

## Occupational Needs of Shrimp Farmers in Kerala

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### ABSTRACT

*Need can be defined as the gap between what is currently in place and what is needed, now and in the future. This study was conducted to assess the needs of the shrimp farmers in Kerala. Data were collected from 40 respondents from Ernakulam district with an interview schedule. A need index was employed to prioritize the identified needs in training, marketing, financial, information and communication, safety, legal and environment. The needs were ranked in terms of weighted score. Weighted scores were ranked within each area and the first three rankings were identified as most important needs of the shrimp farmers. The need index for shrimp farmers was high for environmental needs (0.68), safety needs (0.6) and legal needs (0.53). This study also includes discussion on the socio economic status of the fishermen and it elaborates the other areas of needs of shrimp farmers.*

**Key words:** Needs; Shrimp farmers; Occupational needs; Safety needs; Environmental needs;

Fisheries sector occupies a very prominent role in the socio economic development, as it is recognized as the powerful income and employment generator and is a source of cheap and nutritious food. Kerala is one among the nine coastal states with a production of 8.4 lakh tones of fish crossing eight lakh tones for the first time during 2012 (CMFRI, 2012-13). Besides poverty, poor health, illiteracy, unemployment, underemployment, lack of proper infrastructure and technical competency are the major problems faced by the fisher folk in Kerala. According to Watkins and Kaufman (1996) need assessment should be designed to identify and prioritize the needs, while a need analysis should break an identified need into its component parts and determine solution requirements. It can be an effective tool to clarify problems and identify appropriate interventions or solutions. By clearly identifying the need, finite resources can be directed towards developing and implementing a feasible and applicable solution. An integrated approach is imperative for improving the socioeconomic conditions of the shrimp farmers. So, in order to design empowerment programmes, there is a requisite to study the various needs of the shrimp farmers in Kerala. So

in the wake of this a need assessment study was felt to be necessary to document the profile characteristics of shrimp farmers and to assess the felt occupational needs of the shrimp farmers

### METHODOLOGY

Ernakulam district of the Kerala state was selected purposively for this study as it ranks first in the number of shrimp farmers 551 (0-2 ha), 413 (2-5 ha), 179 (5-10ha), 134 (>10 ha) (Harikumar and Rajendran, 2007). Out of the 36 fishing villages in Ernakulam district, 2 villages Kumbalangi and Nayarambalam were selected purposefully with forty shrimp farmers as samples. Data from the respondents were collected through person interview using a well developed and pretested interview schedule. The shrimp farmer's responses were collected in a three-point continuum namely 'very much needed', 'needed' and 'not needed' which were assigned scores of 3, 2 and 1, respectively. Index was used to assign an order of priority to the measured needs, by comparing them within themselves. A need index was employed to prioritize the identified occupational needs like training needs, marketing needs,

financial needs, information and communication needs, safety needs, legal needs, environment needs. By totaling the value assigned to each component of a need, an actual score was obtained for each need. Minimum and maximum values were set in order to transform the actual scores into indices between 0 to 1. Standardisation was used to make it unit free by applying the formula which was used in the Human Development Report 2013.

$$\text{Need index} = \frac{\text{Actual score} - \text{Minimum score}}{\text{Maximum score} - \text{Minimum score}}$$

Based on the need index, needs were classified into low, medium and high needs. The classification was as follows

Needs	Index category
Low	Upto 0.3
Medium	0.31-0.5
High	Above 0.5

The needs of the shrimp farmers were ranked in terms of weighted score using the formula:

$$\text{Weighted Score (WS)} = (\text{No. of VMN} \times 3) + (\text{No. of N} \times 2) + (\text{No. of NN} \times 1)$$

VMN: Very Much Needed N: Needed NN: Not Needed

Weighted scores were ranked within each area and the first three rankings were identified as most important needs of the shrimp farmers.

## RESULTS AND DISCUSSION

*Profile of shrimp farmers* : The data showed that 72.5 per cent were old aged and the remaining were middle aged. The reason may be that the younger people were seeking jobs in other sectors rather than shrimp farming. The education level of shrimp farmers, indicated that no one was illiterate. Forty per cent were involved in shrimp farming along with agriculture and 30 per cent in shrimp farming with fishing. Only 12.5 per cent were involved shrimp farming alone as shrimp farming is more risky. Majority (35%) of the shrimp farmers annual income was up to Rs.200000/-, 32.5 per cent had between Rs 200000 to 300000. Only 27.5 per cent farmers were earning above three lakh. This may be due to that majority of them were practicing extensive type of shrimp farming. Majority (55%) of the farmers had their own ponds and 45 per cent had leased in ponds for shrimp culture. In leased ponds, the lessee uses the pond with regular payments for a specified number of month or years. All the shrimp farmers used mobile phones as it is affordable. Majority (67.5%) of had

attended training on shrimp farming conducted by Aquaculture Development Agency of Kerala (ADAK), MPEDA, FFDA and 7.5 per cent farmers had undergone training on ornamental fish culture and feed preparation.

**Table 1. Profile of shrimp farmers (N= 40)**

Category		No.	%
Age (years)	Young (Upto 35)	-	-
	Middle (36-45)	11	27.5
	Old (Above 45)	29	72.5
Education	Read and write only	3	7.5
	Primary	7	17.5
	Secondary	11	27.5
	High school	9	22.5
	Hr. secondary	7	17.5
	Graduation and above	3	7.5
Experience (years)	Low (Up to 10)	19	47.5
	Medium (11-20)	21	52.5
	High (Above 20)	-	-
Occupation	Shrimp farming alone	5	12.5
	Shrimp farming Fishing	12	30.0
	Shrimp farming + Agri.	16	40.0
	Shrimp farming + labourer	5	12.5
	Shrimp farming + Selfemployed	2	5.0
Annual income (in Rs)	Up to 200000	16	40.0
	200000-300000	13	32.5
	>300000	11	27.5

*Weighted Score for needs of shrimp farmers* : The needs of the shrimp farmers in terms of weighted score and ranks were given in the Table. 2

*Training need on shrimp farming* : Under the pond preparation & pre-stocking management, disease management was most sought by shrimp farmers and was assigned first rank followed by analysis of soil & water and feed preparation. As shrimp was susceptible to virus disease high mortality was observed in farms and hence training on disease management was the most preferred need. As training on soil and water analysis was very less, the shrimp farmers lack technical knowhow on the quality aspects. As feeding contributed to 60 per cent of production, training on feed preparation was of priority. Regarding training on different culture practices, most of the shrimp farmers had given first preference to training on shrimp farming as they had realized the importance of scientific shrimp farming and best management practices. In fish preservation, value addition was given first preference due to high market value for value added products. Regarding training for

gear and tackles, shrimp farmers gave more preference for maintenance of gear as wear and tear of gear was a constraint in shrimp farming.

**Table 2. Weight score of training needs on shrimp farming of Shrimp Farmers**

Needs	WS	Rank
<i>Pond preparation</i>		
Disease management	109	I
Analysis of soil and water	107	II
Feed preparation	90	III
<i>Types of culture</i>		
Scientific Shrimp farming	52	I
Shrimp cum paddy culture	46	II
Poly culture	41	III
<i>Preservation techniques</i>		
Value addition	57	I
Drying	40	II
<i>Gear and tackles</i>		
Maintenance of gear	42	I
Trap making	40	II
<i>Marketing needs</i>		
Seed market	103	I
Ice plants	85	II
Transportation facilities	79	III
<i>Financial needs</i>		
Subsidy for inputs	111	I
Microcredit facilities	97	II
Longer repayment period	86	III
<i>Information and communication needs</i>		
Service delivery through mobile phones	100	I
Setting up of village information centres	81	II
Visual aids and radio programmes on fisheries technologies	78	III
<i>Safety needs</i>		
Compensation for loss or damage of crops	116	I
Crop protection contracts	102	II
Recovery facilities	67	III
<i>Legal needs</i>		
Environmental laws and regulation	101	I
Enforcement of law	96	II
Farm lease issues	86	III
<i>Environmental needs</i>		
Pollution free water body	120	I
Disease free seeds	117	II
Minimize poaching	71	III

*Marketing needs:* Marketing needs were assessed in areas like transportation facilities, seed market, drying yard, peeling shed, cold store, and ice plants. Availability

of shrimp seed market was most sought by shrimp farmers and was given first rank. Access to healthy and disease free seeds were one of major requirement of successful farming. The finding is in line with the report given by *Kumaran et al., (2003)* in his study on shrimp farming practices and its socio-economic consequences in East Godavari District, that the farmers suggested quality seed from hatcheries should be ensured through seed certification by State Department of Fisheries (SDF). Availability of ice plants and transportation facilities were given second and third preference as availability of accessible quality ice was one of the major constraints.

*Financial needs :* Financial needs were assessed in areas like subsidy for inputs, fuel subsidy, microcredit, lower interest rate, longer repayment period. Among financial needs, subsidy for inputs was given first rank by shrimp farmers followed by microcredit and longer repayment period. High cost for gear and farming implements should be met through subsidy.

*Information and communication needs :* Information and communication needs were assessed in areas like visual aids & radio programmes on fisheries technologies, service delivery through mobile phones, web sites, local news paper, e- extension strategy, village information centre, disaster management cell. Among these needs service delivery through mobile phones was given first rank as only few institutions are delivering messages through mobile phones. Setting up of village information centres and visual aids & radio programme on fisheries technologies were given second and third ranks respectively as these can provide technical and scientific knowhow on shrimp culture.

*Safety needs :* Safety needs were assessed in areas like crop protection contracts, recovery facilities, and emergency services during disaster, compensation for loss of crop. Among these, compensation for loss of the crop was most sought by shrimp farmers. As there was a heavy risk and uncertainty involved in shrimp culture due to disease outbreak, compensation for loss of crop should be made necessary. Crop protection contract and recovery facilities were also sought out by the shrimp farmers as compensation for loss of the crop could be met through crop protection contracts.

*Legal needs :* Legal needs were assessed in areas like licensing issues of crops, registration of ponds, farm lease issues, environment laws and regulation,

enforcement of laws, punishments and penalties. Among these environment laws and regulation was sought out and given first rank followed by enforcement of laws as there was less awareness regarding environmental issues. *Environmental needs* : Among environmental needs, it was observed that the pollution free water body was given first rank followed by disease free seeds and minimize poaching. Farmers felt that this need is directly affecting their farming. The basis requirement for a culture system is the water quality, so polluted water body is a major hindrance to shrimp farming. Healthy and disease free seeds were one of major requirements of successful farming. High mortality rates were observed in many farms due to low quality seed which is affecting their profit.

**Table 3. Over all need index of shrimp farmers**

Category	Range	Needs
High	Above 0.5	Environmental, safety, legal
Medium	0.31-0.5	Marketing, socioeconomic, information and communication
Low	Upto 0.3	Financial, training

It was observed from the above table that environmental needs, safety needs, legal needs are high priority needs. The shrimp farmers had given first preference to environmental needs. If the environment needs were met they can do shrimp farming in more areas with more profit. Safety needs had second priority if the safety needs were taken care of shrimp farming could be done with less risk. *Rodrigues (2013)* reported that there is a need to inspire the fishermen to improve

their safety at work place and develop positive attitude about utilization of safety devices. Legal needs were also given higher priority. *Endres (2009)* in his study on the legal needs of farmers in US reported that issues like tax, farm land leases and employing workers had relatively high response rates for the need of legal services. Other needs like marketing needs, socioeconomic needs, information and communication needs, financial needs and training needs were not given as much preference like other needs because they feel that these needs are met up to their minimum requirement.

*Relationship between profile characteristics and needs of the shrimp farmer:* From the Table 6, it could be observed that age was found to be negatively related to training need, information and communication needs and safety needs. Aged farmers do not feel training needs, information and communication needs and safety needs as important as they considered fishing experience as the major factor for successful farming. It was found that occupation was directly related to financial needs and socioeconomic needs. When farmers become more engaged in shrimp farming they will be in need of financial and socioeconomic needs. Mass media exposure and extension contact were directly related to training need as more exposure leads to more information about various training programmes organized in different areas.

**CONCLUSION**

To cater to the needs of the shrimp farmers, a

**Table 4. Relationship between profile characteristics and needs of the shrimp farmers**

	0	1	2	3	4	5	6	7	8	9	10	11
Age		1										
Occupation		-.175	1									
Experience		.128	-.123	1								
Mass mediaexposure		-.281	.311	-.043	1							
Extension contact		-.233	-.215	.528**	.317*	1						
Training need		-.359*	-.035	.124	.325*	.438**	1					
Marketing need		.061	.085	.051	-.104	-.054	-.115	1				
Financial need		.025	.360*	.198	-.162	.028	.059	.211	1			
ICT need		-.387*	.005	-.022	.265	.173	.418**	-.292	.318*	1		
Safety needs		-.401*	.043	.033	.206	.313*	.355*	-.187	.160	.242	1	
Environment need		-.212	-.139	.317*	.244	.480**	.317*	-.451**	.062	.258	.336*	1

\*Significant at 5 % , \*\*Significant at 1%

1-Age, 2-Occupation, 3-Experience, 4-Mass Media Exposure, 5-Extension contact, 6-Training need, 7-Marketing need, 8-Financial need, 9-ICT need, 10-Safety needs, 11-Environment need

system of informal and formal institutional arrangements has to be developed. Government institutions, NGOs, cooperatives, fishers associations, and private companies should be seriously convened in order to meet the needs,

to design future development programs, to organize training and to meet financial, marketing, environmental and information and communication needs of shrimp farmers so as to improve their livelihood.

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