
Ocean Economy Planning: Adaptability of the “Blue Economy” Model in Bangladesh Maritime Context



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Abstract

Ocean economy planning has lately acquired urgency and spurred the concept of 'Blue Economy'. Maritime countries like Bangladesh have evinced interest in it to safeguard and advance their oceanic destiny. Following successive international maritime verdicts (2012/2014) largely favourable to Bangladesh, it has embraced Blue Economy as a strategic approach to access the resources underneath its newly acquired oceanic possessions. However, concerns arise whether pertinent conceptual issues are appropriately appraised and managed; whether critical empirical issues are measured, and whether the actions for maritime planning currently underway represent the progression required to overcome the emerging ecosystemic threats or building of what is enshrined under the Blue Economy. With a view to evaluate such issue areas, the paper offers a fuller clarity of a sustainable ocean economy and other pertinent notions, identifies key conceptual issues, and relates them to the developmental thrusts under the Blue Economy that are currently underway. Finally, it reflects on the adaptability of the Blue Economy model, as Bangladesh pursues policies to fix its oceanic destiny. Thoughts are also offered on the challenges that may circumvent successful implementation of the Blue Economy planning in Bangladesh. Against this backdrop, the current contexts of Bangladesh's ocean economy planning and the criteria chosen are scrutinised, underlining several cases where the projects embarked under the Blue Economy model seem incompatible with that model's objective features and may impede sustainable ocean economy planning towards fixing the country's maritime destiny. Tentative ideas are floated to sensitise Pakistan in its ocean economy planning.

Introduction

The ocean is the largest and most critical ecosystem on earth. It is also the foremost biologically diverse and highly productive system on the planet, and potentially the largest provider of food, materials, energy, and ecosystem services. However, the past and current uses of the

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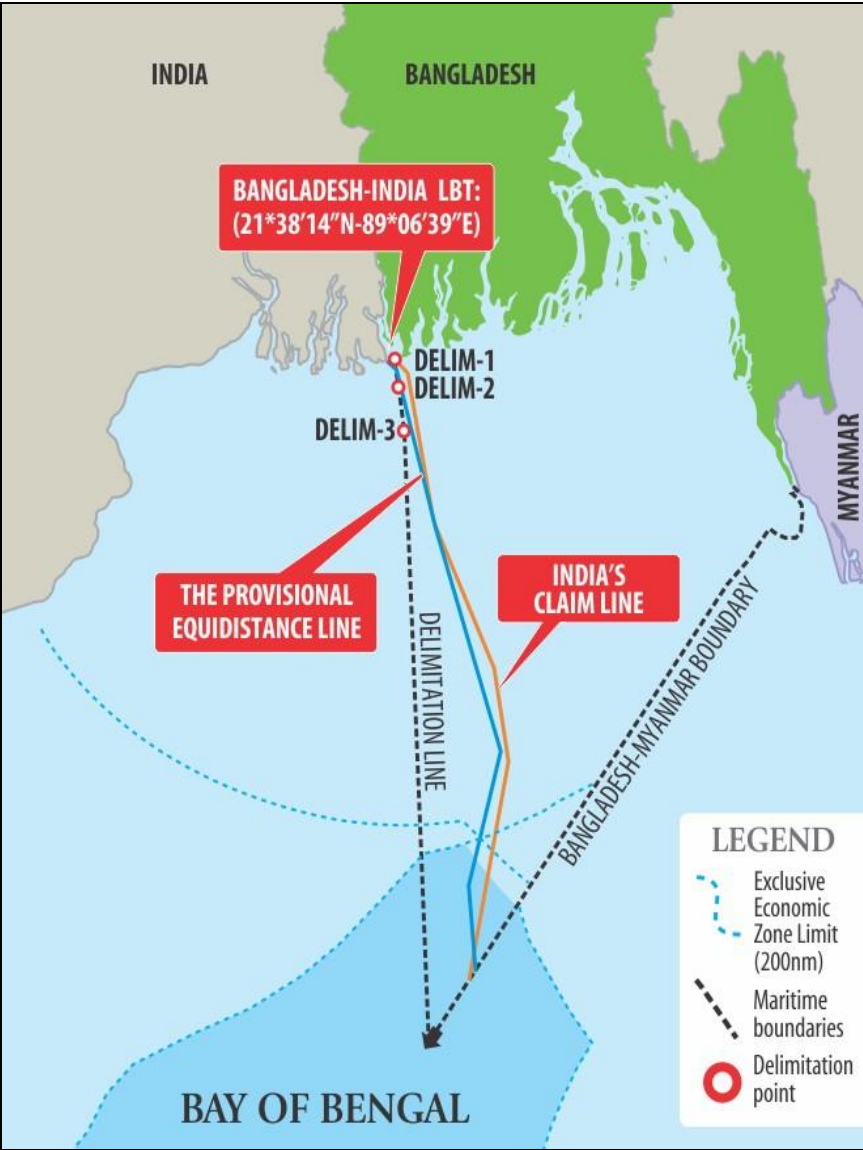
ocean are deemed unsustainable. Demand for resources has been increasing, while technological advances, overfishing, climate change, pollution, shrinking biodiversity, and habitat loss, along with inadequate stewardship and law enforcement, emerge as some of the sources of unsustainability. All such phenomena have been contributing to the ocean's deterioration in the ecosystem.¹ It hardly needs saying that ocean economy planning is a pivotal component of sustainable geo-maritime development. It closely interacts with regional and national maritime security and growth planning. In an age of mounting resource scarcities and intensifying struggles for livelihoods, ocean planning looks critical for nations to cooperatively resolve the challenges of living and development. As the world's landscapes encounter enormous challenges to cope with expanding human needs, the earth's broader maritime spaces feature prominently towards meeting the ever-growing human requirements. Ocean economy planning provides scope for cross-cutting multi-sectoral engagements both within and beyond nation-states. It may help identify and resolve potential areas of conflicts, besides providing opportunities to the policymakers and planners for sustainably channelling progressive ideas on ocean economy development towards the wellbeing of all concerned.

Security and sustainable growth of resource-scarce nations like Bangladesh feature prominently in such a prospective scenario of national development. Bangladesh, similar to most other maritime countries, is profoundly dependent on its extensive maritime possessions (see Map 1). These comprise coastal areas, territorial sea, an exclusive economic zone (EEZ), and the continental shelf.² It is reliant on these open aquatic spaces to its south for food, income, and the well-being of its teeming millions, on top of its expanding trade and businesses, which currently form its life-line. The pressure of dependence would develop more and more in future as the population booms. It is true that both the Bay of Bengal and the Indian Ocean hold enormous economic potential and abundant marine ecosystems of the country. Following the maritime verdicts that it won in the disputes with the neighbours, Bangladesh embraced 'Blue Economy' as a strategic approach to avail itself of its newly found maritime possessions. In essence, the Blue Economy is projected as an oceanic developmental approach that will lead to improved human well-being and social equity, coupled with a significant

reduction in environmental risks and ecological scarcities. Bangladesh has since been working on a Blue Economy action plan to maximise its maritime gains.

There is, however, a growing concern regarding the country's maritime destiny, as it faces the outlook of severe threats to its maritime environment and damages to its oceanic resources. Pollution from chemicals and plastics has begun to choke its coastlines and the bay, destroying ecosystems and prospects offered by the newly acquired maritime possessions. There are also higher frequencies of natural disasters due to climate change and sea level rise. Likewise, ocean ecosystems, such as coral reefs, kelp forests, and mangroves are at risk in many coastal areas. Fisheries overall are either under-performing or are over-exploited with serious ramifications for sustainability. Above all, ocean ecosystems and living beings are severely threatened by the rising phenomenon of climate change due to acidification and ocean-warming. Such impacts envelop from the coasts spreading to the deepest sea. These are threatening to foreclose the future ocean wealth and endanger the prospects of their exploitation. It is critical to strike a balance between harvesting the economic potential of the ocean and safeguarding the longer-term aquatic health and wellbeing, as well as enhancing ecosystemic balance. Regrettably, despite the economic value of these opportunities, the country's marine resources, like those of many other maritime countries are at a serious risk of degradation.³ In this backdrop, Bangladesh evinced interest in emerging notions like the Blue Economy to safeguard and advance its oceanic destiny.

Map 1
Bangladesh Maritime Territorial Map



Source: Available at [https://www.google.co.uk/search?q=bangladesh+maritime+territorial+ map s&tbm=isch&tbs=rimg: CRXUiB_1ccmxOljg2RDrQ0clC0yjCZ-N55bP18lcxw4 BfSe Earaduww 1wid_1_u63yjQErqu7mc...](https://www.google.co.uk/search?q=bangladesh+maritime+territorial+map&tbm=isch&tbs=rimg:CRXUiB_1ccmxOljg2RDrQ0clC0yjCZ-N55bP18lcxw4BfSeEaraduww1wid_1_u63yjQErqu7mc...) accessed on 22 November 2016.

However, concerns arise whether relevant conceptual issues are properly dealt with, or the pertinent empirical concerns are appropriately considered. Moreover, whether the action points for maritime planning currently being contemplated represent the right perspectives needed to overcome the emerging ecosystemic threats or building of what is enshrined as the Blue Economy. Although appraising these problematic issue areas seems challenging for operational purposes, the paper seeks to obtain a fuller notional clarity of what constitutes a sustainable Blue Economy and other pertinent notions, relates the developmental thrusts under Blue Economy caption that are underway in Bangladesh, and finally, reflects on the adaptability of the Blue Economy model in the context of the country's oceanic destiny.

With such objectives, the next section considers the conceptual evolution and requirements of sustainable Blue Economy planning. The subsequent section keeps in view the maritime development planning in Bangladesh, as it embraced the Blue Economy principles for the sustainable development of its maritime resources. The next section identifies several challenges facing Bangladesh in its Blue Economy action-planning. The conclusion reassesses the findings and reflects on the emerging challenges that may circumvent successful implementation of the Blue Economy planning in Bangladesh, with added reflections to sensitise Pakistan in its ocean economy planning.

Evolution of Ocean Economy Planning Concepts

Any appraisal of ocean economy planning necessitates a conceptual appreciation of the emerging notions in the field. Apart from Blue Economy, other emergent notions consider the nature of threats facing the global aquatic system. Scholars in the field are not fully in accord about the exact nature of threats and the adaptation and/or mitigation strategies needed to overcome them. Differences exist in the contexts of climate change, sea level rise and mitigation programmes, and the economics of climate change, including the costs and benefits of adaptation strategies already baked into the global ocean systems. Concerns also remain over the financing of adaptation measures, touching on frontiers of the economics of risk and uncertainty, creating models envisioning ocean and coastal economies.⁴ It is believed that changes in ocean chemistry and temperature will impact fisheries and coral reefs. In certain cases, the impacts may be dramatic. It is often

projected that sea level rise will alter coastlines, affecting everything from beaches and wetlands to entire cities. Equally important, and perhaps more challenging, is creating models that will permit envisioning what ocean and coastal economies will look like after mitigation and adaptation steps are taken.⁵ The coastal areas, seas, and oceans constitute the planet's largest ecosystems, forming the most precious part of nature's heritage. They cover up to 72 per cent of the earth's surface and constitute over 95 per cent of the biosphere. It is well-known that life has begun in the oceans and that natural lifecycle continues to support all life. Oceans generate oxygen, absorb carbon dioxide, regulate global climate and temperature, recycle nutrients, and provide both renewable and non-renewable resources that sustain hundreds of millions of livelihoods in coastal, island, and in inland areas. Approximately around 80 per cent of life on earth is in the ocean and almost 50 per cent of the available oxygen is from the ocean, which is also the largest carbon sink, absorbing about a quarter of the carbon dioxide emitted. It also absorbs 90 per cent of the additional heat caused by greenhouse gas emissions.⁶ The oceans serve as drivers of a significant portion of the global gross domestic product (GDP). They drive up economic activity like growth, jobs, and innovation. They also serve as a source of food, jobs, and recreation for a large part of the global population. Most importantly, they account for almost 80 per cent of global trade and 32 per cent of hydrocarbons extracted for world energy supplies. Oceans provide for both domestic and international tourism for almost 200 countries and overseas territories. The contribution of the ocean economy to global value added has somewhat conservatively been estimated to the tune of \$1.5 trillion annually, or roughly 3 per cent of the global value added.⁷ It is equally important to note that the oceans are critical to the livelihoods and food security of billions of people around the world and to the economic prosperity of most maritime countries.

Furthermore, the global oceans are expected to provide economic opportunities in future. The (lower bound) of the value of key ocean assets is estimated at \$24 trillion and the value of its derived services is estimated at \$2.5 trillion per annum. These represent some of the positive global gains. These are equivalent to 3-5 per cent of global GDP. Countries and businesses are ever more turning to the oceans to

generate novel industries and opportunities for food, services, and income. The Blue Economy confers a rising focus on better use of ocean resources to feed the hungry of the world. By 2050, the global population will add 3 billion more people, getting to 9 billion. To feed the added populace, food production must increase by 70 per cent,⁸ as the UN's Food and Agriculture Organisation (FAO) estimates. But the stark reality is that the rate of growth in yields of the major cereal crops has steadily been declining—from about 3.2 per cent per year in 1960 to the present estimate of 1.5 per cent.⁹

Moreover, the ability of the marine environments to provide jobs and nutrition over the long term is already under strain due to extensive human economic activities. These are also being threatened by development approaches, many of which are fragmented and uncoordinated; very often such approaches seem in conflict with what is physically possible or ecologically sound. In terms of enabling international trade *via* linking sellers/buyers, far and near oceans are increasingly gaining importance. The behaviour patterns of such linking enablers on the oceans are receiving more attention from a regulatory and economic perspective as the relationship between land and ocean is increasingly evolving in a spree of its role and importance.

The conceptual origins of the Blue Economy can be found in the foregoing milieu.¹⁰ It emerges in the backdrop of a vast alternative of an untapped potential via industries, including new food products and pharmaceuticals. Many governments, organisations, and communities worldwide are becoming aware of the need for more coherent, integrated, fair, and science-based approaches to managing the economic development of the oceans. Humanity is an integral part of the marine ecosystem. Therefore, economic activities must be planned and implemented with care, balancing the desire to improve human living standards and wellbeing. It is imperative to have a conscious awareness to sustain ecosystem health of the planet earth. In order to steer the oceanic wealth sustainably, both the public and private sectors need to embrace Blue Economy in a justifiable planned way. It is pertinent to make sustained efforts at all levels so as to ensure that the ocean's economic development contributes to true prosperity and resilience at present and long into the future.¹¹

The development of the ocean economy confronts numerous challenges. The strategies must be futuristic, which are indispensable for guiding and coordinating action and regional partnerships in incorporating the oceans in the national income accounts.¹² Such strategies could include new industries in the measurements of the ocean economy, extraction of energy from fossil fuels, generation and transmission of electricity from wind, wave, and tidal energy, or similar processes. There are prospective fronts of generating additional energy technologies, like deriving energy from temperature or salinity gradients. All these may form the future wave, but exploiting their fuller potential needs both coordination and perspective. Towards meeting such objectives, the Blue Economy concept has grown alongside four other inter-related concepts: Sustainable Development, Green Economy, Blue Growth, and finally, the notion of 'Circular Economy', a concept that is more deep-rooted.¹³ All such concepts have surged worldwide almost in the chorus or in succession into a common vocabulary of maritime policy. These now feature importantly in international maritime thinking and are being organised to explore how to beckon a sustainable ocean economy.¹⁴

The contexts and objectives of such emerging concepts require further clarity. Cautionary words are sounded against the emerging train of thought promoting Blue Economy "as a way of deriving greater revenue from the ocean." Such a pattern of thinking carries an enormous risk of abuse or of "even greater over-exploitation of the oceans' limited resources."¹⁵ Despite the conceptual popularity of Blue Economy, it must be stated that no common ground exists on its notional boundary. To some, Blue Economy means the use of the sea and its resources for sustainable development. For others, it merely refers "to any economic activity in the maritime sector, whether sustainable or not." Against this backdrop, efforts are underway to develop a consensus about what characterises a Blue Economy that is sustainable and "to help ensure that the economic development of the ocean contributes to true prosperity, today and long into the future."¹⁶

Notionally, Blue Economy prerequisites that all concerned must respect ecosystem integrity. However, it is reasoned that a secure pathway to long-term prosperity or the best way forward for a sustainable Blue Economy is to move through the development of a circular

economy. Unlike Blue Economy, the practical applications of the circular economy to modern economic systems and industrial processes have gained momentum since the late 1970s, led by a small number of academics, thought-leaders, and businesses.¹⁷ Underlying the study of ocean and coastal economics is ultimately the desire to understand better the nature of joined socio-ecological systems. The ocean's ecological health is coupled with the economic health of the global, regional, or national economies.¹⁸

Blue Economy has conceptually gained momentum across the globe since the 2012 Rio+20. That particular event raised the profile of Blue Economy and sought to stimulate 'Blue Growth'. Developing countries and island nations, with significant coastlines and maritime areas, have been under focus since then.¹⁹ The Global Oceans Action Summit for Food Security and Blue Growth, held in The Hague, Netherlands, on 22 April 2014, came as a follow up to what went on at Rio+20 and the notion of Blue Growth and eventually of Blue Economy came in usage. All this sought to bring global attention towards and increase investment into addressing the three key threats to ocean health and food security: overfishing, habitat destruction, and pollution. Some of the underlying causes that have led to overfishing, increased marine pollution, loss of critical habitat, and their potential solutions were addressed. It underscored the urgency for coordinated action to restore the health of the world's oceans and secure the long-term well-being and food security of a growing global population. Blue Growth emphasised conservation and sustainable management of aquatic resources and equitable benefits to the coastal communities that rely on them.²⁰ Blue Economy/Blue Growth, used interchangeably, comprises food, jobs, and opportunities for development provided by ocean and coastal assets. Solutions are required to "restore ocean health and provide food and jobs for communities worldwide;" but for this "the ecological and economic demands on the ocean" must be balanced. Towards these local solutions, public-private partnerships and joint approaches are imperative.²¹

Many land-based economic activities are speciously ocean-related, including shipping or fisheries; yet both have significant non-ocean elements. The challenge in this context is to separate the prospects in the ocean from the non-ocean component. Industries such

as mineral extraction or tourism and recreation can be identified as ocean-related by using the location of their economic activity as a proxy for 'ocean'. This, however, brings into play questions about geography, whether marine/oceanic, coastal and/or land. For other types of economic activities, like the development of new technologies in fields such as search and navigation, observation and monitoring equipment, the 'ocean' component is not always defined in industrial taxonomies and geography. This appears of little help since such technologies can be produced anywhere. The question of industries to be included in the discussion of 'ocean and coastal economics' is also continually evolving. Different approaches to economic data in different countries in such contexts provide a variety of perspectives on industries. Consequently, perhaps the boundaries are kept to a minimum. Such research often employs the theoretical and methodological perspectives of fields like political science, public policy, planning, ecology, economics, finance, and socioeconomic decision sciences.²²

Returning to the basic conceptual compass towards growth addressed earlier, the Blue Economy in recent international usage was preceded by two other developmental concepts: sustainable development and Green Economy. The former conveys "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."²³ It seeks to respond to economic crises—including food, water, and energy—in the developing world arising from greed and careless management of nature. The key concerns identified are increasing economic growth, job opportunities, poverty alleviation, protecting the environment from degradation of natural resources, and pollution. The process required integrated, comprehensive, long-term policies, nature's efficiency, and multiple economic benefits. It wanted to put a cap on damaging nature (atmosphere, water, soil, and living things), reduce pollution and environmental degradation, control the exploitation of natural resources, and promote social equity. All this ensures a process of change in which exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in a state of harmony. It would also increase the potential for the present and the future to meet the needs and aspirations of human beings. Briefly, it aims

at balancing present economic development with equity and environmental protection towards ensuring a sustainable future.²⁴

Green Economy is associated with the United Nations Environment Programme (UNEP). It is growth-oriented in income and employment, driven by public/private investments: one that would reduce carbon emissions and pollution. It is also intended to enhance energy, prevent the loss of biodiversity, and improve ecosystem services. It aims at improving human welfare and social equity, while significantly reducing environmental risks and ecological scarcities. Thus, Green Economy is socially inclusive, emitting low carbon and high resource efficiency. Blue Economy and the Green Economy are not incompatible, but interdependent. The oceans serve to sustain “earth’s life support systems and the billions of people who are dependent on oceans for livelihoods, food security, and economic development.”²⁵ Both Green Economy and Blue Economy are destined to offer positive support in such endeavours.

As more and more countries look to this maritime economic frontier as the source of their development and growth, the ecosystems upon which many ocean economic activities depend are changing at an unprecedented scale. But this growing interest is not necessarily for the better. Whilst oceans are responsible for generating the oxygen needed for every second human breath and can sequester up to five times more carbon than tropical forests, this important resource is under threat due to climate change and other human-initiated activities.²⁶ However, maintaining and restoring the integrity of this ecosystem’s health have now become synonymous with growing ocean wealth. Sustainably developing ocean spaces for economic growth via Blue Economy while maintaining or perhaps improving ocean health could define a new era of economic opportunity for ocean-facing countries. The oceans undoubtedly are in deep peril due to a host of man-made influences including overfishing, pollution, and climate-change-induced ocean acidification, among others.²⁷ The underlying blueprint, logic, and principles of the Blue Economy model must be identified. The importance it attaches to nature as a focus of sustainability, its operational logic, and principles must be well-taken for a functional Blue Economy model, as clarified below.

Blue Economy Model's Logic and Principles

The Blue Economy model is the brainchild of Gunter Pauli, a Belgian businessman and former Ecover CEO. He disseminated it in his *The Club of Rome Report* (2010).²⁸ Based on its 21 founding principles, the Blue Economy offered solutions due to be determined by their local environment and physical/ecological characteristics. The Report, which doubles up as the movement's manifesto, describes '100 innovations' creating 100 million jobs within the next decade. It also provides many examples of winning South-South collaborative projects—another original feature of this approach intent on promoting its hands-on focus.²⁹ The Blue Economy assessment rests on three inferences: the world economic system has been exploitative and damaging the environment, the waste and the damage caused by the exploitation of nature exceed the capacity or ability of natural support, and—despite a growing emphasis on principles of resource efficiency, low carbon, and social inclusiveness—human greed to exploit natural resources could not be beaten.³⁰

The implementation of sustainable development with the concept of green products/services, such as environment-friendly products and services, does not of necessity match expectations, i.e., to buy costlier products and cannot reach the poor. Even investors have to pay larger fees to produce green products and services. The Blue Economy challenges the investors to ensure a business model that is cost-effective, safer environmentally, efficient and cleaner in production systems, offers greater economic value, increases the absorption of labour, and finally, presents benefits to all contributors.³¹

Blue Economy and Nature

The Blue Economy is nature-based, works with nature, and is modelled after nature. It ensures efficiency and enriches nature. It partakes the following 10 presumptions:

1. Nature responds to basic needs, offers more with less, evolving and shifting in the process from scarcity to abundance.³²
2. In nature, the constant is change. Wealth means diversity, the contrary is industrial standardisation.

3. Nature only works with what is locally available. Any by-product is the source for a new product. Sustainable business evolves with respect not only to local resources but also to culture and tradition.
4. Nature evolved from a few species to a rich biodiversity. Its foundation is ecosystem model, i.e., like water flowing from the mountains carrying nutrients and energy to meet the basic needs of life of all components of the ecosystem. Water is the primary solvent (no complex, chemical, toxic catalysts) and gravity is the primary source of energy.
5. Nature ensures its efficiency, as its system is based on zero waste. Waste simply does not exist. It leaves nothing to waste: waste for one is a food for another and waste from one process is a resource of energy for the other. Thus, waste is used to meet the basic needs of all contributors. It ensures social “inclusiveness: self-sufficiency for all—social equity, more job, more opportunities for the poor,” warrants generation “to regeneration and balancing production and consumption” thus multiplying economic benefits.³³
6. In natural systems, everything is biodegradable, just a matter of time. Everything is connected and evolving towards symbiosis. Water, air, and soil are the commons, free and abundant.
7. “Nature is efficient.” A single process generates multiple benefits, including jobs and social capital.³⁴ It inspires innovations, which take place in every moment, as systems in nature share risks, any risk is a motivator for innovations.
8. Nature is contrary to monopolisation. It looks for economies of scope: one natural innovation carries various benefits for all and challenges offer opportunities.
9. Nature seeks the best possible for all involucrate elements. Business maximises the use of available material and energy, which reduces the unit price for the consumer. In nature, negatives are converted into positives.
10. Natural systems cascade nutrients, matter, and energy. The 100 practical economic innovations follow the workings of ecosystems, always working towards higher efficiency levels to drain the nutrients and energy without emissions.³⁵

The Blue Economy thus has nature as its focal point, with an emphasis on nature's efficiency and sustainability. It is *not* simply ocean-based economy, though the ocean is a base. This includes sustainable development of the marine economy, basing upon the Blue Economy principles. Sectors such as marine/water and fisheries, sea transportation, maritime industry, tourism, health and environment, energy, and mineral resources, all sectors are included in Blue Economy strategies. It looks for multiple economic benefits. It has business and investment with innovation and creativity that promote diversification of products and businesses, increase employment, and save the environment. Blue Economy also seeks integration of ocean and land-based economies, of economic development and environmental protection, and of policy integration at all levels of governance: local, national, regional, and international.³⁶

Blue Economy and ZERI

Zero Emissions Research and Initiatives (ZERI), with a network of 38 organisations worldwide, represents a global network of creative minds seeking solutions to world challenges whilst harmonising economy, society, and environment (see Figurative Models 1-3). Whereas ZERI sets forth the philosophy, Blue Economy presents the "philosophy in action." Pauli seeks to expose scores of entrepreneurs to portfolios of new business models.³⁷ The key idea is to ensure that the best and the cheapest are on hand for health and the environment and that the necessities for life are free. It seeks innovative business solutions that are capable of bringing competitive products and services to the market, but solutions must respond to basic needs while building social capital. The model must also be mindful of "living in harmony with nature's evolutionary path." Harnessing and optimising the innate virtues and values connecting untapped local potential form part of competitiveness, unleashing joy and happiness.³⁸

The ZERI family's commonly shared vision is to project waste as a resource. Solutions are wanted using nature's design principles as inspiration. Time is right, it is held, to go beyond the global economy, where the focus has been the pursuit of economies of scale and ever lower costs to earn more money. The process needs to evolve into an economy capable of responding to the needs of all. Solutions pursued are based on physics and gravity is perceived as the main source of

energy. Solar energy is offered as the second renewable fuel. Pressure and temperature as found on site constitute deciding factors necessary for production. Emphasis is placed on going beyond the Green Economy, where renewable energy cannot compete without subsidies and whatever is good for global health and the environment costs more. Time has come, it is reasoned, to respond to the basic needs of all that the global system owns, introducing innovations that change the business model to the point that the best is cheap and the necessary for life is free—just like the commons used to be.³⁹

ZERI serves as an antenna, as is depicted in a swinging blue-bird symbol (see Figure 2), in the world economy identifying innovations and spotting the high growth industries of the decade next. When there is a crisis and assets are stranded, many businesses suffer, but some do thrive. It locates the platform technologies that will change life for the better. With representations on four continents and nearly 200 projects that have identified opportunities, ZERI offers insights to governments on which sectors to attract, to companies on which market niches to focus on, and to communities on how to secure the continued build-up of social capital.⁴⁰

Figure 1

Blue Economy: A banyan tree model image



Source: Available at <https://www.google.co.uk/search?q=Model+Blue+economy&tbn=isch&imgil>, accessed on July 23, 2017.

Figure 2

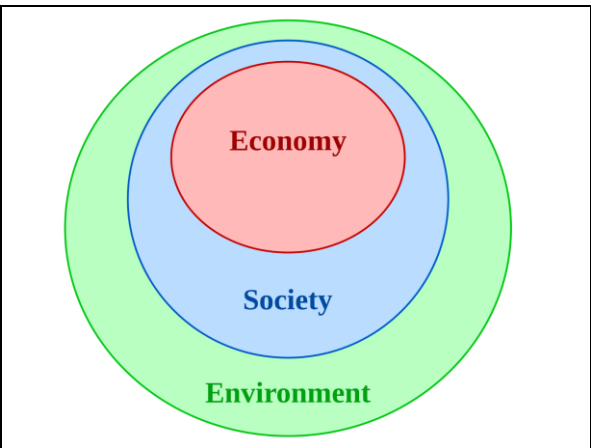
Blue Economy: A bluebird action model image



Source: Available at <https://www.google.co.uk/search?q=Model+Blue+economy&tbm=isch&imgil>, accessed on July 23, 2017.

Figure 3

Blue Economy: A globular model image encompassing society and environment



Source: Available at <https://www.google.co.uk/search?q=Model+Blue+economy&tbm=isch&imgil> www.slideshare.net/25252Fsunotomes/25252Fblue-economy-towards-a-sustainable-marine-and-fisheries-development-in-indonesia&source, accessed on July 23, 2017.

Sustainable Blue Economy Projects: A Blueprint

From regional and national experiments, 11 key principles are identifiable for guaranteeing sustainable Blue Economy:

1. Set clear, measurable, and internally consistent goals and targets, coupled with a clear direction of planning, management, and activities. To avoid conflicts and contradictions, a logical course must be set for different economic, social, and ecological areas, synchronising related policies and actions and making them integrated and coherent.
2. Public and private actors must steer and manage at every scale, creating a level economic and legislative playing field with adequate incentives and rules.
3. Recognise that the maritime and land-based economies are interlinked and that many of the threats facing marine environments originate on land. Therefore, the land-based impacts on marine ecosystems, the seas, and coastal regions must be addressed.
4. Harmonise the principles with relevant UN agreements, other widely adopted principles for sustainable corporate and organisational governance, and with established understanding concerning related concepts such as Green Economy and circular economy.
5. Communicate and interact with stakeholders in both public and private sectors in decision-making processes and in educational or awareness-raising settings.
6. Make informed assessment processes that track progress.
7. Support stakeholder dialogues with a common definition and frame of reference.
8. Mobilise commitment by government and all relevant stakeholders to the vision of a sustainable Blue Economy planning and act to turn that vision into reality.⁴¹
9. Build up close cooperation between decision-makers in different sectors at the local and national levels of government and at regional and international levels within and outside the region.⁴²
10. Plan, manage, and effectively govern the use of marine space and resources, applying inclusive methods and the ecosystem approach.

11. Develop and apply standards, guidelines, and best practices, with shared information and knowledge and lessons learned. Perspectives and ideas must be directed towards realising a sustainable and prosperous future for all.

Succinctly, a sustainable Blue Economy is innovative, inclusive, accountable, transparent, holistic, and long-term. It cannot but be proactive, constantly looking for the most effective ways to meet the needs of present and future generations without undermining the capacity of nature to support human economic activities and wellbeing. Underlying a sustainable Blue Economy, thus, are three key principles: nature, environment, and low/zero carbon emissions.

Spatial Contexts

Blue Economy closely interweaves with ocean health and ocean governance. Oceans are, however, fluid, three-dimensional, interconnected, and constantly changing environments. Marine life and human-induced changes move easily from one location to another in the oceans without any hindrance of political boundaries. It is imperative to be aware of the ocean governance landscape across all scales. The ocean policy landscape is evolving fast and some efforts regarding Blue Economy sectors are already in place in Africa, Australia and Indonesia, Southeast Asia, the Indian Ocean, the Caribbean, the EU, and the US. However, current ocean governance frameworks are plagued by fragmented strategies as well as overlapping legislation and agreements, limited ocean governance legislation and scientific knowledge, and insufficient institutional/financial capacities.⁴³

The Bay and the Indian Ocean form a vital part of the economies, livelihoods, and cultural identities of all states that lie within their boundaries. Fisheries are already making a significant contribution to the economies of the adjoining states, including Bangladesh. Several countries are also making significant gains from offshore oil and gas exploration, tourism, and maritime-oriented industries. New opportunities are appearing in these established sectors and new emerging sectors will require a cooperative approach to capture and exploit in a sustainable manner. The oceans do not recognise geopolitical boundaries; many of the ecosystems and a lot of its biodiversity are trans-boundary. Hence the countries in the region ought to pursue

continued, coordinated and proactive growth of the blue economies within the oceanic region, both bilaterally and regionally—where extra-regional powers may join in—basing their policies upon the Blue Economy model and the guidelines as well as principles set thereby. The principles include integrated regional planning, adoption of marine-specific policies coupled with coordinated land and marine policies, robust governance for industry and governments to work within and which the community understands and has confidence in its quality and operation, and collaboration between public and private industry drawing upon the skills and capital of both, sharing of skills, data, and knowledge.⁴⁴

Europe in its 2020 growth strategy takes on the contribution of the maritime sector to achieving goals, as mentioned above, for smarter, sustainable, and inclusive growth.⁴⁵ The strategy includes: *first*, the development of sectors with high potential for sustainable jobs and growth; *second*, creation of essential Blue Economy knowledge, legal certainty and security, including marine knowledge⁴⁶ to improve access to information about the sea; *third*, maritime spatial planning⁴⁷ to ensure an efficient and sustainable management of activities at sea; *fourth*, integrated maritime surveillance⁴⁸ to give authorities a better picture of what is happening at sea; and *finally*, the sea basin strategies, which are meant to ensure tailor-made measures and to foster cooperation between and among countries of the Indian Ocean and Indo-Pacific region as a whole, where Bangladesh is also a stakeholder.⁴⁹

Due to the growing demand for marine resources oceans, are under a severe pressure. There are also mounting threats from changing climate. Such situations call for appropriate governance frameworks that can address issues of sustainability and promote sustainable resource use. A strong Blue Economy, backed up by a coupling of ocean and land-based approaches, is seen as an effective answer to all this. Blue Economy traverses across many sectors and provides an opportunity for the development of more integrated and ‘whole-domain’ governance mechanisms by minimising sectoral barriers.⁵⁰

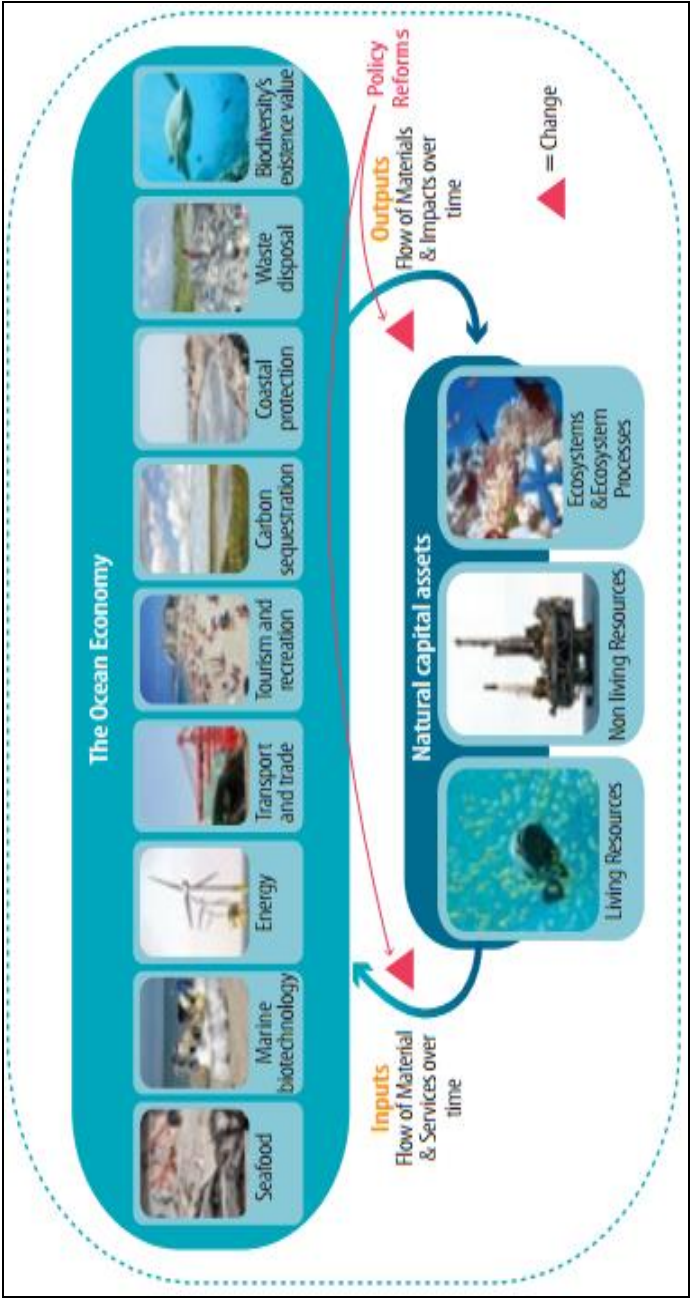
Blue Economy Planning in Bangladesh

Soon after Bangladesh acquired maritime possessions across its southern shores, it embraced the Blue Economy blueprint as a grand strategy. The idea was to seize the opportunities offered under Blue

Economy conceptual initiatives and speed up the process of maritime growth. It seems, however, that the conceptual prerequisites were not carefully measured in light of the milieu mandatory under the Blue Economy model. Bangladesh perceives Blue Economy as “a suite of opportunities for sustainable, clean, equitable blue growth in both traditional and emerging sectors.”⁵¹ The logic presented seems sound, as it carries a sense of direction towards a better maritime destiny. As part of the preparatory process, a well-publicised International Workshop on Blue Economy was held in Dhaka (September 1-2, 2014) with top-level participation from the government and relevant international agencies. The objective was to secure an ‘international momentum’ for acceptance of Blue Economy as an approach that, though distinct, may be mutually “supportive with the general economy.”⁵²

Some academic studies done in Bangladesh on sectoral analysis began with high notes but ended in dismal thoughts about the notional view of Blue Economy and on its probable application in Bangladesh contexts.⁵³ The official studies offered more tangible ideas for reflection, as Blue Economy was viewed as offering a matching set of opportunities for sustainable, cleaner, and perhaps an equitable blue growth in both traditional and emerging sectors of the marine economy. These include shipping and port facilities, fisheries, aquaculture, tourism, energy, biotechnology, and submarine mining.⁵⁴ Further along, 26 maritime economic functions were identified from among the fishery, maritime trade and shipping, energy, tourism, coastal protection, and maritime monitoring and surveillance. In each of these functions, full account is taken of the value chains that are developed across a range of sectors.⁵⁵ However, one study (done at the “Blue Economy Cell”) sought to address ‘the ocean economy’ in terms of input-output analysis, the focus being on conservation and sustainable use of maritime resources. The specific Blue Economy sectors identified include energy and minerals, fishery and aquaculture, tourism and shipping, port and maritime logistics, and environment and forest research, education, and training (See Figure 4).⁵⁶

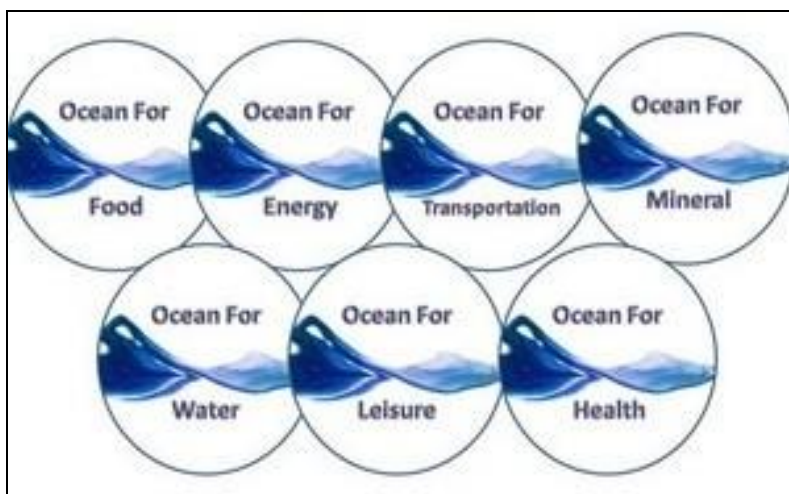
Figure 4
Ocean economy: conservation and sustainable
use of maritime resources



Source: See note 61. The Caption in the Figure is modified for the current analysis.

The foregoing sectors have also been somewhat regrouped and schematically presented in Figure 5 below). The concern remains, however, that how such models have guided ocean economy planning in Bangladesh.

Figure 5
Prospects of Blue Economy in Bangladesh Context



Source: "Prospects of Blue Economy," available at http://www.iora.net/media/158582/6_khurshed_alam_presentation.pdf, (last accessed on August 19, 2017).

Blue Economy Sectoral Planning

The Government of Bangladesh, in early 2017, has set up a 'Blue Economy cell' under the Energy and Mineral Resources Division with officials drawn from the relevant government agencies, including the Bangladesh Navy. It was established to exploit the country's maritime resources and to make things happen in the maritime sector in the shortest possible time. Apart from hazard assessment, it is assigned with multi-disciplinary responsibilities to chalk out and implement the government's Blue Economy action planning, to explore, conserve, and make sustainable collection and management of natural and mineral resources within the country's maritime territories.⁵⁷ Its coordinating works include collecting ocean fisheries and hydrocarbon resources and exploration of tourism opportunities. It was expected to make some

'visible success' towards implementing development projects in the energy sector.⁵⁸ It has since been required to make surveys and studies. As the work progresses, the Blue Economy Cell is expected to be upgraded into a Division to minimise the workload, as and when required.⁵⁹ The Blue Economy Cell thus would appear as a Blue Economy planning organisation, an advisory organ assigned with objectives, which would form essential components of a successful Blue Economy strategy.⁶⁰

Regional Blue Economy Initiatives

Towards enhancing Blue Economy planning and management at wider levels, it is imperative for Bangladesh to join other adjoining states. As oceans are borderless it is one of the best ways to work out how to meet critical challenges facing the ocean and coastal regions and overcome increasing challenges facing the global commons brought about by pollution, environmental degradation, climate change, and over-exploitation. Being a Bay of Bengal and Indian Ocean littoral, Bangladesh is inclined to cooperative regional Blue Economy ventures, as it firmly sees its future economic prosperity, food security, and social well-being as largely dependent on sustainable use of its marine resources. In June 2016, a Memorandum of Understanding was signed between Bangladesh and India to operationalise Blue Economy and Maritime Cooperation in the Bay of Bengal and the Indian Ocean Region. Both states have also formed a Joint Working Group in order to find avenues of cooperation. Areas covered for further strengthening the bilateral relationship include wide-ranging cooperation in capacity-building and training, sharing of information and joint research in areas from marine biotechnology, green tourism and hospitality, marine aquaculture, deep sea fishing, and maritime pollution responses.⁶¹

In Blue Economy contexts Bangladesh also recognises the Indian Ocean as 'the lifeline' of paramount significance for connectivity, peace, and prosperity, as it provides a passage to half of its container ships, one-third of the bulk cargo traffic, and two-thirds of its oil shipments.⁶² It is also a 'natural habitat' for efforts to project its aspirations jointly with other nations of the region and beyond, as a part of the larger efforts to transform Bangladesh along with the rim countries. The Blue Economy's role is pertinent as it is in the common interest of all IORA member states to guide the common economics in future then we

should use our seas to promote friendship and curb tension in the region, respect freedom of navigation and cooperate through the mechanism of IORA. Cognisant of such realities, Bangladesh's Prime Minister Sheikh Hasina attended the 20th anniversary of the two-decade-old forum Indian Ocean Rim Association (IORA, 2017), held in Jakarta.⁶³ As Blue Economy finds a focus in the country's prospective planning, the Prime Minister also proposed setting up in Bangladesh an Indian Ocean Technical and Vocational University to create a pool of skilled mariners for the region.⁶⁴ *The IORA Concord* has set out a vision for a revitalised and sustainable regional architecture. It looks poised to raise its profile as a deliberative forum in the region. The first-ever summit has infused IORA with a purpose.⁶⁵ However, it is hard to tell to what extent such an agenda, which has a higher priority in Bangladesh's maritime planning, would find urgency in other IORA nations, as other countries do not necessarily have the kind of wide opening and possessions as Bangladesh.

Challenges facing Blue Economy Planning in Bangladesh

Bangladesh's approach to taking up the Blue Economy planning agenda at the wider levels augurs well. Yet the concern remains whether the ecological and environmental causalities in Bangladesh itself are taken into fuller view in its ocean economy planning. The Hague Summit wanted the nations to avail opportunities to align all efforts and bring solutions to scale locally, as emphasised earlier. The linkage components of the country's network of the river system and the seas beyond deserve fuller clarity and precision for all sectors of maritime and development planning. The global climate change itself has already contributed to temperature rise worldwide and melting of ice, the rise of sea levels, and shrinking or perhaps erratic occurrence of winters. Bangladesh is more affected than others because of the country's rapid urbanisation, establishments on wetlands and shrinking water of water bodies, dwindling groundwater level, and surface water reduction. All this has combined with deforestation, exorbitant consumption of surface and river water for irrigation purposes, unabated encroachment and grabbing of the river, abuse of natural resources, etc., which have already impacted upon the country's eco-environmental system.⁶⁶

In any analysis of the Blue Economy planning initiatives undertaken or geared towards cooperation at national, bilateral, or wider

levels, optimistic views do surface. Yet, issues such as outstanding concerns of sovereignty and jurisdictional disputes or means and mechanisms are likely to impede development in Blue Economy areas, affecting traditional and non-traditional areas of security.⁶⁷ However, the country itself has to shape a maritime policy that is coherent in approach and relevant to the maritime developmental concerns it confronts, with increased coordination between different areas of policy where it faces multilevel challenges. Such a policy must focus on issues that conceptually do not simply fall under a single sector-based policy and is based on 'Blue Growth' (requiring economic growth with footing on different maritime sectors). It also requires coordination between different sectors, private/public actors, land-based and marine knowledge, and different levels administrative/decision-making units within the country, keeping in view the concerns that transcend beyond national scale.

An integrated maritime policy, thus, prerequisites assembling all the cross-cutting issues towards ensuring Blue Growth, i.e., all marine data and knowledge and maritime spatial planning, inclusive of an integrated maritime surveillance.⁶⁸ Bangladesh might consider strategic mapping of the Blue Economy planning, coupled with mapping its ocean health and wealth with a view to promote investment and growth in the ocean-based economy, assess ecosystem services reflecting human-ecosystem interactions, and regional economic realities. Frameworks like the Ocean Health Index and Ocean Wealth Index may provide cross-sectoral coordinating platforms for informing decisions about the integrated management of marine ecosystems. These may also provide cross-sectoral coordinating platforms for informed decisions about the integrated management of marine ecosystems.⁶⁹ The drive may include recovery and protection of biodiversity, increased utilisation of renewable energy, and strengthened surveillance of offshore waters by increased maritime awareness and enforcement.

However, the strategy prerequisites 'streamlined implementation' through an overarching system for its success.⁷⁰ For Bangladesh, a low-lying delta, facing the Bay and the Indian Ocean, the most crucial factor in its Blue Economy conceptualisation and development planning is to take a holistic and proactive view of the several challenges it faces nationally and how to overcome them.

First is to act on a strategy to manage eco-systemic threats, arising from politics, governance, and development processes. The country to be affluent does need development along its maritime belt and beyond coasts. To these ends, it needs infrastructure, energy, ports, access to resources, and compatible higher technologies. For all that, however, it must harmonise the task of preservation of the priceless ecosystem of the natural maritime zones. In most cases, the Blue Economy appraisal processes are not followed prior to project selection and action-planning, flouting the guidelines and principles underlined in the Blue Economy model. The emerging issues include the challenges arising from the vagaries of nature or the government's relevant development planning strategies due to which natural ecosystems are likely to be at risk. Similarly, the coastal areas of Bangladesh face multiple vulnerabilities due to various forms of pollution, which made the whole coastal and marine environment vulnerable. These include coastal and marine water pollution, mainly caused by direct discharge from rivers, ships, waste oil, and other marine and terrestrial activities, including marine transportation and offshore mineral exploration and production activities. There is a growing concern about ecosystem safety and bigger threats such as climate change, recurrent disasters like landslides, flooding, etc., which are more frequent at present than ever. These require policy actions and adaptation strategies for ensuring safety and sustainable development. The future is uncertain, unknowable, and is subject to speculative projection. Therefore, managing Blue Economy planning in the face of uncertainty will call for an assortment of approaches, short-, mid-, and long-term strategies.

The *second* challenge arises from the flawed environmental legal regime and the absence of effective compliance mechanisms. The efforts made towards identifying the scope, gaps, and constraints of existing legal and policy frameworks in Bangladesh related to environment, natural resource management, climate change and sustainable development are not substantial. Rather, there has been an abject failure to establish an integrated and coordinated policy and legal framework to ensure sustainable use and management of environment and natural resource, considering the climatic impacts.⁷¹ Better environmental laws and compliance systems towards ensuring Blue Economy planning and better oceanic management are an absolute

necessity. Such laws are needed for the country to combat marine pollution and ensure cleaner oceanic system. Bangladesh needs to redraw the country's conceptual map for development, inclusive of both land and maritime waters. Such mapping must begin at the lowest level and must be taken to the upper levels in a continuum. It must plan its actions, based on accountability and transparency, to ensure that the nation's sustainable economic growth is not compromised. It has to provide safety and security, address issues like climate change and rising sea level, pollution and environmental degradation, and land erosion. Those are very tough issues driving people towards urbanisation and to migrate to other countries. There is no single solution, no antibiotic, to heal the longer-term devastation.⁷²

Third, the government seems more inclined to focus on the Blue Economy and take the agenda at a higher level, without giving the needed attention at the domestic or national level. It needs to develop a clearer perspective on maritime planning for best utilisation of its marine resources and secure the nation's newly found maritime boundary. With its land constraints and high-density, Bangladesh would naturally have to turn to rich marine resources for its growing food and other needs. The resources on its sea possessions are indeed much more profound than those on land. Since its land-resources are steadily on the decline, Bangladesh is bound to turn its dependence ever more on oceanic resources. The country's private sector has already emerged as the growth engine. But there is a need for greater private-public collaboration and the government has to act as a facilitator so that the country can press ahead with the fulfilment of the development vision of *Sonar Bangla* (Golden Bengal), overcoming the confronting challenges.

The *fourth* set of challenges arises from a variety of Blue Economy concerns, including the country's polluted inland water bodies and the river system, which end up in the seas to the south. The eco-environmental predicament facing the country's capital will illustrate the matter. The rivers around Dhaka—once considered as the city's lifelines, with the gaze of a garland,⁷³ carrying people, culture, trade, and commerce—have been turned into dark, brown, murky waters seeming, at places, like sheer dirty drainages. Overall, the country now has a high level of polluted contamination and use of chemicals. These eventually are drawn into the coastal water and the sea. All these have tremendous

impacts on the micro-climatic factors.⁷⁴ These move up the temperature of the country and affect the aquatic life and marine system in the south. Hence any sustainable Blue Economy planning must consider how the entire inland polluted river and contaminated water flow systems can be rescued.

Fifth is a seeming lack of awareness concerning notional differentials at land and marine contexts. The Blue Economy is a more recently evolved notion in relation to the prevailing conceptual phenomenon of Green Economy, in practice worldwide earlier. The state of Green Economy application in Bangladesh context is nowhere near UNEP's Green Economy planning standard. Yet, for Blue Growth, which comes with Blue Economy, Bangladesh seeks direct graduation into sustainable Blue Economy. The Blue Economy is indeed a more eco-environment-friendly notion, geared towards sustainable development, conceivably enabling Bangladesh to gain an accelerated developmental momentum. Yet, the country's pathway towards a sustainable Blue Economy planning has to be charted in a particular angle so that the challenges emerging may be effectively overcome towards Blue Growth with good organisation, insight, and skill—combining both land and maritime approaches.

Sixth is an ostensible lack of differentiation that prevails at the national and wider levels. Bangladesh is not an isolated delta or an island. It does have serious environmental and ecosystemic lapses, yet its eco-environmental lapses and the accompanying pollution are common regionally and globally. Indeed, marine litter/debris forms a threat to the ocean that has drawn some international attention in recent years. Every year, more than 8 million tonnes of plastic ends up in the ocean, costing at least \$8 billion in damage to marine ecosystems and killing an estimated 1 million seabirds, 100,000 sea mammals, and untold numbers of fish. Rivers carry an estimated 1.15-2.41 million tonnes of plastic into the sea every year, an amount that needs between 48,000 to over 100,000 dump trucks to carry it away. The Ganges River, shared by Bangladesh with India, is the second largest most polluted river in the world, after China's Yangtze River. The UN Secretary-General Antonio Guterres cited a recent study that illustrated how plastic could outweigh fish in 2050 if nothing was done.⁷⁵ Countries of the developed world are using proper monitoring mechanisms to maintain an

acceptable level of river water quality. For Bangladesh also, it is imperative to develop the capacity to restore the country's polluted rivers and keep its coastal and territorial waters blue and pure, consistent with the needs of nature.⁷⁶

The *seventh* challenge arises from Bangladesh's development agenda, with a high degree of reliance on power plants-based fossil fuels. One such plant, among others, is 1,320 MW Rampal Power Plant, which has emerged as a pressing maritime concern. It is a coal-fired power plant being set up in an eco-sensitive area of the Sundarbans, the unique mangrove forest that was inscribed in 1997 as a World Heritage Site because of its outstanding universal value as a unique ecosystem. It serves as the biggest natural barrier against cyclones from the Bay of Bengal and saves the country from irreversible damage. The Government of Bangladesh is promise-bound to UNESCO to submit by 2018 a report on technicalities regarding environmental impacts of developmental projects near the Sundarbans and adjacent areas.⁷⁷ The Bangladeshi nation does need to have a fuller appraisal of every project sanctioned, including that of Rampal Power Plant, from the sustainable Blue Economy perspective.

Finally, is the issue of sand/sediments sale based on the same reasoning as Rampal Plant? By exporting sand/soil drained from upstream rivers to nearby low-lying countries such as Singapore and the Maldives, Bangladesh wishes to lift its economy through dredging whilst keeping its rivers flowing. The fear is whether the government has done its homework well enough to consider the long-term impact on sustainable Blue Economy maritime planning. No country in the world has such an aquatic identity as Bangladesh. It is unique in its origins, with the river systems flowing through millennia and carrying sediments from the northern landmass to the southern oceanic system. This has been the story of the Bengal delta's formation: how via land accretion it shaped itself over the millennia? Bangladesh cannot sell its history of land accretion process for some short-term monetary gains. It does need sediments for coastal protection, creating artificial islands and greening of its coastal belts, as the country's top maritime policy planner implores.⁷⁸ All such concerns need full clarity before continuing with a sediments sale policy that sounds thoughtless from the historical

perspective of land accretion and the more recent embrace of the Blue Economy planning.⁷⁹

Towards meeting the challenges of building Bangladesh ideally on a sustainable Blue Economy model the country must be envisioned, designed, and meticulously planned along the guidelines and principles set in the Blue Economy model itself. All this may sound apparent but there isn't simply any other way out. The country's planners must set aside the mindset of conventional planning models of development and trends that lay bare a lack of understanding of the country's hydrological and ecological landscape and the need for creative responses required under the Blue Economy model. For Bangladesh alone, seen in the global context, it seems implausible to build a model Blue Economy to safeguard its longing for a sustainable national development via a self-framed Blue Economy model of its maritime resources. The planet earth looks blue from space, as nearly 72 per cent of the earth is ocean. Yet, there has been a dramatic decline in ocean health, as the seas are overused and under-protected.⁸⁰ Bangladesh and the rest of the international community may feel excited about the potentials of a growing Blue Economy, but for that healthier future, it is imperative to maintain the 'blue' nature of the aquatic system and to keep the oceans healthy.

Conclusion

The concluding remarks are coupled with some reflections on the positive evolution of policies and on the emerging challenges facing Bangladesh's ocean economy planning. Introspective views are also offered on Pakistan's ocean economy planning. Blue Economy is still an evolving concept worldwide, with a range of studies enveloping national, subregional, regional, and international concerns, amidst a range of different drivers and informative ways. The provision, measurement, and use of the ocean and the Blue Economy data are still developing and national accounts are an essential part of this process. However, the keynotes of a sustainable Blue Economy are now known: innovative, inclusive, accountable, transparent, and holistic—cross-sectoral and long-term—with assured low carbon/zero emission. Yet, it has to be proactive, constantly looking for the most effective ways to meet the needs of present and future generations without undermining the

environment and the capacity of nature to support human economic activities and wellbeing. As the Blue Economy is still operationally evolving worldwide, it has limits in the identification of drivers within national accounting, which forms an essential basis for the measurement of sustainable Blue Economy for project-processing and evaluation in all prospective aspects. There are models, but they need to be more functional and operationally transparent for replication. All these provide a basis for improvements in the measurement of the Blue Economy and over time more sustainable and institutionally relevant information systems will hopefully be developed.

Bangladesh has acquired its long-awaited oceanic areas and views Blue Economy as “a suite of opportunities for sustainable, clean, equitable blue growth in both traditional and emerging sectors.”⁸¹ However, materialising the Blue Economy vision as a grand strategy in the country’s context is still hard to pin down. One Blue Economy Cell study indeed viewed the Blue Economy more as a theoretical than a functional construct: one that sounds presumptive, as it presumes that economic activities would be balanced and would consequently promote a sustainable or a healthy ocean, which could benefit not only the people directly using it but indirectly the entire world community.⁸² At an upper echelon of governance, it is acknowledged that the Blue Economy is a complex concept, that the country is yet to reap its benefits, and that time would be needed to improve human resources and technological capacity to discover marine resources in accordance with the concept.⁸³

Bangladesh has made some efforts to be in the awareness and learning process. Apart from conferences and symposiums, the efforts include the establishment of a Maritime University, an Institute of Marine Technology, an allocation of BDT 2 billion (around \$24 million) for conducting research on maritime resources like fisheries and hydrocarbons, offering of studies of oceanography at two public universities to carry out research in the Bay of Bengal, and commissioning of a survey vessel to conduct study on fisheries in the Bay and to explore resources in the seabed on sustainable means for a better future of the country.⁸⁴ Are all these adequate enough to advance the purposes of marine education and scientific research? The challenges it faces are too many. They need a fuller appraisal and follow up remedial steps.

More recently, there has been greater policy awareness about the very many ecosystemic challenges Bangladesh faces, as is indicated in some of the policy decisions publicly placed by the PM. These include: re-christening of the Ministry of Environment and Forests as the Ministry of Environment, Forests, and Climate Change, instruction issued to strengthen the efforts to keep the four rivers surrounding the capital free from pollution, giving a nod to a “proposal in principle for setting up environment-friendly industries” in Mongla,⁸⁵ some credible homework done by the Ministry of Fisheries and Livestock towards a sustainable fisheries policy,⁸⁶ and projecting the world's largest mangrove forest Sundarbans a Divine gift,⁸⁷ even as the concerned officials appear inflexible on proceeding with works on Rampal Power Plant, which, on all accounts of a sustainable Blue Economy planning, appears incompatible. It is, in the long run, likely to be harmful to the ‘Allah-gifted’ World Heritage site, as the PM prefers to suggest it. A land reclamation project ‘Delta Plan 2100’ led by a Dutch consortium, targeting existing good practices towards the long-term goals, is also reportedly ready for the government’s approval.⁸⁸

However, Bangladesh still has a long journey ahead for the fruition of a sustainable Blue Economy policy agenda. This must be in place to afford potential inputs (as per Blue Economy model) and open the scope for development of nature’s capital assets or of identifiable ocean economy sectors under the Blue Economy fashion. Bangladesh, by tradition, offered a rich social community where there was plenty of clean water with its river system and wetlands; all that is fading away. Many of the rivers have the appearances of drains with ash, brown, dark, and contaminated waters. The wetlands look like swamps; worse still, the monsoon resembles a distressing season. Like the capital itself, the country’s valued floodplains, wetlands, ‘lowlands’, and vast in-land aquatic areas are being filled up in the extraordinary fashion of ‘urbanistic intervention’, using the rubrics of ‘modernism and development’. If Bangladesh is to move along the Blue Economy model the rule of developmental planning has to switch over to nature, steering around land and water—taking only the natural route—not tilting in any venture against the course of nature. It must steer its development course around both landscape and aquatic planning. All that requires a simple understanding of nature, a common-sense view of science, as is

required under the Blue Economy model, not a bureaucratic vision of 'development' as a 'rocket science' or of engineering, as is being advanced in the justification for the Rampal Power Plant or of marketing of the country's naturally drawn in sediments. Any move towards a sustainable Blue Economy model of planning the beginning must be made with a recognition of the very fluctuating landscape or aquatic matrix of "the Bengal Delta where water rises and falls, comes and goes, flows and overflows, and constantly shifts boundaries between settlement and land/waterscape."⁸⁹

For fruition of Blue Economy in Bangladesh, it is imperative to frame a new rational position on the nation's ocean economy planning that encompasses both land and maritime possessions. To such an end, it must re-negotiate the traditional developmental vision. Such an approach must be coupled with a renewed focus on the distinctive ecology of an aquatic system offered by nature. That is precisely the way forward for the development of the ocean economy in Bangladesh under a Blue Economy model. A sustainable Blue Economy maritime planning for Bangladesh must *not* be seen as an end but a means to an end: the end is Golden Economy, *Sonar Bangla*, which is the national vision, as enshrined in the national anthem. Blue Economy conveys the human use of the ocean, a rapidly expanding phenomenon *via* a new wave of industrialisation and exploitation of the ocean economy planning. Knowing that the ocean economy offers scope for economic and social transformation, growth, and sustainable development, many Afro-Asia-Pacific and Caribbean countries are set on developing robust national frameworks and enhancing regional cooperation to strengthen inter-sectoral and intra-government planning and coordination necessary to transition to the Blue Economy.⁹⁰

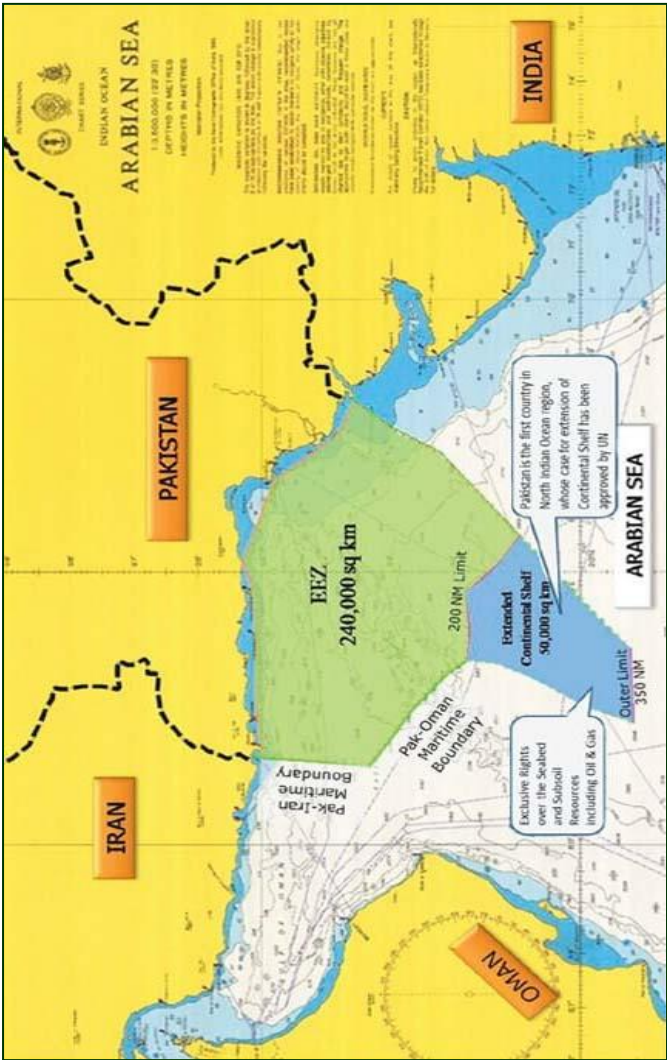
The preceding labours in the process or suggested seem also relevant to Pakistan, should it plan suitable planning measures for sustainable development of its ocean economy, with solemnity to lift its millions from the subnormal trappings of living. Ocean economy planning has several objectives: create clear trails for interested stakeholders in public/private sectors to participate in ocean management, provide a platform that may help inform smarter and more efficient management decisions towards effective use, and balance and mitigate potential ecological risk. The intrinsic idea is to synthesise complex subjects into

maritime resources and facilitate management by providing the tools and knowledgeable forums needed by concerned agencies and policymakers for informed decisionmaking, management, and rallying the infusing process for emerging uses through commitments to coordinate.⁹¹

Like Bangladesh, Pakistan is also a recipient of enhanced maritime boundaries, with an advantage of an expanded continental shelf following the decisions of the UN Maritime Commission on Limits of Continental Shelf (2015). Its sea boundary has consequently increased by 50,000 square kilometres. By virtue of this, its oceanic boundary has gone beyond 200 nautical miles, reaching 350 nautical miles. Pakistan is now able to have an overall maritime ownership of 240,000 square kilometres with complete access to the in-depth resources as per international maritime law. All this provides immense scope for sustainable socio-economic uplift of its people.⁹² As a consequence, apart from the geopolitical/strategic advantages of being a South Asian state, it also features as a Middle Eastern country as a result of its substantial oceanic possessions adjoining both Iran and Oman.

However, like its erstwhile eastern wing with common rubrics of nature, culture, governance, and politics, Pakistan also faces some daunting challenges. Besides, Pakistan also has a swiftly growing population. All these embrace issues like environmental concerns, pollution, sea intrusion, the rise of the seawater level at a rate of 1.3 millimetres per year affecting Sindh and Baluchistan, with seaports of Karachi and Gwadar facing tsunami threats.⁹³ All this seems perceptibly related to climate change and environmental degradation, impacting aquatic system, temperatures, and weather patterns. Geo-oceanographers require actions like protection of its coastal areas from drowning and conservation of sweet underground water from alarming threats of saline water.⁹⁴ The keys to safety include ensuring harmony with nature, pollution-control, and healthier environmental management consistent with the Blue Economy model.

Map 2
Pakistan's extended maritime boundary



Source: "Pakistan Maritime boundary – Pakistan's 5th & largest province gets even bigger by 50,000 Sq. Km, March 21, 2016," <http://beyondthehorizon.com.pk/pakistan-maritime-boundary-increases-by-50000-square-kilometers/> accessed on January 30 2017

For all this to happen, the country's eco-environmental awareness and knowledge level, together with usual ecosystemic planning, regulatory systems, governance, and politics must change to cope with the mounting ecosystemic challenges. It must act urgently, sooner than later, being mindful of the parting prophetic wish of its first Prime Minister Quaid-e-Millat Liaqat Ali Khan during the last moments of his lifespan about the numerous security challenges facing the nation. Indubitably, like Bangladesh, Pakistan's eco-environmental challenges are more daunting than any other.

Similarly, whilst endeavours at the national level are imperative, it must also act regionally. Since Pakistan's eco-environmental system quite closely interact with the rest of South Asia, its destiny is closely bound up with that of the South Asian people. Therefore, it is pertinent for Pakistan to couple its national eco-management order with an emphasis on the regional level of eco-systemic cooperation, which could then tote up the wide-reaching search for better human destiny.

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