

KCT - Redefining the new face of Chittagong Port

**Chittagong Port: the fastest growing
Asian Port outside China**

**Connecting our delta better:
The riverine and maritime potentials
of Bangladesh**



CHITTAGONG PORT AT A GLANCE



BERTHS and Jetties

General Cargo Berths	06
Container Berths	13
Dry Dock Jetties	02
SPECIALIZED BERTHS	
Dolphin Oil Jetty	
Cement Clinker Jetty	
TSP Jetty	
CUFL Jetty	
KAFCO Urea Jetty	
Ammonia Jetty	

LLYOD'S RANKING 2016

76th

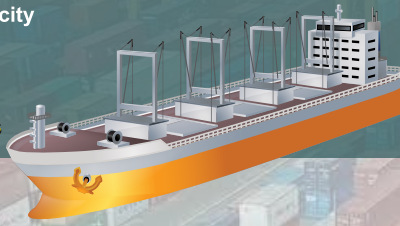
port among the
top 100
container handling
ports of
the world

up by
14 ranks



Annual Container Handling Capacity

more than
2 Million
TEUs



Annually Handling

more than
2 Million
Vessels

CFS Shed	08
Weigh Bridge	10
Car Shed	01
New Car Shed	01
Auction Shed	01



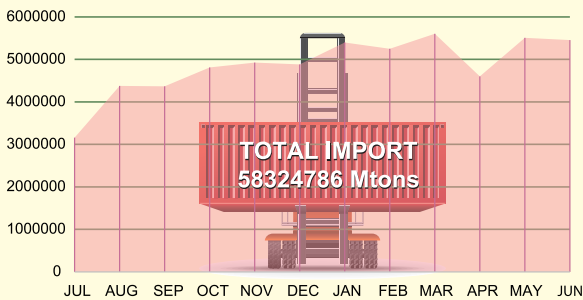
Transit Shed 1-9	64,364.70 SqM
Warehouses D,F, P,O	20,712.41 SqM
Car Sheds (P & F)	8,696.63 SqM
Open Dumps	90,000 SqM
Warehouses Others	25,179.36 SqM
Open Dumps	2,00,000 SqM

3,300 units in the
new Car Shed

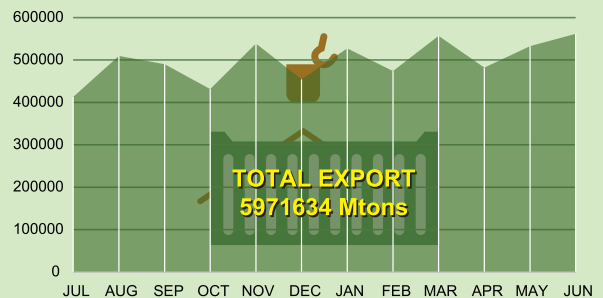


2015-16 STATISTICS OF CPA

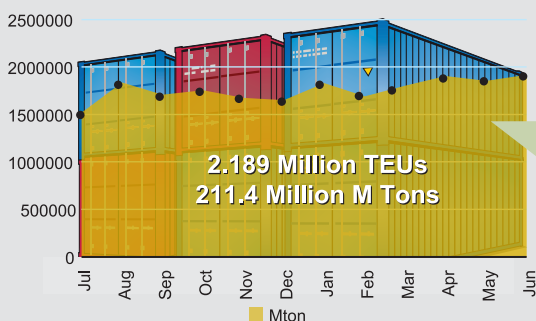
TOTAL IMPORT 2015-16



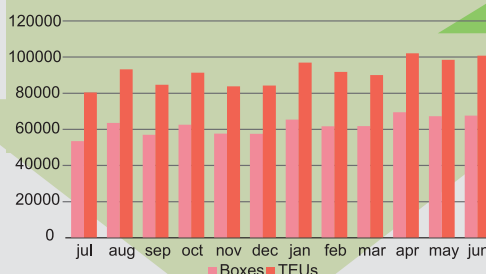
TOTAL EXPORT 2015-16



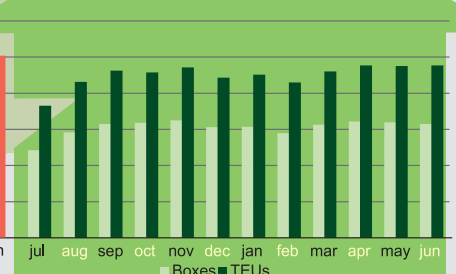
TOTAL CONTAINER HANDLING 2015-16



TOTAL CONTAINER IMPORT 2015-16



TOTAL CONTAINER EXPORT 2015-16





Equipment	Capacity ton	NOs
Mobile Crane	10-50	45
Forklift Truck	10-20	06
Forklift Truck	3-5	96
Forklift Truck	25-42	05
Forklift Truck	7-16	19
Industrial Tractor	25	11
Terminal Tractor	50	43
Heavy Trailer	20-25	05
Light Trailer	6	30
Trailer	50	55
Shore Crane	2-3	16
Quay Gantry Crane	40	19
Straddle Carrier	40	38
Reach Stacker	45	15
Container Mover	50	5

Port Limits

7.5 Nautical Miles

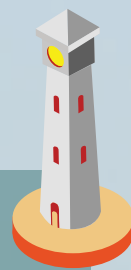
Southern side
towards the sea

30

Nautical Miles
From estuary to
the upstream of
the river

11 Kilometers

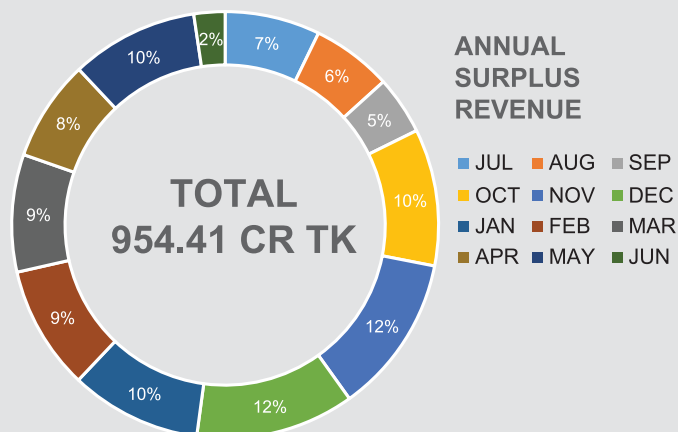
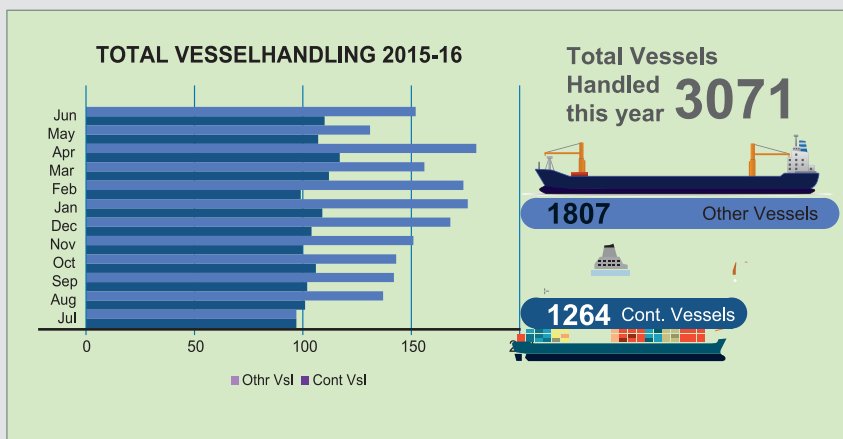
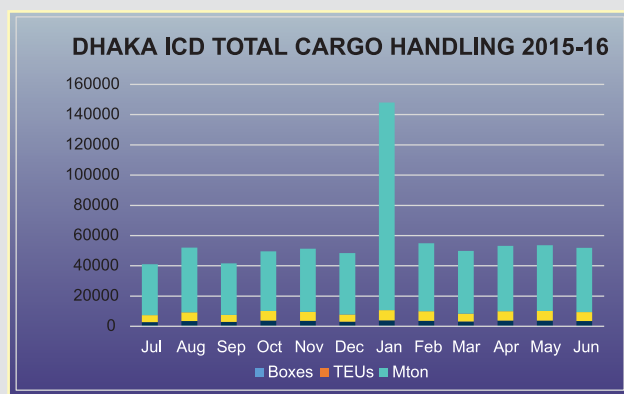
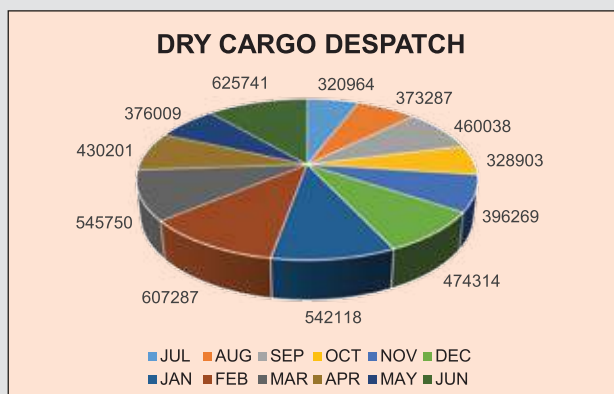
From estuary to
the port main jetty



Facilities	Area/Unit
CFS at GCB	45,064 Sq M
Container Storage Yards at GCB	282,239 Sq M
CFS at CCT	13,671 Sq M
Container Storage Yards at CCT	150,000 Sq M
Container Storage Yards at NCT	225,000 Sq M
Container Storage Yards at NCY	63,000 Sq M
Railway Container Sliding	550 M
Reefer Points (415 Volts)	900 points
Standby Generator	8MW (2X4)
Water Reservoir	1,40,000 Gallons
Fire Brigade	1 Unit



21 Container Yards
Total Container Capacity
37,357 TEUs



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Editorial

Chittagong Port is preparing for the future ...

It's time for a face lift of Chittagong Port. At present the port is achieving the most with its given infrastructure. But this port needs to be prepared for the future challenges. The advancement of technology, innovative automation and integration of various applications are also influencing service industries like sea port operations. A measured and well analyzed approach to upgrade the facilities in Chittagong Port will secure its importance in the future decades.

Our lead story elaborates in detail about the most coveted project of Chittagong Port- Karnaphuli Container Terminal. This is a visionary facelift project to convert existing Cargo berths in to a state of the art container terminal.

Connecting the region through sea and land is of utmost importance at present day context. Bangladesh is keen to achieve that. It's a mutual interest. These new connectivity might offer a boundless opportunity for business endeavors to develop their trade across the region and beyond. In our Future Roads section we are presenting the present day efforts from the Ministry of Shipping to create a better connectivity for Bangladesh.

Globalization and increased trade is always a key issue for a developing country. So is the Mother Nature. The legacy and prosperity of this bustling port city is by the great river Karnaphuli.

We also are pleased to include some highlights of the ever happening activities in this port. Along with some regular features highlighting the potential of blue economy and the importance of technology in our present day sea port infrastructure.

We are keen to get your opinion and feedback and hope we can connect you with our publication to share our thoughts and ideas as well as updating with our pursuit to achieve a brilliant future as one of the most successful seaport in the South East Asia.

This is a combined issue for 2 quarters. The growth and performance of the port in the previous fiscal year was commendable. We took the opportunity to portray a snapshot of our performances in this issue.

We always value your opinion and comments on our contributions and you are always welcome to contact us.

Zafar Alam

Editor

The face lift of the Chittagong Port facility is imminent to cope up with the demands in near future. Hence CPA chalked out a plan to dismantle the existing General Cargo Berths (GCB) to transform it into a state-of-the art facilities a port of 21st century should offer, termed as KCT-Karnaphuli Container Terminal.



Lead Story

A port with a view - KCT Redefining the new face of Chittagong Port

02 Infographics

04 Editorial

Panorama

20 Importance of Technology in Port Operation

With the advent of technology, multi-dimensional and complex port operation has become simple and pictorial. From a computer monitor or a smart phone or mobile device, port operation is more within control. We at Chittagong Port Authority are keen to achieve these benchmarks in near future.

Horizon

18 Tale of a river

Rivers have wonderful names that contain their myths, their saga. The river Karnaphuli bears a story of its own as well. The river Karnaphuli is deeply linked with our export- import-economy and infrastructures. Ours is a riverine culture, a river-based civilization. We should learn to understand the woeful tales of the river Karnaphuli and restore its glory.

News Bites

16 Port infrastructure and trade news

- Bay-terminal to go under Govt. fast track project
- CPA Chairman emphasis on jetty expansion and connections
- Bangladesh-India coastal shipping Kicked off
- CPA to procure equipments of TK 1120 Cr.
- Bangladesh to port directly Thailand-Myanmar-Srilanka

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Connecting our delta better: The riverine and maritime potentials of Bangladesh



Government of Bangladesh. prioritized on connectivity for transforming the country into a regional hub for trades and commerce. Bangladesh is keen to enhance connectivity not just only with neighbor, but also with other countries in South Asia and the regions beyond.

22

The Prospects and Challenges on the Sustainable Development of Blue Economy in Bangladesh



Bangladesh's economy is sea borne to a good extent and with \$130 billion GDP. Estimates suggest some 30 million Bangladeshi directly depend on oceanic economic activities like fisheries and commercial transportation.

17



Biggest winner
Tangshan ▲ 37.1%

The winners /

Ranking	Port	2015 annual throughput (teu)	2014 annual throughput (teu)	Annual % change
94 NEW	Tangshan	1,520,000	1,109,000	▲ 37.1%
95 NEW	Abu Dhabi	1,504,293	1,137,679	▲ 32.2%
76 ▲ 14	Chittagong	2,024,207	1,622,000	▲ 24.8%
39 ▲ 7	Taichang	3,760,000	3,101,300	▲ 21.2%
43 ▲ 9	Dongguan/Humen	3,362,657	2,891,695	▲ 16.3%
53 ▲ 10	Rizhao	3,362,657	2,420,000	▲ 16.1%
80 ▲ 6	Karachi	2,810,000	1,720,000	▲ 14.0%
81 ▲ 4	Dammam	1,960,000	1,747,549	▲ 11.8%
40 ▲ 2	Savannah	1,954,364	3,346,048	▲ 11.7%
22 ▲ 2	New York/New Jersey	3,737,400	6,372,000	▲ 10.4%

Chittagong Port:
The fastest growing Asian port outside China



A port with a view - KCT

Redefining the new face of Chittagong Port

Kamran Reza Chowdhury



Total area under the project

218.53 acre

Karnaphuli

A total of **12** Redesigned Jetties proposed

Productivity is never an accident. It is always the result of a commitment to excellence, intelligent planning, and focused effort - Paul J. Meyer

The economic growth of our country is at fast pace. So is the expansion of our much acclaimed service oriented industry. This phenomenal growth in business and the introduction of technology equally increased the importance of Chittagong Port to a great extent. Hence, the face lift of the entire port facility is imminent to cope up with the demands in near future.

Chittagong Port Authority (CPA) chalked out a plan to dismantle the existing General Cargo Berths (GCB) to transform it into a state-of-the art facilities a port of 21st century should offer. This phase wise transformation of GCB terminal is termed by CPA as KCT- Karnaphuli Container Terminal.

Focusing into the future

The strategic master plan for Chittagong Port has chalked out the redesign and upgrading of the existing berthing facilities. The plan also includes the development of ancillary facilities to support the new berths and jetties. Based on that

Once the KCT project is completed, Chittagong Port will be transformed into a port of the contemporary time

SMP, this detailed design approach was taken by Chittagong Port Authority.

The solution is need based and largely on the assessment of the future needs. KCT is proposed to transform daily port operation into a sophisticated and compliant standard while maintain a green and clean approach to the entire operational aspect.

Moving one step closer

To implement the KCT project, CPA initiated a feasibility study for this billion dollars project under the deft leadership of BUET feasibility team. They were tasked to examine technicalities in building this modern terminal and to analyse the existing work flow and infrastructures.

Good news is, examining all the technical aspects, an expert team of BUET has inferred that the construction of the proposed Karnaphuli Container Terminal (KCT) is implementable.

"The proposed KCT is technically feasible, and could be entirely designed by the local expertise. Therefore, this project is

recommended for implementation", according to the BUET feasibility study on the KCT's construction.

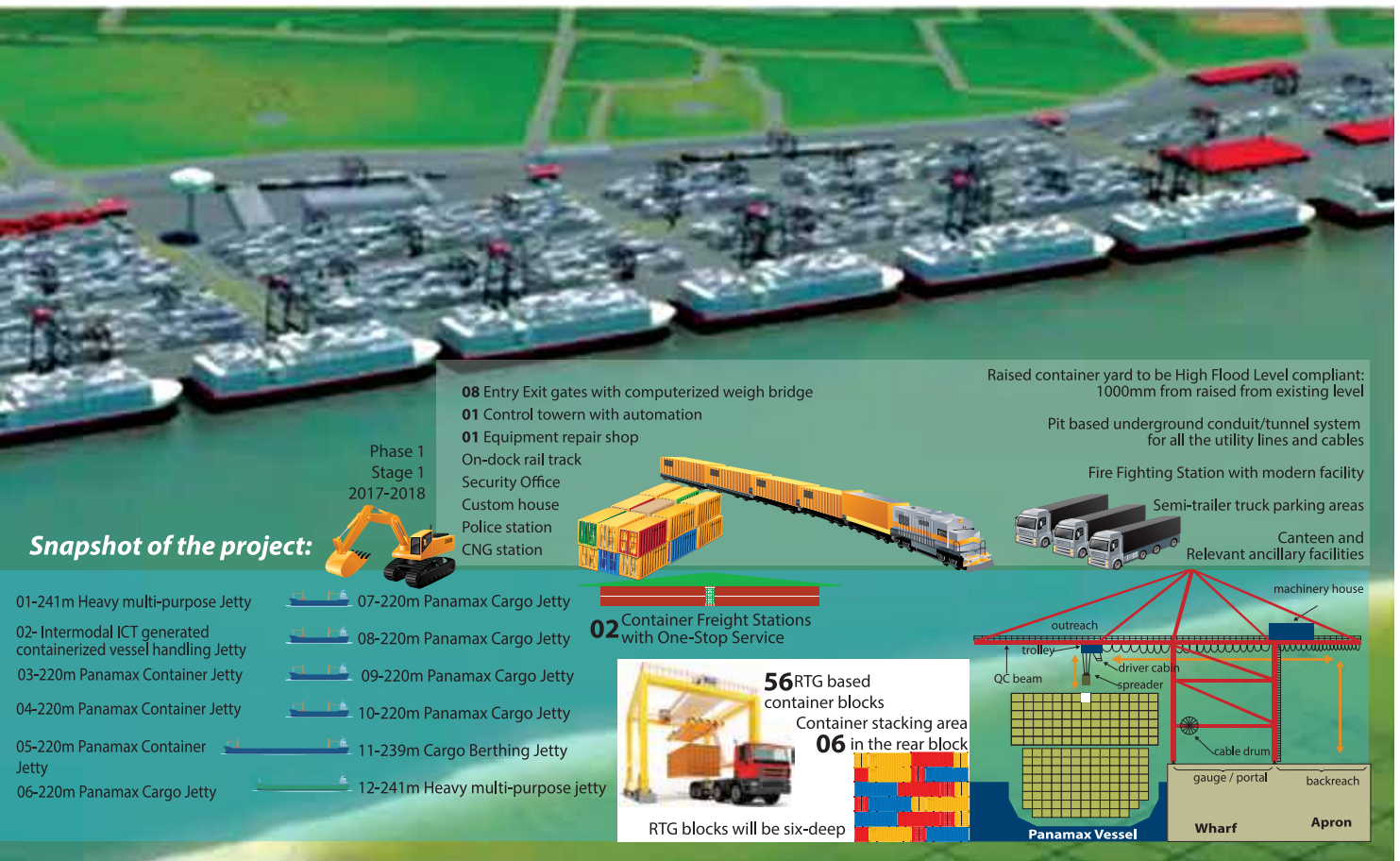
A bird's eye view of KCT

Once the KCT project is completed, Chittagong Port will be transformed into a port of the contemporary time. The jetties will be equipped with state of the art facilities, while the new design will maximize the functionalities of each jetty. The connectivity will increase the efficiency of intermodal transport system. Operational security and management will be uncompromisable to achieve the highest level.

Existing jetties will be transformed into new jetties, existing sheds and warehouses will be replaced and rearranged, and some of the existing facilities will be consolidated and remodeled while other facilities will be introduced.

A long journey so far

History of Chittagong port can be traced back to the 4th century BC. However, the first jetty built in this port was around 1862. Even if we consider the port operations based



on jetties in this port, it is a long journey so far. Over these years the political reign has been changed and so is the business pattern of this land. Nonetheless, Chittagong Port has never lost its importance as the prime gateway of business for this vastly populous area. Naturally, the port has been evolved to cater the ever increasing commercial needs. More jetties has been built, railway tracks were introduced and new roads and infrastructures being built to facilitate more and more cargo to handle. Since Bangladesh started its journey as a sovereign country in 1971, the growth of Chittagong Port became more structured and actively mapped to the national economy. Over the last 20 years the port has been expanded dramatically, the jetties were upgraded with the introduction of more robust handling equipment, automation introduced and skill enhancement was emphasized for the human resources. However, all these were done on the existing infrastructure and establishment which was an organic growth over centuries. This remained as the fundamental constrain to plan and build a port operation facility to

meet the need of the near future. Despite of these limitations, the port has performed tremendously over the last decade and gained even more confidence from the national and international traders. More vessels are now dealt each year and container handling capacity is in constant increase as well. This is the time for Chittagong port to look afresh into its prime operational areas and facilitate them to enable handle the upcoming trading needs.

A busy port of the South East Asia

Chittagong Port is one of the busiest port of South East Asia. Being the major port of the country handling almost 92% of maritime trade. Its container handling capacity has been increased to an admirable scale. Last year it has surpassed the benchmark of 2 million TEUs of container handling per year. The demand is still increasing and port is constantly thriving to improve its performance even more.

At present, port is operated by its three terminals-

- The General Cargo Berths (GCB),
- Chittagong Container Terminal

Despite of these limitations, the port has performed tremendously over the last decade and gained even more confidence from the national and international traders

(CCT) and

■ New Mooring Container Terminal (NCT)

The GCB, in average, handles 53.4% of the containers while CCT and the NCT each handles 32.1% of the containers.

At present there are 19 jetties in Chittagong Port. Among these, one jetty is nonoperational. Other jetties are as below

- GCB Cargo only jetties - 06
- GCB Container handling jetties - 07
- CCT jetties - 04
- NCT jetties - 02

Present GCB and Operational Requirement of KCT

According to the field observations and analysis, the existing GCB infrastructure and operation is inadequate to handle the demand of the near future. The existing layout of the GCB also has some limitations to achieve all the features of a 21st century container terminal.

The sheds and warehouses are located just after the berthing area, along the apron. The position of these

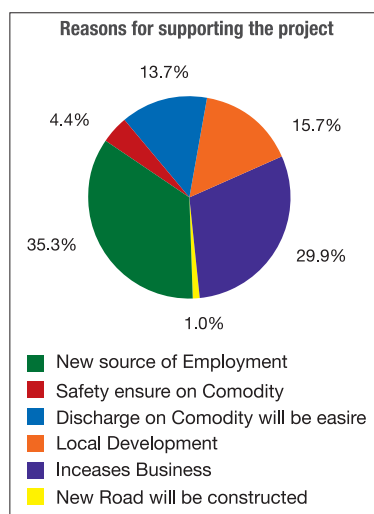
infrastructures and their function on the apron is a hindrance to the efficiency. The mandatory facilities for a modern port needs to be introduced like parking lots for semi-trailers and control tower to oversee operation and traffic circulation.

Due to the organic growth of the existing infrastructure, many facilities are placed in a disorderly manner as these were built on priority basis and on available open spaces.

What awaits for this port in near future?

The total container handling in Bangladesh is expected to increase from 2.34 million TEU in 2016 to 3.38 million TEU in 2020, to 6.91 million TEU in 2030, and to 11.314 million TEU in 2046 for Base Case Scenario.

Historical data analysis shows that the proposed KCT will handle 50% of the total container and cargo handling at Chittagong Port. By 2046, the market share of Chittagong Port will be 46.7% in the country's total container handling, provided that the KCT is constructed and its



operational efficiency improved significantly.

KCT overview

The proposed KCT should contain a multipurpose jetty, service jetty, and general cargo jetties along with the container jetties enabling the terminal to offer comprehensive support to the CPA requirements. The details of the key facilities are presented in the title image above.

As a part of KCT's development, the location of the jetty berth face needs to be fixed to increase the navigational accessibility.

Moreover, automation of the

The feasibility study has recommended Sand Compaction Pile as the prospective ground improvement measure for the KCT project



Existing port facilities at the Proposed KCT Area

complete container handling process is recommended to adhere to all the safety standards in practice while operating the internal handling equipment. The traffic circulation plan should be ideally one-way and in a grid system. Recommendations have been provided to ensure seamless connectivity with maximum security features for the proposed KCT.

Wharf Construction

The recommended design is for open-piled deck structure which is more resistant to environmental and seismic loads, is better than other options. The open-piled suspended deck is considered to be the most practical and most economical solution, with minimum risk of failure.

The feasibility study has recommended Sand Compaction Pile as the prospective ground improvement measure for the KCT project, subjected to mobilisation of proper equipment.

Retaining Wall

A concrete retaining wall is planned to replace the existing wall, on pile foundations supporting the end part of the concrete deck connecting the land and wharf structure. Based on the surveys it is imminent that to facilitate the new infrastructural design, CPA must replace the existing wall.

Yard Pavement Systems

For relative advantages, the feasibility study has recommended concrete block, instead of the asphalt and rigid concrete, as surface material for construction of yard pavement. Considering the fact that the RTG tracks would be needed to sustain high concentration and repetition of heavy magnitude load, for all the tracks reinforced cement concrete would be used. Pavement design calculations are based on the technique and procedure as set out in the design manual entitled "The Structure Design of Heavy Duty Pavements for Ports and other

Industries", published by the British Ports Federation.

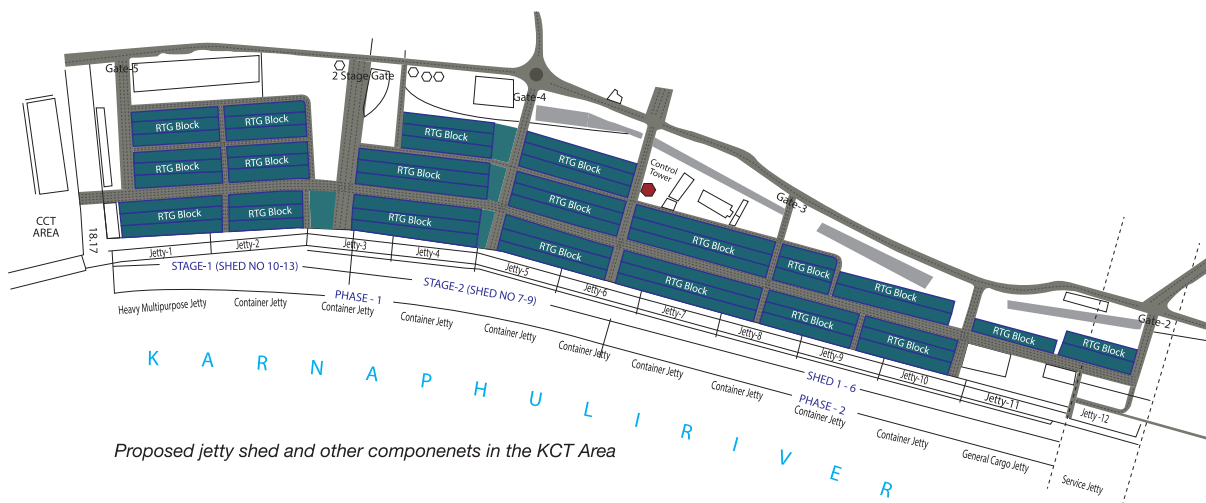
Yard Connectivity

The KCT project, once built, will attract a substantial volume of traffic in CPA road network. The TIA report suggests that the traffic operation along the portside network, specifically the port influence area is significantly affected by conflicting right—turning movement at Saltgola Crossing and CEPZ intersection as well as when port traffic coming from Patenga and CEPZ try to access GCB gates. This traffic flows are the main reasons for congestion along the port road.

To improve the situation, a multi-solution approach has been proposed for KCT inbound and outbound Dhaka/Chittagong Town/Patenga container traffic, in order to maintain smooth traffic circulation inside and outside the KCT area to cope with the increasing container handling potential of the proposed terminal.

Within the multi approach solution, implementation of CPA's overflow container yard, redevelopment of existing flyover touch-down point near NCT-mouth, grade separated U-loop based corridor solution along with improved connectivity with existing and proposed ICDs utilizing inland waterways, increased container transport share through double railway track (Dhaka-Chittagong), and efficient use of two-stage gate complex will reduce traffic pressure on port road that will eventually ensure smooth outer traffic circulation.

For improvement of inner traffic circulation, the one-way traffic movement and grid pattern roads as well as provision for semi-trailer parking Lots at designated places is adopted. Alternative solutions have been proposed for internal connectivity at the KCT.



Proposed jetty shed and other components in the KCT Area

KCT Yard Planning and Connectivity

The following hallmark features are considered for the development of the KCT:

- Safer one-way traffic circulation and automation enabled "Grid iron Road Network" backbone
- Climate Resilient against sea level rise and land subsidence potential for 100 years
- Fail Safe and Fault Tolerance utility services
- Clean and Green maritime transport services with reduced carbon footprint
- Reduction of port related truck traffic by providing wider International rail and river connectivity
- Remote Surveillance based terminal operation and security system

Fifty six RTG based blocks have been provided in the KCT yards. Irregular shaped yard areas have been proposed to be operated by SC (Straddle Carrier) based container handling and stacking equipment. In

the master plan, four such irregular areas are identified for SC based operation.

The Jetties

A total of eight Panamax type jetties will be considered for handling containerized vessels. These jetties will be 220m long. Besides, as per the requirement of the CPA, one 241m heavy multipurpose jetty, one 225m jetty for handling intermodal ICT generated containerized vessels, one 239m general cargo berthing facility and at the rear-most end one 220m service jetty are provided. Altogether, 12 jetties are planned within the 2310m available berthing area of the proposed KCT.

In the KCT master plan, jetty-adjacent apron is planned to accommodate the back-reach of the proposed Panamax QGC equipment and thereby to make it functional without any conflicts with other container handling equipment. To minimize conflicts among different yard container handling equipment, all junctions of the KCT internal road network are made orthogonal and proposed to be operated as a

self-regulated box-junction.

Besides, railway tracks are laid in such a way that the layout of all level-crossing becomes orthogonal without any obstructed vision problem and are provided with auto signal control facility.

Rear-dock and other areas

Rear-dock area is planned mainly for stacking containers with high density six-deep RTG based

as 5+1 high pattern. In the rear-dock area, existing two-stage gate and central workshop are also accommodated at their original locations.

To optimize yard operation and to make best utilization of the port frontal areas, all the ancillary facilities are placed at the rear-dock irregular areas near the boundary wall.

In the master plan, two Container Freight Stations (CFS) with one-stop service are also considered in the yard to facilitate stuffing-unstuffing of loose cargos.

An equipment repair shop area is designated for routine maintenance as well as parking of different handling equipment except RTG. Semi-trailer truck parking, canteen, security office, customs house, CNG station, police station and control tower are placed at the peripheral areas.

Total eight entry-exit gates, including one new gate near berth 1 or 2, equipped with computerized weigh-bridge, have been provided for the KCT to ensure efficient arrival and departure of yard induced traffic. To ensure efficient way of customs control, there would be dedicated gates for incoming and outgoing traffic.

Utility services such as water pipes, fire hydrant lines, electrical lines and other facilities including internet/wifi/computer network cables, CCTV, based surveillance cables, public address lines and so forth have been proposed to be laid in pit-based underground utility conduit/tunnel system.

Site Drainage System and Sanitary Sewerage System have been proposed for the project. System of pipes and appurtenances will be

Three existing terminals in Chittagong Port



Total eight entry-exit gates, including one new gate near berth 1 or 2, equipped with computerized weigh-bridge, have been provided for the KCT

sized according to the rain intensity for site drainage and to standard usage for sanitary sewers. Storm drainage pipe and fittings shall be constructed of concrete conforming to ASTM specification c-14, extra-strength concrete pipe or equal.

Water distribution system would cover connection to Chittagong WASA main piping of water to underground reservoirs, pumping from the reservoirs to an elevated tank, from the tank piping of potable water to buildings for use and pumping or piping to provide water for firefighting, and to provide potable water to ships. Pipes of 100mm and large shall be of ISO 2531 type or equivalent ASTM standard ductile iron or similar.

Fire fighting

The KCT would have a full-fledged fire-fighting unit within the jetty premises with modern equipment to combat any incident of fire. Security at the proposed KCT would be maintained round the clock by specially trained port security personnel equipped with all modern facilities and devices.

Railway and waterway

The KCT master plan has been prepared with intermodal rail and river connectivity. Railway tracks on river side are proposed aligning with the internal road network in such a way that there is minimum number of level crossing are conflicts between rail and road traffics.

On-dock rail track is proposed to enable the large containerized unit trains to reach long distance inland markets through inland ports. In line with making KCT a Clean and Green facility with reduced carbon footprint, the master plan has been prepared with provision for container traffic transport through inland waterways; a separate jetty is proposed for exclusive use by the inland container terminal bound vessels.

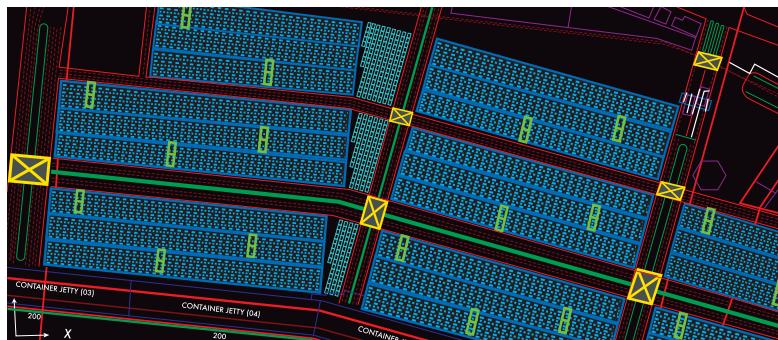
Automation and control tower

Port automation has been considered while planning the KCT components. In view of this, overall yard planning is made in keeping the scope for future up-gradation of the KCT operation with un-manned equipment and thereby to enhance further productivity and safety of the yard facilities.

A fully-automated management has the potential to improve overall terminal productivity by 25 to 50 percent.

In the KCT master plan, a Port

The proposed KCT would fetch more revenue from increased handling of general cargo and containers



Best utilisation of the space to create efficient RTG blocks and irregular stacking areas

Control Tower fitted with modern radio communication system has been included for safe and efficient handling of ship traffic operations.

Design approach

Ports are seen as fixed assets and operation systems. The key components of engineering applications in ports are associated with the aspects of port design, planning, modelling, construction, operations, maintenance, security, optimization and performance measurement. The important sub-branches of engineering are port operations, planning and logistics. This includes industrial, environmental and transportation aspects as well. Another important consideration in port design is systems and process approach.

During the design of KCT, all the existing operational practice and issues have been considered carefully to achieve an efficient solution.

While the structural considerations of the jetties were based on the long term stability of the jetties, the jetty types were guided by the draft of the river, type of the vessels CPA want to accommodate and the type of vessels considered to be the contemporary ship design trend in the maritime sector.

The Panamax vessel, requiring 186m docking space and less than 9.0m draft has been considered as the design ship for the proposed KCT. Considering the docking requirements and maneuverability of design ship, jetty length is fixed at 200m for the eight jetties.

Phases, stages and cost of the project

Port has a large sunk assets and therefore tend to exhibit increasing returns to scale (cost per unit traffic tends to fall as a port expands) and increasing returns to scope or density (cost per unit traffic usually falls when more vessels and cargo are handled

by the existing facilities).

(Page 12 Khalid Bichou)

The KCT construction involves two phases: phase-1 and phase-2. Phase-1 has been divided into two stages. Under phase-1, Stage-I, there is a heavy jetty of 240m length and container jetty of 330m length. Stage II of Phase-I, and Phase-2 consists of container jetties having length of 640m and 1090m, respectively.

■ Phase-1 Stage-I: January 2017 to December 2018

■ Phase-1 Stage-II: January 2019 to December 2020

■ Phase-2: January 2021 to December 2024

The total cost of the project is estimated to be around Tk 2,361 crore (US \$2.9 billion dollar). The cost includes the investment cost and operation and maintenance cost.

Economic Analysis

The proposed KCT would fetch more revenue from increased handling of general cargo and containers.

Three different handling scenarios have been considered based on dwelling time. Three dwelling times namely, seven days, six days and five days have been considered. The analysis period has been considered as 25 years—between 2017 and 2041.

Based on the dwelling time of general cargo and containers, it is observed that the minimum dwelling time results in highest revenue earnings as well as highest Benefit-Cost ratio and Financial Internal Rate of Return.

Impact and outcome

Today, ports are not only a transfer point between sea and land but also serve as distribution, logistics and production centres. In some ports, non-sea related activities can also fall under the wider definition of ports. For instance, dry ports are inland logistics centres not directly linked to

sea or waterways connection.

(Page 2. Port Operations, Planning and Logistics, By Khalid Bichou. CRC Press 2009)

The large variety of factors that influence port performance complicates the determination of port efficiency.

Value addition in port logistics and port service is synonymous to customer satisfaction. Like any other busy port, Chittagong Port deals with a wide spectrum of stakeholders as their direct and indirect customers. A more efficient, transparent, time and cost worthy service will add more value to the quality of service it offers. As a result, CPA will yield more income, earn confidence in the international maritime sector and national exchequer will be benefited even more. Once KCT is implemented as planned, the positive impact of CPA's business growth is unstoppable.

The Traffic Impact Assessment (TIA) section shows that the KCT will attract a substantial number of traffic in CPA road network. It recommends a number of measures that would mitigate the resulting traffic problems. Beside that, KCT connected by intermodal rail and river connectivity, have potential to alleviate the traffic problems in the port area.

The dwelling time based analysis also reveals the fact that the revenue earning may be further maximised through efficient management and adoption of unmanned/automated smart container handling operation of the port. The provision is already considered in the preparation of the KCT master plan.

Considering the highest dwelling time, seven days, financial analysis results in an acceptable Benefit-Cost ratio of 1.52 and an acceptable Financial Internal Rate of Return 21.81%. It is to be noted that in consideration of the expected contribution of the KCT to the national industrial economic landscape, the perceived economic benefits would be much higher than

this estimated financial return for CPA.

The new horizon

Bangladesh's booming ready-made garment products, which constitute over 80% of our annual export, is expected to fetch US \$50 billion by 2021 from the present US \$30 billion. The business community wants more efficient container and cargo handling at the Chittagong Port, which has been experiencing 15% annual growth. So, construction of the KCT would meet expectation of the traders, to a greater extent.

Bangladesh is already a lower-middle income country. We would see a surge of trade and business activities through the Chittagong Port in the coming decade as the government envisions graduating Bangladesh from lower-middle income country to a middle income country by 2021.

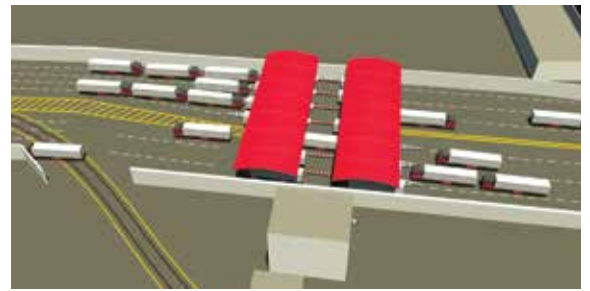
Chittagong Port had been a hub of sea-borne trade as cargo was transported to Assam and other Northeastern region in the undivided British India. Dhaka-Delhi transit agreement for carrying containers and cargo to the landlocked Seven Sister states of India through Chittagong Port will bring back its lost regional importance.

Chittagong Port is of more international attention following the Chinese President Xi Jinping's recent Dhaka tour that focuses on integrating Bangladesh into its development strategy and framework, termed One Belt One Road (OBOR), considered as the 21st century Maritime Silk Route. And Chittagong Port is sure to be in the Chinese integration plan for its international trading ambition.

So, the implementation of the modern and automated KCT would herald a new beginning for the Chittagong Port.

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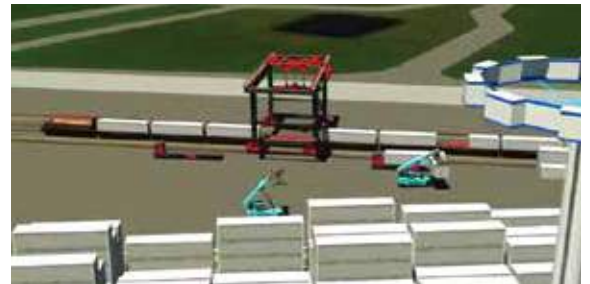
Introduction of Multipurpose Jetty for heavy cargo transportation



Multi lane two stage gate proposed in KCT



Proposed interior view of the Control Tower in KCT



RMG based railway loading bays are proposed in KCT



Efficient use of Jetty and apron area to regulate smooth cargo handling



Multipurpose jetty will have heavy lifting cranes



Connecting our delta better: The riverine and maritime potentials of Bangladesh

Tasnim Mohsin

Bangladesh is a fertile delta criss-crossed by many small and large river, canal and water bodies. The history of rivers is not just for 45 years, its witnessing this region since the million years before when the land was formed. Having the Everest on the north and the Bay of Bengal at its south, this is a land geographical importance since the time of Silk Route trade back in the time of Hun Dynasty (207 BC). During the Mughal period business through sea route became more popular. Large wooden-sized boats were vital medium for business. In the 18th Century the British came to this region to establish colony, trade, slavery and acquire wealths with the help of sea route. Beside sea route, the British also constructed rail tracks and roads to benefit themselves. However, sea route remained the most essential and cost-effective medium of transport. Sea route was not limited for communication and transportation, it also influenced many poets and writers to write many historical poetries and literatures.

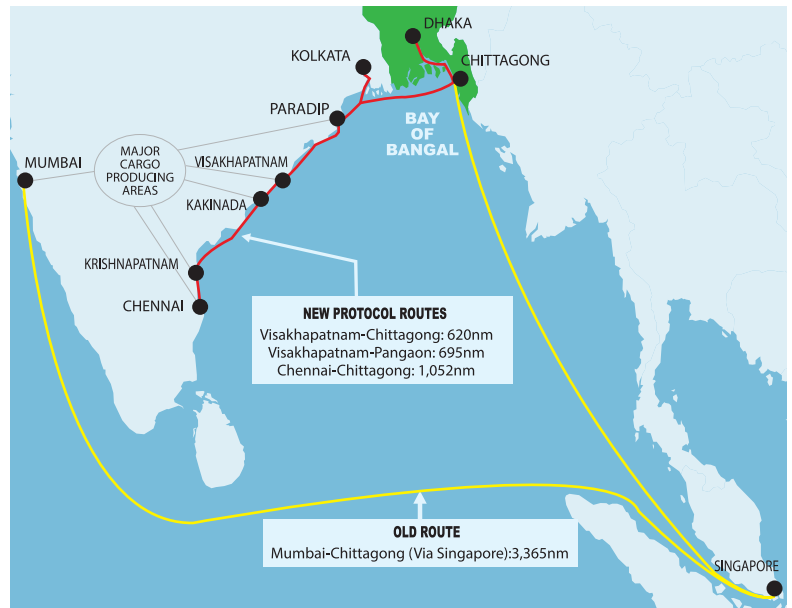
Transportation via hill tracts situated on the north is challenging as well as costly whereas in the south it is safe, cost-effective and easy to use through Bay of Bengal. As a result, Bangladesh found its own alternative for a convenient way of connectivity.

At present time Bangladesh wants to utilize this opportunity even better. Awami League government looked into this potential with deep interest and wants to establish multiple contracts with neighboring countries for better use of sea route and port movement. Thus sea route has become vital in terms of local business expansion. Bangladesh wants to materialize these new dimensions of connectivities and held her to become a moderate-income country within 2021 and a developed country within 2041.

Partition of Indian Subcontinent

In 1947, when, the British finally left India after a very long regime, they also managed to divide the subcontinent into two independent nation states India and Pakistan (East & West). In religious sight two nations has been created. But right after the partition, East Pakistan realized that

Awami League government looked into this potential with deep interest and wants to establish multiple contracts with neighboring countries for better use of sea route and port movement



Coastal route between Bangladesh and India

these religious sights can't bring equal rights and prosperity for both the parts of Pakistan.

For the rights, prosperity and freedom of the people of Bengal (East Pakistan), Father of the Nation Bangabandhu Sheikh Mujibur Rahman called six point movements. It was for greater autonomy of East Pakistan. This movement was put forward by a coalition of Bengali nationalist political parties in 1966 to end the perceived exploitation of East Pakistan by the West Pakistani rulers.

Six points for a better Bengal

Father of the Nation Bangabandhu Sheikh Mujibur Rahman demanded that the constitution should provide a Federation of Pakistan in its true sense based on the Lahore Resolution and the parliamentary form of government should be formed with supremacy of a legislature directly elected by the people on the basis of adult franchise. The federal government should deal with only two subjects, which is Defense and Foreign Affairs whereas all other residual subjects should be vested in the federating states. Two separate, but freely convertible currencies for two wings should be introduced. If this is not feasible, there should be one currency for the whole country, but effective constitutional provisions should be introduced to stop the flight of capital from East to West Pakistan. Furthermore, a separate banking reserve should be established and separate fiscal and monetary policy be adopted for East Pakistan.

The power of taxation and revenue collection should be vested in the federating units and the federal center would have no such power. The federation would be entitled to a share in the state taxes to meet its expenditures. There should be two separate accounts for the foreign exchange earnings of the two wings. The foreign exchange requirements of the federal government should be met by the two wings equally or in a ratio to be fixed. Indigenous products should move free of duty between the two wings and the constitution should empower the units to establish trade links with foreign countries. And lastly East Pakistan should have a separate military or paramilitary force and Navy headquarters should be in East Pakistan.

Birth of a nation with a dream

But West Pakistan rulers failed to address the demands of East Pakistan and West Pakistani military junta launched Operation Searchlight against the people of East Pakistan on the night of 25 March 1971. And war of independence began. After 9 months of war Bangladesh was born as a new nation.

After the independence there was no confidence on the newborn Bangladesh. This nation was compared to a bottomless basket. But because of strong vision and leadership of the Bangabandhu Sheikh Mujibur Rahman, Bangladesh was confident enough to believe that this nation is going to be the 'Sonar Bangla' and going to be a vital part for world politics and connectivity as well. He recognized the potentials and geopolitical importance of this

land. Immediately after the independence he made an agreement with India in 1972 regarding transit-transshipment Protocol on Inland water trade and transit (PIWTT). Through PIWTT Bangladesh began to open its door of a new era to get connected in the economic hub.

Legacy regained and continues

Now again under the strong leadership of Prime Minister Sheikh Hasina after an landslide victory in 2009, Bangladesh took all out efforts to utilize its geographical potentials. So the government aimed to renew the PIWTT with India to facilitate Bhutan and Nepal to use sea ports, inland waterway, road and railway of Bangladesh. With this vision, Bangladesh already conducted few bilateral and multilateral agreements with its neighbors. Like Bangladesh, Bhutan, India and Nepal agreed to transport good, services and passenger's treaty known as BBIN Motor Vehicle Agreements. Also a treaty on coastal shipping is already operational and similar pact is in under process with neighboring Myanmar, Sri Lanka and Thailand. Not only with bordering neighbors, Bangladesh also eyeing to connect with Association of South East Asian Nation (ASEAN) economic forum. These moves not only yield benefit for Bangladesh economically but also can deepen the bilateral relationships to these countries.

Challenges and opportunity by the MOS

Ministry of Shipping, Bangladesh (MOS) is at the helm to drive all these opportunities to exploit the potentials and increase the geopolitical importance of Bangladesh. Hence to facilitate and ensure smooth connectivity, MOS under the guidance of honorable Shipping Minister Md. Shajahan Khan MP is working hard with its twelve departments. Each department has its important role to play to achieve Vision 2021 and 2041. Now the challenges for MOS are to build and maintain the infrastructure to facilitate communication. As rivers of this region are heavily silted and experience low draft round the years apart from the monsoon and a number of rivers are dead or dying MOS has taken a number of measures to address these issues. To maintain the existing navigable waterways and for increase drafts into dead or dying rivers MOS recently adopted around 3,200 core taka capital dredging project. MOS Also adopted a few projects to breathe life into channels, canals as

well as development of new channels and canals. Alongside other important infrastructures like night navigation, establishing international and inland ports, increased bunkering, increased security and other need full facilities are being underway by the guidance of MOS.

Coastal shipping, Inland water transportation, transit-transshipment

Various organizations under the MOS are actively looking into the contemporary issues and playing their vital roles within their jurisdiction. All these organizations are thriving to achieve their goals and trying to reach the objectives.

BIWTA

Under MOS, Inland Water Transport Authority (BIWTA) playing vital role to facilitate the connectivity. BIWTA is the competent authority of Protocol on Inland Water Transit and Trade (PIWTT). BIWTA is the authority to develop, maintain and control of inland water transport and of certain inland navigable waterways. On 31st October 1958, the then East Pakistan Government promulgated an ordinance called the East Pakistan Inland Water Transport Authority Ordinance 1958. After independence PIWTA constituted to BIWTA.

Bangladesh has about 24,000 km of rivers, streams and canals that together cover about 7% of the country's surface. Most part of the country is linked by a complex network of waterways which reaches its extensive size in the monsoon period. Out of 24,000 km of riverine route, only about 5,968 km is navigable by mechanized vessels during monsoon period which shrinks to about 3,865 km during dry period. The IWT sector carries over 50% of all arterial freight traffic and one quarter of all passenger traffic.

The main function of BIWTA is the fixation of maximum and minimum fares and freight rates for Inland Water Transport on behalf of the Government, approve time tables for passenger launch services, inspection of ships, cargo and inland vessels to ensure compliance with the provision of ISO1976, act as the competent authority of PIWTT looking after the use of waterways of Bangladesh on behalf of the government for the purpose of trade and transit between Bangladesh and India as provided in the protocol.

Now BABITA carrying a good number of projects to draw up programs of dredging requirements and priorities for efficient maintenance of existing navigable waterways and for

MOS recently adopted around 3,200 core Taka capital dredging project. MOS Also adopted a few projects on to breathe life into channels, canals as well as development of new channels and canals for navigation.



Shajahan Khan, MP

Honorable shipping Minister Md. Shajahan Khan MP said, Bangladesh has its goal to become a middle income country within 2021 and a developed nation within 2041. And under the leadership of current government we are thriving towards that goal. Bangladesh is achieving more than 6 percent of growth almost over last two decades. To become a middle income country these growth have to touch double digits. In order to achieve that and to make Vision 2021 a reality, MOS is working hard.

He also said, presently 80 percent of global trade is carried out through maritime connectivity. Due to maritime advantage of the country, Bangladesh has the opportunity to expand trade and business with India, Thailand, Myanmar, Nepal, Bhutan, China and Sri Lanka as well as beyond the region. Through these new trade opportunities economic activities will be expanded and import-export costs will decrease significantly. As a result, the people of the region will be benefited. To get smooth connectivity with the sea ports and other parts of the country infrastructure are getting developed as the demand of time.

Emphasizing to boost trade with neighboring countries Shipping Minister said, government building land ports for the expansion of regional trade and economic activities. Development of ports will help expand Bangladesh's trade with India. Land ports will be constructed in to facilitate regional trade. We hope that all these projects will help enhance regional integration through trade, transport and power trade, among others.



Ashoke Madhab Roy

Shipping Secretary Ashoke Madhab Roy said, now our main focus is to increase connectivity between Bangladesh and the neighboring countries, sub-region and beyond. For that we are focusing on establishment of coastal shipping, explore investment opportunities & consultancy services in the port sector. For example the growth in bilateral trade between India and Bangladesh has led to congestion on the road at Indo-Bangladesh border and at the Land Custom Stations/Integrated Check Posts. It has been observed that the traffic congestion at "Petrapole" and "Benapole" on the Bangladesh side has emerged as one of the biggest impediments to the movement of cargo. Due to such congestion, the exporters and importers on both sides have been facing delays and undue increase in the transportation costs. One measure to address this issue is by transporting commercial cargo through coastal shipping.

He also said, MOS is not only working to establish connectivity but also to make safe and smooth journey of home-bound passengers on the river routes as well. Ministry of Shipping has taken an initiative for dredging 53 rivers across the country. A monitoring committee was formed to prevent the river pollution, which would bring a positive impact on preventing river pollution by 2018. For that we need private sectors to invest in maritime business as it will be a flourishing sector in the near future because of increased local and regional connectivity.

Blue Economy offers a suite of opportunities for sustainable, clean, equitable blue growth in both traditional and emerging sectors



Bangladesh and India signed 22 trade agreements on 6th June 2016

resuscitation of dead or dying rivers, channels, or canals, including development of new channels and canals for navigation.

Port Authorities

All the sea ports are administered under the MOS. Ports are operating as independent authorities and playing a vital role in the trade and commerce of the national sector. The sea ports are the gateways to the trading world for Bangladesh.

Ports are important crystallization points for maritime economic activities, whether cruise shipping, coastal shipping, international shipping, passenger ferries, fishing, marine mineral mining, oil drilling, offshore or maritime monitoring, they all require ports and ports infrastructure.

Blue Economy offers a suite of opportunities for sustainable, clean, equitable blue growth in both traditional and emerging sectors. After peaceful resolve of demarcation on maritime boundary with India and Myanmar, Bangladesh own its sovereign rights on 1118,813 Sq Km of water extending up to 12 nautical miles of territorial sea and a further exclusive economic zone of 200 nautical miles into the high sea. To acquire the prospect of blue economy ports can be used by different economic activities and is a fine example of synergy.

Now Bangladesh's economy is booming. Considering as next Asian Tiger' and most favorite destination for foreign direct investment (FDI). And Bangladesh is getting ready to face upcoming challenges to grab every opportunities face by face. This port has same potentials and prospects as it has before. More than 90 percent export-import now and then takes place through this port. As

world is considering Bangladesh as regional economic hub and the importance of this country rising more day by day. Bangladesh is preparing herself to get in to action for being with the course. Rather depending only on two sea ports in Chittagong and Mongla. Bangladesh Government led by Awami League dreamed for more sea ports named Payra and Matarbari deep sea port. Prime Minister Sheikh Hasina officially inaugurated countries third port Payra Port in August this year. Construction of Payra port started in 2013 which may involve an overall expenditure of more than Tk 11 billion and it will be fully operational by 2018. Japan International Cooperation Agency (JICA) is working in to build Matarbari deep sea port. Through all these ports expected to boost the country's exports and imports as well as connecting to the hinterland through river routes. Also it's going to contribute a crucial role for linking this region.

BLPA

Bangladesh Land Port Authority is facilitating export-import through land route under the MOS. About 4096 kilometer border line is shared between Bangladesh and India. This is the fifth-longest land border in the world. And with Myanmar, Bangladesh share about 271 kilometer of land border of which around 150 kilometer lie in the hilly areas. In this land boundaries Bangladesh have 22 land port stations around the border. Now these land port not only facilitate the export-import, but also contributing toward transit and transshipment based on the mutual agreement between Bangladesh and India.

Bangladesh is now already one step ahead towards BCIM-EC and to get

connected with ASEAN region. This new venture will create a new era for the connectivity between east and west. This will also help us achieving 'Vision 2021 and 2041'. To facilitate and to achieve the targeted goal, Bangladesh Land Port Authority developing the infrastructure at these stations. Creating efficiency for cargo handling, building cargo space with improved storage facilities and to deliver better and effective service BLPA fostering public-private partnerships.

Bangladesh Land Port Authority is proactive to formulate policy for development, management expansion, operation and maintenance of all land ports on behalf of Ministry of Shipping Bangladesh. They are engaged to operators for receiving, maintaining and dispatching cargoes at land ports. Also responsible for preparing schedule of tariffs, tolls, rates and fees chargeable to the port users having prior approval of the government. They are also responsible to execute contracts with any person to fulfill the objectives of the Act as well.

DOS

Coastal shipping is a new aspect to get connected with neighboring countries. The Department of Shipping (DOS) is the competent authority for transportation of goods and services through coastal shipping. DOS is an agency under the MOS. It is the maritime safety administration of Bangladesh responsible for the formulation and implementation of the national policies and legislations to ensure the safety of life and ships at sea, development of shipping industry, maritime education and certification, employment and welfare of seafarers and other shipping related matters. The department is also responsible for ensuring the compliance of international conventions relating to maritime matters. Already with India, DOS have an agreement of coastal shipping. Same agreements are underway with Myanmar, Sri Lanka and Thailand.

The Department of Shipping was established in 1976. As a regulatory body, its functions are administered in accordance with two main legal instruments: The Bangladesh Merchant Shipping Ordinance 1983 and The Inland Shipping Ordinance 1976. DOS established with a vision to be an effective and efficient maritime administration transforming Bangladesh into a globally competitive maritime nation. Also its mission to achieve sustainable, safe and secure shipping, cleaner oceans and enhanced maritime capability

through effective regulation, coordination and oversight of maritime affairs.

Before independence of Bangladesh an organization called "Controller of Shipping" was looking after the international shipping activities. On the other hand, "Navigation Directorate" was responsible for the affairs of inland shipping. Besides these, there were "Seaman Training Center" to produce seafarers, "Government Shipping Office" for arranging jobs for seafarers, "Directorate of Seamen Welfare and Immigration" for ensuring welfare activities of seafarers and "Mercantile Marine Department" to perform the duty of statutory requirement of the merchant shipping.

After independence of Bangladesh, considering the importance of shipping, in order to further streamline the sector to meet global standard and with a view of achieving safe and secure shipping, the "Directorate of Shipping" under Ports, Shipping and IWT Division of the Communication Ministry was formed. In 1976, the Department of Shipping came into existence by merging the Directorate of Shipping and the Controller of Shipping. Since then the Department of Shipping is functioning as the maritime safety administration of Bangladesh and the international focal point of maritime affairs.

BIWTC

Another important authority dealing with inland water transportation is Bangladesh Inland Water Transport Corporation (BIWTC). BIWTC was established in 1972 under the Presidential Order (P.O.) No.28. To ensure efficient ferry services for smooth and uninterrupted road communication BIWTC functioning hard. Also to operate safe transportation of passengers and cargo between main land and off-shore islands as well. To provide safe passenger and cargo transportation in inland and coastal waterways BIWTC playing an important role under MOS.

Vision of BIWTC is to transform BIWTC into an efficient, standard and time-be-fitting organization by providing cheapest, safe, efficient and speedy transportation of passengers and vehicles with improved and modern vessels in the inland and coastal waterways. Also working with the vision to contribute in the economic activities and to play significant role in implementing the objectives of poverty reduction strategic paper and Millennium Development Goal (MDG).

BSC

Another vital organization under the MOS is Bangladesh Shipping Corporation (BSC). BSC is to provide safe and efficient shipping services on international routes and carry out all forms of activities connected with or ancillary to shipping, Thereby contributing to the national development.

To facilitate better maritime transportation under way to procure 16 vessels from China. Six of which will be mother bulk carriers and 10 lighter bulk carriers. BSC formed in 1972. Following the inception of the BSC, it procured two vessels 'Banglar Dut' and 'Banglar Sampad' in June 1972. A total of 38 vessels were procured within 29 months since the BSC was formed.

Connectivity is the prime focus

Earlier, trade between India and Bangladesh was costly and time consuming. Commodities were first sent to Singapore and Colombo seaports owing to the non-profitability for the cargoes in big vessels to ply between the sea ports of Bangladesh and India. The entire process took around 30-40 days to send back the supplies in smaller vessels to India and Bangladesh ports. This was increasing the transportation costs and time. There were requirements of smaller vessels to connect to sea ports of India and Bangladesh. Coastal shipping agreement has facilitated the regular plying of vessels. This in turn has reduced the cost and transportation time to approximately ten days. Competitive cargo rates will be beneficial and will assist in improving the infrastructure of sea ports connect to remote areas, among other benefits.

Above is an example how a dynamic mechanism can reduce time and cost to trade as Coastal Shipping agreements did. For that Bangladesh's own prosperity, connectivity gets top priority by the Government of Bangladesh. Government's focus is on connectivity for transforming the country into a regional hub for trades and commerce. Bangladesh is keen to enhance connectivity not just only with neighbor, but also with other countries in South Asia and the regions beyond. Indeed, Bangladesh is an important medium for 'Look East' Policy.

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There is a requirement of smaller vessels to connect to sea ports of India and Bangladesh. Coastal Shipping agreement has facilitated the regular plying of vessels



Shipping Minister presiding over the 10th meeting of Chittagong Port Advisory Committee

Bay Terminal to go under fast track project

Construction of a Bay Terminal for Chittagong port, will be taken under fast track project. Beside that, other initiatives are underway for the dredging of the Karnaphuli and a deep sea port in Moheshkhali will set up.

The decision came up with the 10th meeting of Chittagong Port Advisory Committee. Shipping Minister Md. Shajahan Khan MP presided over the meeting.

At present ships with 190 metres length and 9.5 metres draft can berth at the port jetties. Bay Terminal will have a potential draft of up to 13 meters and can operate 24 hours. It will have a total jetty length of 6.5 kilometers and can accommodate up to 50 vessels simultaneously.

Bangladesh owes Tk.. 35,000 crore from Pakistan: Shipping Minister

Pakistan has been conspiring till today against Bangladesh after their defeat in great war of independence of Bangladesh in 1971. They are trying to destabilise the country through militancy. We owe some 35 thousand crore taka from Pakistan. And we will make them bound to pay the debt. Shipping Minister Md. Shajahan Khan MP said it while addressing the reception function to the freedom fighters and their family members on the occasion of the 129th founding anniversary of Chittagong Port.

The Minister briefed, that some 254 successors of the freedom fighters were employed in CPA under freedom fighter quota and it will continue.

Referring Chittagong Port as a golden gate, the minister said that the golden future of Bangladesh will come by the improvement of the port. The port is not only the pride of Chittagong but it is pride for the country as well, he added.

The minister also announces incentive bonus amounting Tk. 35,000 for officials and workers of Chittagong Port for successful handling of 2 million TEUs container during 2015.

CPA to procure equipments of Tk. 1120 Crore

Steps taken to procure equipment for the country's main sea port, Chittagong. Chittagong Port Authority will purchase the equipments from its own fund. 51 types of equipment costing about Tk. 1120 crore will be purchased. The procurement, will be implemented in three phases, aims for fulfilling the acute shortages of container handling and moving equipments.

According to CPA plan, in first phase, six quay gantry cranes, 11 rubber tyred gantry cranes, four straddle carriers, four reach stackers, five container movers, and a mobile harbour crane will be purchased. In second phase, another four quay gantry cranes, six rubber tyred gantry cranes,

and four straddle carriers and in third phase, three more rubber tyred gantry cranes will be added.

Nepal to get Transshipment

After accomplishing an agreement with India, now Nepal is signing similar contract with Bangladesh. As a result, Bangladesh is going to allow Nepal to use all of its land ports alongside with Chittagong and Mongla port. In June, a senior delegation from Nepal held a meeting with the shipping ministry at secretariat in Dhaka.

Shipping secretary Ashoke Madhob Roy told reporters after the meeting, the Nepalese delegation has already visited Chittagong Port. A committee, comprising of specialists from rail, road and ministry of shipping will be formed. Submission of their report will follow a Memorandum of Understanding (MoU) on transshipment with Nepal. Dredging, establishing rail tracks, improvement of road connections and fees will be fixed after that, the secretary added.

IMO declares weight verifying certification mandatory

From July 2016, certification for laden export containers is mandatory before it is loaded onto a vessel. The International Maritime Organization (IMO) has taken the decision for ship safety at sea.

The department of shipping has already published a guideline to

avoid complications on weight verifier. 17 non-government ICDs are taking necessary preparations of obtaining certification.

The IMO has made to follow SOLAS convention mandatory in 2014, due to excess weight cargo on board of ship causing marine accidents. Bangladesh have signed the convention following the rest of the world.

Equipment to bring through waterways for Ruppur Project

River dredging project has been taken to bring Ruppur Nuclear Power Plant Project equipment through waterways. This will cover total of 875 kilometers distance to Ruppur by using two naval channels, Chittagong and Mongla. The surmised cost of this project is Tk. 680 crore. Some essential recommendations were also made to ensure a smooth transportation facility.

BIWTA has formed a committee owing to estimate the navigation and to promote these two channels up to first class water ways. The committee already has submitted a empirical report after having visited the ways.

Bangladesh to port directly Thailand -Myanmar-Maldives-Sri Lanka

Bangladesh to launch coastal shipping with Thailand, Myanmar and Sri Lanka after similar services established with India. Agreements expected to be signed within this year. A high profile 13 member Thai delegation has already visited Dhaka and discussed bilateral issues with the Ministry of Shipping.

Once the direct coastal shipping established, shipping time will cut short from one month to 5/6 days. Costs will also be reduced by one third, from earlier 2400 US Dollar to 800 dollar. The services will boost bilateral trade and investment between the countries.

Bangladesh's Shipping Secretary Ashoke Madhob Roy said, establishing direct coastal shipping with Myanmar, Thailand, Maldives and Sri Lanka are in process. Contracts with Myanmar and Thailand will be finalised soon. Discussion with

Maldives and Sri Lanka are in primary stage. Nepal and Bhutan are also interested to use our ports, the secretary added.

Chittagong Port in greenport list

Stern security measures, reduction of burglary and thefts with quick responses to the incidents, placed Chittagong Port into greenport list.

Over the recent time, there are almost no major occurrence of theft, burglary, piracy or vandalism in the port or outer anchorage, apart from a few little incidents.

Only decades ago, Chittagong Port was considered as one of the troubled port in this region with an alert of high risk. But, now the criminal activities has gone down dramatically, due to the various measures taken jointly by the Coast Guard and CPA. Vessels from renowned companies who were shy to operate in the yesteryears, expanded their operation manifold since Chittagong Port obtained its certification as greenport. Some three thousand ships were berthed in Chittagong Port last year, and the number will rise likely in future.

Bangladesh-China direct shipping boosts sea trade

New shipping route has been added between China and Bangladesh to accommodate direct shipping and resulting in boosting trade. Although direct shipping was introduced for some years, the vessels were unloading containers in the ports of Singapore and Malaysia. It was adding time and cost to the traders. Now the ships are coming via same routes but not offloading cargoes. Hence the time has been reduced to 10-11 days instead of 22-25 days and the cost came down to 200 USD instead of 30 USD. At present three vessels per week conducting direct shipment between Chittagong and Nansha port.

India-China and others neighbours interested in Payra Sea Port

Operation of the country's third sea port Payra has been inaugurated in August this year. For its many facilities Payra

attracts many countries like India, China, Myanmar, Bhutan, Sri Lanka and others in Asia and South East Asia.

The first phase of Payra Port has been completed and operations has begun. The government is set to build an airport, a mega stadium, rail link to connect the Padma bridge. The area would be industrially developed through the establishment of Exclusive Economic Zone, power station, modern townships and other projects. Besides, Payra will be a nerve centre of the proposed Bangladesh-China-India-Myanmar economic corridor, BCIM.

The Payra port is expected to be full operational in 2018. Construction work of the port is progressing at a fast pace. Various projects intended for overall development of the area have been launched. Some already have completed, rests are going on.

Meanwhile, the Payra Port Authority has signed a memorandum of understanding with Belgian company Jan De Nul for capital dredging and ongoing maintenance dredging to develop the Ramnabad channel.

CPA chairman to journo: emphasis on jetty-expansion and connections

"To keep pace with the economic growth of Bangladesh, the capability of Chittagong Port needs to be upgraded. The port will play a vital role to increase the regional connectivity. Supports should be extended to the regional EPZ's as well as the RMG sector. For this reason, I want improvement of Chittagong Port connectivity and jetty-expansions."

CPA chairman, Rear Admiral M Khaled Iqbal said this while exchanging views with the journalists at 129th Port Day, Chittagong.

The chairman said, CPA, as per the government's directives, is following a 30-year strategic master plan including completion of the 1st phase of Karnaphuli Container Terminal by 2017, setting up first phase of Bay Terminal and start its



CPA Chairman exchanging views with the journalists

operation by 2023 and second phase by 2028.

Besides, in a separate discussion with media in August this year, the Chairman expressed that there will be no compromise with port security. More watch tower and CC cameras will be installed to strengthen the port security. Shortly CPA will resume capital dressing and another river survey to ensure the vessels a convenient waterway for the next 25-30 years.

He also informed that the construction of New Mooring Overflow Container Yard has finished, Gupta Container Yard is underway to reduce container congestion while ship congestion in the channel has been eradicated. Chairman told that CPA is buying container handling equipment of around Tk. 1120 crore soon and the primary feasibility study has been completed for a new minor port at a location between Mirsharai and Sitakunda to facilitate Feni, Mirsharai, Anwara economic zones.

The Chairman said around 30000 crore Tk. will be required over the next five years through foreign investment and public-private partnership (PPP) to implement aforesaid development projects.

Chittagong Port - fastest growing Asian port outside China, ranked 76th

Chittagong Port achieved a new feat by galloping 11 places ahead and becoming 76th among the top 100 container

ports in the world according to Lloyd's List 2016.

An expert team of Lloyd's Register ranks the world ports based on their annual performance. The major considerations are TEU throughput, the percentage change, country contributions and previous port ranking.

In the Lloyd's report, Chittagong Port has been considered as the 3rd biggest winner, for their performance to the previous year. The report mentioned:

"The title of the fastest growing Asian port outside China, however, belongs to Chittagong in Bangladesh, boasting box growth of 24.8% to 2mTEU in 2015. Responsible for handling more than 90% of the nation's containerized trade, Chittagong has been the scene of rapid expansion, with no fewer than five new berths added over the past 12 months." (Containerstation International, Top 100 Container Ports 2016, Page 4)

It is to mention that Chittagong port was 87th in 2015, 86th in 2014, 90th in 2013 and 98th 2008-9.

In 2015, Chittagong saw a significant 24.8% rise in container volumes over 2014, to 2m teu, despite the recent slowdown in global trade. Chittagong Port Authority said the reason for the higher throughput included the substantial expansion of the port, with the New Mooring Container Terminal having five new berths operational since October 2015.

Tale of a River

Shagufta Sharmeen Tania



Flowing freely through the cities and nature, with its curves and bends- the scenic river Karnaphuli

Photo credit: Sheikh Faruki

Let me tell you the tale of a turbulent river. It started its journey in the Lushai mountains in Mizoram, like a fickle-minded young woman it meandered its way to Bangladesh and took the name Karnaphuli.

'What's in a name?'

William Shakespeare

Rivers have wonderful names that contain their myths, their saga. The river Karnaphuli bears a story of its own as well. 'Karnaphuli' in Bengali means 'concerning earrings'. It is said that the princess of Arakan was on a boat trip down the river. She stooped down to see the strong current of the river water and somehow her favourite earrings fell in the stream. Immediately she jumped in the water in the hope of rescuing her favourite jewels, but in vain. Her lover followed her to her destiny at the same time too. This tragic tale of lost earrings is entwined with the name of the river. Numerous folk songs and local rhymes ask the river Karnaphuli about the end of her journey since her days in Lushai mountains. Obviously, like any other rivers she ends it in the sea- in the bay of Bengal.

'I have known rivers ancient as the world'

L Hughes

The alluvial delta that we call Bangladesh was made from the silt deposits of the Ganges, the Brahmaputra and the Meghna. The mountainous areas in Chittagong Hill tracts are topographically the only wide-ranging hilly area in Bangladesh. These hill tracts are

The array of rivers in the Chittagong hill tracts are different from the rest of the Ganga-Brahmaputra Delta. About 700 rivers criss-cross Bangladesh, most of them originating in mountains of India and Myanmar

about 2.5-3 million years old. Most possibly the river Karnaphuli dates back to that time as well. The array of rivers in the Chittagong hill tracts are different from the rest of the Ganga-Brahmaputra Delta. About 700 rivers criss-cross Bangladesh, most of them originating in mountains of India and Myanmar. These rivers are a wonderful source of freshwater and freshwater fish. They remain the main mode of transport in Bangladesh. Karnaphuli is in no way any exception.

'And this is the tale that River told'

R Kipling

Chittagong comprises of Chittagong, Cox's Bazaar, Bandarban, Rangamati and Khagrachari. The longest flowing river in Chittagong is the Karnaphuli, about 275 km long. The tributaries originated in the wildest Mizoram with Karnaphuli are the Kasalang, Maini, Rangkhilyang and Chengi rivers. Starting its journey from the dark and deep wilderness of Mizoram, the Karnaphuli enters Chittagong hill tracts at Thegamukh as a river formerly called as 'Thega'/'Korpuilai'/'Khawthlangtuipui' river in Mizo language, and takes the name 'Karnaphuli'. Meandering through the jungles and localities of the hill tracts on its way for 185 km, it flows into the Bay of Bengal. The average width of the Karnaphuli is about 667 metres (2118 feet) and the average depth near its estuary is about 8 metres. The river turned quite wide near its estuary, about 30 km away from Kalurghat. Every second the mighty

river brings forth 260 cubic metres of water into the sea. Located near the estuary, stands the largest sea port of Bangladesh, 'Port of Chittagong'.

The main tributaries of the river are Kasalang, Chengi and Halda on the north; Subalang, Kaptai, Rangkhilyang and Thega on the south. The canals devised from the river are Sailak, Ichakhali and Boalkhali. The canals that contribute to the flow of the river are- Halda, Kalurghat canal, Ichhamoti, Boalia, Rakhalia, Rajakhali, Chaktai, Shikalbaha, Maheshkhal etc. One other tributary near Rangamati divided itself into Dhuliacharee and Kaptai. The river has two rapids in Borokol and Uthantara. Before the creation of Kaptai lake, the waterfall in Borokol was quite popular. After passing Kalurghat, the river took quite a few bends along its course. While changing its course over a hundred years, the Karnaphuli deposited silt on her fertile banks of Charbakliya, Chandgaon and Charchaktai.

The idea of Kaptai Dam being situated on the upstream of Karnaphuli river to produce hydro-electricity was first conceived in 1906; the research works started in 1923 and finally in 1951 the construction work of the embankment dam on Karnaphuli near Rangamati started. By 1962 the initial phase of work was done and the largest manmade lake in Bangladesh was created as a result of building the dam. The area of this freshwater lake is 256 square miles which increases

in monsoon. The beauty of the mountains alongside the lake and the vast greenery made it into a popular tourist spot.

In Ranguniya, about 25-30 km away from Chittagong on the river mouth of Halda (a tributary of Karnaphuli), there is a water purifying plant that provides water for the city of Chittagong. The river water is the source of freshwater for the city.

The riverbed of the Karnaphuli provides sand of exceptional quality which can only be found there. Sand is collected in Shilok of Rangunia, Kalurghat and Karnaphuli estuary.

'To reach a port, we must sail'

F. D. Roosevelt

The spice-merchants have paid their regular visits in the areas around here for thousands of years. Two and half thousand years ago King Buddha Gupta launched his fleet of ships towards Malay from here. The geometry of bends of the Karnaphuli near the estuary makes it a natural refuge for the sea-voyaging ships. The port took different names throughout time, sometimes Samunda, sometimes Seetagang or Porto Grande and a locality called Chittagong encompassed the port and grew into a heterogeneous city.

Assam Bengal Railway made the city of Chittagong one of its main hubs and constructed jetties. Along with rice and jute, Assamese tea started to be exported. New factories were erected along the banks of the river, economic activities were generated, social infrastructures were established and the city flourished. Several bridges were built over the vast river, and tunnels are currently being built. The first of these bridges was the Kalurghat Bridge which was first conceived when a need to send British-Indian soldiers to Burma front was raised. The construction of the railway bridge was commissioned to Bronick and Company Bridgebuilders, Howrah. Decks were

introduced to the bridge for motor vehicle transports during WW2. It was the only bridge that connected the south of the river with the north for 27 years. There are three more bridges over the Karnaphuli at present. As the river originated in the mountainous region, it brings down a vast amount of silt to its estuary and makes it extremely difficult to build bridges. The government has taken measures to build a multi-lane tunnel underneath the river Karnaphuli.

There was a time when piracy and slavery were common phenomenon in the Karnaphuli. Arakans and Portuguese together played havoc in the history of the river. After ascending the throne in 1666, Nabab Shayesta Khan drove them off from Chittagong. Then came the British. There wasn't a lighthouse to navigate the ships into the refuge of the port. Big infrastructural changes were conceived during the days of the British. 1888 marked a new beginning for Chittagong port. The port laws were established. Steam ships started to sail on the sea. Jetties were made. The river bed was dredged to keep it navigable.

After 1947, there was a manifold increase in the importance of the port as it was the gateway to the province. The port was the witness of the bloodbath of 1971 and the birth of Bangladesh. These days about 92% of our international trades are done through the port. It is one of the 100 busiest ports in the world which has handled 2 million containers and is thriving. To keep the port navigable, dredging is needed throughout the year.

'I am rooted but I flow...'

V. Woolf

The river Karnaphuli has been cited in many a writers' work, in local ballads, songs and in folklores. The songs invariably pay a tribute to the sampans that once floated on the rapid current of Karnaphuli. This

particular type of boats are generally not seen in any other rivers of Bangladesh. These days the sampans have given way to engine-driven boats, rubber dinghies, speedboats and trawlers and the amazing dexterity of the sampan-men has been replaced with the more automated skillsets of modernity.

There was a time when the freshwater of the Karnaphuli River teemed with 59 types of mixed-water fish, freshwater fish and 15 types of migratory fish. Among these species, about 20 of the freshwater fish and 10 of the mixed-water fish are endangered. Due to excessive water pollution from around 1000 factories and sewerage wastes from the whole city, some species of fish have been extinct or critically endangered in the Karnaphuli, namely- Bassa, Vetki, Powa, Mahashoal, Tele Gulsha, Shada Goniya etc. Every year the paper mill and rayon mills are expelling 3000 thousand kg of mercury into the river. The tanneries are throwing out 1.5 million litres of unrefined waste into the river; the same applies in the case of the fertilizer factories, oil refineries, power plants, cement factories, dying and washing factories etc. Once the river dies due to pollution, both the people and the plants depending on that freshwater supply will succumb also. There should be some sort of measures taken against this appalling rate of pollution and callous disregard for natural resources. Every factory should have a working ETP (effluent treatment plant). The sewerage disposal of half a crore people of Chittagong should be well-planned. A group of Green River Cops should patrol the river to monitor waste-management and take action against pollution. In response to a petition in 2010 to save the Karnaphuli, the High Court has ordered the removal of 2,181 illegal plants on the riverbanks of Karnaphuli.

The river Karnaphuli is deeply linked with our export- import- economy and infrastructures. Ours is a riverine culture, a river-based civilization. We should learn to understand the woeful tales of the river Karnaphuli and restore its glory.

There was a time when the freshwater of the Karnaphuli River teemed with 59 types of mixed-water fish, freshwater fish and 15 types of migratory fish. Among these species, about 20 of the freshwater fish and 10 of the mixed-water fish are endangered.

Shagufta Sharmeen Tania is the author of two novels and two short-story collections. She translated Susan Fletcher's *Whitbread Award-winning novel, Eve Green*, into Bengali and one of her short stories was featured in *Wasafiri Issue 84, Autumn 2015*. Most of her work focuses on the Asian diaspora. Currently she is working on a historical novel set during the failed Bengal Partition of 1905.

Chittagong Port- The story of pride and prosperity of the River Karnaphuli



Importance of Technology in Port Operation

Commodore Zulfikur Aziz

A seaport is defined as a terminal and an area within which ships are loaded and/or unloaded with cargo and includes the usual places where ships wait for their turn or are ordered or obliged to wait for their turn or are ordered to wait for their turn no matter the distance from that area.

Global trade is growing faster than economy. The higher the throughput of goods, more infrastructure, provisions and associated services are required. Ports are vital factor for the support of economic activities. Till now, seaway transportation is the cheapest and most effective transportation system compared to other systems. In a growing economy like Bangladesh, the demand of service is ever increasing for its sea ports. Bangladesh is connected to the maritime world mostly through Chittagong Port being the prime gateway, handling around 90% sea borne trade of our motherland.

Chittagong Port as interface started her activities in days back to 4th century BC as harbor then shifted to jetty and gradually transformed in today's cargo, container and dedicated jetties. This transformation of Chittagong Port was essential to accommodate increasing traffic of cargo and economic changes of the region, country and the globe.

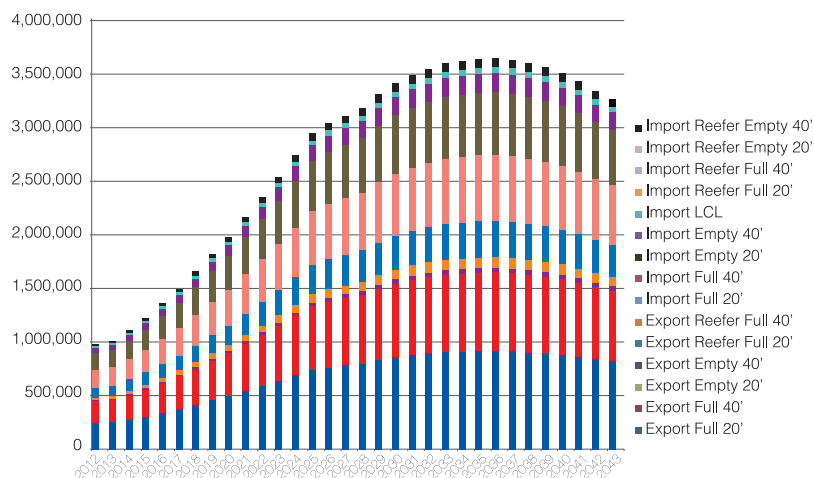
The national GDP growth is Bangladesh was more than seven percent in the previous year. Both GDP and power consumptions are increased and so is the trade. All these increases has an obvious impact on Chittagong Port and this is not a disparate story only for us. Growth in TEUs is around 7.3% at the same time. It is also forecasted that the world container trade volume will be doubled by 2020 to 243 Million TEUs.

(Source: Global Insight World Service and World Trade Service)

Recent study of Hamburg Port Consultancy GmbH on Chittagong Port has forecasted that by 2019 Chittagong Port will have a container handling demand of 2.646 Million TEUs.

Chittagong Port started her journey in the early days with manual process and eventually introduced mechanical means like jetty and ships' cranes, derricks etc. Now we are working to upgrade the facilities into more contemporary technologies to

Now we are working to upgrade the facilities into more contemporary technologies to manage the future demands.



Forecast on global containerized cargo growth

Source: HPC 2013

manage the future demands. Beside that initiatives like CTMS (Container Terminal Management System) and VTMS (Vessel Traffic Management Information System) already took pace in Chittagong Port.

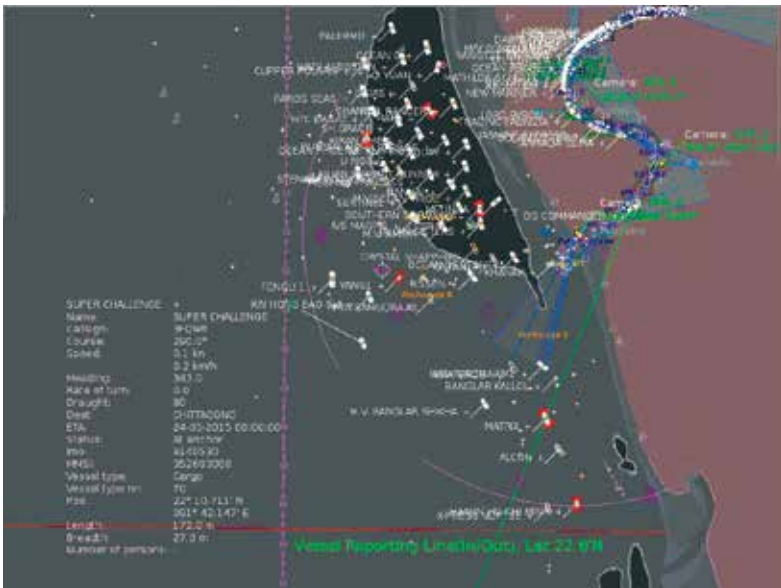
CTMS: Container Terminal Management System is a modern container operations control system. It is planned to discharge and control every aspect of the movement of containers on the terminal and between the vessel and the gate. It tracks containers in near-real time and audits all port services applied to the container and vessels. It automatically generates billing, invoices for all services rendered to the port users. It archives and organizes all information collected by the system and integrated into a Management Information System (MIS). The Terminal /Berth Operators obtains accurate tracking information, prepare daily operation plans for vessel's, yards and rails in advance to execute the operations smoothly. Electronic Data Interchange eliminated unplanned operation of container terminal and manual interpretation in documentation. It reduced manifold steps in documentation and became an anticorruption tool too. It reduced vessels turnaround time and also optimized utilization of expensive container yards and equipment. Port users are accessing relevant information

through CPA web portal. Thus CPA has enabled conducting operations according to international best practice standards. Implementing CTMS significantly improved terminal efficiency and productivity of CPA. It is completely in compliance with the view of e-Governance initiative of Bangladesh Government.

VTMS: A vessel traffic service is a marine traffic monitoring system. Typical vessel traffic systems use radar, closed-circuit television (CCTV), VHF radiotelephony and automatic identification system to vessel movements, provide navigational safety in a limited geographical area. Vessel Traffic Management Information System (VTMIS) is an extension of VTS, in the form of an Integrated Maritime Surveillance. It incorporates other telematics resources to allow allied services and agencies in the direct sharing of VTS data or access to certain subsystems in order to increase the effectiveness of port or maritime operations which do not relate to the purpose of the VTS itself. The MIS is capable of intelligent processing capabilities of information passed on by the VTS.

VTMIS in CPA HQ.





A detailed screenshot of CPA VTMS interface

VTMS features include:

Port management systems. Systems dedicated to port security. Support systems and management of pilotage. Load management systems and overall property. Docking Planning. Systems for collecting port taxes. Quarantine control. Customs control. Support for Coast Guard operations such as repression of illicit acts on ships, smuggling, drug trafficking, etc.

Chittagong Port Authority currently uses VTMS for following general purposes:

- Vessel Surveillance.
- Vessel Movement Monitoring.
- Assistance to Pilotage, particularly in rough weather.
- Assistance to Vessel Security.
- Assistance to Accident Investigation.
- Preserve Ships Information Data base etc.
- Optimizing and Securing cargo handling and operations.

The advancement of information technology provides a wide range of options for the container terminal operator to automate its information system. Electronic devices employed in container terminals reduced the manual efforts and paper flow, facilitated timely information flow, enhanced control and quality of service. Computer simulation has become a standard approach for evaluating design of complex cargo handling facilities.

The notion of the “seaport of the future” is rapidly drawing attention. Increased use of network-centric innovations to improve:

- Security of cargo as well as passengers
- Decision-making and responsiveness
- Compliance and communication with government organizations and other ports
- Flexibility and resource utilization

A converged communications infrastructure is an important enabler of integrated security and operational efficiency.

We need to make different services for smart port operation in a friendly and interactive manner and we recognize that the input from the stakeholders are very important for this process.

With the advent of technology, multi-dimensional and complex port operation has become simple and pictorial. From a computer monitor or a smart phone or mobile device, port operation is more within control. We at CPA are keen to achieve these benchmarks in near future by providing multi-vendor information exchange, more automation for status and information update, interactive participation of other stakeholders, more sophistication in the security and surveillance, interactive and virtual environment for advanced training.

Commodore Zulfikar Aziz
(E), psc, BN Member (Engineering),
Chittagong Port Authority, Bangladesh



A Senior Chinese delegate met CPA Chairman Rear Admiral Khalid Iqbal in CPA HQ on 29th June



Secretary on Nepal's PM Office Mr. Chandra Ghimir visited VTMS facilities of Chittagong Port on 20th June



Ambassadors of Netherlands and Denmark had a meeting with CPA Chairman on the 20th May



The senior members of Reliance Group from India joined CPA Chairman in a courtesy meeting on 6th May



Certificate award ceremony in CPATI for the Port Investigative Training Course arranged by the US Embassy



CPA member Admin Mr. Zafar Alam delivering a presentation to CPA in the visiting members of UK Royal Defense Team



The Bay of Bengal- the everlasting source of survival for almost 30 million inhabitants of Bangladesh

The Prospects and Challenges on the Sustainable Development of Blue Economy in Bangladesh

Professor Dr. Md. M. Maruf Hossain

GUNTER Pauli (2010) designed the blue economy concept. The blue economy is envisaged as the integration of ocean economy development with the principles of social inclusion, environmental sustainability and innovative, dynamic business models.

More simply, at the United Nations Conference on Sustainable Development (UNCSD) held in Rio de Janeiro in 2012, blue economy was viewed as ocean economy that aims at the “improvement of human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. Whereas, the European Commission (2012) has defined the concept of blue economy as “all economic activities related to the oceans, seas and coasts”.

Blue Economy & Sustainable Development:

Blue economy and sustainable development are inter-related. A widely-used and accepted international definition of sustainable development is: 'Development which meets the needs of the present without compromising the ability of future generations to meet their own needs' - 'Globally we are not even meeting the needs of the present let alone considering the needs of future generations.'

(<http://www.sustainable-development.gov.uk/what/principles.htm>)

Coastal and Island developing countries have remained at the forefront of this Blue Economy advocacy, recognizing that the oceans have a major role to play in humanity's future.

Bangladesh's economy is sea borne to a good extent and with \$130 billion GDP the country's economy stands the 44th. Estimates suggest some 30 million Bangladeshi directly depend on oceanic economic activities like fisheries and commercial transportation.

In Bangladesh, discussions on blue economy started after the settlement of maritime boundary delimitation dispute with Myanmar (2012) and India (2014).

The Blue Economy—Opportunities for Bangladesh:

Opportunities for the development of blue economy in Bangladesh mostly depends on sustainable and wise uses, including short and long term planning/strategy in the sectors, such as i. Shipping and port facilities, ii. Seaborne trade, iii. Fisheries, iv. Coastal tourism, v. Aquaculture, vi. Renewable blue energy, vii. Biotechnology, viii. Submarine mining etc.

Sustainable Marine Fishery Ecosystem & Blue Economy:

Marine fisheries contribute at least 20% of total fish production in Bangladesh and 500,000 people are directly dependent on the sector. According to the Bay of Bengal Large Maritime Ecosystem project (BoBLME, 2009-2015), about 60 lac tons of (16% of world production) are produced annually from the Bay of Bengal.

The eight BOB LME countries have 1.78 billion people in total which is 25% of the world's population. It is rich in natural mineral and energy

resources; marine living resources and forest and land resources. They yield more than 7% of global marine catch (6 m ton/year). It has extensive tracts of mangroves (12% of the world), coral reefs (8% of the world) and sea grass beds. An area of high biodiversity, with a large number of endangered and vulnerable species. Its natural resources are of considerable social and economic importance to the countries that border the Bay of Bengal.

There are over 400,000 fishing boats operating in the Bay of Bengal and over 4.5 million people are employed in fisheries and associated activities. But rapid population growth, high dependence on aquatic resources for food, trade and livelihoods, change in land use patterns are having major impacts on the marine ecosystem.

Global Ocean Observing System (GOOS) and LME assessments show significant warming trends from which model projections 2040-2060 forecast a steady decline in ocean productivity.

The implementation of integrated, ecosystem-based approaches, removal of fishery subsidies that drive over-exploitation offer the prospect of restoring key stocks and increasing catches, thereby securing livelihoods and enhancing food security.

Chittagong Port, its potentiality and constraints on sustainable development of our blue economy:

Shipping and Port Facilities-

To develop blue economy in Bangladesh, the three ports- Chittagong, Mongla and Pyra have to be developed as transit points.

Chittagong port alone handles more than 90% of import and export. Situated on the Karnaphuli river, close to the Bay of Bengal, Chittagong port is described as the lifeline of the Bangladeshi economy.

Experts opinion is that, Chittagong port, can become a regional economic hub, if the facilities being modernized/ upgraded to the requirements for an standard international sea port.

Also the port requires a separate division on EMP (Environmental Management Plan) and Environmental Monitoring & Impacts (EIA) assessment team with trained an skilled human resources equipped with modern facilities to deal /detect pollution, reception and treatment of ballast water from incoming vessels etc. It should have Oil Spillage Contingency Plan (OSCP) to combat accidental oil spillage in port, TS & EEZ.

Possibility of offshore gas & oil field in BoB, Bangladesh:

As per tribunal's verdict Bangladesh won back 8 gas-blocks from India and 13 gas-blocks from Myanmar in the Bay of Bengal. According to the Report of USGS5, around 40 Trillion Cubic Foot (TCF) gas may be found in the blocks mentioned above (*Daily Bangladesh- Pratidin, 2014*). So this can be a major breakthrough to enrich our economic growth in near future.

Risk Factors and Challenges ahead for sustainable growth of blue economy in Bangladesh:

Sustainable blue economy and blue growth for sustainable development are not possible without ensuring



Enormous source of raw materials for the pharmaceutical industry

maritime security, protecting and preserving marine environment, conserving marine living and non-living resources and preventing marine pollution, piracy, trafficking of drugs, humans and arms, and narco-terrorism have become common in the high seas and EEZ areas of Bangladesh.

The key challenges are:

- i. Ensuring sovereignty over coastal area.
- ii. Maintaining security over the EEZ.
- iii. Establishing marine eco-friendly infrastructure for marine tourists.
- iv. Protecting against the international criminals within EEZ.
- v. Maintaining investment friendly environment.
- vi. Sustainable use of biodiversity.
- vii. Maintaining eco-balance marine/coastal ecosystems.
- viii. Preserving mangrove and sea grass.
- ix. Addressing climate changes and managing carbon emission.
- x. Managing sea level rise, rising temperature affecting coral bleaching.
- xi. Addressing ocean acidification and blue carbon.
- xii. Pollution and marine debris cleaning.
- xiii. The fast growing population, intensification of agriculture.

Need Integrated Maritime Policy:

What is most important for Bangladesh now is to enact an integrated maritime policy focusing on capacity development and trained manpower on maritime security; maritime pollution; preservation and protection of marine living and non-living resources; oceanographic and marine sciences research and transfer of technology; protecting marine environment; global climate change, etc.

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Chittagong University, Bangladesh
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Links:

1. <http://www.sustainable-development.gov.uk/what/principles>
2. Para 56, the future we want, UNCSD 2012
3. Daily Bangladesh Protidin, 2014

Experts opinion is that, Chittagong port, can become a regional economic hub, if the facilities being modernized/ upgraded to the requirements for an standard international sea port.

A potential source of 40 trillion cubic feet of natural gas- our Bay of Bengal





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