

# Supportive role of women in inland fish farming and technology initiatives for doubling income

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# INDIAN FISHERIES AND AQUACULTURE

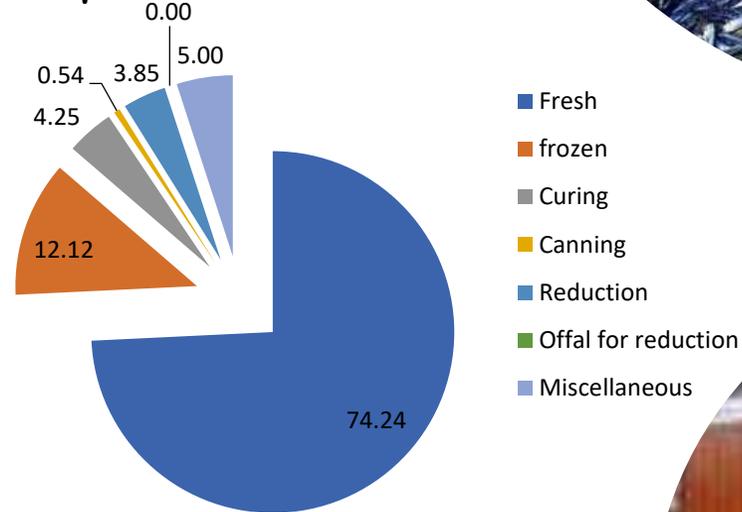
- India has been listed as 2<sup>nd</sup> top fish producing nation. Fish landings increased from a meagre 7.52 lakh tonnes in 1951-52 to 6.2 million tonnes in 2009-10. Presently it is 11.78 million MT and support to a great extent the food and nutritional security of the weaker section of population
- Fisheries & aquaculture sectors in the current year have provided valuable foreign exchange to the tune of 7.08 US billion dollars
- Per capita consumption of seafood had increased from mere 9.9 kg to 16 kg during 2018 at Global level and to 9 kg at National level
- Around 75% of fish gets distributed through the complex network of domestic fish markets to all parts of the country including the North-East



# Disposition of fish catch and the fish value chain.....

- Unlike agriculture or animal husbandry the sources of fish production are many with many species harvested and distributed along the complex fish value chain
  - Marine - Trawlers, Seine nets - Ring seine, Purse seine, Gillnets, Dolnets
  - Inland - Aquaculture, fish farming, stakenets, gillnets, reservoir fisheries
- The harvested catch reaches the consumer via multiple channels with involvement of many players with 70% distributed fresh, 10% utilized for processing & the rest of utilized for canning, drying, fish meal, & other uses
- Studies show that fish losses through the processing sector which mainly caters to the export industry is minimum as also at pre-processing stage where peeling activities
- Maximum fish loss occurs during transportation and marketing

Disposition of fish catch I



**Women are involved all along the fish value chain in India. Participation in harvest activities is limited to inland water bodies. Between states there is a change in their role and activities in fisheries, for example in Gujarat you can find dry fish yard owners, in Tamil Nadu women auction at marine landing centres**

**Women are involved all along the fish value chain in India. However participation in Decision making is minimum or absent**

**Marine fisheries**

**Auctioneering  
Pre-processing  
Processing  
Marketing**

**Inland fisheries**

**Harvesting  
Pre-processing  
Processing  
Marketing**

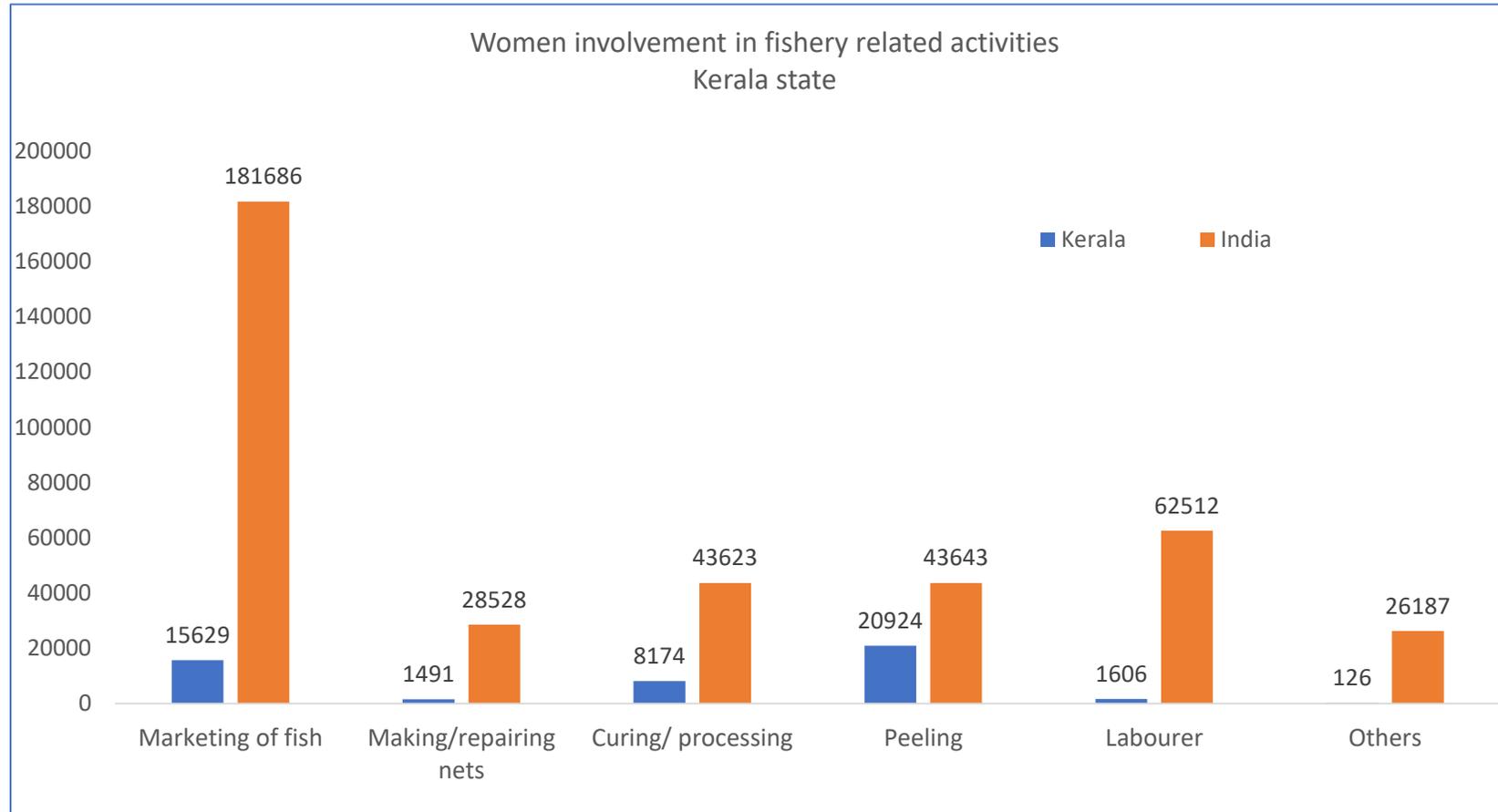
**Aquaculture**

**Farm-related activities  
Pre-processing  
Processing  
Marketing**

**R & D domain of  
fisheries**

**Very few are involved in policy  
making....we had a Fisheries minister in  
Kerala which is of course a political  
assignment**

**Its rare to find women  
entrepreneurs who have  
taken up fish based  
business and running  
successfully**



**Almost 80% in marketing and the entirety in curing, peeling are women who are the silent workforce in all sectors of importance in fisheries and aquaculture. Apart from these activities the unseen workforce are the women involved in the FAMILY enterprises in inland fishing and farming activities.**



Cages are set in the river itself so that fishes get the required nutrient and aeration is ensured

Cage culture units along the coastal belt of Ernakulam –

**Puthenvelikkara**

**Chendamangalam**

**Ezhikkara**

**Gothuruth**

**Vadakkarkara**

**Kottuvalli**

**Varapuzha**

**Chittatukara**

**Paravur**



# Women in Cage culture farming

## Investment

Cage construction : 8 x 4 m cage units

Drum : @Rs.750 each (14 to 16 drums are required for 8 x 4 m cage)

GI pipes – 12 numbers of 1.25 inch thick round pipes (6 metre length) @ Rs.140 per kg

Netting – outer, inner net

Rope & painting the unit

Coconut trunk used to set the cage culture unit

**Cost of net only amounts to Rs.48000**

TOTAL cost is Rs.1.2 lakhs

## Operational cost

Feed component Rs.75,000 to 90,000 (6-months)

Fishes reared – Kalanji, Karimeen, Vatta

## Subsidy by Government

- FFDA
- 2016 Blu revolution scheme
- Janakeeya Matsya Krishi
- NABARD (loan for cage farming @4% interest)
- Pradhan Mantri Matsya Sampad Yojana (60% subsidy to SC/ST, Women;
- Others can avail 40% subsidy)

Women are involved mainly for feeding the fishes and rearing till harvest. They get license to utilize the local water bodies for erecting cage for fish culture



Cage culture farm at  
Puthenvelikkara

*SAILAJA WITH HER  
HARVEST*



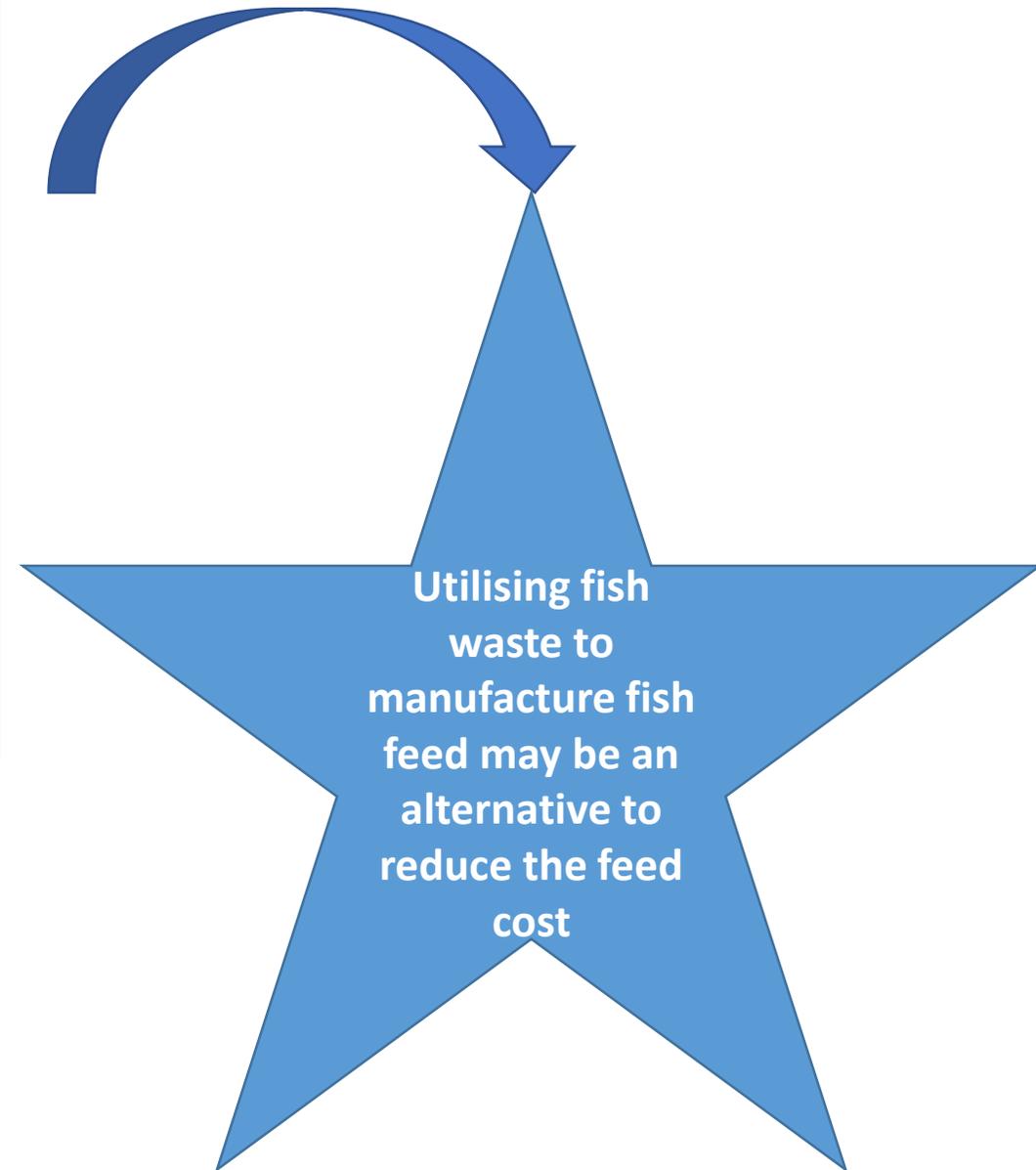
# CONSTRAINTS/ ISSUES

- Recent events of flooding have washed away the fishes
- Mussels sticking on the nets which are difficult to remove
- Mussels thrive on semi saline water and when fresh water enters the waterbody, mussels die thereby affecting the survival of fishes also
- Mud in rain water affects the gills of fishes for taking Oxygen and also decreases the dissolved oxygen
- Pest attack – by rats which cut the cage and fishes escape
- Weeds – Rotting of these weeds in water leads to decreasing water quality
- Pollution – Industrial effluents entering water body from nearby Companies
- Otters – damage the cages and eat fish

Women are primarily involved in feeding the fishes; but to carry out other operations, like setting the net, harvest, repair, etc. they depend on their male counterparts. They also lack market intelligence inputs

In spite of all these constraints profits amount to Rs.1.5 to 2 lakhs and once established, the fishes can be harvested regularly based on demand ensuring regular flow of income. Women are *emotionally bonding* with the fishes as they are the ones feeding them and are able to understand their behaviour better, feeding habits by various species are also able to be explained by them

- Fingerlings of Kalanji (sea bass), Karimeen (pearl spot), Tilapia get reared in cage culture. Tilapia reared in separate enclosure
- Feed is to be given twice a day
- Karimeen and Tilapia feed are given in form of pellet. At present, commercial feed is purchased from agents
- Kalanji (sea bass) requires prawns, small fish as feed
- Cost of feed and its availability was reported as major issue in this vocation



## MACHINERY FOR CONVERSION OF FISH WASTE TO FEED/MANURE

- A fish waste processing machinery comprising of 5 units was designed and developed by CIFT for processing fish waste which is different from other type of waste. The feed developed from fish waste in pellet form can be used in fish farming. Extensive testing of this feed was carried out in cage culture farms for rearing fishes like Karimeen, seabass and was showing good performance. Farmers were happy especially because to get live fish as feed for these species is difficult everyday and storage also is a problem. Pellet form of feed can be stored for 6 months.
- Five units of the fish waste processing line developed by CIFT was distributed across India to centres in Gujarat, Andhra Pradesh, Karnataka, Lakshadweep and Kerala. The machinery can handle 1 ton fish waste so at industry level, it can be operated.

# Aquafeed from fish waste

