

Mariculture: Prospects for Economic Sustainability

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Bangladesh is gradually emerging as an economic power with its limited resources and has become a centre of attention as one of the fastest-growing economies globally. The current economic turmoil in the South Asian region due to changing regional and global dynamics and frequent climate threats reminds us to rethink the existing economic management strategies and initiate alternative potential financial sources to avoid any economic crisis. The declining capture stocks, peaking protein demand by the growing population, and shrinking land-based resources are pointing to the essence of the expansion of mariculture to satisfy the excessive need. We have a substantial area from coastal lagoons to the open ocean for mariculture. Marine aqua farming is mainly carried out in tide-fed ponds/enclosures and coastal cages. The domestication of new species such as seabass, sea bream, mullet, hilsa, grouper, pomfret, mud crab, mussel, oyster, sea cucumber, microalgae and seaweeds through mariculture ensures food security and reduces risk toward economic stability.

Environmentally sustainable and socially acceptable aquaculture practices should be promoted concerning the environmental aspects and getting maximum benefit. Cost-effective and eco-friendly cultures such as integrated mangrove aquaculture (aqua-silviculture) and integrated multi-trophic aquaculture (IMTA) could be suitable options. Crab or shrimp, together with mangroves, can be integrated in Sundarban or adjacent

coastal areas. It's a kind of mutual beneficiary system. On the other hand, in the IMTA system, species are selected depending on the available food from different trophic levels. Waste of one species could be food for others. Importantly, there is minimal use of artificial feed in this system and it poses limited environmental impacts. Thus, different fishes integrated with oysters, mussels and seaweeds can be farmed in Cox's Bazar-Teknaf coast and the Islands of St. Martin's, Moheshkhali and Sonadia. Crab also has immense potential in the coastal economy. This farming has a promising export market, especially in China (80% of the total export). Similarly, green mussel, clam and oyster farming, a low-investment business with good returns, can be an integral part of the development of the blue economy development. Other non-traditional species like sea coral, sea cucumber, microalgae and seaweed have infinite economic possibilities. Notably, Bangladesh has undeniable potential for naturally available seaweeds along the extended coastline because of the promising environmental and climatic conditions. Economic importance, medicinal and therapeutic purposes, nutritional value and role in protection against climate change have made seaweeds a farming attraction in our coastal area.

Commercial aquaculture depends on live feeds as most of the cultured species feed on it during their early stage. Besides facilitating marine aquaculture, the establishment of laboratories and institutions occupied with modern technologies might be an outstanding economic source. Thus the introduction of marine aquaculture will open a new dimension of multiple mariculture-dependent livelihood opportunities from the local level to the international network. Significantly, these employment sources may reduce the pressure on the government to provide 40kg rice/fishers to 4 lakh marginal fishers every year, thereby ensuring a secured social safety net. Often, we confine ourselves to the traditional lines of work and are unwilling to break down the wall of conventional professional preferences. But we must move on to adopting alternative livelihood options considering the limited land resources, climate change vulnerabilities, depletion of marine stocks and so on.

Obviously, it will take a long time to implement mariculture techniques and requires huge investment. However, effective participation of farmers, private entrepreneurs, industry, academia, researchers and respective authority can make it possible to initiate and continue the mariculture process and turn the sustainable blue economy into a green economy. Adequate cooperation among the investors, private entrepreneurs and respective governing authorities during the financial crisis and accidental damage may encourage the stakeholders to do so and achieve success. Only creating mass awareness and encouragement is not enough to initiate intensive farming of marine species. Comprehensive technical and financial assistance from government and private organizations triggers the magnitude and success of mariculture.

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