Chapter 4

Aquaculture Industry

Outlook

Fish has been an important source of food for centuries. Traditionally, capture fishery was the prime source of fish. However, in recent times there has been an emphasis on farmed fish for human food. The process of growing fish under controlled conditions is called aquaculture.

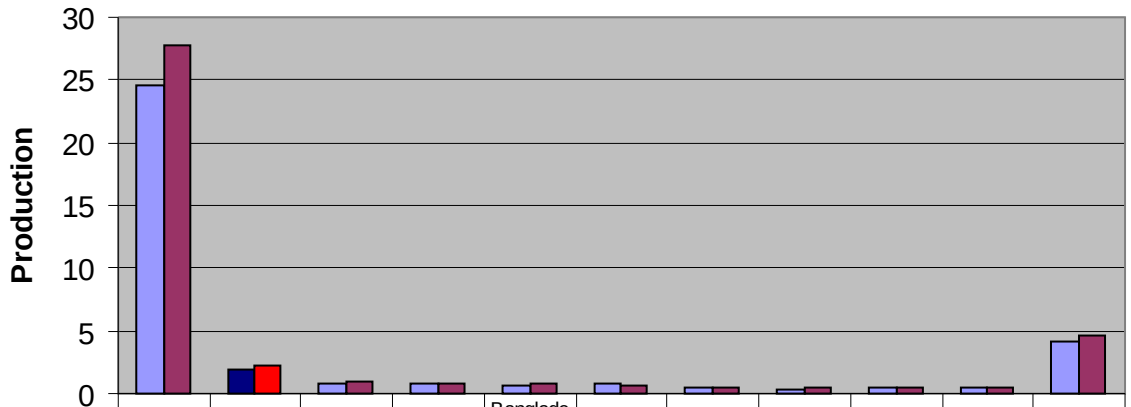
China is the leading fish producer in the world with 44.32 MMT in 2002 (16.60 MMT from capture and 27.70 MMT from aquaculture) providing an estimated domestic food supply of 27.7 kg per capita, besides as production for export and non-food purposes. This is followed by Peru with 8.77 MMT and India with 5.96 MMT.

Aquaculture world wide has shown an average growth rate of 8.9 % per year since 1970, compared to 1.2% for capture fisheries and 2.8% for terrestrial farmed meat-production systems over the sample period (FAO, 2004).

The world average per capita supply from aquaculture has increased from 0.7 kg in 1970 to 6.4 kg in 2002, representing an average compound annual growth rate of 7.2%, based largely on China's reported growth. Aquaculture production in developing countries is growing at an average compound annual growth rate of 10.4% since 1970 in contrast to growth at 4% for developed countries.

Indian aquaculture produce was 2.19 MMT (4.3% of world production) in 2002 and the present production stands at 2.4 MMT. China, the world's leading producer achieved a production of 32.44 MMT (71.2% of world aquaculture production) in 2000, registering an increase of 25 times over the 1970 production.

Figure 4.1 **Top Ten Aquaculture Producers (MMT)**



	China	India	Indonesia	Japan	Bangladesh	Thailand	Norway	Chile	Vietnam	US	Others
Year 2000	24.58	1.94	0.79	0.76	0.66	0.74	0.49	0.39	0.51	0.5	4.18
Year 2002	27.77	2.19	0.92	0.83	0.79	0.65	0.55	0.55	0.52	0.5	4.55

Source: FAO 2004

Aquaculture in India

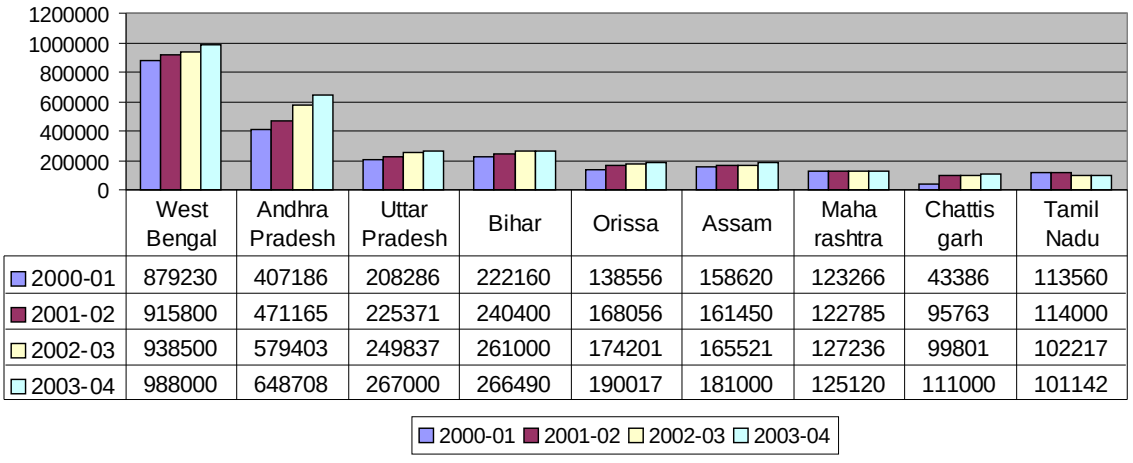
Aquaculture in India consists of fresh water fish farming, fresh water prawn (Scampi) farming and brackish water shrimp farming.

Fresh water fish farming contributed 3.42 MMT of fish while marine fisheries contributed 2.96 MMT in 2003-04. The per capita fish availability is 9 kg which contributes 1.5% to the total GDP and around 5% to the GDP from the agriculture sector.

The major categories of fresh water fish farmed in India are, Rohu -35% Catla - 30% and Mrigal - 11%. Grass Carp, Silver Carp, Minor Carps, Common Carp, Climbing Perch and Indian Magur constitute the rest of the production.

India is the second largest Scampi producer in the world with an annual production of 30,450 MT in 2002-03. Of this, Andhra Pradesh produces 27,020 MT about 88.6% of the total production. With a 8,118 km coastline and abundant labour, India has the potential to vastly increase production to meet the needs of domestic and overseas markets.

Figure 4.2 **Inland Fish Production (in MT)**



	West Bengal	Andhra Pradesh	Uttar Pradesh	Bihar	Orissa	Assam	Maha rashtra	Chattis garh	Tamil Nadu
2000-01	879230	407186	208286	222160	138556	158620	123266	43386	113560
2001-02	915800	471165	225371	240400	168056	161450	122785	95763	114000
2002-03	938500	579403	249837	261000	174201	165521	127236	99801	102217
2003-04	988000	648708	267000	266490	190017	181000	125120	111000	101142

Source: Dept. of Fisheries

Growth Drivers

Low Cost

Farmed fish is still the poor man's food in the country. A vast coastal population coupled with a strong regional preference for farmed fish makes fish the most popular animal protein consumed. Farmed fish retails between Rs. 30/- to Rs. 50/- per kg in different parts of the country. The optimum unit size is 500 gms which makes it comfortably priced for the lower income segments. This has lead to its growing popularity in the southern and eastern belts.

Low Input Cost

Traditional methods of fish farming use manure and farm waste for growing plankton in ponds. Fish grow on this plankton and farmers obtain a nutritious product with extremely low input costs. Recently pellet feeds have been launched and a newly developed extruded floating fish feed is under commercial trial.

Export Potential

The demand for freshwater prawn in the overseas market has led to the development of a robust industry in Andhra Pradesh. Other species of frozen fish are also exported, earning a total of Rs. 60,000 million in foreign exchange for the country in 2003-04.

Low Labour Cost

The low cost of Indian labour has contributed to the profitability of fish farming in India. The largest fish grower China also shares this advantage. Other inputs like land and water are also easily available and this makes fish farming more profitable than perhaps traditional agriculture.

Growth Inhibitors

Traditional Methods

Both marine capture fishery and inland fish farming in India still use traditional methods unlike in the developed world. Lack of equipment for fishing, processing, storage and transportation have inhibited the growth of fisheries. More than 50% of the Chinese inland fishing industry uses compound feed. In India the concept is still new and is yet to be adopted.

Distribution Network

Fish producers rely on middlemen to sell and transport their produce to the consumption centres. Being a highly perishable item, fish needs to be transported on ice. Fish requires an equal proportion of ice for transport. This makes cost of transportation expensive and inflates retail prices.

Unorganised Production

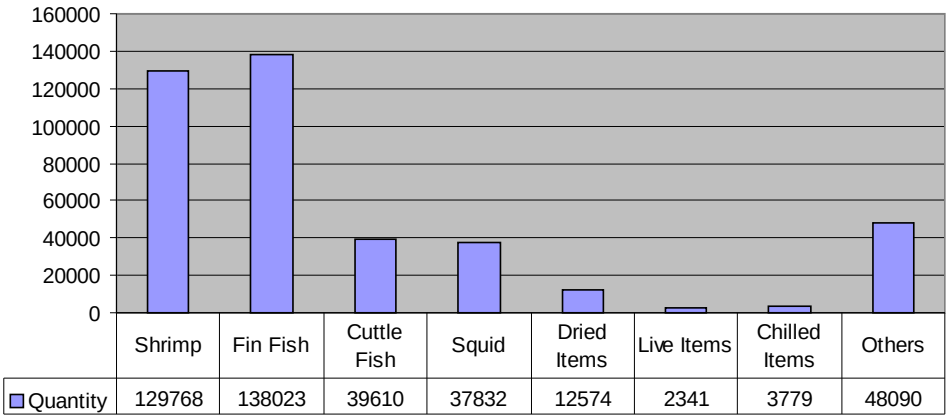
With the exception of Scampi and shrimp exporters, most fish producers are rural entrepreneurs who farm fish as an additional source of income. Since it is not their main line of business, they are reluctant to invest and even to try out more efficient inputs like high protein compound feed which can give an FCR of 1.5 against an FCR of 4 offered by traditional feeding methods.

Export Potential

India exported Rs. 60,919.5 million worth of marine products in 2003-04. Though this was lower than the Rs. 68,813.1 million exported in 2002-03, it was a substantial foreign exchange earner for the country.

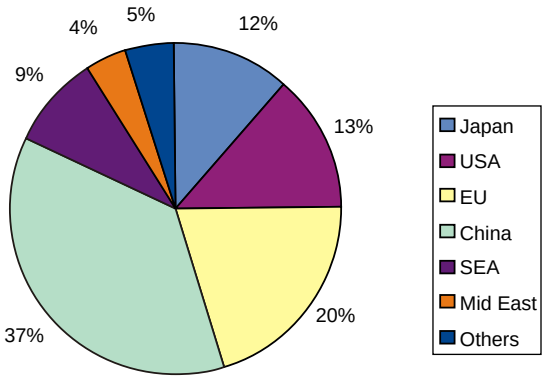
The exports consisted of 7813 MT of cultured seafood valued at Rs. 3,347.88 and 333304 MT of captured seafood valued at Rs. 27,440.7 million. Factors like the anti-dumping duty on shrimp levied by the US, antibiotic residues in samples and rejections by Japanese buyers, resulted in a decline in export levels.

Figure 4.3 **Exports in 2003-04 By Weight (MT)**



Source: MPEDA

Figure 4.4 **Countrywise Exports Of Marine Products From India , 2002-03**
(Quantity %) Source:MPEDA



Source: MPEDA