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MARITIME CAMPUS

A QUARTERLY MAGAZINE OF
BANGABANDHU SHEIKH MUJIBUR RAHMAN
MARITIME UNIVERSITY, BANGLADESH

**Bangabandhu's timeless vision
on education and our reality**

**Climate change and its impacts
on the Blue Economy of Bangladesh**



Blue Carbon sequestration

**Efficient dry port for logistics performance
and liner shipping connectivity**

Does secret of longevity lie on the ocean floor?

INFOGRAPHICS

One Fish, Two Fish Red Fish, Blue Fish

TO
FISH

MORE THAN 70% OF THE
WORLD'S FISH STOCKS
ARE OVERFISHED,
DEPLETED, OR EXTINCT

Fortunately,

OVERFISHING

WE ARE TAKING FISH FROM THE OCEAN
FASTER THAN THEY CAN REPRODUCE

Fish at the top of the food chain are called apex predators, like tuna, and require more energy. So, they eat a huge amount of fish, mostly predators such as mackerel. Mackerel feeds on primary consumers such as anchovies, which again preys on producers like plankton.

A misconception of overfishing is that it's determined in raw tons of fish, when actually different species have different impacts: A pound of tuna is roughly 100x the footprint of a pound of sardines.

Mahi-Mahi
(Dorado, Dolphinfish)
Fast-growing, matures quickly



Catfish
Farmed, fast-growing, abundant



Halibut (Pacific, Alaskan)
Abundant, well regulated fishery



Atlantic Cod
Abundant, well regulated fishery



Striped Bass
Farmed, raised in inland areas have little environmental impact



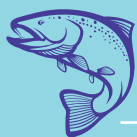
Salmon (Alaskan, Californian)
Many wild stocks sensibly managed



Atlantic Bluefish
Fast-growing, abundant



Tuna
Yellowfin (ahi)-Abundant, fairly well managed fisheries, "dolphin safe" labeling and monitoring reduces dolphin kills Pacific albacore (tombo tuna)-Well regulated fishery causes minimal bycatch



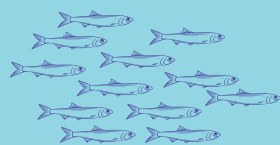
Trout
Farmed, raised in fresh water ponds with little environmental impact



Pacific Pollock (Surimi, Karb)
Not overfished



Mackerel
Fast-growing



Anchovy
Fast-growing abundant



Tilapia
Farmed, fast-growing



Herring & Sardine
Abundant in certain seas



Shrimp & Prawns
Atlantic Northern pink shrimp-Abundant, captured without environmental damage California Spotted prawns- Captured by trapping, no bycatch



Dungeness Crab
Well regulated fishery



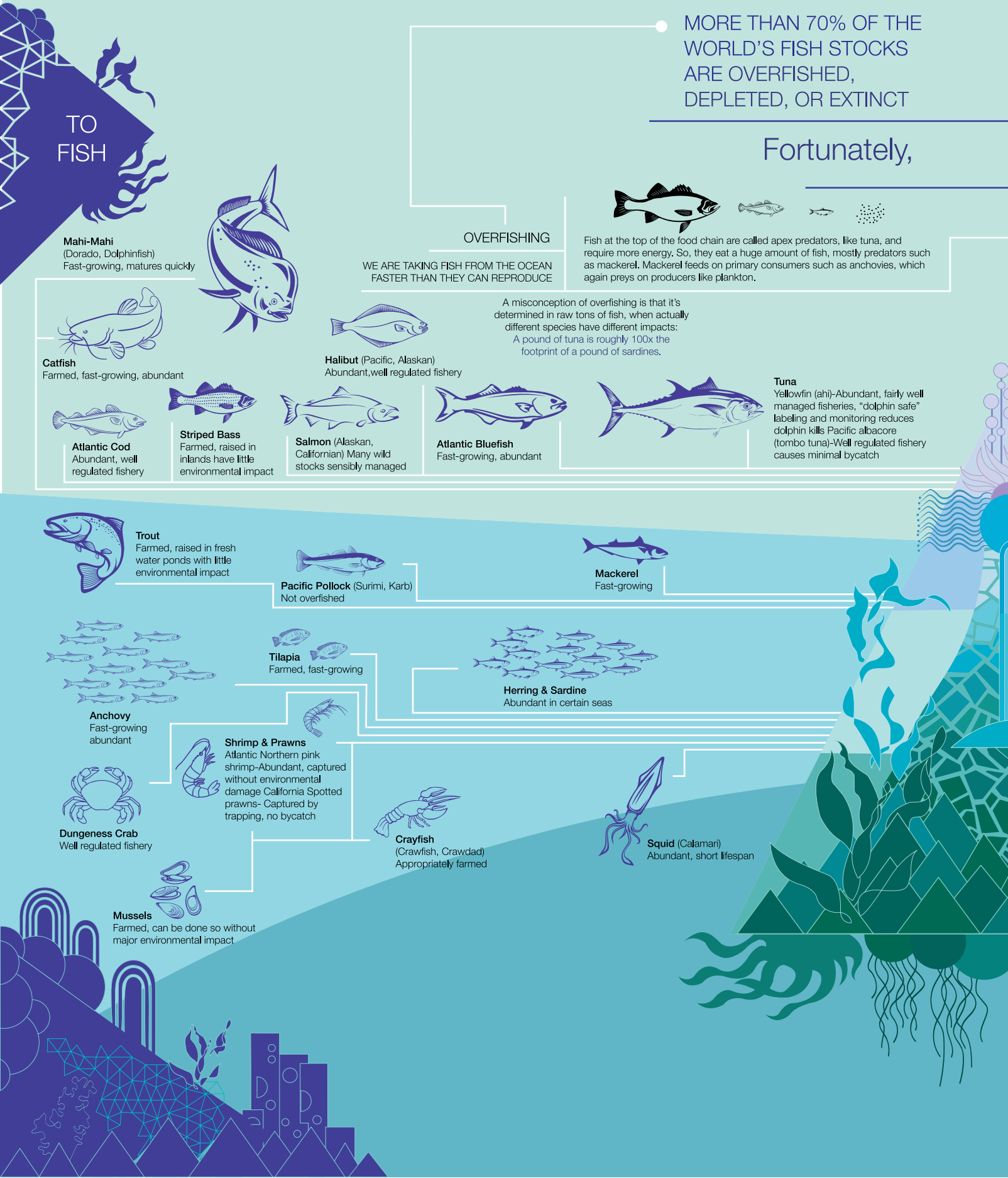
Crayfish
(Crawfish, Crawdad)
Appropriately farmed



Squid (Calamari)
Abundant, short lifespan



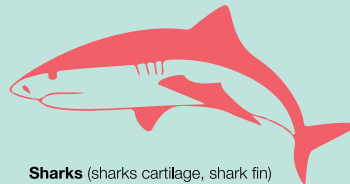
Mussels
Farmed, can be done so without major environmental impact



HUMAN'S LOVE FOR SEAFOOD IS RAPIDLY EMPTYING THE OCEANS

Advancing technology and destructive fishing methods have resulted in overfishing certain species, unregulated fishing, habitat damage, and bycatch.

there are many seafood practices and farms that are nicer to the environment



Sharks (sharks cartilage, shark fin)
Overfished, slow growing, produce few young



Atlantic Salmon
Wild stocks overfished, farmed escapees dilute gene pool, farms pollute oceans, wild fish used as feed for farmed fish



Grouper
Overfished, large adults (ones caught) mostly male



Lingcod
Overfished off West Coast, ok if from Alaska



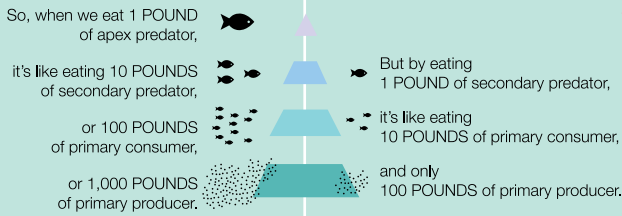
Orange Roughy (Slimehead)
Overfished, slow to mature



Swordfish (Atlantic, Pacific)
Overfished



Bluefin Tuna (Maguro)
Overfished



BY FISHING AND CONSUMING LOWER ON THE FOOD CHAIN, WE ARE EFFECTIVELY TAKING LESS OUT OF THE SEA.



Chilean Seabass (Patagonian toothfish)
Slow to mature, long line fishing leads to death of thousands of albatross as bycatch



Beluga Sturgeon (Beluga caviar)
Overfished, wild species endangered by habitat loss and overfishing



Monkfish
Overfished, slow growing



Rockfish (Pacific Red Shapper, Rock cod)
Overfished, slow growing



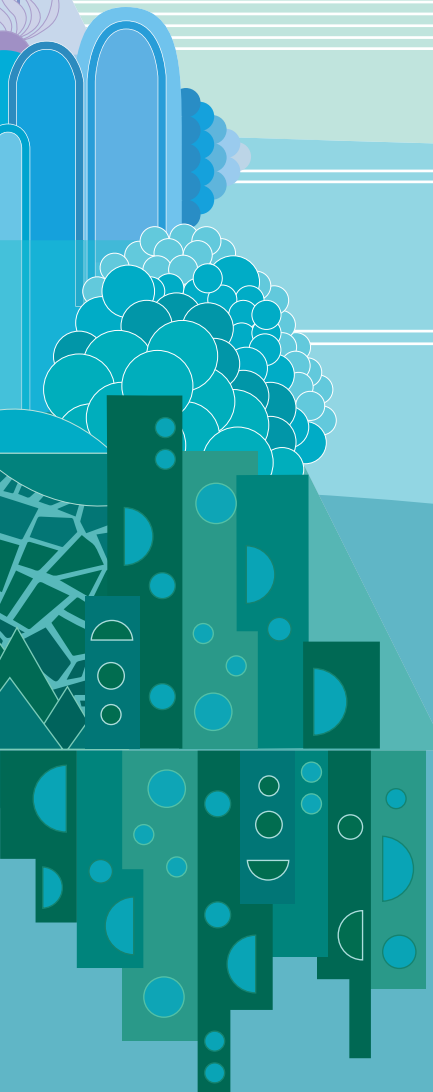
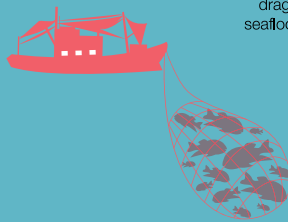
Shrimp & Prawns
Farms destroy mangrove forests, antibiotics and waste pollute environment, wild fish used as feed, wild stocks are trawled, damages seabed, massive bycatch



Oysters, Scallops & Clams
Dredging methods destroy habitats

TRAWLING

Bottom trawling and dredging involve dragging a net or metal basket across the seafloor, destroying coral reefs and resulting in massive bycatch (catching and killing unwanted species)



Maritime Campus

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Editorial

Climate change can give rise to detrimental effects on our Blue Economy

The impacts of climate change are multidimensional and the destructive scenario embeds all sectors. Climate changes in Bangladesh are causing frequent floods, droughts, coastal flooding, hurricanes and surges, intrusion of salinity, rise in sea level, loss of crops and crop fields, acidification of the oceans, loss of biodiversity and habitats, high temperature levels, abnormal warming, economic cost rises, etc in Bangladesh. In particular, the Blue Economy which is one of the most thriving and prosperous sectors in Bangladesh can suffer significantly because of the negative impacts caused by climate change. Our lead story of this issue discusses the matter and laid down some recommendations to overcome them.

Seafarers and cadets have to do many on-board tasks which are not tested by recruiting agencies. They need real-life language and communication skills and so developing overall language skills is very important. Learners can learn maritime English both in academic and non-academic environments. Under a University Grants Commission (UGC) grant, a BSMRMU faculty member has prepared three research articles focusing on maritime English language and communication problems as well as solutions related to the seafarers of Bangladesh. In our 'Academia' section, the author sheds some light about the inception and content of those articles.

Our oceans and coastal ecosystem reduce the impact of greenhouse gases naturally through the sequestration of atmospheric carbon. In the 'Horizon' section, an article engages the readers with blue carbon sequestration and the role being played by Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU) in this regard.

Logistics performance and liner shipping connectivity of a country are extremely important depending on the structural and operational performance of a dry port, which has been found by many academicians and researchers from maritime industry. An article is included in this issue on how a dry port enhances shipping connectivity and logistics performance.

The underlying mechanism of longevity still remains a mystery. Even if we follow the best dietician's strict diet plan and work out daily as advised by the gym instructor, there is no scientific proof that a human being can live longer than 150 years. On life expectancy and its relation to the ocean is briefly described in an article in 'Panorama' section.

Additionally, the 'Campus Canvas', 'Maritime Bangladesh' and 'Around the World' sections will inform you about all the important maritime events and developments that happened during the last quarter of 2020.

Finally, I would like to express my gratitude to the Chief Patron and Hon'ble Vice-Chancellor for his valuable guidance to bring this issue into light. I would also like to thank all the departments for the support they have rendered by providing information about the activities of their respective departments. In conclusion, I appreciate the members of the Editorial Board for their relentless efforts to publish this magazine within shortest possible time.

Thanking you

Captain A T G M Sarker, (TAS), psc, BN (ret'd)

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LEAD STORY

Climate change and its impacts on the Blue Economy of Bangladesh

Since Blue Economy is a macroeconomic approach, all actions and functions should be designed in such a way that the impacts of climate change can be minimized or adapted in a flexible manner. There is no alternative to the climate-resilient sustainable Blue Economy in order to achieve SDG-14 and other SDGs, as the Blue Economy has been declared Bangladesh's thrust and priority sector, as well as to achieve Bangladesh's sustainable development.

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HORIZON

Blue Carbon sequestration

Our atmosphere on the Earth functions very much like the greenhouse. The gases from the atmosphere trap some of the sun's heat energy to keep our planet habitable. So, we are all dependent on these greenhouse gasses. Among the primary greenhouse gases, one is carbon dioxide or CO².

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PERSPECTIVE

Efficient dry port for logistics performance and liner shipping connectivity

Seaports are the nodal points for international trade connecting land-based interfaces by ships. Cargo movement through seaports has largely been intensified by the invention and adoption of container in the ocean transport. However, the booming of containerised cargo transportation has tremendously affected the seaport size, yard and operation.

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Is it possible for shipping to stop the plastics tsunami in the ocean?

Know your containers

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ACADEMIA

Language requirements for communication at sea and a learning model of maritime English

Overall, by my research project, I have emphasised the needs of the maritime cadets and graduates to work in the maritime sector of our country. For instance, in my first article, I have focused on the English requirements for the students and the required level of English proficiency. In my second article, I have attempted to equally emphasise maritime English and general spoken skills. In my third article, I have presented many unfavourable situations that the seafarers encountered for having less proficiency in English.

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A deep sea port for maritime potentials in Bangladesh

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PANORAMA

Does secret of longevity lie on the ocean floor?

The quest for longevity is nothing new. There are so many stories on quest for longevity across the globe. One such epic is the Babylonian stories of Gilgamesh. Recently Scientists deciphered the mythical stories of Sumerian tablets which are almost 4000 years old. In one such Sumerian mythical stories, Gilgamesh (a ruler of ancient Sumerian civilization) was told by Utnapishtim (the man only who survived death and a messenger of God) that immortality of humans lay in a coral found on the ocean floor.

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AROUND THE WORLD

Notable news from the global maritime sphere

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FOCUS

Bangabandhu's timeless vision on education and our reality

About 50 years ago Bangabandhu could anticipate the importance of educating girl children and had put extra emphasis on that sector. In order to establish the education sector, he wanted to spend 4 per cent of the GDP on education. His vision was to make primary schooling compulsory and free for everyone.



Climate change and its impacts on the Blue Economy of Bangladesh

Maritime Campus desk

Climate change has been a significant international issue over the years. In particular, the changing patterns of climate change have become an alarming factor for the growth of different sectors of any country. LDCs (Least Developed Countries) and developing countries will struggle and suffer a great deal in the future because of the impacts of climate change. The impacts are multidimensional and the destructive scenario embeds all sectors. Climate changes in Bangladesh are causing frequent floods, droughts, coastal flooding, hurricanes and surges, intrusion of salinity, rise in sea level, loss of crops and crop fields, acidification of the oceans, loss of biodiversity and habitats, high temperature levels, abnormal warming, economic cost rises, etc in Bangladesh. In particular, the Blue Economy which is one of the most thriving and prosperous sectors in Bangladesh can suffer significantly because of the negative impacts caused by climate change.

Impacts of climate change on the Blue Economy in Bangladesh

There are many destructive effects of climate change on the Blue Economy. The ocean-related economy is losing a lot of its ocean resources due to evolving climate patterns. The global Blue Economy is in such a threatening situation that it is difficult to achieve a sustainable Blue Economy with the ever adverse effects of climate change. Like the other global blue economies, Bangladesh is encountering many severe impacts as listed below:

a) Ocean warming: The oceans absorb much of the excess heat from greenhouse gas emissions which results in increasing the temperatures of the oceans. Increased ocean temperatures impact sea creatures and their habitats. Rising temperatures cause coral bleaching and loss of breeding grounds of many marine fish and mammals. Warmer waters also affect the benefits that human beings derive from the ocean. Threatening food security, increasing the prevalence of diseases and causing more severe weather events and loss of coastal security are some adverse effects of ocean warming. Achieving the mitigation goals set by the Paris Agreement on Climate Change and limiting the global average temperature rise to well below 2°C above pre-industrial levels is critical in avoiding the major and irreversible effect of ocean warming on marine ecosystems and their services.

b) Surges and storms: Recently, the seas and oceans have been hit by large surges and storms. The surges are causing flooding, and the coastal areas are suffering a great deal because of the abnormal surges in the seas and oceans. Storms and cyclones are occurring more frequently as a result of extreme effects on climate change. The recent storms and cyclones such as Aila, Nargis and Bulbul have been related to the impacts climate change on the Blue Economy in Bangladesh.

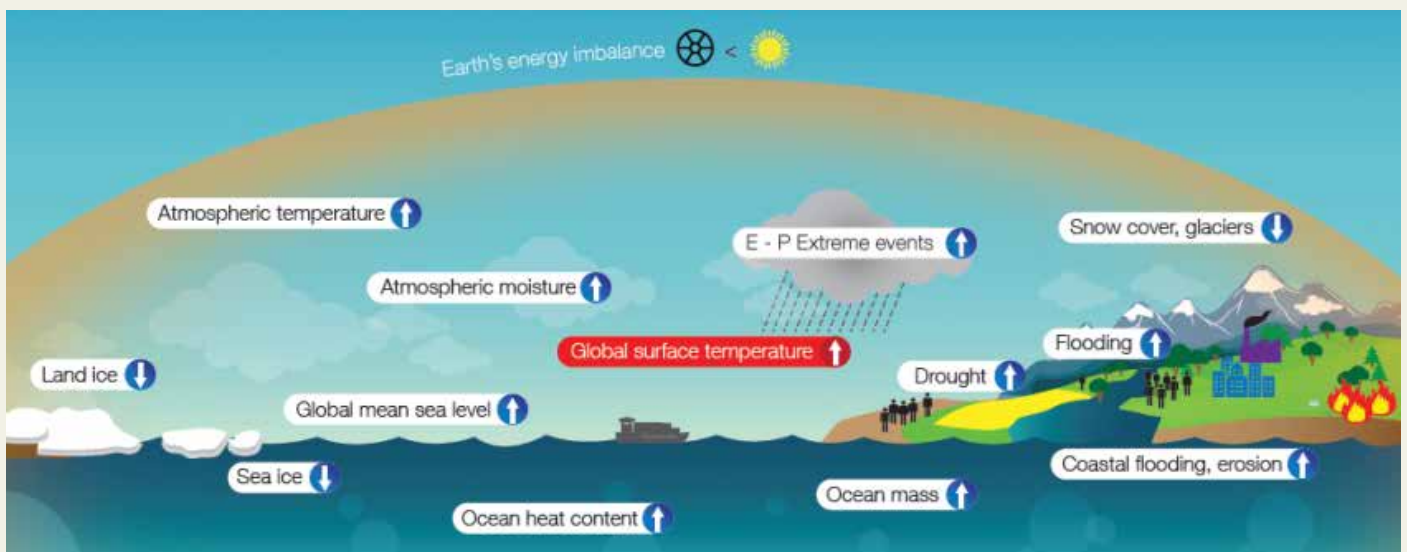
c) Sea level rise: The effects of rising sea levels include more severe and damaging floods and loss of coastal land. In coastal conditions, an increase of 50 cm sea-rise will usually result in a 50 m loss of land. According to the latest information from the Intergovernmental Panel on Climate Change (IPCC, October 2018), global sea levels will increase by at least 18 cm, but in the worst-case scenario by as much as 59 cm by the year 2100. As half of the world's population lives in coastal areas, floods due to storm surge already impact about 46 million people a year, mainly in

developing countries. But with the sea-level rise of 50cm, that number could double to 92 million. Indeed, based on the IPCC study, it is estimated that more than half of all populations living in developing countries will be highly vulnerable to flooding and storms by 2025. Bangladesh also has enormous risks facing situations of this kind, particularly if the sea level rise continues with the current amount; the coastal areas of Bangladesh will vanish.

Sea level rise in Bangladesh and its possible impacts

Year	2020	2050	2100
Sea level rise	10cm	25cm	1 m (high end estimate)
Land below SLR	2 % of land (2,500 km ²)	4 % of land (6,300 km ²)	17.5 % of land (25,000 km ²). Patuakhali, Khulna and Barishal regions will be most affected
Storm surge		1991 cyclone happens again with a 10% increase in intensity, wind speed increases from 225 to 248 km/h; storm surge goes from 7.1 to 8.6 m with 0.3 m SLR.	Storm surge goes from 7.4 to 9.1 m with 1 m SLR.
Flooding	20% increase in inundation.	Increase flooding in Meghna and Ganges floodplain. Monsoonal floods increase yield loss.	Both inundation area and flood intensity will increase tremendously.
Agriculture	Inundate 0.2 Mmt. of production; < 1% of current total.	0.3 m SLR inundate 0.5 Mmt. of production; 2% of current total.	Devastating flood may cause crop failure for any year.
Ecosystem	Inundates 15% of the Sundarbans	Inundates 40% of the Sundarbans.	The Sundarbans would be lost. Loss of the Sundarbans and other coastal wetlands would reduce breeding ground for many estuarine fish, which would reduce their population.
Salinity	Increase	Increase	Increase

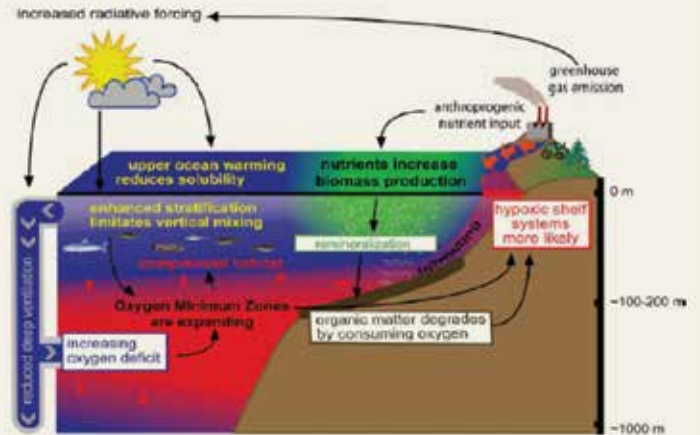
This image illustrates ocean warming and earth's energy imbalance



d) Ocean acidification: Ocean acidification is the on-going decrease in the earth's oceans' pH level caused by the atmospheric absorption of carbon dioxide (CO²). One third of the carbon dioxide emitted into the atmosphere by human activities dissolves into seas, rivers and lakes). Some of it reacts with water to form carbonic acid to reach chemical equilibrium. Some of the molecules of carbonic acid dissociate into a bicarbonate ion and a hydrogen ion, thereby increasing ocean acidity. According to an article published in Nature magazine, it is estimated that surface ocean pH decreased from approximately 8.25 to 8.14 between 1751 and 1996, reflecting a rise in hydrogen ion concentration in the world's oceans of almost 30%. Earth System Models estimate that ocean acidity in conjunction with other ocean biogeochemical changes surpassed historical analogues by 2008 and may undermine the functioning of marine ecosystems and impede the supply of many ocean-related products and services by 2100. Increasing acidity in certain species is known to have a variety of potentially harmful effects on marine organisms, such as depressing metabolic rates and immune responses and causing coral bleaching. The additional carbonic acid that occurs in the oceans gradually results in the conversion of carbonate ions into bicarbonate ions by increasing the presence of free hydrogen ions. Due to the increase in the trend of rapid ocean acidification conditions such as supply shock from ocean food, products and services, including ecosystem settings, Bangladesh has enormous challenges in the oceanic climate.

e) Droughts of coastal areas: Droughts in coastal areas are occurring in Bangladesh due to the effects of climate change. Due to extreme droughts, the subsistence system of the coastal people is being disrupted day by day. They are becoming unemployed day by day. Due to droughts or unavailability of rainfall, the coastal crop fields are being less fertile, to some degree infertile and becoming barren. Due to climate change, temperatures are also rising rapidly and it is triggering droughts in the coastal areas of Bangladesh.

f) Ocean deoxygenation: Breitburg, D; et al. (2018), in their paper 'Declining oxygen in the global ocean and coastal waters', estimated that since the middle of the 20th century, the oxygen content of the ocean has decreased by overall 2%, whereas the amount of ocean waters completely depleted of oxygen has quadrupled since the 1960s. Because of climate change and increased nutrient discharges, ocean oxygen levels are predicted to fall on average by



The effects of ocean deoxygenation include reduced biodiversity, changes in the distribution of species, displacement in fishery resources, and an increase in algal blooms





overall 3-4% by 2100, but the magnitude of impact expected would vary regionally as studied by Schmidtko, S; Stramma, L; Visbeck, M (2017). The effects of the reduction of ocean oxygen include reduced biodiversity, changes in the distribution of species, displacement in fishery resources, and an increase in algal blooms. Ocean deoxygenation threatens to disturb the ecological services of the ocean's food supply. Human beings must urgently mitigate climate change globally and nutrient pollution locally to delay and reverse oxygen loss. This dangerous effect will occur in the case of Bangladesh's Bay of Bengal and the Blue Economy will suffer in the foreseeable future.

g) Erosion of the coast: In different ways, climate change would have an effect on coastal erosion. The sediment drainage from rivers and the subsequent supply of sand to the coast would affect changes in the precipitation regime. It is predicted that severe conditions of heavy precipitation and long drought cycles may become more common. Due to its effect on soil erosion, temperature may also play a role. Life forms in the coastal zone can be affected by temperature changes. Coastal erosion, such as dune vegetation, is especially vulnerable to changes in coastal vegetation. Mangrove coasts are vulnerable to changes in temperature, but also to rising

Due to extreme droughts, the subsistence system of the coastal people is being disrupted



Climate change and its impacts on the Blue Economy of Bangladesh

Resource type	Example	Ecological and economical importance
Living resources 	<ul style="list-style-type: none"> ● Fisheries ● Mangrove ● Corals ● Seagrass ● Seaweeds ● Plankton 	Ecological Importance <ul style="list-style-type: none"> ● Ecosystem functioning ● Water quality preservation ● Biodiversity maintenance ● Stock improvement ● Stabilizes the shoreline ● Pollution Reduction ● CO₂ removal from the atmosphere
Non-living resources 	<ul style="list-style-type: none"> ● Oil ● Gas ● Sea salt ● Minerals 	
Renewable resources 	<ul style="list-style-type: none"> ● Wind energy ● Tidal energy ● Solar energy 	Socio-economic Importance <ul style="list-style-type: none"> ● Food Security ● Economic security ● Empowerment ● Cultural services ● Human health ● Knowledge transfer ● Capacity building
Trade and commerce 	<ul style="list-style-type: none"> ● Transport ● Tourism ● Industries ● Ports ● Shipyards ● Shipbreaking ● Agriculture ● Aquaculture 	

(Source: Blue Economy and Climate Change: Bangladesh Perspective, The Journal of Ocean and Coastal Economics, Volume 6, Issue 2 (2019) Special Issue on the Blue Economy of Bangladesh.)

Categories of resources related to Blue Economy with example, and their economic and socio-economic importance

sea levels. The along-shore and cross-shore sand distribution will be changed by changes in the wind regime and wave climate. The distribution of the alongshore sand is very susceptible to the littoral drift, which strongly depends on the direction of the wave. Wave run-up greatly affects the form of the cross-shore coastal profile, with an important function for storm events with high waves and water levels. There is still considerable uncertainty about projections of local changes caused by climate change in the wind regime and wave climate. As a consequence of global warming, the sea level will increase globally, but regional variations are substantial. Bangladesh's coastal regions will suffer a lot due to climate change in the form of coastal erosion.

h) Intrusion of salinity: Salinity will rise in the coastal waters, and extreme levels of salinity will be observed worldwide due to climate change at a certain point of time. As a result, habitats and resources of marine life may become vulnerable and some species may even be extinct. At the same time, the intrusion of salt water into crop fields would destroy crops as well as crop fields. To some extent, due to excessive intrusion of salt water into crop fields in the coastal areas of Bangladesh over time, crop fields may be permanently barren.

i) Loss of biodiversity and migration of marine species: Biodiversity degradation is caused by rapid climate change. In marine environments, the biodiversity system is very vulnerable to climatic changes. Owing to the detrimental impacts of climate change, there is a risk of the disappearance of certain marine species from the biodiversity system. As an example, a fish species named *Dermogenys brachynotopterus* or Gangetic Halfbeak disappeared from the Bay of Bengal. Many once-abundant species have all but disappeared. Particularly badly affected are the species at the top of the food chain. The Bay of Bengal was once feared by sailors for its man-eating sharks; they are now rare in these waters.

Other apex predators like grouper, croaker and rays have also been badly hit. Catches now consist mainly of species like sardines, which are at the bottom of the marine food web.

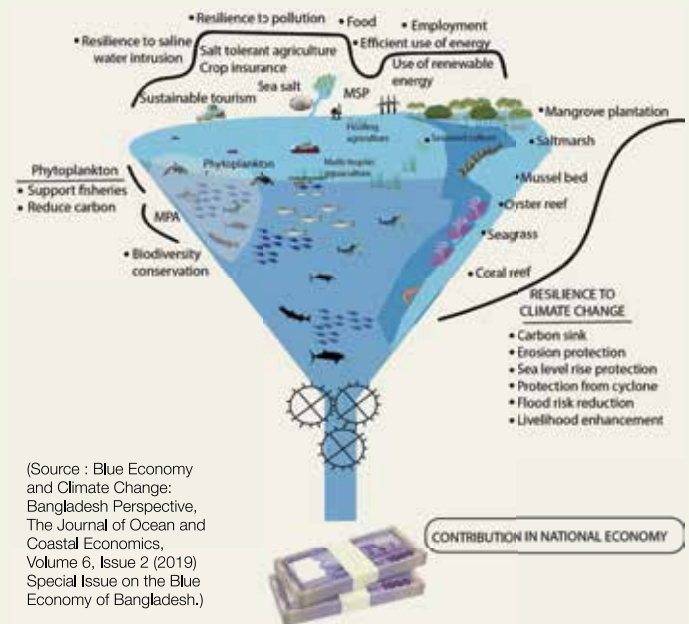
j) Loss of livelihoods in the coastal society: Climate change triggers many natural catastrophes, such as earthquakes, hurricanes, surges, cyclones, floods, droughts, coastal erosion, etc. The coastal community is losing its livelihoods from these forms of disasters triggered by climate-negative changes. They become lower earners and the coastal population becomes unemployed to some degree and they become victims of the pit of poverty. Because of climate change, this is really a very critical miserable result and Bangladesh's coastal areas is facing serious challenges such as loss of livelihoods of the coastal population.

k) Displacement of coastal population: Natural hazards contribute to loss of life, damage to infrastructure and have a detrimental effect on livelihoods. They also contribute to the displacement of people from their homes and regions 28% of the population of Bangladesh lives on the coast, where the primary driver of displacement is tidal flooding caused by sea level rise. By 2050, with a projected 50 cm rise in sea level, Bangladesh may lose approximately 11% of its land, affecting an estimated 15 million people living in its low-lying coastal region.

l) Impact on food crops and crop fields: Agriculture is affected by climate change in a variety of ways, including by increases in extreme average temperatures, rainfall and extreme climatic condition (e.g. heat waves). Besides, changes occur in pests and diseases, in atmospheric carbon dioxide and ozone concentrations at ground level, in the nutritional quality of some foods, and in sea level due to the change in climate. As a result, saline water approaches crop fields and numerous food crop species have been spoiled and will be spoiled as a result of climate change over time. To some extent, crop fields in the coastal areas of Bangladesh may be lost due to the enormous surges and ocean floods due to climate change.

m) Uncertainty of sustainable Blue Economy: SDG-14's key ideology is to achieve a sustainable Blue Economy in Bangladesh by 2030, but climate change has a complex effect on marine

Schematic presentation of how components of Blue Economy can build climate change resilience and provide economic benefits



// Lead Story //

ecosystems and their products and services, which can directly impede our ability to achieve the Sustainable Development Goals (SDGs) set out in the 2030 Sustainable Development Agenda. Many effects of climate change have a wide range of negative effects on marine ecosystem, although most reports have emphasized the effects of warming and the impacts of marine biodiversity. Not only by global stressors such as ocean warming and acidification, but also by amplifying of local and regional stressors such as freshwater runoff and pollution, climate change is expected to impact marine ecosystem resources adversely. It is also clear that climate change presents a major challenge to achieving a sustainable Blue Economy, or that the impacts of climate change generate uncertainty about achieving a sustainable Blue Economy in Bangladesh.

n) Reduction of marine habitats: Habitat reduction is experienced in most parts of the world's oceans. Yet coastal regions have suffered overwhelmingly and primarily from man-made stresses and their closeness to human populated areas. The loss of habitat has far-reaching consequences for the biodiversity of the entire ocean. These vital areas, including estuaries, swamps, marshes, and wetlands, serve almost all aquatic species as breeding grounds or nurseries. Hurricanes and typhoons, storm surges and tsunamis can cause major, but typically temporary, interruptions in the life cycles of ocean plants and animals. The Bay of Bengal is also under threat in terms of habitat loss due to climate change, but human activities are significantly more impactful and permanent.

o) Altered life style of different species': Sea creatures face the threats of warming waters and ocean acidification because the latitude and depth at which many species can live are affected by warming waters. Therefore, in the Atlantic, many species travel deeper or further north to find cold water. More acidic oceans hinder the production of crustaceans, coral and other species etc. The

effect is widespread destruction of food webs that are interconnected. In a variety of ways, ocean acidification is influencing marine environments. For example, the thin shells of some pteropods can be dissolved fully within a month at the levels of acidity found off the coast of New England. And a negative side effect is also present. Free hydrogen ions are produced in the formation of carbonic acid. In order to produce additional carbonic acid, these hydrogen ions react with carbonates, but those carbonates are required by organisms to grow shells. Besides corroding their shells and otherwise rendering the waters inhospitable, the process of ocean acidification steals the molecules necessary for organisms to survive. Threatened by ocean acidification, corals, pteropods, shellfish, and crustaceans also serve as food sources for many other forms of marine life and seabirds.

As some species feel the direct impacts, other food chains are also starting to collapse. The Bay of Bengal species are also facing the same threats due to climate change, especially the marine species facing life-style changes. The destructive impacts addressed have so far been on Bangladesh's Blue Economy. There are also several other impacts that exclude the above impacts, such as the absence of timely rainfall due to climate change or untimely rainfall.

Conclusion

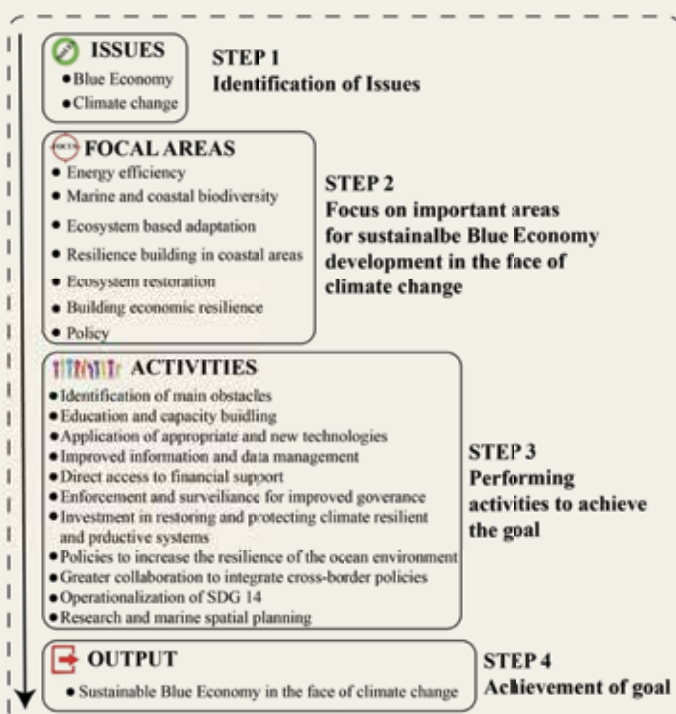
Both climate change and Blue Economy are highly interrelated. The unexpected and unwanted impacts on the Blue Economy are created if climate change occurs quickly with negative trends. There are some great visions and ambitions in Bangladesh, such as Vision-2021, Vision-2041 and Delta Plan-2100, etc. The Blue Economy is considered one of the most potential contributors to the achievement of visions and dreams. Inclusive programmes, therefore, need to be adopted and implemented strictly. Both the public and private sectors need to be more accountable in addressing the challenges posed by threats to climate change to the development of the Blue Economy.

All possible impacts and all massive passive impacts on the Blue Economy in Bangladesh due to climate change must be properly identified, both visible and yet to be explored, and necessary measures must be taken by Bangladesh

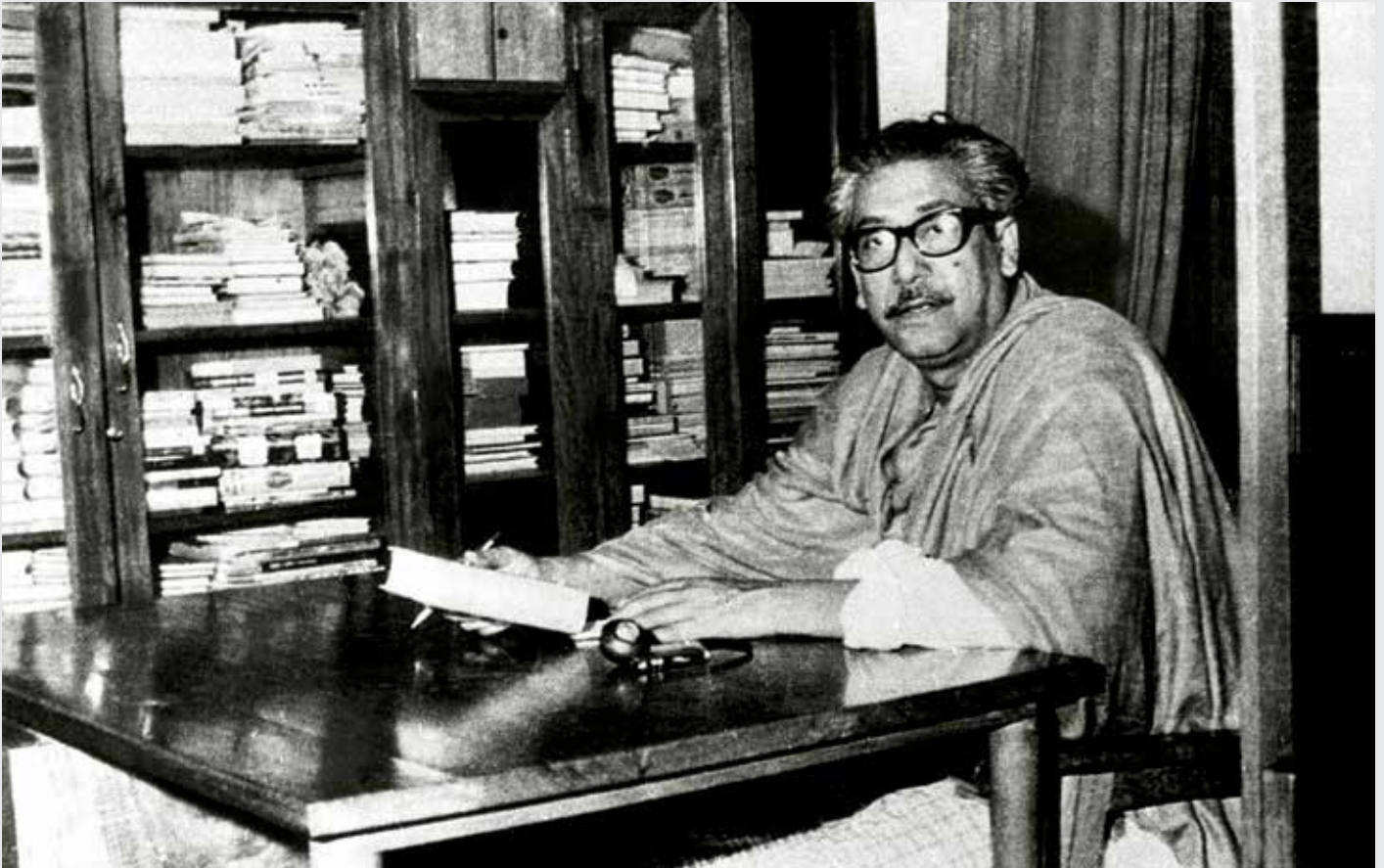
These impacts can hamper the growth of the Blue Economy sector as there are several pitfalls on the pathway. A mitigation strategy is also important to resolve the problems or impacts. The effects can be mitigated or otherwise adapted by harnessing the climate-resilient Blue Economy. In addition, creative technology in the Blue Economy can be a measure to address the maximum negative effects on Bangladesh's Blue Economy caused by climate change. Establishing marine protected areas and introducing adaptive steps, such as precautionary catch limits to avoid overfishing, will protect ocean habitats and protect humans from the effects of ocean warming.

Since Blue Economy is a macroeconomic approach, all actions and functions should be designed in such a way that the impacts of climate change can be minimized or adapted in a flexible manner. There is no alternative to the climate-resilient sustainable Blue Economy in order to achieve SDG-14 and other SDGs, as the Blue Economy has been declared Bangladesh's thrust and priority sector, as well as to achieve Bangladesh's sustainable development. After all, the respective bodies as well as the common people of Bangladesh must be climate conscious, demonstrating wise climate behaviour so that the impacts caused by climate change can be stopped or at least minimized for the sake of the development of the Blue Economy and for the development of Bangladesh in general.

Strategic working procedure to develop climate resilient Blue Economy practice in Bangladesh.



(Source: Blue Economy and Climate Change: Bangladesh Perspective, The Journal of Ocean and Coastal Economics, Volume 6, Issue 2 (2019) Special Issue on the Blue Economy of Bangladesh.)



Bangabandhu's timeless vision on education and our reality

Maritime Campus desk

Over the years, people have attached several titles with his name, that reflect unconditional love of Bengali people for him. To start with one of the very first ones would be “Bangabandhu” (Friend of Bengal). He could happily sacrifice his life for the emancipation of the Bengali people. He would go to jail for them. For his perpetual love for the Bengali people, he was crowned with the title “Bangabandhu”.

After the independence, Bangabandhu was eventually recognised as the “father of the nation”. His speeches were powerful enough to summon the 7 crore people of Bangladesh into fighting a liberation war. After the war, the former United States secretary of state Henry Kissinger called Bangladesh a “bottomless basket”. But Bangabandhu did not pay heed to any of these and started leading and building a country devastated by war.

His identity is related to politics and he was “the poet of politics”. However, unlike many political leaders, his motives, moves or activities were not limited to diplomatic decisions at home and abroad. Rather he focused on an overall reformation of the society.

In other words, he was a social reformer with a concrete political ideology. Besides, he also realised that quality education was a must to build a war-ravaged nation.

Whatever he said about 50 years ago has remained equally relevant even today in 2021. His vision for education was modern and futuristic.

Bangabandhu was visionary enough to contemplate the importance of education. He realised education as the philosopher's stone that turns mere numbers into resources. It is true that everything was not in his favour. But that did not stop him from dreaming, from planning.

If we look back in time, we would see that the Pakistani rulers took many discriminatory policies against erstwhile East Pakistan. The discrimination and exploitation against Bangladeshis or then East Pakistanis were visible in every sphere. They used the foreign currency earned with our resources to develop the infrastructure in Pakistan. They never intended it to be anything else. This is why they did not hand over the political power to Bangabandhu, who won the election of 1970.

They wanted to discriminate Bangalis in every way possible. Let alone the infrastructural development, under the rule of West Pakistan, the number of schools did not increase from 1947 to 1970. Consequently, around 80 per cent of the people in East Pakistan remained illiterate.

A few number of students who enrolled in primary level education failed to complete the level. 18 per cent of the boys and only 6 per cent of the girls completed their primary level education during the rule of Pakistan.

It is well-documented that most of the key posts in civil governance and military organisation were occupied by Pakistanis. As restricting education was another trick of exploitation by Pakistan, Bangabandhu kept reiterating over the necessity of education for Bangalis. His thoughts were expressed in his speeches ahead of 1970 general parliamentary election. During his speech, he proposed an inclusive design to reform the entire education system.

About 50 years ago, Bangabandhu could anticipate the importance of educating girl children and had put extra emphasis on that sector. In order to establish the education sector, he wanted to spend 4 per cent of the GDP on education. His vision was to make primary schooling compulsory and free for everyone.

He wanted to change the entire scenario by establishing primary schools, colleges, technical institutes, general universities and medical colleges. He wanted a curriculum which would be modern enough to prepare the students pragmatically for their career.

At the same time, he wanted to ensure education for all. In his words "It must be ensured that poverty should not deprive anyone from getting quality education".

In a war-ravaged Bangladesh, where Pakistani rulers had destroyed our infrastructure, Bangabandhu decided to rebuild the country from scratches with utmost attention to education system. He had limited workforce but the spirit was unabated.

Right after a new government was formed in 1972, Bangabandhu started to work on educational reforms. On 26 July of 1972 the National Education Commission was formed with the notable scientist and educationist Md Quadrat-e-Khuda. It was popularly known QK Commission.



There were 18 members in the commission that included personalities like Professor Md Anisujjaman. Bangabandhu inaugurated the commission on September 24 of the same year and gave them the freedom to carry out their duties independently.

The committee relentlessly worked for two consecutive years and came up with a detailed report on the education system in 1974. They produced the report before Bangabandhu and asked for his suggestion. But Bangabandhu trusted them with the report as well as planning and gave them complete freedom to rebuild the nation's education system. The way he managed the situation further established his respect for educationists and his understanding of distinct responsibilities. He assured that he is going to take actions based on their recommendations.

The commission not only came up with a report on education system, they also included a plan on how the structure can be rebuilt and what would be the purpose of education.

In chapter number 36 it stated "Based on and adding to the four fundamental principles of the Constitution, education must serve the goals and purposes of nationalism, socialism, democracy, secularism, patriotism and good citizenship, humanism and global citizenship, moral values, and be the tool for transforming society." (Commission Report, p. 4).

The QK commission wanted academic education to have connection with practical life. This is why it put special emphasis on technical training. The committee suggested a common and unified syllabus for all students in the country including the madrasas up to class 8.

This was to groom students with the similar ideology and academic as well as moral teaching. The plan was to bring students of religious institutes under vocational training to become Imams, wedding registrars or muazzins.

The commission wanted education system to be inclusive. This is why they considered Bangla to be the medium of education. But also, it did not want to cut ties from international front. The plan was to prioritise English in secondary education to make knowledge of the world accessible to them. The ultimate goal was to make the students bilingual and prepared for the world.

They started building primary schools in villages and districts. A crash programme was introduced in order to make the education



system inclusive. At the same time process of making primary education free for all was also going on. In fact, nationalisation of education was a challenging step to execute.

The gender gap was reduced too as the statistics showed that among all the students enrolled for primary education, 50 per cent were girls.

Bangabandhu did not stop by making primary schools viable. He also took steps to make universities independent and autonomous.

During Pakistani rule, it was said that the universities were under continuous supervision of state. They used to meddle with the syllabus and movements of the students and teachers. There had been instances where minor infractions against the Pakistani ruler resulted in them being banned or disqualified.

But Bangabandhu believed in freedom for universities and gave the scholars of universities the highest degree of respect. His another ground breaking step was the introduction of an independent University Grants Commission (UGC).

In the year 1973 four distinct ordinances were passed to ensure academic autonomy of the universities. UGC was established in the same year.

Bangabandhu established UGC as an independent organisation that won't be accountable to any ministry and will serve as a bridge between government and universities.

All these education reformation schemes came to a halt with the brutal assassination of Bangabandhu in 1975. The QK report, the commission all became standstill. The country started undergoing massive political unrest.

From democracy to authoritarian regime and then reestablishing democratic values again were tumultuous journey for everyone. During these times, multiple attempts were made and several committees were formed to look into education.

Unfortunately, people in power had made multiple compromises with the educational reforms. The first one to be mentioned is in 1980's when English was included into syllabus from grade one without ensuring quality teachers for the students.

When Sheikh Hasina, honourable prime minister and the daughter of Bangabandhu came into power, it felt like there was still hope left for the education policy. She undertook the National Education Policy 2010 to reform the education system the way her father dreamt.

Still, there are few areas of further review like teaching English from grade one beside the reality of Alia madrasas and Qawmi madrasas. Despite having a huge number of students, Qawmi Madrasas are operating beyond government regulation. It has become apparent that, though both English and Bangla are taught from the beginning of government regulated primary education system, majority of the students fail to grasp them for professional use. Moreover, social inequality and gender discrimination are still having some impact in our society. However, it is amazing to see how futuristic was Bangabandhu and his vision for a well-educated Bangladesh. Now, we must work for an inclusive and easy accessible education system to materialise the vision of Bangabandhu.



Language requirements for communication at sea and a learning model of maritime English

Raju Ahmed

I secured a research grant from the University Grants Commission (UGC) and Bangabandhu Sheikh Mujibur Rahman Maritime University, Bangladesh. My project is aimed at identifying what English language requirements are sought by the employers and what practical English skills the cadets need onboard ships. I also attempted to develop a learning model that students could follow to develop their English skills. Moreover, I analysed the language patterns of the maritime communication that I recorded in Chattogram Port. From the research grant, I have prepared three articles which I am going to summarise here.

The title of my first article was 'A needs analysis of maritime English language skills for Bangladeshi seafarers to work on-board ships'. It was published in the Marine Policy journal in September 2020. In this article, I have identified the maritime English skills that Bangladeshi seafarers needed for their on-board work and recruitment purposes. I categorised 68 maritime tasks under 14 major themes on a range of 'less needed' to 'highly needed' skills. Among those tasks, I found 23 were highly needed for on-board jobs. These 23 seafarer tasks catered to the themes of radio communication, on-board communication, routine works and operations, shipping manuals,

cargo operation, watch-keeping, safety and security, emergency and medical procedure, and weather. Besides, through an open-ended questionnaire, I also listed the maritime tasks on the four language skill areas: speaking, listening, reading and writing. I found that recruiting agencies mostly test cadets' speaking skills.

They expect the marine cadets to have an intermediate level of proficiency in speaking and an elementary level of efficiency in listening, reading and writing.

The title of my second article was 'The discrepancy between standardised communication patterns and the real-life conversations of vessel traffic service: a case study in Chattogram Port, Bangladesh'. As a part of this study, I visited the Vessel Traffic Service (VTS) of Chattogram Port. I recorded the English conversations over port radio channels 12 and 16 for three days. Later I transcribed the spoken text into written data. I used computer software, MAXQDA, to categorise the textual data with codes and themes. Then I compared them with the features of Standard Marine Communication Phrases (SMCP). I found that



The first page of my publication in the Marine Policy journal



The first page of my publication in WMU journal

the conversation features matched with SMCP in 35% of cases and 65% of cases there were deviations. When the deviations occurred, both the seafarers and the VTS operators preferred to use normal conversational English. From this finding, I concluded that maritime cadets need both general and maritime English for efficient communication from sea to shore and vice-versa.

The title of my third article is 'Maritime English as a lingua franca and strategies used by learners to master it: perceptions from Bangladeshi seafarers'. This article is currently under review. In this article, I have tried to focus on maritime English (ME) as a professional lingua franca. I collected open-ended responses from the marine cadets to explore why ME is needed and how learners can develop their skills in ME outside classroom environments. The research participants informed me of many negative consequences that occurred because of inefficiency in communication (see Figure 1). I also listed the learner strategies in the four language skill areas. I found that learners mostly used three strategies, namely memorising terminology, watching videos, and practising specific skills in practical work environments. I also observed that Bangladeshi learners applied fewer strategies

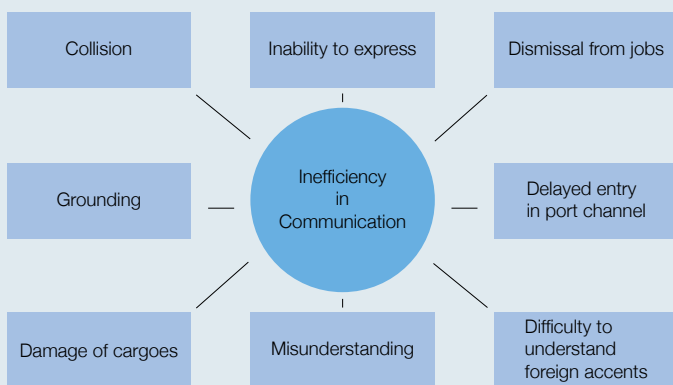


Figure 1: Importance of using maritime English onboard

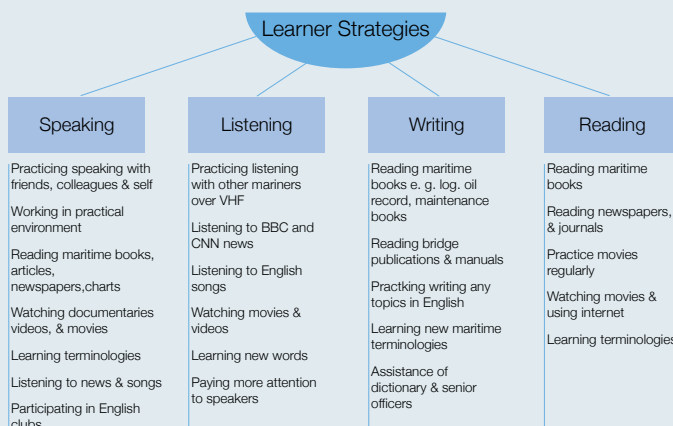


Figure 2: Strategies learners mostly use

in mastering ME. So, I recommended that English teachers working in different maritime institutes in Bangladesh take the initiatives to make learners aware of many more learning strategies.

Overall, by my research project, I have emphasised the needs of the maritime cadets and graduates to work in the maritime sector



My field visit in Chattogram VTS

of our country. For instance, in my first article (see Image 1), I have focused on the English requirements for the students and the required level of English proficiency. In my second article (see Image 2), I have attempted to equally emphasise maritime English and general spoken skills. In my third article (see Figure 1), I have presented many unfavourable situations that the seafarers encountered for having less proficiency in English. The second part of my research project addressed what a learning model of maritime English should contain. To mention it clearly, what a curriculum of maritime English should cover. Certainly, a learning model needs to cover the highly needed 23 tasks I listed in my first article. Moreover, the cadets needed many other on-board tasks which were not tested by recruiting agencies. Instead of depending on the agencies' criteria for recruitment, the cadets needed real-life language and communication skills and so developing overall language skills was very significant. Learners can learn maritime English both in academic and non-academic environments. The learner strategies (see Figure 2) were important to be explored because the apprentice learners can benefit from the learning styles of advanced learners outside the class environments. Finally, I believe that my publications and findings will contribute to the quality enhancement of maritime education and training we are providing over the years.

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Raju Ahmed

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Is it possible for shipping to stop the plastics tsunami in the ocean?

Maritime Campus desk

No one should argue that plastics are a big problem for our planet and oceans these days. Plastic manufacturing emits greenhouse gases, putting the world's temperature at risk of exceeding 1.5 degrees Celsius. Marine plastics are strangling and destroying marine life by suffocating coral propyls, smothering the ocean floor, and suffocating coral propyls. Plastics are entering our bodies from higher up the food chain.

According to the University of Ghent, European shellfish consumers can be exposed to up to 11,000 microplastics per year in their diet. Although research into how these particles affect us is still in its early stages, there is evidence that microplastics can cross the hard membrane that protects the brain from foreign bodies entering the bloodstream, at least in animals.

But where do all these plastics in the sea come from?

Per year, approximately 12.7 million tons of plastic end up in our oceans. Around 80% of this is due to land-based sources, with the remaining 20% coming from marine sources. Despite the fact that MARPOL Annex V has banned the discharge of plastics into the sea from ships for more than 30 years, we are still fighting the issue from vessels of all sizes in 2021.

So, what can the maritime industry and regulators do now, before it's too late, to stop the rise of marine plastics?

One way is to improve the collection of ship waste. The European Commission's new proposal, which must be implemented by June 28, 2021, allows ships to pay an indirect charge regardless of waste distribution. Except for cargo residues and scrubber waste, this covers all ship waste. Short sea shipping as well as 'green ships' are entitled to reduced port fees (rules to be set up by an implementing act).

Cutting down on single-use bottles made of Polyethylene Terephthalate (PET), used to fabricate beverage containers, especially bottled water is a good place to start.

Providing high-quality filtered water at cooler stations, which is routinely checked and supervised by a designated individual, will go a long way toward discarding bottled water. It must be reinforced by litter awareness training for all members of the ship's crew.

Many seafarers, like many on land, are unaware of the massive scale of the marine plastics crisis. Throwing what appears to be an insignificant cigarette butt from a ship's deck into the middle of the Bay of Bengal might not seem like a big deal on the surface, but the effects may be felt on the other side of the planet. Furthermore, since cigarette butts are made of cellulose acetate fibres (a plastic that does not biodegrade), they would add to the estimated four trillion cigarette butts in our oceans.

Marine plastics are primarily produced by abandoned, destroyed, or discarded fishing gear. Fishing gear, such as nets and cages, destroys aquatic life while also posing a navigational danger due to propeller entanglement. Experiments at prestigious universities are currently underway to make fishing nets biodegradable, but the aim of making them biodegradable has yet to be achieved. This means that the sun's ultraviolet light simply degrades the polymers into microplastics, contributing to the approximate 15 to 51 trillion fragments in the oceans.

The IMO and the Food and Agriculture Organisation of the United Nations (FAO) initiated the GloLitter project to find out new methods for ensuring global fishing fleet compliance. For example, if fishing gear is discarded, it can be marked and tracked back to its owners. The IMO number and the identifiers of vessel registration data are being considered. Although these recommendations are currently voluntary, if they were enforced globally, they would have a significant impact on the fight against marine plastic pollution.

All and every industry will need to play a part if we are to take a constructive approach to reverse the trend of the ever-increasing tsunami of marine plastics.





Know your containers

Md. Mostafa Aziz Shaheen

All the containers must contain visible marking with numerous symbols, numbers and letters on the door. These container markings convey significant roles in transportation. Each marking provides vital information concerning the transportation, cargo, ownership, and condition of the container storage. Importers, exporters, traders, dry ports (ICD), ports, customs, border authorities, police, freight forwarders, clearing agents, stevedores, carriers, weighbridges and many more entities are involved in container handling and moving on a regular basis. But despite the fact, many of these individuals see a container, not everybody understands the container marking meaningfully. To get an idea of what these markings mean, each of these container markings elucidates independently.

Container identification number

Container identification numbers are assigned by the Bureau International des Containers (In English: Bureau of International Containers-BIC). As a neutral, non-profit, international organisation, BIC was founded in 1933 with a mission to promote the safe, secure and sustainable growth of containerisation and intermodal transportation.

Container Identification Number: BIC Code (Owner prefix) + Equipment Identifier + Serial Number + Check Digit

The identification system ensures unique container identification internationally, purposes for documentation and communication related to the movement of the containers from door to door. This number is typically located at the door end, front end, side and top. It consists of:

Owner prefix (BIC code): Three capital letters signify the container owner or its principal operator (E.g., MSK for Maersk). Container Owner prefix can be identified by BIC search (<https://www.bic-code.org/bic-codes/>)

Equipment category identifier: one capital letter U, J or Z denotes as follows:

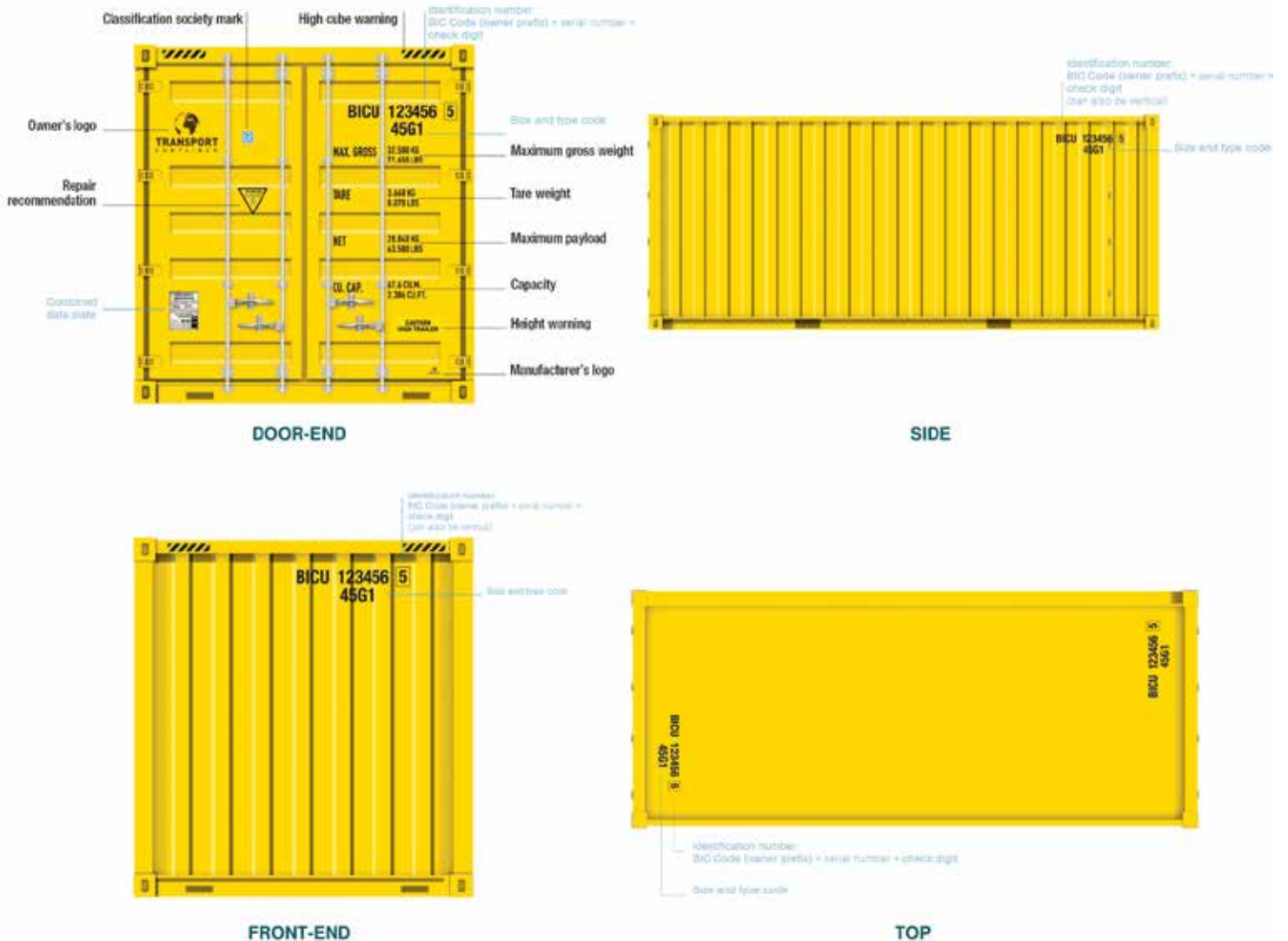
U refers to all freight containers,

J refers to detachable freight container-related equipment,

Z refers to trailers and chassis,

Serial number: Consists of six numerals, decided by owner or operator.

Check digit: one numeral denotes whether the container identification number is valid or not. The check digit is generated with a mathematic formula, derived from the owner's code, the equipment code and the container number, and is ten digit long. BIC Check Digit



Calculator (<https://www.bic-code.org/check-digit-calculator/>) displays the Check digit to avoid duplication or fraud of the Container ID.



Figure: Container Identification Number

Source: Bureau of International Containers



ISO container size and type codes

In 1995 there was an ISO agreement concerning container marking codes to depict the length, height and type of container in an easy-to-read sequence. Each container has a standard size and type code assigned by the BIC institution. This sequence is composed of four letters or digits that commonly appear right under the container identification sequence.

The first character is related to the length of the container

The second character is relative to its height.

The remaining two elements of the sequence identify the container type and characteristics



DIFFERENT TYPES AND SIZES OF CONTAINERS

Length	Height	Type
2 - 20 Feet	2 - 8 Feet 6 Inches	G1 - General Purpose Container
4 - 40 Feet	5 - 9 Feet 6 Inches 'High Cube'	R1 - Refrigerated Container
L - 45 Feet		U1 - Open top Container
M - 48 Feet		P1 - Platform Container
		T1 - Tank Container

Source: Bureau of International Containers

Example

- 22G1: 20' Dry Container
- 42G1: 40' Dry Container
- 22R1: 20' Reefer Container
- 42R1: 40' Reefer Container
- 45R1: 40' Reefer High Cube Container

Operational Markings

Maximum Gross Weight: Maximum weight that the container can carry including tare weight. Typically, 30 tons or, 30,480 kilograms

Tare Weight: Actual weight of the empty container.

Maximum Payload: Maximum amount of weight that the container can carry.

Maximum Payload= Gross weight - Tare weight

Capacity: Volume capacity of the container.

Height Warning: Compulsory for transportation safety information.

Manufacturer's Logo: Shows the manufacturer of the container.

Safety Markings

High cube warning: High cube containers warning symbol.

Owner's Logo: This is the entity that owns or operates the container. This could be a shipping line, (e.g. CMA CGM Group) or a container leasing company (e.g. SeaCo) whose business is to lease containers to shipping lines.

Classification society Mark: Classification society certified box's strength, cargo and seaworthiness.

Repair Recommendation: A container has to be operated either under an ACEP (Approved Continuous Examination Program) or a PES (Periodic Examination Scheme) from day 1. ACEP inspection isn't mandatory until 5 years. The container should not be loaded on-board a ship without a valid ACEP sticker or Next Examination Date (PES).

CSC Plate: Container used for international transport needs a valid CSC (Container Safety Convention) plate for verification of good condition and acceptable safety.

The write up is prepared with the assistance of Container Identification Number (Bureau International des Containers et du Transport Intermodal), Container Markings – What do they really mean?, (xChange Solutions GmbH), Shipping Container numbers and markings explained (containertech.com)

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Department of Port and Shipping Management
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The diagram shows a container identification plate with the following sections and labels:

- APPROVED FOR TRANSPORT UNDER CUSTOMS SEAL** (Top section)
- M/DF-7524-326/2008** (Classification society rules)
- TYPE NT40C-159A** (Container model)
- MANUFACTURER'S NO. NBA109026005** (Manufacturer's serial number)
- MANUFACTURED BY: CONTAINER MANUFACTURE LOGISTIC EQUIPMENT CO., LTD** (Manufacturer's name)
- MANAGING AND OPERATED BY: M&F SHIPPING COMPANY S.A. 47 Avenue Pierre Brossolette, 92120 Montreuil - FRANCE** (Owner's name and address)
- TIMBER COMPONENT TREATMENT IM/MEGANIUM 2000/2007** (Fumigation details)
- CSC SAFETY APPROVAL** (Middle section)
- E-KL-4092/GL 9278** (Classification society approval number)
- DATE MANUFACTURED 06/2009** (Date manufactured)
- IDENTIFICATION NO. RTHU153478-7** (Container number)
- MAXIMUM OPERATING GROSS MASS 30,480 KGS 67,200 LBS** (Maximum operating gross mass)
- ALLOW STACK. WT. FOR 1.0G 220,570KGS 499,720 LBS** (Allowable stacking weight)
- RACKING TEST LOAD VALUE 15,240 KGS 499,720 LBS** (Racking test)
- ACEP** (ACEP number)
- FR-BV 2012-001** (ACEP number)

INFO BYTES

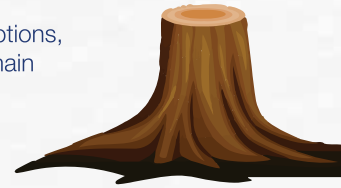
Fact 1

Human activity has caused much of the rise in global temperatures since 1950

While there are some causes of climate change that are natural, like volcanic eruptions, the reason we are facing a climate crisis now is because of human activity. The main causes of climate change through human activity include:

- Burning fossil fuels for energy
- Intense farming and agriculture to produce meat and crops
- Removing forests and trees to make space for other land uses

All of these activities release greenhouse gases that trap heat in the atmosphere, causing the global temperature to rise.



Fact 2

The greenhouse effect influences the average temperature of the Planet

Greenhouse gases are gases that trap heat in the atmosphere. When the sun passes through the atmosphere, the greenhouse gases absorb the radiation and prevent the heat from leaving the atmosphere. This is known as the greenhouse gas effect.

Without greenhouse gases, the average temperature on Earth would be far too cold to sustain life. However, when we add more greenhouse gases to the atmosphere through human activity, this causes more of the sun's energy to get trapped in the atmosphere, heating up the Earth and causing global warming.

Greenhouse gases include Carbon Dioxide (CO₂), which is usually produced by burning fossil fuels, and Methane (CH₄), which is produced by livestock like cows when they digest food.

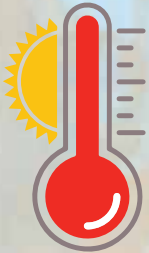
CO₂

Fact 3

In the past century, global temperatures have risen by around 1° Celsius

Over the last 100 years, the average temperature on Earth has warmed by 1°C. In our day-to-day lives, we may not notice much of a difference if the temperature went up by one degree, but this temperature rise has had a significant impact on the planet.

The temperature is continuing to rise, and the past five years are, collectively, the warmest years in the modern record. Currently, countries around the world are working towards the targets set out in the Paris Agreement which aim to keep the global temperature rise below 2°C and limit it to 1.5°C if possible.



Fact 4

Arctic sea ice and glaciers are melting

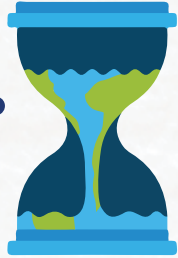
One of the most well-known effects of global warming is that sea ice and glaciers in the Arctic are melting.

In 1910, the Glacier National Park in Montana in the United States was filled with approximately 150 glaciers. When the glaciers were recounted in 2017, this number had dropped to 26.

This melting ice will cause rises in sea level, and will increasingly affect people in areas that depend on water from melting glaciers for their drinking water.



8 facts about climate change



Fact 8

If global temperatures rise, it will be more difficult for our communities to adapt to the changes and some animals are more likely to go extinct

Climate change will increase existing risks and create new risks for both natural and human systems.

These risks are not shared equally, and are generally greater for disadvantaged people and communities. Coastal areas will be vulnerable to sea level rise, and some vulnerable island nations like the Maldives could disappear completely.

A large fraction of species face increased extinction risk due to climate change. For example, most plants cannot naturally shift where they live fast enough to keep up with current rates of climate change in most landscapes. Most small mammals and freshwater mollusks will not be able to keep up with these changes either.



Fact 7

Coral reefs are being destroyed

In the last 30 years, half of the world's coral reefs have died. Human activity, as well as increased temperatures, has contributed significantly to coral bleaching. When the water becomes too warm, the algae living in the coral's tissues leave. Algae provides the coral with most of its energy, and so it needs algae to survive. When the algae leaves, the coral becomes bleached and turn white or pale, leaving it vulnerable to disease.

This impacts fish and other species that make these corals their home. Between 2014 and 2017, the bleaching of the Northern Great Barrier Reef, combined with the impacts of cyclones, killed around 50% of its corals.



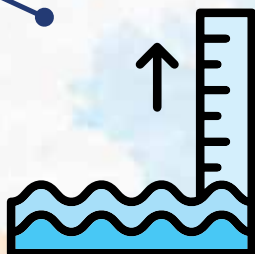
Fact 6

A significant cause of the release of carbon dioxide is rainforest deforestation

Trees and forests are known as 'carbon sinks', because they store carbon dioxide as they grow. When humans cut down rainforests or they are destroyed by wildfires, large amounts of carbon dioxide are released into the atmosphere. This contributes to the greenhouse effect and increases the concentration of carbon dioxide in the atmosphere, contributing further to global warming.



Fact 5



By the end of the century, the average sea level is projected to increase by between 0.5 and 1.5 metres

As oceans continue to warm and expand, and land-based ice in Greenland, parts of the Antarctic, and mountain glaciers continue to melt, sea levels will rise. This will have an impact in many countries across the world, especially low-lying areas with high risk of extensive flooding, including parts of Ireland.

Efficient dry port for logistics performance and liner shipping connectivity

Mohammed Mojahid Hossain Chowdhury

Seaports are the nodal points for international trade connecting land based interfaces by ships. Cargo movement through seaports has largely been intensified by the invention and adoption of container in the ocean transport. However, the booming of containerised cargo transportation has tremendously affected the seaport size, yard and operation. In 1982, United Nations Conference on Trade and Development (UNCTAD) recommended to use the dry port to reduce the pressure of container in the port yard though the concept and usage of dry port has been seen in the West-European countries prior to UNCTAD's recommendation. In later days, the concept became popular in all over the world. In Europe dry port is also known as inland port, inland freight village, inland container freight station. But in Bangladesh, dry port is largely known as Inland Container Depot (ICD) or Off-Dock. An ICD is a facility of having storage and handling capacity of export, import and empty containers outside of the seaport and connecting the seaport with land based interfaces either by rail, road or inland waterway transportation. Off Dock refers to a container yard that is situated outside of the port premises but not necessarily inland and this is the slight difference between ICD and Off Dock. An ICD may be termed as an Off Dock, but not all Off Dock are ICDs. An off dock is closer to the port than an ICD.

Logistics performance and liner shipping connectivity of a country are extremely depending on the structural and operational performance of dry port, which has been found by many academicians and researchers from maritime industry. World Bank publishes the logistics performance index every two years measuring the efficiency

of the clearance process, quality of trade and transport related infrastructure, ease of arranging competitively priced shipments, competency and quality of logistics services, ability to track and trace consignments and timeliness of shipments in reaching destination within the scheduled or expected delivery time. Bangladesh has been ranked 100th scoring 2.58 in 2018 losing her position from 87 in 2016 in LP Index (Figure 1). Hinterland connectivity, weak multimodal transport network, lead time, high transport cost, documentation and complexity in customs procedure are reported as the prime causes of poor logistics performance in Bangladesh.

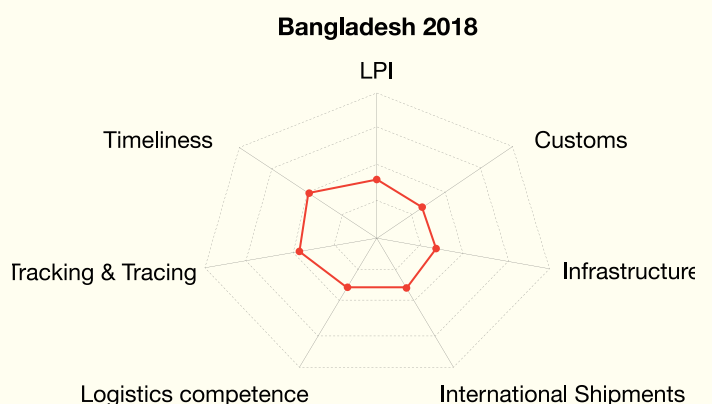


Figure 1: World Bank's LPI Radar for Bangladesh in 2018

Efficient dry port for logistics performance and liner shipping connectivity

The Liner Shipping Connectivity Index (LSCI) aims at capturing the level of integration into the existing liner shipping network by measuring liner shipping connectivity. The LSCI allows the assessment of maritime connectivity for container shipping, enabling comparisons between countries over time. It is based on six components collected annually and emphasizing on the number of shipping lines servicing a country, the size of the largest vessel used on these services (in TEU), the number of services connecting a country to the other countries, the total number of vessels deployed in a country, the total capacity of those vessels (in TEU). Bangladesh scored 12.63 in the first quarter of 2020 which is 0.32% lower than the first quarter of 2019 (Figure 2).

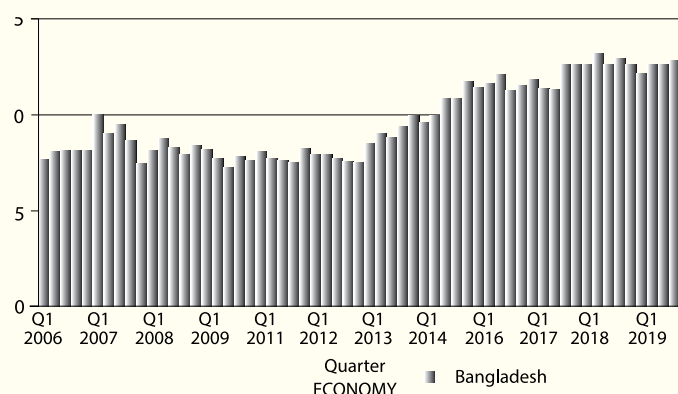


Figure 2: UNCTAD's LSCI for Bangladesh from 2006 to 2020

Chattogram Port Authority (CPA) is the premier port of Bangladesh handling almost all the containerised cargoes. In the year of 2019-20, it handled 2.797 million TEUs which was 1.867 million TEUs in the year 2014-15. The increasing volume of containers in the port premises pushes to maximise the dry port. The researchers

recommend that the operational and structural efficiency of dry port eases the international trade by reducing logistics cost and time and also reduce the pressure of container movement in the port premises. It has also found that there is a positive correlation between dry port throughput and LPI and LSCI. The development of dry port networks demonstrates a competency to streamline the transportation process. Provisions for customs clearance and cargo inspections help shippers and manufacturers to gain immediate access to the international market. Seaports are the central nodes driving the dynamics in a large logistic pole, but at the same time they rely heavily on dry ports for preserving attractiveness. Stakeholders believe that dry ports play an important part in ensuring the efficient transit of goods from a factory in their country to retail distribution points in the country of destination.

At present, we have 18 private dry ports and one public dry ports. All the private dry ports are situated in Chattogram within the 29 kilometers of CPA of highest distance. The close proximity of the dry port has both negative and positive points. The nearest dry port eases the movement of container from seaport. But it costs the city environment and traffic. Moreover, the cargo which ultimately goes to Dhaka has been moved and broken down in many nodal points. It increases the logistics cost and money. A dry port which is closer to the shipper (exporter and importer) and connected to the seaport with dedicated freight train services can operate in best ways. So, it can be concluded that efficient dry port system will minimise the transport cost and time, increase the logistics performance of a country.

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Blue Carbon sequestration

Captain W H Kutubuddin, (ND), psc, BN

Background

Our atmosphere on the Earth functions very much like the greenhouse. The gases from the atmosphere trap some of the sun's heat energy to keep our planet habitable. So, we are all dependent on these greenhouse gas. Among the primary greenhouse gases, one is carbon dioxide or CO². There are two primary atmospheric carbon dioxide sources- natural sources include all living beings, which exhale carbon dioxide. Human activities lead to carbon dioxide emissions from burning fossil fuels- coal, oil, and gas for daily needs. Fossil fuel contains a high percentage of carbon or Hydrocarbon and is produced in the natural process from organic particles, which generally ages in millions of years. By burning these fuels, carbon buried millions of years ago is released back to the atmosphere as carbon dioxide. This additional CO² acts to entrap more of the sun's heat energy resulting in more power in the atmosphere. This phenomenon has been described as global warming. In many parts of the world, on average atmospheric temperatures are increasing. This increase in temperature also results in changes in weather and climate patterns. It leads to changes in many critical processes, including rainfall, desertification, saltwater intrusion, sea-level rise, frequent and intense storms, etc.

On the other hand, coastal ecosystems are crucial to sustainable human welfare and universal biodiversity. In particular, mangroves, tidal salt marshes, and seagrasses sequester and store significant carbon emissions from the atmosphere and oceans. Thus, they contribute to people's ability to mitigate and adapt to the impacts of climate change. Carbon sequestration is the process of arresting and stowing atmospheric carbon dioxide. It is a system of minimising the amount of carbon dioxide in the atmosphere that curtails global warming.

Blue Carbon

The carbon captured by the world's ocean and coastal ecosystem is known as Blue Carbon. Thus, our ocean and coastal ecosystem reduce greenhouse gases' impact naturally through the sequestration of carbon in the atmosphere.

So, the term 'Blue Carbon' is called blue because of the fraction of carbon captured and stored in ocean and coastal ecosystems. There are differences between blue, green, and black carbon. Carbon captured by terrestrial ecosystems on land is the Green carbon, and the carbon that is released through the burning of fossil fuels is Black carbon.

Importance of Blue Carbon

Forests are excellent natural carbon sinks. Trees seize carbon from the atmosphere; by photosynthesis, they store carbon, and they turn it into food and wood. The organic carbons, plants, and trees store by photosynthesis processes are also a primary element of the fossil fuel production process. Thus, carbon is buried under the soil in fossil fuel in both forest and coastal ecosystems (Figure 1).

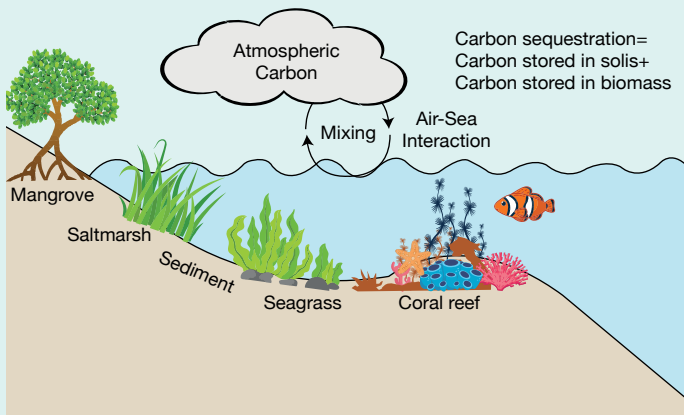


Figure 1: Blue Carbon Sequestration in Coastal Ecosystem (Source: M. Shahadat Hossain, <https://www.researchgate.net>)

The stored carbon deposited in a forest can be found in the biomass of the trees. However, most of the carbon in the coastal ecosystems is stowed below the soils and recognised as significant carbon sinks. These several metres deep soil under these coastal ecosystems often store carbon that is decades to thousands of years old. It is assumed that Bangladesh's coastal ecosystems, mainly mangroves (e.g., Sundarbans), salt marshes (or swamp, e.g., Guliakhali sea beach, Chattogram), capture then store vast amounts of carbon as well.

Carbon sequestration

The carbon sequestration ability of coastal ecosystems is imperative because we are emitting a vast amount of CO² in the atmosphere. There is also a lot of concerns about water shortages, crop production, and food shortages because rainfall, climate, and weather patterns change. It is very challenging to predict all of the relations that are likely to occur due to this changing environment. But these changes are already going on and putting more stress on inhabitants of the earth.

When we disturb the coastal habitats, we are halting the ability to seize carbon each year while releasing potentially thousands of years of stored carbon into the atmosphere. Also, there tends to be a massive release of carbon out of the system within a short time if the destruction of coastal habitat continues at the present rate. For example, earlier, two other natural mangroves were there in Bangladesh besides the Sundarbans, the Chokoria Sundarbans and the Teknaf. The Chokoria Sundarbans is located in the Matamuhuri River. The mangroves were destroyed in the late 1980s, and 30% of the area is now entirely transformed into shrimp farms. The Teknaf mangrove forest has also been destroyed, mainly due to the removal of wood, human settlements, and shrimp farming. On the other hand, the Sundarbans Natural Reserve remains intact. Thus, we must keep these coastal powerhouses (Figures 3 and 4) working for the habitable earth. We can keep their stored carbon locked away by leaving them alone and ensure these areas stay intact and healthy.



Figure 3: Mangrove forest of Sundarbans



Figure 4: Guliakhali (Ctg) saltmarsh land

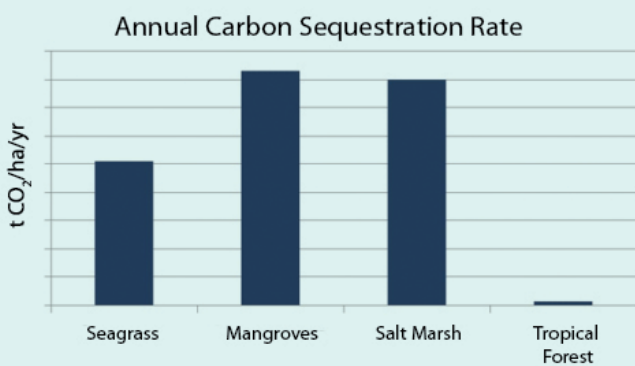


Figure 2 Blue carbon graph (Source: climateTrust.org)

The above graph shows that three prominent coastal ecosystem – Seagrass store 5.20 metric ton equivalent per year (tCO² /ha/yr), salt marsh stores 8.0 tCO² /ha/yr, and Mangrove store 8.3 tCO² /ha/yr, while the tropical forest stores below 0.50 tCO² /ha/yr. The coastal ecosystems represent a much smaller portion of the land area of the earth, but they are sequestering and capturing carbon at rates ten times higher than most afforested systems in an incredibly efficient manner.

Role of BSMRMU in Blue Carbon sequestration

If we protect the coastal ecosystem, there are other co-benefits: habitat for fisheries that help support nutrient production, commercial and recreational fishing, protection in terms of reduced waves and storm surge activity during cyclonic storms, recreational and educational opportunities, including activity like bird watching. Unfortunately, coastal ecosystems are the most threatened ecosystems on earth. Researchers found that up to 67% of global mangroves, 35% of tidal salt marshes, and 29% of seagrasses have been lost. At these rates, our earth could lose further 30–40% of tidal marshes and seagrasses, and unprotected mangroves could be lost in 100 years. Therefore, BSMRMU being the only specialised maritime university in the country has to take steps to build awareness about the coastal habitat's importance to get climate benefits, including all the other co-benefits mentioned above. BSMRMU can disseminate this knowledge among the students on how to protect our coastal Blue Carbon sink.

Additionally, BSMRMU may take proactive step to overcome knowledge gaps on current estimates and evaluations of coastal ecosystems considering limited data are available on sequestration and storage of Blue Carbon in Bangladesh. It is the right time for the faculties and students of BSMRMU to engage in research to assess the amount of carbon stored in Bangladesh and monitor carbon stock changes to facilitate planning and managing coastal Blue Carbon. Fortunately, guidelines and methodologies have begun to emerge for proper carbon analyses that could lead to the potential funding mechanism for coastal ecosystem conservation and restoration. The present Government's existing policies would help BSMRMU

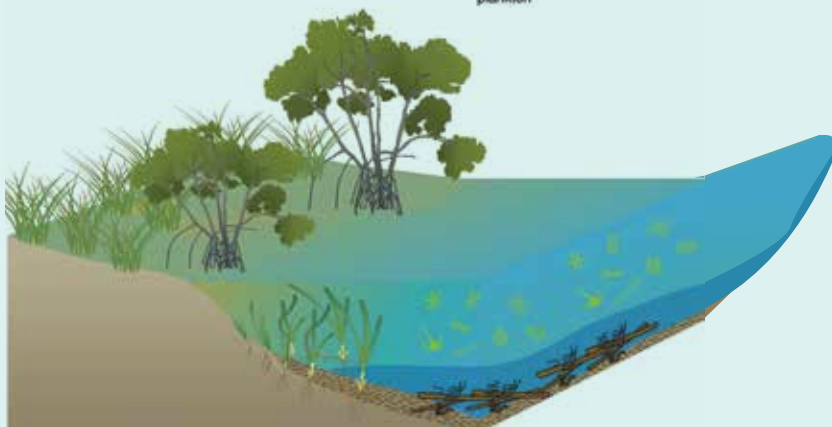
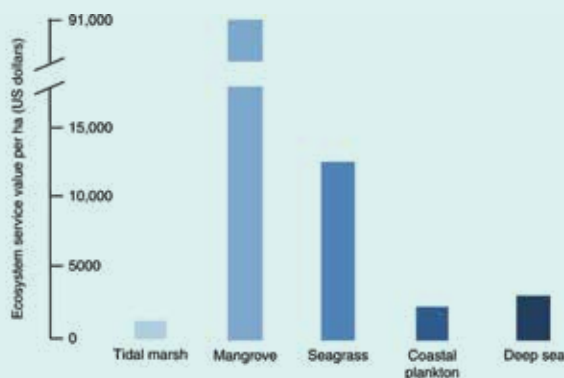
overcome data gaps and lack of technical and financial resources to carry out complex analyses when an effort is ongoing for acquiring Offshore Research Vessels and establishment of Coastal Research station in Teknaf /St Martins area.

Conclusion

Carbon sequestration is a mechanism by which carbon in the atmosphere is removed. However, the most effective carbon sequestration on the planet right now is the natural sinks like mangroves, tidal salt marshes, and seagrasses. They sequester and store significant amounts of carbon known as Blue Carbon from the atmosphere and ocean. They're already storing hundreds to thousands of years' worth of carbon in their soils, so we should not disturb them, which consequences to release an enormous amount of carbon that contributes to climate change. Protecting or restoring coastal ecosystems, where possible, is a compelling climate mitigation opportunity. BSMRMU, while promoting opportunities for higher maritime education and research, may encourage activities to explicitly address the role of Blue Carbon in climate change mitigation and human wellbeing.

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A deep sea port for maritime potentials in Bangladesh

Maritime Campus desk

Bangladesh is a country with a rich maritime history. Since ancient times, many globetrotters, traders and historians have been visiting and exploring this land of maritime opportunities. Situated at the North of the Bay of Bengal, Bangladesh vows to regain its past maritime glory. Throughout the last decade, the country has been observing a tremendous growth in every economic sector. Social and political stability together with economic motivation have lifted the country from an abyss of uncertainty onto the track of sustainable development. To move fast upon the track of development, the Government of Bangladesh has taken steps to build new sea ports and modernise the existing ones. Considering the present growth of country's maritime trade and commerce, building of a new deep sea port becomes a dire necessity. Because, only feeder vessels are calling Chattogram port currently and day by day numbers of small size vessels are decreasing. Moreover, the Karnaphuli River has two sharp bands that restrict the length of the vessels of 190m. On the other hand, the ship size and volume are increasing to reduce the time and cost of business. For the entry of those bigger vessels, ports around South Asia also change their port infrastructure to accommodate the deep draft bigger cargo and container vessels. Bangladesh also needs a deep-sea port with 18m draft that will reduce the time and costs of transportation by approximately 15%. Besides, there would be huge foreign investment injection; new momentum would be created in the trade and commerce of the country. In the vicinity of that port, industrial enterprises, as well as trade and commerce, would be flourished, there would be development in infrastructure and communication systems; employment rate will be greatly increased. If the import and export increase, the revenue also increases significantly. Opportunities for the extraction and use of oil and gas as well as other sea resources will be expanded. Experts say that economic growth will increase by 2%. Keeping all these opportunities in mind, the Government of Bangladesh has decided to build a deep-sea commercial port in Matarbari, Cox's Bazar.

Matarbari deep sea port

'Matarbari Port Development Project' is a Fast Track Project of the Government of Bangladesh. This project is an outcome of the concept of "BIG-B"(The Bay of Bengal Industrial Growth Belt) jointly announced by Hon'ble Prime Ministers of Bangladesh and Japan in September 2014. The objective of the Project is to strengthen the port logistics capacity of Bangladesh by constructing a new commercial port and a port connecting road with national highway (N1) at Matarbari, Moheshkhali and Chakoria area in Chattogram Division, thereby contributing to acceleration of logistics with neighbouring countries. It is estimated that the project will be completed by 2026.

Japan, BIG-B and Bangladesh

Japan is the largest development partner of Bangladesh. For more than four decades, Japan has been involved in the development of Bangladesh and BIG-B is instrumental in deepening friendship that began between the two countries through the visit of Bangabandhu to Japan in 1973. Japan-supported mammoth development activities are underway in Bangladesh, focusing on two areas - economic growth and social crisis mitigation.

The BIG-B initiative has been adopted for the industrialisation of the Dhaka-Chattogram-Cox's Bazar belt. It will be implemented on the basis of three main pillars. The first pillar is the industry and trade. This pillar stands on the construction of a port capable of providing berthing facilities for big vessels. The port will serve as an important commercial gateway to South Asian countries, as well as to other parts of Asia.

The second pillar is energy. This will be implemented through the construction of Bangladesh's largest coal-based power plant in the Matarbari area. The generated electricity will speed up the industry and trade of Bangladesh, not just in the BIG-B area.

The third pillar is the transport system. For the first two pillars to succeed, Dhaka-Chattogram-Cox's Bazar belt needs strong communication. It needs to be expanded even to neighbouring countries. A robust and well-planned transportation system can boost the region's industrial trade and commerce.

Matarbari Port Development Project

Total Cost of the Project	Total: TK. 17,777.16 crore GoB: TK. 2,671.15 crore JICA: 12,892.76 crore CPA Fund: 2,213.25 crore
a) Cost of Port Component	Total: BDT 8,955.82 crore JICA: 6,742.57 crore CPA Fund: 2,213.25 crore
b) Cost of the Road Component	Total: TK. 8,821.34 crore GoB: TK. 2,671.15 crore JICA: 6,150.19 crore
Date of Approval by ECNEC	10 March 2020
Development Partner	Japan International Cooperation Agency (JICA), Loan No. BD-P99 & BD-P105
Project Duration as per DPP	January 2020 to December 2026
Location of the Project	District: Cox's Bazar Upazilla: Moheshkhali, Chakoria, Union: Dholghata & Matarbari
Sponsoring Ministry	Ministry of Shipping (MoS)
Executing Agency	Chattogram Port Authority (CPA) Roads & Highways Department (RHD)

Source: Chattogram Port Authority

A webinar on ‘climate change challenges’ was held



A webinar on “Climate Change Challenges in Bangladesh and Bay of Bengal Region” was organised on 3 November 2020 by BSMRMU in partnership with NUFFIC, Netherlands. The Ambassador of Netherlands to Bangladesh H. E. Harry Verweij graced the occasion as the special guest. The Vice-Chancellor of the university Rear Admiral M Khaled Iqbal delivered the welcome speech. The former Vice-Chancellor of BRAC University Professor Dr Ainun Nishat attended the webinar as the keynote speaker. Renowned experts and academicians from home and abroad attended and shared their valuable thoughts and expert opinions in the webinar. The speakers discussed the climate change challenges in the region and pointed out different approaches to overcome those in future.

Vice-Chancellor presented keynote paper in a seminar on Bangabandhu



On 29 November 2020, a seminar was held on ‘Bangabandhu and Riverine Bangladesh’ at Pan Pacific Sonargaon Hotel in Dhaka. It was arranged by the Ministry of Shipping. The Vice-Chancellor of Bangabandhu Sheikh Mujibur Rahman Maritime University, Rear Admiral M Khaled Iqbal presented his paper as the keynote speaker of the seminar. Hon’ble Information Minister Dr Hasan Mahmud Chowdhury graced the seminar as the Chief Guest while Hon’ble State Minister for Shipping Mr Khalid Mahmud Chowdhury was present as the Special Guest.

BSMRMU conducted a webinar on COVID-19 impact on ports and shipping



A webinar on “Impact of COVID-19 on the Ports and Shipping Sectors of Bangladesh and Way Ahead” was organised by BSMRMU on 19 October 2020. Honourable

Education Minister of the People’s Republic of Bangladesh Dr Dipu Moni, MP graced the occasion as the Chief Guest. The welcome address was delivered by the Vice-Chancellor of the University Rear Admiral M Khaled Iqbal. Maritime experts and academicians from home and abroad presented their valuable papers in the webinar.

BSMRMU organised a webinar on Blue Economy in post COVID-19 era



On 10 December 2020, a webinar on “Blue Economy in Post COVID-19 Era: Resilience Strategies for the Coastal States” was organised by BSMRMU. Honourable

Foreign Minister Dr A K Abdul Momen, MP graced the occasion as the Chief Guest. Deputy Education Minister Barrister Mohibul Hasan Chowdhury, MP attended as the Special Guest. The Vice-Chancellor of the university Rear Admiral M Khaled Iqbal delivered the welcome speech. Honourable Foreign Minister spoke about the importance of regional vision of Blue Economy and emphasised on the need for mutual collaboration and partnership. The Deputy Education Minister mentioned about the UNESCO declared Decade of Ocean Science from 2021 and emphasised on the important role of BSMRMU in this regard. Renowned academic and research Institutions from Hawaii including Asia-Pacific Center for Security Studies (APCSS), East-West Centre and University of Hawaii at Hilo participated in the webinar. Secretary, Maritime Affairs Unit of Ministry of Foreign Affairs Rear Admiral Md Khurshed Alam (retd), Ambassador Farooq Sobhan, Professor Dr Imtiaz Ahmed, President of East-West Centre Dr Richard R Vuylsteke, Director of APCSS Rear Admiral Peter Gumataotao, Chancellor of University of Hawaii at Hilo Ms Bonnie Irwin and renowned experts and academicians from various organisations and universities shared their valuable thoughts and ideas in the webinar. The speakers discussed on the possible challenges in the Blue Economy sector for coastal states in the Asia Pacific region due to COVID-19 and pointed out different approaches to overcome those in future

BSMRMU observed Victory Day-2020



BSMRMU observed the Victory Day 2020 at its campus by maintaining proper social distance. The Vice Chancellor of the University, Rear Admiral M Khaled Iqbal graced the occasion as the Chief Guest. The treasurer, registrar, deans, selected faculty members, officers and staff of the university attended the celebration. The activity of the day started with hoisting the national flag at the dawn. Former Pro Vice-Chancellor (Admin) of University of Dhaka, Dr Nasreen Ahmed graced the occasion as the

Guest Speaker. In the spirit of Victory Day, BSMRMU Cultural Club arranged a cultural programme through video conference. A documentary was screened on the theme of Victory Day. Also, winners' names of all the competitions, organised on the occasion of Bangabandhu's Birth Centenary, were also announced and prizes were distributed on the same occasion.

Annual senate meeting held



The 6th annual Senate Meeting of Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU) was held in its temporary campus, located at Mirpur-12, Dhaka On 7 October 2020. The Meeting was chaired by Vice-Chancellor Rear Admiral M Khaled Iqbal, NBP, BSP, ndc, psc. Various decisions were taken at the meeting on a number of important issues related to the university, i.e., Speech by the Honourable Senate Chairman based on overall academic and administrative activities of BSMRMU, speech by the treasurer based on revised budget, the proposed amendment of the appointment statute of BSMRMU and the annual procurement plan (2020-2021) of BSMRMU.

BSMRMU faculty awarded with IMO Secretary-General Best Dissertation Award 2020



Mohammed Mojahid Hossain Chowdhury, Assistant Professor, Department of Port and Shipping Management, BSMRMU has been awarded MSc in Maritime Affairs (Shipping Management and Logistics) with the prestigious "IMO Secretary-General Best Dissertation Award 2020" from World Maritime University (WU), Sweden. His dissertation title was "Selection of Dry Port Location in the Hinterland of Chattogram Port: A Fuzzy AHP-BWM-PROMETHEE Approach".

28th academic council meeting held



On 25 October 2020, the 28th Academic Council Meeting of Bangabandhu Sheikh Mujibur Rahman Maritime University was held in its temporary campus. The Meeting was chaired by Vice-Chancellor Rear Admiral M Khaled Iqbal, NBP, BSP, ndc, psc (retd). Various decisions were taken at the meeting on a number of important academic issues related to the university, i.e. reduction of tuition and examination fees of undergraduate and master's programmes of BSMRMU due to the COVID-19. Besides, there were approvals for curriculum and syllabus of various undergraduate and master's programmes and a decision is taken to publish different semester final examination results of BSMRMU.

25th syndicate meeting held



On 24 November 2020, the 25th syndicate meeting of Bangabandhu Sheikh Mujibur Rahman Maritime University was held in its temporary campus. The meeting was chaired by Vice-Chancellor Rear Admiral M Khaled Iqbal, NBP, BSP, ndc, psc. Various decisions were taken at the meeting on a number of important issues related to the university, i.e., approval of appointment of manpower for the various posts, approval of service confirmation of faculty members, officers and staff, approval of study leave for a faculty member. There were discussions on the present status of Nuffic OKP-BGD-10012 project as well as on Memorandum of Understanding (MoU) between BSMRMU and Shanghai Maritime University.

BSMRMU student awarded with Gold Honour certificate



Sk Tawsif Samin, a student of Naval Architecture and Offshore Engineering (NAOE) department of BSMRMU, participated in an international competition called "International Astronomy & Astrophysics Competition 2020". He was awarded with the Gold Honour certificate in the final round of that competition and secured a place among top 3%

of the total participants. He is one of the 7 Gold Honour certificate winners from Bangladesh. The competition had three rounds and he qualified all of them successfully.

Bangladesh submits a revised request to the United Nations on the Bay of Bengal's outer continental shelf



Bangladesh lodged an amended submission to the UN on the limits of its outer continental shelf in the Bay of Bengal on 23 October, 2020.

Once approved by the Commission on the Limits of the Continental Shelf (CLCS) of the UN, the country will be able to explore and exploit natural resources on the seabed and subsoil in those areas.

Permanent Representative of Bangladesh to the UN, Ambassador Rabab Fatima, handed over the submission to Dmitry Gonchar, Acting Director of the Division of Ocean Affairs and Law of the Sea, in New York.

Rabab Fatima expressed her expectation that the amended submission will be included in the agenda of the Commission in its next session.

The original submission to the CLCS was made on February 25, 2011. Under the leadership of Prime Minister Sheikh Hasina, the maritime boundaries of Bangladesh with Myanmar and India were delimited in 2012 and 2014, through an international adjudication process.

Settling a longstanding India-Bangladesh maritime boundary dispute, a Hague-based international court awarded Bangladesh 19,467 square kilometres out of 25,602 sq km disputed area in the Bay of Bengal.

On the other hand, the German-based International Tribunal for the Law of the Sea sustained Bangladesh's claim to 200 nautical miles of exclusive economic zone and territorial rights in the Bay of Bengal against Myanmar's claim.

The amended submission has been made to reflect the successful outcomes of those international processes.

As per rule, a sub-commission will subsequently be formed to examine the information provided by Bangladesh and make necessary recommendations on the limits of Bangladesh's outer continental shelf in the Bay of Bengal.

Admiral Khurshed Alam (Retd), Secretary at the Maritimes Affairs Unit of the Ministry of Foreign Affairs, who led an expert team to prepare the amended submission, said there is no problem for exploring and exploiting the resources in the Bangladesh's territories in the Bay of Bengal after the international court's verdict.

New study of the Karnaphuli River after six decades

HR Wallingford, a British consultancy firm, that conducted the last study on the Karnaphuli River back in 1961, is back to embark on a fresh study on the lifeline of Chattogram after almost six decades.

Chattogram Port Authority (CPA) and HR Wallingford signed a contract for the project at Bandar Bhaban on 19 November, 2020.

Chattogram Port Authority (CPA) Chairman Rear Admiral SM Abul Kalam Azad, British High Commissioner to Bangladesh Robert Chatterton Dickson and HR Wallingford's local agent Dr Manzur Haque, among others were present at the signing ceremony.

According to the port officials, the study styled 'Detailed Hydrologic and Hydraulic Study in Karnaphuli River' has been undertaken to ensure maximum efficiency of the seaport.

Currently, Chattogram port can accommodate vessels with 9.5-metre draft. The study will explore the possibility if the port could accommodate larger ships.

Speaking on ceremony, CPA Chairman Rear Admiral SM Abul Kalam Azad said, 'The port had undertaken infrastructural plans based on the study conducted in 1961. The port will undertake its future plans in line with the recommendations obtained from the latest study.'

British High Commissioner to Bangladesh Robert Chatterton Dickson thanked the port authority for selecting British consultancy firm for the study.

Martin Young, chief technical director, HR Wallingford, said, 'We first studied Karnaphuli River over 60 years ago, so are delighted to return to Chattogram to help the port go from strength to strength.'

US interested in development of Chattogram port



Chargé d'Affaires at US Embassy in Dhaka JoAnne Wagner has said that his country is interested in the development plans for the Chattogram port due to its role as gatekeeper for Bangladesh's export economy.

Wagner conveyed it to Chattogram Port Authority Chairman Rear Admiral SM Abul Kalam Azad.

During the meeting, Wagner said the US Trade and Development Agency is eager to support infrastructure projects in high-growth emerging markets such as Bangladesh with feasibility studies, technical assistance, and pilot projects.

'US companies are ready to provide expertise and systems, including those to reduce congestion and boost efficiency,' she added.

Wagner discussed expansion plans for Chattogram port, including opportunities for participation by US companies; engagement with female entrepreneurs pursuing successful businesses and overcoming gender discrimination; and exploring further opportunities with the operators of Pahartali Textile and Hosiery Mills for using US-grown cotton.

Bangladesh maintains its status as the world's largest ship recycler



Bangladesh's share in breaking ships, globally, has gone up by around 8%, with the country accounting for more than half the ships dismantled across the world last year, according to a report.

With this improvement, the country has also retained its position, like last year's, as the largest ship recycler in the world.

In 2019, Bangladesh captured the world market by dismantling around 55% of ships, confirmed the latest report of the United Nations Conference on Trade and Development (UNCTAD). In 2018, it dismantled over 47% of the globe's ships.

Industry players have called for the government's cooperation to retain this upward trend as the shipbreaking industry has started to recover after long ups and downs.

Bangladesh received 6,682 thousand gross tons of ships for recycling last year, of which over 51% were bulk carriers, 19% oil tankers and over 15% container ships, said Unctad's annual flagship report titled 'Review of Maritime Transport 2020' published on 12 November.

Around 75% of the world's bulk carriers, around 64% of oil tankers and nearly 61% of liquefied gas carriers were recycled in Bangladesh in 2019, read the report.

Meanwhile, more than double the tonnage of vessels for recycling were sold to Bangladesh over India which had 3,251 thousand gross tons, or around 27%. Turkey bought 1,095 thousand gross tons or 9% of the global share.

These three countries represented over 90% of global ship recycling activities last year.

However, global volumes of the recycled tonnage of ships have been on the wane since 2016, said the report.

Volumes fell to 29,135 thousand gross tons in 2016, to 23,138 thousand gross tons in 2017, to 19,003 thousand gross tons in 2018, and to 12,218 thousand gross tons in 2019.

Further, Unctad projected the volume of international maritime trade will fall by over 4% in 2020 due to the unprecedented disruptions caused by Covid-19.

The report warned new waves of the pandemic are further disrupting supply chains and economies and might cause a steeper decline.

However, UNCTAD projected maritime trade will recover in 2021 and expand by about 5%.

At the beginning of 2020, the total world fleet amounted to 98,140 commercial ships of 100 gross tons and above, equivalent to a capacity of over two billion deadweight tonnage.

In 2019, the global commercial shipping fleet grew by more than 4%, representing the highest growth rate since 2014 but still below the levels, it observed during the 2004-2012 period.

China, Japan and South Korea maintained their traditional leadership in shipbuilding, representing over 92% of the new building deliveries in 2019.

Talking about Bangladesh's progress, Mohammad Abu Taher, President of the Bangladesh Shipbreakers and Recyclers Association, said the government had increased the tax on scrap ship imports by 5% in July 2019 but traders had already imported a lot of ships before the tax hike. As a result, Bangladesh became the largest ship recycler in the world.

He also said the shipbreaking sector is still one of the key sectors of Bangladesh. This is because the materials required for setting up small and big industrial factories in the country come directly or indirectly from this sector.

Moreover, the sector supplies 70% of the raw materials required for the country's steel industry.

Bangladesh signs preferential trade agreement with Bhutan

On 6 December 2020, Bangladesh signed its maiden preferential trade agreement (PTA) with Bhutan to boost bilateral trade between the two countries.

Commerce Minister Tipu Munshi and Bhutanese Economic Affairs Minister Lyonpo Loknath Sharma signed the agreement on behalf of their respective sides.

Prime Minister Sheikh Hasina and her Bhutanese counterpart Lotay Tshering witnessed the signing ceremony by joining the event virtually from their official residences in Dhaka and Thimphu respectively.

The PTA with Bhutan is the first such bilateral preferential trade agreement Bangladesh signed with any country since its independence in 1971.

Some 100 Bangladeshi products will get duty-free access to Bhutan. These include baby clothes and clothing accessories, men's trousers and shorts, jackets and blazers, jute and jute goods, leather and leather goods, dry cell battery, fan, watch, potato, condensed milk, cement, toothbrush, plywood, particle board, mineral and carbonated water, green tea, orange juice, pineapple juice, and guava juice.

Meanwhile, 34 Bhutanese products that will get duty-free access to the Bangladeshi market include orange, apple, ginger, fruit juice, milk, natural honey, wheat or meslin flour, homogenized preparations of jams, fruit jellies, marmalades, food preparations of soybeans, mineral water, wheat bran, quartzite, cement clinker, limestone, wooden particle boards, and wooden furniture.

The bilateral trade volume of the two countries was just USD 12.77 million in the fiscal year 2008-09 with Bangladesh's exports to Bhutan amounting to USD 0.61 million while it imported goods worth USD 12.16 million.

The bilateral trade volume reached USD 49.65 million in the fiscal year 2018-19 out of which Bangladesh's exports to Bhutan totalled USD 7.56 million against the imports of USD 42.09 million.



Ship movement begins with the new Mongla port channel



The vessel movement first ever in a new channel at Mongla port began on 19 November 2020

following 85% completion of dredging works in the last 68 years history of the country's second largest sea port.

Four goods laden foreign ships plied through the channel. Deputy Secretary of MPA Mofakharul Islam said that the government had taken decision for creating a new channel at outer anchorage of the Mongla Port through dredging that aimed at increasing navigability of the port.

The executive committee of the National Economic Council in 2018 approved a project titled 'Dredging at Mongla Port Outer Bar Channel' at a cost of BDT 712.50 crore.

MPA signed an agreement with China Civil Engineering Construction Company for dredging 20 kilometres area after completion of tender processing on 13 December 2018.

The dredging area stretches from Hiron Point of Sundarban to the Bay of Bengal.

Over 8.5 metre draft has been created at Hiron Point area while 10.5 metre draft at Harbaria area after completing 85% dredging works at the channel.

Chairman of Mongla Port Authority Rear Admiral of M Shajahan said that ship movement and revenue collection would be enhanced through this channel.

'Mongla port is developing day by day as Prime Minister Sheikh Hasina is very much sincere and cordial to turn the second largest sea port into a centre for export import activities in south-west region,' he added.

EPZ investors allowed reusing import containers for export

The National Board of Revenue has allowed the reuse of import containers for export by investors in export processing zones to reduce time and cost of export.

The NBR's Customs Department issued the standard operating procedures for container reuse for EPZ companies on 5 November, 2020.

Officials said that the NBR made the decision to facilitate foreign direct investment at the EPZs through reducing time and cost of export from the zones. Investors had also been demanding the permission to reuse the same containers used for import of raw materials for export purpose. Exporters at the EPZs usually import raw materials under the bonded warehouse facility to produce finished goods meant for export and the import items transported by the containers are directly released at the EPZs.

Before the reuse benefit was given, shipping agents or freight forwarders used to bring the empty containers back to the ports or container freight stations or other designated depots located mainly in Chattogram. EPZ investors would then bring the empty containers to the EPZs to load the export goods and send them to the ports for shipment. The whole process would require additional time and incur extra cost to complete the export procedures. The revenue board has also been convinced that there should be a provision for reuse of containers to ease doing business. According to the SOP, factories at the EPZs will have to place shipping orders online for full container load and less than container load for carrying export goods.

A customs officer will conduct physical examination during the loading of export goods onto containers and will seal the containers with electronic seal along with the GPS tracking system. The officer, however, will allow the use of the existing bullet seal until the electronic seal and GPS tracking system are not introduced in the country.

The container reuse facility will be applicable for transporting export goods by other exporters within the EPZs if the first exporter who places the online order for containers fails to export on time. The customs officer will issue out-pass for the container and maintain a separate register for reused containers. In the out-pass, the name and address of the factory, name and address of buyers, purchase order or LCs number, invoice, value, quantity, description of export goods, export number, container and seal number and related data must be included.

BPC plans to build new LPG terminal at Matarbari

State-owned Bangladesh Petroleum Corporation (BPC) has decided to set up a dedicated liquefied petroleum gas (LPG) terminal at Matarbari deep sea port in order to meet the growing energy needs of the country.

At present, the country consumes about 1 million MT of LPG annually. The figure was 47,000 MT in 2009, and projected to reach 2.5 million MT by 2025. Three international consortiums, led by two Japanese companies, have already shown interest to set up LPG terminal and submitted separate proposals to BPC and also to the Energy and Mineral Resources Division.

One consortium is led by Japanese conglomerate Mitsui & Co Ltd, in which Korean company SK Gas and local East Coast Group are also collaborating, while the other two consortiums are- one led by Japanese company Marubeni Corporation and the other led by Sumitomo Corporation.

The Netherlands-based Vitol Energy is part of the Marubeni-led consortium while Chungko Electric Power Co Inc is the partner of Sumitomo Corporation. Mitsui Group has been one of the largest business groups in Japan having worldwide businesses in energy and infrastructure, while SK Group is the third largest conglomerate in South Korea owning and operating deep sea LPG terminals and big LPG carriers like VLGCs. The East Coast Group has 35 years of experience in the downstream petroleum sector, including LPG in Bangladesh.

Matarbari Port Construction Project is now under way



The works of Matarbari Port Development Project at a cost of Tk 17,775 crore began on 16 November, 2020.

Chairman of Chattogram Port Authority Rear Admiral SM Abul Kalam Azad disclosed this at a press briefing, after the first meeting with Nippon Koei, a Japanese consultant for the Matarbari Port Development Project, on Bandar Bhaban premises in the port city.

He said that the Matarbari port, first ever deep-sea port of the country, will be operational by the end of 2025 or the

beginning of 2026 and it will boost trade through the Chattogram port.

Earlier, the government appointed Nippon Koei through a contract, to provide consultancy services for the construction of a deep-sea port to handle its growing external trade.

The firm will work on details design, tender assistance, and construction supervision for marine and civil works of the JICA-funded proposed deep seaport at Matarbari area in south-eastern Bangladesh. In the next phase, the container terminal will be expanded to 70 hectares, with a 1,850-metre berth, and handle 2.8 million TEUs per year.

The port chairman said that the deep seaport will have a 16-metre water draft and it will be able to accommodate 8,500 TEU post-Panamax vessels, lessening Bangladesh's dependence on the feeder vessels to ferry export-import goods from different foreign ports.

Denmark is offering help to Bangladesh to go green



Denmark has offered technical assistance to Bangladesh to develop environmentally sustainable projects and make some existing ones environment friendly.

Visiting the environment minister Md Shahab Uddin at his office on 26

November 2020, the Danish ambassador Winnie Estrup Petersen offered to help Bangladesh on a variety of issues related to climate change, including development of surface water treatment plants, toxic water management, increasing use of renewable energy and solar energy, and reducing greenhouse gas emissions.

The Danish ambassador also expressed interest in assisting in turning Chattogram seaport into a green port.

The Danish ambassador also offered assistance for achieving the sustainable development goals, protecting the environment, and strengthening institutional capacities, added the release.

Shahab Uddin thanked the Danish ambassador for the offers and for providing continuous support to Bangladesh since the independence.

He said that the present government was working to address the negative effects of climate change and working to control environmental pollution.

State Minister for Shipping seeks private investment in waterway transport system



State Minister for Shipping Khalid Mahmud Chowdhury has sought private investment to make the waterway transportation system more modern and comfortable.

He urged the private investors to extend their support in the sector while talking to journalists at Sadarghat River Port in Dhaka on 10 November, 2020 while visiting the Buriganga River.

The state minister said the government is thinking to resume a modern water bus service in a circular way around the capital.

Replying to a question, Khalid said, 'We had introduced the water bus service which is not in operation right now. We have gathered experiences from that initiative and we are thinking of restarting a better and more comfortable service. That is why we need support from private investors.'

'We want to welcome them in this sector so that travellers can enjoy a modern and more comfortable trip.'

He also said that they want to create such a waterway trip in future when people other than passengers will come for entertainment purposes.

Shipping Secretary Mohammed Mezbah Uddin Chowdhury, Bangladesh Inland Water Transport Authority (BIWTA) Chairman Commodore Golam Sadeq and other high officials accompanied the state minister during his visit.

Maersk supports maritime education in South Africa



Lawhill Maritime Centre at Simon's Town School offers high school students in Grades 10 to 12 a specialised education and expertise that prepares them for careers in the maritime and related industries. The industry-funded programme has greatly improved the post-school employment prospects of thousands of young South Africans, especially those from financially deprived backgrounds, for more than two decades.

At Lawhill, a special event was held to mark the 25th anniversary of the school and the retirement of long-serving maritime educators. David Williams, Maersk Africa Region Managing Director and Safmarine CEO, spoke at the event and praised the school for the significant contribution the curriculum has made to South African society as well as the transport and logistics industry. Several Lawhill graduates are currently in charge of ships at sea, while others hold important positions ashore, including Maersk.

Thousands of students have gone on to work in the industry, both at sea or on land, in ships' agencies, clearing and forwarding, shipbroking, transportation and logistics.

Jonathan Horn, Maersk's Area Managing Director for Southern Africa and Indian Ocean Islands, reconfirmed Maersk's commitment to supporting Lawhill into the future: "Education and knowledge building are vital for society and Maersk, as our success as a company is linked to the ability of our employees. Long-term success is seldom built on short-term gain and this is very true for the partnership with Lawhill. We are proud of the 25 year relationship Safmarine has had with this programme and, as Maersk, are excited to see what the future holds for this great institution."

Future female maritime leaders will benefit from the IMO's diversity initiative



China sent another maritime satellite into the space on 21 September 2020. According to media reports, As part of the Organisation's on-going efforts to promote gender equity in the maritime field, the International Maritime Organisation (IMO) will fund a number of women from developing countries to participate in a new maritime leadership programme.

The initiative was announced during the first Maritime SheEO conference, which brought together maritime experts in a virtual space on 23 November 2020, to debate the theme "Diversity and Sustainability: The Business Case". Maritime SheEO works towards creating the next generation of female maritime leaders.

Speaking at the opening session, IMO Secretary-General Kitack Lim emphasised the importance of female representation and diversity in the maritime sector and beyond. "Empowering women fuels thriving economies across the world, spurs growth and development, and benefits everyone working in the global maritime community and beyond," he said.

The Conference comes at a time when the impact of the gender equality gap is undeniable. Research shows the COVID-19 pandemic is exacerbating pre-existing inequalities and threatening to halt or reverse the gains of decades of collective effort – with data revealing that the pandemic will push 47 million more women and girls below the poverty line. We are also witnessing increased reports on violence against women throughout the world due to the lockdowns, and women losing their livelihoods faster, because they are more exposed to hard hit economic sectors. Turning this around is a priority for the United Nations (UN) and for IMO, as part of the UN family.

India, Singapore and Thailand participate in SITMEX-20



The two-day trilateral maritime exercise SITMEX-20 in the Andaman Sea was held and the event was participated by the navies of India, Singapore and Thailand.

The two-day maritime drills witnessed the three navies participate in a variety of exercises, including naval manoeuvres, surface warfare exercises and weapon firings.

The SITMEX series of exercises are conducted to enhance mutual interoperability and to imbibe best practices between the Indian Navy, Republic of Singapore Navy (RSN) and Royal Thai Navy (RTN).

The exercise was conducted as a 'non-contact, at sea only' exercise in view of the COVID-19 pandemic and it highlights growing synergy, coordination and cooperation in the maritime

domain between the three navies. The first edition of SITMEX, hosted by the Indian Navy, was conducted off Port Blair in September 2019. The first edition of SITMEX, hosted by the Indian Navy, was conducted off Port Blair in September 2019.

Maritime navigation training with cloud-based simulators



Kongsberg Digital creates cloud-based modeling technology for the maritime industry's advanced operational studies, analysis, and education. The uses of increasingly sophisticated technology, as well as a greater emphasis on safety and sustainability, have raised the bar for creative new data collection, simulation, and sharing solutions to aid in vessel operations optimisation.

Kongsberg Digital, with its digital expertise, is at the heart of this industrial transformation. The advanced simulation technology holds a lot of promise, and it's already being used in a number of international ventures aimed at creating digital twins and autonomous vessels. Furthermore, the firm aims to improve its modelling technologies in order to meet current competency standards. This commitment to enhancing the quality of maritime education and training has resulted in a NOK 24 million grant from Innovation Norway, which will be used to create cloud-based simulation solutions for teaching and practicing navigation.

"Digitalization and the use of big data will play an increasingly major part in improving safety, efficiency and, not least, in contributing to more sustainable maritime operations. Kongsberg Digital is intensifying its commitment to these goals, and is now establishing a new business domain – Digital Ocean – to deliver value-generating digital solutions in close cooperation with our industry partners," comments Hege Skryseth, President, Kongsberg Digital.

Morocco and the EU have signed an agreement on marine research cooperation



Morocco and the European Union (EU) signed on 8 December 2020 an administrative arrangement on cooperation in marine research and innovation.

The agreement would give higher education, scientific research, technology, and marine innovation cooperation between Morocco and the EU a new impetus.

The agreement also aims to better link scientific activities between Moroccan research facilities and research institutions in EU countries bordering the Atlantic in order to take advantage of the benefits of transatlantic cooperation.

In a virtual ceremony, Morocco's Minister Delegate in charge of Higher Education and Scientific Research, Driss Ouauicha signed the agreement along with the European Commissioner in charge of Innovation, Research, Culture, Education, and Youth, Mariya Gabriel.

Ouauicha said that the EU and Morocco's ambition is to reinforce the capacities of Moroccan students and researchers in priority through the administrative arrangement and cooperation with the EU.

"Our desire to encourage joint research, in particular in the fields of climate change, biodiversity and food security," Ouauicha said.

He said the EU and Morocco commit to promote the role of Morocco and its universities as poles of "regional excellence in areas related to higher education and scientific research."

Gabriel also expressed satisfaction with the agreement, emphasising Morocco's geostrategic importance. She said that Morocco bordering the Atlantic Ocean and Mediterranean Sea makes it an important partner in ocean science. The EU official also emphasised the need for cooperation and partnership with Morocco to reinforce understanding of marine ecosystems and the link between the Atlantic Ocean and climate change.

Despite the pandemic, students at World Maritime University graduate



In the Class of 2020, future maritime leaders from 79 nations have graduated at the World Maritime University (WMU). Due to the on-going COVID-19 pandemic, WMU held four small graduation ceremonies (from October 31 to November 1) to commemorate the graduates. They are now

ready to return home and encourage healthy, secure, environment-friendly, effective, and sustainable ocean shipping.

Dr Cleopatra Doumbia-Henry, WMU President, gave welcome remarks at each of the four ceremonies. She said that the Class of 2020 would be remembered for their courage and perseverance in continuing and completing their studies in the face of the COVID-19 pandemic.

In a video message, IMO's Kitack Lim, the first International Maritime Organization (IMO) Secretary-General and WMU Chancellor to hold a MSc degree from WMU, told the graduates, "I trust you to use your new expertise for the benefit of all of us, and that you will foster sustainable development in support of achievement of the United Nations Sustainable Development Goals. When you are advising or representing your country, or when you are negotiating with international partners, you will rely on the education and training that you have received at the World Maritime University."

Brave Dolphin: The ultimate virtual reality simulation platform for maritime emergencies



The shipping industry is one of the most vulnerable to extreme circumstances, such as working in hazardous environments and encountering high economic and environmental risks. One of the most important considerations is safety, and since the vast majority of onboard incidents are caused by human error, the industry places a high value on seafarer training. Until now, this training has mainly been done on-board, but seafarers and the industry as a whole are looking for more immersive and illustrative training options that could also be done ashore.

SQLearn, which is already a leading provider of e-learning solutions and services to the maritime industry, wanted to take a closer look at all the exciting emerging innovations and leverage the various advantages of virtual reality technology to create a groundbreaking educational platform for the shipping industry. It will do so by implementing the “Brave Dolphin” project, which is funded by a grant from Iceland, Liechtenstein, and Norway under

the EEA Financial Mechanism 2014-2021 in the framework of the “Business Innovation Greece” programme.

The primary goal of this project is to create a virtual reality application with a set of training modules for maritime emergencies that may occur onboard. Since it is difficult to model specific safety risk scenarios in a real world, the VR framework will provide interactive scenarios that will give the user a sense of presence in the virtual environment in which they will be allowed to interact, providing an enjoyable and secure learning experience. SQLearn’s Dolphin Platforms is a full suite of professional services for the shipping industry, including e-learning and training management systems, as well as a library of immersive e-learning courses focused on STCW subjects.

New Maritime Academy opened in Poti, Georgia



The Poti Maritime Education and Training Centre was inaugurated by Georgian Prime Minister Giorgi Gakharia. Representatives from the federal, state, and local governments,

as well as donors and representatives from the maritime industry attended the gathering. The Poti Maritime Education and Training Centre is built for 1,000 students and is fitted to modern technical standards. The educational institution would employ up to 250 people, with the majority of them coming from the surrounding area. From 2021 onwards, students will be accepted into vocational education programmes at the Maritime Academy. Short-term training courses will be available this year for those who are interested.

The Maritime Academy was given the building of the Hydro-Melioration Technical College, which is designated as a cultural heritage monument. The building, which was on the verge of collapsing, was completely rehabilitated and returned to its original appearance as far as possible.

The site was in ruins about seven months ago, and no one could have expected that in exactly seven months, it would be possible to begin the educational process here, Georgian Prime Minister Giorgi Gakharia said at the opening ceremony of the Batumi State Maritime Academy branch in Poti.

According to Giorgi Gakharia, after graduating from the institution, Georgian sailors will have high-paying jobs both in Georgia and abroad.

The Black Sea, according to the government’s head, is Georgia’s future and potential. All the government is doing in this direction, he claims, is directed at the future, and spending money on educating the next generation. Every year, Georgian sailors serving in the foreign flotilla contribute about 140 million dollars to the state budget and Georgia in general, according to the Prime Minister.

Jamaica And Kenya Sign Key Maritime Agreement

Jamaica has signed a Memorandum of Understanding with the Republic of Kenya for the ‘Reciprocal Recognition of Standards of Training Certification and Watch-keeping (STCW) Certificates for Seafarers by Nationals’.

The undertaking is for the acknowledgment and endorsement of certificates issued under Regulation I/10 of the 1978 International Convention on the Safety of Life at Sea for Seafarers.

Speaking during the virtual signing ceremony on Thursday (December 17), Director General of the Maritime Authority of Jamaica (MAJ), Rear Admiral Peter Brady, said the MAJ and, by extension, the Government of Jamaica is proud to be a co-signatory of the agreement. He went on to say that the coronavirus (COVID-19) pandemic did not stop both countries from carrying it out.

Admiral Brady pointed out that the proposal evolved from dialogue between himself and the Principal Secretary of the State Department of Shipping and Maritime, Ministry of Transport, Infrastructure, Housing Urban Development and Public Works of Kenya, Nancy Karigithu.

The Director General said the signing of the MOU was a significant occasion for the seafarers of both countries “and, indeed, our respective maritime parent bodies, and governments as we utilise the facility of the International Convention on STCW for Seafarers to allow our professional mariners to legally work on board the ships that are flagged by our two countries”. He said that it was also symbolic of the strong relationship Jamaica shares with Kenya.

According to him, the MAJ recognises that seafarers must be trained and certified in line with the standards stipulated by the STCW Convention, if international recognition is to be maintained.



Does secret of longevity lie on the ocean floor?

Dr Mohammad Nazir Hossain

Longevity or life expectancy is the outcome of cumulative mortality reduction in population across all ages. Developed countries have made remarkable advancement in increasing life span and decreasing mortality rates. Factors that contributed in increasing lifespan include improvements in environmental hygiene, social welfare and health care systems. Moreover, lifestyle and socioeconomic status have clear influence on human longevity. Apart from this, calorie restriction and consumption of antioxidant somehow have huge impacts on lab animals' survivalism although in humans their role is still not so clear. It may be due to genetic variation of humans which can influence both longevity and lifespan. However, the underlying mechanism of longevity still remains a mystery.

How long a human being can live? 70, 80, 100 or 200 years. Even if you follow the strict diet chart of your famous dieticians and work out a lot as per your gym instructor, there is no scientific record that human being lived more than 150 years. Sad?? don't be. Do you know that the largest mammal walking on the land can live only 86 years? Yes, it's true that the largest mammal on land, the Asian elephant can live only 86 years even though they are vegetarians. Question remains, how can you live a long healthy life beyond 100 years or more?



The quest for longevity is nothing new. There are so many stories on quest for longevity across the globe. One such epic is the Babylonian stories of Gilgamesh. Recently scientists deciphered the mythical stories of Sumerian tablets which are almost 4000 years old. In one such Sumerian mythical stories, Gilgamesh (a ruler of ancient Sumerian civilization) was told by Utnapishtim (the man only who survived death and a messenger of God) that immortality of humans

lay in a coral found on the ocean floor. But it took almost 4000 years for the scientists to discover the secrets of eternal life in 1988. This extraordinary discovery was made by a young German Marine Biologist named Christian Sommer.

Sommer was conducting research on hydrozoans, small invertebrates that, depend on their stage in the life cycle, resemble either a jellyfish or a soft coral. Young Sommer went snorkelling in the turquoise water off the cliffs of Portofino every morning looking for hydrozoans and gathering them with plankton nets. He collected a small, relatively obscure species from among the hundreds of organisms known to biologists as *Turritopsis dohrnii*. Nowadays it is widely known as the immortal jellyfish.

While investigating the reproduction cycle of *Turritopsis dohrnii*, Sommer noticed something very unusual but couldn't hypothesise or explain the phenomena. He was baffled because what he observed was beyond the imagination of biologists at that time. Simply speaking Sommer's *Turritopsis dohrnii* sample refused to die. It appeared to reverse the age, growing younger and younger until it reached its earliest stage of development, at which point it began its new life cycle.

Recently scientists discovered more organisms in the ocean having higher longevity compare to organisms on the land. Let's now have a look at some marine species that live longer than our imagination.

1. Killer Whale



Killer whales live around 104 years. In killer whale society, mother really does know best. These whales love to roam around like an extended family. Usually, the oldest female leads the family where her sons, her

daughters, and her daughter's offspring can be found.

Secret of longevity of these whales could be the species' peaceful, family-focused life. Male orcas remain so deeply attached to their mothers throughout their entire lives that they swim more than 40 per cent of the time just a body length away from her. By looking after their younger siblings, these massive but gentle momma's boys help out around the pod, giving the matriarch more time and energy to feed, rest, and reproduce.

2. Bowhead Whale

Bowhead whales are one of the longest-lived mammals on earth. Amino acid dating shows that these mammals can live over 200 years. Not only that these whales don't suffer from any age-related diseases as humans do but also have

amazing capability of cell repair. Researchers recently sequenced bowhead genome and discovered changes in their DNA related to cancer, aging, and cell repair, suggesting that these sprightly cetaceans have evolved special resistance to age-related disease and decline.



3. Orange Roughy



The orange roughy, a reddish-orange fish that isn't rough at all and can live more than 150 years. These slimy little fishes' dwell about 500 to 6,000 feet below the sea's surface and takes 20 to 40 years to reach

their puberty or maturity. Their reproduction age reflects their lifespan although scientists are yet to discover their secrets of longevity

4. Ming the Ocean Quahog

No matter how hard the emperors of Ming dynasty tried to live long but couldn't last more than 300 years. Whereas the ocean quahog surpassed the entire reigning period of Ming dynasty and could live more than 500 years.



Interestingly, these quahog (Ming clam) continue to grow but don't appear to grow old. The bivalve clam equivalent of a 90-year-old human with the body and mind of a 20-year-old.

5. Antarctic Sponge



Anoxycalex joubini, a Snow-white and shaped like a beer barrel, may be the oldest living animal yet discovered by researchers. This Antarctic sponge is older than the famous bristlecone pines in

California live a measly 5,000 years. When this sponge was just a tot, woolly mammoths were still roaming the globe, humans had yet to colonise the Americas outside northern Canada, and under a mile-thick ice sheet, the basins that would become the Great Lakes were still almost entirely submerged.

Such examples of long-lived organisms may add up in the near future. But at present it is evident that some marine organisms live longer than most organisms living on land. Therefore, it is time for the researcher to exploit the full potential of Marine Biotechnology to unveil the secrets of longevity.

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