Green Jewel in Blue Bay

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 financial sources to avoid any economic crisis. The declining marine 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. Luckily, we are blessed with a substantial area from coastal lagoons to the open ocean suitable for marine aqua farming. The timely needed utilisation of the promising marine resources could be a relief for the climatically stressed coastal people.

The economic driving force of our country is intertwined with coastal and maritime oriented activities. The coastal economy, however, is seasonal and significantly depends on tourism. Natural disasters, limited resources and income sources, economic instability and persistent unemployment issues are troubling the socio-economy and livelihoods of the coastal communities. Despite the livelihood crisis, coastal communities are unwilling to leave their traditional profession for a new venture. Instead, they choose illegal fishing or other unfair means. The drivers behind their reluctance are proper guidelines for marine farming, lack of investment, technology and industrial cultivation procedure, and proper supply and demand chain. Seaweeds have great potential in mariculture. It could be a profitable source of income for the coastal people to get economic solvency throughout the year, even during the fishing ban.

Seaweeds are still an untapped goldmine in our country. It has immense prospects for the development of the Blue Economy, improving the socio-economic condition of the coastal community. The littoral and sublittoral zone of St. Martin’s island, the mangrove forest and

the south coast of Bangladesh provide suitable habitat for natural (20-22 species) growth of seaweeds. These are nutrient hubs containing a significant amount of proteins, lipids, vitamins and minerals. Importantly, seaweeds are richer in mineral content than terrestrial vegetables. Some species of seaweeds contain a significant proportion of nutrients compared to small indigenous fish species like Mola, Barb, small Catfishes, Goby, Indian River Shad, Gange's River Sprat and so on. Despite being edible and nutritious, very few people of St. Martin's Island and a small Rakhine ethnic community (Mog) consume seaweeds in Bangladesh. However, increasing public awareness about seaweed intake may meet the nutrient demand and lessen excessive pressure on the regular diet.

From our table to the fish and poultry feed industry, pharmaceutical industry, and laboratory purposes, seaweed and its derivatives are used significantly. Mention worthy, if we produce raw materials from seaweed locally, it may reduce the import cost. Seaweeds act as the growth promoter for vegetables. Liquid Seaweeds Fertilisers (LSF) and rotten seaweeds manure are expected to be the bio-fertiliser source to start the country's organic agricultural revolution. They improve the organic content of the soil, eventually improving soil quality and reducing the need for industrial fertilisers. The introduction of seaweed aquaculture has the potential to reduce the negative impacts of climate change locally through carbon uptake, reduction of agricultural greenhouse gas emissions and protection of shores from coastal erosion. It has opened a new horizon for attaining sustainable economic progress and contributing to national revenue.

Despite being economically and ecologically important, no large-scale attempt at seaweed cultivation has been made in Bangladesh. The food and medicinal value of seaweeds have made them a potential foreign exchange earning product for us. The remarkable faster growth of seaweeds, low input and extensive employment opportunity have added another dimension. Alongside, seaweed cultivation can create easy and secure employment opportunities for the coastal people of Bangladesh, where many women workers can also be readily employed.

Seaweeds have already become a commercial attraction in China, Japan, Thailand, Vietnam, Fiji, Tanzania, Indonesia, Malaysia, Philippines, Korea, Canada, Russia, Italy and many other countries. Despite all favours, we are far behind the race. Given the rising global demand for seaweeds as food and other seaweed-derived products, seaweed farming has become a topic of concern. So, is not it high time to utilise the 710 km coastline with sandy and muddy beaches, estuaries and mangrove swamps which provide substrates and habitats for seaweed farming? Why are not we moving ahead to explore this jewel while its farming is cost-effective and solely depends on the natural environment?

The salinity intrusion in the coastal areas due to disasters is increasing rapidly. Therefore, a greater range of salinity tolerance of seaweed is attracting coastal people to adopt seaweed farming. The amazing fact is seaweed culture helps in carbon sequestration, provides a nursery ground for fish and shellfish, and controls pollution. The polyculture of marine algae with shellfish could also be a tremendous mariculture option. However, efforts are needed to increase the production of seaweeds through improving harvesting techniques and creating

artificial habitats with an efficient farm system. The flexible international market may influence the farmers for seaweed culture.

The effective engagement of all stakeholders is obligatory in achieving economic revolution through seaweed culture. The Maritime Affairs Unit, under the Ministry of Foreign Affairs, has been conducting research with significant progress over the last two years to assess the presence, overall location, economic potential and commercialisation of Marine Genetic Resources (MGR), which includes all marine animal and plant resources. Researchers should focus on the biodiversity, suitable ecological conditions for farming, potential cultivable species, cultivation technology of significant stocks and the development of disease-resistant and fast-growing species. Considering the global climate challenges, developing thermo-tolerant strains of seaweeds may be needed. We should sell different types of seaweed-based ready to eat foods at the cheapest price initially, and seaweed food items could also be provided as side dishes to promote its acceptance among the mass consumers.

Bangladesh is one of the most disaster-prone countries driven by climate change. Seaweeds provide many advantages and are an essential component of our coastal communities. However, seaweed aquaculture also provides sustainable and healthy seafood for local communities. To promote large-scale seaweed farming, we must overcome the unawareness, technical inadequacy, socio-economic constraints and shortage of skilled workforce. Bangladesh bears a reasonable prospect of the Blue Economy revolution through seaweed cultivation. Only creating mass awareness and encouragement are not enough to initiate intensive farming of marine species. Comprehensive technical and financial assistance from government and private organisations will trigger the magnitude and success of seaweed farming. Nevertheless, we must wheel the economy breaking down the wall of conventional professional preferences and adopting alternative livelihood options considering the limited land resources, climate change vulnerabilities and depletion of marine stocks.

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