



# Backyard Recirculatory Aquaculture System

Unit Cost: Rs. 7 lakh (Rs. 5.6 lakh for setting up and Rs. 1.4 lakh for Input)



## What is RAS

Recirculatory 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.

## Technology Partner

National Centre for Aquatic Animal Health (NCAAH), Cochin University of Science and Technology (CUSAT), Kochi, Kerala

## 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 fish to culture

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



Tilapia



Pangasius

## What & how to feed the fish

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

## Desirable water quality to maintain

Temperature	:	26-30°C
Dissolved Oxygen	:	4-6ppm
pH	:	7-8
Alkalinity	:	120-150ppm
Ammonia	:	<0.5ppm
Nitrite	:	<0.5ppm
Nitrate	:	<5ppm
Hydrogen Sulphide	:	Nil

## 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

## Who will construct and install the system

NCAAH will assist the farmers in construction of fish tank and bring all materials and water testing kits, fabricate and install the whole system including cages, pumps, aerators, filters etc.

## What are the project Components

- Awareness Workshop to applicants by AOC (Aqua-One Center)
- Setting up by NCAAAH
- Training for the farmers by AOC
- Input for culture by Farmer
- Advisory & Service delivery by AOC

## How much is the project Cost

### Setting up (Rs. 5.6 lakh)

Tank Construction (excavation-1day)	:	Rs. 1.0 lakh
Procurement & installation of pumps, filters, cages, aerators, water-testing kit (9days)	:	Rs. 4.6 lakh

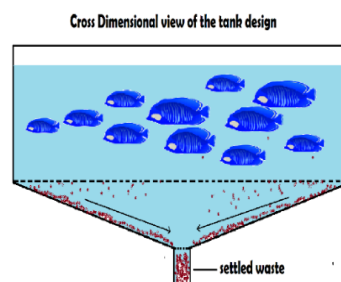
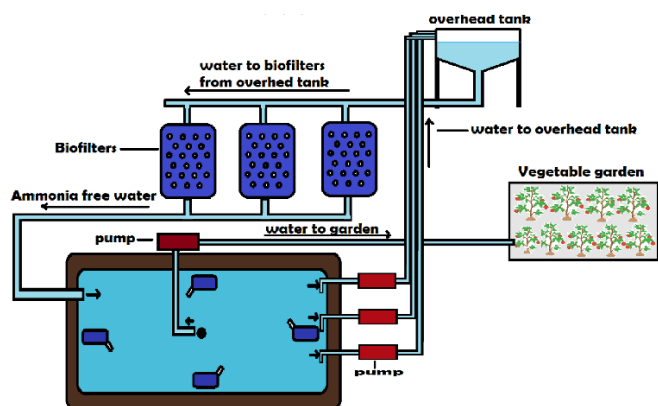
### Input (Rs. 1.4 lakh)

Seed (4500 fingerlings @ Rs.6/pc)	:	Rs.27000
Feed (28-30% protein content)	:	Rs.72000
Transportation	:	Rs.6000
Probiotics	:	Rs.15000
Electricity	:	Rs.8000
Others including service delivery	:	Rs.12000

## How much subsidy NFDB will provide

<b>For General States</b>	Rs. 1.68 lakh (Gen category)
	Rs. 2.52 lakh (ST/SC/Women)
<b>For North East &amp; Hilly State</b>	Rs. 2.52 lakh (Gen category)
	Rs. 3.78 lakh (ST/SC/Women)

## Model Design



### Details for setting up an RAS Unit

<b>Tank Dimension</b>	:	6.7 m x 6.7 m x 2 m
<b>Water Volume of the Tank</b>	:	90,000 litres each
<b>Nos. and Volume of cage</b>	:	3 cages of 30,000 litres each
<b>Pond Bottom with Central slurry pit</b>	:	Conical with 18° slope
<b>Water Depth at deepest point</b>	:	3.3 m
<b>Effective water depth</b>	:	2 m
<b>Pump</b>	:	0.5 hp centrifugal pump
<b>Aerators (Venturi system)</b>	:	4 systems in a pond
<b>Biofilter</b>	:	Trickling, Nitrifying Bioreactor

### How to calculate fish yield and Income

<b>Culture period</b>	:	5-6 months
<b>Stocking</b>	:	1500 fish per cage; 4500 fish per unit
<b>Harvest size</b>	:	450 gm
<b>Expected survival</b>	:	80%
<b>Target harvest/ yield</b>	:	1600 kg per unit/cycle
<b>Crops per Year</b>	:	2
<b>Market Sale price</b>	:	Rs.130/Kg
<b>Gross income/yr</b>	:	Rs. 4.6 lakh
<b>Gross profit/yr</b>	:	Rs. 1.36 lakh
<b>Profit earnings/month</b>	:	Rs. 11,300

### **Whom to contact**

- The Project Monitoring Unit (PMU) at [isbsingh@gmail.com](mailto:isbsingh@gmail.com) and mobile No. 7994162548
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**Department of Fisheries**  
**Ministry of Agriculture and Farmer's Welfare, Govt. of India**

