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INLAND FISHERIES

Off beat attempts needed

In the case of freshwater aquaculture the Freshwater Fish Farmers Development Agency (FFDA) did a yeoman's job in promoting appropriate production technologies in tandem with research institutions, which has led to unprecedented growth in freshwater fish production according to **Dr. S. Ayyappan**, Deputy Director General (Fisheries), Indian Council of Agricultural Research, New Delhi and **Dr. M. Krishnan**, Principal Scientist & Head, Technology Transfer, Evaluation and Informatics Division, Central Institute of Brackishwater Aquaculture, Chennai.

FISH AND fisheries have gained considerable importance both as a source of nutrition and as a source of steady and growing income at the individual, State and national level. Shrimp and freshwater aquaculture have made considerable difference to livelihood options, employment and income for stakeholders both at the production as well as peripheral occupations.

Ice making, feed manufacturing, hatchery seed production, seafood processing, transportation and technology are other segments of trade that have a huge bearing on the marketing costs structure and pricing.

The advent of commercial shrimp aquaculture has made more shrimp available to the processing sector enabling it to make better use of plant capacity and also to diversify into value added products.

The availability of the market and the production of processed seafood do not by themselves guarantee a regular mar-

ket and growing income. With WTO regimes in place and the HACCP compliance mandatory, Indian seafood has to now contend with non-tariff barriers of both transparent and not so transparent nature. The tsunami has created another dimension to fish marketing.

Production sustainability

Indian aquaculture needs to be addressed not only from the angle of production sustainability but also marketing sustainability. Shrimp aquaculture has a relatively assured market. The shrimp production system has now reached location specific sustainable levels of production. This sector faces the problems of international price fluctuations, size of inventory in shrimp importing countries and seasonal variations in demand.

In the case of freshwater aquaculture, though the produc-

Photo: K.K. Mustafa



Women workers cleaning shrimps at a peeling shed near Kollam in Kerala

tion technology is well entrenched, marketing is a major issue that has to be resolved. Catering largely to the domestic market, the freshwater fish availability has increased over time tremendously. But props to the producers in terms of an assured market at an acceptable price will reduce the degree of price and output risk and uncertainty.

Aquaculture in India is practically synonymous with shrimp. The scope and prospects of other species for the market are being examined. Shrimp aquaculture has traversed the classical production function in all its segments. In the early 90s the gains in output and income rose more than in proportion to unit investment.

The mid 90s saw a dramatic fall in output in relation to area under culture and the final years of the previous century saw the sector reach the natural optimum. Several studies have well proved the sustainability of low intensity shrimp aquaculture. The corporate sector has not only learnt to operate at optimal levels of production but also involve the local population in production, transportation and marketing.

Typically a low input-high returns enterprise, shrimp farming in India extends to 154,600 hectares producing 112,780 tonnes at the rate of 730 Kgs a hectare in 2003-04. 90 per cent of the shrimp farmers farm less than 2 hectares. 6 percent belong to the medium category each farming 2-5 hectares and only the rest are large farms.

Best option

Shrimp farming is therefore one of the sectors practicing socially acceptable and economically viable distribution of income and wealth. Satellite farming and contract farming are very much in line with not only social justice but also with the requirements of a healthy market led economy. Arguments of anti-shrimp farming protagonists have to be viewed in the light of changing world scenario of trade, development and cost-benefit ratios in relation to competing crops. This is truer in the short run. In the aftermath of the tsunami, shrimp farming is being promoted as a livelihood option for displaced fishing communities.

Low intensity farming

Shrimp farming has gained a reputation of being a corporate sector led activity. The corporate sector was first off the blocks in identifying the potentiality of this sector to make handsome profits. But the governments of the maritime States were also equally quick to recognise the potentiality of this sector to give a sizeable fillip to the life styles of the deprived sections of the population.

The Brackish water Fish Farmers Development Agency (BFDA) under the State Departments of Fisheries (DoF) appropriately gave sufficient incentives for start-ups by way of land lease and input assistance.

Assistance schemes

The Marine Products Exports Development Authority (MPEDA) was also quick to step in with a multitude of assistance schemes for both the farming and marketing segments. In the case of freshwater aquaculture the Freshwater Fish Farmers Development Agency (PFDA) did a yeoman's job in promoting appropriate production technologies in tandem

with research institutions, which has led to unprecedented growth in freshwater fish production.

Intensity of shrimp farming was always the sore point. The sector soon reached a natural optimum, which now supports low intensity farming that generates a national average of around 700 kilograms of shrimp, a hectare. This level of yield coupled with suitably tailored marketing channels at the international levels and a fast developing niche local market will be able to sustain this sector for a long period of time.

Accommodation of both socially and economically deprived sections of the population was one of the positive developments in this sector over time. With the WTO in place and HACCP being mandatory, corporate houses are now fine tuned with the local population for maintaining consistent production levels for catering to the ever exploding international markets.

The demand for organically produced seafood is ever increasing. Electronic traceability of shrimp exported, back to the farm where it was produced puts a big onus on the exporter to account for each and every step of production, processing, packaging and exports. Thus the sector is more secure than ever before operating at biologically sustainable levels of production.

Sustainable production

Sustainable shrimp production is more of a reality than a myth now than ever before. Instances of successes in group farming and cooperative farming are well documented. The

sector also can pride itself in being one of the most enlightened among the export oriented economic activities. Consciousness among farmers to organise themselves, accept the international norms and national farming regulations have also been documented. Backward linkage development in shrimp farming has

Indian aquaculture needs to be addressed not only from the angle of production sustainability but also marketing sustainability.

been pronounced.

Hatcheries, ice plants, feed mills, processing plants and technology development have not only provided production and marketing support but also have enabled substantial generation of employment and income earning activities.

Terms of trade

Shrimp exports from India have grown from 51,162 tonnes valued at 194.79 crores in 1978-79 to 129,768 tonnes worth 4013.07 crores in 2003-04. Cultured shrimps contributed 61 and 83 per cent to the total quantity and value respectively of shrimp exported in 2003-04.

A country will produce that commodity for which it has best comparative production advantage. Product and market diversification along with increased volumes and value make up improved export performance. A recent study has noted that, there is a need to shift the composition of seafood exports in favour of higher value items. Indian seafood exports need to diversify in both products and markets.

Gains from trade and terms of trade are a function of not only appropriate and sustainable production technologies but also suitably modified domestic and international trade pacts and marketing arrangements.

Foreign direct investment in seafood industry is one option that needs to be examined in depth. The monetary and fiscal policies of the Government of India are suitable for imaginative and innovative production and export tie-ups. Institutional finance is at hand to give best support to the sector.

Recent exercises in extension of aquaculture technologies for women self help groups in the Central Institute of Brackishwater Aquaculture, Chennai have not only opened a world of opportunities to the target groups but also the NGOs and banks that supported such a drive.

Microchip extension

One of the most innovative approaches to development of sustainable aquaculture production technologies and marketing is the use of information technology for such efforts. The M.S. Swaminathan Research Foundation, Chennai has taken a lead in dissemination of information through village knowledge centres to the target population for maximising the reach of agricultural production and marketing technologies. Such initiatives need to be duplicated to make the best use of advances in information technology. Microchip extension could make substantial inroads to make best use of available opportunities.

Production technologies to back the industry are ever on the roll. Seafood industry is up against stiff competition. The writing is clearly on the wall. Innovate, improve, diversify, practice scale economics or face the music. Seafood trade needs a complete stock taking.

The various stakeholders involved in the sector including the government are actively participating to make the sector a fighting fit unit. Reports of anticipated drop in shrimp exports in the current year owing to the tsunami need to be surmounted by launching alternate production, marketing and export strategies aimed at value added and differentiated products catering to niche markets.

Technologies on the verge of take off like crab seed produc-

tion technology need to be given a greater thrust.

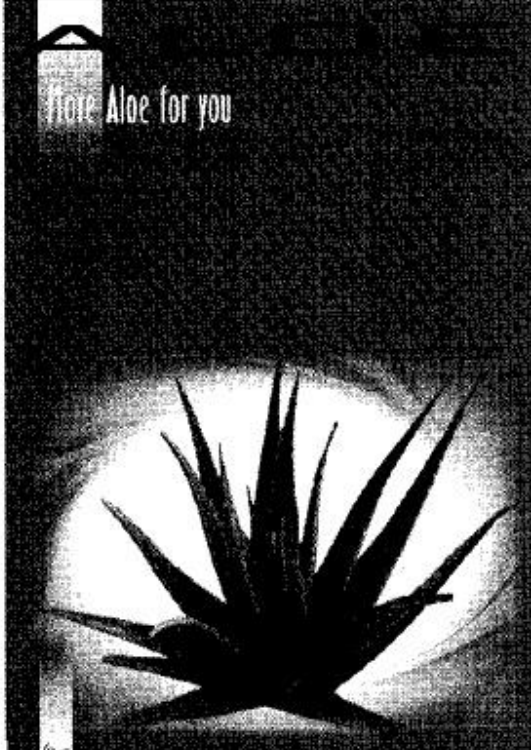
Ornamental fishery is another segment, which holds much promise. Household ornamental fish production and exports enterprises in Kolathur area near Chennai are a tribute to local self-evolved entrepreneurship. A dynamic, vibrant and self-sustaining enterprise has evolved which has liberated local people both socially and economically.

Mussel and seaweed production have much potential. Similarly off beat attempts to develop low cost ready to eat fish and fish preparations must be seriously considered for catering to the domestic market.

This will create alternative markets for surplus freshwater fish in times of glut in target markets. Innovative and aggressive marketing strategies such as those followed by MNC Pizza companies may be required to change the consumer tastes and preferences.

But pay offs from such efforts will have positive and significant implications for the fishery/aquaculture communities in terms of diversified livelihood options, increased income and employment. Increased institutional financial, insurance support and policy props will help the industry grow faster and stronger.

After the dawn of the 21st century, it is clear that the traditional approach to business is giving way to newer approaches. The complexity and speed of the "New Economy" has made things harder than ever for traditional approaches to survive. The nomenclature "New Economy" does not simply connote the hi-tech sector or the dotcom bubble; it refers to the complete and comprehensive change-process covering the world of business, its rules and rudiments.



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