MECHANISM FOR PROTECTING THE RIGHTS AND INTERESTS OF NATURAL RESOURCE ASSETS: AN ANALYSIS OF BLUE ECONOMY OF BANGLADESH

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ABSTRACT

As a most emerging country of south Asia, Bangladesh has the potentiality to explore, exploit and manage its living and non-living natural resources located in the Bay of Bengal. The natural resources that are dubbed as Blue Economy have a great contribution to the economy of Bangladesh. Being located in the armpit of India and right on the Indian Ocean, Bangladesh - a small riverine country plays a significant role in the world geo-politics and eventually for its strategic location has drawn attention of the countries like China, India, Japan, USA etc. This article aims to analysis the importance of blue economy of the Bay of Bengal. The study finds that since Bangladesh is rapidly heading towards industrialization; therefore, it requires huge amount of power supply in daily basis. But, depending only on conventional power production systems, it can’t prosper economically. To check balance between power consumption and production and to think for future perspective, Bangladesh needs to finds out alternative renewable energy systems which should not only be less costly but also socio-economic and environment friendly. It is therefore, essential for Bangladesh to look for the South (Bay of Bengal) in protecting the rights and interests of natural resources.

Keywords: Renewable energy, Food security, Fisheries, Power sector, Blue Economy

INTRODUCTION

The Bay of Bengal blessed with rich coastal and marine ecosystems is a major hotspot center of many living and non-living natural resources. Around 511 marine species together with shrimps exist within Bangladesh waters (Jahan et al. 2014). A longer coastal area (714 km) and 166,000 km² EEZ of the Bay of Bengal support large artisanal and coastal fisheries. Preserving the rights and interests of natural resources amid climate change, economic and financial uncertainty and the growing competition for consuming natural resources is a big challenge for the developing country like Bangladesh. To combat these challenges for a sustainable economy, an integrated and inclusive response is required. For protecting the rights and interests of natural resource assets particularly in the oceans, seas and coasts; the Blue Economy strategy was formulated in 2012. It is to be noted that oceans provide food and livelihoods to a substantial portion of the global population and are the means of transport for 80% of global trade (UNCTAD 2018). So, it is very urgent to ensure healthy oceans for global food security, livelihoods and economic growth. Coastal countries like Bangladesh are burdened with high rate of unemployment and resources crunch. With a view to evading such material problems, the coastal and island countries adopted the blue economy strategy and paved the way of promoting smart, sustainable and inclusive economic growth. After the long-waited decision of the International Tribunal for Law of the Sea (ITLOS) regarding the Bangladesh-Myanmar maritime boundary, 2012 and the decision of the Arbitral Tribunal of the UNCLOS on India-Bangladesh maritime boundary, 2014 established sovereign rights on more than 118.813km² area of territorial sea and 200 nautical miles (NM) of Exclusive Economic Zone (EEZ) and all kinds of living and non-living resources under the continental shelf up to 354 nautical miles from the Chittagong coast (MoFA 2014a).

METHODOLOGY

The secondary data for this publication were sourced from different journals, web pages, and newspapers. The secondary literature and instrument, relevant public records, text books, administrative and public records, magazines and
available statistical data, reports of various NGOs, government reports through various ministries were considered to complete the study.

DEVELOPMENT OF SEA RESOURCES FOR BANGLADESH

Blue Economy denotes to oceans and seas as “Development Spaces” where spatial planning integrates conservation, sustainable use of living resources, oil and mineral wealth extraction, bio-prospecting, sustainable energy production and marine transport. Blue Economy aims for improvement of human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities. Based on the pillars of ecological, social and economic sustainability, maritime economy which includes seas, coasts and other maritime resources is one of the postulates of economic growth of Bangladesh. Successful integrated approaches need to be taken for fisheries, aquaculture, habitat protection and pollution reduction as a means of secure financing and catalyze good ocean governance. Careful balancing act between conservation and growth is inevitable for a sustainable blue economy. Fish which provides about 3 billion people globally with almost 20 percent of their average per capita intake of animal protein is primarily come from developing countries like Bangladesh. But, there are a number of common issues that have an impact in Exclusive Economic Zones (EEZs) and in the high seas in regard to resource use and conservation. From small-scale artisanal fisheries to large-scale industrial fisheries, and whether in national waters or Areas Beyond National Jurisdiction (ABNJ), the related issues of who has the right to exploit the fishery’s and marine genetic resources and the nature of that right are a key part of the sustainable management of the resource. Marine garbage may result from activities on land or at sea and is a complex cultural and multi-sectoral problem that exacts tremendous ecological, economic, and social costs around the globe.

Being a major world’s largest trade hub, seaports alone annually handle 80% of global trade by volume and on a national basis the percentage is increasing. World seaborne trade grew by 4% in 2011, to 10.7 billion tons by 2017 and container traffic is projected to triple by 2030 (MoFA 2014b). Considering shipping as one of the safest, secure, efficient and most environmental-friendly sound means of bulk transportations; coastal countries like Bangladesh have complied with the regulations of International Maritime Organization (IMO) along with industry initiatives and technological developments with a view to cater growing trade and optimize the benefits. To contribute to global sea transport and sustainable economy, Bangladesh is building its first deep-sea port in Cox’s Bazar with the help of its development partners China, India and Japan although at present there are two medium-large sized sea ports and another minor sized port which are respectively situated in Chittagong, Mongla and in Patuakhali of Bangladesh. It is to be noted that after becoming an independent state, Bangladesh has never built a new port, while it uses the existing Chittagong and Mongla sea ports that annually does $60 billion of trade despite their too shallowness for large container ships in terms of global competitiveness. As a world’s fastest growing economies, Bangladesh needs to construct more deep sea ports with adequate maritime infrastructure. To materialize the long-cherished dream of Bangladesh; China, its long-term and all-weather friend has come forward with open heart. Bangladesh has warmly accepted the invitation of the China’s the Belt and Road initiative Project considering its future benefits especially for securing and bolstering their commercial trade routes. China’s 21st Century Maritime Silk Road will extend from its own coastlines through Southeast Asia, the Indian Ocean, the east coast of Africa, and up through the Mediterranean to Greece. Lying in the womb of Indian Ocean, Bangladesh sees multiple opportunities being a major part of this maritime agenda.

FISHERIES AND AQUACULTURE

Fish is a popular complement to rice in the national diet, giving rise to the adage a Bengali is made of fish and rice (Ghose 2014). The coastal and marine environment of Bangladesh is blessed with a warm tropical climate and high rainfall, enriched with nutrients from the land, creating one of the world’s richest ecosystems with high productivity (Hossain 2001). Therefore, the fisheries sector plays a very important role in the national economy contributing 3.69% to the Gross Domestic Product (GDP) of the country and 22.60% to the agricultural GDP (Anonymous 2016). Alike fisheries, aquaculture also contributes 47% fish for human consumption annually to the global food sector. The total first sale value of fisheries and aquaculture production in 2016 was estimated at USD 362 billion, of which USD 232 billion was from aquaculture production (Anonymous 2018). Aquaculture under the blue economy will incorporate value of the natural capital in its development, respecting ecological parameters throughout the cycle of production, creating sustainable,
decent employment and offering high value commodities for export (Alam 2019a). Due to stable fisheries production, reduced wastage and continued aquaculture growth; there was a record high 171 million tons total fish production in 2016, which fulfilled the 88 percent of human consumption. With scientific and technological innovations, the aquaculture production has increased from 712,640 metric tons in 2000 to 2,060,408 metric tons in 2016. It is very true that fisheries and aquaculture industry are not only providing food security and nutrition but also creating employment of millions of people who directly depend on this industry. Additionally, the agenda of the United Nations 2030 focuses on Sustainable Development and its 17 Sustainable Development Goals (SDGs) particularly SDG 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) is directly relevant to fisheries and aquaculture. But, increasing number of human’s movement and activities have been responsible for reducing the ocean productivity. Moreover, along with reducing nutrient mixing, ocean stratification has also been increasingly occurred in the open seas due to climate change. Global Ocean Observing System (GOOS) and LME assessments show significant warming trends from which model projections 2040-2060 forecast a steady decline in the ocean productivity (Anonymous 2017a).

MARINE TOURISM

Being a part of global tourism industry, marine and coastal tourism is important to many developing countries in terms of economic development. As a worldwide export category, tourism ranks third after chemicals and fuels and ahead of automotive products. In many developing countries, tourism is the top export category (Anonymous 2017b). The United Nations World Tourism Organization (UNWTO) addressed marine tourism related to SDG-14, which ensures benefits for host countries from tourism activities through sustainable use of marine resources. Marine tourism is one of the key components of the blue economy and is linked to environmental conservation (Voyer et al. 2018). Many governments consider tourism industry as alternative livelihoods of people for economic growth and environmental well-being as it can ensure social, environmental, and economic benefits through sustainable use of marine resources. This tourism segment has great potential in Bangladesh with the existence of the Bay of Bengal in the southern territory of the country. According to a study result (Bhuiyan et al. 2020) marine tourism development can ensure various elements of social well-being such as improving quality of life, infrastructure development, and enhancing public facilities. It is undeniable that marine tourism brings multifetch economic benefits, such as providing employment opportunities, developing livelihoods, facilitating fishing activities, and enhancing economic well-being both at local and national level. There are a number of remarkable marine tourism attractions in Bangladesh namely Cox’s Bazar, Patenga beach, Parki beach, Kuakata beach, Sundarbans mangrove forests, Saint Martin island, and Bhola and Monpura islands that draw the attention of travel lovers from home and abroad. Hence, marine tourism helps local communities to improve their livelihood which is very important for a developing country like Bangladesh. Additionally, it has direct link with business, hospitality, and catering activities that creates opportunities for income and collects natural products from marine and protected areas. Despite multiple benefits of marine tourism, it also has some negative impacts, such as increasing the cost of living and intense illegal activities and cause several environmental problems in the local ecosystem and culture.

ENERGY SOURCES IN BANGLADESH

In Bangladesh, there are many natural resources such as coal, gas and petroleum. The main source of energy in Bangladesh is natural gas (24%) which is likely to be depleted by the year 2020 (Rahman et al. 2013). Nearly 1.5 billion people of Bangladesh have no electricity access out of twenty percent of the total population. About 52% of Bangladesh’s total population is connected to the main grid, while almost 75% of rural population is not connected to it (Taheruzzaman et al. 2016a). The Bangladesh government however, has set a vision of achieving 100% electricity access by 2021, thus by integrating more solar PV and biomass sources, as the country is rich with these two particular ones (Taheruzzaman et al. 2016b). The country suffers an internal energy struggle, as about 93% of the country’s thermal power plants are gas-based, which is also needed for the industrial sector (Pranti et al. 2013). About 62.9% of Bangladesh generated electricity comes from natural gas, while 10% from diesel, 5% from coal, 3% from heavy oil, and 3.3% is from renewable sources (Taheruzzaman et al. 2016c). Therefore, to make adjustment between power production and developing the industrial sector the country has to make some compromises. To address this fact and meet the growing demand of electricity, the government along with non-government organizations are working both independently
and jointly to implement renewable energy technologies. However, the present renewable energy arrives from biogas, hydro power, solar and wind.

Wind power is a great source of meeting up growing demand of energy in Bangladesh’s perspective. Using wind turbines, wind energy is converted into electricity. The power is directly proportional to the velocity of the wind. The lengthy period wind flux, particularly in the islands and southern maritime facial of Bangladesh the average wind speed remains between 3 and 4.5 m/s in the months of March to September and 1.7 to 2.3 m/s for the residual period of the year (Hossain 2015). The appeal of wind mills for pumping and electrification is very high in islands and coastal and the mountainous areas. Though the culture of producing electricity from wind powers in Bangladesh is new but, Bangladesh Power Development Board (BPDB) has completed a 1000 kW capacity wind battery hybrid power project in Kutubdia islands (Anonymous 2019). Under this project, a total of 50 units of 20 kW capacity stand-alone type wind turbines are being installed that will be stored in a battery bank. BPDB has also completed a 0.90 MW capacity grid connected to wind energy at Muhuri Dam area in Feni district in 2004 (Ullah et al. 2012). It is believed, that wind energy can contribute to the maximum of 10% of the energy generation sector. Above all, to produce wind turbines powers there is no need of any type of fuel for electricity generation.

Power crisis in Bangladesh is a common phenomenon. To meet up this crisis government is looking for alternative energy solution especially renewable energy such as solar and wind energy. Though solar energy is making very good progress but other renewable energies are still lagging behind, especially tidal energy. Tidal energy is produced through the use of tidal energy generators that convert the energy of tides into electrical power. It is similar to conventional hydro-electricity generation utilizing the use of natural motions of tides to fill up reservoirs and slowly discharge through electricity producing turbine. Another way to harness tidal power as energy is through tidal stream generator (Hammons 2004). Producing of tidal energy is the same as producing the wind turbine where tidal stream turbine uses kinetic energy to generate electricity. As tides are more predictable than wind energy and solar power (Lecomber 1979), tidal energy can easily be generated from the changing sea levels. The fluctuation of tidal waves in the coastal areas is from 2 to 5 meters; for example, in Sandwip, the range of the wave is 5meter which has the best prospect in generating tidal energy. According to previous studies, Bangladesh can generate tidal power from these coastal tidal resources by applying low head tidal movements and medium head tidal movements. Low head tidal movements use tides of height from 2m to 5m in areas like Khulna, Barisal, Bagerhat, Satkhira and Cox’s Bazar regions. In contrast, medium height tidal movements use more than 5 m high tides which are available in Sandwip. So, there is no doubt that Bangladesh needs to seek for more renewable energy projects to meet up ongoing power demand. Tidal power is a clean renewable energy and it is appropriate in the coastal Bangladesh (Kaiser et al. 2009) and can be a helping hand in generating power. It may be fitted as a candidate for emission trading of clean development mechanisms (CDM) principles of Kyoto Protocol Agreement (Salequzzaman 2001). Having such benefits, high cost and limited availability of sites with sufficiently high tidal ranges or flow velocities however, lead the total availability of tidal energy is limited.

Since Bangladesh has a 724 km long coastal line; therefore, it has a huge potential of wave energy that may be the vital source of electricity to both island communities and mainland of Bangladesh. Ocean wave energy generated directly from ocean waves is another viable type of renewable energy which not only helps to generate power but also to decrease the harmful emissions of greenhouse gases during the power generation process. The primary purpose of ocean wave energy is concerning to generating powers; but, it can also be used in agricultural sectors such as in pumping water, water desalination etc. The oscillating water column method is technically feasible and is becoming economically attractive for this purpose in many countries. So, Bangladesh has the potential for harnessing ocean wave energy from the Bay of Bengal (Sharif 2018).

In 2018 offshore fields accounted for more than 33% of worldwide crude oil production and this is projected to rise to 34% in 2025 and higher subsequently, as almost half the remaining recoverable conventional oil is estimated to be in offshore fields - a quarter of that in deep water (IEA 2017). Fossil fuels include mostly methane, natural gas and oil at the sea area of Bangladesh can be extracted and processed not only for meeting up energy supply but also in various ways. Bangladesh is yet to assess the true potential of its offshore oil and gas prospects. Meanwhile Bangladesh has discovered some 26 trillion cubic feet gas reserve across the country, but only about 1 trillion cubic feet gas fields are located in the offshore of the Bay of Bengal and near to the Myanmar
sea areas. Until 2014, 19 exploratory wells were drilled in the Bay of Bengal resulting in only two gas discoveries, i.e. the Sangu and the Kutubdia, with small reserves. The Sangu reserves of 0.8 Tcf have already depleted, whereas the Kutubdia reserves 0.04 Tcf are yet to be developed. Moreover, drilling at Magonia (3.5 Tcf) and Hatia (1.0 Tcf) has yet to produce any commercial volumes of hydrocarbons (Alam 2019b). To identify potential oil and gas fields, and their reserves in Bangladesh sea areas, a logical plan is necessary. Additionally, a joint-venture effort should be taken between government and private organizations to explore and exploit the oil and gas in full swing because delayed exploration of natural assets at Bangladesh boundary may provoke its counterpart India and Myanmar to drill first in order to pulling out not only their fair share of gas and oil reserves but also from across the boundary of Bangladesh too.

BIOTECHNOLOGY AND MARINE GENETIC RESOURCES

Countries vested with huge number of population such as Bangladesh, China, India, etc. are at high risk of food scarcity. This has resulted in urgent need for high yielding crop varieties through agricultural technologies. The researchers across the globe are developing high yielding GM crops to feed the growing population. Marine biotech can meet the global challenges of human health, sustainable food supplies, energy security and environmental remediation. It can also greatly contribute to the pharmaceutical industry since marine genetic resources like bacteria are a rich source of potential drugs and treatment remedy of cancer. One area where marine biotech may make a critical contribution is the development of new antibiotics (Hunt and Vincent 2006). The unexplored and understudied nature of much of the underwater world means that the capacity of marine organisms other than fish and shellfish to provide inputs to the blue economy is only just beginning to be appreciated, partly through new gene sequencing technologies for living organisms (Alam 2019c).

SUBMARINE MINING

Considering the future demands and necessity of natural resources, the world is gearing up for the exploration and exploitation of mineral deposits on and beneath the sea floor and so also Bangladesh. Industrialist countries are paying more attention to the potential riches of polymetallic nodules, cobalt crusts and massive sulphide deposits which are important for ICT hardware and renewable energy technologies. The International Seabed Authority has developed the Mining Code regulations (Kotzur et al. 2018) to meet these changing circumstances and has commenced issuing licenses for the exploration of the international sea floor. Coastal countries need to realize the optimal benefits of their own Exclusive Economic Zone (EEZs) and to manage the coming race for the riches of the seabed. Extracting dissolved minerals like boron or lithium, from seawater may become economically feasible. Nearly five percent of the world’s minerals such as cobalt, copper and zinc could come from the ocean floors by 2020 and ten percent by 2030. But, the proportion is very low in Bangladesh due to technological and financial limitation.

SEA SALT PRODUCTION

Sea salt industry of Bangladesh plays a very crucial role in the socio-economic sector by creating a large number of job employments and moving to industrialization. This industry is one of the largest labor oriented industries in Bangladesh after garments. This is workplace of about 5 million people who are directly or indirectly engaged in this sector. Despite technological innovations, the traditional process is still being used to produce sea salt along the Cox’s Bazar coast of Bangladesh generations after generations. In Bangladesh salt is produced from sea water by solar and lixiviation process in the coastal areas of the districts of Chittagong, Cox’s bazar, Noakhali, Barishal and Khulna and the adjoining offshore islands (Mamun et al. 2014). Among them, Cox’s bazar unit alone manufactures 95% of the total production of the country. It is noticeable that most of the salt farm lands are taken lease either from landowners or government which are basically in small-sized. Moreover, the manual production of salt literally hinders production speed and creates an adverse effect on national economy. To produce salt, the ideal weather is a longer dry season, when the salt farmers can get about 20 tons/ha production. To enhance the salt manufacture in a steady and stable mode; community-focused land leasing systems, sufficient credit facilities, government and private assistance, use of modern mechanical are very essential.

CONCLUSION

Bangladesh has vested with number of natural resources particularly abundant in the Bay of Bengal but most of that are still in unexplored and unused. Comparing to its neighboring countries-India and Myanmar; Bangladesh is going too slowly to excavate its potential natural resources.
Being a middle-income country, Bangladesh needs to take urgent measures and adopts well-planned policies to utilize these invaluable resources to move the economic-wheel faster. It’s high time to search for new methods to adopt scientific technologies in cope with the competitive world to the best use of resources. Along with using traditional or manual methods and equipment, priority should be given to the modern technologies. To ensure the best and proper utilization of blue economy of Bangladesh, we have to work hand in hand. We should just not only look for the economic interest of the natural resources but also have to ensure ecological balance is not disrupting by any means, and protecting the rights and interests of natural resource assets must be considered first. It is undeniable that Bangladesh is burdened with socio-political, economic and infrastructural problems that create blockage on the way of prosperity. However, effective measures can mitigate such problems and lead the country to a right direction.

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REFERENCES


Anonymous. 2018. The State of World Fisheries and Aquaculture, SOFIA, FAO.


