

# Potential of Marine Resources for Sustainable Development of Bangladesh

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The seas and oceans are earth's greatest sources of biodiversity. Oceans cover 71% of the Earth's surface and 90% of the biosphere. Economic prosperity, society's well-being and quality of life at every level depend on the marine environment. Marine resources encompass valuable materials and attributes that are considered to have some economic significance. Marine resources are increasingly becoming the centre of the focus of every maritime nation as it facilitates the development of a nation. The land resources are depleting quickly. Technological advent is

also alluring the nation to explore and exploit marine resources for economic benefit. Marine biotechnology and marine genetic resources, fisheries, renewable and non-renewable energy sand and gravel, sea mining and minerals, tourism potential and unique ecosystems like coral reefs all are included in the categories of marine resources. Being vast reservoirs of biotic resources, oceans contain nearly 40,000 species of molluscs and 25,000 species of fishes, Along with mineral resources, several types of vitamins and elements used in medicine are also in abundance in the

marine environment, which are beneficial to mankind. These resources are of significant monetary value. Therefore, the sustainable use of these resources are of great importance.

One-fifth of the population i.e about 30 million people of Bangladesh are dependent on marine resources for activities like fisheries, aquaculture, tourism, shipping, shipbuilding and ship decommissioning, salt production and offshore oil & gas production etc. Therefore, marine resources are essential for the national economy and overall social benefits. Bangladesh has a land territory of 1,47,570 sq km, which holds a limited number of various resources, With the increment of population and industrialization, the quantity of arable land is becoming limited day by day. Bangladesh also doesn't have an abundance of fossil fuels. Therefore, to sustain the development of Bangladesh, we need to shift our focus toward the marine resources, which by far and large, are yet to be tapped up to their full potential.

Broadly, marine resources are categorized into living and non-living resources. On the other hand, marine resources can also be divided into mineral resources, energy resources and food resources. In general, marine resources can be divided into the following categories:

<b>Living Resources</b>	
Fishing Resources	Animals: fishes, shrimps, crabs, lobsters, mussels, mammals etc. Plants: algae, seaweeds and other medicinal plants.
<b>Non-living Resources</b>	
Marine Renewable Energy	Tide, Current, Wave, Wind
Non-renewable Energy	Hydrocarbons (Oil, Natural Gas)
Mineral	Metal deposits, Salt etc.

Table: Type of Marine Resources

The fisheries resources are the most attractive exploitable marine resources as

it is easy to acquire compared to other resources. It also plays a momentous role in fulfilling the demand for animal protein and the country's overall socio-economic development. Statistics say more than sixteen million people, which is almost 11% of the total population of Bangladesh, depend on the fisheries sector for their livelihood directly or indirectly. The coastal area populace is heavily engaged with this profession. The Bay of Bengal (BoB) is one of the 64 largest marine ecosystems globally. It is blessed with rich coastal and marine ecosystems, hosting a wide range of biodiversity, such as fishes, shrimps, molluscs, crabs, mammals, seaweeds, etc. Fisheries resources are crucial to meet the protein needs of the people in Bangladesh as they are intrinsically related to the traditional cuisine of this locality (Hossain, M. Shahadat 2014). However, the prospect of deep-sea



fishing is unexplored to date. There is noticeable capacity lacking in terms of long-line fishing and catching demersal fishes in the deep waters of Bay of Bengal. Bangladesh was ranked 11th in marine fish production in 2018 (FAO, 2018). However, fisheries resources are in decline, and the discovery of dead zones in the Bay is a potential threat to this sector.

According to experts, seaweed is one of the lucrative resources which is healthy for human bodies, skin and the environment. The economic value of

seaweed is enormous. There is huge potential in Bangladesh to develop the commercial cultivation of seaweed, According to the Ministry of Agriculture, seaweed production in Bangladesh has great potential and its multifarious use needs to be explored. It can support nutrition security, positively influence livelihoods and meet global demands. However, due to the different food habits of our people across the country, seaweed is not popular or known food to us. Misconception and social stigma among the coastal communities also prevail in society. As of now, Bangladesh currently produces some 400 tons of seaweed, valued at Tk 55 million. However, according to a study titled "Seaweed for Blue Economy in Bangladesh", seaweed production in Bangladesh could be increased to 50 million tons from shallow coastal waters by 2050 (Hossain et al, 2020).



Marine Renewable Energy is known for its continuous renewability and inexhaustibility. Ocean energy resources are those that use the kinetic, potential, chemical or thermal properties of seawater. Ocean energy like waves, tidal currents, tidal range, ocean currents, ocean temperature and salinity gradients are all examples of this. This form of marine renewable energy is available on every coast. Bangladesh has about 710 km of coastline with the Bay of Bengal and it is covered with many islands developed from river run-offs. These islands are locally called “chars”, and they

support a plethora of economic activities. Strong wind and tidal forces are experienced in these “chars”. However, the ability to tap renewable energy is highly technical in nature. New technologies are coming up to use marine renewable energy for commercial use. Of all marine renewable technologies, tidal energy is mostly usable. Generally, tidal power can be generated using two technologies - tidal stream and tidal barrage. Tidal stream power plants are being preferred because of their lower environmental disturbance and it is considered as green energy. Wave energy also comes next to tidal in terms of technological readiness. In order to fulfill the targets of the Sustainable Development Goals (SDG) and the Nationally Determined Contributions under the Paris Agreement, a substantial increase in renewable energy is required. Marine renewable energy is considered one of the important elements for driving the Blue Economy for Bangladesh and the transition to green energy in the future.

Bangladesh is yet to assess the true potential of its offshore oil and gas prospects. According to a desktop study carried out by the Maritime Affairs Unit of MoFA, it is estimated that 0.11 to 0.63 TCF natural gas hydrates deposits are available within Bangladesh's EEZ only, which is equivalent to 17-103 TCF natural gas deposits. However, a correct estimation may be reached once a complete survey is conducted. Bangladesh needs to act faster than the neighboring countries in this regard because of the transmitting characteristic of the gas. Fast exploration, drilling and extraction are especially crucial in the cases of gas reserves located across the maritime boundaries of adjacent littorals.

Several attempts with detailed investigations have been carried out on



the sandy beaches of the coastal region of Bangladesh in search of heavy materials. Sands containing valuable heavy minerals are found intermittently over the length of a 250 km coastal belt from Patenga to Teknaf. According to a report submitted to FAO in 2014, the entire coastal belt has been explored to discover 17 deposits of potentially valuable minerals such as Zircon, Rutile, Ilmenite, Leucoxene, Kyan Garnet, Magnetite and Monazite. Proper extraction and commercialization of minerals from beach sand may enhance the growth of different industries such as welding electrodes, paper, glass, chemical and ceramic sectors in the country.

Bangladesh is a maritime nation and the Bay of Bengal is an indispensable part of her geography, demography and culture. The sustainable use of marine resources in the Bay of Bengal has been prioritized

by the Honorable Prime Minister Sheikh Hasina, as she has prudently labeled the Bay as our 'Third Neighbor'. Comprehensive planning and coordinated efforts are required to ensure sustainable use of marine resources. Marine resources have much potential to play a bigger part in contributing to the national GDP. For example, the fisheries sector contributed 3.69% to the GDP, which has seen an average growth of 5.43% in the last ten years. With more focus and maintaining good governance in this sector, it can contribute a lot more. Much scope of research and study is left unexplored to utilize the best marine resources of Bangladesh, which should get priority by educational and professional research institutions nationwide.

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