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## **MARINE FISHERIES, AQUACULTURE AND SEAFOOD MARKETING - SOME ISSUES FOR NATIONAL FISHERIES POLICY FORMULATION**

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World fisheries production has been hovering around 95 million tonnes in the 90's. Aquaculture production and effective exploitation by developing countries of their marine stocks located in their Exclusive Economic Zones have contributed to bolstering total fish production of the world. Sustained exploitation of the seas by the developed nations have led to a situation wherein the stock levels are near or below estimated maximum yields necessitating imposition of increasingly strict quota regulations (Slyvia Gilbert, 1993).

Apprehensions of marine fish production bottoming out becoming more and more of a reality, the role of aquaculture in bridging the gap between demand for and supply of fish in the world market becomes pivotal. The world demand for fish at the turn of the century has been estimated at 120 million tonnes against a estimated supply of 90 million tonnes of which aquaculture is expected to contribute 15 - 20 million tonnes (The Economic Times, May 21, 1994).

In India, fish production has increased from 0.75 million tonnes in 1950 -51 to 4.68 million tonnes during 1993-94. The average annual rate of growth in fish production during the period 1984-85 to 1993-94 was 6 percent. The growth rates in marine and inland fisheries had been 5.5 percent and 6.8 percent per annum during this period. Fish production for 1994-95 has been targeted at 4.75 million tonnes of which, 2.73 million tonnes and 2.02 million tonnes are expected to be forthcoming from marine and inland waters respectively (CSO estimates in Economic Survey, 1995).

Aquaculture, in addition to fish production in inland water bodies has assumed an important role in enhancing fish production in general

and shrimp in particular. Shrimp aquaculture in brackishwater has reached significant proportions contributing 25 percent of overall production of this species. Its' role in increased export earnings for the country is well documented. Area under shrimp farming in the country has increased by leaps and bounds. According to official figures, more than 1,00,000 hectares is under brackishwater aquaculture producing more than 80,000 tonnes of shrimp in 1994 - 95.

This situation has had its impact on international trade in seafood. Establishment of Exclusive Economic Zones, hi-tech craft and gear technology and significant improvements in food engineering have increased market opportunities on the one hand while increasing competitive industry pressures.

In the context of economic liberalisation, the discovery and development of national and international market opportunities provides a compelling challenge for the seafood industry of India. It also implies an additional element to the already difficult policy problems that the fisheries managers have to resolve, especially in the light of the fact that a national fisheries policy is yet to be crystallised.

## **Objectives**

Fisheries policies normally evolves in response to production, conservation and allocation issues. Market related concerns seldom receive any attention in such exercises. This paper attempts to

1. examine the trends in growth, product composition and geographical concentration of Indian seafood exports and
2. crystallise relevant policy issues to revitalise Indian seafood trade in the international markets.

Management strategy taken without considering the market issues can result in policy solutions which tend to reduce potential benefits regardless of how these benefits are measured. Fishery regulations involving seasonal and temporal distribution of fishing efforts ( the ban on trawling in in-shore waters during the fish breeding season along the Kerala coast is a typical example), craft and gear, stock size and

composition and post harvest activities like processing and distribution, may directly have its impact on marketing activities, market development and output prices at every level of the production and distribution process. Regulations also affect supplies, output prices and market development which in turn affects income, employment and consumer satisfaction. Thus any management strategy taken without assessing its impact on market factors will alter the expected impacts of regulatory decisions.

This paper will first focus attention on the trends in growth, product composition and geographical distribution of Indian seafood and will then examine the policy issues being evolved and implemented by the government for enabling better production and marketing of seafood.

The growth of seafood exports from India during the last five years is given in Table 1. The performance of seafood exports in the year, 1994-95, has more than lived up to its expectations. Unpublished figures of the Marine Products Exports Development Authority estimate the total quantity exported at 2,73,243 tonnes valued at Rs.3272.69 crores<sup>1</sup>. Therefore the thrust of the Government of India in export promotion of seafood has paid dividends. The annual growth rates are distinct for the post reforms period both in quantity as well as in value terms (Table 2). In the period 1991-94, the 13.28 percent compounded growth in quantity is not backed by growth in unit values realised, underlining the fact that high volume- low value products may have formed a significant portion of the quantities exported.

A product mix is the set of all product lines and items that a particular seller offers for sale to buyers and a product line is a group of products that are closely related because they function in a similar manner, sold to the same customer groups marketed through the same

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<sup>1</sup> This, despite the embargo on Indian seafood following the Gujarat 'plague'. Unfortunately, the current viral attack on aquacultured shrimp does not augur well for enhanced production and marketing in 1995 - 96 (CMIE, Monthly Review, July 1995).

**Table 1 : Growth of Seafood exports from India**

Q: quantity in tons / V: value in Rs.Crores \$: Million US \$

Year	Export	Export growth (Rs/Kg)	Export growth (US \$/Kg)	Unit Value
1988-89	Q: 99777	2598	2.67 %	
	V: 597.85	66.65	12.55 %	59.92
	\$: 412.88	3.32	0.81 %	4.14
1989-90	Q: 110843	11066	11.09 %	
	V: 634.99	37.14	6.21 %	57.29
	\$: 381.38	31.50	7.63 %	3.44
1990-91	Q: 139419	28576	25.78 %	
	V: 893.37	258.38	40.69 %	64.08
	\$: 497.90	116.52	30.55 %	3.57
1991-92	Q: 171820	32401	23.24 %	
	V: 1375.89	482.52	54.01 %	80.08
	\$: 558.13	60.23	12.10 %	3.25
1992-93	Q: 208602	36782	21.41 %	
	V: 1767.43	391.54	28.46 %	84.73
	\$: 615.06	56.93	10.20 %	2.95

Data source : Marine Products Exports Review 1992 -93

types of outlet, or fall within given price ranges (Kotler, 1989). The composition of Indian seafood exports show predominant dependence on frozen shrimps as their flagship product. The product mix is thus severely short on width, length, depth and consistency (Table 3). Export led growth objective seek identification of concrete export marketing strategies formulated by the government. Despite general trade expansion, efforts to sell seafood products abroad have repeatedly been hampered by export marketing inexperience, under - financing, processing constraints and product distribution bottlenecks (Samples,

**Table 2 : Trends in Seafood Exports 1988 - 1994**

Year	Quantity in tonnes		Value in Rs. Crores.			
	Quantity	Value	Unit (Rs./Tonne)	Unit Annual growth		
				Index	rate	percentage
			Value	Qty	Value	
1988-89	99777	587.85	59918.62	100	-	-
1989-90	110243	634.99	57599.12	96.12	10.49	8.02
1990-91	139419	893.37	64078.07	106.94	26.47	40.69
1991-92	171820	1375.89	80077.41	133.64	23.24	54.01
1992-93	208602	1767.43	84727.38	141.40	21.41	28.45
1993-94(T)	225500	2105.00	93348.12	155.79	8.10	19.09

Data source : Hand Book, 1993.

**Table 3 : Product mix of seafood exports from India**

Item	Quantity (%)		Value (%)		Unit Value Realisation (Rs/kg FOB)	
	1986	1993	1986	1993	1986	1993
Frozen Shrimp	58.41	35.66	82.12	66.78	72.78	158.65
Fresh/Fr. Fish	13.54	36.13	4.24	12.15	16.23	30.84
Fr. Squid	--	14.56	--	7.59	--	50.03
Fr. Cuttle fish	5.83	9.10	2.99	5.73	26.65	62.63
Fr. Lobsters	1.35	0.77	2.81	2.45	107.70	260.69
Dried items	7.17	2.03	1.55	1.02	11.25	42.57
Live items	--	0.23	--	3.20	--	60.90
Others	13.98	1.47	6.30	1.08	21.04	62.21

Data source: MPEDA 1986 & 1992-93.

1984). Existing infrastructural facilities for promoting seafood exports are inadequate. There are only 308 freezing plants with an installed capacity of 4000 tonnes per day, 23 canning factories, 133 ice making plants, 18 fish meal manufacturing units, 380 cold storage units and 880 peeling sheds which cater to the needs of the seafood export industry (Hand Book, 1993).

Unbalanced growth strategies via shortage of social overhead capital is expected to generate backward linkages for enabling sustained development. This may be true in the long run. But delivering a suitable product to foreign customers at the right time, in the correct order quantity and a competitive price can be a formidable task, especially for the uninitiated. At a minimum, a well conceived export marketing plan is called for. Indian seafood is often at the butt of criticism for poor quality standards - some true, others with suspect motives. The acceptance of the GATT regulations makes Indian seafood liable to strictly follow ISO 9000 standards. Product diversification into breaded, battered, marinated, flavour glazed shrimp, prepared meals based on shrimp and shrimp in sauce are value added products within the individually quick frozen shrimp market segment that has to be harnessed quickly. Joint venture processing (such as that of Thailand and Japan) on this product line ought to be set up quickly (Infofish, 1992).

Japan, Europe ( the European Community ) and North America account for over 75 percent of global fisheries trade. The United States is the world's largest seafood exporter (US \$ 3020 million) and the second largest fish importer ( US \$ 6024 million - second to Japan's US \$ 12832 million) (CMIE, 1994).

Japan and USA constitute the major markets for Indian frozen shrimps. In 1992-93 Japan imported 34,600 tons of Indian frozen shrimps which is 46.51 percent of the total quantity of this marine product exported by India. For the same year USA imported 20,757 tons which formed 27.90 per cent of total Indian frozen shrimps exported (Krishnan and Sharma, 1994 b). Table 4 gives the cross sectional year wise share percentage of the total market for frozen shrimps in Japan and USA. India enjoyed more than 15 percent of the share of Japanese market for frozen shrimps in year 1982 and 1986 and but slipped to the medium bracket retaining only 13.41 percent of the market share in 1992. Indonesia with 22.14 percent and Thailand with 19.18 percent are the market leaders for frozen shrimps imported by Japan.

India has been consistently in the semi-medium bracket of 5 - 10 per cent share of the total quantity of frozen shrimps imported by in the

**Table 4 : Changing Market Share of Shrimp Exporting Countries in the Shrimp Imports of Japan and USA (1982-1992)**  
(Percentage Qty basis)

Japan			Import Penetration <----->	USA		
1982	1986	1992		1982	1986	1992
Malaysia Mexico Hkong Pstan USSR Sabah China	Malaysia Mexico Hkong Pstan USSR Thailand Australia	Australia Taiwan Denmark	Low ( $< 5\%$ )	Guyana Eldor Pstan	Vzuela Guyana Eldor Pstan Japan	Philippines Panama Honduras
Thailand Taiwan Australia	China	Philippines Vietnam Greenland	Semi-Medium (5-10%)	India Panama	India Panama Indonesia	India (6.3%) Mexico
--	Indonesia	China India (13.41%)	Medium (10-15%)	Edor		
India Indonesia	India Taiwan	Indonesia Thailand	High (15% & above)	Mexico	Mexico Edor	Edor Thailand China

Hkong = Hong Kong

Eldor = Elsalvador

Vzuela = Venezuela

Pstan = Pakistan

Edor = Ecuador

Data source: MPEDA 1986 & 1992-93.

USA. In 1992, Indian share amounted to only 6.3 per cent of total imports of frozen shrimps of the USA. ie. of 2,19,888 tons of frozen shrimps imported by USA, India managed to export only 13,852 tons to that country. Ecuador (24.88 percent) Thailand (24.49 percent) and China (22.48 percent) have captured between them almost 75 percent of the total imports of frozen shrimps by the USA. The quality control regulations of the European Community (EC) and the United States Food and Drug Administration (USFDA) are most stringent. The need to conform to ISO 9000 standards in the aftermath of the acceptance of GATT regulations cannot be overemphasised.

The potentiality of the fisheries sector is well documented (Krishnan and Sharma, 1994 b). India has the potentiality of producing 7 million tonnes of fish at the current rate of production in the year 2000. Shrimp aquaculture has the potential to produce 2 lakh tonnes from 1 lakh hectares as against the present production of 80,000 tonnes from 1,00,000 hectares. According to the estimates of the Marine



Products Export Development Authority, seafood exports could fetch as much as US \$ 4500 million per year for the country.

The fact remains that the seafood exports sector is yet to realise its full potential despite the trade liberalisation policies of the Government. The current trends in exports, changing market environment and impediments in enabling change are given in Table 5. Product and market diversification and imaginative marketing strategies are the cornerstones for achieving the full potentiality of Indian seafood.

Table 5 : Current trends, market environment and impediments to trade - Issues in seafood export marketing

Current trends in Indian seafood Exports	International trends in seafood marketing	Impediments to effective and speedy adjustments to market demand
<u>Product Mix</u> Concentration on frozen shrimps both IQF and block frozen - high value items like lobsters not fully exploited	- Value added shrimps Breaded, battered, marinated, flavour glazed , prepared meals based on shrimp, shrimp in sauce.	Lack of indigenous technology. Exorbitant cost of setting up IQF plants. Non-availability of processing technologists. Lack of market information.
<u>Processing Technology</u> Underdeveloped processing industry technologies	- Joint venture processing for quality enhancement, maximising yield and use of abundant skilled Asian labour.	Indian shrimp processing is technology shy. Potential of joint venture processing not fully recognised. Need for pro-active shrimp processors.
<u>Access to markets</u> Access to markets is not diverse	Manufacturing under license or contract to seafood marketing companies, importers, distributors, restaurant and supermarket chains	Individual marketing efforts. Lack of brand or image identity. Cost ineffective. Seafood Exporters Association and MPEDA perform under constraints.
<u>Quality perception</u> Lack of sufficient focus on hygiene and quality	GATT and ISO 9000 standard are benchmarks for quality system.	ISO 9000 accreditation very difficult. Infrastructural requirements for ISO 9000 standards plants elaborate and expensive.
<u>Packaging technology</u> Only block frozen and IQF technology established.	Differentiated products, standard ingredient technology, mechanised operations.	Lack of information on niche productmarkets, concentration on labour intensive processing/ packaging technologies

Source: Several issues of Fisheries World, Aqua International, Fishing Chimes, Infofish and NAGA.

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