Impact assessment of ATIC, CMFRI

(Agricultural Technology Information Centre of Central Marine Fisheries Research Institute)

Vipinkumar.V.P

Project Report
On
Evaluation Capacity Building in Rural Resource Management
Workshop

Organised by
Michigan State University, USA
&
Division of Agrl. Extension, IARI, New Delhi

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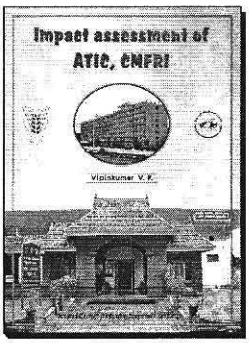

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Cochin, 16.08.2006

Dr.Vipinkumar.V.P

Contents

atic.....the beginning and beyond.....

"Today India has become one of the strongest in the world in terms of scientific manpower in capability and maturity. Hence, we are in a position not only to understand the technologies that we may have to borrow, but also to create our own technologies with extensive scientific inputs of indigenous origin. Basically we have come a long way since our independence, from mere buyers of technology to those of who have made science and technology as an important contributor for national development and societal transformation. In a world where the powers are determined by their share of the world's knowledge, reflected by patents, papers and so on, the WTO starts to play a crucial role in the economic development. It is important for India to put all her acts together to become a continuous innovator and creator of science and technology intensive products".....

.....Science and Technology Policy Statement, 2003 of Hon'ble President of India, Dr. A.P.J. Abdul Kalam

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.

The CMFRI, one of the premier research institutes carrying our multi- disciplinary research in capture and culture fisheries in India functioning under the Indian Council of Agricultural Research (ICAR) essentially focuses attention on the following mandate: (Box 1)

Box 1 : Mandate of CMFRI

- Monitoring the exploited and assessing the under-exploited marine fisheries resources of the Exclusive Economic Zone.
- Understanding the fluctuations in abundance of marine fisheries resources in relation to change in the environment.
- Developing suitable mariculture technologies for finfish, shellfish and other culturable organisms in open seas to supplement capture fishery production.
- Acting as repository information on marine fishery resources with a systematic database.
- Conducting transfer of technology, post graduate and specialized training, education and extension education programmes.
- Providing consultancy services.

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 are given in box 2.

Box 2 : ATIC - Specific objectives

- 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 provides a platform for feedback from the end users to the institute.
- Providing a platform for feed back from the end users to the institute.

The Rationale :

The rationale of the Agricultural Technology Information Centre are as follows. (Sathiadhas and Sheela Immanuel, 2003)

- Providing diagnostic services for soil testing and fish health
- Surveying research products such as fish seeds, processed products and other technologies emerging from the Institution for testing and adaptation of various clients
- Disseminating information through published literature and communication materials as well as audio visual aids and
- Providing an opportunity to the Institutes to have resource generation through the sales of technologies.

ATIC Infrastructure

The ATIC Building

The renovation work was completed and the ATIC building was inaugurated by the Director General, ICAR Dr. Mangala Rai on 26th April 2003 with interior decoration civil

works in museum, sound proof audio visual room, auditorium, library & sales room by designing and exhibiting the latest laminated flex posters of technologies and articulation works with chronological display of specimens so as to serve as a fully functional single window delivery system. The facilities of the ATIC building are as follows :

ATIC Museum

Display materials, charts, posters, models and mock ups depicting the different resources, technologies, products and services and publications of CMFRI are arranged chronologically with trilingual write ups which are self explanatory in the ATIC museum.

Audio Visual hall

The sound proof AV hall is fully equipped with all multimedia and all visual display projectors and it has the facility to screen video movies on different fishery based technologies for the visitors as per their requisites. A bunch of movies on fishery-based technologies from various sources are stocked in ATIC for projection.

ATIC Conference hall

The conference hall has the facility to accommodate nearly 300 people. Farmer interaction meetings, training programmes, awareness camps etc. used to be organized in ATIC conference hall.

ATIC library

The ATIC library provides the facilities for the visiting farmers/ fisherfolk/ entrepreneurs to get them exposed to the available literature of the Institute.

ATIC Sales room

The sales room in ATIC provides all available publications such as pamphlets, bulletins, books, concerned with fishery based technologies, movie CDs' developed by CMFRI, ornamental fish feed, dry fish products, fresh shrimp etc at nominal costs for the visitors.

Farmers visit

The farmers/fishermen/industrialists visiting 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.

Technological inputs ad products

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.

Diagnostic services undertaken

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 input and farm advisory services

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, Clam culture, Aquarium fish keeping, Marine fisheries management for Sustainable development etc. Some need based ICAR publications also are kept for sale in ATIC.

ATIC Technology Information Series

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

(a) Awareness programmes and assistance to training on different technologies

ATIC organsies awareness programmes on Responsible fisheries management and movie shows for assistance to training on different fishery based technologies to the clients from time to time.

(b) 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.

(c) 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 amble support of leaflets and bulletins.

(d) 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 programmes 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 a revenue of about Rs 13,95,061 /- has been generated though sales activities and as much as 8,912 farmers, fisherfolk and entrepreneurs were benefited by ATIC sales $ services. Through farm advisory services, awrenss programmes, movie shows and unpriced publications the no. of people benefited are 23,972. (Total no. of beneficiaries is 32,874) The total revenue generated and beneficiaries through various items in ATIC is shown in Box 3. It would be pertinent to make an impact assessment of ATIC to evaluate the level of satisfaction of the beneficiaries.

Box 3: Revenue generated & beneficiaries of ATIC from 2000 to 2006 (up to June)

Sl.No	Item of Sale / Service	No. of beneficiaries	Amount
1	Sale of technological inputs/ products	2,804	10,08,629 /-
2	Diagnostic services	6,51	91,380 /-
3	Priced publications	5,457	2,95,052 /-
4	Farm advisory services	8,921	-
5	Awareness programmes organized	1,934	-
6	Movie shows projected	10,201	-
7	Unpriced publications	2,906	-
	Total	**32,874**	**13,95,061 /-**

atic Impact Assessment .....Methodology

"We take satisfaction from the fact that over 100 global companies have come to India to set up R&D Centres, affirming the intellectual capital of our scientific and engineering community. Science must grapple with the key challenges facing the country today. These include the pressures of increasing population, greater health risks, changing demographics, degraded natural resources, and dwindling farmlands. We need new science and technologies, new priorities and new paradigms to address these fundamental challenges. We in India are practising new physics and new chemistry to make new materials. These are of direct relevance to the Millennium Development Goals of the United Nations".....

.....Hon'ble Prime Minister of India, Dr. Manmohan Singh

So far revenue of about Rs 14 lakhs 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. The evaluation objectives are listed out in Box 4

1.Objectives

Box 4 : Objectives

- To assess the impact of ATIC by evaluating the level of satisfaction of beneficiaries of ATIC technology products, services and awareness programmes.
- 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 identify the lacunae in operation. CMFRI authorities essentially can make use the evaluation study. Thereby the assessment of the strengths and weaknesses of ATIC and bringing about probable improvement in functioning becomes feasible.

2. Methodology

The assessment of the impact of ATIC technology products, services and awareness camps will be done by measuring the level of satisfaction of the beneficiaries of those services from ATIC. Data were collected with a pre tested well structured interview schedule focusing the questions seeking the evaluation ATIC sales & services on technology products, diagnostic

services and awareness programmes for impact assessment are enclosed separately as schedules 1 and 2 in Annexure I.

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 category 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 their views to give suggestions for improving the functioning of ATIC.

Success case studies were elucidated from such fisherfolk who brought out a remarkable professional achievement, 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, people's perceptions and opinions and observations.

3. information needed to answer the questions

The major information needed to answer the questions are presented in Box 5 as indicators.

Box :5 : Indicators of measurement

What I wish to know	Indicators
Sale of Technology Products	Level of satisfaction of beneficiaries
Technology Services	- do -
Awareness Programmes	- do _
Professional achievements, earnings, employment of individuals & Self Help Group mobilisation	Case studies, Focus Group Discussions

4. The data collection method(s) used

Survey, Interview, Observation, Group techniques, Case study, Photos and Videos.

5. The sample used

Quota sampling from each category of beneficiaries of sales & services and awareness programmes was adopted for the study. Approximately 25- 30 beneficiaries of each service were selected as samples.

6. Data Collection Process

Data collection was undertaken by enumerators trained by the evaluation team manager and technical staff of ATIC.

7. Data analysis

Data analysis was undertaken based on Frequency distribution, Percentage value, Ranking & other relevant analysis techniques using SPSS package in consultation with expert Statisticians of division of Fishery Resources Assessment. The information gathered were interpreted by the Evaluation team manager in consultation with Head of the Division of Socio Economic Evaluation & Technology Transfer after the Statistical analysis of data. The Evaluation Team Leader made the summary.

8.Managing the Evaluation Study

Implementation plan, timeline and responsibilities were given in the management chart, (Box : 6) which went on meticulously.

Box 6 : Management chart

SI.No	Activity / Quarter	March-May 2006	June-August 2006
1	• Review of literature and collection of background information for the evaluation project.	*	*
2	• Identifying the stakeholders / beneficiaries of the ATIC.	*	
3	• Designing suitable data collection tools and protocols for each identified category of stakeholders/ beneficiaries in the form of 2 schedules	*	*
4	• Expert consultation, pre test and standardization of data collecting protocols		*
5	• Finalisation of protocols and fixing major variables to be quantified for data collection	*	
6	• Data collection from the beneficiaries	*	
7	• Data Analysis& Interpretation		*
8	• Report preparation & Submission of report		*

9. Budget

Labour charge for data enumerators 20 Mandays X Rs 150 /-	= Rs 3,000 /-
Focus group discussions 2 Nos	= Rs 1,000 /-
Photographs, Video, Travel, Stationary & Miscellaneous	= Rs 1,000 /-
	Total = Rs 5,000 /-

10. How the evaluation results are planned to be communicated and shared ?

The impact assessment results are planned to be communicated to the public and stakeholders in the following manner as given in Box 7.

Box 7 : Planning of communication of impact assessment results

To whom	When/ Where/ How to present
To public	Popular articles through News papers & periodicals
To research people and technical hands	Journals & Institute News letter
Farmers/ Fisherfolk/ Entrepreneurs	Video movie projecting impact

atic Impact Assessment ....Results & Discussions

Everything in life matters and ultimately has a place, an impact, and a meaning.....

.....Laurens van der Post

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

1. Sale of technological inputs and technology products.
2. Diagnostic services.
3. Priced publications.
4. Farm advisory services.
5. Awareness programmes.
6. Movie shows.
7. 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 are elucidated from the respondents who achieved remarkable improvement in professional achievement, earnings, and employment as well as from meticulously mobilised Self Help Groups with substantial results.

1. 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 1 and the results of assessment of level of satisfaction are presented in Table 2. An amount of Rs 10, 08, 629 /- has been generated from the sale of technological inputs and products through ATIC and the most important item was the sale of Algal inoculums.

Year wise details of ATIC activities undertaken during January to December in the years 2000,2001,2002,2003,2004,2005 and 2006 (upto June)

Table 1. Technological inputs / products sold :

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

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 2.

Table 2 : Level of satisfaction of beneficiaries of sale of technological inputs and products

Sl. No	Technological input / product	No. of respondents Highly satisfied	No. of respondents Moderately satisfied	No. of respondents Least satisfied	% Level of Satisfaction
1	Algal inoculums	21	7	2	87.78
2	Aquarium fish feed	21	7	2	87.78
3	Dry fish products	19	10	1	86.67
4	Zooplankton	20	7	3	85.55
5	Fresh shrimp	17	10	3	82.22
6	Oyster meat	18	10	2	84.44
7	Oysters	17	11	2	83.33
8	Pearl oysters	19	8	3	84.44
9	Pearl	18	7	5	81.11

From the table 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 % value of 87.78 each followed by sale of dry fish products (Score 86.67). Two success cases were elucidated from the private hatcheries 'Kaliparambil' at Chellanum of Ernakulam district and 'Water Fry' at Kodungallur of Thrissur district who used algal inoculums of CMFRI. Similarly a success case was drawn from 'Janani' Self Help Group mobilised under IVLP of CMFRI who supplied dry fish products to ATIC for sale is also presented in fourth chapter. This was started as a micro enterprise for livlihood 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).

2. 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 3 and the results of assessment of level of satisfaction are presented in Table 4. An amount of Rs 91, 380 /- has been generated from diagnostic services which benefited 651

stakeholders through ATIC and the most important item was water sample analysis. For assessing 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 4.

Table 3 : Diagnostic services provided:

Year	Sl. No	Diagnostic services	Total samples Tested	Amount charged	No. of beneficiaries
2000	1	Water sample analysis	24	Free of cost	24
	2	Feed composition analysis	12	Free of cost	10
	3	Electron microscopic work	12	Free of cost	08
	4	Mud sample	08	Free of cost	08
	5	Disease diagnosis	38	Free of cost	30
2001	1	Feed composition analysis	10	1,500 /-	10
	2	Water sample analysis	42	8,400 /-	38
	3	E.M. work	-	3,800 /-	38
	4	Mud sample analysis	-	2,000 /-	26
	5	Disease diagnosis	06	3,000 /-	06
2002	1	Feed composition analysis	07	3,500 /-	03
	2	Electron microscopic work	03	19,500 /-	03
	3	Water analysis	04	11,745 /-	04
	4	Shell identification	05	950 /-	05
	5	Stereo microscopic work	01	600 /-	01
2003	1	Water testing	04	1835 /-	23
	2	Shell identification	07	500 /-	21
	3	PCR test charges	21	11,500 /-	27
2004	1	Shell identification	08	2,600 /-	57
	2	PCR test charges	12	6,000 /-	121
	3	Inorganic Phosphate	6	330 /-	24
	4	Nitrate	6	330 /-	24
	5	Silicate	6	330 /-	24
	6	Ammonia	6	330 /-	24
	7	Nitrite	6	330 /-	24
	8	Feed composition analysis	3	3,000 /-	18
2005	1	Shell identification	4	600 /-	21
	2	Any other (specify) : ATIC Hall rent		7,500 /-	35
2006	1	Shell identification	8	1,200 /-	44
			Total	**91,380 /-**	**651**

Table 4 : Level of satisfaction of beneficiaries of diagnostic services

Sl. No	Diagnostic services	No. of respondents Highly satisfied	No. of respondents Moderately satisfied	No. of respondents Least satisfied	% Level of Satisfaction
1	Water sample analysis	19	10	1	86.67
2	Feed composition analysis	18	10	2	84.44
3	PCR test charges	17	11	2	83.33
4	Mud sample	16	12	2	82.22
5	Disease diagnosis	16	12	2	82.22
6	Shell identification	16	11	3	81.11
7	Electron microscopic work	16	11	3	81.11
8	Inorganic Phosphate	14	12	4	77.78
9	Silicate	13	13	4	76.67
10	Ammonia	13	13	4	76.67
11	Nitrate	13	12	5	75.56
12	Nitrite	13	12	5	75.56

From the table 4, it can be noticed that the most important item of highest level of satisfaction was 'water sample analysis' with the % value of level of satisfaction 86.67 followed by feed composition analysis (Score 84.44) and PCR test for detecting the virus infection in shrimp. (Score 83.33)

3. 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 5 and the results of assessment of level of satisfaction are presented in Table 6. An amount of Rs 2,95,052 /- has been generated from the sale of priced publications with a total no. of 5457 beneficiaries through ATIC and the most 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 6. (Movies CDs' are evaluated separately in movie shows organized in ATIC.)

Table 5 : Priced Publications sold

Year	Sl. No	Titles of the publications (Booklets/Pamphlets/others)	No. sold	Value in Rs	No. of beneficiaries
2001	1	Aquarium fish keeping	38	380 /-	38
	2	Mussel Farming	34	170 /-	34
	3	Marine fisheries management	29	290 /-	29
	4	Crab farming	42	210 /-	42
	5	Fish disease	29	145 /-	29
	6	Pearl farming	34	170 /-	34
	7	Mahima feed	17	85 /-	17
	8	Oyster farming	38	190 /-	38
	9	Artificial reef	24	360 /-	24
	10	Shrimp hatchery	38	190 /-	38
	11	Prawn farming	9	135 /-	9
	12	Clam farming	4	20 /-	4
	13	Library publications	-	1.45 L	-
2002	1	Aquarium fish keeping	35	350 /-	38
	2	Mussel Farming	25	125/-	25
	3	Marine fisheries management	15	150/-	15
	4	Crab farming	21	105/-	21
	5	Fish disease	07	35/-	7
	6	Pearl farming	15	75/-	15
	7	Oyster farming	22	110 /-	22
	8	Artificial reef	10	150/-	10
	9	Shrimp hatchery	20	100 /-	20
	10	Prawn farming	12	180 /-	12
	11	Clam farming	10	50 /-	10
	12	ICAR publications	-	1,325 /-	12
	13	Library publications		1,28,584 /-	-
2003	1	Aquarium fish keeping	10	100 /-	38
	2	Mussel Farming	46	230 /-	63
	3	Marine fisheries management	4	40 /-	15
	4	Crab farming	51	255 /-	101
	5	Fish disease	4	20 /-	5
	6	Pearl farming	6	30 /-	5
	7	Mahima feed	4	20 /-	15
	8	Oyster farming	9	40 /-	11
	9	Artificial reef	8	120 /-	33
	10	Shrimp hatchery	7	30 /-	46
	11	Prawn farming	1	15 /-	28
	12	Clam farming	3	15 /-	14
	13	ICAR Publications	41	2,192 /-	219

To be continued.....

Table 5 : Priced Publications sold (Continued....)

Year	Sl. No	Titles of the publications (Pamphlets, Books & CDs)	No. sold	Value in Rs	No. of beneficiaries
2004	1	Aquarium fish keeping	1	10 /-	6
	2	Mussel Farming	14	70 /-	64
	3	Marine fisheries management	11	110 /-	50
	4	Crab farming	13	65 /-	57
	5	Fish diseases	11	55 /-	46
	6	Pearl farming	10	50 /-	36
	7	Mahima feed	3	15 /-	16
	8	Oyster farming	12	60 /-	42
	9	Artificial reef	11	165 /-	41
	10	Shrimp hatchery	12	60 /-	54
	11	Prawn farming	3	15 /-	18
	12	Clam culture	3	15 /-	13
	13	ICAR publications (Books)	36	2,490 /-	189
	14	VCD : Our fish ... Our Wealth : a movie on CMFRI	3	1,200 /-	650
	15	VCD: Mussel farming in Open sea & estuaries in Karnataka coastal belts	5	1,000 /-	1,250
	16	VCD: Monsoon season post harvest losses in traditional fish processing in India.	3	600 /-	150
2005	1	Aquarium fish keeping	1	10 /-	14
	2	Mussel Farming	24	120 /-	114
	3	Marine fisheries management	10	100 /-	53
	4	Crab farming	21	105 /-	92
	5	Fish diseases	16	80 /-	70
	6	Pearl farming	14	70 /-	52
	7	Mahima feed	4	20 /-	22
	8	Oyster farming	26	100 /-	107
	9	Artificial reef	24	120 /-	72
	10	Shrimp hatchery	5	25 /-	52
	11	Prawn farming	4	5 /-	28
	12	Clam culture	5	25 /-	18
	13	Seaweed recipes	11	66 /-	46
	14	Marine Pollution	13	78 /-	48
	15	Marine Ornamental fishes	11	66 /-	39
	16	ICAR publications (Books)	46	3,312/-	275
	17	VCD: Our fish ... Our Wealth: a movie on CMFRI	2	800 /-	82
	18	VCD: Mussel farming in Open seas & estuaries in Karnataka coastal belts	2	400 /-	53

To be continued.....

Table 5 : Priced Publications sold (Continued....)

Year	Sl. No	Titles of the publications (Pamphlets, Books & CDs)	No. sold	Value in Rs	No. of beneficiaries
2006 up to June	1	Mussel Farming	1	5 /-	17
	2	Marine fisheries management	2	20 /-	17
	3	Crab farming	4	20 /-	16
	4	Fish diseases	3	15 /-	17
	5	Pearl farming	5	25 /-	18
	6	Mahima feed	2	10 /-	12
	7	Oyster farming	2	10 /-	13
	8	Artificial reef	1	5 /-	6
	9	Shrimp hatchery	1	5 /-	7
	10	Prawn farming	3	45 /-	15
	11	Seaweed recipes	7	42 /-	30
	12	Marine Pollution	6	36 /-	25
	13	Marine Ornamental fishes	9	54 /-	7
	14	ICAR publications (Books)	10	887 /-	72
	15	VCD : Our fish ... Our Wealth : a movie on CMFRI	1	400 /-	84
	16	VCD: Growing with fish : Outreach of IVLP to *Elamkunnappuzha*	5	1,000 /-	46
			Total	**2,95,052 /-**	**5457**

Table 6 : Level of satisfaction of beneficiaries of priced publications

Sl. No	Priced publications	No. of respondents Highly satisfied	No. of respondents Moderately satisfied	No. of respondents Least satisfied	% Level of Satisfaction
1	Aquarium fish keeping	18	10	2	84.44
2	Mussel Farming	17	11	2	83.33
3	Marine Ornamental fishes	17	11	2	83.33
3	Marine fisheries management	17	11	2	83.33
4	Marine Pollution	16	12	2	82.22
5	Prawn farming	16	12	2	82.22
6	Shrimp hatchery	16	12	2	82.22
7	Crab farming	16	12	2	82.22
8	Seaweed recipes	16	12	2	82.22
9	Fish diseases	16	11	3	81.11
10	Pearl farming	16	11	3	81.11
11	Oyster farming	14	12	4	77.78
12	Mahima feed	13	13	4	76.67
13	Artificial reef	13	13	4	76.67
14	Clam culture	13	12	5	75.56

From the table 6, it can be noted that the most preferred published pamphlet of highest level of satisfaction was 'Aquarium fish keeping' with the % value of level of satisfaction 84.44, followed by Mussel Farming, Marine Ornamental fishes and Marine fisheries management of equal score of 83.33. (Most of these pamphlets are almost out of stock due to their high demand and these are to be ordered for publishing the next addition with suitable modification.)

4. 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 7. The details of visit of farmers to ATIC so far for various services are presented in Table 8 and the results of assessment of level of satisfaction are presented in Table 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 visited ATIC up to June 2006 is 14, 247. Of this, farmers alone is 5,186. (4006 males and 1180 females). No. of students and educational team visited ATIC is 8806 and VIP visitors are 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 8. (The advisory services though ATIC website are 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 7 : Farm advisory services provided to farmers and other stake holders :

Year	Sl.No	Advisory Services Provided	Personal visit	Through letters	Telephone Helpline	Farmers' Field visit	Total
2000	1	Prawn farming	148	12	40	19	219
	2	Bivalve culture	32	08	15	08	63
	3	Shrimp feed	45	22	72	04	143
	4	Shrimp hatchery	20	04	04	-	28
	5	Fish disease	40	13	03	13	69
	6	Training	15	22	18	7	62
	7	Crab	185	18	53	2	258
	8	CMFRI/ATIC Services	651	42	38	-	731
2001	1	Prawn farming	154	08	35	15	212
	2	Bivalve culture	45	04	22	-	71
	3	Shrimp feed	65	15	34	08	122
	4	Shrimp hatchery	34	06	18	-	58
	5	Fish disease	60	15	45	-	120
	6	Crab culture	154	18	38	32	242
	7	Training	22	12	20	-	64
	8	CMFRI/ATIC services	1,358	36	22	-	1,416
2002	1	Prawn farming	40	03	18	05	66
	2	Bivalve culture	12	08	02	-	22
	3	Shrimp feed	10	06	11	-	27
	4	Fish disease	11	01	20		32
	5	Crab farming	30	09	05	12	56
	6	Shrimp hatchery	25	08	08	-	41
	7	Marine ornamental	02	03	04	-	9
	8	Fish disease management	15	07	16	-	38
	9	Training	08	10	12	-	30
	10	CMFRI/ATIC services	460	16	12	-	488
2003	1	Animal Science	6	-	4	12	22
	2	Prawn farming	48	03	18	05	74
	3	Bivalve culture	35	08	02	-	45
	4	Shrimp feed	28	06	11	-	45
	5	Fish disease	32	01	20		53
	6	Crab farming	18	09	05	12	44
	7	Shrimp hatchery	49	08	08	-	65
	8	Marine ornamental	16	03	04	-	23
	9	Fish disease management	33	07	16	-	56
	10	Training	51	10	12	-	73
	11	CMFRI/ ATIC services	666	16	12	-	694
2004	1	Prawn farming	38	06	29	09	65
	2	Bivalve culture	35	09	22	-	54
	3	Shrimp feed	19	09	18	-	38
	4	Fish disease	41	14	23		61
	5	Crab farming	31	19	09	16	45
	6	Shrimp hatchery	41	12	14	-	62
	7	Marine ornamental	64	16	19	-	98
	8	Fish disease management	43	10	17	-	69
	9	Training	71	19	27	-	121
	10	CMFRI/ ATIC services	1239	32	24	-	1370

To be continued.....

Table 7 : Farm advisory services provided to farmers and other stake holders (Continued ....)

Year	Sl.No	Advisory Services Provided	Personal visit	Through letters	Telephone Helpline	Farmers' Field visit	Total
2005	1	Prawn farming	39	03	21	6	69
	2	Bivalve culture	27	07	02	-	36
	3	Shrimp feed	24	06	14	-	44
	4	Fish disease	39	03	20	-	62
	5	Crab farming	22	07	08	-	37
	6	Shrimp hatchery	34	06	11	-	51
	7	Marine ornamental	63	18	21	-	102
	8	Fish disease management	42	16	19	-	77
	9	Training	47	19	27	-	93
	10	CMFRI/ ATIC services	1404	47	39	11	1501
2006 up to June	1	Prawn farming	28	03	19	05	55
	2	Bivalve culture	25	07	02	-	34
	3	Shrimp feed	14	06	11	-	31
	4	Fish disease	29	03	19		51
	5	Crab farming	11	07	04	03	25
	6	Shrimp hatchery	29	06	07	-	42
	7	Marine ornamental	32	08	09	-	49
	8	Fish disease management	21	05	08	-	34
	9	Training	38	09	14	-	61
	10	CMFRI/ ATIC services	652	16	12	-	680
						Total	**8921**

Table 8 : Visit of farmers /fisherfolk / 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 9 : Level of satisfaction of beneficiaries of Farm advisory services

Sl. No	Farm advisory services	No. of respondents Highly satisfied	No. of respondents Moderately satisfied	No. of respondents Least satisfied	% Level of Satisfaction
1	CMFRI/ ATIC services	16	11	3	81.11
2	Shrimp feed	14	12	4	77.78
3	Bivalve culture	13	13	4	76.67
4	Marine ornamental fishes	13	13	4	76.67
5	Training	13	12	5	75.56
6	Fish disease management	12	10	8	71.11
7	Prawn farming	11	10	9	68.89
8	Shrimp hatchery	9	11	10	65.56
9	Crab farming	9	11	10	65.56

8. Awareness programmes organized

The following are the details of awareness programmes organized under ATIC on various fishery based technologies and Responsible Fisheries management. An awareness programme essentially comprises 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 10 shows details of the awareness programme organized in ATIC. So far, a total of 96 awareness programmes have been organised at ATIC for 1934 participants.

Table 10 : Awareness programmes organized

Sl.No	Awareness Progammes	No. organsied				Total No.	No. of partici-pants
		2003	2004	2005	2006 up to June		
1	Responsible Fisheries Management	7	13	21	20	61	1223
2	Culture Fisheries	2	6	7	11	26	524
3	Fishery based technologies & General Fisheries aspects	1	2	3	3	9	187
					Grand Total =	**96**	**1934**

The level of satisfaction of participants of awareness programmes was assessed by interviewing 30 nos. of selected participants who have undergone the awareness programmes and the results are presented in Table 11.

Table 11 : Level of satisfaction of beneficiaries of Awareness programmes

Sl. No	Awareness Programmes	No. of respondents Highly satisfied	No. of respondents Moderately satisfied	No. of respondents Least satisfied	% Level of Satisfaction
1	Responsible Fisheries Management	16	11	3	81.11
2	Culture Fisheries	14	12	4	77.78
3	Fishery based technologies & General Fisheries aspects	9	10	11	64.44

Among the awareness programmes, '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 programme of Fishery based technologies because it got only a poor score as satisfaction level (64.44)

9. Movie shows

ATIC used to project movies on Fishery based technologies for the visitors and the following are the details of movies produced by CMFRI projected in ATIC so far. (Table 12)

Table 12 : Movies projected in ATIC

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

As much as 1604 movie shows were undertaken in ATIC for 10,201 viewers on the above-mentioned movies produced by CMFRI. The level of satisfaction of the viewers about the movies was assessed by interviewing 30 nos. of selected participants who have watched the movies and the results are presented in Table 13.

Table 13 : Level of satisfaction of viewers of movie shows

Sl. No	Name of the movie	No. of respondents Highly satisfied	No. of respondents Moderately satisfied	No. of respondents Least satisfied	% Level of Satisfaction
1	VCD : Our Fish ....Our Wealth.(A movie on CMFRI)	16	11	3	81.11
2	VCD : Little Fishes & Tiny Nets (Animation Movie)	14	12	4	77.78
3	VCD : Mussel farming in Open seas & estuaries in Karnataka coastal belts	14	10	6	75.56
4	VCD :Growing with fish : Outreach of IVLP to *Elamkunnappuzha*	14	10	6	75.56

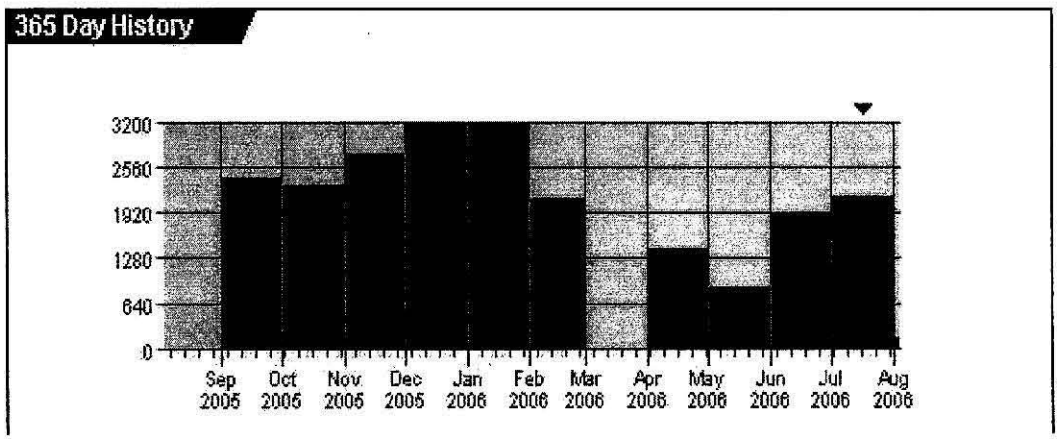
Among the movies projected, 'the movie on CMFRI named as Our Fish... Our Wealth' scored the highest level of satisfaction (81.11) followed by 'animation movie : Little fish & tiny nets' (77.78), movie produced under the arena of 'Responsible Fisheries Extension' (Ramchandran, 2004) The movie on 'Mussel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

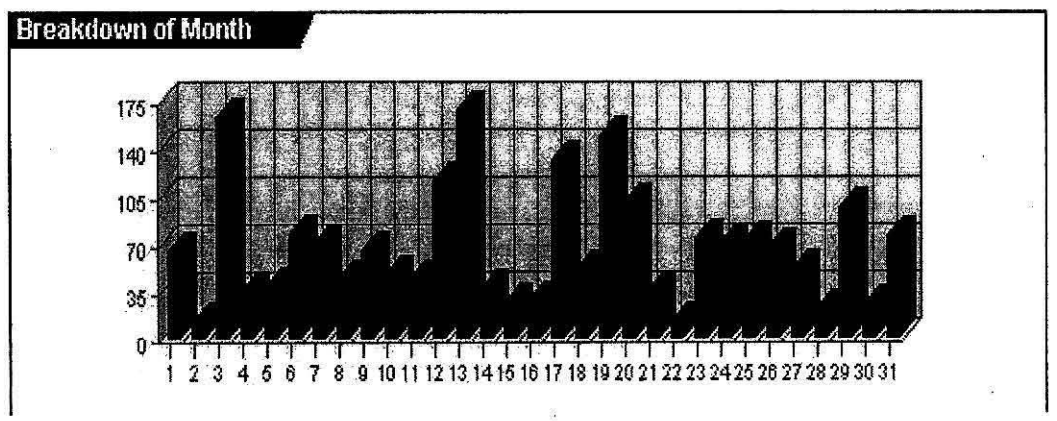
7. Other facilities offered to public

The other facilities being offered for the public in ATIC are 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 Box 8. 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.)

Box 8 : The usage by hits of ATIC website





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 is the search rate of ATIC web site as per the last month's report. Average monthly total is about 2006 hits and average daily rate of browsing the site is 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 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 14 : Level of satisfaction of ATIC facilities

Sl. No	Other Services	No. of respondents Highly satisfied	No. of respondents Moderately satisfied	No. of respondents Least satisfied	% Level of Satisfaction
1	General Hospitality	23	6	1	91.11
2	ATIC web site	22	6	2	88.89
3	ATIC Museum	21	7	2	87.78
4	ATIC Library & Sales Room	16	11	3	81.11
5	ATIC Audio Visual Hall	16	11	3	81.11
6	ATIC Conference Hall	14	12	4	77.78
7	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 level of satisfaction. Among the facilities and other services offered in ATIC, museum attains highest satisfaction score of 87.78 followed by Audio Visual Hall and Conference Hall (Score 81.11 each). ATIC Laboratory got a least satisfaction level of 42.22, which necessitates the requirement of improving the facilities by equipping with essential items to develop it as a fully functional laboratory.

atic Impact Assessment .....

.....Some Success Case Studies

"We thrive and survive on planet earth as a single human family. And one of our main responsibilities is to leave to successor generations a sustainable future.".....***UN Secretary-General Kofi A. Annan***

Success case studies were elucidated from such fisherfolk who brought out a remarkable professional achievement, 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 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 use to earn a living (Aujimangkul et al, 2000, DFID, 2001; Graham and Tanyang, 2001; CBCRM Resource Center 2003; Arciaga *et al*, 2002; Ashby, 2003).

ATIC helps in Dry Fish Processing: A success case of Women's Self Help Group at *Elamkunnappuzha*

'Janani' Self Help Group, *Puthuvyppu* Post, *Elamkunnapuzha* in *Vypeen* Island was conspicuous for the intervention of drying of fish through consultation of CMFRI. The group has 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 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 programme 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 has 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 are coming forward to take up similar venture.

ATIC promotes Shrimp Farming : A Farmer's Success Story at *Elamkunnapuzha*

Benny Figerado (25) at Malippuram of Elamkunnapuzha is 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 can 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 large number of newspaper clippings appeared about this dynamic group conserving the sea resources. The peculiarities of the 'nature conservation society' when become 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 programmes 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 conserve 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 keep the statistics of the number of eggs hatched per nesting season. But most of the hatcheries disappeared due to severe sea erosion and the seashore breadth has reduced to 350 metres. In spite of all these impediments and obstacles, still the sincere efforts to conserve turtle by the group continues and more than 40,000 hatchlings were released in to the sea. (Vipinkumar, 2005) They expect a large *arribada* in the near future. The President of the group Sri. Surendrababu and Secretary Sri.Sureshbabu maintain contact 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 are 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 are raised to develop it as a permanent infrastructure. They often organise awareness camps, project movies and conduct 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 possesses 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 and the hatchery Proprietor Sri. K.X.John and the manger Sri.K.S.George systematically do the diagnostic tests at the ATIC of CMFRI such as PCR test, appropriate water sample analysis, pH test, Water analysis for P_H, salinity, dissolved oxygen and other environmental parameters, mud analysis etc. They approach ATIC for Algal Inoculum (*Chaetoceros*) for the feed purpose in the hatchery and are fully confident of the quality of Algal culture being supplied though the ATIC of CMFRI. The technician Sri.Sharavanan says that the production turn over is almost doubled in the last three years in this hatchery and they are thankful to ATIC for the diagnostic services offered at the right time.

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

Mr.Karthikeyan (48), Thirunilathu, Puthuvyppu, Elamkunnapuzha 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 owns 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 programme 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. My income earning from fish culture has 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 is possible only because of IVLP and ATIC of CMFRI. "

ATIC offers farm advisory services : A success case of Water Fry hatchery, at Kodungallur

Shyamlal, aged 42, and his wife Saji aged 39 are graduates in Fisheries Science and they have grown as successful entrepreneurs in marine hatchery venture named as 'Water Fry' in Kodungallur. Shyamlal started the entrepreneurial effort in hatchery business in 1997 from the experiences of marine hatchery named as 'Aquaplaza' in 1990 established as joint venture on partnership basis. Tiger prawn and Scampi are the major items of production here. 'Water Fry' possesses 30 million seeds/ year capacity and Shayamlal is producing right now to the tune of 20-24 million / year. Initial investment through bank loan was 15 lakhs. 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 5 lakhs. He has effluent treatment chambers installed by MPEDA's pilot project. Shaymalal and Saji, the dynamic couple in hatchery business themselves have undertaken mass culture of algal inoculums such as *Thalaseosera, Chaetoceros, Skeltonema etc.* and are producing up to 5 tonnes.

ATIC promotes Crab culture & Crab fattening : A Farmer's Success Story at *Malippuram*

Sylvi Figerado (53) (Pathissery, Malippuram Po. Elamkunnapuzha) is 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 faring 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 47, 000 /- from their pond in a single harvest. In the next lot they earned a profit of more than 50, 000 /-. That trend continued till date. Now the couple is confident that, whenever they are in need of money, they just sell crabs and get adequate amount all on a sudden. They proclaim that, crab farming is the best technology for obtaining maximum profit without much risk. Now Sylvi and Juliet have 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.

atic Impact Assessment .....

.....Summary & Conclusion

There are no such things as great deeds -- only small ones done with great heart.....

.....Mother Theresa

An attempt was made to evaluate the Agricultural Technology Information Centre (ATIC) of Central Marine Fisheries Research Institute (CMFRI) with the major objectives of assessing the impact by evaluating the level of satisfaction of beneficiaries of ATIC technology products, services and awareness programmes and to elucidate the success cases of impact on professional achievement, earnings, employment and mobilisation of Self Help Groups. Data were collected with a pre tested well structured interview schedule focusing the questions seeking the evaluation ATIC sales & services on technology products, diagnostic services and awareness programmes for impact assessment. 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 as the percentage level of satisfaction. Each respondent was asked to give their views to give suggestions for improving the functioning of ATIC.

Data were collected with the help of trained enumerators and analysis was undertaken with appropriate statistical tools in SPSS package. The impact assessment of ATIC in terms of the level of satisfaction of beneficiaries was carried out essentially for sale of technological inputs and technology products, diagnostic services, priced publications, farm advisory services, awareness programmes, movie shows, other facilities offered for the public.

Results indicated that among the technological inputs & products most important item of highest level of satisfaction was the sale 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 are 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 programmes 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 is about 2006 hits and average daily rate of browsing the site is 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 attains highest satisfaction score followed by Audio Visual Hall and Conference Hall.

As much as eight success case studies were elucidated from such fisherfolk and Self Help Groups who brought out a remarkable professional achievement, improved earnings and employment with the inspiration and support from ATIC.

atic Impact in General & suggestions of the respondents for improving the functioning

- A revenue of about Rs 13,95,061 /- has been generated though sales activities and as much as 8,912 farmers, fisherfolk and entrepreneurs were benefited by ATIC sales $ services.
- Through farm advisory services, awareness programmes, movie shows and un-priced publications the no. of people benefited are 23,972. (Total no. of beneficiaries is 32,874)
- 14,242 farmers / fishermen / entrepreneurs visited the ATIC for various purposes.
- The facilities in the ATIC building such as museum, sound proof audio visual room, auditorium, multi-disciplinary lab and informative posters made in flex on fisheries based technologies were well appreciated by the visiting farmers and entrepreneurs as per the feedback given by them.
- 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 makes effort for mass culture of the algal inoculums because the quality is supreme in majority's opinion.

- The diagnostic services and analysis are made easier and it helped the farmers to get the results of the environmental parameters in stipulated time. But the rates of diagnostic services are more in majority's perception.
- The feedback received from the fisherfolk helped the researchers to bring about refinements in innovative technologies. At the same time, the speed with which the problems are getting resolved needs to be improved.
- Co-ordination among different divisions of the Institute was strengthened to a large extent. But still improvement is required in this regard.
- ATIC helped to enhance linkage with other organizations and the number of farmers visiting the institute also increased.
- Interaction of farmers with the scientists was made easier. But still the single window approach is not practically materialized so far because ATIC deals with live fishes and live samples.
- It would be better if all sales activities were channeled though ATIC rather than piece meal approach through different divisions separately.
- Practically ATIC should be in the entrance for public accessibility. At least a small 'sales unit' in the entrance is advisable.
- The queries from the farmers on innovative technologies are to be answered quickly. The pace is still requiring improvement.
- Income generation of the institute was enhanced due to ATIC. But more broadening and diversification is required for earning more.
- The ATIC Web facility www.aticcmfri.org is extensively used by the public at an average of 70 hits per day. But 'Ask the expert' facility in the web page is needed 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.
- Frequently Asked Queries (FAQ) in the web page must be given a little more consideration.
- Updating the ATIC website www.aticcmfri.org. and renewing the domain of web site.
- 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.
- Earnest effort must be made in publishing a Practical Manual on the Impact of ATIC among the fisherfolk with practical cases.

- Improving the 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 & making arrangements for delegates' visit.
- Steps are 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 is 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 models thematically and self-explanatory.
- Re-constituting the ATIC Management committee with new members and scheduling the activities systematically as per the decisions of the Committee.
- Editing works of pamphlets for publication and sale utilizing the revolving fund in operational expenditure.
- Procuring the packages of new video movies of Fishery based technologies in ATIC from Centre of Science & Environment.
- Improving the quality of farmer interactive discussions & awareness programmes is necessary.
- Technology dissemination is not an easy task due to compartmentalization in the organizational set up of the institute.
- Diagnosis from dead specimens of fish was often expressed as tough mostly fisherfolk were advised to bring live samples.
- Posters on fishery based technologies and sustainable fisheries are to be made available for sale in ATIC.
- Pearl of different grades also should be made available for sale in ATIC.
- Security set up of the institute became more rigid making the public entry difficult.
- One of the biggest requests form majority of respondents is the necessity of a multidisciplinary laboratory for microbial analysis and diagnostic services to be undertaken in ATIC itself instantly so that the speedy provision of results is feasible. (Majority of respondents were dissatisfied with he existing situation of the ATIC laboratory.)

atic Impact Assessment .....

.....References

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Annexure I

Impact Assessment of
Agricultural Technology Information Centre (ATIC)
Central Marine Fisheries Research Institute (CMFRI), Cochin.

Schedule 1
General Information & Level of satisfaction

1. Name of the beneficiary / institution :

2. Address

3. Distance from CMFRI :

4. Educational Qualification :

5. Employment particulars :

6. Year & purpose of visit to ATIC :

7. User's satisfaction about quality :

8. Type of service / input benefited you

Sl. No	Technological input / product	Degree of satisfaction		
		Highly satisfied	Moderately satisfied	Least satisfied
1	Algal inoculums			
2	Aquarium fish feed			
3	Dry fish products			
4	Zooplankton			
5	Fresh shrimp			
6	Oyster meat			
7	Oysters			
8	Pearl oysters			
9	Pearl			
	Diagnostic services			
1	Water sample analysis			
2	Feed composition analysis			
3	PCR test charges			
4	Mud sample			
5	Disease diagnosis			
6	Shell identification			
7	Electron microscopic work			
8	Inorganic Phosphate			
9	Silicate			
10	Ammonia			
11	Nitrate			
12	Nitrite			

Sl. No	Priced publications	Degree of satisfaction		
		Highly satisfied	Moderately satisfied	Least satisfied
1	Aquarium fish keeping			
2	Mussel Farming			
3	Marine Ornamental fishes			
3	Marine fisheries management			
4	Marine Pollution			
5	Prawn farming			
6	Shrimp hatchery			
7	Crab farming			
8	Seaweed recipes			
9	Fish diseases			
10	Pearl farming			
11	Oyster farming			
12	Mahima feed			
13	Artificial reef			
14	Clam culture			
	Farm advisory services			
1	CMFRI/ ATIC services			
2	Shrimp feed			
3	Bivalve culture			
4	Marine ornamental fishes			
5	Training			
6	Fish disease management			
7	Prawn farming			
8	Shrimp hatchery			
9	Crab farming			
	Awareness Programmes			
1	Responsible Fisheries Management			
2	Culture Fisheries			
3	Fishery based technologies & General Fisheries aspects			
	Movies projected			
1	VCD : Our Fish ....Our Wealth.... (A movie on CMFRI)			
2	VCD : Little Fishes & Tiny Nets (Animation Movie)			
3	VCD : Mussel farming in Open seas & estuaries in Karnataka coastal belts			
4	VCD :Growing with fish : Outreach of IVLP to *Elamkunnappuzha*			
	Other Services			
1	General Hospitality			
2	ATIC web site			
3	ATIC Museum			
4	ATIC Library & Sales Room			
5	ATIC Audio Visual Hall			
6	ATIC Conference Hall			
7	ATIC Laboratory			

11. Suggestions / Opinions for improvement in functioning of ATIC.

Agricultural Technology Information Centre (ATIC)

Central Marine Fisheries Research Institute (CMFRI), Cochin.

Schedule 2

Impact on Professional achievement / earnings / employment

1. Name :
2. Present Occupation :
3. Services received from ATIC
4. Type of services benefited you :
5. What way it helped you in starting this profession / achievement :

6. What is the price you paid for collection of sample / publication ?
7. Whether you disseminated this information to anybody else ?
8. If so how many ?
9. How many followed your suggestions ?

10. What you are doing prior to your visit to ATIC of CMFRI ?
11. What was your status of Income, earnings, turnover ?
12. Is there any change in your occupation after your visit ?

Yes / No

13. If yes what were the changes ?
    1.
    2.
    3.

14. Quantify the change ?

	Prior	Now
• Number of days of employment		
• Income		
• Savings		
• Indebtedness		