



The Importance of Integrated Aquaculture in Rural Development

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Rural economic development has ample importance in all over sustainable development of a country. Aquaculture play important role in food and nutrition by providing fish and other marine fresh water products. Fish is an excellent source of high quality animal protein that is easily digestible. So, rural livelihood development must be prioritized to uplift the status of rural economy in large scale. Various types of Aquaculture form an important component within agricultural and farming systems development. Fish farming is such a beneficial method that may bring a drastic change in the earn ability and nutritional status of rural community. We must go for optimum level of natural resource utilization to get a balanced development with growing population. If integrated aquaculture would be combined with animal husbandry and crop cultivation, it may lead to proper natural resource utilization and enhanced livelihood. The diversified approach used in such integrated aquaculture process may take part in reducing economic risks. Though it faces several challenges at the time of ground level implementation, it must be said that it could be used as a magic stick to facilitate the developmental scenario of country nation.

Objectives of the integrated aquaculture

It aims to show that there is huge potentiality of employment generation for fisher men, farmers and their family members in the aquaculture.

Aquaculture products, their nutritional value and consumption

- Food fish contributing more than 25% of the total animal protein.
- India's annual per capita fish consumption increased to 8.89 kg in 2021 from 4.9 kg in 2005, indicating changes in dietary mix driven by higher income and rising prosperity.
- The international conference on sustainable contribution of fisheries to food security, held in Kyoto, 1955, recognized that aquatic products contribute to the maintenance of good nutrition.

Advantages of Integrated Aquaculture

(1) **Productivity:** Integrated Aquaculture provided an opportunity to increase economic yield per unit time by virtue of intensification of crop & allied enterprises.

(2) **Profitability:** Use waste material of cost. Thus, reducing of cost of production and form the linkage of utilization of waste material.

(3) **Balanced food or Nutrition requirement:** fish rich food for poor cheapest animal protein, fish enhances brain development and learning in children, protects vision, eye health and offers protection from cardiovascular diseases and some cancers.

(4) **Own enterprise:** Today aquaculture has big business in Asia, Latin America, north America and Europe. These enterprises weather in large ponds, in sea cages or in tiny back yard ponds which are hold much promise for meeting increasing food demands. In fact, with

most capture fisheries in decline, aquaculture is the best way to maintain and increase supplies of saltwater and freshwater fish.

(5) Environmental Safety and Recycling of the urban waste: In integrated aquaculture waste materials are effectively recycled by linking appropriate components. The urban waste (i.e. garbage) may be recycled and be supplied as fish feed to raise fish production and to prevent the environmental pollution in those areas. This is biological method of treating waste water before its final disposal in river.

(6) Rural employment Generation: A large number of rural employment are generated in aquaculture. The small-scale fish farming requires less capital and more labour. The women workers may easily be engaged in fish farming. Fisherman are not only directly employed in fish farming but also some other alternative occupations like net making, marketing of fish seed, fishery products and transport etc. Also the combining crop with livestock enterprises would increase the labour requirement significantly & would help in reducing the problems of under employment to a great extent integrated aquaculture provide enough scope to employ family labour round the year.

(7) Participatory approaches for improving household food security and nutrition: The Community centred approaches encourage self-reliance and self-help. Also the making a significant contribution to sustainable development at local and national levels.

(8) Utilization of the common resources: Aquaculture can also benefit the landless from utilization of common resources, such as a finfish cage culture, culture of molluscs and seaweeds and fisheries enhancement in communal water bodies.

(9) Infrastructure and other rural development: Due to supply the chain management, some rural infrastructures like connecting roads for transport of fishes, markets for selling/buying fishes, cold storages and electricity connection may be developed. The rural development may bust up purchasing power and standard of living of rural.

(10) Saving Energy: To identify an alternative source to reduce our dependence on fossil energy source within short time.

(11) Fodder crisis: Plantation of perennial legume fodder trees on field borders & also fixing the atmospheric nitrogen.

(12) Agro-industries: When one of produce linked integrated aquaculture are increased to value adoption leading to development of allied agro-industries.

(13) Future prospects: India has a vast Inland and Marine water resources potentiality. By utilizing these water resources there are huge prospects of aquaculture of fishes. Production of fishes through aquaculture may be a better to satisfy the demand of fishes as well as earning money from exporting other states and even other countries. This practice may generate huge employment to the small, marginal fisherman and fish farmers' family members.

Tips for integrated aquaculture

Some suggestions could be followed to facilitate the application of integrated aquaculture for enhancement of rural economy as follows:

- Fish farming should be combined with agricultural production activities along with poultry and animal rearing in large scale to reduce the seasonal income fluctuations in rural areas.
- Fish waste could be used in promotion of organic farm productivities.
- More market research must be done to analyse the future viability of specific project
- Timely process monitoring and evaluation is highly needed to enhance the quality production
- More skill training and awareness programs should be organized

Conclusion

Integrated Aquaculture is a very effective way of farming as it relies on the concept of fall utilization of waters. Integrated Aquaculture is a short duration of crop assuring quick return on investment. Integrated Aquaculture provides various types of food items that implore the nutrition value for farming. Due to which it lusts the efficiency to improve farm productivity. Integrated Aquaculture can generate balanced food ensuring environmental safety and food-security while saving energy. If precautions can be implemented for overcoming disease, environmental issues and other challenges, Integrated Aquaculture can be very productive model of farming. Undoubtedly, Integrated Aquaculture gives opportunity of income rounds that can improve socio-economic situation of rural areas by generating more employment, lump sum income of villagers and this can contribute in the execution of sound environmental management

References

1. Hand book of Fishery Statistics, 2020, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Govt. of India.
2. Fishery Resources Survey, Assessment, and Research Program, 2015-16, Ministry of Agriculture, Govt. of India.
3. The Times of Benefit, "Pandemic spikes business, price of fish in Bengal" Feb 1, 2022, 17:37 IST.