PROBLEMS OF SHRIMP ENTREPRENEURS IN TAMIL NADU

K. Ponnusamy*, S.M.Pillai** and C.Sarada*

Aquaculture contributes significantly to foreign exchange earnings, food production and employment generation. The profitability of shrimp farming is relatively high, as the entrepreneurs are able to realise their investment in a couple of years. However, the present situation is considered to be highly volatile due to serious setbacks in shrimp farming, due to disease outbreaks, judicial pronouncements, government apathy, environmental misapprehensions, over-cautious attitude of financial institutions, bureaucratic indifference and non-cooperation among farmers with regard to local common resource management. If the potential and contribution of aquaculture are to be realised, issues and challenges faced by the entrepreneurs need to be studied and analysed. Hence, a research study was undertaken to assess the social, economic, psychological and technological problems at different stages starting from planning to marketing as perceived by the shrimp entrepreneurs.

Methodology

The study was carried out during June-July 2004 in Kancheepuram, Thanjavur and Thoothukudi districts of Tamil Nadu. These districts were chosen randomly out of 13 coastal districts in Tamil Nadu (Department. of Fisheries, Government of Tamil Nadu, 2002-2003). Moreover, Kancheepuram district has more shrimp hatcheries, Thanjavur district has the Regional Centre of Shrimp Farming of Marine Products Exports Development Authority for extension service and Thoothukudi district has the Fisheries College and the Research Centre of Central Marine Fisheries Research Institute. A total of 100 shrimp entrepreneurs were randomly selected for the study. A pre-tested interview schedule with necessary modifications was used for data collection. Tabular analysis was used to interpret the responses.

Entrepreneurship problems at different stages

Problems encountered during planning stage

Proper planning of aquaculture activities will help the shrimp entrepreneurs efficiently utilize the available resources, minimise risk and maximise profits. Shrimp farmers experience many problems during the planning stage before starting the culture operation. The problems as reported by the entrepreneurs during planning stage have been listed in Table1.

** Scientists (SS) and ** Principal Scientist, Central Institute of Brackishwater Aquaculture , 75, Santhome High Road , Chennai – 600 028, Tamil Nadu.*

Table 1. Problems encountered during planning stage (N=100)

S.No.	Problems	Percentage
1.	Bank loans and insurance coverage	94
2.	Lack of Govt. policies and encouragement	82
3.	Lack of professional experience	68
4.	Lack of pertinent information about innovation(s)	64
5.	Fear of failure of culture	62
6.	Lack of guidance	58
7.	Social problems	54
8.	Non-availability of suitable site or high cost of site and good water source	66
9.	Lack of economic resources under command	48
10.	Difficulty in getting skilled manpower	30
11.	Procurement of inputs-seed and its seasonal availability	30

It can be observed from Table 1 that non-availability of bank loans and insurance coverage for shrimp farming were felt as the major problem during the planning stage by almost all the farmers (94%). Presently banks are willing to provide loan for freshwater prawn or scampi culture. The lack of clear-cut government policies and encouragement from officials were reported by 82 percent of the respondents as the second major problem. There is a need for an appropriate government policy on coastal regulation zone (CRZ), aquaculture bill, environmental regulation, export incentives, etc., which can motivate the investors to come forward for taking up shrimp culture.

The fear of failure of culture was expressed by 62 percent of the respondents as the major problem, as shrimp farming is a highly capital intensive and risky venture having many factors of vulnerability. The lack of economic resources under command was expressed as a problem by 48 per cent of the entrepreneurs, which is very common among resource poor farmers. About two-thirds of respondents (66%) reported non-availability of a suitable site or high cost of site for starting the shrimp culture as a problem, as the appropriate site should have an easy and good approach, proximity to the water source, better soil and water quality and free from environmental vulnerability.

The difficulty in getting skilled manpower and procurement of inputs like seeds and its seasonal availability from hatcheries were reported by 30 percent of the entrepreneurs. The availability of skilled manpower can, very well, take care of the absence of entrepreneurs on the shrimp farms, as the entrepreneurs are otherwise engaged with other occupations due to diversity of enterprises. Though all entrepreneurs are not facing the above mentioned problems at the planning stage, problems need to be handled very effectively for running the business in accordance with formulated objectives.

Problems during preparation of the project

As shrimp farming is highly capital-intensive involving a great amount of risk, entrepreneurs normally approach financial institutions and government agencies for obtaining bank loans and subsidies. The project has to be prepared and submitted to these organisations indicating its technical feasibility and financial viability. Based on the findings, the problems faced by the entrepreneurs, during project preparation have been furnished in Table 2.

Table 2. The problems encountered during project preparation (N=100)

S.No.	Problems	Percent
1.	Lack of support from officials of Fisheries Dept.	84
2.	Lack of experience in preparing the project	53
3.	Lack of information about farming	52
4.	Assessment of market demand and supply	25
5.	Difficulty in getting previous reports for reference	19
6.	Lack of cooperation among project partners in preparing the project	18

It can be observed from Table 2 that an overwhelming majority of the respondents (84%) expressed lack of support from officials of the State Fisheries Department as the major problem. It is a very difficult task for the Fisheries Department to help all the entrepreneurs in preparing the project report. Fifty three per cent of the respondents reported lack of experience in the preparation of the project; while 25 per cent reported lack of information about shrimp farming techniques, which relates to lack of extension services relating to shrimp farming. Government policies need to be unambiguous with regard to coastal regulation zone, leasing of land for aquaculture, export promotion, subsidies etc. Now a days, many entrepreneurs are resorting to low intensity shrimp farming on a limited scale, and hence do not prepare the project report.

Problems during implementation of the project

It is possible to raise two crops of shrimp culture in a year viz., one summer crop and one winter crop. The crop duration is 120 to 135 days. The problems encountered during purchase of land to harvesting and marketing of the produce by the farmers were analysed, and have been enlisted in Table 3. It can be seen from the table that 85% of the respondents complained about poor linkage among entrepreneurs, traders, exporters, research organisations and administrative organs of the government as their problems. This may be due to lack of clear cut government policies leading to poor coordination between different organisations working on technology generation, transfer and development of shrimp farming in the country. Price fluctuations in seed and transportation were disclosed by 84 percent of the respondents as the major problems. Many shrimp hatcheries are located near Chennai on the east coast, and the seeds from hatcheries need to be transported to distant locations, which makes the seed more costly.

Obtaining clearance of the project from the Aquaculture Authority was reported by 68% of the respondents as a problem. Since it is mandatory to obtain clearance from the Aquaculture Authority for starting shrimp aquaculture near the sea coast, it was felt that it took a lot of time to get the license from the Aquaculture Authority as the applications have to be processed and verified by various committees from district to national level. Eight percent of the respondents perceived poor quality of seeds being supplied by hatcheries as the major problem. The hatcheries may not be able to supply uniform sized seeds to the shrimp farmers. Sometimes diseased seeds are also supplied by hatcheries.

Lack of communication among shrimp farmers was perceived as a problem by 68 percent of the respondents. This problem was more pronounced especially during the discharge of water into the canals and creeks as well as the date of stocking, harvesting etc. High cost of feed and lack of quality standards were felt as a problem by sixty five percent of the respondents which might be due to the use of imported feed and varying cost of Indian and imported feeds. Quality standards need to be developed and ensured for the supply of balanced nutritious shrimp feed.

Table 3. Problems during implementation of the project (N=100)

S.No.	Problems	Percentage
1.	Poor linkages among various stakeholders	85
2.	Price fluctuations of seed and transportation	84
3.	Poor quality of seeds supplied by hatcheries	80
4.	Obtaining project clearance from Aquaculture Authority	68
5.	Lack of communication among farmers	68
6.	High cost of feed and lack of quality standards	65
7.	Irregular electricity supply	64
8.	Lack of quality feed and exploitation by feed companies	64
9.	Getting connection from electricity dept.	40
10.	Purchase of suitable land	34
11.	Unqualified consultants	25
12.	Lack of technical consultancy	24
13.	Lack of quality feed additives	18
14.	High cost of chemicals including probiotics	18

It can also be observed from Table 3 that 25 percent of the respondents expressed that consultancy from unqualified persons resulted in great loss. As shrimp farming is a fast growing enterprise, the entry of unqualified consultants may have resulted in great loss to the entrepreneurs due to the adoption of unscientific shrimp farming technologies. The problem of lack of technical consultancy on modern shrimp farming methods was expressed by 24 per cent of respondents. Sixty-four percent of the respondents expressed irregular supply of electricity, lack of availability of good quality feed, and exploitation by feed companies as problems. Good quality feed should be readily acceptable by the shrimps with good feed conversion ratio, appropriate size for ingestion, stability in water, non-impairment of water quality and nutritionally balanced. The farmers complained that low quality feed was being supplied to them by mixing some ingredients without following the nutritive principles, affecting the growth rate of the shrimps, and resulting in poor yield.

The problem of getting an electricity connection was reported by 40 percent of respondents. The inordinate delay and denial of electricity connection in some districts may be due to several administrative procedures. Purchase of suitable land for shrimp culture was another problem revealed by 34 percent of the respondents as the land for shrimp farming should have desired soil quality, good water source with optimum salinity, approachability and communication facilities. Besides, very high cost of the land also adds to their problem. Around one-fifth (18%) of the respondents revealed lack of good quality feed additives as the problem, since feed additives like vitamins, probiotics, moult accelerating substances and immunostimulants, etc., lead to better shrimp growth, disease resistance and health management.

Problems during management of the farm

Technical and managerial skills are essential for any shrimp entrepreneur for running the enterprise successfully. All the available resources on the farm need to be effectively and efficiently utilised. Improper utilisation may lead to wastage, thereby cutting down the profit. Further, skillful management of land, labour, capital, shrimps, market and other factors will help in the smooth functioning of shrimp farms. The problems faced by the shrimp farmers during management of the shrimp farm have been presented in Table 4. The lack of treatment procedures for control of viral diseases was expressed as a problem by 96 percent of the respondents. In fact, white spot viral disease devastated shrimp farms in many areas during 1994-1996 and many corporate houses and entrepreneurs closed their shrimp farming business. It is very difficult to prevent the occurrence of white spot disease but it can be effectively managed provided the entrepreneurs have sufficient experience and knowledge on shrimp health management practices. Occurrence of diseases, as the problem, was reported by 90 percent of the respondents. It is likely that improper management of the farm leading to deterioration of soil and water quality could have led to bacterial and viral infections, such as black gill, black lesions on body, antennae cutting etc.

Table 4. Distribution of respondents according to their problems during management of shrimp farms (N=100)

S.No.	Problems	Percentage
1.	Lack of treatment procedures for virus control	96
2.	Occurrence of diseases	90
3.	Lack of cooperation among the farmers letting out the effluent	70
4.	Maintenance of adequate algal bloom	54
5.	Difficulty in managing the fund for maintenance during feeding and labour	52
6.	Ignorance of feed and water quality management	48
7.	Non-availability of instruments at farm level	47
8.	Irregular moulting cycles leading to stress in the shrimp body	46
9.	Maintaining required water level	21
10.	Non- availability of labour at critical periods	13

Irregular moulting cycles leading to stress to the shrimp was revealed by 46 percent of the respondents, which may have been due to improper feed and water management. About, 70 percent of the respondents disclosed that non-cooperation among neighbourhood farmers with regard to letting out the effluent and other preventive measures was a problem. The farmers should exchange information, like the date of stocking, time of letting out the effluent into the outlet, date of harvest etc., in the concentrated shrimp farming areas by forming local associations so as to plan specific strategies for better management of water and shrimp health parameters on individual farms.

The maintenance of adequate algal bloom in shrimp ponds was felt as a problem by 54 percent of the respondents. This might be due to improper use of organic manure and inorganic fertilizers, into the shrimp ponds leading to algal bloom and crash, which are normally observed after 60 to 70 days of stocking. Difficulty in arranging and managing fund for maintenance of the farm was reported by 52 per cent of respondents. Cash flow management for shrimp farming operations is considered to be very vital as the feed alone costs around 60 percent of the operational cost of the shrimp farm.

The problem of ignorance of feed and water quality management was perceived as a problem by 48 percent; while 47 per cent of the respondents felt non-availability of instruments for measuring physico-chemical parameters and maintenance of recommended water level in the shrimp ponds as problems. Currently the entrepreneurs are interested in undertaking extensive and improved methods of shrimp culture, which require minimum monitoring of the physico-chemical and biological parameters.

Problems during harvesting and marketing

The shrimp can usually be harvested after 120-130 days of culture when individual shrimp attains the size of 25 to 30 g. The labour requirement per hectare for harvesting would be 6 to 8 persons. The entrepreneurs usually sell their shrimps either to traders or export to foreign countries. They face several problems during harvesting and marketing, which are presented in Table 5.

Table 5. Problems during harvesting and marketing (N=100)

S.No.	Problems	Percentage
1.	Lack of information coverage in mass media	91
2.	Lack of competition among traders	64
3.	Lack of information exchange among farmers	61
4.	Low price offered by middlemen (Exploitation)	60
5.	Lack of information about prevailing market trend in different places	56
6.	High cost of labour during harvest season	22
7.	Prevalence of pre- harvest contract	20
8.	Non-availability of labour during harvest season	9

It can be observed from Table 5 that 91 per cent of the respondents felt 'lack of information coverage about shrimp prices in mass media' as the problem, due to which the entrepreneurs are unaware about the prevailing market trend. Fifty six percent of the respondents reported lack of information about prevailing market trend in different places; followed by those reporting about other problems,

like absence of competition among traders (64%), non-sharing of information among farmers (61%) and low price offered by middlemen (60%). At the same time, it was also felt that there was no news coverage about shrimp market trend in newspapers, television, radio, etc; and middlemen quote only low prices and sometimes different prices at different places.

High cost of labour during harvest was disclosed by 22 percent of the respondents; followed by those reporting about problems, like prevalence of pre-harvest contract (20%) and non-availability of labour during the harvest season (9%). The entrepreneurs experienced difficulty in getting labourers especially when agricultural operations coincide with the shrimp harvest operations. Some feed companies finance the farmers in advance for meeting the operational costs of shrimp culture with an understanding that the respondents would sell the shrimp only to those traders.

Problems due to government policy and public apathy

It is presumed that a clear-cut policy with regard to coastal regulation zone, licensing, export promotion, subsidies, etc. will motivate the entrepreneurs to set up shrimp farms on the coastal waste lands which can be economically utilized benefiting the rural poor by way of providing gainful employment opportunities. The problems perceived with regard to government policy and public apathy encountered by shrimp entrepreneurs have been given in Table 6.

It can be seen from the table that ninety one percent of the respondents expressed lack of a clear cut policy from the government as one of the problems; followed by other problems like misunderstanding and misinterpretation of guidelines and policies by officials at different levels in different departments (82%), absence of collaborative efforts by various organisations (74%) and lack of government encouragement (62%). The entrepreneurs were found to be confused over the ambiguous policy of government in setting up the shrimp farms beyond the high tide level of the sea coast and type of cultures to be undertaken on the farms. The Guidelines and policies issued by the central and state governments were interpreted differently and implemented by the officials from various wings of the departments of revenue, agriculture, fisheries, forestry,engineering etc., resulting in confusion among different organizations and shrimp farmers. Government support in creating confidence and conductive atmosphere for promoting shrimp farming may be needed in such cases.

Table 6. Problems due to government policy and public apathy (N=100)

S.No.	Problems	Percentage
1.	Lack of clear cut government policy	91
2.	Misunderstanding and misinterpretation of guidelines and policies at different levels in different departments	82
3.	Absence of collaborative efforts by various organisations	74
4.	Lack of training programme	64
5.	Lack of government encouragement	62
6.	Lack of provision of infrastructure, transport facilities and communication facilities, etc.	52
7.	Lack of processing plant/ice plants in concentrated shrimp farm areas	44
8.	Legal hurdles	37
9.	Aversion of public due to conversion of paddy land to shrimp culture causing reduction in employment to the agricultural labourers	32
10.	Fear of pollution of waterways	29
11.	Public prejudice against outsiders earning more money	23

Sixty-four per cent of respondents reported lack of training programmes as a problem. Non-availability of infrastructure, transport and communication facilities were felt by 52 percent of the respondents, while 37 per cent of them faced legal hurdles. At present, there is no training programme organised by government organisations exclusively for the benefit of shrimp farmers. Need-based tailor-made training programmes should be organised at the farm level to impart knowledge and skills. Sufficient transport and communication facilities should be made available in the concentrated shrimp farm areas to enable the entrepreneurs to keep in touch with the latest developments in shrimp farming. The shrimp farms situated in the CRZ are facing legal problems, which could be settled in an amicable way within the guidelines issued by Aquaculture Authority.

It could also be observed from Table 6 that 32 percent of the respondents expressed public aversion to conversion of paddy land to shrimp culture causing reduction in employment for traditional labourers as an important problem; while other problems reported by them are pollution of waterways (29%), lack of processing plants/ ice plants in concentrated shrimp farm areas (44%) and public prejudice against the earning of more money by outsiders (23%).

In fact, conversion of paddy land to shrimp culture has taken place on a very limited extent where the water is saline. Unreliable water supply from Cauvery River was the other reason. In reality, the establishment of shrimp farms has increased employment opportunities for local people throughout the year. It is estimated that one hectare of shrimp farm can create four direct and six indirect employment opportunities. The farmers have to treat the water properly in the bio-pond and then let out it into the outlet so that the waterways are free from pollution. Some vested interests spread rumours that only outsiders benefited by establishing shrimp farms on the coastal belt. However in reality, more than 90% of the respondents were from the same districts. Though more number of ice plants are available in some districts, there are however, no processing plants. Hence there is a need for establishing processing plants for immediate processing and marketing of shrimp harvest.

The findings of Punitha et al (1999) are in line with the above outcome as they state the difficulty in getting raw materials at low price and low profit, high interest rate, labour problems, non-cooperation from family members, distance from market as the major entrepreneurial problems. Similar results were also reported by Mallikadas (1999) who stated that cash-flow problem, inadequate working capital, lack of managerial experience etc were the major problems perceived by women entrepreneurs.

Implications of the findings

Aquaculture, being a viable economic activity should be recognised as a high priority sector for the purpose of availing the concessions granted by the Government. Developing adequate legal and institutional measures to regulate aquacultural activity in ecologically fragile zones will help to avoid social, economic and ecological problems at the local level. A continuous dialogue is necessary between the industries, Government, financial institutions and research institutions with regard to issues, like outbreak of diseases, environment and land related problems, technology and manpower training and export related issues. Shrimp farming can become a sustainable activity provided all the actors involved viz the

entrepreneurs, the regulatory authority, the financial institutions the scientific and technical (authority) community become aware of the problems and then act in unison to jointly plan and enforce measures to achieve an eco-friendly and sustainable aquaculture. Shrimp farming should be encouraged only in the areas suitable for the purpose. These should be identified and delineated with the help of remote sensing and Geological Information System (GIS) techniques.

To achieve the objectives of a productive and sustainable aquaculture, infrastructure for processing and value addition at the level of industry, support services in terms of production and investment credit, extension, input supply, training etc, at the farm level should be strengthened, so as to establish strong inter-sectoral linkages between farm and industry. There is no insurance scheme in vogue for hi-tech export-oriented aquaculture projects. An adequate insurance scheme needs to be developed for such projects/products by banks and insurance companies. Research focus on developing cheaper vaccines for shrimp health management will revive the shrimp industry. The entrepreneurs should give due consideration to site-specific soil and water characteristics, pond designs, effluent discharge and treatment mechanisms etc. before starting the enterprise. The government should bring out regulatory measures for hatchery and feed companies for ensuring good quality seed and feed. Uniform stocking of disease free seeds from certified hatcheries and consulting experienced fellow farmers for clarifying all kinds of doubts in farming by the entrepreneurs will result in harvesting rich benefits. Clear cut Government guidelines and policies with regard to coastal regulation zone, the right type of culture to be undertaken, loan and subsidy, export concessions, leasing of land, etc. should be given to all the entrepreneurs in particular, and the public, in general. The determination, courage, confidence and hard work of the shrimp entrepreneurs will play a crucial role in making the shrimp industry into an economically vibrant and viable entity. Tax concessions, subsidised and uninterrupted electricity supply, establishing lab facilities for disease diagnosis and testing the water quality parameters, announcement of daily price trend of shrimp through mass media, regular monthly meetings of shrimp entrepreneurs, technical guidance, conduct of relevant research programmes for bringing appropriate technological package for profitable shrimp farming, implementation of common inlet and separate outlet in the concentrated shrimp farming areas, restraining the quacks and pseudo-consultants, compulsory crop holiday in disease infected areas, organizing regular training programmes, use of bore well water (wherever necessary), and determination of a standard price for shrimp produce will ultimately result in improving the entrepreneurial confidence of the shrimp aqua farmers.

Conclusion

Aquaculture, as an enterprise, has some innate advantages, like high returns, high productivity, high food conversion ratio, utilization of agriculture and animal wastes, high employment generation, etc. In this background, the problems/ constraints enumerated above need to be addressed urgently to sustain the development of aquaculture in the long run. Necessary strategies need to be formulated for motivating the entrepreneurs who wish to take up shrimp farming thus enhancing entrepreneurial competence.

References:

Department of Fisheries, Government of Tamil Nadu (2002-2003): Various issues of Endeavors and Achievements.

Mallikadas 1999 Women entrepreneurs from Southern India : An explanatory study *The Journal of Entrepreneurship* Vol 8. No.2

Punita M, Sangeeeta and K.Padmavathi 1999 " Women entrepreneurs : Their problems and constraints *" The Indian Journal of Labour Economics Vol 42.* No.4