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Evaluation Capacity Building in Rural Resource Management: A Manual

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In collaboration with



11 IMPACT ASSESSMENT OF AGRICULTURAL TECHNOLOGY INFORMATION CENTRE OF CMFRI

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INTRODUCTION

The Agricultural Technology Information Centre (ATIC) of Central Marine Fisheries Research Institute (CMFRI) was established to provide a single window delivery system for the technological support available from the institute to fisherfolk and other interest groups under the funding of National Agricultural Technology Project (NATP) in 1999. ATIC acts as a bridge between the fisherfolk and scientists and thereby enhancing the linkage between the research and client system. It provides direct access to the farmers to avail the facilities from the institute at a nominal cost. The specific objectives of ATIC are :

- Providing a single window delivery system for the products and services available from CMFRI to the farmers and other clients.
- Providing the direct access to the fishermen to the institutional resources available in terms of technology advice and technology products, and
- Providing a platform for feed back from the end users to the institute.

The farmers/fishermen/industrialists who visit are taken around the centre, and are explained the activities and functions of the centre. As and when required their doubts are clarified. This helps the visitors to get first hand information about the various technologies developed by the Institute. A price list indicating the prices of publications and the rate for diagnostic services are displayed for the use of the visiting clients. List of publications and pamphlets on different technologies are also displayed. The technological inputs such as algal inoculums, zooplanktons and technological products such as shrimp feed, fresh shrimp meat, edible oyster meat, mussel meat, marine cultured pearls, sea weed products such as agar agar, jelly, pickles, value added fish products and dry fish products supplied by the self help groups of IVLP (Sathiadhas *et al*, 2003 & 2004) are the major items being sold through ATIC. The major diagnostic services undertaken by ATIC include environmental monitoring, microbiological analysis, fish disease diagnosis, soil analysis, water quality analysis, feed composition analysis, electron microscopy works, fish and shell identification etc. Information services were given on technologies available within CMFRI such as Scientific prawn farming, Crab farming, Mussel culture, Edible oyster culture, Pearl culture, Seaweed culture, Shrimp feed, Clam culture, Fish diseases, Small scale shrimp hatchery, Artificial fish habitats, Eco friendly prawn farming, Aquarium fish keeping, Marine fisheries management for Sustainable development etc. Some need based ICAR publications

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also are kept for sale in ATIC. ATIC brought out some pamphlets such as Marine pollution, Seaweed recipes, Marine ornamental fishes, Self help groups in fisheries sector, Mud crab etc in three languages as technology information series for supplying to stakeholders at a nominal cost.

Technical services of ATIC

Awareness programs and assistance to training on different technologies

ATIC organizes awareness programs on Responsible fisheries management and movie shows as couplement to training on different fishery based technologies to the clients from time to time.

Phone calls/Personal enquiry

Phone calls received are regularly attended and the enquiry is mainly for the technical information on prawn farming, crab farming, fish disease diagnosis, small scale shrimp hatchery, feed, seed availability of fish, prawns, crab and other farm advisory services.

Letters

Request letters in different languages are mainly received for algal inoculums, PCR test, stereo-microscopic works, electron microscopy, zooplankton, feed composition analysis and technological services. As much as possible the queries are answered through letter correspondence with ample support of leaflets and bulletins.

Website

The web site <http://www.aticcmfri.org> developed is widely in use by the public and it essentially covers the following information :

- Package of practices of all the technologies developed by the institute.
- Schedule of training programs organized by the institute.
- Value addition and post harvest technologies.
- Technological inputs and services available in the institute.
- 'Ask the expert' facility in the web page whereby the questions of the farmers are sent electronically to the ATIC and answers given by the concerned scientists is posted on the web page.

So far revenue of about 1.4 million has been generated though the various sales and services and as much as 33,000 farmers, fisherfolk and entrepreneurs were benefited by ATIC services. It would be pertinent to make an impact assessment of ATIC to evaluate the level of satisfaction of the beneficiaries.

Evaluation Objectives

- To assess the impact of ATIC by evaluating the level of satisfaction of beneficiaries of ATIC technology products, services and awareness programs.

- To elucidate the success cases of impact on professional achievement, earnings, employment and mobilisation of Self Help Groups.

The major purpose of evaluation is to ensure whether the ATIC is going in the right track and to identify the lacunae in operation. CMFRI authorities essentially can make use of the evaluation study. The assessment of the strengths and weaknesses of ATIC could be useful in bringing about probable improvement in its functioning.

METHODOLOGY

The assessment of the impact of ATIC technology products, services and awareness camps was done by measuring the level of satisfaction of the beneficiaries of services from ATIC. Data were collected with a pre-tested well structured interview schedule focusing the questions seeking the evaluation of ATIC sales & services on technology products, diagnostic services and awareness programs. A minimum of 30 beneficiaries from each product / service of ATIC were asked to indicate the level of satisfaction and they were asked to mark their response as highly satisfied, moderately satisfied and least satisfied and quantification was done by assigning a scoring pattern as 3, 2 and 1, respectively for three categories of responses. The percentage level of satisfaction was computed for each product/ service / facility of ATIC as Extent of satisfaction / Potential of satisfaction X 100 (Haque, 1981). Each respondent was asked to give suggestions for improving the functioning of ATIC.

Success case studies were elucidated from such fisher folk who brought out a remarkable professional achievement and improved earnings and employment. Similarly Self Help Groups mobilized by various micro enterprises with the inspiration and support from ATIC also were taken in to consideration for exploring the success cases. For collecting data, the sources were the available existing information as well as, people's perceptions, opinions and observations. Quota sampling from each category of beneficiaries of sales & services and awareness programs was adopted for the study. Approximately 25-30 beneficiaries of each service were selected as samples. Data collection was undertaken by enumerators trained by the evaluation team manager and technical staff of ATIC.

EVALUATION FINDINGS AND DISCUSSION

The impact assessment of ATIC in terms of the level of satisfaction of beneficiaries was carried out essentially for the following services of ATIC :

- Sale of technological inputs and technology products.
- Diagnostic services.
- Priced publications.
- Farm advisory services.

- Awareness programs.
- Movie shows.
- Other facilities offered for the public.

The entire details of the above mentioned services commencing from the inception of ATIC till date are presented chronologically and the results of assessment of level of satisfaction of beneficiaries interviewed are presented immediately after each service. As the tables are self explanatory, the interpretations are given as brief as possible after each result. Similarly success case studies of the respondents who achieved remarkable improvement in professional achievement, earnings, and employment as well as from meticulously mobilised Self Help Groups with substantial results are also elucidated.

Sale of technological inputs and technology products

The year wise details of ATIC activities on sale of technological inputs and technology products undertaken during January to December in the years 2000,2001,2002, 2003, 2004, 2005 and 2006 (upto June) are presented in Table 11.1 and the results of assessment of level of satisfaction are presented in Table 11.2. An amount of Rs 10, 08, 629 /- was generated from the sale of technological inputs and products through ATIC and the most important item was the sale of Algal inoculums.

For assessing the level of satisfaction of beneficiaries of technological products and services, 30 beneficiaries who availed each of the services were personally interviewed and the results are presented in Table 11.2.

From the Table 11.2, it is obvious that the most important item of highest level of satisfaction was the sale of algal inoculums and aquarium fish feed owing to the per cent value of 87.78 each followed by sale of dry fish products (Score 86.67). Two success cases of the private hatcheries 'Kaliparambil' at Chellanum of Ernakulam district and 'Water Fry' at Kodungallur of Thrissur district who used algal inoculums of CMFRI are described. Similarly a success case was drawn from 'Janani' Self Help Group mobilized under IVLP of CMFRI who supplied dry fish products to ATIC for sale. This was started as a micro enterprise for livelihood and its analysis was done in the case study. Livelihood analysis is inevitable for the appropriate micro enterprise selection for the location for empowerment. (Kurien,2003).

Diagnostic services

The year wise details of ATIC activities on diagnostic services undertaken during January to December in the years 2000,2001,2002, 2003, 2004, 2005 and 2006 (upto June) are presented in Table 11.3 and the results of assessment of level of satisfaction are presented in Table 11.4. An amount of Rs 91, 380 /- was generated from diagnostic services which benefited 651 stakeholders. The most important item was water sample analysis. For assessing

Table 11.1. Technological inputs / products sold

| Year | Technological Inputs | Quantity (Kg) | Value (Rs) | No. of beneficiaries |
|-----------------------|---------------------------|---------------|------------------|----------------------|
| 2000 | Algal inoculums | 5000ml | 5,000 | 30 |
| | Pearl | --- | 60,000 | 25 |
| 2001 | Algal inoculums | @100ml/Rs.100 | 26,960 | 82 |
| | Zooplankton | 2000ml | 2,000 | 10 |
| | Shrimp | 1.5 tonnes | 3,00,000 | - |
| | Mussel meat | 1.7 tonnes | 35,000 | - |
| | Mahima feed | 25 kg | 1,250 | - |
| 2002 | Algal inoculums | @100ml/Rs.100 | 36,400 | 102 |
| | Zooplankton | 800ml | 800 | 03 |
| | Pearl | 350 g | 2,13,000 | 45 |
| | Oyster meat | 2 | 100 | 06 |
| 2003 | Algal inoculums | 61,292 ml | 61,292 | 203 |
| | Zooplankton | 1100ml | 1100 | 03 |
| | Pearl | 10.508 gm | 2627 | 85 |
| | Oyster meat | 11kg | 550 | 10 |
| | Oyster shell | 300 kg | 300 | 9 |
| | Oysters | 50 nos. | 25 | 4 |
| | Dry fish products of IVLP | 22 kg | 5485 | 81 |
| 2004 | Algal inoculums | 55,050 ml | 81,375 | 247 |
| | PCR Kit | 10 Nos | 5,000 | 30 |
| | Fresh shrimp | 52.5 kg | 4,985 | 148 |
| | Pearl | 25.428 g | 6,357 | 85 |
| | Oyster meat | 6kg | 300 | 10 |
| | Oysters | 850 nos. | 425 | 4 |
| | Dry fish products of IVLP | 7.5 kg | 1866 | 81 |
| 2005 | Algal inoculums | 30,913 ml | 93,735 | 283 |
| | Zooplankton | 100 ml | 250 | 15 |
| | Pearl | - | 247 | 12 |
| | Oyster meat | 6kg | 300 | 10 |
| | Oysters | 800 nos | 400 | 26 |
| | Pearl oysters | - | 1,000 | 73 |
| | Aquarium fish feed | 4 bottles | 65 | 18 |
| | Fresh shrimp | 11.5 kg | 1,275 | 9 |
| | Dry fish products | 4.5 kg | 1,050 | 29 |
| 2006 up to June | Algal inoculums | 19,017 ml | 57,050 | 129 |
| | Zooplankton | 500 ml | 1000 | 21 |
| | Dry fish products | 50 gm | 60 | 9 |
| Total | | | 10,08,629 | 2,804 |

Table 11.2: Level of satisfaction of beneficiaries of sale of technological inputs and products

| Technological input / product | Highly satisfied | Moderately satisfied | Least satisfied | Level of Satisfaction (%) |
|-------------------------------|------------------|----------------------|-----------------|---------------------------|
| Algal inoculums | 21 | 7 | 2 | 87.78 |
| Aquarium fish feed | 21 | 7 | 2 | 87.78 |
| Dry fish products | 19 | 10 | 1 | 86.67 |
| Zooplankton | 20 | 7 | 3 | 85.55 |
| Fresh shrimp | 17 | 10 | 3 | 82.22 |
| Oyster meat | 18 | 10 | 2 | 84.44 |
| Oysters | 17 | 11 | 2 | 83.33 |
| Pearl oysters | 19 | 8 | 3 | 84.44 |
| Pearl | 18 | 7 | 5 | 81.11 |

Table 11.3 : Diagnostic services provided

| Year | Diagnostic services | Total samples Tested | Amount charged | No. of beneficiaries |
|------|---------------------------|----------------------|----------------|----------------------|
| 2000 | Water sample analysis | 24 | Free | 24 |
| | Feed composition analysis | 12 | Free | 10 |
| | Electron microscopic work | 12 | Free | 08 |
| | Mud sample | 08 | Free | 08 |
| | Disease diagnosis | 38 | Free | 30 |
| 2001 | Feed composition analysis | 10 | 1,500 | 10 |
| | Water sample analysis | 42 | 8,400 | 38 |
| | Electron microscopic work | - | 3,800 | 38 |
| | Mud sample analysis | - | 2,000 | 26 |
| | Disease diagnosis | 06 | 3,000 | 06 |
| 2002 | Feed composition analysis | 07 | 3,500 | 03 |
| | Electron microscopic work | 03 | 19,500 | 03 |
| | Water analysis | 04 | 11,745 | 04 |
| | Shell identification | 05 | 950 | 05 |
| | Stereo microscopic work | 01 | 600 | 01 |
| 2003 | Water testing | 04 | 1835 | 23 |
| | Shell identification | 07 | 500 | 21 |
| | PCR test charges | 21 | 11,500 | 27 |
| 2004 | Shell identification | 08 | 2,600 | 57 |
| | PCR test charges | 12 | 6,000 | 121 |
| | Inorganic Phosphate | 6 | 330 | 24 |
| | Nitrate | 6 | 330 | 24 |

| | | | | |
|------|----------------------------|---|---------------|------------|
| | Silicate | 6 | 330 | 24 |
| | Ammonia | 6 | 330 | 24 |
| | Nitrite | 6 | 330 | 24 |
| | Feed composition analysis | 3 | 3,000 | 18 |
| 2005 | Shell identification | 4 | 600 | 21 |
| | Any other (specify) : ATIC | | 7,500 | 35 |
| | Hall rent | | | |
| 2006 | Shell identification | 8 | 1,200 | 44 |
| | Total | | 91,380 | 651 |

the level of satisfaction of beneficiaries of diagnostic services, 30 beneficiaries who availed each of the services were personally interviewed and the results are presented in Table 11.4.

From the Table 11.4, it can be noticed that the most important item of highest level of satisfaction was 'water sample analysis' with the per cent value of level of satisfaction as 86.67 followed by feed composition analysis (Score 84.44) and PCR test for detecting the virus infection in shrimp (Score 83.33).

Table 11.4 : Level of satisfaction of beneficiaries of diagnostic services

| Diagnostic services | Highly satisfied | Moderately satisfied | Least satisfied | % Level of Satisfaction |
|---------------------------|------------------|----------------------|-----------------|-------------------------|
| Water sample analysis | 19 | 10 | 1 | 86.67 |
| Feed composition analysis | 18 | 10 | 2 | 84.44 |
| PCR test charges | 17 | 11 | 2 | 83.33 |
| Mud sample | 16 | 12 | 2 | 82.22 |
| Disease diagnosis | 16 | 12 | 2 | 82.22 |
| Shell identification | 16 | 11 | 3 | 81.11 |
| Electron microscopic work | 16 | 11 | 3 | 81.11 |
| Inorganic Phosphate | 14 | 12 | 4 | 77.78 |
| Silicate | 13 | 13 | 4 | 76.67 |
| Ammonia | 13 | 13 | 4 | 76.67 |
| Nitrate | 13 | 12 | 5 | 75.56 |
| Nitrite | 13 | 12 | 5 | 75.56 |

Priced publications

The year wise details of activities of ATIC through sale of priced publications such as pamphlets, bulletins, books, CDs' etc. undertaken during

January to December in the years 2000,2001,2002, 2003, 2004, 2005 and 2006 (upto June) are presented in Table 11.5 and the results of assessment of level of satisfaction are presented in Table 11.6. An amount of Rs 2,95,052 was generated from the sale of priced publications through ATIC with a total no. of 5457 beneficiaries and the important sale items were the sale of pamphlets like aquarium fish keeping, mussel farming, marine fisheries management etc.

For assessing the level of satisfaction of beneficiaries of priced publications, 30 beneficiaries of each of the publication were personally interviewed and the results are presented in Table 11.6. (Movies CDs were evaluated separately in movie shows organized in ATIC).

Table 11.5 : Priced publications sold

| Year | Titles of the publications (Booklets/Pamphlets/others) | No. sold | Value in Rs | No. of beneficiaries |
|------|---|-------------|----------------|-------------------------|
| 2001 | Aquarium fish keeping | 38 | 380 | 38 |
| | Mussel farming | 34 | 170 | 34 |
| | Marine fisheries management | 29 | 290 | 29 |
| | Crab farming | 42 | 210 | 42 |
| | Fish disease | 29 | 145 | 29 |
| | Pearl farming | 34 | 170 | 34 |
| | Mahima feed | 17 | 85 | 17 |
| | Oyster farming | 38 | 190 | 38 |
| | Artificial reef | 24 | 360 | 24 |
| | Shrimp hatchery | 38 | 190 | 38 |
| | Prawn farming | 9 | 135 | 9 |
| | Clam farming | 4 | 20 | 4 |
| | Library publications | - | 1,45,000 | - |
| 2002 | Aquarium fish keeping | 35 | 350 | 38 |
| | Mussel farming | 25 | 125 | 25 |
| | Marine fisheries management | 15 | 150 | 15 |
| | Crab farming | 21 | 105 | 21 |
| | Fish disease | 07 | 35 | 7 |
| | Pearl farming | 15 | 75 | 15 |
| | Oyster farming | 22 | 110 | 22 |
| | Artificial reef | 10 | 150 | 10 |
| | Shrimp hatchery | 20 | 100 | 20 |
| | Prawn farming | 12 | 180 | 12 |
| | Clam farming | 10 | 50 | 10 |
| | ICAR publications | - | 1,325 | 12 |
| | Library publications | - | 1,28,584 | - |

| | | | | |
|--|-----------------------------|-----------------------|-------|-------|
| 2003 | Aquarium fish keeping | 10 | 100 | 38 |
| | Mussel farming | 46 | 230 | 63 |
| | Marine fisheries management | 4 | 40 | 15 |
| | Crab farming | 51 | 255 | 101 |
| | Fish disease | 4 | 20 | 5 |
| | Pearl farming | 6 | 30 | 5 |
| | Mahima feed | 4 | 20 | 15 |
| | Oyster farming | 9 | 40 | 11 |
| | Artificial reef | 8 | 120 | 33 |
| | Shrimp hatchery | 7 | 30 | 46 |
| | Prawn farming | 1 | 15 | 28 |
| | Clam farming | 3 | 15 | 14 |
| | ICAR publications | 41 | 2,192 | 219 |
| | 2004 | Aquarium fish keeping | 1 | 10 |
| Mussel farming | | 14 | 70 | 64 |
| Marine fisheries management | | 11 | 110 | 50 |
| Crab farming | | 13 | 65 | 57 |
| Fish diseases | | 11 | 55 | 46 |
| Pearl farming | | 10 | 50 | 36 |
| Mahima feed | | 3 | 15 | 16 |
| Oyster farming | | 12 | 60 | 42 |
| Artificial reef | | 11 | 165 | 41 |
| Shrimp hatchery | | 12 | 60 | 54 |
| Prawn farming | | 3 | 15 | 18 |
| Clam culture | | 3 | 15 | 13 |
| ICAR publications (Books) | | 36 | 2,490 | 189 |
| VCD : Our fish ... Our Wealth : a movie on CMFRI | | 3 | 1,200 | 650 |
| VCD: Mussel farming in Open sea & estuaries in Karnataka coastal belts | | 5 | 1,000 | 1,250 |
| VCD: Monsoon season post harvest losses in traditional fish processing in India. | | 3 | 600 | 150 |
| 2005 | | Aquarium fish keeping | 1 | 10 |
| | Mussel farming | 24 | 120 | 114 |
| | Marine fisheries management | 10 | 100 | 53 |
| | Crab farming | 21 | 105 | 92 |
| | Fish diseases | 16 | 80 | 70 |
| | Pearl farming | 14 | 70 | 52 |
| | Mahima feed | 4 | 20 | 22 |
| | Oyster farming | 26 | 100 | 107 |

| | | | | |
|-----------------------|---|----|-----------------|-------------|
| | Artificial reef | 24 | 120 | 72 |
| | Shrimp hatchery | 5 | 25 | 52 |
| | Prawn farming | 4 | 5 | 28 |
| | Clam culture | 5 | 25 | 18 |
| | Seaweed recipes | 11 | 66 | 46 |
| | Marine pollution | 13 | 78 | 48 |
| | Marine ornamental fishes | 11 | 66 | 39 |
| | ICAR publications (Books) | 46 | 3,312 | 275 |
| | VCD: Our fish ... Our Wealth: a movie on CMFRI | 2 | 800 | 82 |
| | VCD: Mussel farming in Open seas & estuaries in Karnataka coastal belts | 2 | 400 | 53 |
| 2006 up to June | Mussel farming | 1 | 5 | 17 |
| | Marine fisheries management | 2 | 20 | 17 |
| | Crab farming | 4 | 20 | 16 |
| | Fish diseases | 3 | 15 | 17 |
| | Pearl farming | 5 | 25 | 18 |
| | Mahima feed | 2 | 10 | 12 |
| | Oyster farming | 2 | 10 | 13 |
| | Artificial reef | 1 | 5 | 6 |
| | Shrimp hatchery | 1 | 5 | 7 |
| | Prawn farming | 3 | 45 | 15 |
| | Seaweed recipes | 7 | 42 | 30 |
| | Marine pollution | 6 | 36 | 25 |
| | Marine ornamental fishes | 9 | 54 | 7 |
| | ICAR publications (Books) | 10 | 887 | 72 |
| | VCD : Our fish ... Our Wealth : a movie on CMFRI | 1 | 400 | 84 |
| | VCD: Growing with fish : | 5 | 1,000 | 46 |
| | Outreach of IVLP to Elamkunnappuzha | | | |
| | Total | | 2,95,052 | 5457 |

Table 11.6 : Level of satisfaction of beneficiaries of priced publications

| Priced publications | Highly satisfied | Moderately satisfied | Least satisfied | Level of Satisfaction (%) |
|-----------------------------|-------------------------|-----------------------------|------------------------|----------------------------------|
| Aquarium fish keeping | 18 | 10 | 2 | 84.44 |
| Mussel farming | 17 | 11 | 2 | 83.33 |
| Marine ornamental fishes | 17 | 11 | 2 | 83.33 |
| Marine fisheries management | 17 | 11 | 2 | 83.33 |
| Marine pollution | 16 | 12 | 2 | 82.22 |
| Prawn farming | 16 | 12 | 2 | 82.22 |
| Shrimp hatchery | 16 | 12 | 2 | 82.22 |
| Crab farming | 16 | 12 | 2 | 82.22 |
| Seaweed recipes | 16 | 12 | 2 | 82.22 |
| Fish diseases | 16 | 11 | 3 | 81.11 |
| Pearl farming | 16 | 11 | 3 | 81.11 |
| Oyster farming | 14 | 12 | 4 | 77.78 |
| Mahima feed | 13 | 13 | 4 | 76.67 |
| Artificial reef | 13 | 13 | 4 | 76.67 |
| Clam culture | 13 | 12 | 5 | 75.56 |

From the Table 11.6, it can be noted that the most preferred published pamphlet of highest level of satisfaction was 'Aquarium fish keeping' with the per cent value of level of satisfaction as 84.44, followed by Mussel farming, Marine ornamental fishes and Marine fisheries management with equal score of 83.33. (Most of these pamphlets were almost out of stock due to their high demand and these were to be ordered for publishing the next addition with suitable modification).

Farm advisory services

The year wise details of activities of ATIC through farm advisory services concerned with aquaculture, marine capture fisheries, CMFRI & ATIC services etc. undertaken during January to December in the years 2000,2001,2002, 2003, 2004, 2005 and 2006 (upto June) are presented in Table 11.7. The details of visit of farmers to ATIC so far for various services are presented in Table 11.8 and the results of assessment of level of satisfaction are presented in Table 11.9. As much as 8921 farmers/ fisherfolk/ entrepreneurs availed the farm advisory services through personal visit, personal letters, telephone help line and field visit. Total no. of farmers / other stakeholders who

visited ATIC up to June 2006 was 14, 247. Of this, farmers alone were 5,186 (4006 males and 1180 females). The number of students and educational team visited ATIC was 8806 and VIP visitors were 255.

For assessing the level of satisfaction of beneficiaries of farm advisory services, 30 beneficiaries of each of the services were personally interviewed and the results are presented in Table 11.8. (The advisory services though ATIC website were evaluated separately in other facilities of ATIC). The highest level of satisfaction was for the general ATIC services with the score of 81.11, followed by 'Shrimp feed'. Advisory services concerned with bivalve culture and marine ornamentals ranked third with the score of 76.65 each.

Table 11.7 : Farm advisory services provided to farmers and other stake holders

| Year | Advisory Services Provided | Personal visit | Through letters | Telephone Helpline | Farmers' Field visit | Total |
|------|----------------------------|----------------|-----------------|--------------------|----------------------|-------|
| 2000 | Prawn farming | 148 | 12 | 40 | 19 | 219 |
| | Bivalve culture | 32 | 08 | 15 | 08 | 63 |
| | Shrimp feed | 45 | 22 | 72 | 04 | 143 |
| | Shrimp hatchery | 20 | 04 | 04 | - | 28 |
| | Fish disease | 40 | 13 | 03 | 13 | 69 |
| | Training | 15 | 22 | 18 | 7 | 62 |
| | Crab | 185 | 18 | 53 | 2 | 258 |
| | CMFRI/ATIC Services | 651 | 42 | 38 | - | 731 |
| 2001 | Prawn farming | 154 | 08 | 35 | 15 | 212 |
| | Bivalve culture | 45 | 04 | 22 | - | 71 |
| | Shrimp feed | 65 | 15 | 34 | 08 | 122 |
| | Shrimp hatchery | 34 | 06 | 18 | - | 58 |
| | Fish disease | 60 | 15 | 45 | - | 120 |
| | Crab culture | 154 | 18 | 38 | 32 | 242 |
| | Training | 22 | 12 | 20 | - | 64 |
| | CMFRI/ATIC services | 1,358 | 36 | 22 | - | 1,416 |
| 2002 | Prawn farming | 40 | 03 | 18 | 05 | 66 |
| | Bivalve culture | 12 | 08 | 02 | - | 22 |
| | Shrimp feed | 10 | 06 | 11 | - | 27 |
| | Fish disease | 11 | 01 | 20 | - | 32 |
| | Crab farming | 30 | 09 | 05 | 12 | 56 |
| | Shrimp hatchery | 25 | 08 | 08 | - | 41 |
| | Marine ornamental | 02 | 03 | 04 | - | 9 |
| | Fish disease management | 15 | 07 | 16 | - | 38 |
| | Training | 08 | 10 | 12 | - | 30 |
| | CMFRI/ATIC services | 460 | 16 | 12 | - | 488 |

| | | | | | | |
|-------|-------------------------|------|----|----|----|-------------|
| 2003 | Animal Science | 6 | - | 4 | 12 | 22 |
| | Prawn farming | 48 | 03 | 18 | 05 | 74 |
| | Bivalve culture | 35 | 08 | 02 | - | 45 |
| | Shrimp feed | 28 | 06 | 11 | - | 45 |
| | Fish disease | 32 | 01 | 20 | | 53 |
| | Crab farming | 18 | 09 | 05 | 12 | 44 |
| | Shrimp hatchery | 49 | 08 | 08 | - | 65 |
| | Marine ornamental | 16 | 03 | 04 | - | 23 |
| | Fish disease management | 33 | 07 | 16 | - | 56 |
| | Training | 51 | 10 | 12 | - | 73 |
| | CMFRI/ ATIC services | 666 | 16 | 12 | - | 694 |
| 2004 | Prawn farming | 38 | 06 | 29 | 09 | 65 |
| | Bivalve culture | 35 | 09 | 22 | - | 54 |
| | Shrimp feed | 19 | 09 | 18 | - | 38 |
| | Fish disease | 41 | 14 | 23 | | 61 |
| | Crab farming | 31 | 19 | 09 | 16 | 45 |
| | Shrimp hatchery | 41 | 12 | 14 | - | 62 |
| | Marine ornamental | 64 | 16 | 19 | - | 98 |
| | ----- | 43 | 10 | 17 | - | 69 |
| | Training | 71 | 19 | 27 | - | 121 |
| | CMFRI/ ATIC services | 1239 | 32 | 24 | - | 1370 |
| 2005 | Prawn farming | 39 | 03 | 21 | 6 | 69 |
| | Bivalve culture | 27 | 07 | 02 | - | 36 |
| | Shrimp feed | 24 | 06 | 14 | - | 44 |
| | Fish disease | 39 | 03 | 20 | - | 62 |
| | Crab farming | 22 | 07 | 08 | - | 37 |
| | Shrimp hatchery | 34 | 06 | 11 | - | 51 |
| | Marine ornamental | 63 | 18 | 21 | - | 102 |
| | Fish disease management | 42 | 16 | 19 | - | 77 |
| | Training | 47 | 19 | 27 | - | 93 |
| | CMFRI/ ATIC services | 1404 | 47 | 39 | 11 | 1501 |
| 2006 | Prawn farming | 28 | 03 | 19 | 05 | 55 |
| up to | Bivalve culture | 25 | 07 | 02 | - | 34 |
| June | Shrimp feed | 14 | 06 | 11 | - | 31 |
| | Fish disease | 29 | 03 | 19 | | 51 |
| | Crab farming | 11 | 07 | 04 | 03 | 25 |
| | Shrimp hatchery | 29 | 06 | 07 | - | 42 |
| | Marine ornamental | 32 | 08 | 09 | - | 49 |
| | Fish disease management | 21 | 05 | 08 | - | 34 |
| | Training | 38 | 09 | 14 | - | 61 |
| | CMFRI/ ATIC services | 652 | 16 | 12 | - | 680 |
| | Total | | | | | 8921 |

Table 11.8 : Visit of farmers /fisher folk / entrepreneurs/ students to ATIC (April 2000- June 2006)

| Year | Purpose of visit | Fisherfolk/ entrepreneurs | | Students / Educational team | VIP Visitors | Total |
|--------------------|---------------------------|---------------------------|-------------|-----------------------------|--------------|---------------|
| | | Male | Female | | | |
| 2000 | Technological Information | 410 | 75 | 651 | 28 | 1164 |
| 2001 | | 512 | 30 | 1,358 | 34 | 1934 |
| 2002 | | 552 | 120 | 1,297 | 32 | 2001 |
| 2003 | | 673 | 287 | 1,342 | 40 | 2342 |
| 2004 | | 741 | 345 | 1,427 | 64 | 2577 |
| 2005 | | 719 | 211 | 1,215 | 38 | 2183 |
| 2006 up to June | | 399 | 112 | 1,516 | 19 | 2046 |
| Grand Total | | 4006 | 1180 | 8,806 | 255 | 14,247 |

Table 11.9 : Level of satisfaction of beneficiaries of farm advisory services

| Farm advisory services | Highly satisfied | Moderately satisfied | Least satisfied | Level of Satisfaction (%) |
|--------------------------|------------------|----------------------|-----------------|---------------------------|
| CMFRI/ ATIC services | 16 | 11 | 3 | 81.11 |
| Shrimp feed | 14 | 12 | 4 | 77.78 |
| Bivalve culture | 13 | 13 | 4 | 76.67 |
| Marine ornamental fishes | 13 | 13 | 4 | 76.67 |
| Training | 13 | 12 | 5 | 75.56 |
| Fish disease management | 12 | 10 | 8 | 71.11 |
| Prawn farming | 11 | 10 | 9 | 68.89 |
| Shrimp hatchery | 9 | 11 | 10 | 65.56 |
| Crab farming | 9 | 11 | 10 | 65.56 |

Awareness programs organized

The following are the details of awareness programs organized under ATIC on various fishery based technologies and Responsible Fisheries management. An awareness program essentially comprised a major theme or topic of discussion as per the requisite of the visitors, an orientation talk followed by a movie show on that theme and an interactive discussion on the topic. ATIC has an immense collection of a huge bunch of movies on Fishery based technologies gathered from various

sources. Table 11.10 shows details of the awareness program organized in ATIC. So far, a total of 96 awareness programs had been organised at ATIC for 1934 participants.

Table 11.10 : Awareness programs organized

| Awareness Programmes | 2003 | No. organized | | | | Total No. | No. of participants |
|--|------|---------------|------|-----------------|-----------|-------------|---------------------|
| | | 2004 | 2005 | 2006 up to June | | | |
| Responsible fisheries management | 7 | 13 | 21 | 20 | 61 | 1223 | |
| Culture fisheries | 2 | 6 | 7 | 11 | 26 | 524 | |
| Fishery based technologies & General fisheries aspects | 1 | 2 | 3 | 3 | 9 | 187 | |
| Grand Total | | | | | 96 | 1934 | |

The level of satisfaction of participants of awareness programs was assessed by interviewing 30 nos. of selected participants who had undergone the awareness programs and the results are presented in Table 11.11.

Table 11.11 : Level of satisfaction of beneficiaries of Awareness programs

| Awareness Programmes | Highly satisfied | Moderately satisfied | Least satisfied | Level of Satisfaction (%) |
|--|------------------|----------------------|-----------------|---------------------------|
| Responsible fisheries management | 16 | 11 | 3 | 81.11 |
| Culture fisheries | 14 | 12 | 4 | 77.78 |
| Fishery based technologies & General fisheries aspects | 9 | 10 | 11 | 64.44 |

Among the awareness programs, 'Responsible fisheries management' scored the highest level of satisfaction (81.11%) followed by 'Culture Fisheries' (77.78%) and 'Fishery based technologies'. Most of the respondents indicated the necessity of more practical orientation in the awareness program of Fishery based technologies as it had obtained a poor score for satisfaction level (64.44%).

As much as 1604 shows to movies produced by CMFRI were undertaken at ATIC for 10,201 viewers (Table-11.12). The level of satisfaction of the viewers about the movies was assessed by interviewing 30 nos. of selected participants who had watched the movies. The results are presented in Table 11.13.

Table 11.12 : Movies projected in ATIC

| Movies projected | No. of movie shows | | | | Total No. | No. of viewers |
|--|--------------------|------|------|----------------|-------------|----------------|
| | 2003 | 2004 | 2005 | 2006 till June | | |
| VCD : Our Fish ...Our Wealth (A movie on CMFRI) | 76 | 98 | 82 | 11 | 267 | 2471 |
| VCD : Little Fishes & Tiny Nets (Animation Movie) | Nil | 248 | 379 | 76 | 703 | 5327 |
| VCD : Mussel farming in Open seas & estuaries in Karnataka coastal belts | 97 | 103 | 114 | 76 | 390 | 1734 |
| VCD :Growing with fish : Outreach of IVLP to Elamkunnappuzha | Nil | 94 | 78 | 72 | 244 | 669 |
| Grand Total | | | | | 1604 | 10,201 |

Table 11.13 : Level of satisfaction of viewers of movie shows

| Name of the movie | Highly satisfied | Moderately satisfied | Least satisfied | Level of Satisfaction (%) |
|--|------------------|----------------------|-----------------|---------------------------|
| VCD : Our FishOur Wealth. (A movie on CMFRI) | 16 | 11 | 3 | 81.11 |
| VCD : Little Fishes & Tiny Nets (Animation Movie) | 14 | 12 | 4 | 77.78 |
| VCD : Mussel farming in Open seas & estuaries in Karnataka coastal belts | 14 | 10 | 6 | 75.56 |
| VCD : Growing with fish : Outreach of IVLP to Elamkunnappuzha | 14 | 10 | 6 | 75.56 |

Among the movies projected, the movie on CMFRI named as 'Our Fish... Our Wealth' scored the highest level of satisfaction (81.11%) followed by 'animation movie : Little fish & tiny nets' (77.78%), movie produced under the arena of 'Responsible Fisheries Extension' (Ramchandran, 2004). The movie on 'Mussel Farming' and movie on ' IVLP ' ranked third with a score of 75.56 per cent each.

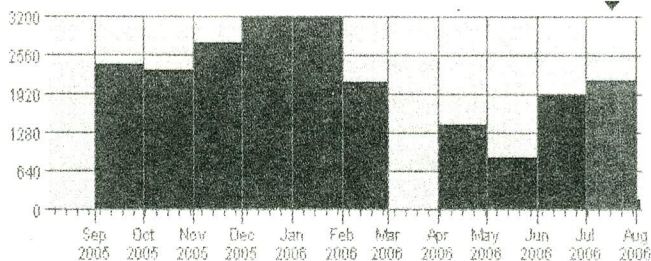
Other facilities offered to public

The other facilities offered for the public in ATIC included the museum, laboratory, library and website *cmfriatic.org*. The usage by hits of ATIC website as per the latest report of website hosting company team e biz, is presented in the Box

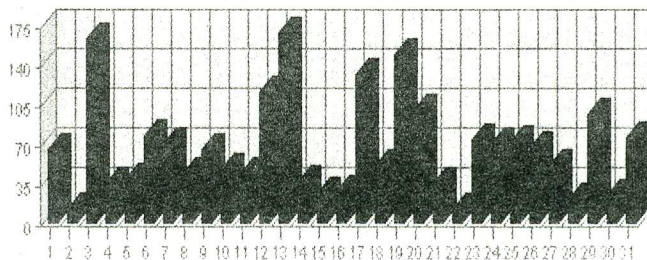
given below. The usage by hits reports the number of requests for any day, week, month or range within recorded website history. (A hit is considered to be any request for data such as web page, bitmap, CGI gateway of file.)

The usage by hits of ATIC website

365 Day History



Breakdown of Month



Summary of Results :

Total for Month = 2143 Hits; Average Monthly Total = 2006.09 Hits.

Average Daily Total = 69.13 Hits.

It is interesting to note that as much as 2143 hits per month was the search rate of ATIC web site as per the last month's report. Average monthly total was about 2006 hits and average daily rate of browsing the site was about 70. The level of satisfaction of the viewers about the above-mentioned facilities was assessed by interviewing 30 nos. of selected visitors in ATIC and the results are presented in Table 11.14. Along with that the satisfaction level of the visitors on the general hospitality in ATIC also was assessed and presented in the same table.

Table 11.14 : Level of satisfaction of ATIC facilities

| Other Services | Highly satisfied | Moderately satisfied | Least satisfied | Level of Satisfaction (%) |
|---------------------------|------------------|----------------------|-----------------|---------------------------|
| General Hospitality | 23 | 6 | 1 | 91.11 |
| ATIC web site | 22 | 6 | 2 | 88.89 |
| ATIC Museum | 21 | 7 | 2 | 87.78 |
| ATIC Library & Sales Room | 16 | 11 | 3 | 81.11 |
| ATIC Audio Visual Hall | 16 | 11 | 3 | 81.11 |
| ATIC Conference Hall | 14 | 12 | 4 | 77.78 |
| ATIC Laboratory | 1 | 6 | 23 | 42.22 |

The results indicated that the general hospitality offered by the staff in ATIC topped with highest level of satisfaction (score 91.11%). The ATIC website scored 88.89 per cent level of satisfaction. Among the facilities and other services offered in ATIC, museum attained highest satisfaction score of 87.78 per cent followed by Audio Visual Hall and Conference Hall (Score 81.11 % each). ATIC Laboratory got a least satisfaction level of 42.22 per cent, which necessitated improving the facilities by equipping with essential items to develop it as a fully functional laboratory.

Case Studies

Success case studies were elucidated from such fisherfolk who brought out a remarkable professional achievement and improved their earnings and employment. Similarly Self Help Groups mobilized by various micro enterprises with the inspiration and support from ATIC also were taken into consideration for exploring the success cases. For collecting data for livelihood analysis, the sources were the available existing information, people's perceptions and opinions and observations in addition to personal interview. The livelihood analysis encompasses all the strategies and assets that individuals and households used to earn a living (Aujmangkul *et al*, 2000, DFID, 2001; Graham and Tanyang, 2001; Arciaga *et al*, 2002; Ashby, 2003 CBCRM Resource Center 2003).

ATIC helps in dry fish processing: A success case of women's self help group at Elamkunnappuzha

'Janani' Self Help Group, Puthuvyppu Post, Elamkunnappuzha in Vypeen Island was conspicuous for the intervention of drying of fish through consultation of CMFRI. The group had 15 members and were engaged in the rack drying of fish. Drying of fish was not new to them since they were doing it on individual basis on a limited scale. They used to dry the fish in the traditional way. The President of Janani group, Mrs.Chandramathi Appukuttan says that, she settled at

Elamkunnapuzha village after her marriage 20 years back. She became a part of 13-member women-group in 1997. They used to make use of the market surplus of bumper fish catch for drying purpose. The operational cost was less, but they could get very less profit as the unhygienic practices followed at that time caused high amount of wastage of fishes. Most of the dried fish were taken for own consumption. They were also engaged in door-to-door selling of the products. The dried fish was mostly marketed at the local market. She says that, "It is our luck that our group is selected by the ATIC of CMFRI for marketing of the dried fish items. With the advent of this program and inputs of IVLP, we process first quality fish on commercial basis. The products are marketed well in good packing conditions, replacing our earlier paper packing. The training given by the Scientists from CMFRI on dip treatment under IVLP increased our awareness regarding the hygienic method of drying fishes using 'calcium powder'. They also gave information regarding new marketing outlets. The 'special racks' that were provided for the drying of fish helped us in maintaining the fish products in good condition and reduced the wastage of fish during processing. Now more and more people, especially women were coming forward to take up similar venture.

ATIC promotes Shrimp Farming : A Farmer's success story at Elamkunnapuzha

Benny Figerado at Malippuram of Elamkunnapuzha was an active farmer who took up Crab Monoculture and Shrimp Farming based on CMFRI technology. Figerado, a matriculate, took around 6 acres of pond on lease for shrimp farming. Initially he was interested in active fishing and his father was an owner of two boats during 1980s. He could not sustain his fishing business for a long period as he met with heavy losses. He shifted over to shrimp culture and his livelihood depended heavily on it. The shrimp culture practiced by him has improved over the years with the technical guidance given by CMFRI scientists through ATIC. He was made aware of the requirement of proper water exchange, farming, quality seeds for stocking, selection of uniform sized seeds, feed requirements and the feeding pattern in shrimp farming. The ATIC Sales outlet provided another opportunity for him to sell the fresh harvested shrimp at a reasonable margin. As the venture has boosted his morale to a great extent, he confidently says now that a reasonable profit could be generated through the supply of shrimp to ATIC and get good recognition and generate consumer preference for his farm produced shrimp.

ATIC facilitates in conservation of marine resources : A case study of theeram turtle protection group of Kolavi Palam at Payyoli

Kolavi palam beach resorts of Northern Kerala near Payyoli is popular for large gatherings of marine turtles during nesting seasons. A group of young nature lovers joined as 'Theeram Nature Conservation Society' and a large number of newspaper clippings appeared about this dynamic group conserving the sea resources. The peculiarities of the 'nature conservation society' when became known

everywhere, the Kerala Forest Department, Kerala Forestry Project, Habitat Management of Turtle, NGO's like Malabar Coastal Institute for Training, Research and Action (MCITRA), Central Research Institutes like CMFRI, IISR etc started intervention to make aware the public about the necessity of conserving and managing sea turtles. Soon, in 1992, the awareness programs clicked and from 1998 onwards the Kerala Forest Department extended assistance by building up two hatcheries and sheds and providing lanterns, torches and daily wages to six members. From this year onwards the activities of the society began to be carried out in an orderly manner after legal registration. They developed it as a breeding location for turtles and they conserved the natural sea resources. The group contacted the ATIC of CMFRI for learning the principles of Responsible Fisheries Management, Protection and conservation of mangroves to retain the biodiversity and sustainability of ecosystem. All the information bulletins on Sustainable Fisheries management, FAO code of Conduct on Responsible Fisheries, Bulletins of National Conferences on Marine turtles and the pamphlets on fishery based technologies were supplied to them by ATIC. Interactive meetings with the fisherfolk were arranged with active involvement of scientists and technical hands of CMFRI through ATIC in the Kolavi turtle nesting beach. The group members kept the statistics of the number of eggs hatched per nesting season. But most of the hatcheries disappeared due to severe sea erosion and also the seashore breadth had reduced to 350 metres. In spite of all these impediments and obstacles, still the sincere efforts to conserve turtle by the group continued and more than 40,000 hatchlings were released in to the sea. (Vipinkumar, 2005). They expected a large arribada in the near future. The President of the group Sri. Surendrababu and Secretary Sri.Sureshbabu maintained contact with ATIC of CMFRI for learning the technologies and putting into practice the principles of Sustainable management of marine resources. Interactive discussions with the active members of the group took place in ATIC and in the Theeram location on several occasions. The group planted mangrove seedlings and they were being looked after by the group with extreme commitment for developing natural habitats. The group developed a nursery for forest trees of 35 different species with the help of forest department and about 30,000 seedlings were raised to develop it as a permanent infrastructure. They often organised awareness camps, projected movies and conducted slide shows on nature protection and mangrove conservation.

ATIC offers diagnostic services : A success case of Kaliparambil hatchery at Chellanum

A well-known hatchery named, as 'Kaliparambil tiger prawn hatchery' at Chellanum is particularly notable for the production of tiger prawn seeds and is frequently in touch with the ATIC of CMFRI for the various consultations on technologies of shrimp production. The well-equipped hatchery possessed an area of 40 cents and gained significance in the supply of shrimp seeds on requirement of the farmers. Detection of white spot virus priorly is inevitable in shrimp hatchery. The

hatchery Proprietor Sri. K.X.John and the manager Sri.K.S.George systematically did the diagnostic tests at the ATIC of CMFRI such as PCR test, appropriate water sample analysis, pH test, Water analysis for P_{H_2} , salinity, dissolved oxygen and other environmental parameters, mud analysis etc. They approached ATIC for Algal Inoculum (*Chaetoceros*) for the feed purpose in the hatchery and were fully confident of the quality of Algal culture being supplied through the ATIC of CMFRI. The technician Sri.Sharavanan says that the production turn over had almost doubled in the last three years in this hatchery and they were thankful to ATIC for the diagnostic services offered at the right time.

ATIC promotes finfish culture : a farmer's success story at Puthuvypu

Mr.Karthikeyan at Thirunilathu of Elamkunnappuzha having primary level of education, was a regular visitor of ATIC for the technology on 'polyculture of finfish (*Chanos chanos* and *Mugil cephalus*)'. He entered into the field of fish culture during 1996, in his own farm. He owned 42 cents of land. The location was very bushy obstructing the inflow and outflow of saline water from the sea. This resulted in silt deposition and increase in weed population. The bushy land was cleared and deepened for culturing fish. He constructed temporary sluices in the eastern corner of the pond. No additional labourers were employed; rather the work was done by the family members. His wife Mrs Isha engaged herself fully in the farm operations. Natural entry of various species of gray mullets, pearl spot, milkfish was allowed. Apart from this, selective stocking of *Mugil cephalus* was also done at times. No specific stocking rate was maintained in such selective stocking. The economic returns were very minimal and were inadequate to make both ends meet. Irregular stocking and feeding pattern might be the reason for the low yield and less profit during those periods. He contacted ATIC and made use of the technologies by becoming a member of IVLP program during 2001. He says that, "I was given training regarding different aspects of finfish farming and I learned the importance of maintaining sluice gates for the proper water exchange. Stocking of fish and their feeding pattern were followed as per the suggestions of Scientists. As a result my income earning from fish culture had increased from Rs. 32,000 to around Rs. 55,000. I could manage to provide good education to my daughters. With no doubt in my mind I proudly say that all this was possible only because of IVLP and ATIC of CMFRI".

ATIC offers farm advisory services : A success case of water fry hatchery at Kodungallur

Shyامل, aged 42, and his wife Saji aged 39 were graduates in Fisheries Science and they had grown as successful entrepreneurs in marine hatchery venture named as 'Water Fry' in Kodungallur. Shyامل started the entrepreneurial effort in hatchery business in 1997 from the experiences of marine hatchery named as 'Aquaplaza' established in 1990 as joint venture on partnership basis. Tiger prawn and Scampi were the major items of production here. 'Water Fry' possessed 30 million seeds/ year capacity and Shayامل produced in the tune of 20-24 million /

year. Initial investment through bank loan was 1.5 million. The couple solicited the cooperation and support of CMFRI scientists and were the regular recipients of algal inoculums and related farm advisory services. He employed a technician and 5 skilled labourers in the hatchery. Within a short span of time of about 9 years, the couple worked hard and they could reduce the bank loan amount to 0.5 million. He had effluent treatment chambers installed by MPEDA's pilot project. Shaymalal and Saji, the dynamic couple in hatchery business themselves had undertaken mass culture of algal inoculums such as *Thalassosira*, *Chaetoceros*, *Skeltonema* etc. and were producing up to 5 tonnes.

ATIC promotes crab culture & crab fattening : A Farmer's success story at Malippuram

Sylvi Figerado at Pathissery of Malippuram was a dynamic farmer who took up Crab Monoculture based on CMFRI technology. Figerado, a matriculate, took around 6 acres of pond on lease for shrimp farming. Initially he was interested in active fishing and he was an owner of two boats during 1980s. He could not sustain his fishing business for a long period as he met with heavy losses. His two male children were too young to support him economically during his difficult period. He shifted over to crab culture with the consultation of IVLP team of CMFRI. The regular farm advisory services on Crab culture and fattening were offered through the ATIC and his reluctance and negative attitude towards Crab farming was totally vanished. His wife Juliet aged 53, supported him in all his farming operations. They were aware of the requirement of proper water exchange, farming, quality seeds for stocking, selection of uniform sized seeds, farm requirements and the feeding pattern. In 2002 they earned a profit of Rs. 47,000 from their pond in a single harvest. In the next lot they earned a profit of more than Rs. 50,000. That trend continued till date. Now the couple were confident that, whenever they were in need of money, they just sold crabs and got adequate amount all at once. They proclaimed that, crab farming was the best technology for obtaining maximum profit without much risk. Now Sylvi and Juliet had diversified the crab culture along with duck farming and vegetable cultivation in homesteads with bitter gourd and cowpea. The excreta of ducks became good organic manure for his homestead plot.

CONCLUSION AND IMPLICATIONS

The impact assessment of ATIC indicated that among the technological inputs & products most important items of highest level of satisfaction were the sales of algal inoculums and aquarium fish feed followed by dry fish products supplied by IVLP women's Self Help Groups. Water sample analysis, feed composition analysis and PCR test for detecting the virus infection in shrimp were the major items of satisfaction among the diagnostic services. With regard to priced publications, the most preferred published pamphlet was 'Aquarium fish keeping' followed by 'Mussel farming', 'Marine ornamental fishes' and 'Marine fisheries management'. Among farm advisory services, general ATIC services followed by 'Shrimp feed' and advisory services concerned with bivalve culture and marine ornamentals ranked

top. Among the awareness programs organized at ATIC, 'Responsible fisheries management' scored the highest followed by 'Culture fisheries' and thirdly the 'Fishery based technologies'. Among the movies projected, 'the movie on CMFRI named as Our Fish... Our Wealth' scored the highest level of satisfaction followed by the animation movie 'Little fish & tiny nets'. The movie on 'Mussel farming' and movie on 'IVLP' ranked third. With regard to the evaluation of the other facilities offered for public in ATIC, the average monthly total of the browsing rate of ATIC website was about 2006 hits and average daily rate of browsing the site was about 70. The general hospitality offered by the staff in ATIC topped with highest level of satisfaction and the ATIC website scored second. Among the facilities and other services, ATIC museum attained highest satisfaction score followed by Audio Visual Hall and Conference Hall. As much as eight success case studies were elucidated from such fisher folk and Self Help Groups who brought out a remarkable professional achievement, improved earnings and employment with the inspiration and support from ATIC.

ATIC started functioning as a single window delivery system and provided the farmers with the information on technologies and helped them adequately, but stress must be given on the supply of quality seeds. The sale of algal inoculums was the major item among the technology inputs and it would be worthwhile if CMFRI made effort for mass culture of the algal inoculums because the quality was supreme in majority's opinion. The diagnostic services and analysis were made easier and it helped the farmers to get the results of the environmental parameters in stipulated time. But the charge for diagnostic services was more in majority's perception. Interaction of farmers with the scientists was made easier. But still the single window approach was not practically materialized so far because ATIC dealt with live fishes and live samples. It would be better if all sales activities were channeled through ATIC rather than piece meal approach through different divisions separately. Practically ATIC should be at the entrance for public accessibility. At least a small 'sales unit' at the entrance would be advisable. The queries from the farmers on innovative technologies should be answered quickly. Income generation of the institute was enhanced due to ATIC. But more broadening and diversification was required for earning more. The ATIC web facility was extensively used by the public at an average of 70 hits per day. But 'Ask the expert' facility in the web page was needed whereby the questions of the farmers could be sent electronically to the ATIC and answers given by the concerned scientists could be posted on the web page. Frequently Asked Queries (FAQ) in the web page must be given a little more consideration. It is proposed to give mass awareness and publicity among the end users /clients about the activities and facilities of ATIC through mass media. It would be good to send brochures and information bulletins on ATIC to all fishermen cooperative societies and panchayats to make the fishermen / farmers aware about the Centre. Modifications in the ATIC building with interior decoration civil works in museum, sound proof audio visual room, auditorium, sales room, designing latest laminated flex posters of

technologies and articulation works with specimens and making arrangements for delegates' visit were required. Steps need to be taken for functioning of the Single Window Delivery System more effectively with the sales of ornamental fish feed, fresh shrimp of different counts as ATIC was provided a deep freezer, dry fish products, processed products etc. It is advisable to duplicate the movie CDs' and DVDs' namely Our Fish- Our Wealth (A movie on CMFRI), Mussel farming in Open Sea and Estuaries in Karnataka Coastal Belts and Growing with Fish...Outreach of IVLP to Elamkunnappuzha and wide publicity need to be given though circular to all educational firms for improving the sales. Equipping the ATIC museum with specimens, new posters and charts and revamping the ATIC museum with the display of all relevant technologies with trilingual write-ups and thematic and self-explanatory models.

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The demand for program evaluation information is growing. Increased competition among agencies seeking funding has resulted in greater expectations for efficiencies and accountability reports of performance. In this context, evaluation must deal with issues of accountability, good management, knowledge building and sharing, organizational learning and development, problem identification and policy formation.

The Indian Agricultural Research Institute collaborated with Michigan State University to develop evaluation capacity among rural resource management program staff in the South Asia Region. Twenty participants representing various universities and research centers in India participated in a series of three week-long workshops and each participant completed an evaluation project. The International Development Research Center, Canada supported this initiative.

This book is written as a resource manual for educators and program evaluators. It is designed to introduce program evaluation to field staff by sharing case studies on a variety of rural resource management programs and projects.

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