

Sustainability in Aquaculture: A Note

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ABBREVIATIONS

COFI: Committee on Fisheries, FAO: Food and Agriculture Organization.

Food production through aquaculture is one of the fastest-growing industries in the world. World aquaculture production is dominated by low-income food-deficit countries, which account for the majority of production. There is a great deal of expectation that aquaculture will contribute to the world's aquatic food production, and there is also hope that aquaculture will continue to grow in the future as a result of stagnant yields from many capture fisheries and increasing demand for fish and fishery products. In contrast, aquaculture is widely recognized as encompassing a wide range of different types of aquatic farming practices, such as seaweed farming, mollusk farming, crustacean farming, fish farming, and other aquatic species. Using different resource use patterns, there is a wide range of options for diversification, such as seaweed farming, mollusk farming, crustacean farming, and fish farming. Currently, aquaculture produces nearly a third of the world's edible fish supplies, and its contribution to marine food sources will only grow. As a sustainable alternative to catch fisheries, aquaculture has the potential to feed the world's rising population. Globally, aquaculture is the fastest-growing sector of the food industry, growing at a rate of more than 10% per year and accounting for more than 30% of all fish consumed. In regards to long-term sustainability, aquaculture faces the same issues as all other food production methods.

In the same way that terrestrial farmers consider ways to improve their production processes and make them more efficient and cost-effective, aqua farmers look for ways to make their processes more efficient and cost-effective as well. Environmental issues have been brought to the public's attention more frequently than ever before. A large percentage of aquaculture's effort goes toward improving human capacity, resource utilization, and environmental management. Through the integration of aquaculture-agriculture farming systems and the use of small and medium-sized water bodies, COFI highlighted the importance of improving inland fish output.

Aquaculture systems must include these features, however, in order to be sustainable:

1. Ecological sustainability: Aquaculture should not cause severe ecological disturbance, biodiversity loss, or excessive pollution.
2. Economic viability: Sustainable aquaculture must be socially responsible and contribute to the well-being of the community.

In order for aquaculture systems to thrive in the long term, species, location, social norms, technology, and knowledge growth must all be considered. A number of certification programs have been developed to identify progress in critical sustainable aquaculture criteria. Among the environmental practices are mangrove and wetland preservation, effective effluent control and water quality control, sediment management, sludge management, soil and water conservation, the efficient use of fishmeal and fish oil, sourcing of broodstock and juvenile fish responsibly, escape control, and minimization of biodiversity and wildlife impacts. Worker safety, fair labor practices, and equitable remuneration are some examples of community activities, including the establishment of well-defined rights, aquaculture zones, and responsibilities for aquaculturists. Regulation compliance, effective enforcement, and community engagement are other examples.

It is possible to have sustainable business and farm management practices such as effective biosecurity, disease control systems, minimal antibiotic and pharmaceutical use, microbial sanitation, maintaining global hygiene standards, efficient and humane harvest and transportation, accountability for record-keeping and traceability, and profitability [1-5].

Developing and maintaining "enabling environments," especially those designed to ensure that human resources are developed and capacity is built, is crucial to promoting aquaculture growth that is sustainable. It includes concepts and rules that provide sustainable assistance to aquaculture development under the FAO Code of Conduct for Responsible Fisheries. The code recognizes the special requirements of developing countries, and Article 5 specifically addresses these needs, particularly in the areas of financial and technical aid, technology transfer, training, and scientific collaboration. For long-term aquaculture development, there are many options, including ecological aquaculture, organic aquaculture, composite fish culture, integrated aquaculture, and closed recirculation systems.

CONFLICT OF INTEREST

None.

ORCID

Not available.

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