

## Needs Assessment of ICT Users for Implementation of Aquacultural Development Projects in Coastal Areas

P. Mahalakshmi, D. Deboral Vimala, M. Krishnan and T. Ravisankar  
*Central Institute of Brackishwater Aquaculture, (I.C.A.R),  
75, R.A. Puram, Chennai - 600 028.*

An information and training needs assessment of users of Village Resource Centre (VRC) and Village Knowledge Centres (VKCs) of Thangatchimadam, Ramanathapuram district, Tamil Nadu was conducted. The opinions of 103 users of VKCs on information and training needs dimensions such as culture practices, e-Learning module, extension activities, fisheries and allied information and base information have been investigated by means of a survey questionnaire. The need for culture practices in lobsters, information on soil and water management in shrimp culture in the form of e-Learning module, training and marketing information in value added products, preparation of quality and hygienic dry fish, addresses of various fisheries and aquaculture departments and universities, and information on subsidies for fishermen, aqua farmers and women were the information sought by the VKCs for adoption of aquaculture in coastal areas. Rank order correlation coefficients were worked out to compare the information and training needs among the users of various VKCs. The results indicated that almost similar ranks were assigned to various information and training needs by VKCs users.

**Key words :** needs assessment, knowledge centres, e-Learning, rank order correlation coefficients

Communication is a social process, designed to seek a common understanding among all the participants of a development initiative, creating a basis for concerted action. More recent technological innovations increased the reach and speed of communication, culminating, for now, with digital technology. This digital technology led to the setting up information centres / knowledge centres / information kiosks in rural / urban poor pockets of India for information dissemination through offline and online modes on various issues like agriculture, governance, health, education, employment, developmental schemes, guidelines and application formats etc.

Various Information Communication Technologies (ICT) initiatives such as aquachoupal, n-Logue, iKisan, and Information Village Research Project of M.S. Swaminathan Research Foundation (MSSRF) are aiming at improving access of informa-

tion communication for the rural/coastal communities by external information (Mahalakshmi *et al.*, 2006). But the fact remains that not all the external information provided through such initiatives is of use to the coastal communities. It maybe observed that the coastal communities are at home with their indigenous technical knowledge since it serves their needs on a day to day basis. Therefore any additional information and know how that needs to be imparted to such communities should be supplemental than fundamental. It is not just the global knowledge but a balance of global and local information that helps in improving quality of life of the coastal communities.

Given the above mind set of the communities, the role and scope of aquaculture can be enhanced in coastal areas through ICT projects only after assessing the information and training needs and the level of skills and knowledge of potential users of

ICT projects. The information and training needs assessment report will help to understand the system as a whole and serve as a baseline for planning and implementation of future interventions.

An information and training needs assessment of users of Village Resource Centre (VRC) and Village Knowledge Centres (VKCs) of Thangatchimadam, Ramanathapuram district, which is one of the information centers in coastal areas in Tamil Nadu, initiated by Information Village Research Project of M.S. Swaminathan Research Foundation (MSSRF) was conducted after a brain storming session.<sup>1</sup>

The paper presents i) the methodology adopted in this study for making an assessment of the needs of these coastal communities, and ii) discusses the assessment of information and training needs of users of VKCs drawing some broad conclusions.

### Materials and methods

The study was conducted in Village Resource Centre, Thangatchimadam, Ramanathapuram district. This centre has a number of Village Knowledge Centres (VKCs) which are disseminating need based information and technologies among the local communities. Five such VKCs, MGR Nagar, Pamban, Olaikuda, Thamaraiikulam and Sundaramudaiyan were selected for this study. A total of 200 users, 40 users in each centre were identified in the study area that fulfilled the needs assessment of users. From this group a subsample of 103 users, viz., MGR Nagar (22), Pamban (20), Olaikuda (20), Thamaraiikulam (20) and Sundaramudaiyan (21) were randomly selected for the present study. Data were collected from the targeted groups by employing a well-structured and pre-tested interview schedule.

### Categorization of needs assessment

After discussion with experts, and knowledge centre workers and volunteers of VKCs, five categories of needs assessment in aquaculture and its allied activities for users of VKCs were selected for this study. These were: culture practices, e-Learning module, extension activities, fisheries allied information and base information. A number of parameters were arranged under each of these five categories and the users taking part in the survey were asked to indicate their perceived extent of needs along a three point continuum namely mostly needed, somewhat needed and not at all needed, scores were assigned to these responses as 2, 1, and 0 respectively (Sailaja and Reddy, 1999).

The parameters included for identifying the needs of culture practices were: sea weed, lobster, shrimp, seabass, and mud crab fattening. The needs of e-Learning module were identified by five areas related to preparation of information in the form of CD ROM. These include: soil & water management, feed management, disease management, mud crab fattening and others.

The needs of extension activities include the following seven requirements: publications, information through radio/TV/VKC/ neighbours, training on mud crab, training on shrimp, training on value added products, training on handicraft items, and awareness / interaction programme.

Fisheries and allied information included five fisheries related activities, namely; ornamental fisheries, mangroves, dry fish preparation, market information and coastal zone laws, acts and rules. Base information included three items: addresses of fisheries / aquaculture educational institutions, addresses of fisheries / aquaculture related offices and information on subsidies.

<sup>1</sup> Organised and conducted by Central Institute of Brackishwater Aquaculture (CIBA) and MSSRF on content creation in aquaculture for users of Village Resource Centre and Village Knowledge Centres at CIBA, Chennai on 18th September, 2006.

### Prioritization of the needs

The users' responses were recorded in the appropriate column against each item. The total needs assessment score of each VKC for each item was obtained by multiplying the frequencies with the respective weights and summing them up. The overall needs assessment score for each item was determined by adding the needs assessment score for all five VKCs, which could range from 0 to 206, with 0 indicating no information and training needs and 206 indicating the highest level of information and training needs. A summary of the measuring system of all five categories of information and training needs is presented in Table 1. On the basis of overall needs assessment score of each item, ranks were assigned to all the items to ascertain their importance.

Table 1. Dimensions of information and training needs and their measurement

Information and training needs dimensions	Items used	Possible score range*
Culture practices	5	0-1030
e-Learning module	5	0-1030
Extension activities	7	0-1442
Fisheries allied information	5	0-1030
Base information	3	0-618

\* This is based on a scale of 0 to 2, with mostly needed=2, somewhat needed=1 and not at all needed=0; possible score of each item is 0 - 206

Rank order correlation coefficients were worked out to compare the information and training needs among the users of five VKCs using the following equation

Rank order correlation coefficient,

$$(r_s) = 1 - \frac{6(\sum d^2)}{n(n^2 - 1)}$$

Where d = Difference in ranks assigned to a particular item in two different VKCs,

and n= Number of items under considerations.

### Results and discussion

The information and training needs of users of VKCs was ascertained on the basis of the three points as mentioned earlier. Table 2 shows the overall needs assessment score and their corresponding ranks of information and training needs of users of VKCs.

#### Culture Practices

Information is needed to improve the culture practices of lobster, mud crab fattening and shrimp. There is minimal interest in the information and assistance in seaweed culture because this is a well established activity in this area. It was learnt that the five VKCs had already undergone training in seaweed culture with the help of state departments and Non Government Organizations (NGO's). There was negligible interest in seabass culture as the duration of culture and carnivorous nature of the species were deterrent to adoption of this species for culture.

#### e-Learning Module

Though the educational and health orientated programmes are not related directly to aquacultural activities, in all five VKCs', women have given the highest priority to obtain the educational and health orientated information in the CD ROM format. e-Learning module on soil & water management and mud crab fattening also had a high ranking. Specifically the soil & water management module for shrimp culture assumed the first place. The respondents required that the mud crab fattening module to include different types of culture systems in brackishwater area, economics, contact addresses for training centers, hatcheries, exporters details, and contact details of banks, which are providing the loan facilities for mud crab fattening. Limited interest was evinced in e-learning module on feed and disease management in shrimp culture.

Table 2. Information and training needs of users of Village Knowledge Centres

Information and training needs score	Overall needs assessment	Ranks					
		Overall	MGR Nagar	Pamban	Olaikuda	Thamarai-kulam	Sundhara-mudaiyan
I Culture Practices							
Sea weed	10	4	4	4	4	4	5
Lobster	34	1	1	1	1	1	1
Shrimp	26	2	2	3	2	2	3
Seabass	0	5	5	5	5	5	4
Mud Crab fattening	21	3	3	2	3	3	2
II e-Learning Module							
Soil & Water Management	66	2	2	2	2	2	2
Feed Management	28	4	4	4	4	4	4
Disease Management	14	5	5	5	5	5	5
Mud Crab fattening	55	3	3	3	3	3	3
Others (Educational & Health oriented information)	80	1	1	1	1	1	1
III Extension activities							
Publications	54	4	4	4	3	3	4
Information seek through Radio/TV/VKC/ neighbours	115	2	2	2	2	2	2
Training on shrimp	3	7	7	7	7	7	7
Training on mud crab	22	6	6	6	5	6	5
Training on value added products	138	1	1	1	1	1	3
Training on handicraft items	69	3	3	3	4	4	1
Awareness / interaction programme	22	5	5	5	6	5	6
IV Fisheries and allied							
Information							
Ornamental Fishing	31	5	5	5	5	5	5
Mangroves	67	4	4	4	4	4	3
Dry fish preparation	141	2	2	2	2	2	2
Market Information	166	1	1	1	1	1	1
Coastal zone laws, Acts and Rules	85	3	3	3	3	3	4
V Base Information							
Address – fisheries/ aquaculture educational institutes	107	3	3	3	3	3	3
Address – fisheries / aquaculture offices	145	2	2	2	2	2	2
Subsidies information	185	1	1	1	1	1	1

### Extension activities

Though training of value added products and handicraft items rank high, all five VKCs respondents recognize the potential of publications for information and adoption of better culture practices. Information on training on shrimp and mud crab also did not evoke much response from the stakeholders. In Olaikuda and Sundaramudaiyan, Self Help Group (SHG) members showed keen interest in obtaining training on mud crab fattening. After the tsunami, there is a general feeling among coastal community that the extension activities like awareness programme and interaction meeting will motivate the communities for taking up practice of diversified species like seabass and mud crab fattening. All five VKCs have the modern communication facilities like networking, internet, and television. In addition, the Village Resource Centre in Thangatchimadam is also having video conference facility. The respondents believe that eliciting information through VKCs have a strong potential because of availability of modern communication facilities.

### Fisheries and allied Information

A particularly important aspect of fisheries and allied information for all five VKCs is market information on process, seasonal price differentials, quality standards, cost of transport, importers etc. This information is important to help interested exporters determine if expanding production/ processing facilities will be feasible. The

information and assistance for preparation of high quality and hygienic dry fish had a high ranking. Olaikuda SHG members had experienced problems for marketing the value added products because of the non adherence to quality standards, lack of assistance in marketing and locating buyers. It was mentioned that better packaging, promotion and market information are needed for dry fish, and fish / prawn pickles. There is a general feeling that processing and marketing are interlinked because the market determines what kind of processing is saleable. Processing techniques in dry fish and fish / prawn pickles need to be appropriate for a broad range of uses. After the tsunami the stakeholders have shown keen interest on information about coastal zone laws, acts and rules, and preservation and augmentation of mangroves near shore waters. In Sundaramudaiyan, SHG members have planted mangroves near seashore with the help of Sundaramudaiyan VKC. In all VKCs, respondents showed limited interest on information about ornamental fish culture because of the marketing problem.

### Base Information

Stakeholders' evinced keen interest in information on subsidies for fishermen communities, aqua farmers and SC/ST communities, and welfares for women, widows and children. This requirement was their top priority. Though information on subsidies rank high, all five VKCs respondents recognize the potentiality of addresses of

Table 3. Rank order correlation coefficient between the VKCs users

Village Knowledge Centres	MGR Nagar	Pamban	Olaikuda	Thamaraikulam	Sundaramudaiyan
MGR Nagar	1.000				
Pamban	.980**	1.000			
Olaikuda	.979**	.959**	1.000		
Thamaraikulam	.984**	.964**	.995**	1.000	
Sundaramudaiyan	.867**	.887**	.820**	.815**	1.000

\*\* Correlation is significant at the .01 level (2-tailed)

state fisheries, aquaculture departments, agriculture and allied universities, co-operative societies and farmers associations for better communication and extension linkages.

### Comparative analysis of ranks

The rank correlation coefficients ( $r_s$ ) were calculated to find the extent of similarity or otherwise among the information users of the different VKC's that were interviewed. The coefficients are measures, the extent of relationship that exists between groups that were subjected to the same questions on prioritization of their needs. The calculated values of rank order correlation coefficients between VKCs users were quite high (Table 3). This indicated that almost similar ranks were assigned to various information and training needs by VKCs users. Thus there is a need to address the needs of the VKC's and help them in redeeming their problems in due course of time by taking a concerted action in providing the desired information in the appropriate mode and measure.

The overall needs assessment for all five VKCs shows that the requirements of information on market, subsidies for fishermen communities, aqua farmers and SC/ST communities, and addresses of fisheries departments, universities, co-operative societies and farmers associations. On the whole, outcome of the need assessment exercise is that the required content/ information/ training are looked forward to in these centres. Besides formal forms of information dissemination, Village Knowledge Centres in collaboration with other organizations can help in bridging this gap and making available the required content to the coastal communities. Through needs assessment, ICT projects can provide a powerful thrust to improve the aquacultural activities among the users in the coastal areas. Furthermore,

ICT projects can use needs assessment not only to make significant improvements to the aquacultural operations of the stakeholders, but also enhance the impact of the institutions, organizations and other constituencies they represent.

The authors are thankful to Dr. A.G. Ponniah, Director, Central Institute of Brackishwater Aquaculture, Chennai, for his guidance and encouragement. Thanks are also due to M.S. Swaminathan Research Foundation, Chennai and Village Knowledge Centres, Thangatchimadam, for their cooperation and coordination during our visit.

### References

- Arunachalam, S. (2003) Reaching the Unreached, How Can We Use ICTs to Empower the Rural Poor in the Developing World Through Enhanced Access to Relevant Information?. In: *Proc. ICTs & Gender: Optimizing Opportunities*. 20<sup>th</sup> – 23<sup>rd</sup> August, 2003, Kuala Lumpur
- Mahalakshmi, P., Vimala, D.D. and Krishnan, M. (2006) Web kiosks in aquaculture: a study of aquachoupal model in Prakasam district of Andhra Pradesh. In: *Proc. of the National Seminar on Extension Strategies for Fostering Knowledge Centric Agricultural Growth* 2-3 December, 2006, Puducherry
- Sailaja, A. and Reddy, M.N. (1999) Training Needs of Farm Women in Paddy and Additional Activities. *J. Extn. Educ.* 10, pp 2419-2424
- Vedavalli. (2005) *Village Knowledge Centres in Pondicherry: An Anthropological Perspective*. MSSRF / MG / 05 / 19. M.S. Swaminathan Research Foundation, Chennai
- Vedavalli, L. (2005) *Village knowledge centres in Pondicherry: the gender perspective*. Available at: <http://www.digitalopportunity.org/>