

Annual Report 2018-19

Centre for Aquatic Livelihood

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Spawn Culture

An attempt to go beyond the conventional definitions and approaches to poverty eradication, small-scale rural aquaculture can play a vital role in poverty reduction by improving the incomes of poor, provide food security, nutrition, and self-employment.

Spawn rearing is the process of rearing 3-day spawn in a pond for a period of 3 months to produce fingerling size fish. Spawn rearing has the following advantages:

- Spawn/Seed rearing is a profitable activity because of low input costs and high returns in a short period of time.
- Low inputs include cow dung, rice bran, and poultry manure which is easily available in villages
- A farmer can rear the desired variety of seed for culture
- Good quality of fingerlings is produced as a farmer himself rears the seed for his grow-out
- Reduces a huge amount of investment to farmer which they used to spend on buying the fingerlings from market

The spawn rearing activity here in Andhra Pradesh as part of OSF is being practiced in three different types based upon the geographical conditions and resource optimization. They are:

- a) Nursery Pond Culture
- b) Hapa Culture
- c) Local Cage Culture

Nursery Pond Culture

Nursery pond culture is a method to rear spawn. For Nursery pond culture the pond size should be less than one acre. This size optimization will reduce the efforts of farmer while feeding the spawn, netting for regular monitoring and while harvesting the fingerlings.



View of Nursery Pond

Hapa Culture

Hapa culture is practiced where nursery ponds are not available and spawn is reared in confined area of grow out pond. Hapa is tied to wooden logs at four corners of nets and placed in the pond with 4 feet depth as shown in figure below. In hapa culture the spawn is given feeding daily and it is easy to monitor the seed that is grown in hapa. Shifting of seed to grow out is also easy in Hapa culture which takes less time.



Hapa

Local Cage Culture

Local cage culture is feasible method to practise spawn culture in Reservoirs. The size of Cage is 4 mtr X 3 mtr with 3 mtr depth. They are installed at places where there is optimal depth and these cages are tied to sinkers so that they are not tilted and moved away from their position due to heavy winds that flow. Below is the picture of local cages battery. 6 cages comprise a battery unit.



Cages Installation

PVC Cages

PVC cages is other way to culture spawn in canals and riverine streams with minimum depth of 4 feet. The size of PVC cage is 1 mtr X 1 mtr. As they have running water sources the growth of seed is good.



PVC cages

District wise Details:

District	No. of Nursery Pond	No of Cages	Spawn Stocked (in Crores)	Fingerlings Produced (in Crores)	No. of Grow Out Ponds
East Godavari	88	0	4.16	0.54	350
Srikakulam	144	12	11.30	1.38	780
Visakhapatnam	166	36	11.22	1.54	860
Vizianagaram	145	14	9.60	0.96	530
Total	543	62	36.28	4.42	2520

Income enhancement activities

Now-a-days, the fishermen community has been facing situation of distress due to several factors like rise in cost of seed/ fingerling, raise in cost of lease for pond, extreme climatic events like floods, droughts and heat waves. Small scale fishermen and their families are vulnerable due to risk in occupation of aquaculture. They loss income due to poor handling and management practices. There is need for alternative incomes to supplement their day to day needs. In order to improve their income and capacitate them to diversify their

additional income generation through other livelihoods activities like Plantation and poultry are taken up.

Plantation

In plantation programme both fruit and vegetable plants were given to fishermen. Through fruit plantation farmers were given Papaya and Banana plants where they can sell their produce in local market markets to enhance their income and in vegetable plantation the main aim is to improve nutritional intake to their families and the rest yield can be sold in the market.



Plants Distribution to fishermen for integrated farming

Sl No	District	No of Plants Supplied
1	Srikakulam	200



Integrated Pond with Banana Plantation

Poultry

Through Poultry programme 12 birds (10 Female + 2 Male) are given as unit to progressive farmers to enhance their income. The waste from these is used as additional supplement for pawn rearing and promote long term stability.



Poultry Shed Construction



Farmer Feeding Chicks



Fishermen with Poultry Shed and Birds inside

Sl No	District	No of Units Distributed
1	Srikakulam	15
2	Visakhapatnam	20
3	Vizianagaram	15

Poly Culture

Polyculture of freshwater prawns (*Machrobrachium rosenbergii*) with common carp is started as pilot activity in 10 ponds in Srikakulam district. The growth rates of spawn and prawns were good in most of the ponds. In overall the results showed good survival of fish and prawns.

Sl No	District	No of Ponds of Polyculture
1	Srikakulam	8 ponds

Calendar distribution:

Informative Calendars are distributed to fishermen to adopt various methods on how to improve their production and various integrated activities they can incorporate with aquaculture. The information is given in both pictorial and in local languages it is easy for them to understand. This has impacted the farmers in two ways. The first is, farmers get easy access to the information that is depicted on the calendar. Second is they themselves can practice the activities with minimal support from others.

Sl No	District	No of Calendars distributed
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1	East Godavari	100
2	Srikakulam	200
3	Visakhapatnam	
4	Vizianagaram	



Trainings and Capacity building

After assessment in the project area, it was found that most the fishermen are not quite aware of pond management and feeding practices. Training presents an opportunity to expand the knowledge and access the information on new methods and technology. To solve these issues proper trainings are conducted to fishermen on regular intervals.

The following trainings were given for the farmers for sustainable aquaculture practices.

- Training on pond preparation
- Training on seed rearing
- Training on pond management
- Institutional related trainings

Training on Pond Preparation:

Pond preparation is very important aspect for aquaculture. A well prepared ponds yields better results. Pond preparation not only eradicates unwanted species of aquatic plants and animals but also helps in pond fertilization before stocking the spawn/seed. Knowing its importance trainings were conducted on pond preparation.. In the training farmers were

taught and trained on aspects of pond preparation like Drying, Tilling, Lime application and Pond fertilization.



Pond Preparation by Farmers

Training on Seed Rearing:

Trainings are given on seed rearing during the first quarter. Training was given on the following aspects:

- When and how to stock fish
- Seed stocking in sufficient quantities in pond
- Stocking other varieties of fish (Poly culture)
- Methods for production of quality seed
- Economically viable methods of seed rearing
- Feed management practices
- Maintain water quality
- How to ensure good quality of seed
- Common fish disease identification and remedies



During Training Session



Farmer Stocking spawn in Pond



Healthy Seed Produced by Farmer

Training on Pond Management:

Pond management is other main aspect when it comes to aquaculture. Pond management plays crucial role in improving the productivity. For this, farmers where identified given training on pond management methods. This training has covered the following concepts of Pond management:

- Assessing fish population
- Increasing the fish production
- Managing aquatic vegetation
- Methods to control aquatic vegetation
- Pest Control measures



A well maintained pond by farmer

Institutional related trainings:

To empower fisherwomen and strengthen their societies trainings were conducted on book keeping and how to maintain book ok accounts. Regular meetings were conducted with the women groups to capacitate them on financial literacy.



Book keeping session for women

Quarterly (Q1, Q2, Q3, Q4)	Staff training on program aspects (Include fisheries, allied, technology and institutions related training)	Training on Pond Preparation	60			15	75
		Training on SEED Rearing	60				60
		Training on Pond Management		60			60
		Training on allied activities		60		50	110
		Technology	3	2	1	10	16
		Institutional related trainings	65				65
HHs involved with OSF							18000

Extension Services

Extension services like Water testing, life jackets support and weighing machines are given to fishermen and women depending upon their needs. These are given to active and progressive fishermen and women who showed up greater enthusiasm and worked toward progress.

Water Testing

Quality of water has a greater impact on the health of seed and its production. Poor quality of water, low DO levels and pH values increases the risk of mortality of seed. To have knowledge on water quality several meetings are conducted and water quality tests are also conducted. Based on results obtained mitigation measures were prescribed to the fishermen. To impart knowledge on water quality our team conducted handholding support to fishermen. These water tests are conducted at regular intervals on need base.

Sl No	District	No of Water Tests Conducted
1	East Godavari	65
2	Srikakulam	62

Life jackets

Cage culture and grow out pond culture involves working in a risky environment. To ensure safety and to avoid injury and loss of life while installing the cages, while catching the fish in grow outs personal protective equipment is given to fishermen. Proper instructions were given to them to wear life jackets all the time while catching the fish in grow out ponds and while working in local cages.



Sl No	District	No of Life Jackets distributed
1	East Godavari	35
2	Srikakulam	50

Weighing Machines

Fish vending is traditional livelihood for fisherwomen. They were following age old practice of selling fish using common balance. Using common balance their time and efforts are wasted as they end up selling more weight of fish for less price which is rounded off to lowest weight. For example, a fish which is one kilo two hundred grams is rounded off to one kilo and the customer pays for one kg weight of fish as a result the loss price for extra two hundred grams of fish using common balance. To address this issue, weighing machines were distributed to fish vending women. They were also trained on how to use the electronic weighing machines. This step paved way towards transparency from buyer and seller end. This step has brought a change attitude of customers in buying the fish and giving the right amount of money for the fish they buy.



Women selling fish using electronic weighing machine

Sl No	District	No of Weighing Machines Distributed
1	Srikakulam	15
2	Visakhapatnam	20

Exposure Visit to Fishermen:

Exposure visits were conducted to fishermen of different regions to Peddagadda reservoir for cage culture. The visits enabled fishermen to interact with women group and learned from each other. This enabled them to have a practical view of Cage Culture on cages construction and maintenance.

Sl No	District	No of Fishermen taken to Exposure visit
1	Srikakulam	16
2	Vizianagaram	28



Active society members were identified and representation from each village is ensured. The visit helped fishermen to have a knowledge on:

- The technical aspects of cages i.e. size and measurements, material that can be used for local cages, types cages etc.
- How to install cages in reservoirs
- Type of fish that can be cultured
- Labour required for installation and maintenance of local cages
- Feeding techniques and type of feed used in local cages
- Work division among the members for every activity
- Cage maintenance and nets cleaning
- Seed/ Fish monitoring and regular checking schedule
- How to check the seed
- Water Testing and its uses



Practical observation and explanation to fishermen about Cage Culture

Grant received from:

1. Tata Education and Development Trust, Mumbai
2. ICICI Bank, Mumbai
3. ICICI Foundation, Mumbai
4. Jankidevi bajaj gram vikas sansthan, Aurangabad