

# FISHING REDEFINED



**INDIA** covers 2.4 per cent of the global land area and supports 16 per cent of the world's population. It is, therefore, important to increase food production to keep pace with the increasing population. Aquaculture is the fastest growing sector of the world food economy according to World Watch Institute, Washington. World aquaculture output is growing at 11 per cent per annum over the past decade and fish farming is expected to overtake cattle rearing as a food source in the near future.

## Aquaculture production

It is observed that fish production from aquaculture rose from about a million tonnes in 1990 to about two million tonnes in 1999,

AQUACULTURE PRODUCTION IN INDIA		
Year	Quantity (mt)	Value (US \$ x 1
1990	1,012	1,600
1991	1,220	1,577
1992	1,388	1,597
1993	1,426	1,791
1994	1,527	2,078
1995	1,686	2,171
1996	1,783	2,059
1997	1,862	2,141
1998	2,029	2,223
1999	2,036	2,335

Source: FAO, 2001

Aquaculture is the fastest growing sector of the world food economy and is likely to overtake cattle rearing in the near future

showing an increase of about 100 per cent during the decade. India now ranks second in the world in aquaculture production.

Fish and shellfish production through aquaculture has shown a steady increase and is growing faster than the increase in capture fisheries in the recent past. Finfish produced from aquaculture mainly feeds the internal domestic market. Shrimp production in India from culture systems during 1999 was around 1,14,000 tonnes, whereas from capture fisheries was around 172,000 tonnes. Total world production from aquaculture has touched 33.3 million tonnes, which is six million tonnes higher than the 1996 figure, recording an increase of two million tonnes every year.

The top 10 countries in aquaculture production are China, India, Japan, Indonesia, Bangladesh, Thailand, Vietnam, the United States, Norway and Philippines, China contributed about 68 per cent to total world aquaculture production, ranking first in the world, followed by India (6 per cent).

The important groups of fish cultured in the world are oysters, silver carp, grass carp, common carp and Japanese carpet shell. Oysters contributed 11.8 per cent to total aquaculture production followed by silver carp (10.1 per cent) and grass carp (9.5 per cent). Other aquatic organisms like turtles, sea squid, frogs and other miscellaneous invertebrates also contribute towards the production of aquaculture species.

In order to meet the minimum recommended requirement of 11 kilograms of fish per head per annum spelt out by the World Health Organisation, India needs to produce about 10 million tonnes of fish by 2020, assuming that the country's population will be 1,300 million of which 70 per cent will be fish consumers. There is very little hope of achieving this from capture fisheries. Aquaculture will play a major role in meeting the protein demand of the world's growing population.

## Marketing trends

Fish is a perishable commodity.



Variations in price from market to market cause problems in fish marketing in a consistent and sustained manner. The places of production and the consuming centres are not well connected. This causes marketing stress in terms of processing, transportation and storage. Fish harvesting from large water bodies is also not predictable on a per fishing

effort basis. This further increases the uncertainty. Fishermen, who are mostly illiterate, poor and unorganised, fail to strengthen the forward linkages and as a result, traders, commission agents and other middlemen take away a major share of the profit earned from selling the fish to consumers.

Marketing centres are also not suitable equipped to sustain the quality of fish for a longer period. To the consumer, the market price of fish from culture and capture are the same, except for some pockets. Therefore, high market price for some species like shrimp has encouraged at the expense of other species. For other types of fish the demand is far beyond the supply capacity of capture fisheries and that is causing the high growth rate of aquaculture.

Taste is another factor. Some regions have a specific liking for certain species. In the local market, it is the traders and commission agents who contact fish-farmers for the produce. The demand and price of fish are continuously increasing in the domestic and export markets. Availability of fresh fish has now improved considerably due to improvements in handling technology coupled with better transportation and market penetration.

However, the infrastructure for fish marketing in India is basically oriented towards the export market. At the national level, the fishermen's share in the consumer's rupee ranges from 30 to 68 per cent for different species or groups of marine fish. The marketing cost, including transportation, ranges from 6 to 15 per cent of the consumer's rupee. Wholesalers receive 5 to 32 per cent, while retailers get 14 to 47 per cent, depending upon the variety of marine fish.

At present, about 50 per cent of marine

#### PRODUCTION FROM AQUACULTURE BY SPECIES IN INDIA IN 1999

Names of the species	Production (mt)
Cherry shrimp ( <i>Caridina</i> spp.)	22,000
Mrigal ( <i>Channa mrigala</i> )	517,000
Snakehead ( <i>Channa argus</i> )	35,000
Yellow catfish ( <i>Pangasius</i> spp.)	65,271
Murres ( <i>Channa</i> spp.)	20,449
Black tiger prawn ( <i>Penaeus monodon</i> )	14,370
Edible oyster ( <i>Crassostrea madrasensis</i> )	14
Black clam ( <i>Mytilus</i> spp.)	680

Source : FAO, 2001

fish is consumed fresh in and around producing centres, 43 per cent in demand centres located up to a distance of 200 kilometres from the coast, and only 7 per cent at centres located beyond 200 kilometres.

### Quality Standards

Quality standards have been recently fixed in the international market. Hazard Analysis Critical Control Points (HACCP) have been fixed for different products. However, checking the HACCP system is a difficult task, as one cannot quantify to what extent such measures will reduce the risk associated with the hazards in a given time for a given plant at a given place, because there is a much variation in the methods of analysing a sample. Therefore, it is not possible, for the time being, to audit the effectiveness of a given HACCP-based system on quantitative basis.

The breeding and trading potential of ornamental fish, especially in West Bengal, has tremendous prospects. Global trade in ornamental fish is worth over US \$5 billion and its annual growth rate is more than 6 per cent. India's share in the global trade is only 0.007 per cent, although there is a potential to increase it to 0.1 per cent in the next five years and exports to Rs 3 million from Rs 0.16 million.

West Bengal's share in the national trade is around 90 per cent, but most of it is wild catch. Therefore, the adoption of scientific culture is necessary. Here, the National Bank for Agricultural and Rural Development (NABARD), Marine Product Export Development Authority (MPEDA) and training institutes need make joint hands efforts.

### Challenges ahead

The major challenge for aquaculture is the availability of water. Agriculture alone consumes 70 per cent of fresh water and its consumption will increase by 25 per cent to 100 per cent by 2025.

To improve the supply side further, man-made water bodies like reservoirs, tanks, drainage canals, irrigation canals, village tanks and waste water treatment plants need to be used for aquaculture on a target basis. Salt-water irrigation systems should also be developed to promote an eco-friendly coastal aquaculture. The allotment of water bodies in coastal areas for sea farming needs to be studied for a similar purpose.

Aquaculture is often blamed by environmental groups for environmental problems. There is a need to develop sustainable aquaculture and responsible trade. Environmental impact assessment studies should be intensified to find out the impact of aquaculture on the environment so that production is not restricted by environmental regulations imposed by law enforcing agencies. Demand-supply estimation requires to be carried out in the fisheries sector since such studies would help in developing a marketing strategy for the produce.

To maintain quality, infrastructure facilities need to be established from the beginning for quality seed, suitable feed, water oxygenation devices, water monitoring equipment, prophylaxis measures, craft, gear, packaging material, icing material, processing methods, transportation and cold chain systems and retailing.

To promote linkages between all kinds of agencies that produce and provide services for these items, different types of exhibitions, shows, seminars and conferences should be organised to compare prices, find greater market opportunities, gather information and provide training needed to promote the product, understand the latest trends in the business, locate new sources of supply and to develop lasting business relationships.

Remunerative prices for the producer and a reasonable price for the consumer can be assured only by strengthening the fish marketing structure. Well-organised fish marketing systems along scientific and modern lines will generate high growth in fisheries. Cooperatives can play a vital role in developing efficient systems, especially in the inland sector. A sound marketing system requires infrastructure development in terms of ice plants, storage and improved transportation systems.

Efforts are also required for regulating

### TOP 10 COUNTRIES OF THE WORLD IN AQUACULTURE PRODUCTION IN 1999

Country	Value (US \$ '000)
China	22,631,659
India	2,315,197
Japan	3,365,365
Indonesia	1,891,012
Bangladesh	1,114,129
Thailand	1,706,312
Vietnam	1,396,065
USA	839,456
Norway	1,314,668
Philippines	530,384
World Total	33,310,349
	47,874,991

Source : FAO, 2001

market intermediaries and managing transit and terminal markets. It is also essential that the government provide adequate financial support to develop market infrastructure. The marketing systems need to be organised and have cleanliness, better storage, protection against unfair trading, credit assurance at cheaper interest rates and better marketing intelligence, both at the whole sale and retail levels so that the producer's share in the price increases.

There is also enormous scope for improving the distribution process by encouraging private investments in the preservation, processing and transportation sectors of the internal marketing system. There is also vast potential for marketing hygienically processed and packed dried fish in the hinterlands and canned fish in cities and defense establishments.

The impact of international trade on Indian exports and imports needs to be studied in view of the forthcoming WTO regime. Documentation and evaluation of various WTO and environmental legislations related to fish and fish products may be undertaken. The impact of WTO legislation, particularly

on Trade Related Intellectual Property Rights (TRIPS) on exploitation and conservation of fish stocks, needs to be assessed. Studies should be undertaken regarding quality requirements in processing units in view of sanitary and phytosanitary measures.

India can boast of skilled and cheaper labour and can move towards producing cooked ready-to-consume products in convenient packs. These would command a higher value than raw shrimp and fish.

There is an urgent need to modernise processing and infrastructure facilities to meet international quality standards. Further diversification of markets and products supported by market promotion strategies needs to be pursued vigorously. Domestic and international marketing efforts should be increased by incorporating modern processing technology, acquiring knowledge about new potential buyers, development of other fish products and proper packaging methods.

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