Aqua One Center

(An ICT Enabled Aquaculture Support Service)

1. Introduction

Fisheries and aquaculture is witnessing a changed scenario from its traditional role as a supplementary subsistence activity in most of the States to viable and sustainable economic activity. The sector is now gaining importance as an attractive investment destination and a lucrative business activity. With the changing consumption pattern, emerging market forces and recent technological developments, the sector has assumed increased importance with farmers and other stakeholders in the country.

NFDB is facilitating development of the fisheries sector in line with the technological advancement and adoption by way of promoting new technologies and practices to suit local resources and conditions on a continued basis. Strengthening support systems, institutional arrangements and networking at different levels as supportive and complementary systems are some of the initiatives taken to build a new landscape for significant growth in the sector.

The Aqua One Center (AOC), an Information & Communication Technology (ICT) Enabled Aquaculture Support Service, will disseminate proven technologies and innovations and facilitate their wider adoption by registered fish farmers thereby facilitating the sector's overall growth.

2. Objectives

- Establishing an aquaculture technology deliverysystem.
- Setting up Aquaculture units chosen bybeneficiaries.
- Training beneficiaries in the know-how and better management practices.
- Up-scaling innovative and proven technologies through dissemination.

3. ICT Enabled Aquaculture Support Service

- Provide technologies for Pond Culture, Cage Culture in Reservoirs, Culture-based-Capture Fisheries in Wetlands, Recirculation Aquaculture System (RAS), Integrated Farming,etc.
- Better Management Practices (BMPs) including inputs management.
- Data collection and management.
- Setup Water Qualityand Disease Diagnostic Laboratory.
- Provide advisory services with respect to life-cycle of species cultured, water quality, growth, health management, disease diagnosis, surveillance, etc.
- Establish an *e*-traceability system

4. Project Location and Implementation

A. Site Selection: An AOC needs to be establishedpreferably in the fish seed production and farming hub having approachability, road connectivity, conveyance, etc.,and be accessible to fish farmers for interaction and to make periodic field visits by AOC staff.The AOCs will be required to operate within the framework of Terms of Reference developed by NFDB.

B. Beneficiaries: Agencies/Firms/Individual Entrepreneurs having experience in providing aquaculture support services such as: Pond Monitoring, Input Management, Information and Data Management, Advisory Services,and in Setting up and Managing Fish Health Laboratory,etc.would have to get ***qualified throughthe Expression of Interest (EoI) process*** of NFDB.

C. Project Implementation:

- The AOCs will be managed under the technical guidance of the National Fisheries Development Board.
- NFDB would provide financial assistance to establish AOCs.

5. Services of AOC

A Model Aqua One Center

The selected Beneficiary (Service Provider) will be instrumental in the establishment of AOCs at appropriate location in the fish seed production and fish farming hub. The Service Provider would set up laboratory facilities in the AOC Units located strategically for extending water quality and fish health services under each AOC unit, and ensure minimum lab services of primary water quality parameters (Temperature, pH, Dissolved Oxygen, Ammonia) and general fish health diagnostics to farmers at affordable costs, and as per schedule. Broadly the AOC Service Provider has four major tasks which involve direct involvement:

A. Enrolment and Registration of Hatchery Units, Seed Growers and Fish Farmers: The selected Service Provider will be required to identify eligible/willing hatcheries, fish seed growers and fish farmers from within the area of AOC operation/ jurisdiction. Also,enroll farmers identified and listed by NFDB during the specific workshops organized in different States. **Membership drive by the AOC** also involves:

- Mobilization of farmers.
- Creating awareness and sensitizing them to join the network programme.
- Enrolling volunteered hatchery managers, fish seed grower and fish farmers by registering them with an application and a registration fee, as prescribed from time to time by NFDB, for availing all the services of Aqua One Center.
- Creating exclusive/unique ID to each of the enrolled service seekersand tagging them to ICT enabled services that is capable of identifying the source (Farmer) of the Produce and links it with all the Farmer Centric Data like farming practices, certifications and other information like GPS co-ordinates, etc.

The AOC Service Provider will be responsible to provide interface between NFDB and selected hatcheries/ seed growers/ fish farmers in sourcing, procurement, transport and stocking of brood fish/ seed material for further rearing/ stocking grow-out ponds.

B. Hatchery-level Support for Seed Production of Improved Rohu: NFDB will provide brood stock of Jayanti Rohu from its National Freshwater Fish Brood Bank (NFFBB) in Odisha to the selected hatcheries for purpose of spawn production.The registered hatchery will also be supplied fry/ fingerlings of Jayanti Rohu strain initially, on certain terms and conditions,and facilitated to pursue rearing of seed and fish productiondepending on availability of facilities. The AOC will facilitate, channelizeand ensure easy flow of seed material within the network of registered farmers, link the supply of spawn to registered seed growers and fingerlings to fish culturists for stocking in grow-out ponds.

Further, the AOC Service Provider will install/ establish a system for growth/ life-cycle stage monitoring support.Tracking of the activities/ operations in respect of each of the seed production, rearing and fish culture activities of the improved fish strain will be carried out by the Service Provider, which would include:

- Regular monitoring activities related to implementation such as type and volume of seed stocked, inputs used, quality standards being followed, process adapted, results as final output generated in each case.
- Monitoring of primary water quality parameters and providing advisory services to the pond user.
- Monitoring of general fish health, recording incidences of diseases and measures to combat such incidences based on sampling.
- Facilitate services of special lab analysis for water, inputs quality, and also health diagnostics on cost basis whenever required on a case to case basis.

AOC Labs Technician analyzing water sample

AOC Service Provider sampling fish

C. Installation of ICT Enabled Advisory Service System: The AOC Service Provider will install ICT enabled advisory service system to provide:

(i) Periodic Best Practices advisory and technical guidance on BMPs in respect of seed production/ rearing, advisory on Feeding Chart, Fish Health Advisory whenever needed including management of diseases/ preventive measures to be taken and emergency advisory on demand basis.

(ii) Suggestions for enhancing production and profitability.

(iii) Technical guidance/ information support on types of inputs required, *viz.*:

- Basic seed, feed, medicines and supportive equipment/ accessories/ gadgets for different activities of hatchery operations, seed rearing and fish farming.

- Quantification of inputs required with time-frame in case of different rearing/ production processes.
- Sources of input suppliers to establish contacts/ liaison with the suppliers, negotiate supply conditions such as prices and delivery schedule.
- Harvesting and post-harvest value addition, marketing and disposal of fish.

Demonstration of IoT (ICT) driven Mobile App to Aqua Farmer [networkedindia.com]

- Provide information support to facilitate registered farmers in getting benefits such as subsidy/ financial assistance/input support and such others under the on-going Govt. programmes depending on their eligibility.

D. Documentation: The AOC Service Provider would collect all the relevant data within the area of operation and more particularly, data on the following will be mandatory:

- Collection of data on various aspects of fish seed production, seed rearing and fish culture of improved variety under the juri diction including data on facilities *viz.*, number and size of ponds/water bodies, seasonality, present status of use, types of seed being produced, reared; farm facilities/ infrastructure available, manpower, present operation levels, farmi g practices, production output, etc. as per format developed on the basis of set indicators.
- Develop profiles of individual fish farmer data and create a Centralised Data Base including Geo-referenced Data.
- Documentation of data related to hatchery/ pond monitoring (water quality), production/ farming practices employed, and input management (seed quality, stocking, pre- and post-stocking inputs used, feeding data), growth data based on sampling, fish health related data during production cycle, final production/ output, etc.
- The service provider has to collect information and develop profile data related to farmers, farms, ponds activities, etc., based on structured formats in support of uploading data for e-traceability system of network/ chain, assessing the impacts and tracking the changes from time to time due to of interventions.

6. AOC Project Components and Unit Cost

Sl.No	Item	Unit Cost (Rs. in lakh)
1	Laboratory Equipment for Soil & Water Testing and Fish Health Management	3.50
2	Accessories, Furniture, Interior Design, etc.	1.50
3	ICT Tools and its Management	2.50

4	Two-Wheeler and Filed Kit	1.50
5	Manpower (Field Coordinator/ Sales Coordinator/ Lab Clinician/ Expert Service)	6.00
6	Recurring Expenses (Refilling Reagents, AMC for Equipment & ICT, Travel Costs, etc.)	5.00
	TOTAL	**20.00**

7. Details of AOC Service Charges Per Hectare for Fish Seed Rearing & Growout Farms

Service	Rate (Rs.)	Minimum Visits Per Farm (No.)		Eligible Amount per Ha. (Rs.)	
		Seed Grower	Growout Farmer	Seed Grower	Growout Farmer
Registration	50	1	1	50	50
Growth Monitoring through Biomass Sampling & Advisory	100	6	12	600	1,200
Health Monitoring & Advisory	50	6	12	300	600
Water & Soil Quality (10 parameters) & Advisory	150	6	12	900	1,800
Total	**--**	**19**	**37**	**1,850**	**3,650**

8. Benefits and Outcome

- Enrolment of network hatcheries, seed growers and farmers.
- Supply of inputs like seed, feed & other inputs to farmers.
- Pond management and monitoring that includes water quality analysis, growth and health monitoring.
- Sampling for a passive system of disease surveillance to screen notifiable diseases.
- ICT enabled advisory services related to inputs, better management practices and technologies, pond and fish health management, training and other related activities through ICT service.
- Facilitate identification and mitigation of issues/ hurdles/ problems faced midway by hatcheries, seed growers and fish farmers at ground level, and address new challenges that could be throw up while promoting adoption of improved fish varieties, technologies, processes, approaches.
- Documentation of technology adopted and data management.
- Farmers would be able to adopt new technologies and upscale.
- There would be an overall increase in fish production and productivity.

9. Further Reading

Aqua Clinics & Aquapreneurship Development Programme (AC&ADP) - Sponsored by NFDB. *Training Manual*, Published by MANAGE Incubation Centre, National Institute of Agricultural Extension Management (MANAGE), Rajendranagar, Hyderabad, Revised Edition 2019, pages 1-108.