1. Establishment of Backyard mini RAS units

Re-circulatory aquaculture systems are indoor tank-based technology driven culture base systems in which fish are grown at high density under controlled environmental conditions. Generally, farmers adopt a more intensive approach (higher densities and more rigorous management) than other aquaculture production systems. Closed-system aquaculture presents a new and expanding commercial opportunity. They are closed loop facilities that retain and treat the water within the system. In a RAS, water flows from a fish tank through a treatment process and is then returned to the tank, hence the term recalculating aquaculture systems. RAS can be designed to be very environmentally sustainable, using 90% less water than other aquaculture systems. RAS can reduce the discharge of waste, the need for antibiotics or chemicals used to combat disease and fish and parasite escapes. Due to increased pressure on water resources by upcoming urbanization, habitat destruction, industries & shortage in natural resources of fish etc. need to look for the alternative ways of fish production is the need of time. One of the most effective ways to increase the fish production is by promoting culture system like RAS

Re-circulatory Aquaculture System (RAS) is a technology adopted for aquaculture wherein water is recycled and reused after filtration and removal of suspended matter and metabolites. The method is used for high-density culture of various species of fish utilizing minimum land area and water.

During the last seven years fish production has increased by about 11% (17.95 lakh MT in 2020-21). It has been also realized that due to increased pressure on water resources by upcoming urbanization, habitat destruction, industries and shortage in natural fish resources etc. need to look for the alternative ways fish production is the need of time. One of the most effective ways to increase the fish production is by promoting culture system like RAS .

Objectives

- To encourage small-scale farmers and women to take up fish culture in household backyards.
- To enhance fish production and consumption in daily diet.
- To promote income generation from small-scale fish farming and to improve livelihoods

Name of Scheme

"**Establishment of Backyard RAS**" - Beneficiary Oriented Scheme
– Technology Infusion & Adaptation Project Location - All the district in West Bengal

What is required to set up an RAS unit

- Land of approx. 100 sq. m land
- Good water source
- Source of Seed and Feed

What & how to feed the fish?

- Pellet feed with 28-30% protein
- 2-4 times a day
- Manual broadcasting

Culturable Species

- Most suitable for Monosex Tilapia; Pangas
- Fingerling size (> 2gm)

Eligible Beneficiary

All Fishers, Fish farmers, Fish workers and Fish vendors, Fisheries Development corporations, Self Help Groups (SHGs)/Joint Liability Groups (JLGs) in fisheries sector, Fisheries cooperatives, Entrepreneurs and private firms, Fish Farmers Producer Organizations/Companies (FFPO), SCs/STs/Women/Differently abled persons

Project Location

Different districts in the State of WB as detailed in Fund Requirement Table.

Justification of the Scheme

To fulfill the quality fish requirement of the growing aquaculture sector in the State and also for the country. This scheme will contribute in horizontal expansion of crop area which will lead to increased production of fish.

Selection procedure of beneficiary

At the district level, the proposal placed before the DLC shall approve the list of screened beneficiaries.

Implementation of Plan

The proposed "Establishment of Small RAS"is a beneficiary-oriented scheme. After the due approval of schemes by the Government, the schemes will be implemented through District Fisheries Officers by the beneficiary under the technical guidance of Block Fishery Extension Officers (FEO).

Government Assistance

The total admissible Government Share against the scheme will be limited to:

- 40% of the project cost for general category beneficiaries and
- 60% of the project cost for weaker sections like Scheduled Castes (SCs), Scheduled Tribes (STs) and women.

Beneficiary contribution can either be self-financed or bank loan or both.

Sources of Finance

The estimated project cost of **Backyard RAS** one unit has been worked out as Rs. 0.50 lakh as per the Governmental guidelines.

Time line for Project Implementation

Activity	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
Submitting DPR												
Approval of DPR												
Beneficiary selection and approval												
Purchase of unit												
Physical verification												
Release of subsidy												
Assessment and evaluation												

Details for setting up an Backyard RAS Unit		
Tank Dimension	:	4 m x 4m x 2 m
Water Volume of the Tank	:	32000 litres
Pond Bottom with Central slurry pit	:	Conical with 180 slope
Water Depth at deepest point	:	3.3 m
Effective water depth	:	2 m
Pump	:	0.5 hp centrifugal pump
Aerators (Venturi system)	:	2 systems in a pond
Biofilter	:	Trickling, Nitrifying Bioreactor

Details of Project Cost for Backyard RAS

Capital Cost		
Sl. No.	**Component**	**Amount**
1	Setting up Tank Construction	Rs. 0.5 lakh
2	Procurement & installation of pumps, filters, aerators, water-testing kit etc.	Rs. 1.5 lakh
	Total	**Rs. 2 lakh**

Operational Cost		
Sl. No.	**Component**	**Amount**
1	Seed (3000 fingerlings @ Rs.3/pc) (2 gm-3 gm size	Rs.9000
2	Feed (28-30% protein content)	Rs. 25000
3	Transportation	Rs.2000
4	Probiotics	Rs.5000
5	Electricity	Rs.5000
6	Others including service delivery	Rs.4000
	Total	**Rs. 50000**

Note: The prices of the above-mentioned items are indicative only. The actual prices of the items may vary as per the local marketing conditions. The govt. subsidy will be given to a beneficiary with or without

institutional finance. However, for subsidy calculation purposes the amount will be restricted as per the guideline of the Government

Yield and Income		
Culture period	:	5-6 months
Stocking	:	3000 fish per unit
Harvest size	:	300 gm
Expected survival	:	80%
Target harvest/ yield	:	720 kg per unit/cycle
Crops per Year	:	2
Market Sale price	:	Rs.130/Kg
Gross income/yr	:	Rs. 1.87 lakh
Gross profit/yr	:	Rs. 0.87 lakh
Profit earnings/month	:	Rs. 7250/Month