

# A study on the role of Extension Programmes in the promotion of aquaculture in Kerala

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Abstract

Aquaculture is the farming of aquatic animals or plants, including breeding, raising and harvesting in all types of water environments in controlled conditions. Kerala is rich in fresh and brackish water resources. But the contribution of the state towards inland aquaculture production is very low when compared with the national figures. According to the National Commission of Aquaculture, absence of adequate work in fisheries has been one of the principal reasons for the slow pace of inland fisheries development. Taking this criticism, majority of the States had started Extension Divisions under their Fisheries Departments. In order to achieve a Blue Revolution, the State Government is framing and executing pragmatic policies and strategies by spending huge amount. But the contribution of the state towards inland aquaculture production is very low when compared with the national figures. Therefore, it is very essential to see whether all these efforts reach the targeted group for achieving the desired result or not. This study proposes to shed light towards the effectiveness of extension programmes. The result will help policy makers to strengthen the extension system after locating the real constraints.

Key words: Aquaculture, Extension Programmes

## 1. Introduction

Fish is one of the most important food item that is exploited from nature. It is often referred to as rich food for poor people. Stagnation and decline in the quantity of capture fisheries increases the importance of aquaculture as an alternative. Aquaculture is the farming of aquatic animals or plants, including breeding, raising and harvesting in all types of water environments in controlled conditions. In Kerala, the contribution of aquaculture is not up to the mark of national contribution instead of extensive extension programmes carried out by authorities. The Government of Kerala began to evolve sustainable practices for the development of aquaculture through innovative projects. A large number of exclusive agencies are doing extension activities in the field of aquaculture for the adoption of improved technology and healthy practices. But there is no mechanism for analyzing the impact of such costly activities.

## 2. Objectives of the Study

1. To study the various aquaculture extension supporting institutions in Kerala for the promotion of aquaculture.
2. To study the extension programmes designed and implemented by the Department of Fisheries and its allied sectors for helping aqua farmers

### 3. Data Collection

The secondary data were collected from Statistics of Fisheries Global Information System, National Aquaculture Sector Overview, Food and Agricultural Organisation, Reports of ICAR, NFDB, CMFRI, CIFRI, CIBA, MPEDA, KUFOS, Research Articles, Books, published and unpublished Dissertations.

### 4. Institutional Agencies in the promotion of Aquaculture in Kerala

Educating and training rural communities to develop or improve their aquaculture skills and capabilities so as to increase their farming efficiency is the core function of aquaculture extension programme. It is the vital link connecting research systems and farmers. It is an instrument to bring about social and technological change by playing the dual role of disseminating technology to the farmers in the field and conveying back their problems to the research system. The idea behind extension is to help the farmers to help themselves. The innumerable technological developments and research findings could have been effectively utilized by farmers through various extension activities. Besides, the service also assists the farmers by providing necessary information on product development, value addition, food safety issues, credit availability, marketing etc. As and where applicable the extension system helps the local communities to organize themselves into formal or informal production/marketing groups. Discussing wide range of matters with the farmers and help them to get a clearer insight into their problems and developing capacity to make them decide how to overcome their problems is the central role of extension. Hence, it is a process which continues over a period of time and not a single and one time activity. Thus, extension is the machinery to channel technological developments and aims at improving the efficiency of the human beings in an effort to promote production and productivity.

### Aquaculture Extension Programmes in Kerala

Aquaculture is one of the important food production enterprises in Kerala. In view of the reducing yield from capture fisheries and increasing demand for fish and fishery products, it is essential to take steps for increasing fish through aquaculture. Kerala has abundant inland water resources- natural and man made, But presently the yield is very low. Therefore there is considerable scope for further development which involves diversification of various species and culture systems. Recognizing this fact, the State Government is planning and designing numerous schemes and projects through various institutions.

The proportion of funds allocated for inland fisheries sector shows an increasing trend in the 12 th five year plan period and also in the current year.. In the first year of 13 th plan also the the share is 21.6 percent.

**Allocation of funds for inland fisheries in Kerala (in Crores)**

Year	Fisheries sector	Inland fisheries sector	Percentage
2012-13	221	19	8.5
2013-14	287	18	6.27
2014-15	177.4	22	12
2015-16	178.4	16.63	9.3
2016-17	169.3	38.49	22

Source: Annual Plans, Kerala State Planning Board

**The Department of Fisheries**

All the development and management programmes envisaged by the Government of Kerala for the State are being implemented by the Department of Fisheries. Sustainable utilization and development of the fisheries resources for the economic and social welfare of the state is the major vision of the Department. The mission of the Department is attainment of these objectives through responsible culture practices and environment sound management programmes like Sustainable utilization of the natural resources ,increase of fish production by aquaculture, exploration of new fishing grounds, promotion of low value fishes, improving fish production and productivity, ensuring safe fishing, increasing livelihood opportunities and facilitating improved post harvest practices and value addition with industrial and market linkages.

The Department of Fisheries, Kerala is framing and implementing policies, programmes and schemes for the improvement of aquaculture sector with the help of its allied sectors like

1. Fish Farmers Development Agency (FFDA)
2. Agency for Development of Aquaculture, Kerala (ADAK)
3. Kerala State Cooperative Federation for Fisheries development Ltd (Matsyafed)
4. State Fisheries Resource Management Society (FIRMA)

**Schemes of Department of Fisheries for aquaculture extension****1. Janakeeya Matsya Krishi (JMK)**

The Fisheries Department of Kerala started the People's fish culture programme called the 'Janakeeya Matsya Krishi Programme' in 1997. The major purpose of the programme is to create awareness towards meaningful utilization of water bodies for the culture of fishes and shell fishes through the participation of people. Maintenance and utilization of available water bodies in an eco-friendly and sustainable manner and Co-

operation and participation of local people and local bodies were the main features of this programme. Creating awareness among people, demonstrating techno-economic feasibility of viable eco-friendly aquaculture models, augmenting fish production, mobilize voluntary participation of people, creating more employment opportunities, protecting and enriching healthy water environment of the State were the other objectives of the programme. With a view to increase fishery resources in inland water bodies and to increase the income of inland fishermen, ' ranching of fish seeds' was carried out in selected rivers and other water bodies under social fisheries scheme. The Department conducted a resource survey at Panchayath level to get a strong database at the grass root level.

Programmes were implemented through 14 Fish Farmers Development Agencies and six Brackish water Fish Farmers Development Agencies working all over the State. Financial and technical assistance were given to the local bodies for identifying, formulating and implementing projects. Seeds and other inputs were supplied at free of cost to the farmers. As a result of various programmes successfully implemented in the inland sector, inland fish production increased from 49600 tonnes (1995-1996) to 74,200 tonnes (1999-2000). The performance of Janakeeya Matsya Krishi is presented below.

#### .Performance of Janakeeya Matsya Krishi Programme

Sl. No	Particulars	1997-98	1998-99	1999-2000
1	Participation of Local bodies			
	1. GramaPanchayats	694	770	817
	2. Municipalities	32	37	43
	3. Corporations	2	2	2
	Total	728	809	862
2	Culture Area(Ha)			
	1. Targeted	3000	6000	10000
	2. Brought under culture	3257	6620	9149
3	Type of culture (area in Ha)			
	1. Freshwater fish culture	2937	5685.37	7934.90
	2. Brackish water fish culture	320	934.84	1214.13
4	Farmers Participated(No)			
	Freshwater farmers	22257	29492	38298

	Brackishwater farmers	1816	3171	4441
	Total	24073	32663	42739
5	Progress details of fish seed rearing units			
	1. No. of fish seed rearing units	141	141	262
	2. Extent of seed rearing area(Ha)	895	11.79	17.43
	3. Spawn used for rearing ( in lakhs)	241.08	346.5	661.22
	4. Seed produced by FRUs ( in lakhs)	17.88	46.54	107.81
6	Type of fish seed production centres			
	1. Fish seed farm/hatcheries	19	27	56
	2. Fish seed rearing units	44	78	261
7	Fish/ Shrimp seed used for JMK(in lakhs)			
	1. Fresh water fish seed	108.88	274.28	360.81
	2. Shrimp seed	73.10	139.27	170.70

#### Impact of JMK in Annual inland fish production in Kerala

	Prior to JMK			After JMK		
	94-95	95-96	96-97	97-98	98-99	99-2000
Annual inland production (in tones)	48192	49586	52105	58215	65855	74130
Annual growth rate ( in Percent)	---	2.9	5.1	11.73	13.12	12.57

Source: Kerala Calling

## 2.Matsya Keralam

The Government of Kerala envisaged a new project called Matsya keralam in the year 2008-09 for increasing the inland fish production by using the vast spread inland available in the state. It was planned for a three year period from 2008- 09 to 2010-11.The project included components like programmes for diversification of fresh and brackishwater aquaculture, development of inland infrastructure, extension, training and marketing support. With the help of local self governments, the programme organized survey of suitable ponds and tanks in the beginning stage, Later, culturable ponds identified were leased out to interested farmers, groups or societies and such farmers or groups became beneficiaries of the project. Certain local bodies also took up the project in their water bodies, Intensive training on various aspects of fish or shrimp culture was imparted to farmers at local level.

### Performance of Matsyakeralam

Sl. No	Particulars	2009-10	2010-11	2011-12	Total
1	Participation of Local bodies				773
2	Fish farmers clubs				505
3	Aquaculture coordinators				768
4	Area brought under				
	Freshwater	3433.48	4558.12	5626.74	13618.34
	Aquaculture	2145.488	2641.036	2766.080	7552.60
	Brackishwater				
	Aquaculture				
	Total	5578.968	7199.156	8392.82	21170.94
5	Farmers registered	21253	22284	24998	24998
6	No. of Hatcheries				
	Public sector	14	14	14	14
	Private Sector	32	32	32	32
7	No. of Farms	24	24	24	24
8	Fish seeds (lakhs)	142.362	86.347	166.97	395.679
10	Production				
	Freshwater Products	4604	16386.5	20603	41593.5
	Brackishwater products	10512.38	14152.25	17053	41717.63

Source: Economic Review - 2012

**Impact of Matsyakeralam in the annual inland fish production of Kerala**

Particulars	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Annual inland Production (in Tons)	79647	91085	102842	116836	121215	140031
Annual Growth rate ( in Percent))	-	14.36	12.9	13.6	3.74	15.52

Source: Inland fisheries statistics 2013

**3. Matsyasaruddhi**

In 2012, the State was utilizing only about 15% of the total available water bodies for aquaculture. Therefore to improve fish production in inland water bodies, a comprehensive programme was chalked out by the Department of fisheries in 2012. The flagship project started for a specific period to focus the overall aquaculture development of the State was named as Matsya samruddhi. The project was the result of the belief that it is possible to augment the aquaculture production and productivity through diversification and intensive aquaculture practices, ensuring conservation and management of aquatic resources for fish culture in Kerala.

The Matsya Samrudhi project was implemented for a three year period from 2012-13, 2013- 14 and 2014-15. The project came to an end by 31<sup>st</sup> march 2015. The project was implemented in all 14 districts by the Department of Fisheries through the existing Special Cell and FFDAs with the co-operation of Local Self Governments and Fish Farmers Clubs. Involvement of Agencies like ADAK, Matsyafed, Fisheries University, State and Central Government institutions, Fish seed Rearing Units and public participation was assured for the success of the programme.

**Matsyasaruddhi (2012-15)- Achievements**

Programme	Target	2012-13	Target	2013-14	Target	2014-15
Area brought under culture	9050 Ha	9000.163 Ha	10550 Ha	10171.47 9 Ha	12000 Ha	12319H a
Fish Seed Stocked	395 Lakhs	410.95 Lakhs	635 Lakhs	734.61 Lakhs	675 Lakhs	832 Lakhs
Shrimp Seed Stocked	500 Lakhs	484.88 Lakhs	1000 Lakhs	659.32 Lakhs	1200 Lakhs	969 Lakhs
New Farmers	5000	9039	4100	5681	5000	5452

Trained						
Local Bodies Participation	750	905	800	918	750	930
Formation of Farmers Clus	600	650	700	738	750	821
Co-ordinator's Participation	660	739	660	759	660	740
Beneficiaries	40000	56684.	50000	65178	60000	70000
Total Production	27450	25807.48	30825	36734.23	34200	40141.5
	Tons	Tons	Tons	2 Tons	Tons	Tons
Total Sales	13050	26026.83	14550	37216.00	16050	40600
	Lakhs	Lakhs	Lakhs	7 Lakhs	Lakhs	Lakhs

Source: Department of Fisheries

### Impact of Matsyasadruddhi in the annual inland fish production of Kerala

Particulars	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Annual inland production( in Tons)	116836	121215	140031	149098	186021	202320
Annual growth rate ( in percent)	-	3.7	15.52	6.5	12.47	8.8

### Findings of the Study

The secondary data show that the production level of aquaculture is increasing in Kerala. A major factor contributing to this is the extension support given by our Government in different forms. After analyzing various extension programmes, it can be concluded that the Department of Fisheries, Government of Kerala is actively engaged in interfering the aquaculture production, harvesting, post harvesting and marketing practices of aquaculturists.

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