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MARITIME DESTINY OF BANGLADESH: ENTWINING CHALLENGES

Abstract

Bangladesh won two successive international verdicts over its maritime claims with neighbouring Myanmar and India. The verdicts granted Bangladesh 200 nautical miles of Exclusive Economic Zone (EEZ) in the Bay of Bengal (BoB). Its continental shelf now extends up to 354 nautical miles, with sovereign rights on all living and mineral resources. All this added to the country's panoramic maritime domain, indubitably huge areas. Consequently, for business-related concerns, economic reasons and sustained development, the country's new maritime space warrant measures for ensuring its destiny. Some vital concerns remain: knowledge on the resources beneath the marine/seabed or at the aquatic level; the country's ability, skills and technology to access the resources or even its awareness of how to utilise the resources to its advantage; and, finally, the choices or means accessible for its maritime space or establishing its sway in its maritime domain. All such concerns call for rational analysis and reflection. How Bangladesh could countenance and meet the challenges of utilising its maritime spheres towards serving its overriding interests? In dealing with challenges facing the nation and actions required, the paper analyses some selected sectors that are entwined, keeping in view the conceptual-analytical trends in maritime studies. It pleads for futuristic planning and meticulous execution of neatly considered planning choices to ensure the nation a maritime destiny keeping matters of policy relevance in perspectives.

1. Introduction

Bangladesh is now an acknowledged maritime state. The International Tribunal for the Law of the Sea (ITLOS) and the Permanent Court of Arbitration (PCA) in their respective judgements (14 March 2012 and 09 July 2014) helped resolve the country's prolonged disputes over maritime claims with neighbouring Myanmar (Burma) and India. Following the verdicts a new maritime-centric Bangladesh has emerged. Its current maritime geography is 1,18,813 sq km, whereas the land territory is 1,47,570 sq km. The country's rights over 200 nautical miles of EEZ have also been established. Its continental shelf now extends up to 354 nautical miles; it has sovereign rights there on all living and non-living resources.

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The foregoing maritime gains represent a big achievement for a country like Bangladesh with constraints of land area. Consequently, for business-related concerns, commercial prospects and economic interests, this added maritime boundary warrant appropriate measures for sustainable development. For Bangladesh to protect this large soft-underbelly and to explore and exploit the natural resources of deep seabed carry huge challenges. These represent a remarkable feat for the country; but the challenges emerge how to move towards a future that would redeem the national vision.

Indeed, acquiring maritime territories symbolise one objective gain; but accessing the potential resources and their fuller exploitation, both current and prospective, represents a different tale. The fact of owning huge aquatic space does offer significant ramifications. With regard to resource, the country has potentially furthered its maritime gains; it ushered in vistas of optimism for future and widened the prospect of accessing to and harnessing of resources, both above and under its oceanic possessions.¹ Spatially, Bangladesh has now wide openings to the Bay of Bengal (BoB) and the Indian Ocean, with significant situational advantages. (See Appendix 1 for Bangladesh Maritime Territorial Map). All these dimensions demand appropriate policy attention and action planning from the authorities concerned.

Pertinent questions arise: Does Bangladesh have the necessary data on resources underneath the marine/seabed or stream above? Does the country have the policy frame, ability, skills and technology to access the resources or the awareness of how to utilise the resources to its best advantage? What challenges does the country confront in its maritime domain? All such concerns are intertwined and could prove very tough for the nation. Hence, they call for rational analysis, thoughtful planning and policy reflections. The country has to spur its efforts toward countenance and meet the challenges of accessing its present maritime possessions. The objective is to serve the overriding interests of its people and utilise the resources to enhance the nation's destiny. With an objective to identify the challenges that Bangladesh faces, the paper in section two projects the entwined pattern of multi-sectoral analysis, specifying the analytical rationale of such an approach; section three considers six key sectors selected that interface the nation's maritime vision and require planning of actions seeing to their materialisation. The conclusion reviews the findings and reflects on policy/action-planning and future research.

2. Conceptual Context of Maritime Studies: Entwining Challenges

As a new maritime state, Bangladesh has to develop an integrated maritime policy; there is yet no definitive direction about how to achieve this. The country's knowledge and expertise in the area still seem inadequate. Therefore, it has to open up itself to a

¹ Abul Kalam, "Maritime Destiny of Bangladesh: Legacies and Prospects," *BIISS Journal*, Vol. 36, No. 4, October, 2015; Sharif Hasan and Lam-ya Mostaque, "Judgement at the Hague and Future Prospects," *Dhaka Tribune*, 18 July 2014.

learning process towards charting the course of its maritime destiny and catching up with the analytical approaches that prevail. To this end, it also needs to mature its maritime research and policy framing which are consistent with national vision.

The field of maritime analysis is relatively new — little more than a century old. Studies in the field had earlier been set in motion across the seas by global strategic concerns of the major powers pursuing their positional advantage. Therefore, the field is yet to overcome the challenges of identifying and maturing its analytical approaches. Maritime studies embody an emerging field. Methodological concerns include complex problems and issues involving oceanic governance which establishes the framework for management. These draw features such as legal and institutional structures and also entail multilevel mechanisms of implementation which are carried out at international, regional, national and local levels; these in turn include actions and policies of supranational bodies, state and non-state actors/stakeholders.²

Winning favourable verdicts of national claims to oceanic resources do not inevitably confer Bangladesh sovereign rights of ‘owning’ the global commons, such as both the BoB and Indian Ocean, where it now has lawful stake. Analysts working in macro/micro-level fields have to be mindful of all such concerns whilst selecting areas for research. As for policymaking, Bangladesh has to be equally watchful in all its maritime policy formulations about the challenging multilevel pursuits.

The key concerns include conceptualisation of relevant policies, policy appraisals and policy planning.³ Other concerns include raising policy aspirations and empowering the fellow researchers and policymakers for action planning and/or policy implementation. Action research is seen in this context as a way of investigating professional experience in areas relevant which link concepts and pattern of practice into a single, continuously developing sequence.⁴

A relevant key point perceptibly is to recognise ‘maritime geography’; this has its ramifications on the concepts in use for analytical/policy appraisals. Usually, three regions are identified:

²Biliana Cicin-Sain, Robert W. Knecht, Dosoo Jang and Gregory W. Fisk, *Integrated Coastal and Ocean Management: Concepts and Practices*, Intergovernmental Oceanographic Commission, UNESCO, University of Delaware, College of Marine Studies, Island Press, 1998; Biliana Cicin-Sain, Robert W. Knecht, *The Future of U.S. Ocean Policy: Choices for the New Century*, Island Press, 2000; Miriam Sara Repetto, *Towards an Ocean Governance Framework and National Ocean Policy for Peru 2005*, available at http://www.un.org/depts/los/nippon/unnff_programme_home/fellows_pages/fellows_papers/repetto_0506_peru.pdf.

³ Charlotte Carter-Wall and Grahame Whitfield, “The Role of Aspirations, Attitudes and Behaviour in Closing the Educational Attainment Gap”, available at <https://www.jrf.org.uk/report/role-aspirations-attitudes-and-behaviour-closing-educational-attainment-gap>, accessed on 16 January 2016.

⁴ Richard Winter, “Some Principles and Procedures for the Conduct of Action Research”, in Ortrun Zuber-Skerritt (ed.), *New Directions in Action Research*, Routledge, 2003, pp. 13-27.

- ‘Brown-water’ - starting from the shoreline through to the end of the continental shelf;
- ‘Green-water’ - the main maritime arena, perhaps a few hundred miles from shore, including territorial sea, extending from the outer edge of the brown-water layer past any continental shelves, archipelagos and islands, and
- ‘Blue-water’ – seen also as ‘Open Ocean’, extending from the outer edge of the green-water zone through to the deep ocean.

Consequent to all these, there are also the use of operational notions of brown, green and blue water navies.⁵ In the current context, however, conceptually the most important are the four maritime forms of economic growth:

- ‘Brown economy’, also called ‘black economy’, i.e. economic growth that depends only on petrochemicals like coal, petroleum and natural gas. In the process of this form of production, great amounts of carbon dioxide and soot are released into the atmosphere.⁶
- ‘Green economy’, supported by UNEP since 2008, is defined as an economy that seeks to reduce environmental risks and ecological scarcities and promote sustainable development without degrading the environment.⁷
- ‘Blue economy’, or marine economy, is an emerging concept; it is designed to develop marine ocean resource, including also a service industry, directly or indirectly related to it.
- Finally, there is the notion of ‘Golden economy’ or ‘sunshine economy’; it conveys a sustainable economy that chooses non-fossil energy (based on wind, solar, water, biomass, geothermal, marine etc.) as basic energy supply. Golden economy encourages commonly public distribution of all facilities, such as marine and solar systems to improve the existing energy sources.⁸

All such conceptual approaches underscore the existence of some ‘deep fault lines’ in a range of socioeconomic concerns that generate alternative

⁵Available at <http://www.geographictravels.com/2009/08/maritime-geography-brown-green-and-blue.html>, accessed on 22 November 2015; http://en.wikipedia.org/wiki/Maritime_geography, accessed on 21 September 2015; https://en.wikipedia.org/wiki/Blue-water_navy, accessed on 21 September 2015; Jacquelin Ringersma, Niels Batjes, David Dent Wageningen, *Green Water: Definitions and Data for Assessment*, Report 2003/2, ISRIC, World Soil Information, December 2003.

⁶Available at <http://zhongou.gotoip2.com/en/jingji.html>, accessed on 22 September 2015.

⁷Available at http://en.wikipedia.org/wiki/Green_economy#Definition; http://twitter.com/ungreeneconomy?ref_src=twsrc%5Etfw, accessed on 21 September 2015.

⁸Available at <http://zhongou.gotoip2.com/en/jingji.html>, accessed on 22 September 2015.

visions affecting sustainable development.⁹ Many in Bangladesh are inclined to embrace the notion of 'blue economy' without recognising the challenges of passing through competitive phases of brown and green economy. Most of the developing countries, including neighbouring India and other G-20 countries (responsible for 75 per cent of global emissions and its energy-related greenhouse gas emissions) are still at brown economy stage. Hence, the emphasis has been of a transition to move to a green, low-carbon economy.¹⁰ In terms of environment and sustainability, Bangladesh has been languishing in a low-state of brown economy. However, since the maritime verdicts the country has energised itself to host major events on 'blue economy', even though notionally it is still at an embryonic stage of evolution.¹¹ The efforts to conceptualise may be in the right direction as a learning strategy; but operationalising such an approach prerequisites an embrace by all policymakers concerned and action planners; equally important also for all the stakeholders at all levels within and beyond the region to draw up cooperative action plans encompassing areas from marine biotechnology to deep-sea fishing, ecosystemic threats, climate change and natural disasters etc.¹²

All these seem idealistic but still a far cry. Many of the key issues pertinent to maritime domain across the world are generally under-researched; these include how to access the gains, develop, explore resources and enhance competence.¹³ The challenges in the field are too numerous; these are also of interweaving natures and cover diverge concerns. The concerns include legacy and prospect, capital and human investment, knowhow, affordability and sustainability. They must also ensure welfare of the people/society concerned. All these challenges are intimately entwined in many ways through multiple traditions of human and resource development.¹⁴ In this backdrop, the analytical interests in the relevant fields still are largely pursued on a sectoral basis; an inherent idea is to ensure that the selected areas get greater clarity from intensive research, diagnostic findings through focused investigations; policy roles can then be assigned for action planning, which offer scope for spatial impacts

⁹Available at http://www.globalsecurity.org/military/library/news/2016/09/mil-160920_rferl02.htm?_m=3n%2e002a%2e1823%2eaq0ao072mi%2e1ocg, accessed on 21 September 2015.

¹⁰Available at <http://blueandgreentomorrow.com/2016/09/01/g20-still-yet-transition-brown-green-economy/>, accessed on 22 September 2015.

¹¹See, for instance, *Proceedings of International Workshop on Blue Economy*, Ministry of Foreign Affairs, Bangladesh, 01 September 2014; Abul Kalam Azad, "Delimitation of Maritime Boundaries and the Prospect of Blue Economy for Bangladesh: A Critical Overview," *Journal of International Relations*, Jahangirnagar University, Vol. VI, No. 6, 2015.

¹²"Bangladesh-India Relations: Progress Made and the Challenges Ahead", dialogue organised by the Daily Star and the Institute for Policy, Advocacy and Governance (IPAG), *The Daily Star*, 18 September 2016.

¹³Jon. S. Helmick, "Port and Maritime Security: A Research Perspective," *Journal of Transport Security*, Vol. 1, 2008, pp. 15-28.

¹⁴Rattan Lal, Klaus Lorenz, Reinhard F. Hüttl, *Ecosystem Services and Carbon Sequestration in the Biosphere* (eds.), Springer, 2013.

as interventions to support.¹⁵ Indeed, a sector-based approach in areas like maritime affairs is viewed as an important policy tool in national planning, as it tends to offer greater clarity from the policymakers to the sectoral stakeholders on the long-term national approaches.

Bangladesh cannot be an exception to this analytical trend. Indeed, sector-based analysis has been in use in the country's five-year perspective planning, including the current Seventh Five-Year Plan,¹⁶ though an analysis, casing maritime affairs has not been pervasive as the country attained its international maritime status only in recent years.¹⁷ In terms of available data, the BoB and its coastal areas are the most scantily studied areas.¹⁸ The means that are available have not been sufficient enough either to optimise its maritime resources or develop services in an adequate manner. Moreover, as many of the maritime sectors of the country are underdeveloped the scope at this stage for fuller or a focused scrutiny seem limited, as available in most developed countries.¹⁹

Consequently, in Bangladesh context all the fields relevant towards maritime awareness, resources and service development deserve greater analysis and in-depth scholarly attention. Any investigation of such fields has to keep in view their entwining natures. An intrinsic idea is to ensure that competencies are aligned with knowledge and skill development along with technological progression. There are also the

¹⁵ For such perspective see, Department for Business Innovation and Skills, "Industrial Strategy: UK Sector Analysis", *Economics Paper*, No. 8, September 2012, pp. 4-6; For case study of sector analysis see, Davies, Ian M. and David Pratt, "Strategic Sectoral Planning for Offshore Renewable Energy in Scotland", *Marine Renewable Energy Technology and Environmental Interactions*, Netherlands : Springer, 2014, pp. 141-152; Juan L. Suarez de Vivero, Juan C. Rodríguez Mateos and David Florido del Corral, "Geopolitical Factors of Maritime Policies and Marine Spatial Planning: State, Regions, and Geographical Planning Scope", *Marine Policy*, Vol. 33, No. 4, 2009, pp. 624-634.

¹⁶ General Economic Division, Bangladesh Planning Commission, Government of Bangladesh, *Seventh Five-Year Plan FY 2016-FY2021, Accelerating Growth, Empowering Citizens*, 2015.

¹⁷ M. Shahadat Hossain, Sayedur Rahman Chowdhury, Umme Kulsum Navera, Mostafa Ali Reza Hossain, Badrul Imam and S. M Sharifuzzaman, *Background Paper for Preparation of the Seventh Five Year Plan, Opportunities and Strategies for Ocean and River Resources Management*, Food and Agriculture Organization of the United Nations, Bangladesh Country Office, Dhaka, Bangladesh, December 2014; The work drafted by FAO is akin to maritime affairs. For analysis of sectors such as shipbuilding see, <http://www.globalsecurity.org/military/world/bangladesh/shipbuilding.htm>, accessed on 02 February 2016; see also O. Quader, "Coastal and Marine Biodiversity of Bangladesh (Bay of Bengal)", Proceedings of International Conference on Environmental Aspects of Bangladesh (ICEAB10), Japan, September 2010, p. 83; FB08 Space Research and Remote Sensing Organization (SPARRSO), available at <http://benjapan.org/iceab10/19.pdf>, accessed on 24 January 2016.

¹⁸ Md. Shahidul Islam, "Perspectives of the Coastal and Marine Fisheries of the Bay of Bengal, Bangladesh." *Ocean and Coastal Management*, Vol. 46, No. 8, 2003, pp. 763-796.

¹⁹ For some case study insights see, Seung-Jun Kwak , Seung-Hoon Yoo , Jeong-In Chang, "The Role of the Maritime Industry in the Korean National Economy: An Input-Output Analysis", *Marine Policy*, Vol. 29, Issue 4, July 2005 , pp. 371-383; Hance D. Smith, "The Regional Development and Management of Fisheries: The UK case," *Marine Policy*, Vol. 37, Issue C, 2013, pp. 11-19.

challenging needs that exist in the contexts of contemporary maritime resource exploitation, conservation and development of related fields. These needs include habitation/community - as support-base, ports and infrastructure development, enhancing trade, skills, shipbuilding, shipping and transports. All such needs are also relevant to maritime resource advancement. It is of paramount importance that these competencies are developed in a manner that will widen maritime relevant knowhow. Likewise, such competencies have to contribute to business, employment and production as a whole. Similarly, the motivation has to enhance and meet the demand and maintain a competitive position in the regional/global communication, market and transports. Because of low levels of research and developmental intensity in Bangladesh or even in developed countries, gaps exist in knowledge with lack of research findings and inputs.²⁰

Bangladesh has meagre resource-base. It possesses inadequate means to develop relevant skills and technology. Hence, there is a compulsive need for meeting the entwining challenges of analytical research, policy appraisals, action-planning and competence development in the areas of maritime concerns crucial to the country.²¹ In this backdrop, the analytical orientation of this paper shall be to identify those entwined sectors for policy planning where the country needs to focus and prioritise them towards enhancing the nation's maritime destiny (See Chart 1) . Such an approach is consistent with the recent scholarly trends; it also has kept in view the pattern of sectoral planning of the country's Seventh Five-Year Plan.

3. Interfacing Vision and Realities: Challenges of Realising Policy Agenda

Any conceptualisation and consequent sectoral planning in maritime affairs has to keep up with national aspirations and policy vision. Bangladeshis do carry huge legacies as seafarers, boat-makers and shipbuilders. The culture of fishing in riverine Bangladesh and in its coastal areas has been so usual that made the Bengalis what they are: *Machey-Bhatae Bangalee*—fish-rice intake that governs the Bengali daily menu. The efforts to cash in from gas/energy exploitation have been more recent; but such efforts have been constrained, until recently, due to the maritime disputes with the neighbouring countries. Such concerns seem no longer relevant. However, the constraining factors such as lack of infrastructures, technology, oceanic services, skills and/or investment of resources continue to pose challenges.

²⁰ Jon. S. Helmick, *op. cit.*

²¹ Earlier works in the area of Bangladesh focused more on regional cooperation than on development and realisation of self-potentials. See, for instance, A. K. H. Murshed, "Cooperation in the Maritime Zones among and between the SAARC Countries," *BISS Journal*, Vol. 20, No 1, 1999, pp. 1-11; M. Khurshed Alam, "Regional Maritime Cooperation Under the Auspices of South Asian Association for Regional Cooperation (SAARC)," *BISS Journal*, Vol. 18, 1997.

The country's aspiration and objective policy vision is neatly charted by its founding-father: turn Bangladesh into '*Switzerland of the East*', an Asian trade-transit hub and ultimately a '*Sonar Bangla*' (Golden Bengal). Such a cherished dream is consistent with the conceptual notion of 'Golden economy'. Such a portrayal is also depicted in the country's national anthem lent from Tagore's lyrics; the world-poet also portrayed the forward trail, the craft of trade, voiced in his melody *Sonar Tori* (Golden Boat), which conveyed the keystone of wealth creation. Following maritime gains, Bangladesh has now emerged bigger in dimensions with openings to the world beyond. Naturally, the dream of a 'Golden Bengal' necessitates 'Golden economy' notion to embrace the aquatic space beyond its shores.

A realisation of such futuristic aspirations entrust tasks upon the nation. How to materialise such dreams? It has to be in "the courage of those who dare to make dreams into reality;" they must join in developing "the capacity to translate vision into reality."²² Indeed, realisation of such dreams assign great duties to the Bengadeshis and leaderships both at socioeconomic and political levels. The higher level of vision-building may stay on for mapping potential routes of sustained development; but the nation must focus on knowledge and action-planning, moving through diagnosis to prognosis. No one can "cross the sea merely by standing and staring at the water," reminds Tagore,²³ who in his distinctive mode taught how to sustain animated dreams and materialise them. Towards voyaging the sea and availing its resources, the nation must implore Walt Disney, the architect of enchanting Disneyland, "get started and begin doing."²⁴ For concrete policy action, entreated Mark Twain, the guts must be one of both "ignorance and confidence and then success is sure."²⁵ As people, the people must have full faith in their creativity and "believe that we can."²⁶ The planning of actions must begin in earnest, as "it is the foundational key to all success."²⁷ The approach now should be multi-sectoral, as depicted, catered to bring the ideas together trailing them in an entwining fashion.

²² Available at <http://www.brainyquote.com/quotes/keywords/reality.html>, accessed on 19 February 2016.

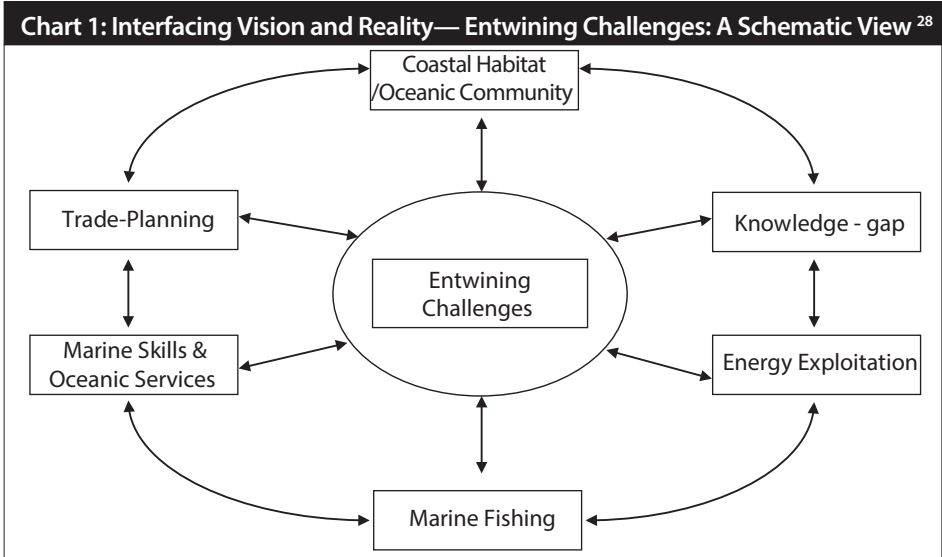
²³ Available at http://www.brainyquote.com/quotes/quotes/r/rabindrana383735.html?src=t_motivational, accessed on 24 May 2015.

²⁴ Available at http://www.brainyquote.com/quotes/topics/topic_success.html, accessed on 23 May 2015.

²⁵ *Ibid.*

²⁶ Available at http://www.brainyquote.com/quotes/topics/topic_motivational.html, accessed on 23 May 2015.

²⁷ Quotes from Pablo Picasso available at http://www.brainyquote.com/quotes/topics/topic_success.html, accessed on 23 May 2015.



3.1 Knowledge-Gap

The principal challenge facing the nation is how to create or recreate a national awareness vis-a-vis maritime possessions and a perspective planning for the future. There can be no future for a country with severe land constraints and a bulging population but to make best use of its enormous maritime space. That Bangladesh is now a maritime state, with huge ocean/marine space, which equal or even surpass its land terrain, is hardly familiar nationally; an effort to create such awareness seems missing. The essence of what the country has won is still unknown; many seem oblivious of how to maximise the maritime benefits for the nation.²⁹

The government surely has taken initiatives over the past few years to augment the naval force components. Of particular significance is the relentless endeavours of the Prime Minister Sheikh Hasina (PM also holds the defence portfolio); her recurrent visits from the ports to the coasts of the country to energise all in the relevant sectors matter a great deal. Events organised under the banner of 'blue economy' give impression that the government has embraced the concept; yet people generally seem still naive about what Bangladesh currently owns across its shores. Not many are aware about the maritime potentials — the future bastion of the nation's economy, their effective and efficient use which will determine the nation's future destiny. The fish, ships and waves may seem as oceanic ornaments.³⁰ Some may well feel enthralled by the waves of the Bay, enjoy taking a dive or swim in the sea; many love just being at the sea beach, playing cricket along the

²⁸ Dr. Shemin Kalam has appreciably drawn the Chart.

²⁹ Shykh Seraj, "Marine Resources in our Maritime Boundary", *The Daily Star*, 26 January 2016.

³⁰ *Ibid.*

coasts and even celebrate New Year in the scenic coasts; yet how many are awakened to maximise the maritime benefits or aware of how much resources are there beneath the sea or in the flow above? Indeed, the country's maritime boundary still remains shrouded in mystery. Generally, fisheries, mineral, water plantains and other water resources are known as maritime assets; but the resources remain untapped; no surveys have yet been done. With the maritime disputes behind it, Bangladesh can "now start planning about the resources, prospects and proper maritime management."³¹

The key issue is how to beat the yawning knowledge-gap? The answer is education, publicity, skill development, training, dedicated analysis and research. No doubt, there are research bodies, centres, institutes, university departments and even a university set up associating the name charisma of the nation's founding-father (see Table). Such institutions for maritime learning and marine resource development are in service sans significant accomplishments; they lack required dedication, visible productivity, monitoring, overseeing or guaranteed accountability and appreciable performance.³² All this has to change. Only knowledge, skill, commitment to research, developmental enquiries and productive output can unveil the vastness of wealth in the country's maritime boundary and help exploit the full marine potentials. A comprehensive and pragmatic survey of all marine resources in the territorial waters is an urgent demand. In this digital and knowledge-based society, it is not a difficult proposition or impossible task. The authorities, bodies created need to stream into life-activity, guidance, mobilisation and overseeing.

Bangladesh Navy itself maintains its professionalism in sharing and upholding whatever information it is assigned to distribute and project. It also sees maritime domain awareness as a challenge which it is committed to face like all other navies. However, the citizens and government departments/officials at all levels must be awakened to what the nation currently owns beyond its coasts and what needs to be done at their respective levels.

3.2 Energy Exploitation

A key challenge to the country in fulfilling its development vision is to overcome its chronic energy shortages, given its expanding and export-oriented industrial sector. The verdicts confirmed Bangladesh's right to exploit the potentially rich BoB zones and to enhance the country's expanded energy interests, as majority of the oil blocs under the seabed have come under Bangladesh jurisdiction.³³ However, the future prospects for conventional energy sources are subject to questions, as until now Bangladesh could only discover two gas fields at sea. Extensive marine scientific surveys using state of art technology with country's private/public sector

³¹ *Ibid.*

³² *Ibid.*

³³ Reaz Shajib, "Maritime Boundary; a 'Great Win' for Bangladesh", available at https://www.academia.edu/8211654/Maritime_Boundary_a_Great_Win_for_Bangladesh, accessed on 30 January 2016.

collaborations for extracting precious natural energy are necessary to discover further reserves.³⁴

For ensuring the future of the country's energy needs, it is vital to tap alternative energy sources including solar, tidal, wind and wave power.³⁵ Conventional energy sources are steadily depleting, whereas alternative energies from maritime domain are renewable, generated from the marine sources. The benefits include reduction of dependence on non-renewable energy which in turn reduces the production of carbon dioxide and other greenhouse gases, as scientists and economists agree. It also helps create new job opportunities. While solar energy has been coming up fast, offering competitive cheaper options, wind power is also fast growing. Given the ocean's power, tide and wave energy seem promising sources of renewable energy. Tidal and wave powers are still at nascent stage but in the coming years they are likely to blossom, as projections suggest.³⁶

Bangladesh has enormous potential for exploiting such energy sources, principally in the coastal areas and offshore islands. The government does have plans to generate electricity from wind power under public/private initiatives. The coastal topography is viewed favourable: northern BoB is a semidiurnal 'macrotidal' environment, that means tide elevation rises and falls more than 4 meters (>13ft), up to 6m (>19ft) in some places, twice daily, resulting in strong tidal currents creating enormous potential for tapping this dynamic force for mechanical work and power generation.³⁷ However, a strongly favourable policy is essential for generating alternative energy from the maritime-based sources such as wind power or wave.

3.3 Marine Fishing

The challenges to marine fishing in Bangladesh are numerous; many are ecology/environment-related — interlacing with national, regional and global concerns. Its extended maritime boundary has very high potentials for fishing and contains 475 different species of fish. It can explore and exploit living and non-living resources of water, seabed and subsoil of 200 nm EEZ; it also won sovereign rights over its 354 nm continental shelf, where none can exploit resources without its prior consent.³⁸ Within the BoB, Bangladesh has the widest shallow shelf region extending more than 100 nautical miles (185 km), 3-4 times wider than that of Myanmar, the eastern coast of India and the global

³⁴ Commander Masudul Karim Siddique, (G), psc, "Increasing our Maritime Awareness", *The Daily Star*, 26 August 2015.

³⁵ G. Moula, F. Parvin and J. Ferdous, "The Prospects and Challenges before Bangladesh in Exploring and Exploiting Marine Resources: An Economic and Legal Study", *Beijing Law Review*, 2014, Vol. 5, pp. 249-252.

³⁶ Chelsea Harvey, "This Technology may be the Future of Solar Energy," available at https://www.washingtonpost.com/news/energy-environment/wp/2016/01/15/this-technology-may-be-the-future-of-solar-energy/?utm_term=.c36d6aef9760, accessed on 02 February 2016; Mia Henderson, "The Present and Future of Tidal Power", available at <http://www.environmentalleader.com/2013/04/10/the-present-and-future-of-tidal-power/>, accessed on 02 February 2016; Mike Barnard, "What is the Future of Ocean Power?", available at <http://www.forbes.com/sites/quora/2014/09/18/what-is-the-future-of-ocean-power/#3b9bf5ad2474>, accessed on 02 February 2016.

³⁷ Seventh Five-Year Plan, *op. cit.*, p. 317.

³⁸ G. Moula *et al.*, *op. cit.*

average (65 km). This provides a greater shallow bottom fishing area per unit length of coastline than its neighbours. There is now enhanced opportunities for the nation's fishing industry as fishing now can be carried out in the deep sea.³⁹

However, challenges are striking; concerns are mounting whether the country has the means to track foreign fishing trawlers which slip into Bangladesh side of the maritime territory. Bangladesh is yet to come to term with deep sea fishing.⁴⁰ Pelagic and deep-sea resources are still untapped. Compared to the vastness of fishing territory and high potentials, the fishing activity is limited, as merely 200 fishing trawlers are currently operating in the BoB; it covers a distance of no more than 60 kilometres, mostly because of a lack of deep sea operation capabilities.⁴¹ No doubt greater numbers of the mechanised and non-mechanised boats are engaged in fishing; but they do not possess deep sea operation capabilities. Moreover, fishing is only confined within 100-meter depth. Currently, wooden boats can venture up to 20 nautical miles and the motorised trawlers up to another 20 nautical miles accounting for a total catch of 6.0 million fish from the Bay annually.⁴² In the year 2006-07, fish production was 24.40 lac metric ton (mt) in which only 35,391 mt was trawl catch.⁴³

Marine fisheries suffer from numerous concerns and worries which include:

- Compared to the vast territory, Bangladesh marine fishing activity remains extremely limited, mostly because of a lack of deep sea operation capabilities.⁴⁴
- Almost all of Bangladesh's marine fishing is carried out in shallow and shelf waters, beyond which no fishing is being currently done due to lack of vessel capacity and appropriate fishing technologies.
- The fishing potentials can be ruined by either natural or man-made disasters.⁴⁵ Most of the commercially important fish stocks are either overexploited or under threat. The deadly signals are there already; varieties of fish and shrimp have been steadily on decline.⁴⁶
- There are no regulations for fish catching and foreign fishermen sneaking in very often.
- Since 1977-80, when surveys were conducted on BoB fisheries there are reports of steady depletion of the stock in terms of tonnage and varieties.

³⁹ Seventh Five-Year Plan, *op. cit.*

⁴⁰ Md Shahidul Islam, *op. cit.*

⁴¹ M. Shahadat Hossain *et al.*, *op. cit.*

⁴² Commander Masudul Karim Siddique, *op. cit.*

⁴³ Reaz Shajib, *op. cit.*

⁴⁴ M. Shahadat Hossain *et al.*, *op. cit.*

⁴⁵ Shykh Seraj, *op. cit.*

⁴⁶ *Ibid.*

Marine pollution has reached a level that could create an unmanageable situation in the near future; coastal shrimp farming particularly has generated considerable debates due to its adverse environmental and socioeconomic impacts.⁴⁷ Scientific studies also suggest that much of the BoB fishing areas are seriously in short of 'oxygen minimum zones', a 'brown economy' condition referred to as 'hypoxia'; animals find it hard to survive in such condition that affect biological productivity, particularly in the entire summer monsoon season, when the BoB can only support a smaller oceanic fish population.⁴⁸

The country might fall far behind if it fails to utilise the fishing resources properly. The government's policy intervention is needed to ensure the following:

- Its marine environment is not endangered due to pollution, overexploitation of living and non-living resources.⁴⁹
- Fishermen engaged in the BoB are not subject to extortion, hostage-taking, intrusion or terrorism.⁵⁰
- BoB does not suffer from pollution and acidification, which have their toll on the growth and varieties of fish in the Bay—not easy tasks given encroachment and degradation of natural resources, rapid urbanisation and infrastructure development—which have emerged as challenges negatively impacting upon fisheries and increasing pollution.
- Management of the combined river system of Ganges-Brahmaputra-Meghna (GBM) are well-coordinated. GBM river system is rich in ranges and complexities in the Asian water networks, possessing the longest reaches of the major subcontinental rivers flowing through its lands, whereas the catchments are from India, Nepal, Bhutan and China.
- Finally, the country is enabled to reach out to the furthest limit of the sea and exploit the full fishing potential.

For all these, Bangladesh must ensure green environmental planning, procure well-equipped vessels with appropriate technology-base for deep sea fishing, keep the Marine Protected Areas (MPA) safe and secure neighbourly cooperation.⁵¹

3.4 Marine Skills and Oceanic Services

Historically, Bangladeshis are known as nautical-minded and seafaring, with the fame as boat-makers/shipbuilders and as suppliers of naval vessels even to advanced countries; yet it seems depressing that Bangladesh is unable to optimise its potentials

⁴⁷ Commander Masudul Karim Siddique, *op. cit.*; G. Moula, *et al.*, *op. cit.*

⁴⁸ M. Shahadat Hussain, *et al.*, *op. cit.*

⁴⁹ Commander Masudul Karim Siddique, *op. cit.*

⁵⁰ G. Moula, *et al.*, *op. cit.*; Commander Masudul Karim Siddique, *op. cit.*

⁵¹ M. Shahadat Hussain *et al.*, *op. cit.*

as a country with lofty marine skills, ocean transport and shipping compatible with its tradition. Why did Bangladesh fail to summon back its glorious image even 45-years after its independence as a shipbuilding nation, languishing still with the image of a 'ship-breaking' nation? All these spotlight a number of entwined concerns: *first*, lack of skilled mariners, *second*, dependence on external carriers, and, *third*, failure to enlarge shipbuilding.

First is the issue of augmentation of marine knowledge and shipping skills. Currently, Bangladesh does not have enough experienced or mature skilled hands to offer services nationally, deliver shipping/marine skills regionally or render such services internationally. Its endeavours for supplying skilled mariners to the international market are simply far too meagre. Its contribution till now is estimated to be about 4,000 skilled mariners for a country with 160 mn people, seem ignominious when compared to the Philippines, which (with less than 100 mn people) has emerged as the world's largest supplier of marines, around 400,000 personnel.⁵² Although this sector has enormous prospects in Bangladesh, the government or private sector stakeholders seem oblivious of the huge opportunity that marine skills offer. It seems ironic that in Bangladesh having dozens of private universities has anything to do with marine education or maritime qualification, whereas the private sectors in the Philippines offer most of the marine skill/maritime education.⁵³ The system and quality of marine education and skills provided to the learners in the marine fields raise concerns. In such backdrop, it seems proper to suggest that the country needs larger number of specialised places, with external skill-technical support under independent management system, for an expansion of well-managed skilled marine training institutes and centres of maritime learning.

Second is to overcome the country's high dependence on foreign carriers. Bangladesh has only seventy four registered merchant ships, of which the Bangladesh Shipping Corporation (BSC) has just eight vessels with a total deadweight tonnage of 121,820 mts. The country's fleet strength remorsefully is even lesser than many private enterprises of the world. Due to all these, nearly 2,500 foreign ships visit Bangladesh ports annually. It takes its toll on national economy because a lot of foreign exchange has to be spent to meet their freight charge. The country's private participation in the shipping business is not very encouraging either. The resulting heavy external dependence for shipping and transport can hardly be positive for the country.⁵⁴ It is important that this maritime sector draws larger private sector partaking and investment towards enhancing the size of its fleet.

Related *third* concern is requirement for a higher profiling of the country's shipbuilding industry. Bangladesh is a maritime/coastal country blessed with a wide internal network of riverine system and openings to the oceans beyond. Historically, the country served the cross-border needs of the neighbouring territories, apart from its enormous legacies in boat-making and shipbuilding. In the current contexts, it has huge potentials

⁵² *Ibid.*

⁵³ Available at https://en.wikipedia.org/wiki/List_of_maritime_colleges, accessed on 22 June 2016.

⁵⁴ Rear Admiral (Retd.) Md. Khurshed Alam, "Ocean Blue Economy for Bangladesh", Proceedings of International Workshop on Blue Economy, *op. cit.*, p. 38; Commander Masudul Karim Siddique, *op. cit.*

to develop its maritime industry and shipbuilding. However, over forty five years since its independence, Bangladesh has developed a fleet of about 20,000 vessels comprised of inland/coastal commercial vessels and various types of working/fishing craft. There are indigenous shipyards, over two hundred though not fully developed to meet the needs of the age. The industry does, however, offer services such as repair and maintenance of the vessels and a base for building ships of international standards.⁵⁵ Bangladesh Navy has also acquired control of major public sector shipyards/dockyards in Khulna, Chittagong and Narayanganj, enabling it to develop its expertise and manpower for repair, maintenance and in building of vessels. Bangladesh has already stepped into international arena.⁵⁶

The seaborne cargo globally has been growing 6-8 per cent per year and demand for new ships is increasing at the rate of 3-4 per cent per year. The existing suppliers are not in a position to meet this additional demand. Many of the ships built earlier are also aging out and there are increasing demands for smaller to medium-size ships for which major supplier countries are not very keen to take order.⁵⁷ In such backdrop, Bangladesh has mid-to-long-term scopes for adding value to its shipbuilding industry, a task both promising and challenging. Until very recently, the average rate of increase in tonnage was approximately 21 million GT (Gross Tonnage) per year. Considering US\$ 7,620 as construction cost per GT, total market size is US\$ 1,600 billion. If Bangladesh wins only one per cent share of this global market, it will be equal to US\$ 16 billion. In worst case, if Bangladesh can grab only one per cent of the global order for the smaller vessels, the local value could be US\$ 4.0 billion annually.⁵⁸

Such projection has realistic basis. Bangladesh is presently contributing to the shipbuilding industries globally through its exported workforce. These facts do not speak only of a heritage but of an inbuilt ability of shipbuilding of people who for ages have been nautical-minded. Shipbuilding is an ancient assembling industry producing tailored products. Accordingly, it is always moving to countries with lower wages of required skills, having the largest human input per unit of produce. Bangladesh has comparatively a lower cost of human inputs and can offer the best combination of cost, quality and productivity with its fast growing young workforce. It also produces a diversified variety of vessels in various shipyards around the country, including multipurpose/container vessels, tanker, hydrographical survey boat, hospital ship and water taxi etc.⁵⁹

Currently, Bangladesh has mere ten per cent world class vessels; locally it manufactures only fifty per cent of the total material, machineries and equipment of the inland/coastal vessels built. To gain greater access to world share, it has to fully appraise the sector's current weaknesses. Lacking/action-points include:

⁵⁵ Mansur Ahamed, "Report on Ship Building Industry of Bangladesh", available at <http://jbbc.co.jp/wp-content/uploads/2014/08/A-Report-on-Shipbuilding-Industry-of-Bangladesh.pdf>, accessed on 02 February 2016.

⁵⁶ Few of the private sector firms, especially *Ananda Shipyard & Slipways Limited* (ASSL), Dhaka and *Western Marine Shipyards* (WMS), Chittagong, have attained the capability for manufacturing ships to international buyers, *ibid.*

⁵⁷ *Ibid.*

⁵⁸ *Ibid.*

⁵⁹ *Ibid.*

- High financing cost, scarcity of capital and relevant high technology, inadequate electric supply, insufficient management pool for expanding shipbuilding industries, lack of basic design abilities, longer lead time in material mobilisation.
- Inclusive skill development, policy body to advise government on the relevant issues, diplomatic drive to draw market attention, subsidies/support services as are provided in various shipbuilding countries.
- Sector-wise there is a strong need to build the backward linking industries.
- Thousands of SMEs (Small and Medium Enterprise) in the country, mostly land-based, must be provided support and skill-training, enabling them to contribute in the manufacturing and supply of components and services required for manufacturing of ships.
- A fuller appraisal is essential to exploit the comparative advantage that would attract foreign investment in shipbuilding sector, including cost-effective human resources in comparison with other shipbuilding nations.
- Simplification of import of raw materials and duty free market/access for Bangladeshi ships to other countries.
- The concern over productivity of the Bangladeshi work force engaged in shipbuilding, which is 11.4 - the lowest in the world, must be overcome by upgrading through conducting training programmes, modernising yard facilities and employing more integrated production technology.⁶⁰
- A sustained effort must go to make the sector competitive in the long-run, which requires both effective projection and facilitation, making the products attractive for marketing and investments.
- Dedicated efforts must go to find market, where there is demand and to access developed technologies for overcoming the challenges facing the maritime and shipbuilding industry.
- The embassies must be equipped with marketing knowledge to attract buyers and entice Muslim countries with surplus capital to invest.⁶¹

Considering its huge prospects and capability to develop country's multi-dimensional production base as linkage industries the government seems to be keen to promote shipbuilding as a thrust sector. It has introduced a five-year tax-holiday, Green Channel method of clearance against any export order for encouraging FDI to transform the industry into a basket of major export earners.⁶² With legacies,

⁶⁰ *Ibid.*

⁶¹ *Ibid.*

⁶² *Ibid.*

skilled and semi-skilled workforce in this sector, given higher skills, right technology and appropriate policy support to meet the challenges of a competitive market Bangladesh holds the prospect to emerge as a major shipbuilding player.

3.5 Trade-Servicing/Infrastructure Planning

Bangladesh is blessed with an access to the outside world with its maritime gains for unimpeded trade via the seas. More than ninety per cent of the country's trade, including hundred per cent oil haulage takes place via seas. Ports are lifelines for the country's international trade. Its two existing seaports — Chittagong and Mongla — are affected by sedimentation; both are too shallow for large container ships requiring costly load transfers to smaller vessels to get cargo in and out. These affect their global competitiveness.⁶³ The Chittagong Port, country's 'economic engine' presently handles ninety five per cent of sea borne export-import trade.⁶⁴ Still it is the only major port capable of handling total import-export, not heartening for a country that came into being forty five years ago. Mongla remains largely underutilised, due to its inherent snag of long-routing, navigational and connectivity concerns. That might change once the Padma Bridge becomes operational.⁶⁵

However, there are wider issues of economic trade and connectivity involving the Asian neighbourhood. Bangladesh has its situational advantage of market accessibility. With its market of 160 mn people, it comes in the middle with India's 1.2 bn markets in the north-west-east, China with 1.4 bn markets in the north, Myanmar's 70 mn and Thailand's 67 mn markets in the east. There are then the trading needs of the landlocked territories which include Nepal, Bhutan, India's northeastern states, China's southern territories and Myanmar's Shan and Rakhine states. Apart from Chittagong and Mongla, Bangladesh has other prospective vicinities along its coasts which are well-located to offer deep sea facilities to meet its own needs and serve the neighbours. Being the geo-maritime centre, Bangladesh would presumably reap substantial benefits with excellent bonding among these huge markets; a frenzy of economic activity is projected among all the countries.⁶⁶ The challenge for the country is to fully exploit the emerging trend of trade by enhancing existing port facilities, building infrastructure for connectivities and by building deep sea port and such other deep sea-based service facilities.⁶⁷

However, the country needs to have access to superior naval equipment, technology and vessels in favourable terms. With its ranking as the world's second most dynamic textile industry, Bangladesh is one of the world's fastest growing economies.

⁶³ Wade Shepard, "Bangladesh's Deep Sea Port Problem", *The Diplomat*, 07 June 2016.

⁶⁴ Seventh Five-Year Plan, *op. cit.*

⁶⁵ Commander Masudul Karim Siddique, *op. cit.*

⁶⁶ "Diplomatic Access", 18 November 2015, available at <http://thediplomat.com/2015/11/diplomatic-access-bangladesh/>, accessed on 12 February 2016.

⁶⁷ A. K. M Zakaria, *Prothom Alo*, 05 August 2015.

It is poised to grow at 7.5 per cent rate this year. It has also a booming export sector, tipped to be \$50 billion per year in value by 2021. It has been on Goldman Sachs's list of the "Next 11". All this is in a country without adequate maritime infrastructure and deep sea port facilities to serve its growing exports and to provide provisions to others in the neighbouring regions badly requiring such services.⁶⁸ Therefore, to build its economic future and generate significant economic activity the infrastructure planning along the coastal belt and development of trading services are essential; yet the country remains handicapped due to lack of capital, relevant expertise, knowhow and the technology required.

Thus, in addition to Chittagong and Mongla, Bangladesh requires deep sea port/trading facilities to cope with its own fast expanding trade and to offer services to neighbouring states and landlocked territories. Obviously, selecting such options and their execution will expedite the country's economic advancement; they are also in tune with its envisioning as Asia's trade-transit hub. The current proposals include ports/deep-sea facilities at Payra (already made operational), Sonadia and Matarbari. A fully, independently operational oil terminal at Moheshkhal Island is also in process.⁶⁹ The challenges in the selection and development of these sites arise due to regional power rivalry and wider game of global geo-maritime politics engulfing the entire Indo-Pacific region.⁷⁰ Such rivalries climaxed when Bangladesh sought to select the sites and probable financiers for its much-needed deep sea port and relevant facilities. The interested powers include India, China, Japan, EU, UK and USA; they all are the country's development partners and have evinced eagerness to become engaged in its coastal and maritime undertakings. The competing powers were often making great financial and political strides to secure their own interests, whilst keeping those of others at bay.⁷¹ Such outcome would obviously put Bangladesh in troubled waters and inhibit national interest.

The challenges on selection and development of deep seaports and related service facilities thus appeared problematic for Bangladesh. It has to choose range of options in site-selection/developmental help and identify players who will aid such undertakings along its coastal belt. At certain points it appeared that there were just too many powerful players pushing for too many contending plans; they were offering aid that made Bangladesh somewhat "geopolitically stalemated, making and breaking deals, going with one project and then changing position and going with another. Ultimately, this plethora of options has pitted China, Japan and India in direct competition with each other to build Bangladesh's first deep sea port".⁷²

⁶⁸ Wade Shepard, *op. cit.*

⁶⁹ A. K. M. Zakaria, *op. cit.*

⁷⁰ Prashanth Parameswaran, "The Malabar Exercise: An Emerging Platform for Indo-Pacific Cooperation?" available at <http://thediplomat.com/2016/06/the-malabar-exercise-an-emerging-platform-for-indo-pacific-cooperation/>, accessed on 12 June 2016.

⁷¹ Wade Shepard, *op. cit.*

⁷² *Ibid.*

After a lot of hassles, the government focused its design for infrastructure/ deep sea port planning as 3-phase part at Payra.⁷³ Ten countries sought to invest a total of US\$ 15.5 billion in different components of the deep seaport project. The government will have to invest only US\$ 400 million in the deep seaport. The full-fledged port activities in Payra will start by 2023. And then it will have the capacity to house 75,000 containers, whereas the existing capacity of Chittagong Port is only 1,500 containers.⁷⁴ With the enactment of the Payra Port Authority Act, 2013, the process of establishing a port at Payra in Patuakhali District is on, including the provisions for a Coal-fired Power Plant and an international airport etc.⁷⁵ Similarly, the 1200 MW Matarbari Ultra Super Critical Coal-fired Power Plant project funded by Japan contains the important component: the deep sea-port for the coal import, which will provide the opportunity for generation companies planning to develop the coal-fired power plants to procure the international coal in relatively cheaper price.

3.6 Coastal Habitat/Oceanic Community

The coastal zone of Bangladesh covers 19 districts and the EEZs. It is prone to multiple threats, including recurrent natural disasters, salinity, flooding and erosion. Current major land uses comprise agriculture, salt-making, shrimp and fish farming, forestry, urban development and other settlement needs, while the needs for new exploitation is also emerging. A series of Acts passed since 2001 sought to improve coordination, demarcation of land zoning, mangrove afforestation through community participation, better preparedness against disaster and develop modern land management systems.⁷⁶ Lately, the government has also undertaken major infrastructure projects, deep seaports, EEZs, communication networks/ railways for better connectivities within and beyond.

For advancing all these, Bangladesh needs work-cum-service oriented personnel along its coastal belts. The country with its severe land constraints and torrential projections of wreaking havocs caused by the ravages of climate change cannot but develop futuristic visions. When planning development projects around its newly acquired maritime territory the futuristic plans may serve as safeguards. Such vision-oriented plans could include initiatives like water surface planning or help build a boat community or habitation of people in boats/yachts. All these go well with the country's huge legacies in boatbuilding and of a floating population living in boats, a culture growing worldwide; second, perhaps a more innovative initiative could be planning underwater or under-ocean habitation and third, a more realistic

⁷³ Rupak Bhattacharjee, "Port Development in Bangladesh", *bdnews24.com*, 04 June 2016; Rejaul Karim Byron and Sarwar A Chowdhury, "Bangladesh's Third Seaport at Payra", *The Daily Star*, 30 October 2015.

⁷⁴ Rejaul Karim *et al.*, *op. cit.*

⁷⁵ Seventh Five-Year Plan, *op. cit.*, p. 363.

⁷⁶ Rafiqul Islam, "Pre and Post-Tsunami Coastal Planning and Land-Use Policies and Issues in Bangladesh", *Proceedings of the Workshop on Coastal Area Planning and Management in Asian Tsunami-affected Countries*, FAO, available at <http://www.fao.org/3/a-ag124e/AG124E05.htm>, accessed on 24 September 2015.

project that is closer to Prime Minister's inventive notion of *Ekti Bari/Ekti Khamar* (One House/One Farm), a project for poorer population, currently being implemented, could be extended to the coastal belt on a planned basis.

Such concepts arose due to the growing realisation that over three-quarter of oceanic world remains unused whilst there are increasing land space constraints for human habitation. The conceptual planning started off with the ominous forecasts of global climate change over the years. Efforts are underway to innovate and improve technology with endeavours to create an oceanic habitat or coastal community. Underwater habitats are being planned with regenerative systems for air, water, food, electricity, and other resources. The Paris Agreement enshrining COP21 (December 2015), signed by 195 countries, including Bangladesh, already recognised oceans within the context of 'Ecosystem Integrity.'⁷⁷ Living under sea is no longer a science fiction or sci-fi film story. Super-basement and undersea economic activities/hotels under the waves across richer Asian and European cities are familiar. Similarly, building an underwater residential area is not a fantasy anymore, as Japan's Shimizu Corporation already has drawn up plans to build one by 2030. By the turn of the next century, underground cities and floating neighbours are projected to become commonplace as the population is squeezed out of cities.⁷⁸

For Bangladesh, the very notion of oceanic underwater habitat may sound absurd; yet it is not immaterial. Bangladesh has its major constraints of habitable land for an ever bulging population. There are also compelling projections by climatologists about a third of its current land going under water due to sea-level rise. Now that the country has acquired an extended marine space across its shores, it should seriously consider embracing the notion of oceanic habitat and work experimenting in suitable spaces for building marine community, developing its own technology/expertise/vision. Bangladeshis are adept pretty well in innovation, embracing and empowering at the base of social pyramid, when it comes to finance or technology.⁷⁹ Its microfinance models are admired and replicated worldwide. If its entrepreneurs can build 'Fantasy Kingdoms' or 'Future Parks' they could also replicate what fellow Asian countries can do.

⁷⁷ Available at http://unfccc.int/paris_agreement/items/9485.php, accessed on 11 June 2016.

⁷⁸ "Rachel Nuwer, "Will we ever live in underwater cities?", 30 September 2013, available at www.bbc.com/future/story/20130930-can-we-build-underwater-cities, accessed on 27 January 2015; "Living under sea: Japanese visionaries unveil underwater city plan", available at <https://www.rt.com/news/207407-underwater-city-plan-japan/>, accessed on 14 September 2015; Jeff Kelly, "10 Underwater Facilities You Could Actually Live In", 23 January 2014, available at <http://listverse.com/2014/01/23/10-underwater-facilities-you-could-actually-live-in/>, accessed on 28 January 2016; Elizabeth Anderson, "Humans will live underwater in 100 years' time as the population is squeezed out of cities", *The Telegraph*, 15 February 2016, available at <http://www.telegraph.co.uk/finance/newsbysector/constructionandproperty/12157503/>, accessed on 17 February 2016.

⁷⁹ "Bangladesh a Silicon Valley of Pro-Poor Financial Innovation", *bdnews24.com*, 25 September 2016, available at <http://bdnews24.com/economy/2016/09/25/bangladesh-a-silicon-valley-of-pro-poor-financial-innovation-ex-bb-governor-atiur>, accessed on 25 September 2016.

Despite resource bar, marine biologists, oceanographers, water resource and techno-experts of the country should be enabled and encouraged to take such challenges for analysis, experimentation and research in the particular contexts of Bangladesh. Efforts must go towards creating awareness among the land-starved populace of the country as well; the private sectors may be encouraged to create ideas for coastal habitat/oceanic community or underwater eco-spots along the coastal belt for developing recreational/marine tourism purposes.

4. Conclusion

Some conclusive remarks are appropriate. These involve a summing up, coupled with thoughts on critical aspects of policy and areas for further research. The challenges facing Bangladesh in ensuring its maritime destiny are enormous and entwined, not uncommon for a country that underwent tumultuous processes of sacrifice and struggle. The government seems committed to beat the challenges; yet deficits in knowledge, equipment, technology, skills and services, infrastructure, investment and connectivity continue to constrain the nation's maritime aspirations. It is now over two years since Bangladesh had won its maritime claims; yet there remains a serious knowledge-gap about what resources are there in its aquatic space or under the seabed.

The nation is well-placed with its vision. That must be nurtured; it has to resonate in policy and actions, spot on route for shaping its maritime destiny. The processes of rebuilding the nation must continue undaunted till it is enabled to pass from brown, graduate through both green and blue economy; embracing golden economy is the brazen way forward to fulfil *Sonar Bangla*. The tasks of tough voyaging remind the sombre melody of the national poet, Nazrul's spirited soldierly assonance '*Durgomo Giri Kantar Moru Dustar Parabar*'— now Bangladesh's martial hymn; it strikes the nation into life, reverberate people's soul to cruise through and accomplish the nation's maritime dream. That is the potent way forward how to match vision with realities, move from envisioning to nation-building and fulfil through concrete plan of actions. The nation must be energised to exploit the marine resources available, harness energy, develop fishing, knowhow and skill; proficient oceanic services must be built up with enlarged shipbuilding and propped up business/trade links. The learning must be built upon past legacies; a future must be explored that is packed with actions, consistent with what was laid down by the nation's founding-father in his futuristic Asia's 'trade-transit hub' concept.

Maritime-wise Bangladesh has little option but to espouse its development tapestry on a short-to-mid-long-term basis for accessing funds and investments, knowhow and technology. It has to be artful in pursuing its maritime interests: appraise and update itself with every emerging situation whilst dealing with other nations. International and regional relations, like any other aspects of human relations are

dynamic and subject to situational change or variation; each of these needs to be judged in their unique contexts, whether bilateral, trilateral, regional and/or international basis for cooperation and development — be that maritime strategic or ecosystemic.

All this operationally convey the logic that Bangladesh must keep its distance from power bickering or squabbling; it has to dedicate itself solely to the pursuit of its national interest. It must remain focused on advancing its developmental interests; it ought to leverage its keystone position between major powers on a give-and-take basis, grow to be “a friend to everyone”— an extremely delicate task in a world of power contentions.⁸⁰ The country’s key rule must be *not* to get drawn as an active partaker in any designed maritime wrangling or rivalry; it has to ensure that its own aspirations for greater connectivities stay unhampered, its own quest to be an Asian Gateway and logistic hub remain unimpeded. The nation must ensue greater benefits in the process of maritime transactions. Should Bangladesh be able to lay down its sense of policy direction artfully along the suggested route it is bound to gain the objective ground.

For all that, the country now needs to define its agenda on a sectoral basis, make a diagnosis of the prevailing concerns and then take on prescriptive or prognostic measures for actions. Knowledge is power, especially so in the digital/knowledge-based global age. There are global concerns about the state of oceanic health; the vast portions of the Planet Earth (90 per cent of earth’s spaces), consisting of oceans face dire ecosystemic extinction due to ‘civilisational culture’ of abuse, with particular cruel ramifications on biodiversity. The fates awaiting the Bengal delta, as often predicted, may be quite catastrophic. In the backdrop of prevailing gap in knowledge in the country, a critical challenge would be to equip the nation conceptually, develop and mature the comprehension: how the nation moves on, what ought to be yardstick guiding the nation to overcome the prevailing challenges in maritime affairs?

The Prime Minister is passionate, quite appropriately, about promoting nation’s maritime goals, but laments a lack of momentum in knowledge-gathering. She has expressed her anguish that with all the profound efforts given towards favourable verdicts, no survey has been done yet on the resources, that marine fisheries and other valuable resources may be lost to others, and that lack of skills, expertise and effective institutions might pose challenge. The country’s top maritime specialist and policy planner reckons the need for an integrated maritime policy.⁸¹ Following ideas are offered for policy reflection and action:

⁸⁰ Wade Shepard, *op.cit.*

⁸¹ Rear Admiral (Retd.) Md. Khurshed Alam, Proceedings of International Workshop on Blue Economy, *op. cit.*

- For integrated policy planning and coordination, a National Maritime Commission/Council (NMC) seems to be crucial as a unifying inter-agency/ministerial body with monitoring cells. Like the Planning Commission, the Prime Minister herself ought to chair NMC, authorise conceptual labelling and affix dynamism to maritime policy coordination/integration.
- The NMC can get draft previews from interim *Task Forces* (TF - patterned on the vibrant initiatives of Professor Rehman Sobhan during the first Caretaker Government), with analytical tasks assigned on each sector; these could serve as guideposts for enhanced maritime research, policy planning and provide the momentum needed for policy intervention.
- All relevant government agencies/departments should have research cells.
- The reported recent instructions of the University Grants Commission to the public/private sector universities to offer maritime courses should be enforced.⁸²
- Private sectors should be enabled to spur efforts to enhance marine education and skills, as in the Philippines.
- Marine education should be run by an independent board and maintain the standard set by the International Maritime Organization.
- The Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU) and the existing relevant departments/institutes should offer service-oriented certificate/Diploma level 'crash programmes' to meet the country's urgent maritime-related skill-needs.
- To meet foregoing ends skill-support may be sought from the UK, which has the longest experiences in maritime fields and has also rendered similar-type of assistance before.
- The private sectors (engaged in shipping, marine skill-training/trade, transports, and tourism) must have their own research wings.
- The citizens at all levels must be awakened to the nation's rights over extended maritime space; as in India, a 'National Maritime Domain Awareness Day' may be fixed (preferably each year on 13 April, remindful of Bangabandhu's farsighted initiative, the day when 'Territorial Waters and Maritime Zones Act, 1974' was officially gazetted) for celebration with both learning sessions and festivities.

⁸² *ibid.*

- Relevant textbooks should incorporate appropriate knowledge about the country's newly acquired maritime space and the prospects thereby offered to the nation.

The world powers have all been judged by their strength at sea whether for defence or trade. Why should Bangladesh lag far behind? The sectors of marine skills and shipbuilding could envision state-of-art milieus, which are also consistent with the nation's tradition, ensuring complete graduation into full competence as a 'shipbuilding nation'. Vietnam, a fellow Asian country, ravaged by decades of colonial/neo-colonial wars, that had won its liberation four years after Bangladesh, now ranks fifth in the world in shipbuilding; it has also emerged as a principal attraction for foreign shipping companies.⁸³ With the Bangladesh Navy having control over the nation's major ship/dockyards, Bangladesh does have potentials to develop its naval harbour to build state-of-the-art nautical, cruise, fishing trawlers and survey ships. The sector might also consider partnerships with European companies looking for production facilities; such supports seem crucial to adapt organisational approaches to develop relevant technology in shipbuilding. The richer Muslim countries may be enticed for investments/partnerships. The Prime Minister's desire to develop eco-tourism hotspots and integrated resorts/sea-beach fronts from Teknaf-Cox's Bazaar to Sundarbans-Kuakata,⁸⁴ with a *Strait Riviera* are already included in the Seventh Five-Year Plan.⁸⁵ It seems feasible to incorporate coastal habitat/oceanic community as features in an integrated plan for both works on ecosystemic/infrastructure projects.

Few closing remarks are due toward furtherance of conceptual dimensions of maritime research in Bangladesh. There are challenges of comprehension of condition and process. Only research and development can unveil the vastness of the marine resources and delineate the way forward. Maritime challenges are entwined with sectors identified in all their manifestations. They also need vital conceptual clarity in terms of both security and strategy: the former refers to condition that has to be met, whilst the latter conveys the process of decision making for policy action. There are, then, concepts like 'green economy, 'blue economy'/'blue ocean strategy' and 'golden economy'; these are meant to exploit the resources of the seas-oceans, seen as 'development space.' The objects are to integrate conservation, sustainable use of living/non-living resources, bio-prospecting, sustainable energy making and marine transport. The thrust is to incorporate the principles of social habitation/inclusion, environmental sustainability, and innovative/dynamic business models. Attempts are underway to address such concepts in Bangladesh contexts; but it is imperative that research

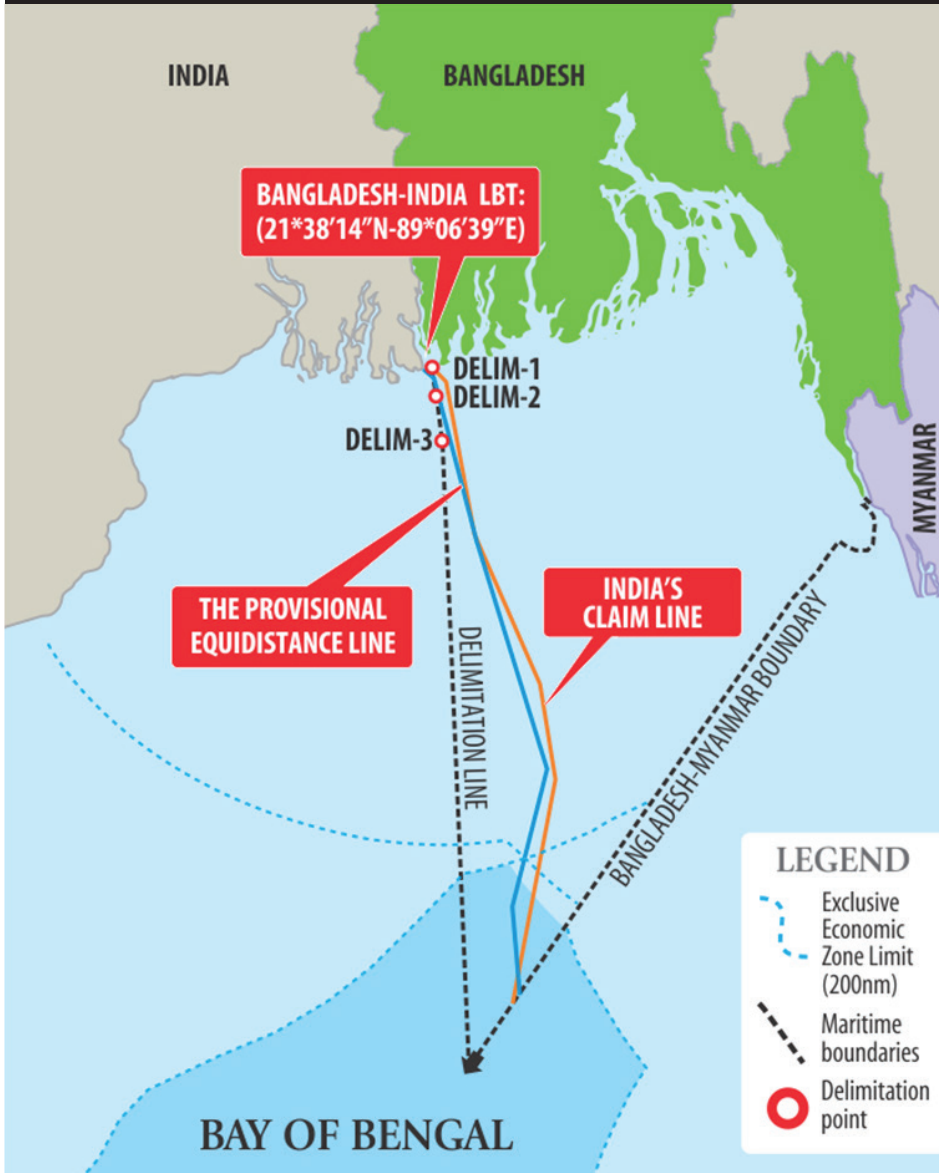
⁸³Available at <http://www.globalsecurity.org/military/world/vietnam/shipbuilding.htm>; Özgür Umur Senturk (2011), "The Shipbuilding Industry in Viet Nam", *OECD Journal: General Papers*, Vol. 3, 2010, DOI, available at http://dx.doi.org/10.1787/gen_papers-2010-5kg6z7tg35kf, accessed on 16 September 2015.

⁸⁴"Bangladesh Takes up Mega Plan to Develop Tourism Hotspots", *bdnews24.com*, 03 April 2015, available at <http://bdnews24.com/business/2015/03/04/bangladesh-takes-up-mega-plan-to-develop-tourism-hotspots-for-foreigners-in-2016>, accessed on 27 January 2016.

⁸⁵ Seventh Five-Year Plan, *op. cit.*

efforts in the field embrace concepts for policymaking. The drive must be how these could be applied more fittingly to serve the country's maritime interests in suitable fashion. All the conceptual facets must be found parsimonious, operational and applicable so that these can be marketed to the entrepreneurs/policymakers for operational purposes and action planning.

Appendix 1: Bangladesh Maritime Territorial Map



Source: Available at https://www.google.co.uk/search?q=bangladesh+maritime+territorial+map&tbs=isch&tbs=rimg:CRXUiB_1ccmxOljg2RDrQ0clC0yjCZ-N55bP18lcxw4BFSeEaradu_w1wid_1_1u63yjQErqu7mc..., accessed on 22 December 2015.

Appendix 2: Maritime Institutions of Learning (Names/Supporting Authorities) ⁸⁶		
1	Bangladesh Marine Academy, Juldia, Chittagong	Government
2	National Maritime Institute, Haliahar, Chittagong	Government
3	Maritime Institute of Science & Technology (MIST), Shantinagar, Dhaka	Private
4	Bangladesh Maritime Training Institute (BMTI), Uttara Model Town, Dhaka	Private
5	Shah Marine & Business Institute Shamoli, Dhaka-1207	Private
6	MAS Maritime Academy Haliahar Housing State, Chittagong	Private
7	Academy of Marine Education and Technology (AMET), Chittagong	Private
8	International Maritime Academy (IMA), Uttara Model Town, Dhaka-1230	Private
9	United Marine Academy, Tejgaon Industrial Area, Dhaka	Private
10	Bay Maritime Training Institute, Sk. Mujib Road, Agrabad, Chittagong	Private
11	Atlantic Maritime Academy, Uttara, Dhaka	Private
12	Cambridge Maritime College (CMC), Uttara, Dhaka-1230	Private
13	Ocean Maritime Academy, Faujdarhat, Chittagong	Private
14	International Maritime Training Academy (IMTA), Green Road, Dhaka-1205	Private
15	Marina Academy, Boro Moghbazar, Dhaka-1217	Private
16	Western Maritime Academy, Mohakhali, Banani, Dhaka-1000	Private
17	Asian Maritime Academy Uttara, Dhaka-1230	Private
18	Pacific Maritime Academy Uttara Model Town, Dhaka	Private
19	Sheikh Fazilatunnesa Mujib Fisheries College, Jamalpur	Private
20	National Marine Academy of Bangladesh, Pahartoli, Chittagong	Private
21	Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMMU) Government Chittagong/Dhaka	Government
22	Institute of Marine Sciences and Fisheries, University of Chittagong Government	Government

23	Department of Water Resources Engineering, Bangladesh University of Engineering & Technology (BUET), Dhaka	Government
24	Bangladesh Marine Fisheries Academy (BMFA), in Juldia, Chittagong	Government
25	The Department of Oceanography, University of Dhaka	Government
26	National Oceanographic Research Institute, Ramu, Cox's Bazar	Government
27	Department of Fisheries & Marine Resource Technology, Khulna University	Government
28	Department of Oceanography, Shahjalal University of Science & Technology, Sylhet	Government
29	Department of Fisheries and Marine Science, Noakhali Science & Technology University	Government
30	Department of Coastal and Marine Fisheries, Sylhet Agricultural University	Government
31	Department of Marine Fisheries, Patuakhali Science & Technology University	Government
32	Department of Aquaculture, Bangabandhu Sheikh Mujibur Rahman Agricultural University Government Gazipur,	Government
33	Department of Fisheries and Marine Bioscience, Jessore University of Science	Government
34	Following new public/government-sector marine academies are also under construction:	Government
	<ul style="list-style-type: none"> a. Mercantile Marine Academy, Barisal b. Mercantile Marine Academy, Pabna c. Mercantile Marine Academy, Rangpur d. Mercantile Marine Academy, Sylhet. 	

⁸⁶Available at <http://dos.gov.bd/maritime-training/approved-maritime-training-academyinstitutes/>; https://en.wikipedia.org/wiki/Bangladesh_Marine_Fisheries_Academy; <http://www.sfmfc.org/>, accessed on 28-30 May 2016.