

Multimodal Approach in Mariculture: Sustainable Use of Blue Economy to Boost Up Economic Growth of Bangladesh

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Blue economy is an emerging concept in economic development in the world, and Bangladesh is no exception. The blue economy of Bangladesh is realized through multiple interrelated activities, among which mariculture, seafood production, ocean exploration, shipping and trade, tourism and recreation, ecosystem biodiversity, coastal resilience, new technologies, and climate change challenges are the most promising sectors. The Food and Agriculture Organization (FAO) of the United Nations declared in a report titled 'The State of World Fisheries and Aquaculture (SOFIA)-2022' that Bangladesh is the second-largest producer of freshwater finfish in the world. Bangladesh is ranked 1st in the world in Hilsa fish production. In sea fish extraction Bangladesh's position is 26th. Bangladesh's maritime borders have abundant resources to enhance the existing economy with great potential to improve livelihoods as well as significantly reduce environmental risks and ecological deficits. The peaceful resolution of

maritime disputes has opened the door to an immense potential for exploration and exploitation of vast, valuable resources in Bangladesh's coastal and its marine waters, whose sustainable management can contribute significantly to improving our existing economic situation.

Mariculture is one of the major technologies that alone can play a vital role in the national economy. Mariculture is a specialized branch of aquaculture that involves the cultivation of marine organisms for food and other animal products. In other words, mariculture is the cultivation of plants and animals in the salt water of the sea. The main classes of mariculture species are seaweeds, shrimps, snails, crustaceans, and finfish. Efforts are already underway to bring caged fish and seaweed to the farming stage. The Bay of Bengal is a vast natural resource reservoir of Bangladesh that extends from 710 km of the coast from South East Teknaf in Cox's Bazar district to Shyamnagar and the Exclusive

Economic Zone (EEZ) of 200 nautical miles from the baseline. Due to the settlement of maritime boundary disputes with Myanmar in 2012 and India in 2014, a total of 1 lakh 18 thousand 813 square km was settled by the International Court of Justice, Bangladesh gained more area than before. In addition, Bangladesh's sovereign rights are established over the exclusive economic resource zone of 200 nautical miles and all kinds of fauna and other resources under the continental shelf from the Chittagong coast to 345 nautical miles. So far, 475 species of fish, 36 species of shrimp, 5 species of octopus, 20 species of crabs, 5 species of turtles, 120 species of corals, and 138 species of seaweeds have been found in the Bay of Bengal.

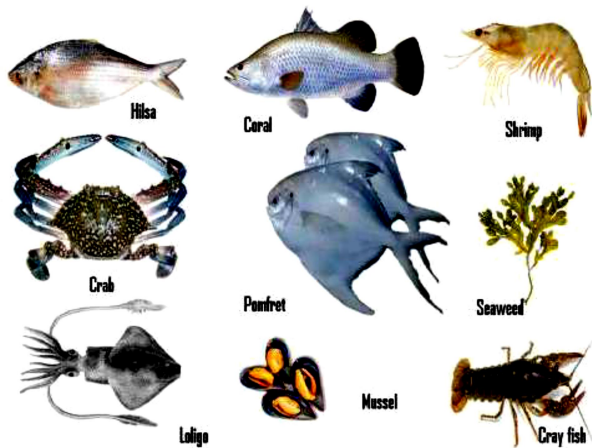


Fig. Some Commercially Important Sea Assets

Scientific farming of fish, shrimps, crabs, and other shellfish in sea cages can be an important way to increase the marine resources of Bangladesh. Farming in marine cages can lead to various problems such as lost cages, management complications, pollution problems, natural disasters, etc. Smart technology can be used to solve all problems.

Otherwise, the resources extracted from the sea will not add to the country's economy as much as we are expecting. Apart from fish resources, the Bay of Bengal is full of marine animals, weeds and vines. It is possible to earn a lot of foreign exchange by exporting marine food products to meet the country's needs. About 20 types of commercial fish are

extracted from the seas of Bangladesh, such as mackerel, rupchanda and black mackerel, tuna, mackerel, loyta, chapa, sea rita, shapla pata fish, tailla, poa, surma, hilsa, knife, faisya, sea bine and kai. Apart from fish, sea prawns especially bagda prawns are in great demand. Some species of seaweed in Bangladesh are rich in protein which can be used as a substitute for imported fish oil as fish feed. Some species can also be used to increase the quality of animal feed. Among the three types of seaweed, green is commonly eaten as a snack or salad, red is used to produce hydrocolloids, and brown seaweed is used for both food and hydrocolloid production. According to the Food and Agriculture Organization of the United Nations, 8.44 million tons of seafood are harvested worldwide every year. Marine fish, plants and animals contribute a lot to the world's protein consumption. Already there is a demand for sea fish and shrimp in Bangladesh. In addition, it is possible to extract and produce crabs, oysters, snails, seaweed, octopus, cattle fish, lobster, lobster, mussels, and sea cucumbers from the sea.

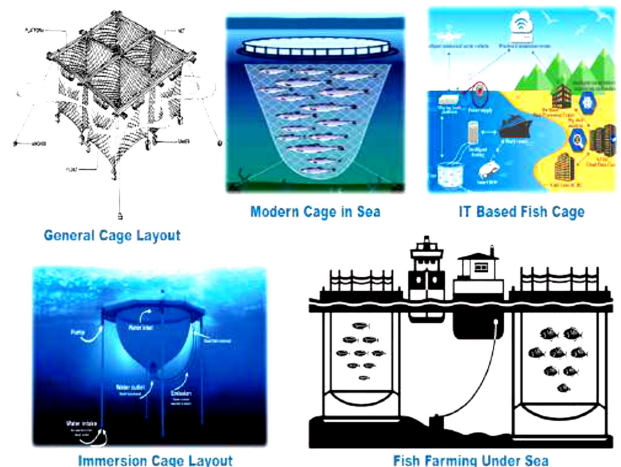


Fig. Feasible Mariculture Techniques for Fish and Shellfish

About 85% of the fish caught in the country comes from inland sources and about 15% from marine resources. In the fiscal year 2020-2021, 6.81 lakh metric tonnes of fish have been extracted from marine water resources. The second export income sector is almost entirely supplied by fishery resources from the coastal areas and marine sources of Bangladesh. But we have some

challenges to the perspective of the blue economy, such as frequent floods, marine pollution, including ocean acidification and blue carbon, lack of trained personnel, harmonizing sectoral policies, plans, and laws, poor ocean governance, and political support, etc.

As the mariculture of Bangladesh is prosperous, the production of fish resources in the country can increase, and the demand for animal-originated protein be met. Not only that, by creating employment, the problem of unemployment will be eliminated; thus, food security and sustainable development will be ensured. Earning foreign exchange through

the export of marine resources will play an important role in the socio-economic development of the country. Science-based extraction and economic development will significantly enrich our national economy. After all, it will play a unique role in the country's socio- economic development.

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