

Definition, potentials, scopes, problems and risks of aquaculture in Bangladesh

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Definitions

- Any human means to improve growth of a given organism in a given area
- Any means to improve fish production than that of the production naturally found.
- Man's attempt through inputs of labor and energy to improve the yield of useful aquatic organisms by deliberate manipulation of their rates of growth, mortality and reproduction (Reay, 1979).
- Aquaculture is the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants. Farming implies some form of intervention in the rearing process to enhance production such as regular stocking, feeding, protection from predators etc. Farming also implies individual or corporate ownership of the stock being cultivated (FAO, 1988).
- Aquaculture is the water farming activities where some sorts of controls (mostly based on environmental principles) are exercised over the organisms and environment with a view to earn profit (Grover *et al.*, 2000).

Potentials

- **Food security** (Important food item -rice and fish as a culture; cheap source of animal protein-60%; hidden hunger, >55% of the total fish production; annual per capita fish intake of 23.00 kg against the requirement of 21.90 kg) (DoF, 2022)
- **Nutrition security** (source of multi nutrients; macro and micro nutrients; protein to building block; minerals and vitamins to disease prevention; omega 3 fatty acid to keep the health/heart good condition, malnutrition; under nutrition; child, lactating women and poor/extreme poor people)
- **Employment generation/livelihood development** (involvement of >12% people; producers, hatchery/nursery operators, fishers, GO-NGO officers/staff; public-private sectors)
- **Enterprise development** (series of actors; input traders-seed, feed, fertilizer, chemical, medicine; producers, processors, market players)
- **Utilization of the resources** (ponds, ditches, tanks, canals, rivers, floodplain, rice land etc.)
- **National income** (GDP- 3.57%; one-fourth of agricultural GDP, comparable Aquaculture GDP with other countries)
- **Export earning** (fish, prawn, crab, frozen/processed food; 1.23% of the total export earning)

Scope

- Use of water resources (ponds, ditches, tanks, canals, floodplain, rice field, river, *beel*, haor baor, sea);
- Involvement of available farmers/fishers;
- Involvement of unemployed youth available;
- Development of enterprises

Problems

- **Lack of quality seed** (inbreeding)
- **Lack of low cost quality feed** (40-70% of the total cost, inappropriate protein level)
- **Lack of inducing agents** (PG, HCG, RHA, LH)
- **Water quality going bad** (low water depth, pH fluctuation, insufficient DO, high turbidity, harmful gas production)
- **Lack of region specific aquaculture** (variation in soil-water quality in different agro-ecological zones; recommendation of same package?)
- **Social problem** (multiple ownership; short term/poor owner-operator agreement for multiple/leased waterbody; poaching, poisoning; no easy access by the poor/extreme poor to waterbody specially to the public ponds/canals)
- **Economic problem** (credit/capital)

Risks

- Unavailability of **inputs** in time
- Unavailability of **labour**
- **Price fall** of harvested fishes
- Natural **calamities** (drought, flood)
- Occurrence of **diseases/parasites**