitled for development.[69] The Sri Lankan Navy also participates in joint naval exercises and HADR endeavours, and its Coast Guard has regular interactions and ship visits with India's own.[70]

**Myanmar**

Myanmar has recently been increasing its naval interactions in the Bay of Bengal.[71] India has strong relations with the Myanmar Navy, which includes exchanges of important naval officers. Myanmar has also sought India's help in capacity building, constructing offshore patrol vessels, and material support for its Navy.[72] Joint HADR operations have also strengthened Myanmar Navy's connectivity with the other Bay littoral states as was witnessed in the aftermath of Cyclone Nargis (2008). It also participates in joint naval exercises and is a member of IORA and IONS.

Having discussed the maritime diplomatic initiatives of the four Bay littoral states, there is a need to understand how these manifest themselves institutionally through the subregional platforms in the IOR. An analysis of the strategic significance of subregional forums is given in the following sub-section.

## 3.6 INSTITUTION BUILDING IN THE BAY OF BENGAL AS A PART OF THE IOR

Given the number of transnational concerns in the Bay of Bengal, there is a need for a common platform to deal with these issues. Institution-building is thus necessary in the subregion. Some such forums already exist such as the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), Indian Ocean Rim Association (IORA), and the Indian Ocean Naval Symposium (IONS). An analysis of these may be undertaken to understand how they help improve connectivity amongst the Bay littorals and the major powers.

### 3.6.1 BIMSTEC

Established in 1997, BIMSTEC comprises all Bay littoral states and three others. If India has to establish a strategic foothold in the Bay of Bengal, BIMSTEC must be further cultivated and India ought to assume the lead in its strategic cooperation.[73] At the 15th BIMSTEC Ministerial Meeting in August 2016, Sushma Swaraj, India's External Affairs Minister stated that given the need to ensure peace and security, strategies to counter terrorism and violence will gain predominance in the deliberations of BIMSTEC.[74] BIMSTEC has signed several conventions to counter non-traditional security concerns.[75] If need be, resources from other sectors of BIMSTEC cooperation must be diverted to quickly develop the forum's rising strategic potential.[76]

According to Article 122 of the laws of the sea,the Bay of Bengal qualifies as a semi-enclosed area. Therefore, a Regional Seas Programme Initiative is desirable, where BIMSTEC will play an important role and Japan and India will be at the forefront of the initiative. This will send a strong message of unity and cooperative development across the Malacca Strait to the other fragmented part of the Indo-Pacific—the South China Sea.[77]

### 3.6.2 IORA

Formed in 1997 with India as a founding member, the IORA emphasises the linkage of maritime security with regional economic growth.[78] A flagship project of IORA is the Indian Ocean Dialogue, the first of which was hosted by India in 2014. Discussions included topics such as economic cooperation, maritime safety and security, blue economy, and humanitarian assistance and disaster relief. It is a vibrant platform to discuss regional issues.[79] India has taken the lead to resurrect the role of IORA in the region. It has a lead role in IORA following its strategic vision of SAGAR – Security and Growth for All in the Region.[80] It is an umbrella under which the Bay littoral states may deepen their strategic ties. Efforts must be made to make Myanmar also a member of IORA to achieve holistic development.

### 3.6.3 IONS

All Bay littorals are members of IONS. Amongst the major powers, Australia is a member and China and Japan have been granted an Observer status.[81] IONS was founded by the Indian Navy in 2008, as a regional forum for navies of the IOR littorals. It provides a platform for constructive engagement of the different navies and a scope to enhance common maritime security. This large platform can help the Bay littorals to further integrate strategically.

Apart from the Bay littorals, the major powers also form an important part of these institutions and have a significant impact on the strategic manoeuvres. It is thus important to consider their impact on the Bay of Bengal.

## 3.7. ROLE OF MAJOR POWERS IN THE REGION

The Bay of Bengal's strategic centrality and the lucrative economic prospects it offers attracts many major powers into its waters. Most significant amongst these countries, apart from India, are China, Japan, Australia and the US. Following is an analysis of the interests and the roles of the four other countries in the context of the Bay of Bengal situated in the broader gamut of the Indo-Pacific.

### 3.7.1. China: Causing uncertainty in the Bay?

In the book, "War by Other Means: Geoeconomics and Statecraft", Robert D. Blackwill and Jennifer M. Harris portrays geoeconomics as "the use of economic instruments to promote and defend national interests, and to produce beneficial geopolitical results; and the effects of other nation's economic actions on a country's geopolitical goals." This perspective on geoeconomics has led to the growth of apprehensions about China's Belt and Road Initiative (BRI) which partly manifests itself in the Bay of Bengal.

The Chinese naval strategy of "far sea defence" is designed to lend Beijing the ability to project its power in the Indian Ocean Region.[82] The country is gradually increasing its political, economic and military influence in the region by forging maritime ties with the Bay littoral countries such as India, Bangladesh, Sri Lanka and Myanmar through sponsoring infrastructural developments.[83] Some examples are the construction of the Hambantota port in Sri Lanka and the Oil and Gas Pipeline in Myanmar which runs from Kyaukpyu in Myanmar to the Yunnan province in China.

One of the primary areas of Chinese strategic concern in the Bay is the Strait of Malacca, located between the Malaysian peninsula and Indonesia, which is a narrow stretch of water

(805 km in length) that is a crucial shipping lane for the world as it connects the Pacific Ocean with the Indian Ocean. Its significance was highlighted when former Chinese President Hu Jintao spoke of the "Malacca Dilemma", referring to the fact that the steady supply of oil through sea lanes to China was contingent on the narrow Strait of Malacca to being open and free for navigation.[84] Keeping the same in mind, China has embarked on a two-pronged strategy: to develop an alternative energy route to reduce the dependence on the Malacca Strait, and to establish holds at various points throughout the Indian Ocean to guarantee fulfilment of its needs. The development of this strategy has been on the following lines:

**The Isthmus of Kra: an alternate to the Strait of Malacca**

The Isthmus of Kra or the Khokok Kra, is a strip of land located at the juncture of southern Myanmar and Thailand between the Gulf of Thailand and the Andaman Sea. It provides a more straightforward route for vessels from the Indian Ocean to the South China Sea, thereby saving time and fuel.[85] If a canal is built in the Isthmus it will allow more room and depth to vessels passing through it and also significantly reduce the distance taken to travel through the Malacca Strait. However, its construction is still being deliberated upon owing to certain economic and ecological risks. In 2015 speculations once again arose regarding its construction. China has for a long time expressed its interest in building and funding the canal, possibly under the umbrella of its Maritime Silk Route (MSR) scheme.[86]

**Map 17: The Isthmus of Kra and the proposed canal**

*Source: Anasua Basu Ray Chaudhury and Pratnashree Basu, "Meeting with China in the Bay of Bengal", Journal of the Indian Ocean Region, Volume 12, No. 2, 2016, p. 150.*

**Revival of the Maritime Silk Route:** The second aspect of the two-pronged strategy may be the effort by China for a revival of the old Maritime Silk Route (MSR),to be redesigned as the 21st Century Maritime Silk Route.[87] This initiative of China is apparently aimed at assisting in developing port infrastructure of the littoral countries to boost the economies and facilitate maritime connectivity in the IOR region. However, speculations continue

about the real motive behind MSR as the Beijing government has refrained from providing details of the project. The real purpose of MSR, India perceives, is to create a Beijing-controlled, elongated Sea Lane of Communication (SLOC), beginning at the East African Coast, running through the Indian and the Pacific Oceans and finishing at the south of China. As a result, the Chinese "String of Pearls" will be extended at both ends and the Indian Ocean will be a host to a plethora of Chinese logistical hubs. This will give China greater hand in shaping the security dynamics of the region. The MSR project has become a part of the broad initiative called 'Belt and Road Initiative (BRI).[88] China has been investing heavily in the construction of port infrastructure at strategic points along the MSR.[89]While China claims that its interests in the IOR are economic, it is increasingly clear that the MSR could have a major impact on the strategic balance in the Bay.[90]

China's activities in the Bay have been one of the most decisive factors influencing India's interest in the Bay and its relationship with the US and the other Indo-Pacific states.[91] At present, India's strategic ambitions in relation to these growing partnerships[92] as well as the implications of its 'Act East' policy in Southeast Asia have become particular causes of concern for China.[93] You Ji, a Chinese naval analyst has stated that China was not prepared to acknowledge the India Ocean as the 'Indian Lake' but it was open to accepting India's "special interests" in the IOR.[94] Though maritime cooperation between India and China has moved at a slow pace, efforts have been made at intervals to identify ways of joint constructive maritime engagement. In 2012, the two countries undertook joint operations against piracy and for sharing technological knowledge on seabed research which involved coast guards, navies, and air forces of both countries. In April 2014 another significant development was the participation of the INS Shivalik in the first maritime exercise organised by China, at Qingdao along with the navies of six other countries. The first dialogue on maritime cooperation between India and China was held on 4 February 2016. A range of issues were discussed including an exchange of perspectives on maritime security, developments in international regimes such as UNCLOS and IMO (International Maritime Organisation), and prospects for maritime cooperation between the two countries.[95] Keeping these instances of cooperation in mind, the Bay may yet develop as the "Bay of Hope" as far as Sino-Indian relations are concerned.

### 3.7.2 Japan: Offer of strategic cooperation in the Bay

Japanese Prime Minister Shinzo Abe's last visit to India in September 2017 highlighted the country's intensifying focus on the Indo-Pacific region. As the Bay grows in importance, Japan is increasingly seeking to connect with South Asian powers, especially India.[96] It wants to enhance connectivity in the region based on the rule of law, democracy, human rights, and market economy, and have better exchanges with production bases in India, so as to extend its reach beyond Myanmar.[97]

Japan is committed to improving both physical and institutional connectivity in both areas. It helps in infrastructure building such as the 'connectivity corridor' initiatives that have been exemplified in India. Institutional/Soft Connectivity is facilitated by Japan in the fields of customs and administration. It extended technical cooperation to Vietnam and Myanmar through automated custom clearance system. Experts from the JICA (Japanese International Cooperation Agency) also assist in forming the civil and martial laws in Vietnam, Cambodia and Laos. Japan's Free and Open Indo-Pacific Strategy is frequently cited as an alternative to BRI. However, contrary to popular perceptions, Japan has never denied or denounced BRI. Japan simply puts more emphasis on ensuring that the mode of operation is transparent, otherwise, the sound economic goals cannot be achieved. This policy is shared by India, making them natural partners in promoting the vision of connectivity. Indeed, Indo-Japanese partnership has immense potential to transform the Bay of Bengal. The 'India and Japan Vision 2025' which was set forth in 2015, is a reflection of the growing synergy between the two countries.[98]

**Box 9: Asia Africa Growth Corridor (AAGC)-propagating Indo Japan ties**

- Indo-Japan cooperation has acquired regional dimension a reflection of which is AAGC.
- Recently Joint statement issued to develop industrial corridors and industrial networks for the growth of Asia and Africa was announced by the two Prime Ministers.
- It aims to shape the architecture of the Indo-Pacific region through a strategic partnership.
- AAGC aims at improving maritime connectivity and therefore is likely to impact regional geo-politics.

*Source: Sanjay Pulipaka, "India, Japan and Africa", The Economic Times, 16 September, 2017, https://blogs.economictimes.indiatimes.com/et-commentary/india-japan-and-africa/*

India and Japan cooperation in the defence sector has been enormous in the recent past and bilateral defence dialogue is still ongoing.

There is also a strong synergy between India's "Act East Policy" and Japan's "Free and Open Indo-Pacific Strategy". The latter seeks to enhance "connectivity" between Asia and Africa, by propagating the concept of "sustaining peace," and encouraging stability and prosperity across the region. The strategy depends on two oceans; the Pacific and the Indian Ocean and thus the importance of Bay of Bengal to Japan.[99] The strategy will also help in maritime law enforcement across the region.[100]

In the sphere of maritime security, both countries are in need of freedom of navigation and over flights in the open seas. The joint statement issued in September 2017 by India's Defence Minister Arun Jaitley and his Japanese counterpart Itsunori Onodera manifests the deepening of defence cooperation between the two countries. India and Japan are also

Australia has a significant interest in mitigating the strategic power play unfolding in the Bay of Bengal to its own advantage.

contemplating India's purchase of US-2 amphibious aircraft.[101] India and Japan may further cooperate in the following sectors: capacity building efforts, Maritime Domain Awareness (MDA), and HADR.[102] Japan participated alongside India and the US in Malabar 2017, held in the Bay of Bengal.[103] However, the slow process of approval and Japan's closed economy pose major hindrances and affect the efficiency of Indo-Japanese collaborations.[104]

India has also requested Japan's help to develop its northeastern region, and to this end Japan has launched several projects such as construction of highways, installation of power supply and sewage water systems, and management of natural resources.[105] Indo-Japanese collaboration would have a transformative impact on the security and economic architecture of the Bay of Bengal.

### 3.7.3 Australia: Promoting geostrategic partnerships in the Bay

In 2013, Stephen Smith, the then Australian Minister for Defence, stated that in the 21st century the Indo-Pacific would become the world's centre of gravity.[106] The term "Indo-Pacific" as a part of India's strategic narrative was accepted by Australia with much enthusiasm. As the country faces both the Indian Ocean and the Pacific Ocean, this was hardly surprising.[107]

As the key transit zone between the Indian Ocean and the Pacific Ocean, the Bay of Bengal is gaining prominence for Australia, located on the south-east of the Indo-Pacific. Australia also has strong economic ties with the Bay littoral countries of India, Bangladesh, Sri Lanka and Myanmar.[108] Recently, Indo-Australian cooperation has deepened more over the issue of maritime security in the Indo-Pacific. It is expected that Australia can significantly strengthen India's foothold in the Bay of Bengal and beyond with its

**Box 10: Operational Significance of Quad 2.0**

- It is primarily focussed on balancing China in the western Pacific and Indian Oceans through expanding maritime presence by planning for enhanced command of the sea in the Indo-Pacific
- Will help India and Australia to re-arrange their existing command structures and fleet arrangements to provide for enhanced co-operation.
- It will also facilitate the BECA (Basic Exchange and Co-operation Agreement), which would allow the United States to share with India sensitive data to aid targeting and navigation.
- It will aid force structure re-arrangement and active fleet co-operation.
- It will increase co-operation at the operational level between Australia, India, Japan and the United States, especially in terms of anti-submarine warfare capabilities.

*Source: Balaji Chandramohan, "Quadrilateral Security Initiative 2.0: Second Attempt at Indo-Pacific Maritime Alliance", Future Directions International, 1 March 2018, http://www.futuredirections.org.au/publication/quadrilateral-security-initiative-2-0-second-attempt-indo-pacific-maritime-alliance/*

various geo-strategic initiatives and its participation in common subregional organisations (such as the IORA).[109]

In this context, Australia has initiated multiple geo-strategic initiatives such as the 'Asia's Democratic Security Diamond' and the 'The Quadrilateral Initiative' in partnership with India and Japan to curtail the rise of China. It has also endorsed the idea of the 'Indo-Pacific Strategic Arc', of which India geostrategically dominates the Indian Ocean region, and Australia dominates the Southern Flank of the Indian Ocean and the Southern Pacific Ocean. The original Quadrilateral Security Initiative was a proposed maritime alliance that included the United States, Japan, Australia and India. It has now been renamed as "Quad 2.0" and this new alliance is likely to be more dynamic with India being much more embedded in US and Australian maritime strategic thinking on the Indo-Pacific.[110]

In 2014, India and Australia drew up a plan for security cooperation, focusing on maritime issues, naval exercises, diplomatic coordination, and HADR. Both countries, however, must put greater emphasis on developing their island territories in Bay of Bengal and in the eastern Indian Ocean.[111] Sharing of facilities and information will improve the strategic outreach of Australia and India and help establish a better maritime order in the Bay of Bengal and the Indo-Pacific at large.[112]

### 3.7.4 The US: Keeping the Bay under scrutiny

"A geopolitical competition between free and repressive visions of world order is taking place in the Indo-Pacific region, a region which stretches from the west coast of India to the western shores of the United States, represents the most populous and economically dynamic part of the world. The U.S. interest in a free and open Indo-Pacific extends back to the earliest days of our republic...We welcome India's emergence as a leading global power and stronger strategic and defense partner...We will seek to increase quadilateral co-operation with Japan, Australia and India." –"National Security Strategy of the United States of America", December 2017.

In the recent past the US declared a policy of "rebalancing" and "pivoting" to Asia. The aim of this rebalancing strategy has been defined as the strengthening of existing alliances, searching for new partners, and forging economic partnerships with the Asian countries. For America, the Bay of Bengal is strategically important as it is linked to the Suez Canal

The US welcomes naval engagements in the Bay as it marks the stability of the sub-region. Along with India, US has been participating in the Malabar naval exercise in the Bay for a number of years now.

that is used to transport 70 percent of Chinese cargo. However, the US considers the maritime security in this area to be insufficient in the context of China's assertive rise. Mistrust in the region is growing steadily. The US is also of the opinion that China's Belt Road Initiative (BRI) maybe associated with the country's growing expansionist tendencies.[113] China is expanding its naval power projection capabilities well beyond its littoral and the rise in China's maritime power is a cause of concern for the US.[114] As Robert Kaplan puts it, "The Indian and the Chinese will enter into a dynamic great-power rivalry in these [Indian Ocean] waters, with their shared economic interests as major trading partners locking them into an uncomfortable embrace...The United States, meanwhile, will serve as stabilizing power in this newly complex area. Indispensability, rather than dominance should be its goal."

At present, there is a balance-of-power game that is unfolding between India and China in the Bay of Bengal. The US welcomes naval engagements in the Bay as it marks the stability of the subregion. Along with India, the US has been participating for the past number of years in the Malabar naval exercises in the Bay.[115]

The balance of power in this region is changing rapidly and though the United States' maritime capabilities are still ahead of those of both China and India, the situation might change in the near future.[116] As a counter to the rising China, the US views India as a key player in South Asia. Both countries signed the 'US-India Joint Strategic Vision for the Asia Pacific and Indian Ocean region' in 2015. A variety of joint exercises are also performed by the US and Indian Navy such as 'White Shipping'. There may be some issues of incompatibility between the two countries but maritime initiatives are underway and the basic foundation for mutual interaction has been built. The Modi government's 'Act East' policy has received huge support from the US and the latter has steadily urged India to take on a leadership role and shoulder greater responsibility in holding forth the current security order in the Bay of Bengal.

Therefore, it is understood that the world's major powers are increasingly becoming interested in the Bay. Due to its strategic potential and geographic centrality, the primary aim of all interested countries is to maintain a balance of power in the Bay of Bengal. To safeguard the interests of all stakeholders, therefore, it is necessary to collectively secure the Bay though mutual cooperation and collaborative efforts and transform the Bay of Bengal into a Bay of Hope.

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# Conclusion and Recommendations

This report has discussed the multiple facets of India's maritime connectivity with Bangladesh, Myanmar and Sri Lanka. This section will highlight the various ways in which this connectivity with the Bay littorals may be further improved.

It is noteworthy that the revitalisation of the Bay of Bengal is a collective responsibility of the Bay littoral countries. Through measures such as cooperation at functional levels, enhanced diplomatic intercourse, and vigorous engagement in coastal shipping by the coastal states, this geopolitical space would gradually emerge as a lively and integrated whole. Efforts should be made to have a 'Bay of Bengal ship owners and ship operators association'. This will help the Bay littorals to become aware of each other's strengths and limitations, as it will facilitate the collective resolution of common problems. Formulating a common coastal development plan by sharing scientific knowledge and engaging in collaborative capacity building measures would also be beneficial. Some such measures are already underway—for example, Reliance-Jio is developing a Bay of Bengal Gateway (BBG)[1] to improve connectivity across the Bay. Communication facilities of all the Bay littorals might be included in the BBG international consortium of which only Sri Lanka is a member at present.[2] To reinforce this process further, a regional governance framework aimed at harnessing good order at sea, promoting trust and transparency and respect for international maritime rules must be established in the Bay of Bengal.

Against this backdrop, the following measures may be undertaken.

**Strengthening India's port logistics to foster connectivity with Bay littorals:**

- India must develop its internal logistics performance index to better understand the country's actual situation in trade logistics and make it easier to resolve issues obstructing port connectivity.
- Dedicated coastal ports are needed along the east coast of India as the custom of Major Ports giving priority to one coastal vessel is not sufficient in the face of increasing shipping traffic.
- The Indian government must either allow more foreign feeder vessels to operate or strengthen the Indian shipping industry to come up with more feeder vessels to effectively handle the increasing trade.

- India must sign bilateral and multilateral coastal shipping agreements with other Bay littorals as it now has the advantage of relaxed cabotage laws on vessels used for coastal shipping.[3]
- Cabotage laws can also be further relaxed so that foreign-flag vessels can carry empty and loaded containers from all Indian ports. However, the interests of Indian vessel operators must also be kept in mind.
- The TAMP regulations must be relaxed so that the India's Major Ports can offer better tariff rates and attract more business engaging private investors.
- It is expected that as a result of Project Sagarmala there will be many ports developing in close vicinity of one another causing business to be unevenly divided.[4] Therefore, for India, a more careful process of infrastructure development and a clearly thought-out, long-term plan of action is desirable.
- While focusing on development of ports it is to be kept in mind that expansion of port may lead to displacement of communities living in the area adjacent to the concerned port. Thus, a clear-cut rehabilitation policy is needed to give a durable solution.

**Developing Andaman and Nicobar Islands to promote connectivity:**

- To enhance maritime connectivity, the best locations for a free port in ANI are near Port Blair, in the Macpherson's Strait or in the Great Nicobar area.
- A big oil bunkering facility could be built in ANI to cater to the refuelling requirements of the plethora of passing vessels.
- If the proposed Kra Canal is built, it will reduce the distance of travel for vessels to the east by almost 1200 km, making the Andaman and Nicobar Islands the most logical location for transhipment. A deep-water harbour at either Port Blair or Car Nicobar will be able to serve vessels not only originating within the Bay region but also those travelling along the east-west shipping route.[5] For this to be realised, infrastructural developments are necessary.
- It is time to focus on developing ANI to its true economic and strategic potential while keeping in mind the need to protect the Islands' environment. This demands coordination and a complementary relation between the several governmental departments responsible for the well-being of the ANI.

**Expanding connectivity with Bangladesh:**

- To better utilise the Indo-Bangladesh Protocol routes, there must be introduction of container service by rivers, simplification of custom formalities and allowing vessels

to load and unload at convenient points along the routes.

- Bilateral cooperation on the Protocol route from Dhaka-Pangaon-Haldia-Kolkata could be used for faster transfer of perishables such as edible items.
- Import items from Bangladesh will have to be identified and trade increased to make the Indo-Bangladesh Protocol trade more economically viable.
- Given the delays and other issues with the KMMTTP, Ashuganj port may be utilised as an alternative to the Sittwe port to revitalise India's Northeast.
- Additionally, India may help develop the Ashuganj river port, where work is already in progress on the four-lane road project, aiming to ease transportation of cargo from this port to Tripura and the other northeastern states of India.[6]
- The Pangaon container terminal can play an important role in bilateral trade along the Protocol route and needs be developed further.

**Improving linkages with Sri Lanka:**

- The development of a high-speed railway network from Colombo to Trincomalee which will be connected to Tamil Nadu in India through a land bridge will enhance maritime connectivity between the two countries.
- There is scope for cooperation between India and Sri Lanka for the development of the inner harbour at Trincomalee.
- As China and Japan both own terminals in Sri Lanka, India can also explore the scope of owning a terminal within Colombo port as the port is undergoing a major process of extension.
- Kankesanthurai is a port near Jaffna which is not active now but may be developed with assistance from India. Feeder vessels can come directly from Vizag to Kankesanthurai and Trincomalee with fertiliser which is in high demand in Sri Lanka. The vessels can return with rice.
- Sri Lanka may also be considered under an expanded purview of India's Sagarmala as there is a considerable stretch of EEZs overlapping between the 200 nautical miles southeast of India and northeast of Sri Lanka.

**Enhancing connectivity with Myanmar:**

- India can help modernise the port facilities and improve capacity building in the port industry of Myanmar. Myanmar's port development could make her a more active

participant in the maritime trade in the BoB and direct her attention more to interactions with coastal states than exist at present.

- The operationalisation of Sittwe Port after the completion of Kaladan Project will open up strong prospects for religious tourism involving Myanmar, Nepal, Bhutan, and India for a Buddhist circuit. Thus a multimodal framework along the lines of BBIN may be drawn for tourism.

**Linking India's Northeast with the Bay: Importance of Inland Waterways**

- India and Bangladesh have developed several protocols, MOUs and SOPs to facilitate development of fairways, ease of movement of vessels, and use of ports. All these initiatives are done from the supply side. However, we also need to make a comprehensive analysis of demand side which will capture the adequacy or inadequacy of ongoing and planned infrastructural development.[7]
- A robust Origin-Destination analysis will help identify possible products and sectors that might be shifted from road to inland waterways sector. Commodities like food grains and raw material for garments and industries must be included in India-Bangladesh trade.
- There is scope to integrate inland waterways system with maritime port sector and develop synergy between the regulatory systems of two sectors. Both India and Bangladesh should be proactive in strengthening this synergy.
- In India and Bangladesh, the governments can facilitate a dialogue with stakeholders to decide on a mutually agreed operating method. The leading think-tanks of both the countries may play its role as catalyst.
- There is a need to learn from international experience on vessel design as well as vessel loading and unloading methods would be fruitful for India and Bangladesh.
- Awareness programmes through seminars or conferences among the stakeholders (both governments and private) regarding the benefits of trade via waterways may be initiated. The leading think-anks of the Bay littorals can play a pivotal role in this matter.
- The Motor Vehicle Agreement of BBIN and the Indo-Bangladesh Protocol route Agreement should be combined to prepare a framework for a new multimodal transport treaty among the BBIN countries.
- NW1 connected with NW2 will link North India with India's Northeast. If the waterway is further connected with Gandak and Kosi India's Himalayan neighbours like Nepal and Bhutan may be included within the entire endeavour.

- The signing of an MoU on operating cross-border river cruises along Protocol routes and coastal route will open up immense opportunity of tourism for people on each side of the border who have a shared past. Cruise shipping will greatly boost the economic life of the people involved.

**Strengthening the Subregion:**

- Strategic dialogues among subregional organisations in the Bay of Bengal and IOR should be arranged to initiate a shared security infrastructure and India can play pivotal role here.
- Under the umbrella of BIMSTEC, the Bay littorals should formulate an effective refugee management policy as illegal migration plagues the Bay and creates discords amongst the littorals.
- BIMSTEC can be a common platform to deal with threats like illegal fishing, drug trafficking and sea piracy though measures like closer Coast Guard interactions.
- To facilitate a more integrated and effective HADR in the Bay, the littoral countries must organise joint HADR exercises within BIMSTEC. Standardised procedures for evacuation, formulation of a common legal framework, engagement in capacity building, sharing best practices amongst members and considering building an independent HADR brigade under BIMSTEC should be undertaken.

**ENDNOTES**

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# Annexes

## Annexure 1

### 1.A Import Origin-wise and Commodity wise trade from Major Powers to Kolkata Port in 2016-2017.

| Category | Cargo | Australia | China | Japan | USA | Total |
|---|---|---|---|---|---|---|
| Liquid Bulk | Vegetable Oil | 4741 | 0 | 0 | 0 | 4741 |
| | Other Liquid Cargo | 0 | 0 | 23191 | 19100 | 42291 |
| Dry Bulk | Manganese Ore | 0 | 0 | 7458 | 0 | 7458 |
| | Magnesite | 0 | 0 | 4500 | 0 | 4500 |
| | Petroleum Coke | 0 | 0 | 0 | 3800 | 3800 |
| | Steam Coal | 5640 | 0 | 0 | 0 | 5640 |
| | Coking Coal | 9952 | 0 | 0 | 0 | 9952 |
| | Metallurgical Coke | 15726 | 0 | 0 | 0 | 15726 |
| Break Bulk | General Cargo | 0 | 28298 | 7223 | 1069 | 36590 |
| | Fertilizer | 0 | 65063 | 0 | 0 | 65063 |
| | Iron and Steel | 0 | 16225 | 3675 | 0 | 19900 |
| | Project Cargo | 0 | 2572 | 1378 | 560 | 4510 |
| | RoRo | 0 | 0 | 1138 | 0 | 1138 |
| | Pulse/ Peas | 0 | 0 | 0 | 499526 | 499526 |
| | Wheat | 185891 | 0 | 0 | 0 | 185891 |
| | Timbre | 71977 | 0 | 0 | 0 | 71977 |
| Container | | 236656 | 1138036 | 57158 | 102275 | 1534125 |
| Total | | **530583** | **1250194** | **105721** | **626330** | **2512828** |

*Source: Table made by researchers from data received from Kolkata Port.*

**1.B Export Destination-wise and Commodity wise trade to Major Powers from Kolkata Port in 2016-2017.**

| Category | Cargo | Australia | China | Japan | USA | Total |
|---|---|---|---|---|---|---|
| Dry Bulk | Fly Ash | 0 | 0 | 0 | 0 | 0 |
| Break Bulk | General Cargo | 0 | 0 | 4500 | 0 | 4500 |
| | Iron and Steel | 0 | 0 | 0 | 0 | 0 |
| | Project Cargo | 0 | 0 | 0 | 0 | 0 |
| | Cement Clinker | 0 | 0 | 0 | 0 | 0 |
| Container | | 12124 | 282649 | 115875 | 245892 | 656540 |
| **Total** | | **12124** | **282649** | **120375** | **245892** | **661040** |

*Source: Table made by researchers from data received from Kolkata Port.*

**1.C Import Origin-wise and Commodity wise trade from Bay Littorals to Kolkata Port in 2016-2017.**

| Category | Cargo | Bangladesh | Sri Lanka | Myanmar | Total |
|---|---|---|---|---|---|
| Break Bulk | General Cargo | 711 | 43 | 0 | 754 |
| Container | | 405 | 594727 | 99989 | 695121 |
| **Total** | | **1116** | **594770** | **99989** | **695875** |

*Source: Table made by researchers from data received from Kolkata Port.*

### 1.D Export Destination-wise and Commodity wise trade to Bay Littorals from Kolkata Port in 2016-2017.

| Category | Cargo | Bangladesh | Sri Lanka | Myanmar | Total |
|---|---|---|---|---|---|
| Dry Bulk | Fly Ash | 1697490 | 0 | 0 | 1697490 |
| Break Bulk | General Cargo | 0 | 0 | 216 | 216 |
| | Iron and Steel | 10419 | 0 | 0 | 10419 |
| | Project Cargo | 1997 | 0 | 0 | 1997 |
| | Cement Clinker | 2802 | 0 | 0 | 2802 |
| Container | | 67058 | 213126 | 0 | 280184 |
| **Total** | | **1779766** | **213126** | **216** | **1993108** |

*Source: Table made by researchers from data received from Kolkata Port.*

# Annexure 2

## 2.A Distribution of Import Overseas from Major Powers Cargo according to Origin Region wise in HDC 2016-17.

| SL. NO. | Country Name | Commodity | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pol Product | Bitumene | Butene | C.B.F.S | Sulphuric Acid | Coking Coal | Non-Coking Coal | M.Coke | R.P.Coke | Fertilizer | Cement | Soda Ash | Mn Ore | M.Slag | Steel | Machinery | P.Cargo | Total (In Tonnes) |
| 1 | Australia | 0 | 0 | 0 | | 0 | 4641020 | 729815 | 30014 | 0 | 0 | 0 | 9802 | 163399 | 0 | 0 | 0 | 0 | 5574050 |
| 2 | China | 15934 | 7959 | 0 | | 0 | 0 | 0 | 221372 | 15700 | 119750 | 18000 | 0 | 0 | 0 | 80860 | 1950 | 2361 | 483886 |
| 3 | Japan | 0 | 0 | 0 | | 5238 | 0 | 0 | 40000 | 0 | 0 | 0 | 0 | 15225 | 42983 | 56687 | 117 | 0 | 160250 |
| 4 | USA | 0 | 0 | 6271 | 290698 | 0 | 257789 | 53500 | 7900 | 26411 | 0 | 0 | 29810 | 0 | 0 | 0 | 0 | 0 | 672379 |
| Total Overseas Import of HDC from Major Powers | | | | | | | | | | | | | | | | | | | 6890565 |

*Source: Table made by researchers from data received from Haldia Dock Complex*

## 2.B Distribution of Export Overseas to Major Powers Cargo according to Destination Region wise in HDC in 2016-17

| Sl No. | Name of Country | Commodity | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pol (Products) | Butadiene | Benzene | Bitumen | Pig Iron | Iron Ore | Sugar | Steel | Contr | Fly-Ash Jetty | IWAT Traffic | Total (In Tonnes) |
| 1. | Australia | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2. | China | 0 | 4410 | 0 | 0 | 0 | 853670 | 0 | 0 | 0 | 0 | 0 | 858080 |
| 3. | Japan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4. | USA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Overseas Export of HDC to Major powers | | | | | | | | | | | | | 858080 |

*Source: Table made by researchers from data received from Haldia Dock Complex*

## 2.C. Distribution of Import Overseas from Bay littorals Cargo according to Origin Region wise in HDC in 2016-17

| SL NO. | Country Name | Commodity | | | | | |
|---|---|---|---|---|---|---|---|
| | | Pol Product | LPG | CBFS | Mn Ore | Container | Total (In Tonnes) |
| 1 | Bangladesh | 17122 | 0 | 0 | 0 | 560 | **17682** |
| 2 | Sri Lanka | 0 | 38115 | 12645 | 0 | 490521 | **541281** |
| 3 | Myanmar | 0 | 0 | 0 | 3572 | 6966 | **10538** |
| Total Overseas Import of HDC from Bay littorals | | | | | | | **569501** |

*Source: Table made by researchers from data received from Haldia Dock Complex*

## 2.D. Distribution of Export Overseas Bay littorals Cargo according to Destination Region wise in HDC in 2016-17

| Sl No. | Name of Country | Commodity | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pol (Products) | Butadiene | Benzene | Bitumen | Pig Iron | Iron Ore | Sugar | Steel | Contr | Fly-Ash Jetty | IWAT Traffic | Total (In Tonnes) |
| 1 | Bangladesh | 0 | 0 | 6825 | 3795 | 17881 | 0 | 0 | 34324 | 30443 | 99148 | 815926 | **1008342** |
| 2 | Sri Lanka | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18446 | 469178 | 0 | 0 | **487624** |
| 3 | Myanmar | 0 | 0 | 0 | 0 | 0 | 0 | 12085 | 0 | 52511 | 0 | 0 | **64596** |
| **Total Overseas Export of HDC to Bay littorals** | | | | | | | | | | | | | **1560562** |

*Source: Table made by researchers from data received from Haldia Dock Complex*

# Annexure 3

## 3.A. Distribution of Unloaded (Imports) Cargo-Overseas from Major Powers according to Origin-Commodity-wise in Paradip Port during 2016-17

| Sl No. | Country of Origin | Commodities | | | | | | | | | | | Total (Value in tonnes) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Liquid Bulk | | Dry Bulk | | | | | | Break Bulk | | | |
| | | POL (Products) | FRM-Liquid | Thermal Coal | Coking Coal | Other Coal | Fertilizer | FRM-Dry | Others | Iron & Steel | MONOAMPHO | Project Cargo | |
| 1. | Australia | 0 | 10,000 | 0 | 7818475 | 32183 | 0 | 0 | 0 | 0 | 0 | 3076 | **78,63,734** |
| 2. | China | 3506 | 0 | 0 | 0 | 0 | 17510 | 0 | 407384 | 9497 | 3009 | 43634 | **4,84,540** |
| 3. | Japan | 0 | 267934 | 0 | 45166 | 0 | 0 | 10,000 | 24200 | 0 | 0 | 0 | **3,47,300** |
| 4. | USA | 0 | 0 | 51511 | 123024 | 0 | 0 | 0 | 53419 | 0 | 0 | 0 | **2,27,954** |
| **Total Unloaded Overseas Cargo from the Major Powers for the Paradip Port** | | | | | | | | | | | | | **89,23,528** |

*Source: Table made by researchers from data received from Annual Administration Report, Paradip Port, 2016-2017, pp.36-38, http://paradipport.gov.in/Writereaddata/Administrative/Annual_Admin_Report_PPT_2016_17.pdf.*

### 3.B Distribution of Loaded (Exports) Cargo-Overseas to Major Powers according to Destination- Commodity-wise in Paradip Port during 2016-17

| Sl No. | Country of Destination | Commodities | | | | | | Total (value in tonnes) |
|---|---|---|---|---|---|---|---|---|
| | | Liquid Bulk | Dry Bulk | | | Break Bulk | | |
| | | POL (Products) | Iron Ore | | Other Ore | MONOAMPHO | Project Cargo | |
| | | | Pellets | Fine | | | | |
| 1. | Australia | 0 | 0 | 0 | 0 | 0 | 3076 | 3076 |
| 2. | China | 41845 | 3713435 | 2712095 | 97990 | 3009 | 43634 | 6612008 |
| 3. | Japan | 0 | 55000 | 0 | 18500 | 0 | 0 | 73500 |
| 4. | USA | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Loaded Overseas Cargo to the Major Powers for the Paradip Port | | | | | | | | 66,88,584 |

*Source: Table made by researchers from data received from Annual Administration Report, Paradip Port, 2016-2017, pp.36-38, http://paradipport.gov.in/Writereaddata/Administrative/Annual_Admin_Report_PPT_2016_17.pdf.*

### 3.C Distribution of Unloaded (Imports) Cargo-Overseas from Bay Littorals according to Origin- Commodity-wise during 2016-17 in Paradip Port

| Sl No. | Country of Origin | Commodities | | | | Total (value in tonnes) |
|---|---|---|---|---|---|---|
| | | Liquid Bulk | Dry Bulk | | Containers | |
| | | POL (Products) | Thermal Coal | Others | | |
| 1. | Bangladesh | 3300 | 0 | 0 | 911 | 4211 |
| 2. | Sri Lanka | 0 | 99462 | 20895 | 0 | 120357 |
| 3. | Myanmar | 0 | 0 | 0 | 0 | 0 |
| Total Unloaded Overseas Cargo from the Bay Littorals for the Paradip Port | | | | | | 124568 |

*Source: Table made by researchers from data received from Annual Administration Report, Paradip Port, 2016-2017, pp.36-38, http://paradipport.gov.in/Writereaddata/Administrative/Annual_Admin_Report_PPT_2016_17.pdf.*

### 3.D Distribution of Loaded (Exports) Cargo-Overseas to Bay Littorals according to Destination- Commodity-wise during 2016-17 in Paradip Port

| Sl No. | Country of Destination | Commodities | | | | | | | Total (value in figures) |
|---|---|---|---|---|---|---|---|---|---|
| | | Liquid Bulk | Dry Bulk | | | | Break Bulk | Containers | |
| | | POL (Products) | Iron Ore | | Thermal Coal | Others | Iron & Steel | | |
| | | | Pellets | Fine | | | | | |
| 1. | Bangladesh | 56232 | 432500 | 218532 | 173093 | 52871 | 100020 | 8031 | **1041279** |
| 2. | Sri Lanka | 0 | 56600 | 0 | 0 | 0 | 0 | 0 | **56600** |
| 3. | Myanmar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| **Total Loaded Overseas Cargo to the Bay Littorals for the Paradip Port** | | | | | | | | | **1097879** |

*Source: Table made by researchers from data received from Annual Administration Report, Paradip Port, 2016-2017, pp.36-38, http://paradipport.gov.in/Writereaddata/Administrative/Annual_Admin_Report_PPT_2016_17.pdf.*

*Note: Data received excludes trade with Myanmar*

# Annexure 4

## 4.A Distribution of Import Cargo-Overseas from Major Powers according to Origin- Commodity-wise during 2016-17 in Visakhapatnam Port

| Sl. No | Country of Origin | Cargo | Quantity (in tonnes) |
|---|---|---|---|
| 1. | Australia | Coking Coal | 3627002 |
| | | Container | 32618 |
| | | Manganese Ore | 331912 |
| | | Peas | 16900 |
| | | Wheat Bulk | 164499 |
| | | **Total** | **4172931** |
| 2. | China | Ammonium Sulphate | 16370 |
| | | Ammonium Nitrate (Bags) | 14833 |
| | | Bio Diesel (M. Chloride) | 19567 |
| | | C.P. Coke | 68235 |
| | | Caustic Soda | 79605 |
| | | Container | 401160 |
| | | Dap | 199704 |
| | | General Cargo | 4130 |
| | | IP Alcohol | 4697 |
| | | Lam Coke | 274305 |
| | | Petroleum Coke | 215321 |
| | | Project Cargo | 13373 |
| | | Urea | 202215 |
| | | **Total** | **1513515** |
| 3. | Japan | Bio Diesel (M. Chloride) | 3000 |
| | | Caustic Soda | 255005 |
| | | Colar Tar Pitch | 10500 |
| | | Container | 557 |
| | | Ferro Manganese Ore | 8638 |
| | | IP Alcohol | 498 |
| | | Molten Sulphur | 74922 |
| | | Project Cargo | 166 |
| | | Sulphuric Acid | 102279 |
| | | **Total** | **455565** |
| 4. | USA | C.P. Coke | 292902 |
| | | Caustic Soda | 34003 |
| | | Coking Coal | 321266 |
| | | Container | 57390 |
| | | Peas | 31247 |
| | | Petroleum Coke | 1180590 |
| | | Phosphoric Acid | 10500 |
| | | Scrap | 32845 |
| | | Steam Coal | 77067 |
| | | **Total** | **2037810** |
| **Total Import of VisakhapatnamPort from Major Powers** | | | **8179821** |

*Source: Table made by researchers from data received from Visakhapatnam Port*

## 4.B Distribution of Export Cargo-Overseas to Major Powers according to Destination-Commodity-wise during 2016-17 in Visakhapatnam Port

| Sl. No. | Country of Destination | Cargo | Quantity (in tonnes) |
|---|---|---|---|
| 1. | Australia | -- | 0 |
| | | **Total** | **0** |
| 2. | China | Alumina | 178151 |
| | | Alumina Ingots | 26250 |
| | | Caustic Soda | 14159 |
| | | Container | 158589 |
| | | Granite Blocks | 95081 |
| | | Ilimenite Sand | 177674 |
| | | Iron Ore | 893899 |
| | | Pol | 25502 |
| | | Steel | 3164 |
| | | **Total** | **1572469** |
| 2. | Japan | Container | 1271 |
| | | Iron Ore | 1458424 |
| | | Total | 1459695 |
| 3. | USA | Alumina Ingots | 20002 |
| | | C.P. Coke | 23450 |
| | | Container | 58584 |
| | | **Total** | **102036** |
| **Total Exports of Visakhapatnam Port to the Major Powers** | | | **3134200** |

*Source: Table made by researchers from data received from Visakhapatnam Port*

## 4.C Distribution of Import Cargo-Overseas from Bay littorals according to Origin-Commodity-wise during 2016-17 in Visakhapatnam Port

| Sl. No | Country of Origin | Cargo | Quantity (in tonnes) |
|---|---|---|---|
| 1. | Bangladesh | Container | 14691 |
| | | **Total** | **14691** |
| 2. | Sri Lanka | Container | 242740 |
| | | General Cargo | 774 |
| | | **Total** | **243514** |
| 3. | Myanmar | Container | 47 |
| | | **Total** | **47** |
| **Total Import of Visakhapatnam Port from Bay littoral states** | | | **258252** |

*Source: Table made by researchers from data received from Visakhapatnam Port*

### 4.D Distribution of Export Cargo-Overseas to Bay littorals according to Destination-Commodity-wise during 2016-17 in Visakhapatnam Port

| Sl. No | Country of Destination | Cargo | Quantity (in tonnes) |
|---|---|---|---|
| 1. | Bangladesh | Container | 6742 |
| | | Steel | 49760 |
| | | **Total** | **56502** |
| 2. | Sri Lanka | Container | 888890 |
| | | Steel | 9930 |
| | | **Total** | **898820** |
| 3. | Myanmar | -- | 0 |
| | | **Total** | **0** |
| **Total Export of Visakhapatnam Port to the Bay littoral states** | | | **955322** |

*Source: Table made by researchers from data received from Visakhapatnam Port*

# Annexure 5

## 5.A Origin-Commodity wise Overseas Import Cargo trade from Major Powers handled in 2016-2017 from Chennai Port

| Sl. No. | Origin Country (Import) Major Powers | Commodity | | | | | | | Quantity (000'Tonnes) | Quantity (Tonnes) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Liquid Bulk | Dry Bulk | | Break Bulk | | | | | |
| | | Pol (Products) | Food Grains | Iron Scrap | Iron Steel | Timber and Logs | Machinery | Vehicle | | |
| 1. | Australia | 0 | 186 | 0 | 0 | 0 | 0 | 0.001 | 186.001 | 186001 |
| 2. | China | 63 | 0 | 0 | 112 | 0 | 33 | 0 | 208 | 208000 |
| 3. | Japan | 0 | 0 | 12 | 113 | 0 | 9 | 0 | 134 | 134000 |
| 4. | USA | 0 | 54 | 199 | 0 | 10 | 2 | 0 | 265 | 265000 |
| Total Import of the Chennai Port from Major Powers | | | | | | | | | **793.001** | **793001** |

*Source: Table made by researchers from data received from Chennai Port.*

## 5.B. Origin-Commodity wise Overseas Export Cargo to Major Powers handled in 2016-2017 from Chennai Port

| Sl. No. | Origin Country (Export) Major Powers | Commodity | | | | | | Quantity (000'Tonnes) | Quantity (Tonnes) |
|---|---|---|---|---|---|---|---|---|---|
| | | Liquid Bulk | Dry Bulk | | Break Bulk | | | | |
| | | Pol (Products) | Other Ores | Iron Scrap | Iron Steel | Machinery | Vehicle | | |
| 1. | Australia | 0 | 0 | 0 | 15 | 0 | 0.001 | 15.001 | 15001 |
| 2. | China | 101 | 0 | 32 | 0 | 1 | 0.001 | 134.001 | 134001 |
| 3. | Japan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4. | USA | 38 | 61 | 0 | 0 | 0 | 0.001 | 99.001 | 99001 |
| Total Export of the Chennai Port to Major Powers | | | | | | | | **248.003** | **248003** |

*Source: Table made by researchers from data received from Chennai Port.*

### 5.C Origin-Country wise Overseas Import Cargo from Bay Littorals handled in 2016-2017 from Chennai Port

| Sl. No. | Origin Country (Import) Bay Littorals | Commodity | | | | | | | Quantity (000'Tonnes) | Quantity (Tonnes) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Liquid Bulk | Dry Bulk | | Break Bulk | | | | | |
| | | Pol (Products) | Food Grains | Iron Scrap | Iron Steel | Timber and Logs | Machinery | Vehicle Tonnes | | |
| 1. | Bangladesh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2. | Sri Lanka | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 2000 |
| 3. | Myanmar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Import of the Chennai Port from Bay Littorals | | | | | | | | | 2 | 2000 |

*Source: Table made by researchers from data received from Chennai Port.*

### 5.D Origin-Country wise Overseas Export Cargo to Bay Littorals handled in 2016-2017 from Chennai Port

| Sl. No. | Origin Country (Import) Bay Littorals | Commodity | | | | | | | Quantity (000'Tonnes) | Quantity (Tonnes) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Liquid Bulk | Dry Bulk | | Break Bulk | | | | | |
| | | Pol (Products) | Food Grains | Iron Scrap | Iron Steel | Timber and Logs | Machinery | Vehicle Tonnes | | |
| 1. | Bangladesh | 0 | 0 | 0 | 92 | 0 | 0 | 0 | 92 | 92000 |
| 2. | Sri Lanka | 4 | 0 | 0 | 5 | 0 | 0 | 0.011 | 9.011 | 9011 |
| 3. | Myanmar | 0 | 0 | 0 | 31 | 0 | 1 | 0.001 | 32.001 | 32001 |
| Total Export of the Chennai Port to Bay Littorals | | | | | | | | | 133.012 | 133012 |

*Source: Table made by researchers from data received from Chennai Port.*

## Annexure 6

**India's role in recent natural disasters in the Bay**

| Incident | Year of Occurrence | Effects of the Incident | HADR collaborative initiatives |
|---|---|---|---|
| Indian Ocean Tsunami (India, Bangladesh, Sri Lanka, Myanmar and Thailand) | 2004 | Immense loss of life and destruction of property.<br>Many were left homeless. | India despite being affected sent three external relief operations to Sri Lanka, Indonesia and the Maldives, which included 32 naval ships, 20 helicopters and 7 air-crafts. |
| Cyclone Sidr-Bangladesh | 2007 | Low lying areas were flooded causing immense loss of life<br>Destruction to infrastructure.<br>Communication, electric and water supply collapsed. | Bangladesh government provided money and resources to victims and re-engaged them in livelihood activities.<br>NGO's ran rehabilitation centres.<br>The Indian Navy was at the forefront of relief operations during CyconeSidr. |
| Cyclone Nargis-Myanmar | 2008 | Immense loss of life and destruction of property.<br>Mass displacement.<br>Rampant humanitarian abuse. | The Indian Navy sent two naval ships, INS Rana and INS Kirpan to provide relief to the victims in under Operation Sahayata. |
| Cyclone Aila- (India, Bangladesh and Bhutan). | 2012 | Loss of life and livelihood.<br>Immense flooding resulted in decay of agricultural crops and contamination of fresh water resources. | All three governments undertook disaster management initiatives. Coastal shelter homes were built and cash and resources were distributed amongst the displaced victims. |

| | | | |
|---|---|---|---|
| Cyclone Phailin- (Mainly India Bangladesh and also to a lesser extent Nepal, Myanmar and Thailand). | 2013 | Immense loss of life.<br>Destruction of property.<br>Collapse of infrastructure.<br>Scarcity of commodities. | 18 helicopters, 12 aircraft and two warships were kept on standby by the Indian government for rescue and relief operations.<br>Victims were evacuated to shelter homes.<br>HADR apparatus of all affected states provided necessary relief measures. |
| Uttarakhand Floods-India | 2013 | Death toll rose to 1,000.<br>Immense loss of property. | India deployed four unmanned aerial vehicles (UAVs) to scan areas.<br>Centre for Science and Environment pointed out that there was need for understanding climatic changesto make India's H!DR apparatus moreinclusive. |
| Cyclone Hudhud-India (Odisha and Andhra Pradesh). | 2014 | Caused immense loss of life.<br>Collapse of infrastructure. | The National Disaster Response Force sent 42 teams to undertake evacuation measures.<br>The Indian Navy launched 'Operation Lehar' a massive search and rescue operation, to assess the damage and rush help. |
| Nepal Earthquake (Nepal, north India, north-west Bangladesh, western Bhutan) | 2015 | Thousands were killed and many were injured. Architecture and property lay in shambles. | Task forces sent to Nepal included the Indian Army and the National Disaster Response Force.<br>The Indian Air Force operationalised repair, helped in evacuation and transportation.<br>Unfamiliarity of terrain, language and replication of aid was a problem.<br>When Nepal's own H!DR apparatus fell short of managing the disaster, India filled the vacuum with its own HADR support. |

| | | | |
|---|---|---|---|
| Myanmar Floods | 2015 | Loss of life.<br>Damaged infrastructure<br>Flash floods destroyed all physical modes of connectivity. | Evacuation centres were set up.<br>Displaced people were returned to their homes.<br>India extended help after an official request from Myanmar. |
| Cyclone Mora-Bangladesh(Cox Bazaar, Chittagong) | 2017 | Immense loss of life<br>70% property damaged. | In an act of disaster preparedness, food and shelter had already been arranged by the Bangladesh government for the evacuated people. Medical teams were assigned for their treatment.<br>Cyclone Mora was one of those rare insta nces when civilian authorities undertook HADR operations.<br>Control rooms were set up and disaster mitigation plans were drawn up.<br>Indian Navy sent two ships to Bangladesh with relief materials and was simultaneously running two HADR operations; one in Sri Lanka and the other in Bangladesh. INS Sumitra was engaged in search and rescue operations after Mora struck Chittagong. |

*Source: Anasua Basu Ray Chaudhury and Sohini Bose, Disasters without borders: Strengthening BIMSTEC cooperation in humanitarian assistance, ORF Issue Brief-207, November 2017, pp. 8-9, http://cf.orfonline.org/wp-content/uploads/2017/11/ORF_Issue_Brief_207_BIMSTEC-HADR.pdf*

The Bay of Bengal is increasingly gaining salience as a strategic maritime space and is witness to the play of geopolitical interests of its many stakeholders. While the rise of Asia has been a topic of much deliberation over the past few decades, it is now that this rise is being felt stronger not only within the region but also across the world. It is in response to these geopolitical shifts that multilateral approaches are increasingly characterising the Bay. After all, maritime trade and maritime connectivity have been the oldest forms of cross-cultural and cross-civilisational interaction, and this has been manifested in the Bay. Covering more than two million square kilometres, the Bay is situated between vital sea routes and stretches from Sri Lanka, up the coast of eastern India, curving under Bangladesh and Myanmar, and heading south along Thailand and Malaysia, until it reaches the northern coast of Sumatra in Indonesia. The waterways have been used as a primary medium of trade and have provided the impetus for the growth of maritime enterprises for their densely populated littoral countries.

A major concern for India is ensuring reliable, uninterrupted and safe movement of people, goods, energy and resource supplies throughout the Indian Ocean. Given the transnational character of oceans, this report focuses on the dynamics of India's maritime connectivity in the Bay of Bengal. It appraises the geopolitical, geostrategic and geoeconomic dimensions of the connectivity linkages between India and the Bay adjacent countries—Bangladesh, Myanmar, Sri Lanka—along with India's Andaman and Nicobar Islands, with respect to trade, population flow and fiscal connectivity. Some of the most important elements for cooperation in enhancing the political will to address the challenges of maritime safety and security are exchange of information, capacity building, and the provision of technical assistance between the Bay adjacent countries. The report also delves into the strategic imperatives of the role and interest of major powers in the Bay of Bengal.

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