Backyard Recirculatory Aquaculture System

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

RAS Technology

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

Resources Required for RAS Unit

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

Fish Suitable for Culture in RAS

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

Tilapia

Pangasius

Food & Feeding in RAS

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

Water Quality Criteria in RAS

Temperature	:	26-30^{o}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

Construction & Installation of RAS

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.

Project Components

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

Probable Project Costs

Total cost Rs. 7.0 lakh

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

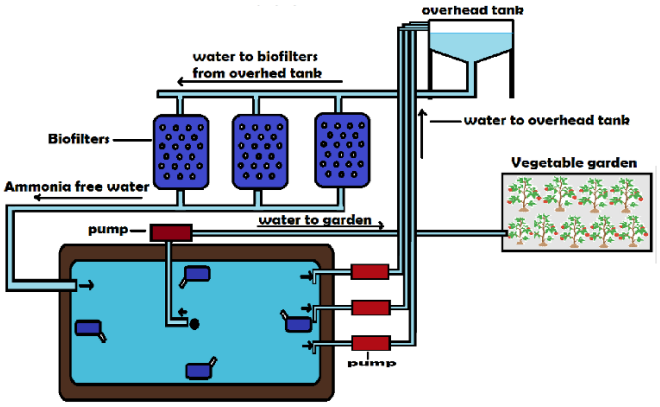
Input (Rs. 1.4 lakh)

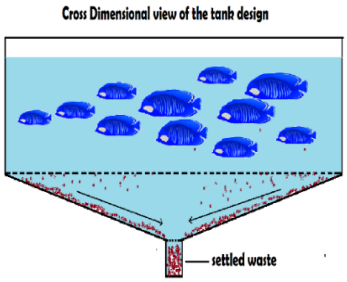
Seed (4500 fingerlings @ Rs.6/pc)	:	Rs.27000
Feed (28-30% protein content)	:	Rs.72000
Transportation	:	Rs.6000
Probiotics	:	Rs.15000
Electricity	:	Rs.8000
Others including service delivery	:	Rs.12000

Subsidy Component

For General States	Gen. category: Rs. 1.68 lakh ST/SC/Women: Rs. 2.52 lakh
For North East & Hilly State	Gen. category: Rs. 2.52 lakh ST/SC/Women: Rs. 3.78 lakh

Model Design





Details for setting up an RAS Unit

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

Expenditure & Income

Culture period/cycle	:	5-6 months
Stocking	:	1500 fish per cage; 4500 fish per unit
Harvest size	:	450 gm
Expected survival	:	80% (1200 fish per cage; 3600 fish per unit)
Expected yield/cycle	:	540 kg per cage; 1620 kg per unit
Crops per year	:	2 Crops
Total yield/unit/year	:	3,240 kg
Market Sale price	:	Rs. 130/kg
Returns/year	:	Rs. 4.21 lakh
Profit/year	:	Rs. 1.36 lakh
Income/month	:	Rs. 11,300

Contact Details

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