

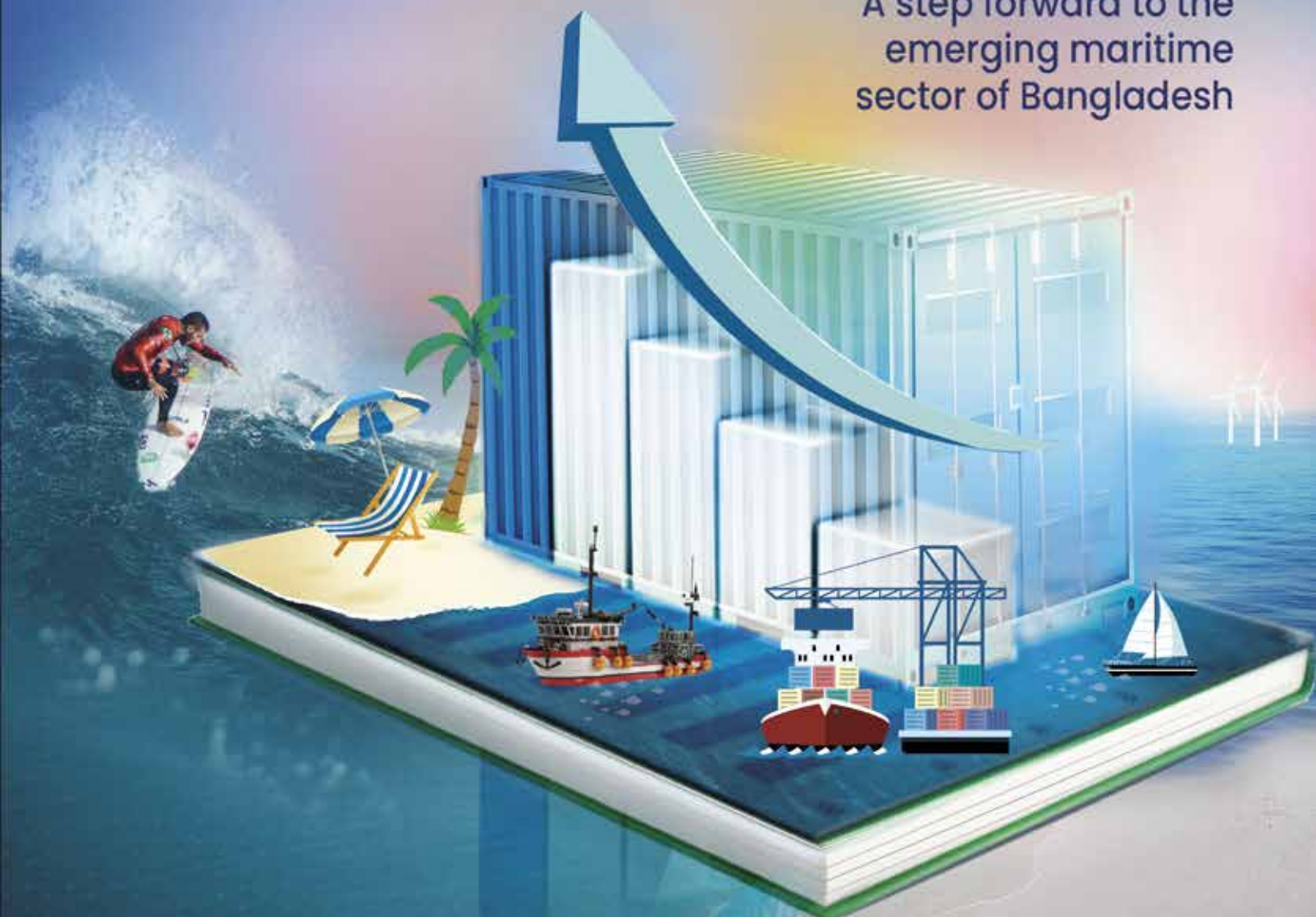
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MARITIME CAMPUS

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

MBA in Maritime Business

A step forward to the
emerging maritime
sector of Bangladesh



Seafarers of Bangladesh and
expanding job opportunities

Circular approach: The future of ports and
the 4th Industrial Revolution

Life Cycle of a Ship



CONCEPTION

- Owners
- Data Providers
- Research and analysis
- Shipbrokers



FUNDINGS

- Banks
- Finance Houses
- Accountants
- Auditors
- Lawyers



DESIGN

- Naval Architects
- Designers
- Classification Society



THINGS GOING RIGHT OR WRONG

- Surveyors
- Casualty Investigators
- Maritime Lawyers
- Arbitrators
- Security Companies



CARGO & COMMERCIALS

- Ship brokers
- Maritime Lawyers
- Freight Forwarders
- Data Providers
- Analysts

SELL OR SCRAP





SHIP BUILDING

- Shipyards
- Manufacturer
- Engineering
- Control systems
- Equipment providers

LAUNCH

- Classification
- Society
- Surveyors
- Inspectors
- Consultants



MANAGEMENT

- Shipmanagers
- Manning Agents
- Training Centres
- Travel Agents
- Consultants
- Auditors



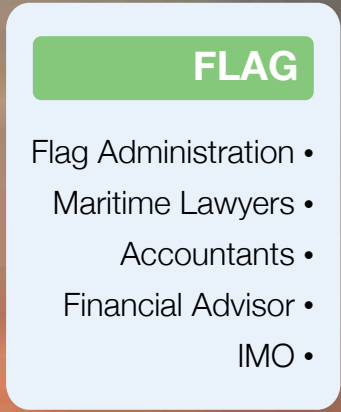
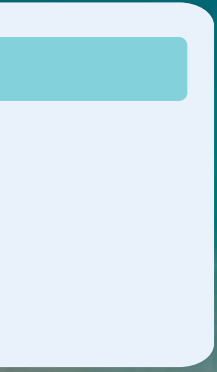
INSURANCE

- Insurance brokers
- Underwriters
- Maritime Lawyers
- P&I Clubs



FLAG

- Flag Administration
- Maritime Lawyers
- Accountants
- Financial Advisor
- IMO



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Editorial

MBA in Maritime Business is the right choice for a maritime career

Maritime business is not a new thing in the world market, but most of the maritime states are unable to be benefitted from the knowledge and techniques of the sector. Due to a lack of understanding of the nature of maritime business, specialised market analysis, and competitive advantage analysis, the majority of developing nations, including Bangladesh, are lagging behind in the maritime sector. In this regard, BSMRMU has introduced an MBA in Maritime Business programme to develop quality human resources and experts to be at par with Government's vision for Blue Economy. This edition of Maritime Campus has highlighted the global and local environment of the maritime business and sorted out that developing quality human resources is the only required solution to be at par with the modern maritime supply chain, which in return, will have a very significant impact on sustainable economic development of Bangladesh.

The tragic RMS Titanic shipwreck left a lasting mark on maritime history. By prompting the world community to critically review its regulations pertaining to the safety of life at sea, the tragedy revolutionised maritime safety. A piece in the "Academia" section provides some professional insight citing British and American inquiry committees' report on the subject.

Besides, as more young people work in the maritime business, it becomes clear that Bangladesh's shipping sector is growing and has the ability to fully utilise the vast territorial seas of the nation. Bangladeshi seamen claim that since the number of ocean-going Bangladeshi vessels has constantly increased, their labour market has expanded. To better grasp the realistic scenario, we have dived into the world of Bangladeshi seafarers in the "Perspective" section.

Currently, linear thinking is the foundation of conventional reasoning. Accounting-wise, this makes sense, but linear thinking has diverted our attention from the circle of life and our true selves. We've lost sight of the importance of moving through reflective learning cycles in order to transform experience into wisdom, and wisdom into value. Therefore, we have incorporated an article in the 'Trends' section that advocates for circular approach to adapt with 4th Industrial Revolution.

Additionally, the 'Campus Canvas', 'Maritime Bangladesh' and 'Around the World' sections will inform you about all the important maritime events and developments happened during the 1st quarter of this year.

Finally, I would like to express my gratitude to the Chief Patron and Honourable 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.

Finally, I appreciate the members of the Editorial Board for their relentless effort to publish this magazine.

Thanking you

Captain A T G M Sarker, (TAS), psc, BN (retd)

Editor and Controller of Examinations

Email: editor.mc@bsmrmu.edu.bd



06

LEAD STORY

MBA in Maritime Business A step forward to the emerging maritime sector of Bangladesh

Bangladesh has a slew of new maritime experts, thanks to the rapid expansion of maritime-related education. Emerging maritime experts are developing new business models and attempting to reengineer the country's present business models. However, the government is moving to explore maritime business in international aspects, either directly or indirectly. As a result, this is an excellent time for Bangladesh's enthusiastic youth to study the MBA in Maritime Business and provide profitable expertise to the country and themselves. The lead story goes into further depth.

28

TRENDS

Circular approach: The future of ports and the 4th Industrial Revolution

Ports have long been thought of as a link in the transportation system. This has an implied linearity to it. If ports are serious about becoming more sustainable, they must use both linear and circular thinking to address the problem. This article emphasised the significance of using a circular approach in order to reap the benefits of the Fourth Industrial Revolution.

15

NEW WAVES

Green Ship: An eco-friendly marine vehicle

A visit to Commodore Superintendent Dockyard and BNFD SUNDARBAN

Sustainable maritime tourism: Challenges and opportunities for Bangladesh

37

PANORAMA

How much oxygen is produced by the ocean?

In addition to being fascinating, oxygen production is essential for the existence of life on Earth. We've got you covered in this article if you don't know how oxygen is produced yet!

02

INFOGRAPHICS

About the ocean and the world

22

CAMPUS CANVAS

News on BSMRMU events and developments

26

PERSPECTIVE

Seafarers of Bangladesh and expanding job opportunities

Seafaring is an internationally connected occupation that can serve to relieve pressure on the home labour market. This section's article contains some key facts to help visualise the current state and future possibilities of seafaring jobs.

24

VIEWPOINT

What is the difference between Weather and Climate?

Why is the weather different from the climate, and what does it comprise of? Many people believe that these two words signify the same thing. But there are several noteworthy differences between weather and climate which are discussed in this article.

20

INFOBYTES

Anecdotes, information and points to ponder from the vast maritime world

30

MARITIME BANGLADESH

News on maritime progress and activities in Bangladesh

10

ACADEMIA

How TITANIC TRAGEDY strengthened maritime safety

The tragic shipwreck of RMS (Royal Mail Steamer) Titanic has left an indelible imprint in the maritime history. A century elapsed; still it attracts the people around the world. Countless books, fictional novels and movies have been generated out of it. On the other side, the Titanic tragedy strengthened the maritime safety! The tragic disaster prompted the international community to seriously revise their laws concerning the safety of life at sea. Read more on that topic in the 'Academia' section.

34

AROUND THE WORLD

Notable news from the global maritime sphere

MBA in Maritime Business

A step forward to the emerging maritime sector of Bangladesh

Editorial desk

The MBA in Maritime Business programme is designed to help graduates develop a strong business sense and the capacity to recognise and capitalise the evolving maritime opportunities all over the world. Furthermore, the curriculum improves the ability to build and operate maritime commercial organisations in a fast-paced setting.

Introduction

Despite the fact that marine business is not a new notion in the globalised market, most maritime states are unable to fully profit from the field's knowledge and techniques. Due to the lack of understanding of the unique nature of maritime business, the majority of developing nations, including Bangladesh, are lagging behind in this sector. Nowadays, entrepreneurs in developing maritime countries like Bangladesh are more interested in expanding these types of businesses. Bangladesh has become more concerned with the growth of the maritime industry as a developing country, as this sector has the potential to contribute significantly to the national economy.

What is Maritime Business?

Any form of financial activity associated with seaborne trade is referred to as Maritime Business. Maritime business refers to any business activity that involves the sea, whether directly or indirectly. Bangladesh now has the opportunity to make transition from a developing to a developed country thanks to the increase of maritime trade. Maritime Businesses deals with the economic, commercial and operational aspects of the maritime industry. It is necessary for the full and successful realisation of global shipping and its linked entities, such as port logistics, supply chains, and other maritime service sectors. Because of several positive indicators, developing countries are particularly enthused about the expansion of maritime business. According to stakeholders, the country's maritime economy can expand quickly if the government of Bangladesh takes immediate

action. The Bangladeshi government is keen on expanding marine trade and conducting maritime research to aid in the development of infrastructure and procedures that would allow the country to achieve its maritime potential for a Blue Economy.

Types of Maritime Businesses

Three types of maritime businesses are thought to have promise in Bangladesh. On-shore Based Maritime Business is the first type, Off-shore Based Maritime Business is the second, and Combined Maritime Business is the third. The key maritime business areas are as follows, based on the three categories above:

On-Shore

- Ship-Building
- Shipping Agency
- C&F Agency
- Terminal Operator
- Crew Manning Agency



- Shipping Line
- Off-Docks
- Chartering & Brokering
- Ship Provision Supply

Off-Shore

- Ship Bunkering
- Sea Food Industry
- Maritime Search and Rescue Facility Business
- IWT Shipping Business Supply

Combined Maritime Business

- Stevedoring Company
- Marine Insurance
- 3PL (Third Party Logistics)
- Classification Society
- Open Registration is under the Combined Maritime Business

Why will Maritime Businesses flourish in Bangladesh?

Bangladesh, as a heavily populated maritime country, is blessed to have a broad swath of territorial waters with a surface area 1.5 times larger than its land area. The coastal area covers over 36,000 square kilometres, or nearly a quarter of the country's entire land area. The continental shelf covers around 37,000 square kilometres, whereas the Exclusive Economic Zone (EEZ) comprises area of sea extending to a line every point of which is at a distance of 200 NM from the nearest base point of the Territorial Sea Baseline. There are around 700 rivers in the country, with a total length of about 24,000 kilometres and an area of nearly 11% of the country's total territory. With around 30 river ports and 4 seaports, the maritime industry is intertwined with a variety of economic activities, making it fundamental to Bangladesh's economic development. Bangladesh has a number of geographical advantages that should help it become a regional leader in the maritime business. Bangladesh attracts neighbouring nations such as India, Myanmar, Sri Lanka, Pakistan, the Maldives, and landlocked Nepal and Bhutan because of the chances to use transit infrastructure. China and India are eager foreign investors who want to extend Bangladesh's maritime influence and potential to benefit their own countries. Therefore, the Maritime Businesses will flourish though we need competent human resources to tap the opportunity.

MBA in Maritime Business at BSMRMU for developing maritime business experts

Bangladesh has a number of emerging maritime experts as maritime-related education is growing rapidly. Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU), the country's first marine university, was established in 2013 to keep pace with the emerging globe in the field of maritime higher studies and research. With the motto "We Strive for Maritime Excellence," the university began its journey as the country's 37th public university, the 3rd Maritime University in South Asia, and the 12th Maritime University in the globe. BSMRMU has introduced an MBA programme on Maritime Business to develop quality human resources and experts to be at par with Government's vision for Blue Economy.

MBA in Maritime Business is a 1.5-year full time professional postgraduate programme divided into 3 semesters. Under the Faculty of Maritime Business Studies, the aim of the programme is to train the students in relevant areas of maritime business. It is a 60-credit full-time programme where regular courses, workshop, seminar, guest lectures on contemporary issues are arranged frequently for the students.



// Lead Story //



Students of MBA in Maritime Business regularly attend study tours to different dock yards, ports and other maritime installations to get a ground-level picture of the maritime industry

Vision: The vision of the MBA in Maritime Business programme is to develop world-class postgraduate to penetrate the global maritime business & industry.

Mission: The mission of the programme is to develop the students in relevant areas of Maritime Business to be professional and competitive.

The outcomes of the MBA in Maritime Business programme are -

- An ability to apply the knowledge of business and management in operating any maritime business organisation
- An ability to formulate business plans and successfully run them
- An ability to work effectively in teams and provide leadership
- An ability to effectively communicate orally, graphically and in writing
- An understanding of managerial, professional and ethical responsibility

Students will be able to undertake the following after successfully completing the MBA in Maritime Business:

- Plan, organize and control any business organizations, especially maritime businesses
- Explain and understand the functional areas of business including: management, operations, marketing, accounting, and finance
- Execute strategic maritime decision and plan,
- Understand the global context of business

Career prospects

After successful completion of MBA in Maritime Business programme, one can get unique opportunities to develop his/her career in the different areas of job market like,

- Entrepreneurship in maritime business
- Banks and Insurance companies
- Universities and related research organisations
- Different government organisations
- Ports as well as local and international shipping organisation

f. Shipping agencies Mark line, NYK etc.

g. Freight Forwarding Companies or Agencies

Programme outline

The detail programme outline with credit points for MBA in Maritime Business have been shown here:

Semester 1 (20 Credit)				
Ser.	Sub. Code	Course Title	Credit	Contact Hours
1.	MB 501	Accounting and Financial Management	3	42
2.	MB 502	Micro and Macro Economics	3	42
3.	MB 503	Management and Organisational Behaviour	3	42
4.	MB 504	Business Math and Statistics	3	42
5.	MB 505	Communicative English and Report Writing	3	42
6.	MB 506	E-Business	3	42
	DEV-501	Study Tour-1	1	3-4 days
	DEV-502	Student Concluding Seminar-1	1	2-3 days
Semester 2 (23 Credit)				
1.	MB 507	Port Operation and Management	3	42
2.	MB 508	Maritime Business and Economics	3	42
3.	MB 509	Human Resource Management	3	42
4.	MB 510	Multi-modal Transportation System	3	42
5.	MB 511	Business Research Methodology	3	42
6.	MB 512	Legal Environment of Maritime Business	3	42
7.	MB 500	Thesis/Internship	3	-
	DEV-503	Study Tour-2	1	3-4 days
	DEV-504	Student Concluding Seminar-2	1	2-3 days
Semester 3 (11 Credit)				
1.	MB 513	Maritime Insurance and Risk Management	3	42
2.	MB 514	Supply Chain and Logistics Management	3	42
3.	MB 515	Strategic Management	3	42
	DEV- 505	Study Tour-3	1	3-4 days
	DEV-506	Student Concluding Seminar-3	1	2-3 days
4.	MB 500	Thesis/Internship	06	-
		Total	60	

Programme structure

Distribution of weeks in a semester is as follows:

- Classes: 15 weeks
- Mid Term Examination: 2 weeks
- Preparatory Leave: 2 weeks
- Term Final Examination: 3 weeks
- Recess: 4 weeks

Degree requirement

Degree requirements for the MBA in Maritime Business are as follows:

- Completion of courses for the minimum required credits of 60 in maximum period of four academic years.
- Appearing at the Final Examination in all the required courses as per syllabus of the programme
- Successful completion of internship and defence of thesis paper scoring a CGPA 2.2 or above

Assessment strategy

The performance of the theoretical courses shall be evaluated through continuous assessment and Semester Final Examination. 40% of marks of a course shall be allotted for continuous assessment and remaining 60% shall be allotted to the Semester Final Examination. The continuous assessment shall include class attendance and participation, quizzes/class test, term paper/assignments/case study and Mid Term Examination.

Admission criteria

Applicants must fulfill the admission requirements as prescribed by BSMRMU.

The minimum requirements for admission into the MBA in Maritime Business programme are:

- A Bachelor degree or its equivalent in any field including Maritime Science, Business, Engineering and Agriculture.
- Applicants with general education must have at least second division or CGPA 2.25 in all public examinations.
- Applicants with GCE must have passed at least five subjects in O level (including mathematics) and at least two subjects in A level. However, applicants having more than two 'D' grades in O level and/or more than one 'D' grades in A level shall not be eligible for admission.



Regular assessment practices like checking and ensuring class attendance, quizzes, term paper assignments and mid term examinations enrich theoretical and practical knowledge of MBA students of Maritime Business

- Applicants having at least two years of job experience shall be given preference.
- Foreign applicants shall apply through their respective embassy.

End thoughts

Bangladesh has a slew of new maritime experts, thanks to the rapid expansion of maritime-related education. Emerging maritime experts are developing new business models and attempting to reengineer the country's present business models. As a result, the government is moving to explore maritime business in international aspects, either directly or indirectly. As a result, this is an excellent time for Bangladesh's enthusiastic youth to study the MBA in Maritime Business and provide profitable expertise to the country and themselves.

Faculty and students of MBA in Maritime Business posed for a group photography session in a study tour





How TITANIC TRAGEDY strengthened maritime safety

Dr MarEngr. SAJID HUSSAIN, CEng CMarEng FIMarEST

Titanic Tragedy

The tragic shipwreck of RMS (Royal Mail Steamer) Titanic has left an indelible imprint in the maritime history. A century elapsed; still it attracts the people around the world. Countless books, fictional novels and movies have been generated out of it. On the other side, the Titanic tragedy strengthened the maritime safety! The tragic disaster prompted the international community to seriously revise their laws concerning the safety of life at sea.

White Star Line's enormous luxury liner Titanic was the grandest ship of her time. She commenced her maiden voyage from Southampton, England on April 10th, 1912. Making stops at Cherbourg, France and Queenstown (now Cobh), Ireland headed for her final destination in New York. Shortly before midnight on April 14th, the ship struck an iceberg, opening six of its sixteen watertight compartments to the sea. The Titanic sank in just under two hours, taking with her 1,502 out of the 2,207 passengers and crew.

Inquiry

Immediately after the accident, investigating committees were formed in both sides of Atlantic. In America, Senator William Alden Smith of Michigan conducted his six weeks long investigation from April 18th. Focal point was 'how' it happened. Smith and his committee began questioning certain individuals (such as J. Bruce Ismay, chairperson of the White Star Line, all the surviving ship's officers, and prominent passengers). A total of 82 witnesses were interviewed. The British Board of Trade (BOT) inquiry began on May 3rd, 1912 that lasted five weeks. The focal point was 'why' it happened. 96 witnesses were interviewed; most of them officers and crewmembers from the Titanic, Carpathia (rescuing ship), and Californian (rescuing ship).

American and British - both the inquiries devoted a great deal of time towards making recommendations concerning the safety of life at sea. Both committees concluded that the existing regulations were far outdated and needed immediate revision. Additionally, they also

focused on the conduct of wireless operators, actions to be taken by ship captains in presence of ice, lifeboat regulations, and shipbuilding codes.

New Radio Act

The American inquiry committee made several recommendations that become part of the Radio Act of 1912. An operator is on duty at all times so that all messages could be received. Direct communication should be established between the wireless room and the bridge by means of a telephone, voice tube, or messenger. Auxiliary power sources should be installed to keep the wireless working at all times. Legislation should be introduced to prevent amateur operators from interfering in official channels, and steps taken to secure the privacy of wireless messages. A bill was quickly proposed in Congress that would make the committee's proposals law, and was passed as the Radio Act of 1912.

In addition to the inquiry committee's recommendations, the Radio Act stated that all wireless operators now had to be licensed and adhere to certain bandwidths, while a large portion of the radio spectrum would be given over to the United States Navy for official use. Amateurs would be allowed to listen to any transmissions, but not broadcast any of their own messages on any wavelength save for the shortest ones, which were considered useless. In response to the third International Conference on Wireless Telegraphy, held in London shortly after the Titanic disaster, the British inquiry committee made its own recommendations regarding wireless regulations. All ships should be fitted with wireless equipment; a sufficient number of trained operators should be provided to ensure continuous operation and service of the wireless; and where practical, a silent room for "receiving" messages should be installed.

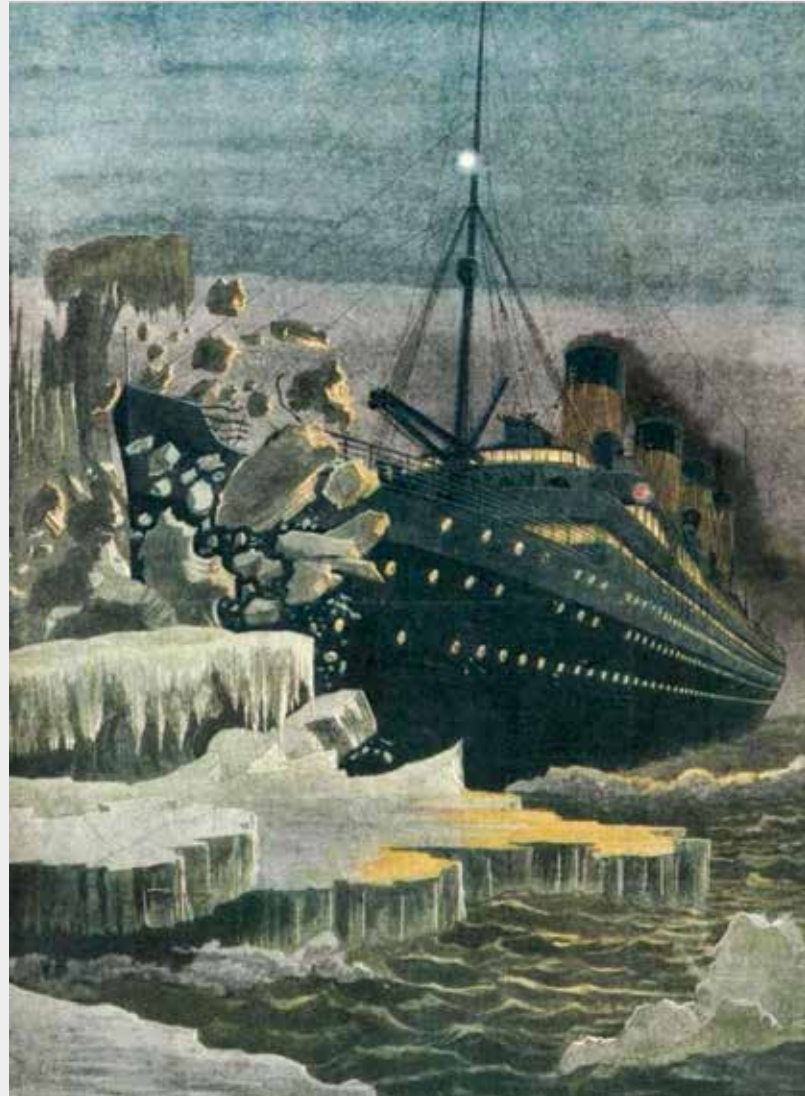
International Ice Patrol

An international conference on the safety of life at sea met in London on November 12th, 1913. It produced an agreement to establish a permanent ice patrol in areas deemed the most dangerous to shipping, signed on January 20th, 1914. On February 7th, the United States Coast Guard assumed responsibility of running the International Ice Patrol (IIP). The patrol's functions are specifically outlined by both United States law and international treaties.

In the beginning, cutters were used to patrol the shipping lanes and make note of the location of ice. After World War II, aircraft began to be employed in the patrol due to their greater mobility. Both human eyesight and special radar are used to search an area between the 52nd parallel (near northern Newfoundland) to the 40th parallel (equal to Philadelphia) during the February-July ice season. Flights are made an average of five days a week every other week, and ice reports are updated twice a day with information on the location of icebergs, their courses, and rates of speed. The budget of IIP is paid for by its 17 member nations. Every year, on April 15th, the chart transmissions sent out by the IIP mark not only the positions of icebergs but that of the Titanic's final resting place, six hundred miles south-southeast of Newfoundland's Cape Race. Two wreaths are dropped over the spot by Coast Guardsmen from a Hercules C-130 airplane. One belongs to the Titanic Historical Society, and the other is on behalf of the International Ice Patrol.

Lifeboats

The Titanic was fully compliant with the lifeboat regulations of the day, yet carried only sixteen of them, enough to hold 1,178 persons—and the Titanic was booked with 2,207 passengers and crew. However, due to the reluctance of many passengers to leave the ship, believing



This evocative picture from France's Le Petit Journal does not show the way Titanic actually stuck the iceberg, but it got its message across to its readers.

that it was unsinkable, nearly all the lifeboats were lowered away without their full complement of passengers. At the end, only 705 were saved.

Both the American and British inquiry committees made numerous recommendations towards the revision of existing lifeboat regulations. The American committee proposed that every ship carry sufficient lifeboats to hold all passengers and crew onboard in the event of an emergency. No less than four crewmembers with knowledge of handling boats would be assigned to every lifeboat, and lifeboat drills for the crew would be conducted and noted in the ship's log a minimum of twice a month. Both crew and passengers would be assigned to lifeboats before the start of the voyage; the assignments would be allocated as to provide passengers the shortest route possible to a lifeboat, and both assignments and directions to the lifeboats would be posted in each stateroom.

The British committee's plans for revising lifeboat regulations were much more detailed. Lifeboat accommodation on passenger ships would be based on the projected number of passengers to be carried, rather than tonnage, and such accommodations would be



This well known painting shows the bravery, the anguish and the fear shown by passengers and crew alike as the women and children were loaded into the lifeboats.

considered independently of the subdivision of the ship into watertight components. In special cases where the BOT believed the provision of lifeboats for all on board to be impractical, requirements would be altered accordingly. This involved changing the sizes and types of lifeboats on board, changing the manners of stowing them, or setting aside an entire deck to the storage of lifeboats and the drilling of the crew. All lifeboats would be fitted with a “protective fender” or bumper, to prevent damage when being lowered. In addition, the committee proposed that the BOT be empowered to require that one or more lifeboats be fitted with engines. All lifeboats would be equipped with lamps, pyrotechnics, compasses and provisions; they would also be marked to easily indicate the maximum capacity of adult individuals when being lowered.

The British inquiry committee also made a number of recommendations for the conduct of lifeboat drills. They proposed that if a ship did not carry enough deckhands to sufficiently staff all the lifeboats, other members of the crew should be trained and tested in boat work to take up the slack. In this light, the committee recommended that steps be taken to encourage boys to train in the merchant service. More frequent lifeboat drills should be conducted; in all ships a lifeboat drill, a fire drill, and a watertight door drill should be conducted as soon as possible upon leaving port, and then again during the voyage at convenient intervals lasting no longer than a week. All this should be recorded in the ship’s log. Before allowing a ship to leave port, the BOT should be satisfied that all requirements had been met and that each officer of the ship knew the plan for efficiently working the lifeboats.

Revised shipbuilding regulations

The American inquiry set forth the following recommendations: All steel ships carrying more than one hundred passengers should have an interior watertight skin in the form of bottom or longitudinal bulkheads extending no less than ten percent of the load draft above the full-load waterline. The watertight skin should run from the forward collision bulkhead to no less than two-thirds the length of the ship. Bulkheads should be spaced so that any two adjacent compartments could be flooded without destroying the stability or “floatability” of the ship. Watertight transverse bulkheads should extend between each side of the ship and attach to the outside hull. Transverse bulkheads surrounding the ship’s machinery should continue vertically to the uppermost continuous structural deck, which should be made watertight as well. Bulkheads near the machinery should extend no less than twenty-five percent of the ship above the load waterline, and all should end at a watertight deck. All watertight decks and bulkheads should be able to withstand water pressure equal to five feet more than the full height of the bulkhead without critical damage, and smaller bulkheads should be tested by subjection to actual water pressure.

The British also made several proposals. A Bulkhead Committee was to report on the “desirability and practicality” of providing ships with a number of new protections. Ships could have a double skin carried up above the waterline; longitudinal and vertical watertight bulkheads extending as far forward and aft as convenient on each side of the ship; or a combination of both. All of this was to be in addition to

watertight transverse bulkheads. Inquiries were also to be made as to the feasibility of fitting ships with watertight decks above the waterline, and a report made as to how such decks should be made watertight. The inquiry committee recommended that the BOT be given legislative powers to require future construction of passenger ships to adhere to the new guidelines.

‘Guild of Benevolence’ by IMarEST London

The Guild of Benevolence is a charity providing assistance to those in need within the marine community and their dependants worldwide. The Guild originated from the Titanic Engineering Staff Memorial Benevolent Fund set up in 1912 by the Institute together with the Daily Chronicle newspaper to help the bereaved families of the engineers of the RMS Titanic, which sank on 15 April 1912.

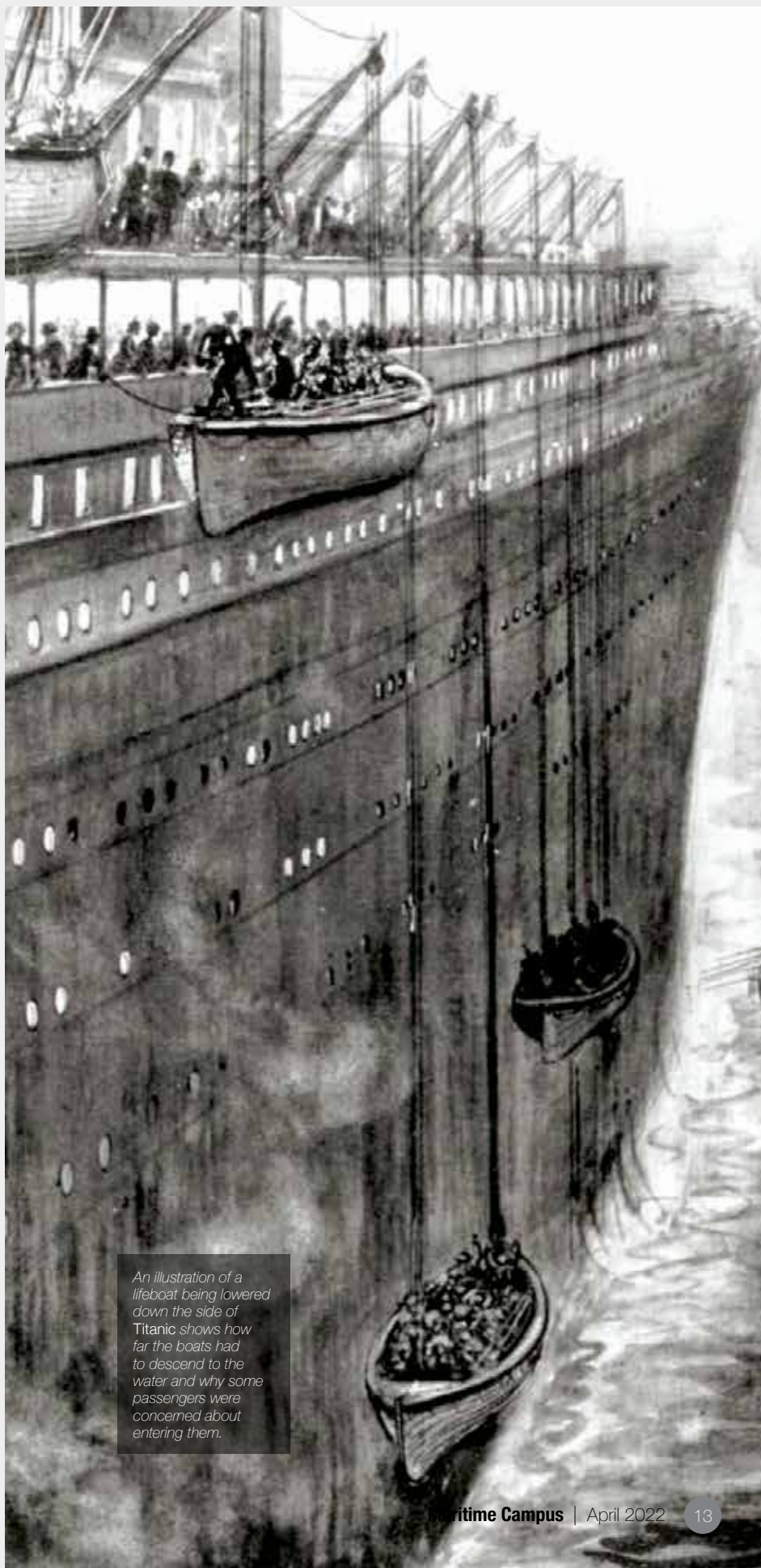
Tragically, all 35 engineers on board lost their lives, from the Chief Engineer Joseph Bell to the Engineer’s Clerk, the ship’s designer and two engineers from Harland & Wolff. These heroic engineers stayed at their posts until the end, maintaining electrical power and keeping the lights on throughout the ship, thereby reducing the danger of panic among the passengers. Power to the radio office was also continued enabling the transmission of distress signals until minutes before the ship sank beneath the waves.

In 1934, the Fund was expanded in response to World War I and became The Institute of Marine Engineers Guild of Benevolence. Since then, the role of the Guild has further developed to assist more generally in the relief of hardship for marine engineers, scientists and technologists and their dependants.

General recommendations

Both the American and British inquiry committees made a number of general recommendations. By law, the United States accepted the inspection certificates of foreign ships whose home countries had similar inspection laws. The committee proposed that unless other nations saw fit to alter their inspection laws accordingly as well, such “reciprocal arrangements” would end. No ship would be licensed to carry passengers from American ports until it conformed to the rules and regulations set forth by United States law. In addition, each steamship carrying a hundred or more passengers should be equipped with two electric searchlights to aid in the detection of ice and other potential obstacles. Firing rockets or other distress signals for any reason other than to communicate an emergency should be made a misdemeanour.

The British recommendations included: all lookouts should undergo sight tests at regular intervals. On all ships, a police system should be devised to ensure control on board in times of emergency. All steamship companies should include in their regulations that when ice has been sighted near or



An illustration of a lifeboat being lowered down the side of Titanic shows how far the boats had to descend to the water and why some passengers were concerned about entering them.

in the path of a ship, the ship should either alter its course to steer well clear of the danger or proceed at moderate speeds during nighttime. All ship captains should be made aware that under the Maritime Conventions Act of 1911, it is considered a misdemeanour to not aid a ship in distress when it is possible to do so. All regulations required of emigrant ships should also apply to all foreign-bound passenger liners.

Final words

Finally, the recommendation was made that an international conference should be convened to establish common laws concerning construction of ships, provision of lifeboats, installation and operation of wireless sets, courses of action in regards to ice, and the use of searchlights. In the years that followed, the joint recommendations of the American and British inquiry committees were passed into law by nations around the world. This heralded a commitment to the continuing preservation of safety of life at sea that has continued to this day. Since the implementation of the International Ice Patrol, no ship that has heeded its warnings has been lost or damaged near the Grand Banks. All passenger ships are now required by law to carry enough lifeboats for everyone on board, and they all have exact guidelines to follow in any type of emergency. The days of ship owners conducting "business as usual" are gone. This is the Titanic's enduring – living legacy. And it is indeed — to this day, there has never been another tragedy quite like that of the RMS Titanic.

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Dr MarEngr. Sajid Hussain CEng CMarEng FIMarEST

Commandant, Bangladesh Marine Academy
IMO Maritime Ambassador
Trustee & Council Member, IMarEST London



RMS Titanic
41° 73' N, 49° 95' W



Green Ship

An eco-friendly marine vehicle

Noshin Saiyara

Each year, ships carry 11 billion tons of cargo. Based on the current world population, this amounts to an amazing 1.5 tons per person. Modern existence is supported on the ability of shipping to transport products and resources from their point of origin to their final destination.

However, the shipping industry has a great impact in our environment. A huge ship might burn up to 250 tons of fuel every day, according to the University of Colorado Boulder's College of Engineering and Applied Science. To put it in context, that's almost 80,000 gallons of gasoline every day. Ships of normal size, on the other hand, may consume up to 150 tons of fuel every day which means the shipping industry consumes about 300 million tons fuel every year. Burning fuels also emits a large amount of CO₂ in atmosphere. These shipping industries release almost 3% of world's CO₂ every year which is not a very large scale but sulphur emissions (15%), other particular matter (10%) that is considered a serious matter.

At this situation the researchers and customers are now focusing on decarbonisation & eco-friendly marine vehicles.

Now let's talk about what is GREEN SHIP?

The environment must be taken into account in every aspect of shipping, from the design of a new vessel to its decommissioning. By regulating exhaust emissions, anti-fouling, ballast water, and other issues, The International Maritime Organisation (IMO) is working to lessen the effect on the maritime sector. Regulation will make the sector more ecology friendly. The International Maritime Organisation suggested a sulfur limit for ocean-going ships' exhaust stacks in 2020. IMO has set a goal for ships to reduce their overall greenhouse gas emissions by half by 2050.

Green ship technology means using methods the reducing emission and energy consumption during ship construction processes for example hull construction, painting and fitting. However, A Green Ship should also maintain all the rules and regulations related to environmental protection and reservation. Thus, if it's a green ship then special attention is provided during its manufacturing and service processes.

An ecofriendly and efficiently designed Green Ship can be built by-

- Reducing material use during ship construction.
- Reducing the amount of energy and harmful materials used in ship construction.
- Machine that is efficient
- Improving the ship's general design
- During ship repair, reusing ship components and accessories

Using green ship technologies during ship construction operations such as hull construction, painting, and fitting implies reducing emissions and energy usage. Furthermore, a green ship must adhere to all environmental protection and conservation standards and regulations. As a result, if it's a green ship, more care is taken during the manufacture and maintenance operations.

The green marine vehicles some characteristics such as advanced hull and propeller system, waste recovery system, eco-friendly paints and fuel, less emissions of CO₂, sulphur and other particles. These characteristic of green ship has got the attention of customers, and now they are demanding for this type of marine vehicles. That means green ship will be the ultimate future of the world's shipping industry.

[Note: some data were taken from <https://www.imo.org/> and <https://www.colorado.edu/engineing/>]

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A visit to Commodore Superintendent Dockyard and BNFD SUNDARBAN

Mehedi Islam Limon

From March 28 2022 to 2 April 2022, we the students of Naval Architecture and Offshore Engineering, 1st batch, BSMRMU had an internal study tour to Chattogram and Cox's Bazar with our team leader Commodore M Ziauddin Alamgir (retd) Sir along with Commander Saiful Ahmad Sir and Sunanda Majumdar Ma'am. On the morning session of the first day in Chattogram, on 29 March, we visited Commodore Superintendent Dockyard (CSD), Bangladesh Navy Floating Dock SUNDARBAN, also known as BNFD SUNDARBAN.

Commodore Superintendent Dockyard (CSD)

During our visit, we learned that Commodore Superintendent Dockyard is one of Bangladesh's most important ship repair yards, providing repair and maintenance assistance to the ships of Bangladesh Navy. It is located on the banks of the Karnaphuli River, Chattogram and covers an area of 43 acres. With its own experience and staff, it can carry out all types of repair, refurbishment, and maintenance work on BN ships and facilities. The Commodore Superintendent Dockyard contains a total of 27 workshops that deal with the ship's complicated technology and engineering systems.

Let me give you a picture of CSD. The workshops of CSD are divided into 4 departments: HULL, MECHANICAL, ELECTRICAL and ORDNANCE department. The workshops are:

Hull Department:	
<ul style="list-style-type: none"> • Plater and Welding Shop • Carpentry and Boat Building Shop • Sail and Color Loft • Rigging Shop • Life Raft Servicing Center 	<ul style="list-style-type: none"> • Paint Shop • Ship Fitting Shop • Boat Workshop • Pressure Vessel Testing & Recharging Station • BN Slipway
Mechanical Department:	Electrical Department:
<ul style="list-style-type: none"> • Diesel Engine Shop • Machine Shop • Fitting Shop • Motor Transport Workshop • Lagging Shop • Foundry Shop • Refrigeration and AC Shop 	<ul style="list-style-type: none"> • Heavy Electrical Shop • Weapon Control, Gyro and Sonar Control Shop • Calibration Centre • Radio and RADAR Shop • Battery and Electroplating Shop
Ordnance Department:	
<ul style="list-style-type: none"> • Gun Shop • Anti-Submarine Weapons Shop 	

The functions of CSD are:

- Scheduled refits including dry docking of BN ships, craft, vessels, boats, pontoons and Coast Guard vessels when requested
- Hull repair, equipment and machinery repair and overhaul including testing
- Alterations, additions and modifications to replace old equipment with new one
- Fabrication and manufacturing of equipment, parts and spares
- Construction of small ships, craft, pontoons and other marine structures
- Provide berths and shore facilities to BN ships
- Anticipate the requirement of materials, stores and equipment for the refit ships and crafts in such a manner that the orders can be placed and the stores are available for timely completion of refit
- Provide supply, repair and maintenance of naval armaments

BNFD SUNDARBAN

A dry dock is a small basin or vessel that may be flooded to allow a load to float in, then drained to allow the load to land on a dry platform. Ships, boats, and other vessels are constructed, maintained, and repaired on dry docks. But the BNFD SUNDARBAN is a floating dock. It is a special type of dry dock having a lifting capacity of 3500 tons. It's an organization of CSD. On 15 August 1980, Yugoslavia (a former federated country in Eastern Europe) gave us this floating dock. Tito Shipyard in Trogir, Yugoslavia, built it. It is 117 metres in length and 27.6 metres in width.

This internal study tour provided us with hands-on knowledge of shipbuilding and maintenance. Additionally, we learn more about Bangladesh's naval architecture and its potential.

Reference: <https://csd.navy.mil.bd/>

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Sustainable maritime tourism Challenges and opportunities for Bangladesh

Md. Bayzid Mahmud



Introduction

Bangladesh is a stunningly beautiful country with abundant natural resources. The country's seas, mountains, rivers, forests, lakes, cultural diversity, historical sites, and other attractions draw both domestic and international visitors. The Bangladesh Tourism Corporation was established by Presidential Order PO No. 143 issued by the Father of the Nation, Bangabandhu Sheikh Mujibur Rahman, in the post-independence period. Through the Tourism Act of 2010, the Honourable Prime Minister Sheikh Hasina established the Bangladesh Tourism Board (BTB) with the goal of strengthening the tourism system and promoting our country's tourism to the rest of the world. Tourism plays an important role in economic and social development around the world and a major source of revenue for many countries. The tourism industry contributes 10.4% of the global GDP and employs 9.9% of the global workforce. Our tourism sector, on the other hand, contributes only 4.3% of GDP and 3.6% of human employment. However, there is a lot of tourism potential in our country. Through proper management of sea and coastal tourism, Bangladesh's tourism industry will be able to achieve long-term development.

What is sustainable maritime tourism?

Sustainable maritime tourism refers to the development of old and new tourism sectors with long-term action plans for future generations, keeping them stable without destroying existing natural resources. Sustainable maritime and coastal tourism can help achieve the goals of a sustainable maritime economy in a big way.

The huge tourism opportunities created in the vast maritime region and its environs need to be made attractive to tourists from home and abroad and effective measures need to be taken and implemented. If sustainable maritime tourism is practiced, it will have a significant impact on the country's economy. The tourism industry is waiting with huge potential for this country with its traditional generous culture. In addition, there are various challenges that need to be addressed in order to sustainably develop the industry.

The possibility of sustainable maritime tourism based on Area:

Cox's Bazar: The world's longest beach is already a major tourist destination. However, there are still concerns about the implementation of environment-friendly and sustainable tourism. In our seas and surrounding areas, eco-tourism can be developed on a large scale. It is critical to organise all of the new hotels, restaurants, and markets that have opened near the beaches. Furthermore, both the public and private sectors can work together to develop new tourist destinations. It is necessary to make it a tourist centre without harming the environment. Activities like parasailing, paragliding, balloon flight, cable car, etc. can be introduced. As well as water skiing, bait fishing, six boats, scuba diving, kite surfing, bait paddling, kayaking, etc. can be introduced. Dolphin Show can be arranged in Cox's Bazar and the surrounding areas, in addition to the large marine aquarium. All of these applications can be expanded to include a long marine drive with breathtaking views of the mountains and sea on both sides. They can also arrange for dedicated beaches to attract

foreign tourists. The most important thing is to ensure everyone's safety. Everyone should be on the lookout for such measures that do not harm the environment or biodiversity.

St. Martin's Island: The only island in Bangladesh where corals are present. Tourists are always attracted to this island. But due to the unawareness of the people and the mismanagement of this island, the green land of infinite beauty has gradually lost its splendor. At the same time, the biodiversity surrounding the island is under threat. So, the mismanagement that has developed around this island should be.

Chattogram: Chittagong is the main seaport city in the country, built on the banks of the river Karnaphuli. The city is currently undergoing major development, which will further strengthen the tourism system in the future. The Bangabandhu Tunnel will be able to integrate the two main beaches of Chattogram, Patenga, and Parki Beach area. Although Patenga Beach is now given a touch of modernity, the mismanagement of the beach is depriving its beauty. If Parki Beach can also be brought under sustainable development, these two beaches will be able to become major tourist attractions. Newly built hotels, restaurants, and markets need to be brought under proper management so that they do not become a cause of the environment pollution. At the same time, the development of new recreational facilities will make these places the centres of attraction for local and foreign tourists. This area will also become a favorite of many tourists if parasailing, paragliding, balloon flights, cable cars, etc. can be made available around the area. In particular, the newly created Outer Ring Road could create new areas for tourist attraction. At night, the vast sea on one side of this road, the beauty of the helium light of the Chattogram Port on the other side, will fascinate us. Besides, it will be possible to attract tourists by setting up eco-tourism parks in these areas. In addition to these two beaches, some beaches have become popular with tourists in a new way. North Kattali Beach, Halishahar Beach, Guliyakhali Beach, and Bashbaria Beach are some of them. It is possible to create new tourist areas by focusing on these beaches. These tourist centers will have a huge positive impact on the socio-economic aspects of that area if they provide the basic necessities and facilities without any harm to the environment or biodiversity.

Sundarbans: Sundarbans, one of the largest mangrove forests in the world and one of the World Heritage Sites, is one of the most popular places for tourism. This forest and the islands, beaches, and rivers adjacent to it have been attracting tourists for a long time. But due to mismanagement and a lack of human awareness, the biodiversity of this forest is at risk. It is possible to expand tourism around this forest through proper eco-tourism management. In order to attract tourists from home and abroad, activities like low-cost pleasure cruises, fishing in certain places, etc. can be encouraged. In addition to this, more tourists will be interested in coming here if arrangements can be made more attractive to the unknown beach, char, or island adjacent to the forest. It is possible to develop sustainable marine and coastal tourism around the Sundarbans by taking appropriate measures to protect the biodiversity and environment of the forest, improve the transportation system, and strengthen the adequate security system.

Other Destinations: Due to the widespread use of other tourist destinations through social media, many coastal places in our country have become popular tourist destinations for the benefit of travelers. The number of people in these places is increasing. If these places can be made widely known to the people through appropriate measures, then these tourist centers will play a huge role in the tourism of the country. Proper and far-reaching management of Dublar Char, Char Kukri Mukhi, Monpura Island, Bangabandhu Sanna, Tarua Beach, and islands like Kutubdia, Sandip, Vela, etc. will play a major role in the development of tourism in the country.

Challenges of implementing sustainable maritime tourism:

- Lack of proper planning: No program can be implemented without proper planning. Although some plans have been made for the development of the tourism industry in our country, it is important to have a proper plan focusing on sustainable maritime and coastal tourism.
- Lack of long-term planning on development projects: In order to implement sustainable maritime tourism, it is necessary to adopt accurate and long-term plans and avoid any short-term or hasty



plans. Building a sustainable maritime tourism industry is not all there is to lean toward short-term planning.

- **Lack of public awareness:** One of the foundations of sustainable development is development without harming the environment. Lack of public awareness, it is not possible to preserve the environment properly. Besides, implementation of various developmental activities is often not possible without public awareness.
- **Insufficient budgets:** As we are a developing country and we need to promote sustainable maritime tourism, it is not possible to develop this sector without an adequate budget. The development of this sector is not possible if the government, as well as various non-governmental organizations, does not allocate and spend sufficient funds for various sustainable development activities in this sector.
- **Weak means of communication:** The weakness of the means of communication systems discourages tourists. Therefore, it is not possible to sustain the country's maritime tourism system with poor connectivity. Sustainable marine and coastal tourism are not possible if all land, water, and air transport facilities are not comfortable.
- **Uncertainty about the participation of people from all levels:** Sustainable Maritime and coastal tourism development is not possible without the spontaneous participation of all the stakeholders. At the same time, sustainable development of marine tourism will not be possible without ensuring the participation of people from all walks of life and their participation in development projects through their views, considering the religious and socio-economic conditions, as all these elements are part of sustainable development. The lack of coordination between government and non-government organizations is also a huge undertaking for sustainable development, so the participation of various government and non-government organizations in this activity is very important. Lack of coordination among various ministries, departments, ministries, development assistance agencies, local government authorities, etc. hinders the formation of sustainable maritime tourism. Without skilled and well-educated human resources, it is impossible to build a sustainable tourism system. Inefficient or uneducated human resources are hampering the development of marine and coastal tourism in a sustainable and epoch-making way.

- **Lack of proper and updated promotion:** Publicity insufficiency can attract domestic and foreign tourists, which will play a key role in building sustainable maritime tourism. Weakness of the media or lack of public and private media in the field of publicity and the inability to properly promote the country's maritime tourism is lagging us far behind.

Conclusion

Establishing a sustainable maritime and coastal tourism system will play a key role in shaping the Blue Economy. This sector is expected to play a significant role in the socio-economic development of the country. Universities can play a huge role in conducting extensive research on the tourism sector.

At present, various government universities, institutions, and higher authorities are giving priority to sustainable maritime tourism, and it will increase in the future. In the path of continued economic development of this country with immense potential, the present government is undoubtedly giving utmost priority to public welfare activities, which has inspired us to reshape our tourism sector. In order to achieve the Sustainable Development Goals by 2030 and as one of the most important components of the much-discussed Blue Economy, the government will always focus on sustainable maritime and coastal sustainable tourism and overcome all challenges and obstacles to bring huge development to the industry.

Sources:

1. *Journals and Newspapers.*
2. *Bangladesh Tourism Board*

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Ocean Fish Facts



Source of protein for humans

Ocean fish are an important source of protein for around three billion people worldwide. Fish is a great source of protein, vitamins and minerals - so it's no wonder that so many people rely on fish as a key part of their diet! Fish is also a low-fat, heart-healthy option that can be prepared in endless delicious ways.

Oceans and fish species

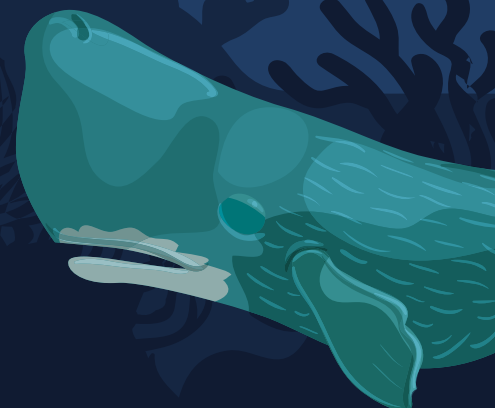
Fish live in every ocean on Earth, even in the Arctic Ocean. There is an astounding variety of different types of fish that can be found in oceans, from tiny sardines to huge sharks!

480 million years of evolution

Fish have been living in oceans for over 480 million years! This means that fish have been around for a very long time! Fish have had plenty of time to evolve and adapt to their environment, which has resulted in an impressive diversity of fish species. There are currently about 20 000 different types of ocean fish, making them one of the most diverse groups of animals on the planet.

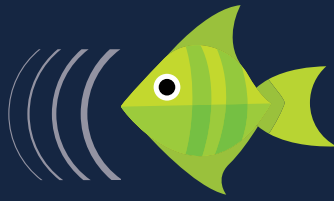
Some fishes live long

Some types of ocean fish can live a very long life. For example, the coelacanth is a type of ocean fish that can live up to 100 years old. This is an impressive feat, especially considering the fact that most fish only live for about 20 - 30 years. The coelacanth is a special type of fish because it is one of the few species that has been around for millions of years! It has been nicknamed a 'living fossil' as it is believed to have been around since the time of dinosaurs!



Sense of smell

Ocean fish can smell very well. This is because their senses are adapted to help them survive in an ocean environment. The visibility in deep waters is very low, so fish rely on their sense of smell to help them find food and avoid predators. Some fish can even smell food that is located hundreds of metres away!



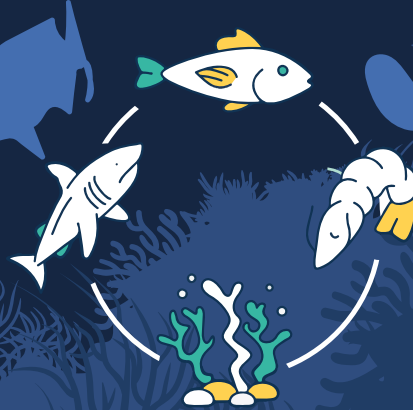
Snorkelling with school

A group of fish is called a 'school'. This term comes from the fact that the same type of fish often swim together in large groups. Some people believe that swimming with a school of fish can be calming and therapeutic, so diving or snorkelling in oceans where fish are schooling can be a great way to relax and enjoy the natural world.



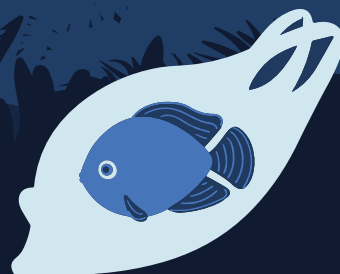
Important stake in the ocean food chain

Ocean fish play an important role in the food chain and they serve as a source of food for many different types of animals. This includes everything from sharks and whales to seabirds and land animals. By eating fish, other animals are able to get the nutrients they need to survive.



Under microplastic threat

Microplastics are affecting the life of ocean fish, as they can cause damage to digestive systems of fish and lead to death. There are more than 51 trillion microplastics in the sea - that's more than the number of stars in the Milky Way!



1st Foundation Training for faculty members and officers held at BSMRMU



A Foundation Training for the faculty members and officers of the university was organised by Academic Quality Assurance and Evaluation Department for the first time from 9 December 2021

to 18 January 2022. On completion of the course, a certificate awarding ceremony was held where the former Vice-Chancellor of the university Rear Admiral A S M Abdul Baten (ret'd) was present as the Chief Guest and the Honourable Vice-Chancellor of the university Rear Admiral M Khaled Iqbal (ret'd) as the Special Guest. Treasurer, Registrar, Deans, faculty members, officers and staff attended the programme. A total of 24 faculty members and officers of the university participated in the training course. On completion of the ceremony, the Chief Guest and the Special Guest visited the university library, Muktiyuddho (Liberation War) Corner and few specialised labs. Besides, a book exhibition along with display of wall magazines and photographs was also held at the corner of the central library.

Orientation programme for undergraduate students

On 16 January 2022, BSMRMU organised an orientation programme for the 4th batch of BSc in Naval Architecture and Offshore Engineering (NAOE), 5th Batch of BSc in Oceanography, 3rd batch of both BBA in Port Management & Logistics and LLB in Maritime Law and 2nd batch of Marine Fisheries at Shaheed Moazzem Hall of Bangladesh Navy in Mirpur-14, Dhaka. The Vice-Chancellor of the university, Rear Admiral M Khaled Iqbal (ret'd) graced the occasion as the Chief Guest. Treasurer, Registrar, Deans, faculty members, officers, staff and students attended the programme maintaining COVID-19 health guidelines. At the beginning of the programme, the students were given warm reception at BSMRMU for joining this specialised maritime university. In the opening session, a number of senior students shared their experience in the university with the freshers. In the second session, a briefing session was arranged to keep the new comers abreast with the different aspects of financial regulations of the university, academic discipline, examination regulations, usage of the library etc.



BSMRMU observes the Martyrs' Day and International Mother Language Day-2022



On 21 February 2022, the Martyrs' Day and International Mother Language Day-2022 was observed with due reverence and sanctity. A delegation led by the Vice-Chancellor Rear Admiral M Khaled Iqbal (ret'd) paid homage to the language martyrs at the Central Shaheed Minar (Language Martyrs' Monument) at the beginning of the day. Later, an essay competition and a cultural programme were held. The Honourable Vice-Chancellor graced the programme as the Chief Guest. Later, the Chief Guest distributed prizes among the winners of the competitions. At the concluding part, a special prayer was offered for the language martyrs and for the prosperity of our country and the university.

BSMRMU observes Independence and National Day-2022



The Independence and National Day-2022 was observed the BSMRMU in a large scale with due reverence. This time a day-long programme was organised in the Shaheed Moazzam Hall of Bangladesh Navy at Mirpur 14, Dhaka. In the opening session, a documentary film on the Liberation War of

Bangladesh, as well as life and works of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman was screened before the audience. Thereafter, eminent Nou Commando Commodore A W Chowdhury, Bir Uttam, Bir Bikrom delivered a lively and enchanting lecture on 'Operation Jackpot' which was the turning point of the Liberation War. In the evening session, a colourful cultural show was arranged by the Cultural Club. Almost all the faculty members, staff and the students were present in the occasion. Honourable Vice-Chancellor of the university Rear Admiral M Khaled Iqbal (retd) graced the occasion as the Chief Guest.



Observance of Historic 7th March



BSMRMU marked Historic 7th March in its campus with scholarly and artistic activities. Eminent educationist Professor Dr Syed Manzoorul Islam graced the occasion as the Guest Speaker. To commemorate the day, a documentary film was screened on the Historic 7th March speech of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman, as well as paintings and books on his life and work were displayed. Rear Admiral M Khaled Iqbal (retd), the Vice-Chancellor of the university, graced the occasion as the Chief Guest. The Treasurer, Registrar, Deans, faculty members, officers and staffs of the university attended the function as well. The event was streamed live on BSMRMU's official Facebook page.

Celebration of Birth Anniversary of the Father of the Nation



The Birth Anniversary of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman and National Children's Day-2022 was celebrated by BSMRMU on 17 March 2022. The Vice-Chancellor of the University, Rear

Admiral M Khaled Iqbal (retd) graced the occasion as the Chief Guest and Professor. Dr Syed Anwar Hossain, BUP Bangabandhu Chair and eminent educationist was present as the Special Guest and Guest Speaker. The Treasurer, Registrar, Deans, faculty members, officers, staff and students of the university attended the function. The day's programme began with the Cake Cutting ceremony, and later, a documentary film was screened on the lifespan of Father of the Nation. Besides, an essay and poem recitation event was organised with the participation of students. The event was streamed live on BSMRMU's official Facebook page as well.

29th Syndicate Meeting held



The 29th Syndicate Meeting of BSMRMU was held on 10 January 2022. The meeting, which took place in the conference room of the university, was presided over by the Honourable Vice-Chancellor and the President of BSMRMU Syndicate Rear Admiral M Khaled Iqbal, NBP, BSP, ndc, psc (retd). Several decisions were taken at the meeting on a number of important issues related to the development of the university including the approval for the appointment of teachers, officers and staff for the various posts. The meeting also approved a study leave of a faculty member, to open the MSc in Coastal and River Engineering programme, curriculum and fee structure for special Masters programmes with physical and online learning, as well as the affiliation of Bangladesh Naval Academy and its curriculum etc.

BSMRMU inspected 4 Marine Academies



Bangladesh Marine Academy, Sylhet

Four Marine Academies (Rangpur, Sylhet, Pabna and Barishal) of Bangladesh had applied for affiliations under BSMRMU. As per their applications, four separate committees were formed for inspection. In this regard, Bangladesh Marine Academy, Sylhet was inspected on 14 and 15 February 2022, Bangladesh Marine Academy, Rangpur on 19 and 20 February 2022, Bangladesh Marine Academy, Pabna on 26 and 27 February 2022 and Bangladesh Marine Academy, Barishal on 2 and 3 March 2022. At the end of the inspection, each inspection team submitted their report with observations and recommendations. All the inspection teams have suggested conditional affiliation of these academies under BSMRMU from the academic year 2021-2022.



Bangladesh Marine Academy, Rangpur



Bangladesh Marine Academy, Pabna



Bangladesh Marine Academy, Barishal

BSMRMU delegates attended the Graduation Parade at Marine Fisheries Academy

The graduation parade of the 41st batch cadets of Marine Fisheries Academy was held on 8 March 2022 at Bangladesh Marine Academy, Chittagong. The graduation parade of 56th batch cadets was held on 13 February 2022 at the same premises. Nominated officers and teachers of BSMRMU participated in the graduation parade.

VC of BSMRMU discussed maritime best practices in an induction training programme

The Nature Conservation Management (NACOM), a non-government and pro-environment organisation in Bangladesh, organised an induction training programme on 30 March 2022 via Zoom platform. The training programme was named 'Biodiversity Induction Training for Floating Storage and Re-Gasification Unit (FSRU)/PSV. The Honourable Vice Chancellor of BSMRMU Rear Admiral M Khaled Iqbal (retd) presented an outstanding paper on 'Discharge of Effluents and Marine Pollution: Best Management Practices and Legal Issues' in the training programme.

With the participation of Chief Engineer, Marine Engineers and LNG Engineers, the training programme facilitated 40 foreign trainees of Summit LNG Terminal Co. (Pvt) Limited's FRSU with maritime knowledge related to biodiversity and pollution. It particularly denoted on the biodiversity around Sonadia island, operational discharge of effluents from the vessels and its management, legal aspects of ship borne pollution and best practices, as well as the potential impact on ocean water quality due to thermal discharge. Later, the trainees express their grateful appreciation as they have learned a lot from the maritime industry's academics and practitioners in the induction training programme.

VC attends the APAN53 meeting



APAN (the Asia Pacific Advanced Network) organised 53rd meeting from 7-11 March 2022 at Nabab Nawab Ali Chowdhury Senate Bhaban, Dhaka University. BSMRMU Vice-Chancellor Rear Admiral M Khaled Iqbal (ret'd) attended the event and presented his valuable thoughts on different aspects

of maritime knowledge. The event, named as APAN 53, is a continuation of successful delivery of APAN52 that was hosted in Universitas Islam Indonesia (UII) last year. The event held on a virtual platform called WHOVA. However, in addition to the online event the inaugural event was held in Hybrid Format where the local participants joined physically and the overseas participants virtually. Around 200 participants including distinguished researchers, academics, government officials, business people, entrepreneurs and foreign delegates were present at Nabab Nawab Ali Chowdhury Senate Bhaban, Dhaka University in the inaugural session. Moreover, renowned researchers, engineers and academics from all across the globe had participated in the event virtually. Dr Dipu Moni, M.P. and Honourable Minister, Ministry of Education graced the inaugural session by being physically present at the venue as the "Chief Guest" on 08 March 2022.

34th Academic Council Meeting



The 34th Academic Council Meeting of Bangabandhu Sheikh Mujibur Rahman Maritime University was held at the temporary campus at Mirpur-12, Dhaka on 23 February 2022. The meeting was presided over by the Honourable Vice-Chancellor and President of BSMRMU Academic Council Rear Admiral M Khaled Iqbal, NBP, BSP, ndc, psc (ret'd). Various academic decisions were taken at the meeting on a number of important issues related to the academic activities of the university. Approval of the curriculum and syllabus for the Bachelor of Maritime Science (BMS) (Nautical and Engineering)

programme of four new Bangladesh Marine Academies in Barishal, Pabna, Rangpur and Sylhet was given in that meeting. Besides, decisions were taken to publish different semester final examination results of BSMRMU and its affiliated academies/institutes and to form different examination committees.

Seafarers of Bangladesh and expanding job opportunities

Maritime Campus desk



A rising number of young people are entering the maritime sector, indicating Bangladesh's expanding shipping industry and the potential it has to exploit country's enormous territorial waters. Bangladeshi seafarers assert that their work market has grown over time as the number of oceangoing Bangladeshi vessels has steadily increased.

Local public and private maritime institutions in Maritime Bangladesh have been generating more and more sailors to crew all types of ships. In this regard, the Honourable Prime Minister Sheikh Hasina's vision and initiative for the development of the Blue Economy are to be commended.

According to the Bangladesh Merchant Marine Officers' Association (BMMOA), so far, 17,500 cadets and skilled seafarers, often known as ratings, have graduated from public and private maritime academies, institutions, and fisheries academies. Around 12,000 marine officers and crews serve on local and international boats and sealines, while around 8,600 sailors operate foreign-owned vessels. They bring in \$520 million every year for the country. Cadets are graduates of the marine academies, whilst sailors or ratings are graduates of the maritime/marine institutes.

Approximately 7,000 locally graduated cadets work in the shipping industry. 1,500 are employed by Bangladeshi ships, and the remaining 5,500 are employed by international maritime lines. According to the association, 3,000 of the 5,000 locally graduated ratings are directly involved in shipping. Bangladeshi vessels employ 1,500 of them, while the remaining 1,500 work for international companies.

According to BMMOA, a captain earns USD 10,000- USD15,000 per month depending on the size of the vessel they command. It should be noted that 85 % of the 1,914 marine fisheries cadets who have graduated so far work on foreign merchant ships, while the remaining 15% command the fishing fleet in the Bay of Bengal and supervise fish factories on the shore.

In the 2020-2022 period, Bangladesh added 33 ships to its ocean-going maritime sector fleet, bringing the total number of flag vessels to roughly 100. The entrepreneurs conveyed a positive message to the country's maritime sector with the new ships, despite the overall economy's slump caused by the Covid-19 crisis. Bangladesh had 48 flag carriers till 2019. The fleet includes 23 KSRM vessels, 16 Meghna Group vessels, 10 Akij Group vessels, 8 Bangladesh Shipping Corporation vessels, 6 Karnaphuli Group vessels, 4 Bashundhara Group vessels, and 1 Orion Group vessel, according to the information provided by the Mercantile Marine Office.

In the Bay of Bengal, Bangladesh has an economic area of roughly 118,813 square kilometres, almost equal to its land area, with most of its territorial waters unexplored. Three zones with a total area of 15,700 square kilometres are used for fishing in the country. It is

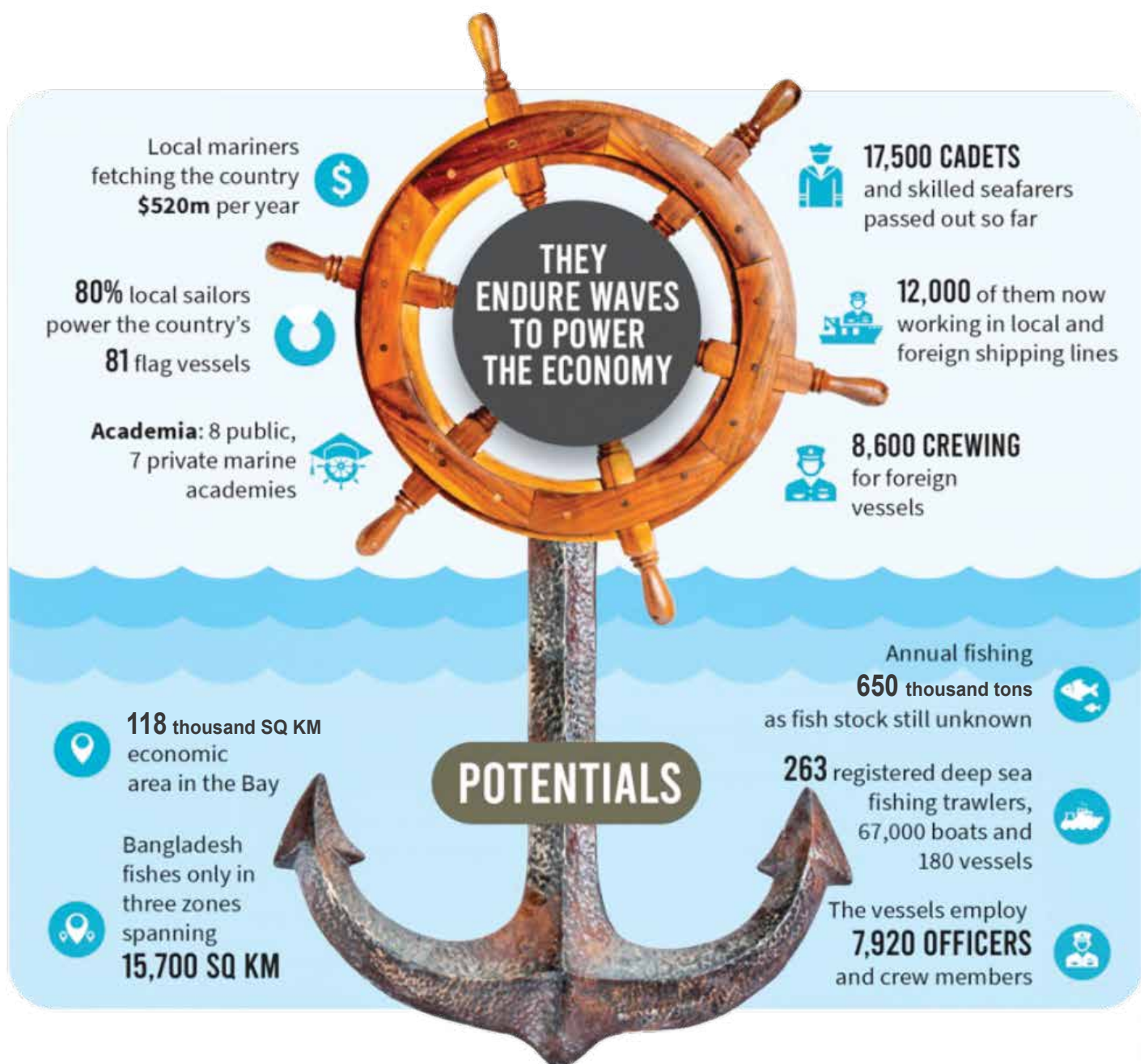
believed that a large swath of the deep sea remains undiscovered due to a lack of modern survey vessels. The lack of data also suggests investment prospects, as the government has yet to assess the deep-sea fish stock.

In Bangladesh's territory of the Bay of Bengal, there are 263 registered deep sea fishing trawlers, 67,000 boats, and 180 vessels. Two certified captains and two engineers are required for each fishing trawler. Due to shortage of trained engineers, the trawlers are frequently crewed by technicians. The 180 vessels employ a total of 7,920 marine officers and staff, each with 44 crew members.

According to industry experts, marine fisheries cadets and crews typically migrate to merchant vessels after serving one to two years

onboard fishing vessels, generating a labour shortage in the sector and forcing fishing vessels to hire inexperienced workers.

Bangladesh is a developing country with approximately 38.6% unemployed university graduates (Bangladesh Institute of Development Studies-BIDS), and they do not have enough employment opportunities after completing their studies. Seafaring, on the other hand, is a globally connected profession that can help to alleviate the strain on the domestic labour market. Bangladesh, like the Philippines, would benefit economically if seafarers from Bangladesh could be employed on a huge scale.





Circular approach

The future of ports and the 4th Industrial Revolution

Maritime Campus desk

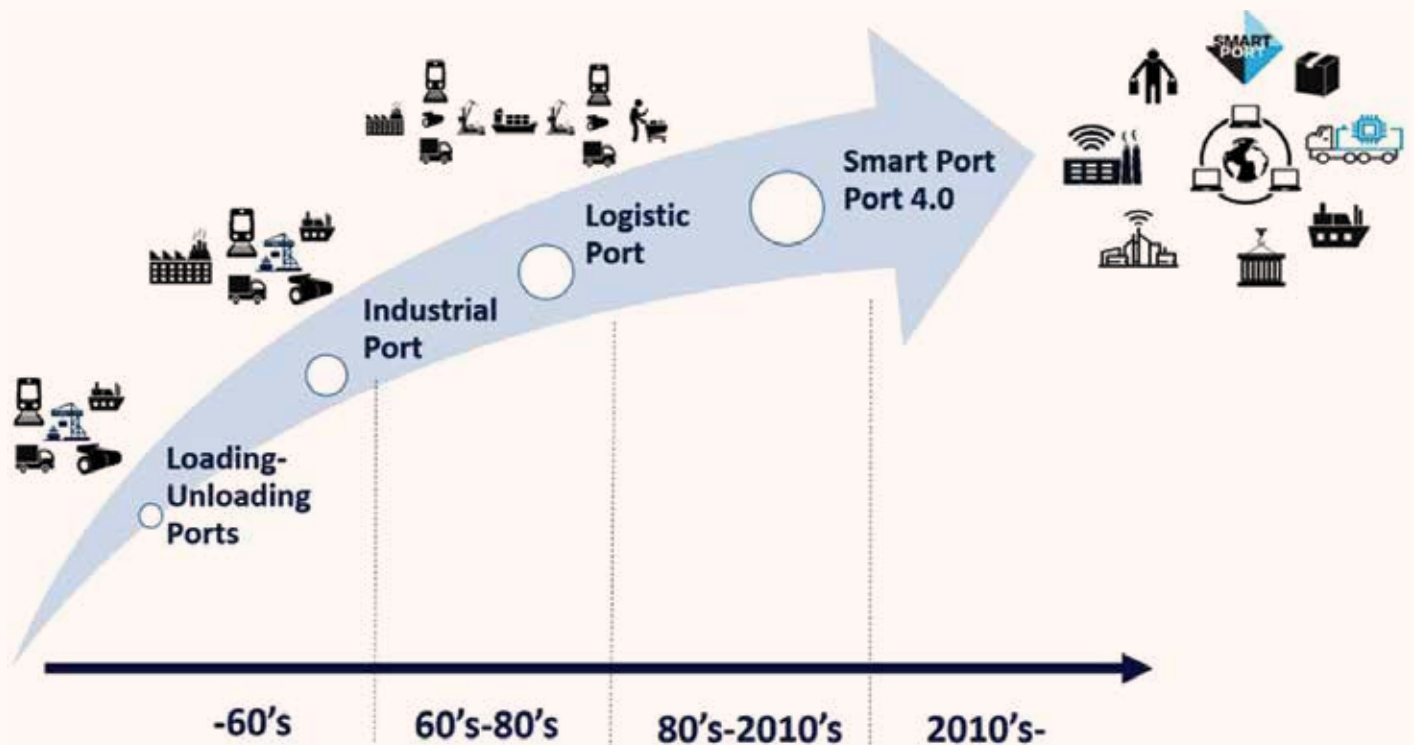
When mega trends converge at the same time, a shift from one period to the next occurs. We've seen it before, when ocean-going trading ships broadened the horizon and traders discovered new cultures, when widespread railway networks allowed steam engine technology to reach remote areas, and when new fuel technologies allowed automobiles and aeroplanes to transport people faster and farther than ever before. We are now witnessing how rapidly-evolving technology gets disseminated via the internet at the speed of light. What it means is that people have a strong desire to explore new territory, whether it's new continents, new technologies, or new communication methods.

Each of the preceding Industrial Revolutions saw port cities play a major role. What does the Fourth Industrial Revolution mean for port cities around the world, and how might they benefit from

it? Historically, technological advancements have occurred in geographically advantageous areas, such as where land meets water. Port cities have always been at a junction in the path. In Amsterdam, traders boarded wooden sailing ships to seek new trading routes. In the 18th and 19th centuries, London thrived thanks to the power of its steam mills, and in the 20th century, New York and Rotterdam were the world's largest ports. Ports have flourished because, up to now, all Industrial Revolutions have relied on the trade of raw materials: coal and iron ore since the 18th century, and oil and gas since the late 19th century. The world's largest ports are still based on oil today.

Because of the pace with which it expands, its omnipresence in society, and a fundamental change in the way people live, move, work, and communicate, the fourth industrial revolution differs from

Evolution of ports from 60s till date



other great leaps in history. The transition to a new era coincides with an impending change in the energy mix. Fossil fuels are under threat for at least three reasons: they will run out sooner rather than later, new technology will make alternative renewable energy sources more affordable, and a commitment to climate change goals will drive the transition.

The mainstream reasoning at the moment is based on linear thinking. The challenge for industry, government, and society is to break free from the present paradigm that things have their peak value at the point of (first) sale, then depreciate to zero over the product's lifetime. This makes logical from an accounting standpoint, but linear thinking has led us away from our true nature and the circle of life. We've lost sight of the importance of moving through reflective learning cycles in order to transform experience into wisdom, and wisdom into value.

Ports have long been thought of as a link in the transportation system. This has an implied linearity to it. If ports are serious about becoming more sustainable, they must use both linear and circular thinking to address the problem. Let's look at a few examples of circular thinking. The arrival of a ship can be viewed as a circular process. Ships arriving at the harbour will be greeted according to community circles. As soon as a ship is within range, ship's agents, terminals, the harbour coordination centre, vessel traffic managers, tug masters, and pilots form a communication circle. On a shipment level, the same concepts apply. Because information flows in a circular rather than sequential fashion, this kind of circular communication reduces ship turnaround time.

Rather than a linear "produce-to-waste" paradigm, cradle-to-cradle products imply the necessity for cooperation throughout the circular

chain. On the software side, there are also companies that present themselves as information intermediaries, making product component origin information readily available to all companies in the circle. For cradle-to-cradle products, transparency is essential. Because commodities and assets such as ships come, go, and return to ports several times, circular chains are particularly appealing to ports. Ports are located on the main arteries of circular chains as a result of this.

What are the steps to adopting circular thinking? Surprisingly, the same change agents who shaped capitalism during the First Industrial Revolution are needed now: entrepreneurs. By nature, entrepreneurs seek their fortune in uncharted territory, looking for new applications and market niches. Renewables: energy, waste, water, biomass, and alternate ways to extend a product's life cycle hold the most untapped potential in this new era.

When circular thinking is applied, waste becomes equal to value, yet depositing waste, depleting the earth's natural resources, and degrading assets all become losses. Entrepreneurs are already seeing a market in the circular economy in this way. Ports that house these firms in incubator facilities create jobs and contribute to a more sustainable economy. Some port cities, such as Amsterdam and Rotterdam, are encouraging the formation of innovation circles, which bring experts together to solve difficult problems and transform them into economic opportunities.

These port communities have realised that entrepreneurial impulses are required for circular thinking. Such circular thinking has the potential to transform entrepreneurs into true Fourth Industrial Revolution heroes.

BIMSTEC: Prime Minister Sheikh Hasina calls for sustainable, resilient Bay of Bengal Region



Prime Minister Sheikh Hasina of Bangladesh has called upon the BIMSTEC leaders to work towards finding common strategies to rebuild a sustainable and resilient Bay of Bengal region by tapping the full potential of the region.

Addressing the 5th summit of the BIMSTEC virtually from Dhaka Prime Minister Hasina placed a three-point proposal at the summit urging the leaders to make the process fully functional by activating all the 14 sectors of cooperation.

In her proposal Sheikh Hasina called for the immediate operationalisation of the BIMSTEC Free Trade Area (FTA) for which

framework agreement was adopted in 2004 and other decisions like BIMSTEC centres and entities relating to disaster management, energy, cultural commission, connectivity projects, energy grid connectivity among others.

She also called for finalising the remaining legal instruments and policy documents to give momentum to the work of the organisation. Prime Minister Hasina proposed that BIMSTEC should also expand its partnership with outside entities to address the emerging threats and seize new opportunities

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is a regional organisation. Established in 1997, it comprises seven member states including Bangladesh, Bhutan, India, Nepal, Sri Lanka, Myanmar and Thailand lying in the littoral and adjacent areas of the Bay of Bengal.

Saif Powertec becomes first local firm to operate ships from abroad

Saif Powertec Limited is set to become the first Bangladeshi company to operate in the shipping and logistics sector abroad.

The company will operate eight vessels to transport imported goods from Fujairah Port of the United Arab Emirates (UAE) to Chattogram and Mongla ports, and other ports in South-East Asia and the Indian subcontinent. This arrangement will allow for easier and low cost shipment of goods from the UAE, company authorities said. On 28 February, Saif Powertec informed the Dhaka Stock Exchange (DSE) that it had signed an agreement with Safeen Feeder Company of the UAE in this regard.

Saif Powertec is the country's lone terminal operator, handling around 58% of containers at the Chattogram Port. It also handles containers at Mongla and Pangoan ports.



Foreign Minister presents updated info on Bangladesh's continental shelf to UN



Foreign Minister Dr. AK Abdul Momen has presented updated information on Bangladesh's Continental Shelf in the Bay of Bengal to the United Nations (UN).

The presentation was made to the 21-member Commission on the Limits of the Continental Shelf (CLCS) during its 54th session in New York on 1 March.

The foreign minister was accompanied by Secretary and Head of Maritime Affairs Unit of Ministry of Foreign Affairs Rear Admiral Md. Khurshed Alam (ret'd) and other technical experts from Bangladesh.

The presentation followed the official lodgment of Bangladesh's amended submission to the CLCS on 22 October 2020.

"This submission is a major achievement for our country, especially at a time when we are pursuing our long-cherished dream to become a developed

country by 2041. Our ability to utilize the living and non-living resources of the ocean will determine the course of our journey in the coming days", said the foreign minister.

Through the presentation, Bangladesh provided scientific and technical data in support of its entitlement to continental shelf beyond 200 nautical miles in the Bay of Bengal.

As per rule, a sub-commission formed for this purpose will examine the data and make recommendations endorsing Bangladesh's entitlement that allows Bangladesh to begin exploration of natural resources in that area.

The Government has been working on this submission for over a decade now. Preparation of this submission has been done under over all coordination of Ministry of Foreign Affairs with the contribution of expertise and resources from Bangladesh Navy, Petrobangla, BAPEX, Geological Survey of Bangladesh, SPARRSO, and BIWTA.

Bangladesh also received legal and technical support from Commonwealth Secretariat and from UN Trust Fund.

Direct shipping service from Bangladesh to Italy starts from Chattogram Port



Direct shipping service between Bangladesh and Europe started with the container vessel sailing for Italy from the Chattogram port in the first week of February. Chairman of the Chittagong Port Authority (CPA) Rear Admiral M Shahjahan inaugurated the direct freight service from Jetty no. 4 of the new mooring terminal of the port. The vessel MV Songa Cheetah left for the port of Ravenna with 952 TEUs of export items consisting of 98% Ready Made Garment (RMG) items and 2% handicraft items.

A container vessel takes 16 days to reach its destination compared to 40 days through the transshipment route used earlier. Now, the products are being delivered to other European nations from the Italian port. The direct freight service has also reduced the cost of shipment by close to 40%.

Inaugurating the direct freight service, the CPA Chairman Rear Admiral M Shahjahan said that considering the importance of RMG products, CPA will give priority to all facilities to ships on the Chattogram-Italy route. He said that CPA will extend all support if other shipping lines want to launch a direct shipping service.

Initially, two ships are considered to transport export goods from Chattogram on this route. The Italian shipping company Kalypso Compagnia di Navigazione has introduced direct service with two vessels namely Songa Cheetah and Cape Flores.

Big potential in the Bay of Bengal as 17-103 TCF gas hydrates found

A ray of hope – Bangladesh now has all the opportunities to tap into a potential “goldmine” in the form of huge gas hydrates and several hundred species of seaweed discovered in the Bay of Bengal.

The country has found the presence of around 17 to 103 trillion cubic feet (TCF) of ice-like hydrate deposits containing huge amounts of methane, the foreign ministry revealed on 5 January.

While making the disclosure at a press conference, Rear Admiral Khurshed Alam (retd), secretary of Maritime Affairs Unit, told the media, “It would be possible to determine the actual reserves of gas hydrates if a complete seismic survey is conducted in the country’s entire marine zone.”

With the approval of the prime minister, a group led by the Maritime Affairs Unit was formed in 2018 to analyse data obtained from the surveys conducted earlier in the Bay of Bengal to determine gas hydrate reserves in the occupied waters of Bangladesh.

Speaking at the event, Foreign Minister AK Abdul Momen said, “Undoubtedly, the survey results are very promising for Bangladesh. Getting such a huge reserve of gas hydrates is a watershed moment for Bangladesh.”

The foreign minister said such huge gas hydrates as a source of environment-friendly fuel will help meet future energy demand.

“We hope Bangladesh will soon enter a new era of energy through the extraction of gas hydrates,” the foreign minister noted.



Bangladesh’s territorial waters saw no piracy in 2021: reports



No vessel, be it domestic or foreign, fell victim to theft or piracy within Bangladesh’s territorial waters according to recently published reports of two international organisations which disseminate related information.

This can be attributed to coordinated surveillance and patrols being beefed up as well as prompt response from the authorities.

Port users believe this will enhance the positive image of the Chattogram port, the country’s premier seaport, in the global maritime sector.

One report is of the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP) while the other of ICC International Maritime Bureau (IMB).

Chittagong Port Authority (CPA) Chairman Rear Admiral M Shahjahan said the port territory was under round-the-clock surveillance under a Vessel Traffic Management Information System equipped with CCTV cameras and radars.

Bangladesh Coast Guard East Zone Commander Captain Kazi Shah Alam said they were equipped with adequate offshore and inshore patrol boats and a number of high-speed boats to monitor and ensure security in the economically important maritime territory.

Bangladesh Shipping Corporation to procure six ships



Bangladesh Shipping Corporation (BSC) is going to procure six ships — two mother bulk carrier ships, two mother tankers and two mother product oil tankers — to meet the growing demand for transportation services.

Managing Director (MD) of BSC Commodore Sumon Mahmud Sabbir said, “A shipping organisation like BSC should have at least 40 to 50 ships to meet the growing demand, but at present, BSC has only eight ships. And six of them — MV Banglar Joyjatra, MV Banglar Shomridhi, MV Banglar Orjon, Banglar Agrojatra, Banglar Agradut and Banglar Agrogot — were procured from China in 2018. Two other ships — Banglar Shourav and Banglar Joty — were procured in 1987 from Denmark.”

“Bangladesh is importing coal for Rampal, Payra and Matarbari coal-based power plants. So, we need to maintain an uninterrupted supply chain of coal in the country. We have already planned to procure two mother bulk carriers in this regard. We also have a plan to procure at least 10 lighterage vessels for carrying the coal,” he added.

The BSC managing director also said, “We have a plan to carry all crude oils for the Eastern Refinery Limited in the future. So, we have taken up a project to procure mother tankers. Besides, we will procure a mother oil tanker with 80,000 MT (metric tons) capacity for carrying diesel and jet fuels in the country.”

Government to build shipyard near Payra port

The Government of Bangladesh is a step closer to build a planned shipyard near the Payra seaport in Patuakhali, with a proposal of Tk14,000 crore in foreign direct investment—the biggest of its kind. Representatives from Singapore- and Australia-based Gentium Solutions and Netherlands-based Damen Shipyards Group presented a project proposal to the government in this regard.

Damen plans to generate USD 2 billion of the global shipbuilding market of USD 200 billion from the Patuakhali shipyard and export vessels to 17 countries.

The Honourable Prime Minister Sheikh Hasina, during a visit to Patuakhali in 2014, had announced the construction of a shipbuilding facility there. In January 2020, an agreement was inked between the Bangladesh Steel and Engineering Corporation and the Gentium-Damen Consortium Group after the latter proposed funding the project.

The government has already allocated some 101-acre land close to the Payra port for the project.



Mongla port turns around



100,000 twenty-foot equivalent units of containers, and 20,000 cars annually. In 2020-21, cargo handling stood at 1.19 crore tonnes, just double the volume five years ago.

The port has 25 berthing facilities, including five jetties. Yet, it suffers from an inadequate draft at the jetty that restricts the entry of vessels of more than seven metres draft. Dredging at the inner bar of the Pashur channel is underway to enable ships with more than nine metres draft to use the jetty.

The opening of the Padma bridge, scheduled for June this year, along with the establishment of the railway link will make the port more attractive to businesses, at home and abroad.

Mongla port, the country's second biggest seaport, has made a strong comeback as it sees an increased arrival of ships, making it a major gateway for Bangladesh's overseas trade once again.

Officials and port users say the opening of the Padma bridge will give a further boost to the port.

The monthly arrival of ships, which fell below 10 in 2008, grew several times in recent years.

The port has registered 17 per cent annual average growth in ship handling since 2012, while the volume of cargo handling grew 19 per cent over the past decade.

It can handle one crore tonnes of cargo,

1743 sq km of Bay of Bengal declared as Marine Protected Area to conserve biodiversity



The government has declared 1743 square kilometres of the Bay of Bengal, adjacent to St. Martin Island, as a protected area to prevent biodiversity loss.

“1743 sq km of the Bay of Bengal area adjacent to St. Martin Island in addition to the previously declared 590 hectares of ecologically critical area, has been declared as St. Martin Marine Protected Area,” according to the Ministry of Environment, Forest and Climate Change.

The decision was taken in order to prevent uncontrolled ships and motorboats, overfishing of fishery resources, dumping of waste and harmful chemicals in the sea, destruction of coral colonies, depletion of biodiversity, the ministry said in its decision on 12 January.

Under the Sections 13 (1) and 13 (2) of the Wildlife (Conservation and Protection) Act, 2012, declared the area as ‘St. Martin Marine Protected Area’. This Marine Protected Area is by far the largest and second Marine Protected Area in the country, said the environment ministry.

It aims to help in the conservation of the endangered pink dolphins, sharks, ray fish, sea turtles, seabirds, corals, marine grasses, and marine biodiversity and their habitats as a result of the declaration of St. Martin Marine Protected Area.

The decision will also help improve the livelihoods of coastal population through sustainable extraction of marine fisheries resources, enrich the national blue economy and achieve the international obligations and targets related to the special economic zone of Bangladesh, expect the ministry.

The decision came amid the expert call for the conservation of the coral and marine aquatic life and marine biodiversity of St. Martin's Island.

Above all, the development of conservation and management of Marine Protected Areas will facilitate the achievement of SDG target 14.5.1 as well as enrich the national Blue Economy.

JICA to carry out project for development of coastal fishermen

The Japan International Cooperation Agency (JICA) has set a pilot project for the development of fishermen in coastal areas of the Bay of Bengal by providing technical assistance.

A Japanese delegation led by Jica Chief Representative Yuho Hayakawa revealed the plan in a meeting held with Fisheries and Livestock Minister SM Rezaul Karim at his secretariat office on 3 March.

JICA intended to carry out a five-year project in Cox's Bazar's five upazilas, which included Teknaf, Ukhiya, Cox's Bazar Sadar, Moheshkhali, and Kutubdia.

According to the media release, JICA aims to focus on value chain development in the fisheries sector, marine fisheries processing, socioeconomic surveys, training, seafood processing, fisheries management, nutrition development, and technical assistance to fisheries stakeholders through this project.

Fisheries and Livestock Secretary Dr Mohammad Yamin Chowdhury, Additional Secretaries Shyamal Chandra Karmakar and Md Taufiqul Arif, and Director General Khandaker Mahbubul Haque, and Takeshi Saheki, senior representative of JICA, were present in the meeting.



Marine experts urge all to reduce pollution to save Bay of Bengal



Experts, at a recent seminar, have said that the nation must become aware of the environmental challenges to prevent marine pollution and save the Bay of Bengal.

Plastic and forms of pollution may render the bay useless within the next 30 to 50 years, they opined at the seminar – The importance of building an ocean-literate nation for the protection, restoration and sustainable use of the sea – at the Bangladesh Ocean Research Institute (BORI) auditorium at Pechardwip in Ramu upazila, Cox's Bazar on 12 January. BORI along with Octofin, an organisation promoting oceanography, jointly arranged the seminar.

At the seminar, the experts said that a proper action plan should be adopted to protect the Bay of Bengal and suggested stopping the use of one-time plastic in tourist areas to stop pollution.

Chittagong University Oceanography Department Assistant Prof Dr Md Saidul Islam Sarkar and Dr Enamul Haque, BORI Senior Scientific Officer (Chemical Oceanography) Abu Saeed Mohammad Sharif and Senior Scientific Officer (Geological Oceanography) Md Zakaria also spoke at the discussion.

NIMASA renews MoU with World Maritime University



The Nigerian Maritime Administration and Safety Agency (NIMASA), has renewed its Memorandum of Understanding (MoU) with the World Maritime University (WMU), Malmo, Sweden, to boost capacity building. The Director-General of the agency, Dr Bashir Jamoh noted that the MoU would also assist the growth of the Nigerian maritime sector.

The agreement provides for maritime education, training, research and capacity building for officers of NIMASA. Also, no fewer than 10 officers will be funded annually by the Agency to study at WMU in the MSc in Maritime Affairs programme based in Malmo, Sweden.

In addition, under the Agreement, NIMASA will sponsor at least one officer per year to study in the WMU/IMLI MPhil programme in International Maritime Law and Ocean Policy.

The agreement also provides for WMU to develop and organise short-term, specialised Executive Professional Development Courses (EPDCs), for NIMASA officers.

World Shipping Council details pathways to support green shipping



The World Shipping Council (WSC) has revealed six regulatory and economic action plans to facilitate the maritime energy transition.

The first identified regulatory and economic pathway details an international price on carbon, along with broad-based 'buy down' programmes. These programmes will level the playing field among newer low and zero-GHG (Green House Gas) vessels and old ships operating on conventional fuels.

The second pathway covers a clear well-to-wake life cycle examination of fuels, breaking out well-to-tank emissions and tank-to-wake emissions, in combination with governing mechanisms. This will encourage first-movers to use green fuels, which provide GHG reductions even if they are unavailable from fully renewable sources from the beginning.

Thirdly, IMO member states and energy providers can collaborate for the integrated development of international production and delivery of zero GHG fuels. Regulatory provisions for enabling flexibility in the preliminary stages of the energy transition should also be developed, as zero GHG fuels will not be available simultaneously around the globe.

Stating the fourth pathway, the WSC said: "A Green Corridors Programme to accelerate an equitable fuel and technology transition, introducing zero GHG ships and fuels across trade lanes where the necessary shoreside energy infrastructure is first available.

"This will speed development of best practices and encourage IMO member states and interested parties to focus on government-to-government initiatives and coordinated public-private investments to build the necessary production facilities and supply infrastructure."

The fifth pathway covers new build standards that will back the energy transition.

Lastly, under the sixth plan of action, applied research and development (R&D) for shipboard and shoreside solutions will be conducted, enabling the secure use of zero GHG fuels on board green vessels. The extended R&D will help avoid mishaps and stranded assets. R&D efforts will also focus on the development of technologies that will use green fuels on board transoceanic vessels.

In June, the 78th session of the International Maritime Organisation's (IMO) Marine Environment Protection Committee (IMO MEPC 78) will further discuss the development of the IMO's GHG plan.

Teaching key to better ocean protection, says UNESCO chief

Education needs to be one of the key pillars for action by countries across the world to better protect the seas and oceans from damaging climate change, said the head of the UN Scientific, Educational, and Cultural Organisation (UNESCO) on 10 February.

"If we want to protect the ocean better, we must teach it better", said Audrey Azoulay, UNESCO's Director-General, speaking at the One Ocean Summit, took place in the French city of Brest.

Setting it as a common objective for UNESCO's 193 Member States, she asked them to include ocean education in school curricula by 2025.

To achieve the goal, the United Nations agency is making available to public decision-makers a toolkit with a shared reference framework of educational content on the subject.

The step will allow all countries to be in an "equal position to quickly place the ocean at the heart of teaching and increase students' knowledge in this area, so that they become responsible and committed citizens", added Stefania Giannini, UNESCO's Assistant Director-General in charge of education.

The new educational tools provided by UNESCO reflect the conviction that the way society interacts with the ocean, needs to change in order to achieve a more sustainable model.

In its reference tool, UNESCO highlights the good practices of Member States already working on ocean education, such as Brazil, Canada, Costa Rica, Kenya, Portugal and Sweden.

The results achieved by these countries have been presented by the agency in the form of case studies, as well as the opportunities and challenges met when seeking to include ocean knowledge in a structured way in the curriculum.



Australia, India, Singapore to jointly address marine pollution



The Government of India, in partnership with the Government of Australia and the Government of Singapore, conducted an international workshop on combating marine pollution focusing on marine plastic debris on 14-15 February.

The workshop, held virtually, brought together with the world's leading experts, scientists, government officials with policy expertise, and representatives from industry, innovation and informal sectors, as well as Earth Science. It aimed to discuss research interventions toward monitoring and assessing marine litter and plausible sustainable solutions to address the global marine plastic pollution issue.

The workshop had four major sessions; the magnitude of the marine litter problem-monitoring program and research on plastic debris in the Indo-Pacific Region; best practices and technologies; solutions to prevent plastic pollution; and polymers and plastics: technology and innovations and opportunities for regional collaboration to remediate or stop plastic pollution. The sessions involved panel discussions and interactive break-out sessions to encourage discussion amongst participants from East Asia Summit countries.

Ocean exploration education grants announced by National Marine Sanctuary Foundation, USA

Two agencies of the USA, the National Marine Sanctuary Foundation and National Oceanic and Atmospheric Administration (NOAA) Ocean Exploration have announced seven new mini-grants aimed at promoting Diversity, Equity, and Inclusion.

Grants awarded to underserved and underrepresented communities include:

- Black in Marine Science
- Mystic Aquarium
- Na Wa'a Mauo Marine Stewardship Programme
- University of Miami's Rosenstiel School of Marine and Atmospheric Science
- State University of New York (SUNY) Geneseo
- The University of Delaware
- The University of Southern California

Commenting on the new grants, Genevieve Fisher, the acting director of NOAA Ocean Exploration, said: "I am proud that NOAA Ocean Exploration and the Foundation are able to fund these very beneficial projects and advance diversity, equity, inclusion and accessibility efforts that support the next generation of ocean explorers and stewards."

While Kris Sarri, the president and CEO of the National Marine Sanctuary Foundation, said: "Ocean science and exploration will help us unlock solutions to the challenges facing ocean and Great Lakes. The projects funded by the Ocean Exploration Education grants will foster new stewards who engage in protecting our blue planet. We are grateful to NOAA Ocean Exploration for supporting these projects. "



Enrolment at Arab Academy for Science, Technology, and Maritime Transport Branch, Sharjah begins



The Arab Academy for Science, Technology, and Maritime Transport Branch in Sharjah (AASTS) is now open for admissions for Spring semester 2022 to holders of high school certificates or equivalent.

AASTS currently offers Bachelor of Marine Engineering Technology and a 3rd Engineer Certificate of Competency, and Bachelor of Maritime Transport Technology and 2nd Mate Certificate of Competency in Shipping and Port Operations and Offshore service technology. Both disciplines qualify graduates to work in shipping, port operations, and offshore support services.

The Sharjah branch is comparable in size and equipment with the Academy's main branch in Alexandria, Egypt that enjoys a prestigious international reputation in maritime learning. AASTS has separate dormitories for male and female students, equipped with world class recreational facilities. AASTS also encourages its students to maintain a healthy lifestyle, and features sports facilities such as swimming pools, training and fitness equipment.

Scientists identify areas of high marine mammal diversity

Sightings of more than 1 million marine mammals in the federally protected Northeast Canyons and Seamounts Marine National Monument and sites along the Atlantic Coast have been used to identify areas of high marine mammal diversity. These findings underscore the importance of ocean conservation as these waters face increasing impacts from human activities.

In a new study published in *Conservation Science and Practice*, New England Aquarium scientists reviewed marine mammal sightings to gain a better understanding of habitat use along the U.S. East Coast. The research team used North Atlantic Right Whale Consortium data from aerial and boat surveys conducted by 49 organizations between 1979 and 2020 to calculate marine mammal species diversity in the North Atlantic Ocean between Florida and Nova Scotia, Canada. The data set contained 189,175 sightings of more than 1 million animals from 30 unique species or species groupings.

High species diversity occurred more frequently in the northern part of the Atlantic Coast, particularly around the Monument, on the edge of the continental shelf, and across the Gulf of Maine and Georges Bank, they found. "It was very exciting to see these results," said Brooke C. Hodge, the study's lead author and Associate Scientist in the Spatial Ecology, Mapping, and Assessment (EcoMap) Program for the Anderson Cabot Center for Ocean Life at the New England Aquarium. "Our research shows us that the Monument is diverse compared to the East Coast. It is clearly well-sited and protects a unique and diverse marine mammal community."



Research reveals 45,000 marine species are at risk due to climate change, pollution



One of the most unfortunate effects of climate change is the impact it has on the species of marine life. University of Queensland researchers and global marine experts reviewed marine biology literature and categorised a wide range of threats – from climate change to pollution, to fishing – faced by more than 45,000 species and developed a framework.

The framework has been formed for identifying the most vulnerable marine species. It will boost global conservation and policy efforts against anthropogenic climate change. The research has been published in 'Ecosphere'.

Many experts believe that the research revealed the most endangered species from all threats. Molluscs, corals, and echinoderms – hard or spiny creatures such as sea urchins – are truly feeling the impacts in our oceans, facing a diverse range of threats. They're affected by fishing and bycatch, pollution and climate change.

The research also discovered that starfish, sea snails and flying fish are increasingly vulnerable to climate change-related stressors, all of which can be found in oceans around the world. Such information would allow users to make more informed decisions about how to allocate and prioritise their resources to protect the world's most vulnerable species.

Coral reefs, home to marine life, could be wiped out even if climate goals met: Study



Coral reefs that anchor a quarter of marine wildlife and the livelihoods of more than half-a-billion people will most likely be wiped out even if global warming is capped within Paris climate goals, researchers said on 7 February. An average increase of 1.5 degrees Celsius above pre-industrial levels would see more than 99 percent of the world's coral reefs unable to recover from ever more frequent marine heat waves, they reported in the journal *PLOS Climate*. At two degrees of warming, mortality will be 100% according to the study, which used a new generation of climate models with an unprecedented resolution of one square kilometre. "The stark reality is that there is no safe limit of global warming for coral reefs," lead author Adele Dixon, a researcher at the University of Leeds' School of Biology.

"1.5C is still too much warming for the ecosystems on the frontline of climate change."

The 2015 Paris Agreement enjoins nearly 200 nations to keep global heating "well below" 2C (36 degrees Fahrenheit). But with more deadly storms, floods, heatwaves and droughts after only 1.1C of warming to date, the world has embraced the treaty's more ambitious aspirational goal of a 1.5C limit. A landmark report in August by the UN's IPCC climate science panel said global temperatures could hit the 1.5C threshold as soon as 2030.

In 2018, the IPCC predicted that 70 to 90 percent of corals would be lost at the 1.5C threshold, and 99 percent if temperatures rose another half-a-degree. The new findings suggest those grim forecasts were in fact unduly optimistic.

How much oxygen is produced by the ocean?

Maritime Campus desk

The majority of people would say that plants produce oxygen when talking about the subject. If you accept, you are fully accurate. In addition, most people would think of plants that grow on land, such as trees, grass, leafy flowering plants, etc. when asked what kinds of plants create oxygen. But the stunning fact is plants that grow underwater provide at least 50% of the oxygen that is produced on Earth.

However, how is oxygen produced underwater? And what accounts for the ocean's high oxygen production?

Production of Oxygen

In addition to being fascinating, oxygen production is essential for the existence of life on Earth. We've got you covered in this section if you don't know how oxygen is produced yet!

The Process for Producing Natural Oxygen

Photosynthesis is a relatively straightforward natural process that produces oxygen. Green plants absorb carbon dioxide, water, and sunshine during photosynthesis. The plant uses these "ingredients" to create oxygen (which it expels into the air around it) and carbohydrates, which it uses as food.

Because of this mechanism, the link between plants and animals on earth functions fairly well. Animals breathe oxygen and exhale carbon dioxide. If not for plants, which conveniently absorb and utilise carbon dioxide to manufacture food on their own while also releasing oxygen as a byproduct, the planet would be saturated with carbon dioxide.

In other words, both plants and animals help the other to survive by exhaling the gas required for survival.

Photosynthesis is a relatively straightforward natural process that produces oxygen



Which land plants produce the most oxygen?

Although land plants don't generate the most oxygen, they still produce a lot of it. Trees, grasses, and shrubs are some land plants that contribute significantly to the oxygen cycle. According to researchers at the University of California, Berkeley, 'douglas-fir, spruce, true fir, beech, and maple' trees generate the most oxygen.



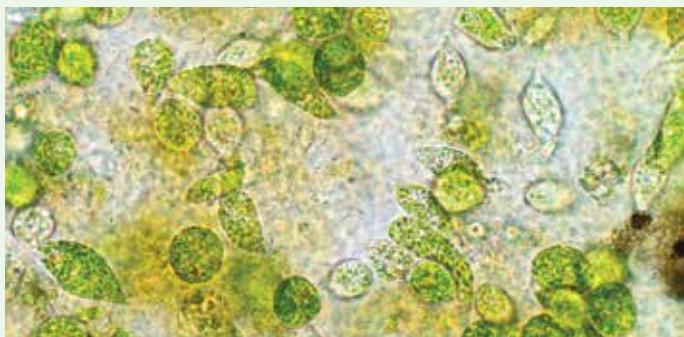
Land plants don't produce as much oxygen as oceanic planktons

Production of ocean oxygen

The production of oxygen by plants on land is well known, but what about those in the ocean? At least half of the oxygen on earth is produced by the ocean, primarily by a single plant.

Production of oxygen by planktons

50–80% of the oxygen on earth is produced by oceanic plankton, according to estimates. Algae, plants, and photosynthetic bacteria are all examples of plankton. A staggering 20% of the oxygen on our planet is produced by one particular bacterial species, called *Prochlorococcus*. Even though *Prochlorococcus* is the tiniest photosynthetic organism on earth, it produces more oxygen than all of the planet's tropical rainforests combined.



Prochlorococcus are cyanobacteria, and even with a size of less than a thousandth of a centimetre contributing to nearly 20% of the global oxygen production

Plankton tracking

Scientists can track phytoplankton using satellite photos to more accurately determine how much oxygen is being produced. These satellites employ wavelengths to measure the chlorophyll content of



This spectacular swirl of phytoplankton was snapped by NASA Earth's Landsat 8 satellite

the plankton (which can be estimated based on color). Higher levels of chlorophyll in phytoplankton result in greater oxygen production because more photosynthesis requires more chlorophyll. Additionally, these photos might spot toxic algae blooms, which pose a risk to the marine species nearby.

Oxygen depletion and Algae blooms

Marine life can be seriously endangered by algae blooms. The blooms, which are brought on by a surge of extra nutrients, have negative effects. Algae blooms reduce oxygen levels and restrict



Blue-green algae, known as cyanobacteria, can be found in freshwater, as well as in estuarine and marine waters having the ability to produce potent toxins, known as cyanotoxins



sunlight from reaching nearby plants and animals. When the blooms are active, they have the potential to release harmful toxins to all nearby life. A “dead zone” will be created when the blooms ultimately die off, devouring all the oxygen in the water around them and killing all other life.

The principal way that algae blooms endanger marine life is by devouring all of the oxygen that has been produced by hard-working phytoplankton. According to ocean experts, hazardous growth of algae will become much more common as a result of global warming.

These blooms could result in a variety of environmental problems in addition to absorbing oxygen that could be used by other marine species.

How deoxygenation occurs by Global Warming

Ocean temperatures increase in tandem with the land temperature. Unfortunately, deoxygenation in the ocean can be brought on by warmer water. First, warmer water stores less gases, which has an impact on oxygen production. Second, the distribution of oxygen across the ocean’s depths is inhibited by warmer water. Third, even if there is less oxygen available, warmer water makes organisms more



A lack of oxygen as a result of global warming will decrease biodiversity in the ocean by endangering marine life

oxygen dependent. Last but not least, because algae blooms like warm water, global warming fosters one of nature’s most catastrophic dangers to the oceans.

Overall oceanic oxygen levels have already been impacted by global warming; in fact, they have dropped by 2% since 1950 and are predicted to fall another 3% to 4% by 2100. Global warming’s effects on oxygen availability will decrease biodiversity in the ocean by putting marine life in danger, which will have an impact on the environment and the economy.

Takeaways

Since oceanic phytoplankton produce more than half of the world’s oxygen, it is crucial that this oxygen be kept and used effectively in order to provide for a stable environment. Reducing carbon dioxide emissions can help keep ocean temperatures from rising, protecting phytoplankton and the oxygen they produce while global warming and algae blooms put the production of oxygen in the ocean at risk.

High temperature, more fire and less food, the nature of things has told stories of how climate change is affecting all of us





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