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Grafins

# Securing Space and Access for Marginalized Fishing Communities in an Industrialized Ocean: How Bangladesh is going to experience it?

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# List of Acronyms

BOBBay of BengalCBDConvention on Biological DiversityDOFDepartment of FisheriesEEZExclusive Economic ZoneFGDFocus Group DiscussionGDPGross Domestic ProductGPSGlobal Positioning SystemLNGLiquefied natural gasMSPMarine Spatial PlanningMCSNon-Government OrganizationSCMFPSustainable Coastal and Marine Fisheries ProjectSDGUnited Nations Convention on the Law of the SeaVMSVessel Monitoring System	BFDC	Bangladesh Fisheries Development Corporation
CBDConvention on Biological DiversityDOFDepartment of FisheriesEEZExclusive Economic ZoneFGDFocus Group DiscussionGDPGross Domestic ProductGPSGlobal Positioning SystemLNGLiquefied natural gasMSPMarine Spatial PlanningMCSMonitoring, Control and SurveillanceNGOSustainable Coastal and Marine Fisheries ProjectSDGSustainable Development GoalUNCLOSUnited Nations Convention on the Law of the SeaVMSVessel Monitoring System	BOB	Bay of Bengal
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SCMFPSustainable Coastal and Marine Fisheries ProjectSDGSustainable Development GoalUNCLOSUnited Nations Convention on the Law of the SeaVMSVessel Monitoring System	NGO	Non-Government Organization
SDGSustainable Development GoalUNCLOSUnited Nations Convention on the Law of the SeaVMSVessel Monitoring System	SCMFP	Sustainable Coastal and Marine Fisheries Project
UNCLOSUnited Nations Convention on the Law of the SeaVMSVessel Monitoring System	SDG	Sustainable Development Goal
VMS Vessel Monitoring System	UNCLOS	United Nations Convention on the Law of the Sea
	VMS	Vessel Monitoring System

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# Abstract

The delimitation of Bangladesh's maritime boundary with her neighbouring states has defined a clear geopolitical boundary and established state's jurisdiction over ocean resources in the northernmost Bay of Bengal. Different initiatives and activities were subsequently undertaken in the coastal and marine areas, which showcase a collective interest within different state agencies to explore the potentials of blue economy in Bangladesh. Despite multitude of interpretations assigned to 'blue economy' concept by scholars, this study aims to reveal a localized narrative of blue economy in the context of Bangladesh. It also explores how that localized narrative and current trajectories may impact the marginalized marine fishing communities whose very livelihoods depend on fishing in the Bay of Bengal.

The study uses data from a literature review, interviews with experts, government officials and development workers, and focus group discussions with fishing communities to understand the underlying blue economy narrative and how it may affect the livelihoods of marine fishing communities in future. This research uses the blue economy narratives proposed by Silver et al. (2015) and Voyer et al. (2018) as a framework to identify the underlying discourse in Bangladesh. Then, common property rights and ecological distributive justice lenses have employed to understand the possible interactions between emergent blue economy discourses and marine fisheries sector.

The analyses reveal that the state has undertaken different extractive and exploitative endeavours to develop the undeveloped or unused ocean space, foregrounding a growth agenda. Using national growth and market expansion logics, a clear priority has been made to expand a capitalist ocean with little regards for environmental safety and social equity. However, it is not clear how different state agencies will attain the expected growth because the novel economic frontiers require high technical capacities, skilled manpower, private sector involvement and investments, and effective coordination.

Among traditional maritime activities, marine fisheries sector provides the largest number of employments to coastal communities. However, their safety at sea, access to formal financial sectors, conflicts with industrial fishing units, lack of supports during fishing ban seasons remain unaddressed for years, current activities under blue economy seek to strengthen the monitoring and surveillance capacity of different state agencies in order to effectively enforce fisheries management rules. It was found that there is no clear strategy or framework to guide a marine spatial planning process and effective governance when it is expected that the coastal and marine space will be industrialized to fulfil a growth agenda set by the state.

To conclude, the state's current blue economy narrative may bring national growth upon overcoming different challenges, but at the cost of environmental safety and the livelihoods of marginalized fishing communities.

# **Relevance to Development Studies**

A limited number of academic literature has attempted to understand how the novel economic frontiers in the ocean will impact traditional economic activities, employments, livelihoods and food securities in a localized context. This research paper contributes to unpacking the interpretations, implementation, and implications of 'blue economy' in the context of Bangladesh, and how it will affect the small-scale commercial fisheries in the north-eastern Bay of Bengal. The case study of Bangladesh, being one of the representatives from the Global South, explores the expansion of dominant growth-oriented development paradigm in the ocean space under the premise of blue economy, and how this paradigm may affect natural resource dependent coastal fishers in long-run. By focusing on the common property rights and environmental justice themes, the paper further shows how the policy-making and decision-making processes are restricted to and reserved for the representatives from the state and society's powerful and elite actors only, but the marginalised fishing communities who are subjected to and directly affected by these policies and decisions. Furthermore, this research contributes to the growing evidence that the growth-oriented development paradigm (here, in the guise of blue economy) is further accelerating social inequity and environmental degradations in the ocean.

## Keywords

Blue economy narrative, growth agenda, marine industries, small-scale commercial fisheries, access to fishing, environmental justice, Bay of Bengal, Bangladesh

# Chapter 1 Introduction

# 1.1 Background of Bangladesh's blue economy

In response to increasing interests from coastal nations, three consecutive United Nations Conference on the Law of the Sea took place between 1973 and 1982 to set ground rules to settle the territorial claims and disputes, and rights to use oceans by coastal nations. These conferences basically laid the foundation of today's United Nations Convention on the Law of the Sea (UNCLOS). UNCLOS, also known as the Law of the Sea Convention, defines coastal and maritime boundaries, and the rights and responsibilities of coastal nations with respect to establishing guidelines for businesses, environment, and management of marine natural resources. As per this convention, the territorial sea is defined as the 12-nautical mile zone from the baseline or low-water line along the coast. A coastal state's absolute sovereignty extends to the territorial sea, including its seabed, subsoil, and air space above it. Article 56 of the UNCLOS<sup>1</sup> further outlines parameters for the establishment of a country's exclusive economic zone (EEZ), which extends 200 nautical miles from the country's coastline. This article assigns sovereign rights for exploration, exploitation, conservation, and resource management of living and non-living natural resources of waters in the country's EEZ. Following this arrangement, coastal states have enclosed and governed around 42% of total ocean space (Suárez-de Vivero 2013), and have utilized coastal and marine resources within its EEZ for different purposes over the period of last few decades (Mansfield 2001; Steinberg 2008).

Among 168 parties, Bangladesh is one of the parties to ratify the convention. Since the adoption of the United Nations Convention on the Law of the Sea (UNCLOS) in 1982, coastal states across the world have actively put efforts to establish national sovereignty over marine spaces and resources (Kildow and McIlgorm 2010). In an effort to establish maritime sovereignty in the Bay of Bengal, Bangladesh settled the legal disputes on the maritime boundary with Myanmar in 2012 (summary of the original judgement at Anderson 2012) and with India in 2014 (summary of original judgement at Anderson 2015). These verdicts have given Bangladesh the exclusive rights to explore and exploit the maritime resources over an area of 118,813 sq. km of territorial waters and exclusive economic zone (Map 1.1; Islam 2015: iv).

Prior to these verdicts, Bangladesh, as a ratified state of the UNCLOS, could not legally explore economic opportunities in that vast area in the northernmost Bay of Bengal. Moreover, the delimitation of maritime boundaries with Myanmar and India took place during the period when the concept of the blue economy was gaining international tractions, notably at the United Nations Conference on Sustainable Development 2012 or Rio+20 conference. Therefore, a stage was set for Bangladesh to develop a blue economy plan that will put the vast expanse of ocean space and its resources in good use (Hussain et al. 2017).

<sup>&</sup>lt;sup>1</sup> UNCLOS 1982; Link: https://www.un.org/Depts/los/convention\_agreements/texts/unclos/unclos\_e.pdf. Article 56 in page 43-44.



Map 1.1 Bangladesh's Exclusive Economic Zone (after 2012 and 2014 verdicts)

Source: World Bank (2018)

# 1.2 Competing interpretations of blue economy

The phrase 'blue economy' was first discussed at the United Nations Conference on Sustainable Development 2012 or Rio+20 conference. First articulated by Gunter Pauli (2010), 'blue economy' has become a buzzword because of its increasing use over the last decade (Mulazzani and Malorgio 2017). The United Nations has defined the term as an economy that secures "improvement of human well-being and social equity, while significantly reducing environmental risks and ecological scarcities" (Valles 2014). Different definitions and interpretations of blue economy are available in academia because the scope of this new concept is overarching across societies and countries. In addition, the concept itself remains elusive to many since different actors have conceptualized and enacted the interpretations of blue economy based on their needs and opportunities (Voyer et al. 2018). It is not clear if the concept will be understood singularly or as a domain of how particular actors or stakeholders interpret it (Silver et al. 2015).

After reviewing global literature on blue economy, Silver et al. (2015) and Voyer et al. (2018) have constructed multiple narratives to interpret blue economy and its implications. Both studies have separately come up with multiple narratives that are prevalent in international discourses. Interestingly, both studies discuss three common narratives, which conceptualize 'oceans as natural capital', 'oceans as good business', 'oceans as livelihoods' for small-scale fishers. In addition to that Voyer et al. (2018) also included the narrative conceptualizing 'oceans as drivers of innovation', and Silver et al. (2015) discussed 'oceans as an integral part for Pacific small island developing states', which is largely applicable for Pacific small island developing nations only.



Figure 1.1 Different concepts and terms in a blue economy matrix

Source: Voyer et al. 2018.

Voyer et al. (2018) also presented a matrix to explain different narratives (Figure 1.1) which reflect the different perspectives foregrounded by different actors or stakeholders to put forward their objectives using the concept of blue economy. 'Oceans as good business' lens has a primary focus on economic development and growth via exploring and expanding maritime industries using a strict business and capitalist logic. On the other hand, 'ocean as a driver of innovation' discusses new investments, innovative financing and private sector involvement to attain the objectives of growth and economic development through marine biotechnology, ocean-based renewables or deep sea mining. In that sense, this narrative is intertwined with the 'oceans as good business' as attaining the growth objectives will require extensive technical capabilities, innovative finances, and partnership between public and private sectors (Voyer et al. 2018).

'Oceans as livelihoods' lens indicate priority toward livelihoods, food security, poverty alleviation, and income and employment generation to coastal communities. This narrative is particularly dominant in small island developing states in the Indian and Pacific Oceans and the Caribbean (Michel 2016; Patil et al. 2016; Purvis 2015). The 'oceans as natural capital' narrative recognizes themes relating to environmental protection and restoration, ecosystem-based management, climate change mitigation, and community wellbeing (Silver at al. 2015; Voyer et al. 2018). Themes relating to the interests and benefits of coastal communities are

found in both of these narratives because the livelihoods, employments and income generation of many coastal communities depend on ecosystem health and sustainable use of ocean resources. Without sustaining the ecosystem goods and services, the livelihoods, income and employment will be in danger.

# 1.3 Small-scale commercial fishing units of Bangladesh

## 1.3.1 Characteristics of fishing fleets and units

Types of fishing vessels used in Bangladesh's marine fisheries are evolving and complex if catch capacity or efficiency is considered as a key factor to distinguish fishing units<sup>2</sup>. Definition used in the Yearbook of Fisheries Statistics of Bangladesh 2017-18 (DoF 2018: 10-11) in order to differentiate industrial (trawl nets only) and artisanal fisheries do not accord with the ground realities as it does not have the means or manpower to monitor how the engine capacity of traditional fishing boats have increased over the years. According to DoF (2018: 10), marine industrial fisheries are conducted by trawlers with features like "high level of technology, investment and impact it brings to a fishery". In the definition of artisanal marine fisheries, "small scale, low technology and low capital fishing practices…by individual fishing households" are the key features, but the vessel can be either motorized or non-motorized, and purpose can be either subsistence or commercial (DoF 2018: 10).

However, the problem arises when these criteria clearly omit or fail to recognize that i) many motorized fishing vessels are not owned by any individual fishing household or any fishers anymore; ii) fishing units that exclusively operate for commercial purposes; and iii) fishing voyages last between one week and 15 days or even more. Despite commercial purposes of these units, the scale and quantity of catch remains much smaller than industrial trawling units but much larger than artisanal units that conduct overnight fishing voyages. This new fishing unit—that lies between industrial trawling unit and artisanal unit—is termed as small-scale commercial fishing unit (Figure 1.2). This research paper will particularly focus on these units.

<sup>&</sup>lt;sup>2</sup> By fishing unit, I refer to a group of individuals (ranging from 3 to 40) who fish together using a single fishing vessel in the Bay of Bengal, Bangladesh. These individuals usually do not own the vessel or gears they use, but they must invest/use/commit their skills, labour, experience and time in fishing. All these individuals have been commonly referred to as 'fishers' or crew members in this research paper, unless otherwise mentioned. I have used a gender-neutral term though marine fishing in Bangladesh is exclusively conducted by male counterparts.

A number of criteria such as engine capacity, manpower used, nature of fishing, fishing duration and intensity, fish hold capacity, and vessel ownership have been used to identify the catch capacity or efficiency of different fishing units. Using data on different fishing units from a large source of literature (BOBP 1985; Hossain 2004: 25; Khatun et al. 2004: 25-26; Sheikh et al. 2012: 97; Hoq et al. 2013: 28; Barua et al. 2014: 151; DoF 2018: 67) reveal that there is a clear distinction among artisanal, small-scale commercial and industrial trawling units in Bangladesh (Table 1.1).

		Small-scale			
Key features	Industrial trawling	commercial unit	Artisanal unit		
	unit	(Figure 1.2)			
Engine capacity	700-1850 Break horsepower (steel-made vessel); 420-600 Brake horsepower (wooden body vessel)	Yes (80-120 Horsepower)	Mechanized (10-40 Horse- power) or non-motorized		
Manpower	20-40	20-22	3-6 up to 10		
Fishing operation	Casting and hauling by auto- mated or semi-automated machine	Casting and hauling by man- ual labour	Casting and hauling by manual labour		
Fishing duration	Up to 30 days (Steel-made vessel); Up to 15 days (wooden body vessel)	Up to 15 days	One day or less		
Fishing intensity	5-6 hauls per days each last- ing 3-4 hours regardless of the impacts of tide	Maximum 4 hauls per day basically syncing with tides	Maximum 4 hauls per day basically syncing with tides		
Fish hold capacity	Up to 300 Metric ton (Steel- made vessel); Up to 60 Met- ric ton (Wooden body vessel)	500 kg to 2 Metric ton	Up to 100 kg		
Ownership	Big corporates	Individual or group owner- Fishing household ship/ proprietorship (by non- ers (individual or gr fishers)			
Total number of units	253 industrial trawling unit	Official estimate is 67,669 but the actual number is thou to be more. It is an estimate because many motorized sels, despite legally required, are not licensed by the spective units and remain largely unmonitored.			

Table 1.1
Key characteristics of marine fishing units and fleets in Bangladesh

Source: Data from BOBP 1985; Hossain 2004: 25; Khatun et al. 2004: 25-26; Sheikh et al. 2012: 97; Hoq et al. 2013: 28; Barua et al. 2014: 151; DoF 2018: 67; and field observation.

## 1.3.2 Organization of small-scale commercial units

A small-scale commercial fishing unit usually has 20-22 fishers. The head of the crew is commonly addressed as *Majhi*, who holds an authoritative and the most respected position among the crews. Since he outranks all; everyone must obey his order or follow his directions, especially during fishing voyages. *Majhi* eventually makes all the decisions. He is assisted by *Choto Majhi*— *Majhi*'s assistant—who aspires to be a *Majhi* one day and have a crew of his own. They have a master-disciple relation. The crew also have one cook and one engine mechanic in the event of hazards related to engine or complete engine failure. Rest of the crew members (14-18) mainly casts and hauls fishing nets using manual labours and performs other tasks such as repairing damaged gears, cleaning vessels, loading ice blocks, and other essentials, etc. Most of the crew members' (except for *Majhi*, *Choto Majhi* and engine mechanic) work largely demanding and require manual labour as there is no scope for any automation.

The contract between the owner and *Majhi* entails that the net profit must be halved; half of the net profit is retained by the owner, and the rest of the half is distributed among all crew members in a predetermined proportion agreed by all fishers. There is no fixed monthly salary or bonus for fishers or crew members. Therefore, it is a shared venture where the owner invests capital, fishing vessels and gear whereas the fishers or the entire crew members invest their skill, experience, local ecological knowledge and manual labour. It must be noted that a fishing voyage may not have a net income or profit because the total revenues from selling the fish may not exceed the total expenses incurred in a fishing voyage. The expanses include costs for fuel, ice blocks, flake ice, food, fresh water, etc. In addition, any servicing, renovation and mending of the vessel and gears-despite being exclusively owned by the owner—is also shared by the fishers during the entire of a fishing season. The crew members usually repair or mend the damaged fishing gears to minimize the expanses because hiring others to repair or mend fishing nets would raise the total expanse. So, the crew members tendency is to minimize costs and increase the net profit or their shared portion. It is therefore important to realize that making a net profit mostly relies on how much a fishing unit can capture in a single fishing voyage.

In essence, the fishing operation in a small-scale commercial fishing unit requires leadership (from *Majhi*), teamwork and effective coordination, intensive manual labour, a shared sense of belonging or attachment to the fishing unit, and a common effort by all to maximum catch or net profit.



Figure 1.2 Fishing vessel used by small-scale commercial fishing units

Source: Author, captured in 2020.

### 1.3.3 Why small-scale commercial fishing units?

Understanding the emergence of small-scale commercial units (from artisanal fishing units) is crucial because it indicates that a large number of fishing units owned and operated by fishing household or fishing family is gradually vanishing. Overfishing, competition from fishing units with a higher engine capacity, and increasing the flow of investment from affluent non-fisher families (as owners) has led to a circumstance where fishing households have deserted marine fishing and resorted to inland fishing; many artisanal units have eventually lost their boats and gears as they continuously failed to make a profit amid this competition of overfishing and overcapitalization.

Since the scope of this study is to understand how initiatives, policies and strategies under blue economy will affect the marine fisheries sector, I have consciously chosen smallscale commercial units. Because the small-scale commercial units provide the largest source of employment in the marine fisheries sector of Bangladesh. Therefore, this research has identified fishers from small-scale commercial units as the largest stakeholder by number in the marine fisheries sector of Bangladesh and have taken the first-hand accounts of these fishers (not owners) in data collection and interpretation.

### 1.3.4 Regulatory framework for marine fisheries

The Marine Fisheries Ordinance 1983 is the basic legislation, which provides management guidelines for the marine fisheries sector in Bangladesh. However, the implementation of Hilsa Fisheries Management Action Plan (HFMAP) since 2001 has resulted in several rules and regulations in the Protection and Conservation of Fish Act 1950. These are also applicable to marine fisheries regime since hilsa lives in marine waters but migrates upstream to spawn. The Department of Fisheries is the responsible agency for the management, development and conservation of marine fisheries resources in Bangladesh. All interventions related to marine fisheries have been summarized in Table 1.2.

These legal interventions have played an important role in the management of commercially-important hilsa fishery in Bangladesh. Hilsa is the largest single-species commercial fishery of Bangladesh that has a significant contribution to the country's employment and GDP (Dutton et al. 2018: 8; DoF 2019: 27). In fact, all small-scale commercial fishing units mostly rely on the catch of hilsa to sustain their fishing operations. And almost half of the rules (staring with an asterisk mark) mentioned in Table 1.2 are subjected to managing the hilsa fishery. Therefore, these rules will provide a background for understanding the marine fisheries management regime to which small-scale commercial units are subjected to. Table 1.2

Interventions from the state authority to manage, develop and conserve marine resources in Bangladesh

Spatially explicit interventions	<ul> <li>*Four hilsa sanctuaries in coastal areas (1 in Laxmipur, 1 in Bhola and 2 in Patuakhali) with all types of fishing ban for two months; from March to April in three of the sanctuaries, and November to January in one sanctuary</li> <li>Restriction for all industrial trawl units to trawl within 40 m depth zone all around the year to protect the nursery grounds of marine fisheries resources, and preserve the interest of other units</li> <li>One Marine Reserve (designated in 2000), Two Marine Protected Areas (MPAs) (designated in 2014 &amp; 2019) for conservation and management purposes but no management plan or rule has been formulated as of yet</li> </ul>
Coast-wide interventions	<ul> <li>*22 days (9 to 30 October in 2019) of complete fishing ban for all fishing vessels; the duration is evenly divided before and after the first full moon of Bengali month of <i>Aswin</i> (usually in October), therefore the start and end date of ban changes each year</li> <li>*65 days (20 May to 23 July) of complete fishing ban for all fishing vessels</li> <li>30 days (15 January to 15 February) of shrimp fishing ban by trawlers imposed in 1994, but not being enforced due to an injunction from the High Court in 1995 following a writ petition</li> </ul>
Interventions on fishing operations in marine space	<ul> <li>*No use of monofilament gill net in fishing</li> <li>*Ban of all gill nets with a mesh size of less than 10 cm</li> <li>Mandatory to use at least 45 mm and 60 mm mesh size at the cod end for the shrimp and fish trawl nets, respectively</li> <li>Prohibition on fishing with any kind of explosives, poison and other noxious substances/chemicals and fishing with electrocuting</li> <li>Shrimp trawler units must have Turtle Excluder Device (TED) installed in trawl nets</li> <li>Set bag nets with a mesh size less than 45 mm at the cod end was made illegal under the Fish Act, but this has not been enforced due to a lack of alternative livelihood options for poor fishers (Hossain and Hasan 2017: 37)</li> </ul>
Intervention on fish size	<ul> <li>*No catch of <i>jatka</i> (juvenile hilsa i.e. 25 cm or less in total length) from November to June</li> </ul>

Source: The Marine fisheries Ordinance 1983; Khan 2010: 15; Hossain and Hasan 2017: 37.

# 1.4 Research Problem Statement

Acknowledging the overarching themes, interconnectedness, and inherent conflicts between narratives of blue economy concept, it is no wonder that adoption of this concept in Bangladesh would be a challenging undertaking in terms of identifying a suite of fitting themes in the context of Bangladesh. For example, the promotion of carbon-intensive industries like oil and gas extraction, and deep-sea mining under the lens of oceans as good business appear to contradict the oceans as natural capital discourse which encourages a movement away from the extraction of non-renewable resources to mitigate climate change. In that sense, interpretations of blue economy at the same time may legitimatize destructive extractionbased businesses that cause climate change and may promote renewable sources of energy as a solution to fight climate change. So it depends on how the concept is being understood and interpreted by the key actors and decision makers of a state. The conception and implementation of blue economy concept in the context of Bangladesh is critical because it will guide how different maritime policies, strategies, agencies, and institutions will evolve in the coming decades. Recognizing the significance of blue economy narratives in shaping the future of ocean governance, this research first seeks to identify key narratives of blue economy in Bangladesh.

Under the premise of 'blue economy', Bangladesh has developed an ambitious work plan that seeks to develop and establish an ocean-based economy in the Bay of Bengal. Bangladesh's marine space has been widely used for coastal and marine fisheries, and for maritime trade and transports throughout its recorded history. For instance, hilsa fishery alone supports three million fishers and other intermediaries involved in the supply chain (Dutton et al. 2018: 8), and it contributes more than one per cent in the country's annual GDP (DoF 2019: 27). Despite a vibrant economy supporting millions of local communities, the recent blue economy plan introduces novel maritime frontiers such as offshore hydrocarbon exploration and extraction, mariculture, and deep-sea fishing. Developing these frontiers will require support from non-state actors (i.e. local/foreign/private) given that the state has limited experience and technical capacities to explore these new business opportunities. These economic activities would also require creating exclusive or private rights in the marine space (Kerr et al. 2015: 108), whereas no formal marine tenure system has been recognized so far in Bangladesh (Pomeroy and Courtney 2018: 27). As a consequence, it has been realized that the current blue economy plan may reshape/redistribute the control over marine common pool resources that have long been used by and critical to coastal communities, particularly fishers. Thousands of marine fishing units are likely to be the most vulnerable to this new development (i.e. exclusive/private rights shrinking the space for traditional or artisanal fishing) as fishers from these units are already experiencing the impacts of climate change, pollutions, and unfair fisheries management policies. The conception and subsequent implementation of blue economy plan also creates a scope to explore how an equitable distribution of environmental benefits, burdens, and risks (arising from new frontiers) is being placed.

Upon demystifying the narratives of Bangladesh's blue economy, the present research will use small-scale commercial fisheries as a case study to understand how they will experience the current development of blue economy in the northernmost Bay of Bengal.

## **1.5 Research questions**

To what extent does Bangladesh's blue economy narrative ensure an equitable sharing of common pool marine resources with respect to marginal fishing communities?

This is the main question I explore in this thesis. It has two parts; first, dealing with different narratives of blue economy in Bangladesh, and addressing how marginalized fishing communities may experience changes brought about by the development of blue economy in the Bay of Bengal. To explore this main question, I have identified the following subquestions.

- a. What are the underlying narratives of Bangladesh's blue economy?
- b. How the prevailing narrative may (re)allocate fishing space and access to marginalized marine fishing communities in the Bay of Bengal?

## **1.6 Analytical framework**

This study will use Silver et al. (2015) and Voyer et al. (2018)'s framework (Section 1.2 and Figure 1.1) in order to explore how Bangladesh's blue economy narratives. Identifying Bangladesh's blue economy narrative will help to explore the concerns overs common property rights and ecological distribution conflicts issues. Identifying Bangladesh's narrative is crucial because different narratives have competing objectives to achieve; even sectors related to particular narrative vary from others (Voyer et al. 2018: 15).

Provided Bangladesh's long-established coastal and marine fisheries sector, it is important to acknowledge that particular narrative(s) may create a unique scenario for marine fisheries sector. For example, 'oceans as natural capital' and 'oceans as good business' have completely opposing views or different level of prioritization on small-scale fishers, while 'oceans as livelihoods' narrative put significant importance on artisanal fishermen and their rights. Upon identifying the underlying narrative of Bangladesh's blue economy, it is crucial to explore how it will interact with fishers who used to survive on common pool resources in the Bay of Bengal. The potential of reallocating and redistributing the control of, access to, and rights over coastal and marine resources have direct implications for marginalized coastal communities and the future of marine governance in the Bay of Bengal, Bangladesh.

This argument particularly arises from environmental justice perspectives but this study will particularly explore using the lens of ecological distribution conflicts in terms of how oceans resources are unfairly or unequally distributed between marginalized fishers and powerful actors from fisheries or other sectors or the state itself. Owing to the immense unequal distribution of power, influence and capacities between these actors, it is understood that promoting powerful stakeholder under the premise of blue economy scheme will create an immense burden on other actors as both rely on the same resources. These perspectives and the trade-off between blue economy development and just space for small-scale fishing communities have been drawn from Cohen et al. (2019) and Bennett et al. (2019).

# Chapter 2 Methodology

I used qualitative research methods to gather information from different sources including primary information from individual interviews (i.e. Key Informant Interviews) and group interviews (i.e. Focus Group Discussions), and secondary data from literature review. A brief overview has been presented in Table 2.1. Following sections of this chapter will provide a comprehensive description of all methods employed for this research along with ethical considerations and limitations of this study.

Table 2.1           A brief summary of the methodology						
Data sources	Methods	Number	Other details			
			List of key informants (Appendix A)			
	Key informant	10	List of guiding questions for KII (Appendix B)			
Primary	interviews (KIIs)	10	Informed consent form for key informants (Appendix C)			
	Focus Group Discussions (FGDs)	3	Characteristics of groups (Appendix D) List of guiding questions for FGDs (Appendix E) Informed consent form for focus group discussants (Appendix F)			
Secondary	Literature review	59	List of literature (Appendix G)			

# 2.1 Literature review

A targeted search (using 'Blue economy' and 'Bangladesh' as keywords) in Google Scholar and Google have resulted most of the articles. The keywords were used to find all online documents relevant to Bangladesh's blue economy. I have also collected soft and hard copies of several progress reports, project documents, updated version of action plans and maps (not available online) from government officials who were interviewed as key informants. I identified and reviewed a total of 59 articles (complete list in Appendix G) which were comprised of peer-reviewed papers (18), grey literature including policy documents, government strategies, action plans, progress reports, and non-government reports (14) and news articles (27).

To review articles, I used five overarching themes (i.e. economic, social, environmental, innovative and technical capacity, and governance tools or approaches) of blue economy, originally developed by Voyer et al. (2018) and consistent with Keen at al. (2017). Using these five themes as a framework, Voyer et al. (2018) further identified, collated and categorized key phrases and concepts from global blue economy literature and proposed several subthemes. While reviewing literature relevant to Bangladesh, I looked for phrases, concepts, trends, activities, discussions and decisions that emphasized and reiterated those sub-themes, and also looked for new sub-themes to accommodate local nuances or contexts of Bangladesh. The goal was to better understand which sub-themes are the most and least dominant in the context of Bangladesh's blue economy. So, I reviewed and quantified the number of times those sub-themes were referred in all 59 literature (Table 3.1).

## 2.2 Individual interviews

I interviewed 18 key informants from academia, experts, government and non-government organizations between 29 July and 2 September 2020. I chose key informants based on their contributions to and affiliations with the Bangladesh's Blue Economy Action Plan and marine fisheries sector so that the conversation remains on a topic of mutual interest (Kvale and Brinkmann 2009: 123). From academia, I identified individuals if their academic affiliations, research work, and expertise were within the scope of development studies, economics, oceanography, sustainability science, and marine fisheries. Four academicians (out of five) have previously contributed to formulate different national strategies and plans in Bangladesh. All government participants (seven) were directly affiliated with implementing Bangladesh's Blue Economy Plan. However, independent researchers and NGO workers (three) work within the scope of Bangladesh's Blue Economy, but not an implementing partner of that plan. They were referred as development practitioners. So, all participants have a stake to Bangladesh's blue economy, but not all are affiliated with implementing the action plan. The selection of key informant has been carefully conducted to accommodate diverse views and perspectives. I initially identified six respondents from academia, independent researchers, NGO workers and government employees. At the end of each interview, I asked their suggestions on respondents relevant to the topic. Using this snowball sampling and the preidentified criteria, I reached out to 27 respondents in total without any gatekeepers but I was able to conduct 18 interviews because of the COVID-19 crisis and time constraints. The selection of key informants for an in-depth individual interview was therefore purposive.

Considering the COVID-19 crisis and availability of interviewees, I conducted both face-to-face and technologically mediated interviews. I preferred face-to-face interviews in order to capture the overall expression (e.g. body language and tone of voice) of respondents while responding, however it was not possible for all interviews due to COVID-19 crisis. Seven interviews were conducted using various technologically mediated mediums; in some cases (four) with no video option. A semi-structured interview guide (both in Bangla and English) with possible follow-up and probing questions was used to understand their perspectives. All interviews were recorded with participants' prior and informed consent which requires to keep their identity confidential and anonymized. I recorded all the 19 interviews using a Samsung Galaxy Note 10+ device, and later translated (from Bangla to English) and transcribed those manually. The average length of each interview was 54 minutes.

## 2.3 Group interviews

Three group interviews were conducted with fishers from three different fishing units on Bakkhali river near the BFDC Fisheries Ghat at Cox's Bazar. All three sessions were conducted on respective fishing unit's vessel where they are most comfortable and usually spend most of their time. When the vessel remains anchored (between two fishing voyages), most of the crews even eat and sleep on the vessel; they rarely leave the vessel unless anyone's home is nearby. Some crews have to be on board to secure the vessel premises, however most of them (except for *Majhi*) do not have the financial ability to support boarding/hotel on land so the vessel remains their primary home during the entire fishing season. Though they can rarely visit their families in person in the middle of a fishing season, they keep in touch with families using telecommunications and send money using different mobile-based financial services (e.g. bKash, Rocket, Nagad, etc.).

It was essential to hold each group interview with crew members of a specific fishing unit because of its homogeneity. These crew members work together in an organization of their own where each member has particular responsibilities to carry out. Their lived experience and perspectives on fishing in the sea and what factors affect their livelihoods are more or less similar. It is very common to find that several members from the same family or relatives or neighbours are working in the same fishing unit. Therefore, the crew members shared a common belief and understanding on different issues. However, it must be noted that *Majhi* outranks all other crew members. While it is true that *Majhi* recruits all the crew members (including his family members or relatives or neighbours) but *Majhi* is the sole decision maker of a fishing unit and always regarded as the most respected member regardless of age. This embedded power relations, variance of fishing experience among crew members, and age structure within a fishing unit also helped to gather a diversified opinion and probing of their own responses as Blumer (1969: 41) mentioned that "...a discussion or resource group, is more valuable many times over than any representative sample. Such a group, discussing collectively their sphere of life and probing into it as they meet one another's disagreements, will do more to lift the veils covering the sphere of life...".

In addition, the moderator was aware of the embedded power dynamics with the group and attempted to provide equal opportunity to all participants. There was a tendency from *Majhi* to dominate the discussion or tone of the discussion, but the FGD moderator was preinformed of the condition and power dynamics in a fishing unit. However, the contribution and perspectives from *Majhi* was critical because he is the one who single-handedly deals with owners and law enforcing agencies, so he was kept in the FGDs.

Conducting FGDs on the fishing vessels, where fishers spend most of their time, was unconventional in practice but it actually greatly helped to build a rapport with the fishing units and reduce power disparity between the research team and participants that would have otherwise played in other places. I had one male Research Assistant who worked as gatekeeper and had previous experience of working with coastal fishing communities in Bangladesh. We were accompanied by another male individual to carry grocery baggage for each fishing unit and taking pictures.

One of us moderated the FGD session and the other took notes. I moderated two FGD sessions. We chose to conduct one FGD session per day so that there was no hurry. We chose to conduct FGD from 3 to 5:30 PM (the period between afternoon and sunset) because crew members remain free of tasks during this period of time. From the early morning till lunch (roughly between 06:00 am and 1:00 pm) the entire fishing unit remains busy repairing their nets and other activities. All FGD participants were provided with face masks and sanitizers as precautionary measures and extra mask were always in stock. Four fishing units were approached for an FGD, three agreed to participate. The average duration of each FGD was one hour and the entire session was recorded with a Samsung Galaxy Note 10+ device. Prior and informed consents were taken to protect their identity and keep them anonymous.

# 2.5 Description of field site

BFDC Fisheries Ghat in Cox's Bazar is located on the bank of Bakkhali river which pours down into the northernmost Bay of Bengal (Map 2.1). This river channel sits closer to the fishing grounds compared to other major fish harbours in the south-eastern Bangladesh. The serpentine-shaped river itself serves as a safe harbour to shelter fishing vessels from storms, cyclones and rough weathers. On the western riverbank, many ancillary businesses have sprung up to support fishing and trading. For example, BFDC has built a large platform where fish is landed, sorted, auctioned, processed and distributed to other cities. There are also offices of fishmongers, ice plants, floating fuel stations, docks to repair fishing boats, mechanic shops to repair engines, fish drying centres, etc. The eastern bank has less of a human settlement or any ancillary business centres to support fishing but the fallow lands along the river are used by fishers to repair their damaged fishing nets as they need large expanse of space to spread out the entire net. The proximity to fishing grounds (leading to lesser fuel consumption) and other ancillary businesses have made Cox's Bazar an ideal harbours for fishing units from different coastal fishing villages in Bangladesh.



Map 2.1 Map of Bangladesh with field site for FGD

Source: Google map (2020).

# 2.6 Positionality, reflexivity and limitations

I did not reveal that I am a government official to FGD participants because it would have created a tension among FGD participants. Government officials (e.g. law enforcers and managers) often engage in implementing policies or enforcing laws related to fisheries, therefore revealing myself as government official would have made participants unease and hesitant to share information. Here, it must be noted that as a government official I have never been involved with any fisheries related work, policy formulation, implementation or enforcement of laws. So I chose to introduced myself as a research student to all FGD participants.

Being brought up in a non-coastal urban and peri-urban setting, I had no first-hand experience on how coastal fishing communities go by or strive each fishing season. This worked both at my advantage and disadvantage. I had no personal attachment or subjective connotation related to any fishing family or community or unit that could potentially influence my observation or the study itself. However, I had to read blogs or online articles, and engage in informal discussions with resourceful key informants and other actors to better understand the context so that I do not appear naive to the fishing units while conducting FGDs. Nevertheless, it was crucial for me to visit the fish harbour, landing and distribution centre in Bangladesh to have a first-hand experience and observation. So I visited BFDC Fisheries Ghat in Cox's Bazar, which is one of the largest fish harbours, landing and distribution centre in Bangladesh.

Being a female researcher, it was unusual for many fishers as they are not accustomed to seeing females on their boats. I never felt vulnerable being the only female among a maledominated sector as I was accompanied by one male assistant who was experienced and wellacquainted with the setting. Another male individual helped us to carry our baggage to boats and remained with us during three FGDs. I was informed to wear a desi dress or an attire that covers knee and shoulder to avoid being unbecoming to fishers because a western attire is religiously improper and culturally inappropriate. A desi attire thus helped to approach and mix with them comfortably. I found fishing units rather curious to learn about our purpose of visit and keen to speak with us. It is because most of these crew members (except for *Majhi* only) never get invited or been given any floor to discuss issues related to fishing and their livelihoods. Owing to this reality, it is fair to claim that these FGDs with fishing units gathered information from fishers who rarely get any opportunity to share their perspectives or engage in any dialogue.

Despite the much welcoming fishing unit, it is important to note that there is a strong belief or prejudice that any female during her menstrual period is considered inauspicious to set her foot or be on board or being on a fishing vessel. While all three fishing vessels welcomed us, but one vessel, still to make its maiden fishing voyage, politely refused us to be on board. I was later informed of this reality by my Research Assistant. However, older fishing vessels do not necessarily maintain this belief or prejudice, but a fishing unit with a brand new vessel would still follow it most of the cases. The belief or prejudice is certainly abating as the fishing units once used to restrict any female counterpart on fishing vessels regardless of its status.

All the key informants I interviewed are well-versed with the research ethics and their conflict of interests as respondents. I have not found it difficult to ask questions and get an objective response from them once I ensure that their identities and information will be protected. Being a government employee, I have never been directly or indirectly affiliated with the inception or preparation of Bangladesh's blue economy action plan or any activities under this plan. So there is no room for any conflict of interest from my end and I have explicitly revealed my identity and professional affiliations to all individuals.

## 2.7 Scope and challenges

Due to the global COVID-19 crisis, the number of FGDs has been limited to three only. Fishing villages, harbours and fish landing stations are located in coastal areas of Bangladesh (i.e. southern stretch), which are remotely located from Dhaka city. Public transportation to some of the coastal areas were restricted to limit the coronavirus infection, and alternative private mode of transportation was expensive and time-consuming. However, the sampling for fishing units from different coastal areas did not pose a major concern because fishing units from different coastal villages came to Cox's Bazar to land fish for a better price during the COVID-19 crisis. We used masks, face shields and hand sanitizers during all the travels, and provided masks and hand sanitizers to all three fishing units as precautionary measures. Small-scale commercial fisheries is completely led by male counterparts, however interviewing their wife and kids at home could have possibly brought new perspectives. Crews of a

fishing unit is not segregated by religion rather some units have individuals from different religions. However, there was no Hindu participants in all three FGDs; all were Muslim. Most of the crews members are from districts located between middle and eastern coast, i.e. ranging from Noakhali to Chittagong.

# Chapter 3 Findings on blue economy narratives

## 3.1 'Blue economy' in the context of Bangladesh

As discussed in Chapter 1.2, scholars and academicians have described the concept of 'blue economy' with competing interpretations gave the myriad backgrounds and priorities of different coastal states and key actors. In that sense, understanding a localized blue economy in the context of Bangladesh is ought to be unique. Interestingly, I have identified a multitude of strong opinions among key informants in regards to determining the scope and priorities of blue economy in Bangladesh. Also, a clear divide has emerged between informants affiliated with governmental and non-governmental/autonomous institutions in terms of to what degree environmental security and social equity ideals have been aligned and prioritized along with emergent business opportunities in ocean space.

Although the concept is still regarded as a buzzword, the Government of Bangladesh has been rapid to recognize the concept in the Bangladesh Delta Plan 2100 and the 7<sup>th</sup> Five Year Plan (2016-2020), two of the key planning documents in Bangladesh, showcasing the sheer interests at the state and policy level. However, analysing texts from the 7<sup>th</sup> Five Year Plan (2016-2020), it is found that it has taken an all-embracing approach to unlock the potentials of blue economy in Bangladesh without accounting the inherent commonalities and conflicts among different blue economy narratives identified by Voyer et al. (2018) (Table 1.1).

"Blue Economy comprises of activities that directly or indirectly takes place in the seas, oceans and coasts using oceanic resources and eventually contributing to sustainable, inclusive economic growth, employment, well-being, while preserving the health of ocean." 7th Five Year Plan (p 42).

While this document simply narrates all the scopes and overarching opportunities that can possibly be attained using blue economy concept, it fails to recognize the contradictions that business logics and environmental protection logics pose to one another. In addition, both documents do not clarify or settle any proclivity to a singular or multitude of blue economy narratives.

While both of the planning documents leave a broad, generic and open-ended scope to enact blue economy in Bangladesh, the relevant agencies and ministries formulate a range of activities to be undertaken within the scope of blue economy. The Maritime Affairs Unit, under the Ministry of Foreign Affairs has identified nine sectors such as marine fisheries, mariculture, commercial shipping, marine tourism, offshore energy and blue biotechnologies, ecosystem services of mangroves, ship-building and recycling industry, marine pollution, and marine spatial planning. Among these sectors mariculture, marine tourism, deep sea fishing (within marine fisheries), and offshore energy and blue biotechnology have been identified as novel economic frontiers as these sectors were almost non-existent before the advent of blue economy concept in Bangladesh. In addition, several key informants representing academicians, development practitioners, and economists identified that coastal mega-infrastructures such as coal-based power plants and deep-sea ports should be identified as emergent frontiers.

Key informants working on different projects under Bangladesh's blue economy action plan indicated that with the boundary and legal rights being secured in an ocean space as large as the entire landmass of Bangladesh, it would be a missing opportunity if the ocean resources remain underutilized or unutilized. Proper use of untapped resources in this new space are expected to boost the economic growth and GDP, which will eventually increase living standards and overall national development. Two high officials from the government even mentioned that the blue economy concept is also regarded as "ocean economy", which revealed an inclination for business and market logics to extract and utilize ocean resources. In line with that, all the government officials recognize that attaining the full potential of blue economy is still at its nascent stage in Bangladesh, but it has created a scope for a new form of political and economic investment to develop novel economic frontiers such as deep-sea fishing, offshore hydrocarbon, mariculture, and marine tourism in Bangladesh.

When questioned about how social justice and environmental safeguards will be ensured in an industrialized or capitalized ocean space, they could not showcase any specific strategy in place or examples that have adequately addressed the inclusion of coastal communities, distributive justice, and environmental protection. All government officials, however, do recognize the importance of social equity and environmental sustainability aspects. They rather identify the lack of technical capabilities, knowledge gaps, a dearth of skilled manpower, lack of private investments from private entities, and a need for effective coordination among relevant state agencies as the key hindrances towards achieving the growth potentials of blue economy.

While all government officials display a clear inclination to the 'oceans as good business' narrative and tend to converge on seizing the new business opportunities, key informants representing academicians, development practitioners and economists have a multitude of opinions to identify the scope and priorities of blue economy with a clear importance to address social equity and environmental protection.

Investment in ecological restoration to revive coastal and marine ecosystem goods and services were put forward as a key strategy to advance blue economy goals in Bangladesh, clearly supporting 'oceans as natural capital' narrative. By protecting ecosystem and ocean heath, the blue economy plan could have been alternatively helping marginalized local communities whose small-scale family enterprise or businesses mostly depend on ecosystem goods and services. So, a clear linkage between the 'oceans as natural capital' and 'oceans as livelihoods' was drawn by only one development practitioner. No other key informants have drawn this linkage in their discussion.

Alongside new business opportunities, concomitant policies, laws and strategies must not obstruct the current livelihoods and businesses of coastal communities, as per both of the economists who participated as key informants. However, several academicians and development practitioners disagreed vehemently in this regards, and cited the case of largescale mangrove deforestation, saline soil, and displacement in coastal farming communities due to the state's promotion of shrimp aquaculture as a key growth strategy. They denote that the state has so far failed to set a precedence over economic considerations, thereby it appears unlikely that the responsible agencies will adopt the right policies and strategies for a sustainable, equitable and socially-inclusive blue economy.

"Blue economy is a symbolic way of expression which can be defined as making the coastal and oceanic resources economically viable by preserving the environmental stewardship and social inclusion. However, if it just focuses on resource accumulation then it is not what blue economy is expected to prevail." Quote from one of the development practitioners

"Coastal community development...ensuring and solving the broader questions of social justice which might not be that important for other countries but a must for us (Bangladesh)." Quote from one of the senior academicians One of the economists avidly explained that the connection drawn between the forthcoming growth and the new stock of resources in ocean has been over-romanticized in the public sphere. The growth will add to the national economy once the said resource is being extracted and utilized, but it may take years to reach that stage. In this regard, there was almost no discussion on how investments and innovative financing (themes from 'oceans as drier of innovation') can be used to secure different ocean industries or new economic frontiers.

Among all sectors, it has been identified that marine fisheries sector is the largest contributors to coastal livelihoods, poverty alleviation and food security—some of the key themes from 'oceans as livelihoods' narrative. So, the key informants (both government and non-government) with specialization in fisheries discipline show a proclivity towards this narrative of blue economy. However, one of the development practitioners found to be cautious about this interpretation as he noted that GDP growth and expansion of the exportoriented markets are the guiding principles to develop marine fisheries under Bangladesh's blue economy. The initiative to explore the possibility of commercial-scale tuna exploitation in deep seas simply showcase that the state's intention is to maximize profit and explore new entries in foreign markets. Growth and production numbers have been the key success indicator for fisheries development in Bangladesh; for instance, the production from inland aquaculture and production from hilsa fishery in Bangladesh.

Despite a dominant business and market logic driving the blue economy narrative of Bangladesh, multiple academicians, economists and development practitioners are increasingly concerned for community development, small-scale coastal economy, ecosystem restoration, distributive justice and environmental stewardship. To put simply, the investment under the blue economy plan is not focused to transform the existing coastal and maritime industries in terms of reducing externalities. The state rather seeks to develop novel maritime industries with more externalities.

# 3.2 Quantitative validation from literature

The sustainability component has three themes; economic, environmental, and social with different subthemes. It was clear from Table 3.1 that not all themes of sustainability were equally prioritized in terms of how many times those were mentioned in how many literatures. In Table 3.1, the number denotes the number of times the corresponding sub-theme was referred in different literature, and the percentage denoting the percentage of literature which discussed the corresponding sub-themes.

About 72% of the literature have referred to the potentials of novel economic frontiers under blue economy as key driver to Bangladesh's GDP or economic growth. Compare to economic themes, environmental and social themes were less discussed, indicating and reaffirming 'oceans as good business' as the dominant narrative of blue economy in the localized context of Bangladesh. Themes such as the mitigation of environmental risks, safeguarding coastal and ocean health, and climate resilience come next in terms of how many times those were discussed. However, social equity, human well-being and human rights were the least mentioned themes in literature. Therefore, 'oceans as natural capital' narrative was present but not as dominant as 'oceans a good business' narrative. An increasing prioritization to coastal and marine protection has particularly emerged from the fact that Bangladesh is signatory sate to an international convention as Convention on Biological Diversity (CBD), and aims to achieve United Nations General Assembly's Agenda 2030 or Sustainable Development Goals. The Aichi Biodiversity Targets of CBD and Agenda 2030 put a clear significance on social themes, but the literature on Bangladesh's blue economy have not set social themes a priority. The enabling component of blue economy has two major themes; capacity and governance. All the sub-themes were mentioned a fair amount of times. Sub-themes such as technical inputs, marine research and development, and increased coordination were on top. These sub-themes were mostly used in reference to securing potential growth from blue economy.

Sustainability components (three themes: economic, social and environmental)				Enabling components (two themes: capacity and governance)					
Economic themes Environmental themes		Social	themes	Innovation and technical capacity		Governance tools or approaches			
Contribution GDP	133 (58%)	Sustainability	48 (36%)	Human capital	72 (28%)	Technical innovation	17 (16%)	Co-ordination or integra- tion	120 (55%)
New frontiers	225 (72%)	Mitigation of environ- mental risks	42 (16%)	Food security	30 (34%)	Marine security	15 (9%)	Effective governance or regulatory framework	46 (36%)
Employment	26 (25%)	Carbon sequestration/ Climate resilience	60 (25%)	Poverty allevia- tion	18 (20%)	Investment	43 (28%)	Marine Spatial Planning	59 (27%)
Livelihoods	26 (28%)	Safeguarding coastal and ocean health	56 (41%)	Inclusiveness	14 (13%)	Marine research and development	110 (47%)	Law and policy links e.g. UNCLOS / SDGs	22 (22%)
		Maintaining ecosys- tem services	49 (39%)	Equity	8 (11%)	Innovative finance	5 (3%)	Valuation of ocean indus- tries and ecosystem ser- vices	85 (14%)
		Natural capital	50 (31%)	Well-being	8 (8%)	Availability of and ac- cess to knowledge	10 (11%)	Stakeholder engagement	40 (19%)
				Knowledge transfer	4 (2%)	Technical inputs	160 (56%)	Ecosystem-based man- agement (EBM)	7 (6%)
				Human rights	7 (6%)	Private sector involve- ment	25 (23%)	Monitoring and surveil- lance	35 (19%)
								Marine Protected Areas	14 (16%)
								Integrated coastal zone management (ICZM)	10 (13%)

 Table 3.1

 Key themes and sub-themes within relevant blue economy literature of Bangladesh

Source: Results of literature review by the author (following the approach used by Voyer at al. 2018).

# 3.3 Experts' reflection on blue economy trajectories and concerns

## 3.3.1 Operational, ecosystem and policy boundaries

Drawing from discussion from key informants, I have categorized 'operational boundary', 'ecosystem boundary' and 'policy boundaries' to explain different dimensions of blue economy concept. Here, operational boundary refers to the geographic extent where different types of exploration, extraction, infrastructure development, access/restriction, and monitoring will be undertaken in coastal, nearshore and deep sea. The ecosystem boundary signifies an interconnected system where the flows, nutrients and externalities from upstream rivers, wetlands and land-based activities ultimately pour into ocean and affect ocean ecosystems greatly. Lastly, the policy boundary deals with relevant strategies, governance frameworks, bilateral and multilateral conventions that determine the access, allocation and distribution of ocean space and its resources to different states and users. The scope and scale of policy boundary may range from local to trans-boundary.

The importance of marine spatial planning cannot be overstated if the operational boundary within blue economy is to be functional. However, a little progress has been made to formulate an appropriate ocean governance framework or policies to initiate a spatial planning process in Bangladesh. Blue economy action plan published from the Maritime Affairs Units identified three key obstacles; sector-wise national policies being inconsistent with the blue economy concept, lack of a universal policy framework for Integrated Coastal Zone Management and Marine Spatial Planning, and limited organizational set-up, systems, and capacities for a sustainable ocean governance. Several key informants representing development practitioners have also recognized that a policy framework is missing to initiate marine spatial planning process, and it is not clear to them how the state agencies are exploring novel economic frontiers without having a proper framework that may delineate and allocate ocean space for different uses and to different users. Therefore, it is not surprising is different resource users are in conflicts in future, cautioned by development practitioners. While the progress on operational and policy boundaries are uneven in Bangladesh, it is not sure how different state agencies will pursue its exhaustive plan of activities under blue economy without having a policy framework in place.

In this regards, two academicians have separately recognized that the policy framework should reflect ecosystem wide thinking without territorializing land, river and ocean as separate entities. Upstream pollution from industries, agricultural practices and chemical uses have a significant impact on the productivity and functioning of ocean ecosystem. In this regards, they and other development practitioners denote that coal-based power plants in coastal areas will risk ocean health by dispersing significant externalities and pollutions in the marine environment. One of the academicians even pointed out the significance of transboundary issues related to water sharing and joint management of shared resources in the context of Bangladesh because the river waters of Bangladesh in dry and wet seasons entirely depend on India, and the shared fisheries resources in the Bay of Bengal require joint and coordinated management with India and Myanmar.

## 3.3.2 Blue economy: for whom?

Owing to the prevalent 'oceans as good business' narrative, it is expected that the growing number of large corporations and companies will come into play because the primary goals are to increase growth from resource extraction and expansion of export-oriented markets.

The welfare and benefits of coastal communities were pointed out by several academicians and development practitioners.

"Sustaining local economy, ecosystems, and local communities are key to have a sustainable, equitable and socially-inclusive blue economy (for Bangladesh)." Quote from one of the development practitioners working on the rights of fishing communities



Map 3.1 Map of Bangladesh's nearshore shallow waters divided to explore potential oils, gas and mineral resources

Source: One of the key informants

One of the economist has clearly mentioned that it is important that coastal communities livelihoods and employments are not being disrupted in pursuit of novel economic frontiers in ocean. But the outright assumption that all novel economic frontier and relevant activities (as evident in Map 3.1) will negatively affect or burden coastal communities are not entirely objective. That economist explains that the deep-sea tuna fishing, for example, have limited scope to accommodate coastal communities because of the scale of investment and technical capacity required in these activities, also the operation boundary of this activity is located where coastal fishing communities fish. So, this new industry might offer limited employment opportunities but the potential risks to coastal communities and distributive justice are not a concern. While another academician explained that the offshore exploration and extraction of natural gas have far less impact than other hydrocarbon extractions. Natural gas is often considered as transition energy and less harmful than oil extraction, but the same academician warned that the extraction of natural gas must not be interpreted as a transitional phase because a number of coal-based power plants have been set in coastal areas. So the environmental and public health risks from operating coal-based power plants along the coastal region pose a greater threat to coastal communities in long-run.

Coastal local economies in Bangladesh have been historically dependent on and revolved around the ecosystem goods and services. With the degradation of coastal and nearshore ecosystems, local economies started to collapse which later triggered a large-scale migration in coastal areas. Climate change, river erosion, agricultural land loss and saline soil from shrimp culture, etc. have also facilitated these overarching problems for the coastal communities. The blue economy could have included these marginalized communities by putting more focus on the restoration of coastal ecosystems, nearshore habitats, and coastal mangroves. Had ecosystem goods and services being revived overtime, the coastal local economies could have revived small-scale and family-based enterprises.

### 3.3.3 Preparedness to make blue economy initiatives viable

Not all the state agencies have a huge potential from the Blue economy and thereby the priority is not at a similar level. Blue Economy Cell was formed to facilitate effective interministerial coordination and progress on activities under blue economy action plan. Despite a keen political interest, it was evident that there was a lack of preparedness and comprehensive knowledge on the feasibility of economic activities. Analysing discussion of government officials, two examples relating to marine fisheries and mariculture will be explained here.

There is a common consensus among all government officials that the scope to exploit commercially-important fish species (other than hila fishery) is huge. Pointing out the reference of hilsa and the success of hilsa fisheries management in Bangladesh, it is expected that with right management measures ad interventions more commercially-important species can be harvested. However, no scientific evidence has been found or presented determining the stock of commercially-important fish species (other than hilsa) in the Bay of Bengal. Regarding deep-sea tuna fishing, one government official indicates that "our investors are not interested in catching more commercially important fish in deep sea because of high risk (financial feasibility in long run)". As private investors have not come forward, the state agency has planned to invest in buying new boats and hire experienced manpower as fishers from Bangladesh has no experience at all in tuna fisheries. All planning, activities, and investments to catch tuna is expected to be a major step toward technical advancement in the deep sea fishing or expanding the scope of marine fisheries in Bangladesh but the size of tuna stock, the financial feasibility of tuna fishing fleets operating from Bangladesh, and the opportunity in the international tuna market are yet to be clear.

This showcases that the prospect of exploiting new frontier in the fisheries sector is following the successful examples of other nationals without having a comprehensive scoping and feasibility studies in Bangladesh. Same can be said for the prospect of mariculture; providing the reference of inland aquaculture success of Bangladesh, it is assumed or projected (by government officials and economists) that the prospect of mariculture is huge and the success will be evident. However, most of the key informants disregard the critical distinctions between inland aquaculture and mariculture, where the latter requires intensive capital investment, maintenance of large infrastructure in the face of adverse weather conditions of the Bay of Bengal, and biological and commercial feasibility of suitable species for mariculture, and leasing vast swathe of suitable space in the absence of a marine tenure system and marine spatial planning, etc. Most of these concerns are not applicable for inland aquaculture but a must to initiate mariculture.

These two cases showcase the lack of technical capabilities, knowledge gaps, skilled manpower, under-preparedness to attract private partnerships, and overhyping the prospect of potential business opportunities to explore novel frontiers in the fisheries sector. An indepth analysis from the energy sector and the coastal and maritime tourism sector were beyond the scope of this study.

### 3.3.4 Role of state and private sectors

"Employing new mechanisms and tools at the state level to address environmental and social issues are crucial as the fundamental proclivity of Bangladesh's blue economy plan is to expand and increase profit-making ventures in coastal and marine space..." (Academician with expertise in oceanography and environmental sustainability)

With a limited technical capacities and other lacking, it is clear that the state agencies will increasingly rely on private entities and investments from large corporates to fulfil the state's intention to develop underdeveloped ocean space and bolster the national economy. One economist stressed that the quality of investment and private actors will play a critical role to minimize the potential risks from economic activities. He mentioned that the state must formulate and implement clear policies and laws to make these private entities (be it local or foreign) accountable and transparent. In that line, one senior academician, with experience of working with different government projects and plans, has mentioned that a strict technocratic interpretation of blue economy will not be able to address and ensure distributive justice, equity, and environmental sustainability. He calls for political insights and goodwill from local representatives to put forward the issues of local communities. In addition, the state must operate as a controlling entity to ensure how ocean resources are being distributed and used since the new frontiers under Bangladesh blue economy will require support and active participation from private sectors.

# Chapter 4 Marine fisheries in a localized context of blue economy

## 4.1 Access, control and restriction in an industrialized ocean

As the state is in pursuit of 'oceans as good business' narrative, it is expected that different maritime industry and economic activities will increase, and the number of mega-infrastructures in coastal and marine waters is expected to rise. In fact, several mega projects like Payra Deep-Sea Port, Payra Power Plant, Moheshkhali Floating LNG Terminal, Rampal Power Plant, Sonadia Deep Sea Project, and Matarbari Power Plant have already been undertaken within the period of last decade. While these mega-infrastructures are expected to create numbered jobs for unskilled coastal communities, a large number of coastal communities, particularly fishers, are being denied their access to common pool resources. One development practitioner (one of the key informants) denoted that no fishing vessels, unless related to LNG terminals in Moheshkhali, can enter within the project area. Concerns were raised among several key informants that restrictions to access marine common pool resources will increase in future, but it will come in different forms.

Owing to the large-scale infrastructures and economic activities under the auspices of the blue economy, the marine environment will be under immense pressure from different externalities and pollutions. This circumstance, as per one development practitioner indicated, will create increasing pressure on state agencies to designate more area-based nature conservation measures in the marine space to compensate the large-scale pollution. This will eventually create more means of restrictions for fishing communities.

## 4.2 Unresolved conflicts and challenges over marine resources

### 4.2.1 Potential conflicts between state agencies over control

The potential of disputes and conflicts over the control of coastal and marine space and its use is expected to rise between state agencies. Two key informants (one development practitioner and one academician) exemplified the case of Payra Power Plant and Payra Deep-Sea Port being located close to two hilsa sanctuaries in Tetulia and Andharmanik river in Patuakhali. These hilsa sanctuaries, equating a total of 140 km stretch of river, are important routes upstream migration of hilsa and are banned for any types of fishing for months (November to January in Tetula river, and March to April in Andharmanik river). The Department of Fisheries and BFRI proposed the spatial and temporal ban in these sanctuaries and enforced the fishing ban with the support of law enforcing agencies. The recent success of hilsa fishery has been linked with the effective enforcement of the ban in sanctuary areas, among other management interventions.

Both key informants were concerned that the position of Payra Power Plant and Payra Deep-Sea Port will affect the nearby river channels—a critical corridor for hilsa migration from the Bay of Bengal (Map 4.2). The risks of pollution from power plants, ballast water (introducing invasive species) from vessels, and increasing vessel traffic will undermine suitable ecosystems for hilsa, and upstream migration. The state's decisions, therefore, appear to be contradictory and mutually exclusive to achieve its own goals to conserve hilsa population and at the same time increase economic activities in coastal and marine areas. In pursuits of these contradictory and competing goals, the small-scale commercial fishing units will

eventually experience the onslaughts of development activities by losing their viable livelihoods from hilsa and other fisheries.



Map 4.1 Location of coal-based power plants and hilsa sanctuaries

## 4.2.2 Restricted fishing access due to overcapitalization

The diminishing control over and access to marine resources have been a two-front fight for small-scale commercial fishing units; one in the land and another in the marine space. In the marine space, an overwhelming intensification of fishing capacity by industrial trawling units have resulted in a fishing competition severely affected other units. While artisanal and small-scale commercial units are also increasing its fishing capacity, however, these units are still no match with industrial trawling units. Fishers from group interviews and key informants have shared concerns over the operation of industrial trawling units.

Fishers complain, also substantiated and supported by all key informants with a focus on fisheries, that industrial trawling units often fish in 15-20 m depth zones though they are legally required to operate beyond the 40 m depth zone. This illegal intrusion of industrial trawling units is largely responsible for depleting fisheries resources and unfair fishing competition into the below-40 m depth zone. These highly efficient industrial trawling units have 5-15 times more powerful engine than other fishing units (details in Table 1.1). Owing to their fishing operation (i.e. dragging the trawl net to chase fish schools with the help of fish detecting devices) these trawling units also damage gears set by small-scale commercial units. Fishers from all the three focus group interviews have identified it as one of the major and very common conflicts. Operating industrial trawling units within the 40-m depth zone is illegal, let alone damaging the gears used by small-scale commercial units.

Source: https://www.thedailystar.net/frontpage/news/hilsa-habitats-under-threat-1687693

On land, small-scale commercial units have been experiencing a different challenge as the over-intensification and over-capitalization of marine fishing operations have made fishing household-owned fishing operations either obsolete or struggling to survive from the fierce competition. Fishing units must go farther and stay longer on a fishing voyage to make a profitable venture, but fishers lack access to formal financial sectors (for a loan) to increase the capacity of their household-owned fishing operation. Many fishing households or individual fishers sought informal credits from local money lenders with a high interest than formal sectors, but they failed to keep a viable marine fishing operation because of high interest rates. Though the fishing units have not been directly restricted from access to marine space but their lack of access to capital has eventually forced them to give up the fishing household-owned and -run operations. Affluent individuals from local area and money lenders have seized this opportunity and took control over marine common pool resources by investing and building suitable vessels and gears that can sustain the competition. The circumstance is such that fishers rather find it easier to fish with a small-scale commercial unit because of its higher capacity than artisanal units and better chance of making a profitable fishing voyage. Fishers are still in the profession, but they have essentially lost their control over and access to marine resources due to the overcapitalization of marine fisheries in Bangladesh and their lack of access to credits from formal sectors.

## 4.3 Burden of one-size-fits-all approach

The Ministry of Fisheries and Livestock has undertaken a project entitled "Sustainable Coastal and Marine Fisheries Project (SCMFP)<sup>3</sup>" under its blue economy plan. One of the key objectives of the project is to develop mechanisms for effective implementation of Monitoring, Control and Surveillance (MCS) system for the artisanal and industrial fisheries. Key informants representing government official and development practitioner identified that the implementation of MCS can resolve the conflicts between industrial trawling units and others. The project plans to set up satellite-based modern Vessel Monitoring System (VMS) in all industrial trawling units and Automatic Identification System (AIS)/Global System Mobile (GSM) to other units based on engine capacity so that the position of these vessels can be monitored by the authority from land stations. The initiative promises, if implemented accordingly, to keep industrial trawling units beyond the 40 m depth zone.

Those informants also recognized that this initiative will eventually increase the capacity of fisheries-related state agency i.e. the Department of Fisheries by manifolds and will enable it to enforce the regulation of reserving 40 m depth zones exclusively for artisanal units. However, one development practitioner expressed concern that if MCS activities are later used to reduce the number of artisanal units and limit their extent of fishing, then many fishers will lose their rights to fish and livelihoods; implementing MCS in such a manner will impose a financial burden on artisanal units. So, it is necessary to ensure that artisanal units have adequate access to earn their livelihoods first and the compliance to MCS comes second. Establishing exclusive fishing rights in certain areas is a necessary step forward. However, the emerging small-scale commercial units, that I have distinguished in introductory chapter (Table 1), remain in the grey area in terms of MCS implementation because these units have 8-10 times more capacity than artisanal units. Therefore, the implementation of MCS should focus on the fishing vessels based on the catch capacity and efficiency, and

<sup>&</sup>lt;sup>3</sup> SCMFP is a million dollar project undertaken by the Department of Fisheries. Project details: https://projects.worldbank.org/en/projects-operations/project-detail/P161568?lang=en

perhaps establish separate criteria and exclusive fishing areas for artisanal and small-scale commercial units.

## 4.4 Efficacy of marine tenure in the context of Bangladesh

Bangladesh does not have a formal marine tenure system in place (Pomeroy and Courtney 2018: 27). However, the coastal communities, particularly fishers, have little to no issues in regard to using their rights to use marine common pool resources. With new frontiers of blue economy, there is scope to establish large-scale ocean-based economic activities including LNG terminals, mariculture, energy, etc. As the possibility of marine space being used by different types of users is expected to increase, it has become important to recognize and establish a set of rights and responsibility for coastal communities as to who is permitted to use particular resources in which way and for how long. A marine tenure may apparently seem to provide a solution to establishing fishers' rights, but the on-ground context of marine fisheries is very complex in Bangladesh. Most of the marine fisheries sector is controlled by actors who do not engage in fishing directly. These actors, nevertheless, have heavily invested in marine fisheries in order to make a profit. Lacking a generational investment and values, it is difficult to expect that establishing rights and responsibilities will eventually benefit the fishers themselves and ensure the stewardship of resources. One of the academicians has used examples from the wetland ecosystem to explain how marginalized resource users lose their rights to socially-powerful and affluent actors. Important of all, the stewardship of natural resources goes to people who only see it as a short-term profit-making opportunity.

"I'm originally from haor (wetland ecosystem in north-eastern Bangladesh) areas of Bangladesh. There I've always observed that parts of haor are usually given a lease to powerful local political entities. But it should have been the rights of those fishermen who collect fish directly from the haor. So, the marginalized fishermen are already deprived of their rights in that part of our country. The leases are sanctioned in the name of those fishermen but the powerful people who invest their money on these leases actually to gain the interests, the fishermen are usually given little to no rights as a stakeholder." (Quote from one of the academicians)

"The main point of this concept (marine tenure), the local community may not own the land, they may not own the marine space, but they certainly have an incentive over protecting and sustainable use of natural resources." (Quote from one of the economists)

Reflecting on the case of inland waters, one key informant points out that it will not be surprising if the socially powerful actors eventually appropriate fishers' rights to fish in marine areas of Bangladesh.

"If the state does not recognize tenure, it might still pass regulations to protect small-scale fisheries, e.g. an inshore exclusion zone that prevents large-scale fishing within a certain distance from the shoreline, or ensuring that traditional ocean users are stakeholders in any state-issued coastal/ocean concessions (sharing in the benefits)." (Quote from one of the development practitioners)

Another development practitioner indicated that despite the lack of a clear legal establishment of rights and responsibilities, the coastal and marine resources have been used and safeguarded by the local communities since their very livelihoods depend on the ecosystem services of coastal and marine ecosystems. There is little need for a legal basis to allow communities to use common pool resources for subsistence, e.g. low-impact fishing by artisanal fishing units. However, the use of law is required when an exclusive use right is being established in the coastal and marine space where coastal communities used to have access.

Development activities under the blue economy have accelerated the process of legally acquiring exclusive rights on coastal and marine spaces. It is often argued that it will create new job opportunities for affected communities, but the trade-off between the number of people getting new jobs and the number of people deprived of goods and services from the ecosystem remains largely missing from the discussion of blue economy.

# Chapter 5 A case to make blue economy for marginalized fishers

"...the small-scale fisheries are currently far and away the largest employer in the country's ocean economy, so if there is a focus on jobs, it would be there...to highlight the often underappreciated role of small-scale fisheries in economic development and food security among other objectives." One of the economists with expertise on blue economy

"Fishing is the worst of all (professions)...this is not a life to live, it has no security at all...No one will do us any good except Allah (God)..." Fishers from second FGD

Despite employing millions of coastal communities and ensuring food security to even more people, the marine fishing by the small-scale commercial units is often undermined largely because of its informal nature and larger society's failure to appreciate fishing as a profession. Fishers from all three focus group interviews revealed how fishing is being perceived as a derogatory profession in society. There was an overwhelming response on how the fishing was perceived and fishers are not being well-regarded or respected in the society, let alone their opinions. Almost no fisher wants the next generation to take on fishing as a profession. The treatment fishers receive from society, however, is not the only source of discontent or reason to discontinue the profession; their rights and demands have been ignored or inadequately addressed by the state and relevant agencies after years of complaining and suffering. All three small-scale commercial units have identified the following points as some of the most pressing issues that need to be addressed.

The lack of safety in the open ocean and the lack of any compensation mechanism for family members of a dead fisher are one of the key concerns for fishing communities and their family members. The state agency responsible to manage marine fisheries even does not keep an official record of dead fishers who deceased in the sea. In the event of an accident or tropical cyclone, they rely on sheer luck to make a safe return to harbour. All units have a radio to get the news on weather forecasting, but they are also obliged to make a profitable venture with investments from boat and gear owners. Requiring approximately two days of travel from fishing grounds to harbour, fishing units remain in a dilemma whether they should continue fishing or return to harbour in the face of rough weather. Even if a fishing unit decides to return to harbour, they got to make up the financial loss in their next fishing voyage. In addition to this financial burden, a small group of fishers (from FGD) complained that there are also direct pressures from owners to stay at sea and continue fishing in rough weather.

Collision with shipping cargo and other large vessels also occur during night-time, but these incidents are claimed to be numbered or goes unnoticed entirely because most of the small-scale commercial units are unlicensed and informal. However, it must be noted that fishers do not own the boat so it is not their responsibility to make a license for a vessel. This responsibility lies with the owners. Fishers from all FGD sessions demanded that there should be rules for boat owners on ensuring license, registration, security, and tracking device for a fishing vessel. Most of the owners have the capacity to make investments, but there is no legal obligation at this moment. Most of the laws and rules formulated are subjected for fishing communities but a very few to ensure the safety of these marginalized communities.

Engine in the middle of nowhere with no communication at all is another concern shared by most of the FGD participants. One of the fishing units was in the harbour during that time of FGD because their engine failed on the second day of their fishing voyage; they were lucky to be within the coverage of the mobile network but it is not always the case.

Acknowledging different risk factors involved in any business, the fishers noted that despite providing employment and food securities, the lack of recognition from the state and its reluctance to ensure the welfare of fishing communities in an effective manner are frustrating to fishers. The compliance rate among all marine fishing units have been remarkable in recent years<sup>4</sup> although the 22-day and 65-day blanket fishing bans disproportionately affect small-scale commercial units compared to industrial trawling units. Fishers from small-scale commercial units are to receive incentives (i.e. 40 kg rice per fisher) during these fishing ban periods, however none of the fishers from three group interviews have actually received any incentive in the last fishing ban. Regardless of the arguments on whether the incentive is adequate, fishers vehemently complained about the irregularities of the local officials in distributing the incentives among fishers. Many fishers with fisher identity cards even do not receive the incentive; and many more fishers did not receive an identity card at all. Corruption, nepotism and inefficient process of identifying fishers has led many non-fishers holding a fisher identity card and receiving the incentive that was meant for fishers. The failure to identify authentic fishers and distributing incentives have been widely documented in academic literature (Islam et al. 2016: 18-20), but the fishers, I interviewed, are in despair after making countless complaints to the authority in workshops, seminars and FGD sessions like this one. Apart from irregularities and nepotism, one fisher has specifically pointed out that many fishers usually operate in a fishing unit that is based in a different coastal village/district from their home village/district. This circumstance has also made it difficult for them to convince the authorities at their home village/district that they are real fishers and spend most of the time fishing in the sea or resting in harbour. Therefore, a large number of fishers always remains missing from the list of fishers in the local authority's official records. Others add that the local authority has a poor assessment of identifying a fisher so the non-fishers, with a connection to powerful local actors, can easily acquire a fisher identity card and benefit from the incentives.

"Government is actually giving away billions; for example, I myself have been a fisher for 27 years, but I have not received a handful of rice or any allowance so far from the government. Because my home is in Noakahli; (I do) fishing (which) is based in Chittagong; that's why local government officials from my home do not list me for the incentive" Anonymous FGD participant from one of the fishing units

"There is no point in me saying this...no outcome so far...government is giving away billions (for fishers)...but we do not receive a single penny...It is true that government is giving away a lot, but it does not reach to a destitute like me...Influential look after influential (themselves for their own benefits), but it does not reach to the ordinary citizen like me" Anonymous FGD participant from a different fishing unit

The years of deprivation have stemmed from the fact that fishers are marginal in the society with little or no stake in the decision-making process. A fishers' organization that is truly represented by real fishers, instead of powerful non-fishers pretending to be fishers, has exacerbated the condition. Fishers complain that you will find several fishers' organizations but none of those are represented by real fishers.

<sup>&</sup>lt;sup>4</sup> https://www.cgiar.org/annual-report/performance-report-2019/supporting-coastal-fishingcommunities-and-improving-food-security-in-bangladesh/

One of the key informants noted that compliance to fishing bans will soon become a burden for small-scale commercial units as the benefit of compliance is disproportionately reaped by the industrial trawling units that have higher fishing efficiency and capacity, and have been fishing illegally below the 40 m depth zone. In this circumstance, fishers from small-scale commercial units do not get a fair share of catch but their families carry the burden of compliance for around three months of fishing ban each year (Table 1.2). Implementation and strict enforcement of fishing bans have been working as a double-edged sword. According to BFRI, the catch data of hilsa and its average size than past years have been increasing. However, the cost of compliance is shared by the small-scale commercial units who neither share a fair share of hilsa (resulted from fishing bans) and incentive during the fishing ban periods. It will not sustain in the long run unless the capacity of different state agencies to monitor, control and surveillance for industrial trawling units are being strengthened.

Multiple key informants, nevertheless, have shared their concerns over how the MCS will be enforced given that the people owning the industrial trawling units are powerful and influential. Fishers' (form FGD) first-hand account with industrial trawling units also reflect a similar impression. One of the fishing units (from FGD) confronted the industrial trawling units with evidence to claim compensation for damaging their fishing gears but the fishers were instead threatened; even the owners of the small-scale commercial units often do not go on to make a formal case against the powerful trawling units. One key informant from government officials even shared the experience of getting pressure from high-ups while enforcing laws and regulations to monitor the industrial trawling units. These incidents have raised concerns over whether the enforcement of MCS will eventually be able to implement the rights for small-scale commercial units.

According to one of the government officials, the installation of Automatic Identification System (AIS)/Global System Mobile (GSM) on small-scale commercial units will not only help in better monitoring these units, but also ensure their safety at sea with the ability to locate these units. The SCMFP (Sustainable Coastal and Marine Fisheries Project) plans to distribute around 9,500 small-scale commercial units with these facilities, however, the official estimate says there are more than 67,000 vessels. Therefore, the issue with safety and security at sea will remain an issue for these units even after this project is successfully implemented. The issuance of fisher identity card and the distribution of incentive during fishing bans require to be prioritized under the activities of the blue economy, noted by another government official.

# Chapter 6 Conclusion

Coastal and marine economic activities and the growth potentials have been found to be the key driver to bolster Bangladesh's economy in future. The state agencies and officials appear to recognize the sustainability concerns but there was inadequate strategy, if any, in place to move beyond resource extraction and exploitation and initiate an effective marine spatial planning process.

Critics of an industrialized ocean with concerns for environmental safeguard and social security mostly comprise academicians and development workers. However, there has been no resistance so far as to criticize the direction that blue economy concept is heading in Bangladesh. There was no single peer-reviewed literature that employed a critical lens (e.g. political ecology or any other) to dissect the advancement of blue economy in Bangladesh. There were concerns or fears (for society and environment) among all key informants, but overall there was also no strong support to adopt a different narrative. Absence of these critical scholarships and resistance perhaps indicate that the underlying growth agenda will continue to dominate the narrative of blue economy in Bangladesh in the coming decades.

While the blue economy plans in Bangladesh have an increasing focus on emerging and novel industries, a larger challenge remains to transform the industries to reduce environmental and social concerns. The transformation of the existing coastal and marine industries are also important. A huge difficulty lies ahead if the state plans to achieve sustainable development goals with little priority set for environmental and social concerns in activities under blue economy. It is even more difficult to comprehend how the future of coastal and ocean governance will look like as extractive endeavours are in place without initiating a marine spatial process, not to mention building up skilled manpower, acquiring technical capabilities, attracting private investments, etc.

While marginalized fishing communities have different concerns and priorities of their own; they are not much informed about the changes that blue economy is about to bring. Experts have expressed their concerns about the future of fishing access but fishers have more pressing needs such as safety at sea, proper recognition from the state agency, incentives during ban season, and access to formal financial sectors, etc. There is concerning gap between what fishing communities expect and the priorities set the state agency (i.e. strengthening monitoring capacities) in the advent of blue economy in the Bay of Bengal. Being one of the least powerful and the most marginalized, the fate of fishing communities will eventually remain the same, if not worse.

# Appendices

Appendix A List of key informants and their details

Re-			Nature of	
spond- ents	Affiliations and expertise of respondents	Date	Interview	Language
R1	Development practitioner (non-government personnel) Focus: Rights of fishing communities and marine con- servation	29 July 2020	In-person interview	English
R2	Senior academician (non-government personnel but 31 July 2020 Telephonic int contributed to or consulted for different governmental view (no video) plans, strategies and policies)		Telephonic inter- view (no video)	Bangla
	Focus: Development Studies and SDGS			
R3	Development practitioner (non-government personnel) Focus: Rights-based approach for the conservation and management of natural resources	2 August 2020	In-person interview	Bangla
R4	Academician Focus: Oceanography and Environmental sustainabil- ity	4 August 2020	Zoom interview (with video)	Bangla
R5	Former government official Focus: Marine Fisheries	13 August 2020	In-person interview	Bangla
R6	Government official Focus: Fisheries and Blue economy	13 August 2020	In-person interview	Bangla
R7	Economist (non-government personnel but contributed to or consulted for different governmental plans, strat- egies and policies) Focus: Macroeconomics	13 August 2020	Meet interview (no video)	Bangla
R8	Government official Focus: Marine Fisheries and Blue economy	13 August 2020	In-person interview	Bangla
R9	Development practitioner (non-government personnel) Focus: Marine Fisheries and Blue economy	14 August 2020	In-person interview	Bangla
R10	Government official Focus: Fisheries and Blue economy	16 August 2020	In-person interview	Bangla
R11	Government official (Blue Economy Cell) Focus: Energy and Mineral resources	18 August 2020	In-person interview	Bangla
R12	Government official (Blue Economy Cell) Focus: National development and Blue economy	18 August 2020	In-person interview	Bangla
R13	Academician (non-government personnel but contrib- uted to or consulted for different governmental plans, strategies and policies)	19 August 2020	Skype interview (no video)	Bangla
	Focus: Marine fisheries & fish stock assessment, Blue economy			
R14	Economist (International stakeholder but worked on the development of Bangladesh's blue economy) Focus: Sustainable development, Blue economy, ocean governance	20 August 2020	Skype interview (with video)	English

R15	Government official (Maritime Affairs Unit) Focus: National development and Blue economy	25 August 2020	In-person interview	Bangla
R16	Academician (non-government personnel but contrib- uted to or consulted for different governmental plans, strategies and policies) Focus: Sustainable livelihoods and marine conserva- tion	25 August 2020	In-person interview	Bangla
R17	Academician (International stakeholder but worked on the development of Bangladesh's blue economy) Focus: Ocean policy and governance expert	28 August 2020	Written question- naire sent	English
R19	Climate expert (International stakeholder but worked on Bangladesh's climate change) Focus: Climate change	2 September 2020	Zoom interview (with video)	English

### Appendix B List of guiding questions for all key informants

- 0. What are your past and current professional affiliation with different institutions/organizations and at what capacities?
- 1. Please explain the term 'Blue Economy' in your opinion. What do you understand by it and how would you interpret the term?
- 2. Apart from 'Blue Economy', phrases such as 'sustainable and equitable blue economy' and 'sustainable blue growth' are being increasingly used by governments, non-governments organizations and academia. How do you distinguish/separate these three phrases? Does that imply or infer that both sustainability and equity dimensions are not inherent/dominant in the narrative or discussion of 'Blue economy'?
- 3. Could you please recap or briefly make key distinctions among these terms: 'blue economy', 'sustainable and equitable blue economy', and 'sustainable blue growth'?
- 4. How do you anticipate that Bangladesh's blue economy plan/scheme is going to contribute to different sectors and change the current scenario in terms of economic development, environmental sustainability and job creation for coastal communities, etc.?

4.1 Could you please name top five sectors (in order, if possible) that will dominate the discourse of blue economy in Bangladesh in next decade or so? Could you also please also explain why these five sectors are at the top in your opinion?

5. How the coastal fishing communities (specifically, small-scale artisanal units) are going to be affected with other sectors or different agendas of Bangladesh's blue economy plan?

5.1 The Blue Economy plan is setting up new frontiers such as mariculture, oil and gas exploration and extraction, deep sea ports, etc. in the Bay of Bengal. How these new frontiers will burden or benefit or risk the small units of artisanal fishing communities? (in terms of access and rights to extract and use common property marine resources and marine pollution affecting fisheries resources, marine space being privately used or utilized, etc.).

6. There is no sea tenure system in Bangladesh. So, in absence of a sea tenure, how the authority (i.e. state or relevant agency) is going to or may possibly set up new frontiers (i.e. mariculture and oil & gas exploitation requiring permanent infrastructure) requiring exclusive rights?

6.1 How the absence of sea tenure or coastal and marine tenure system is affecting small fishing units in the current context?

- 7. A lot of importance has been put on the capacity building (specifically, capacity for effectively monitoring, control and surveillance of the fishing fleets) of marine fisheries sector under the Blue Economy Plan. Do you think that a similar treatment to all fleets will affect small-scale fishing units disproportionately compare to industrial trawlers? Why & How?
- 8. It has been often seen in many national and international expert/opinion articles that Bangladesh is pursuing GDP growth at the cost of the environment and marginalized communities living around the mega project sites destroying environment (e.g. Rampal coal power plant)? Why and why not programs/projects under the Blue Economy Plan are going to follow that same fate or path?
- 9. Bangladesh is one of the top climate vulnerable countries in the world; and her south-western part has the world's largest patch of mangrove. In this context, what opportunities/scopes/potential working areas do/may 'Blue Economy' offer which would benefit coastal-marginalized communities?

### Appendix C Informed consent form for key informants

- 1. I volunteer to participate in a study conducted by Peerzadi Farzana Hossain from the Erasmus University Rotterdam. I understand that the study is designed to gather information about academic research. I have received and read/had read the information sheet provided by the researchers that explains in detail the reasons for the study. I have read, discussed and understood the purpose of the research. I have asked all the questions that I have about the purpose of the research and feel happy that I have enough information about it.
- 2. My participation is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty. If I decline to participate or withdraw from the study. If I agree to participate in this interview I understand what I will be required to do.
- 3. I understand that most interviewees will find the discussion interesting and thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.
- 4. Notes will be written during the interview. An audio tape of the interview and subsequent dialogue will be made. If I don't want to be taped, I will not be able to participate in the study.
- 5. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.
- 6. Anyone from my current institution will neither be present at the interview nor have access to raw notes or transcripts. This precaution will prevent my individual comments from having any negative repercussions. I understand that data collected during the study may be looked at by other researchers of the Erasmus University Rotterdam.
- 7. I have been given a copy of this consent form.

Name of the Participant	Date	Signature
Name of the Interviewer	Date	Signature

				0		
FGDs	Date	Total partici- pants (who can sign)	FGD language	Average fishing experience	Religion	Does the fishing unit own the vessel or gear?
FGD 1	7 August 2020	12 (6)		22 years		No
FGD 2	8 August 2020	10 (7)	Bangla	18 years	Muslim	No
FGD 3	9 August 2020	9 (6)		17 years		No

Appendix D	
Characteristics of three focus groups and de	tails

Source: FGD sessions in the fieldwork by the author, conducted in 2020

### Appendix E List of guiding questions for FGDs

1. Are you happy with your occupation? Why and why not?

1.1 Do you want your kid to take over your profession as *Jele*? Why and why not? What are their kids doing now?

2. What about your safety at sea while fishing or going to fishing grounds? Any description of incidents that could have been avoided if proper measures were in place.

2.1 How the safety at sea can be improved?

2.2 Any conflicts with industrial trawlers in this context?

- 3. Safety at coastal area, where fishers usually live, due to climate change induced disasters, Sea level rise and river erosion?
- 4. Gas station at sea/LNG terminals (e.g. Moheshkhali LNG terminal), coal-based power plants (e.g. Matarbari), Exclusive Economic Zone in coastal areas and deep seaports? Practically how are they experiencing it?

5.1 Any changes fishing experience or navigation route to fishing ground?

5.2 Increasing traffic at sea has caused any conflicts/accidents/incidents etc.?

- 5. Monitoring, Control and Surveillance (MCS) has increased or decreased? How has it affected them and industrial trawler?
- 6. Do MSC affect owners (boat/gear), Majhi (Captain) and on-boat labourers equally or discriminately, including stakeholders from industrial trawlers?

7.1 Any power relation dynamics intern of treatment through MSC? Can they provide any example?

7. How far do they used to go/navigate for fishing in last 20 years? Has it changed? How? Why?

8.1 If they need to go farther at sea for fishing, why so? In the context of fishing within 40 m depth zone and conflicts with industrial trawlers; also, beyond 40m depth zone conflict with industrial trawlers. Any conflicts?

- 8. 65 days bans; how do fishers perceive it? In the context of mechanized artisanal boats vs industrial trawlers.
- 9. How the fish workers/on-boat working condition can be improved?

### Appendix F Consent form for focus group discussants

### Purpose:

You have been invited to participate in a focus group organized by Peerzadi Farzana Hossain (Principal Investigator) from International Institute of Social Studies, Erasmus University Rotterdam. The purpose of this focus group is understand your perspectives, experience and opinions on different aspects related to artisanal marine fisheries sector in the Bay of Bengal, Bangladesh. The information learned in this focus group will be used to write a thesis for the partial completion of MA in Development Studies.

### Procedure:

As part of this study, you will be placed in a group of 5-8 individuals. A moderator will ask you several questions while facilitating the discussion. This focus group will be audio-recorded and a note-taker will be present. However, your responses will remain confidential, and no names will be included in the final report.

You can choose whether or not to participate in the focus group, and you may stop at any time during the course of the study.

Please note that there are no right or wrong answers to focus group questions. The facilitator want(s) to hear the many varying viewpoints and would like for everyone to contribute their thoughts. Out of respect, please refrain from interrupting others. However, feel free to be honest even when your responses counter those of other group members.

### Benefits and Risks:

Your participation may benefit you and others who are involved in the marine fisheries sector of Bangladesh by strengthening the rights of artisanal fishers over access to and use over common pool marine resources in the Bay of Bengal. However, no risks are anticipated beyond those experienced during an average conversation.

### Confidentiality:

Should you choose to participate, you will be asked to respect the privacy of other focus group members by not disclosing any content discussed during the study. Principal Investigator will analyze the data, but—as stated above—your responses will remain confidential, and no names will be included in any reports.

### Contact:

If you have any questions or concerns regarding this study, please contact: Peerzadi Farzana Hossain +8801405698530 peerzadifarzana@gmail.com

I understand this information and agree to participate fully under the conditions stated above.

Signature(s):	Date:	
Print name(s):		
1.	4.	7.
2.	5.	8.
3.	6.	9.

This consent form has been developed using the format available here: https://www.clemson.edu/assessment/documents/Consent%20to%20Participate%20in%20Focus%20Group.pdf

### Appendix G

List of literature reviewed to quantify recurring themes and sub-themes in Bangladesh's blue economy

### Peer-reviewed articles (18):

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- Hussain, M.G., P. Failler, A. A. Karim and M.K. Alam (2017) 'Major opportunities of blue economy development in Bangladesh', *Journal of the Indian Ocean Region* 14(1):88-99.

### News articles and blogs (27):

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