

Wetland Fisheries Development Project

Introduction

Definition: Floodplain Wetlands are water bodies associated with major rivers systems, connected to them by some means or other, accommodating the swelling waters and serving a great role in mitigating floods and in irrigating crop lands. They are also the habitat for a large number of small indigenous fish species (SIFS) which support subsistence fisheries and provide livelihood for local fisher communities, besides meeting nutritional requirements of the local population.

Resources: India has about 8.0 lakh ha of floodplain wetlands (*beels, jheels, mauns, pats, chhara, etc.*) spread across the numerous river basins in the country. Major wetland areas are in the States of Assam: 1.10 lakh ha, West Bengal: 0.42 lakh ha, Bihar: 0.05 lakh ha, Uttar Pradesh: 1.33 lakh ha, Odisha: 1.80 lakh ha, Arunachal Pradesh: 0.42 lakh ha, Kerala: 2.43 lakh ha, Manipur: 0.04 lakh ha, J&K: 0.06 lakh ha, Gujarat: 0.12 lakh ha, Haryana: 0.10 lakh ha (Total: 7.98 lakh ha) of which, those in Assam, West Bengal, Bihar, Uttar Pradesh, Odisha, Arunachal Pradesh and Manipur States are amongst the most important from fisheries point of view and account for 7.50 lakh ha of wetland water areas.

Fisheries: Fish yield from floodplain wetlands has been estimated at 400-800 kg/ha, against the production potential of 1500-2500 kg/ha. Harvesting is a major problem in most of them as they are usually weed-choked obstructing use of fishing gear. Presence of predators often results in high natural mortality of stocked fishes causing low productivity. Thus, enclosure culture systems are adapted to augment fish production from floodplain wetlands, wherein a captive seed stock is grown to fingerlings (*in situ* or *ex situ*) on artificial feeds, protected from predators, stocked in the main water body or in cages and harvested in due course of time. This is referred as culture-based capture fisheries (CBCF).

Project objectives

- To standardize a Model Community Based Management Practice of Wetlands, increase the role of households by developing self-governed grass root organizations (Wetlands User Groups-WSG) to improve their access to primary resources. Employment/ self-employment ensures a community based resource management to develop the fish habitat and enhance production (up to average 2500-3000 kg/ha) with physical and conservation measures.
- Support the development of an institutional base to replicate the project approach in other areas of the State / country.

Project Activities/ Components

- ❖ Weed clearance in selected wetlands
- ❖ Installation of pens and cages for seed rearing purpose

- ❖ Stocking of fingerlings in open wetlands to grow up to marketable size
- ❖ Assistance of craft and gear for capture fisheries
- ❖ Providing fish vending vehicles like two wheelers and three wheelers with ice box to promote fish marketing
- ❖ Training, Demonstration and skill development

NFDB Pilot Project

With this background, NFDB implemented the “*Wetland Fisheries Development Project*” with special emphasis on community participation in the States of Bihar, Assam and West Bengal implemented through agencies such as ICAR-CIFRI, Assam Fisheries Development Corporation (AFDC) and West Bengal State Fisheries Development Corporation (WBSFDC).

- ✓ Four Ox-bow Lakes from East Champaran district of Bihar namely Kararia, Sirsa, Rulhi and Majharia *Mauns* were surveyed to generate basic information on socio-economic status of fishers, institutional arrangements and existing fisheries management practices.
- ✓ Culture based fisheries is being practiced in these wetlands and the present fish yield from Majharia, Kararia, Sirsa and Rulhi *Mauns* is 244-300 kg/ha/yr, 600-700 kg/ha/yr, 250-350 kg/ha/yr and 75-110 kg/ha/yr respectively.
- ✓ The NFDB funded Pilot Project on Wetland Fisheries Development is spread over three years, from 2017-18 to 2019-20.
- ✓ Financial Assistance provided: 1st Year: Rs. 227.7752 lakh; 2nd Year: Rs. 36.2287 lakh; 3rd Year: 22.4918 lakh.

Present Status of the Project

- ✓ In the State of Bihar, the NFDB Project was implemented through ICAR-CIFRI. Fish production in above said wetlands increased in a phased manner, to the tune of 700-900 kg/ha. Currently, the wetlands are exploited on capture fisheries mode, fetching sub-optimal productivity, primarily due to inadequate fish stock owing to the recruitment failure of commercially important fish species. In such a scenario, the *in situ* seed rearing technologies can prove handy in pursuing stock enhancement programme. This would also help in bridging the demand and supply gap of fish in the region to a large extent.
- ✓ In the States of Assam and West Bengal the Project was implemented by Assam Fisheries Development Corporation Ltd. (AFDC), Guwahati (A Govt. of Assam Undertaking) and State Fisheries Development Corporation (SFDC), Kolkata, West Bengal. Details are as follows:
 - Area covered: 367 ha.
 - Name of the *Beels* and location: *Rupaibali Beel* in Cachar district, Assam and *Nalban & Goltala Beels* in East Kolkata, West Bengal.
 - No. of fishers benefited: 255.

Ongoing NFDB Project

To conserve the fish habitats in Wetlands, sustain their fisheries, and enhance production through community based resource management, the project is being continued in the FY 2019-20 in the States of Assam, Uttar Pradesh and West Bengal. The details are as follows:

Total Project Cost:	364.25 lakhs
NFDB Share:	200.25 lakhs
State/beneficiary share:	164.00 lakhs
Project Duration:	1-04-2019 to 31-3-2020
Targeted Project Area:	4000 ha of Wetlands
Targeted Production:	2500-3000 kg/ha
Mode of the Project:	Community Participation Approach
Pattern of Assistance:	North East & Hilly States: NFDB 80%, State 20%; General States 50:50

Project Monitoring Unit (PMU): ICAR-CIFRI, Barrackpore, Assam Fisheries Development Corporation Ltd (AFDC), Guwahati (A Govt. of Assam Undertaking), and State Fisheries Development Corporation (SFDC) Kolkata, West Bengal.

Technical Details

Pond excavation cost: 6 lakh/ha; Cost of cage: 0.8 lakh; Size of cage: 6 m x 6 m x 3 m. Stocking rate of fry in rearing pond 30,000/ha; Stocking rate in pen 30,000/ha; Stocking rate in wetland is 2,000/ha; Stocking rate in cage 150/m³ (IMC and Grass Carp); Feeding rate of fry in ponds and cages: 7% of body weight; Feeding rate for table fish production in cages: 5%; Fry size: 5g; Survival rate of fry to advanced fingerling: 40%; Feed cost: Rs 30/kg. In the 1st year Advanced Fingerling are purchased at Rs 2.50 each of 30-50 g size, for direct stocking in wetlands; from 2nd year onwards fry reared to fingerlings in ponds and pens are stocked.

Advisory Services and Monitoring

- Aqua One Centre (AOC) would provide services to the registered fishers and fish farmers.
- Where the beneficiaries choose to avail AOC advisory services, a sum of Rs. 1200/- will be charged per crop towards registration, monitoring water quality, growth, health, etc. If not, this amount will be released to beneficiaries as part of the input cost.

- The AOC will carry out inspection/field visit and submit report to the Project Monitoring Unit (PMU), in prescribed format.
- Payment will be made to the AOC per crop, based on receipt of inspection report from the PMU.
- The PMU will compile and submit reports to NFDB crop-wise separately for each Wetland. If AOC is not involved, PMU will collect and compile the data and submit to NFDB



Pen culture in Wetlands



Cage Culture in Wetlands



Seed stocking in Wetlands



In-situ rearing of fish seed in Cages



Honourable Agriculture Minister distributing Certificates to successful trainee fishers