



# “WOMEN IN FAMILY FARMING” - HOMESTEAD CAGE AQUACULTURE SHOWS THE WAY

Presented by

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# INTRODUCTION

**TABLE 1** WORLD FISHERIES AND AQUACULTURE PRODUCTION, UTILIZATION AND TRADE<sup>1</sup>

	1990s	2000s	2010s	2018	2019	2020
	Average per year					
	<i>Million tonnes (live weight equivalent)</i>					
<b>Production</b>						
<b>Capture:</b>						
Inland	7.1	9.3	11.3	12.0	12.1	11.5
Marine	81.9	81.6	79.8	84.5	80.1	78.8
<b>Total capture</b>	<b>88.9</b>	<b>90.9</b>	<b>91.0</b>	<b>96.5</b>	<b>92.2</b>	<b>90.3</b>
<b>Aquaculture:</b>						
Inland	12.6	25.6	44.7	51.6	53.3	54.4
Marine	9.2	17.9	26.8	30.9	31.9	33.1
<b>Total aquaculture</b>	<b>21.8</b>	<b>43.4</b>	<b>71.5</b>	<b>82.5</b>	<b>85.2</b>	<b>87.5</b>
<b>Total world fisheries and aquaculture</b>	<b>110.7</b>	<b>134.3</b>	<b>162.6</b>	<b>178.9</b>	<b>177.4</b>	<b>177.8</b>

# AQUACULTURE PRODUCTION IN ASIA

Asia (excluding Cyprus)	<i>(percentage in world)</i>	51 228.8 (88.70)	20 008.2 (99.18)	71 237.0 (91.41)	77 377.0 (88.43)	34 916.3 (99.54)	112 293.3 (91.61)
China (mainland)	<i>(percentage in Asia)</i>	35 513.4 (69.32)	12 273.3 (61.34)	47 786.7 (67.08)	49 620.1 (64.13)	20 862.9 (59.75)	70 483.1 (62.77)
India	<i>(percentage in Asia)</i>	3 785.8 (7.39)	4.2 (0.02)	3 790.0 (5.32)	8 636.0 (11.16)	5.3 (0.02)	8 641.3 (7.70)
Indonesia	<i>(percentage in Asia)</i>	2 304.8 (4.50)	3 915.0 (19.57)	6 219.8 (8.73)	5 226.6 (6.75)	9 618.4 (27.55)	14 845.0 (13.22)
Viet Nam	<i>(percentage in Asia)</i>	2 683.1 (5.24)	18.2 (0.09)	2 701.3 (3.79)	4 600.8 (5.95)	13.9 (0.04)	4 614.7 (4.11)
Bangladesh	<i>(percentage in Asia)</i>	1 308.5 (2.55)		1 308.5 (1.84)	2 583.9 (3.34)		2 583.9 (2.30)
Rest of Asia	<i>(percentage in Asia)</i>	5 633.1 (11.00)	3 797.4 (18.98)	9 430.5 (13.24)	6 709.6 (8.67)	4 415.8 (12.65)	11 125.4 (9.91)

	2010			2015			2020		
	Total production (thousand tonnes, live weight)	Cage production	Contribution (%)	Total production (thousand tonnes, live weight)	Cage production	Contribution (%)	Total production (thousand tonnes, live weight)	Cage production	Contribution (%)
<b>Cage culture</b>									
China (mainland)	19 913	1 131	5.7	24 642	1 379	5.6	25 864	321	1.2
Indonesia	1 332	121	9.1	2 955	191	6.5	3 390	650	19.2
Bangladesh	1 147	...	...	1 831	2	0.1	2 294	5	0.2
Egypt	920	160	17.4	1 175	173	14.7	1 592	201	12.6
Thailand	404	40	9.9	391	33	8.4	369	32	8.7
Philippines	308	103	33.3	303	95	31.2	285	74	26.0
Russian Federation	115	25	21.6	138	30	21.6	189	59	31.2
Colombia	68	23	33.5	93	19	20.8	173	30	17.5
Türkiye	79			101	70	69.0	128	100	78.0

- Over 58.5 million people- primary fisheries and aquaculture sector.
- Employment in the primary sector in 2020- 21% were women (28 % in aquaculture and 18 % in fisheries).
- Full time workers- 15 %
- In processing sector- 50% are full-time employment and 71% of part-time.
- About 50% are employed in the entire aquaculture value chain.
- Women represent 46 % of the total workforce.
- About 49.8 % of post-harvest workers were women.
- Women occupy critical roles in fisheries and aquaculture.

# OBJECTIVES



To conduct a case study on a woman engaged in family farming of cage aquaculture in the south-west coast of India.

To calculate the production economics of *Etroplus suratensis* in cage culture.

To document the major constraints faced by the farmer.

# LOCALE OF RESEARCH

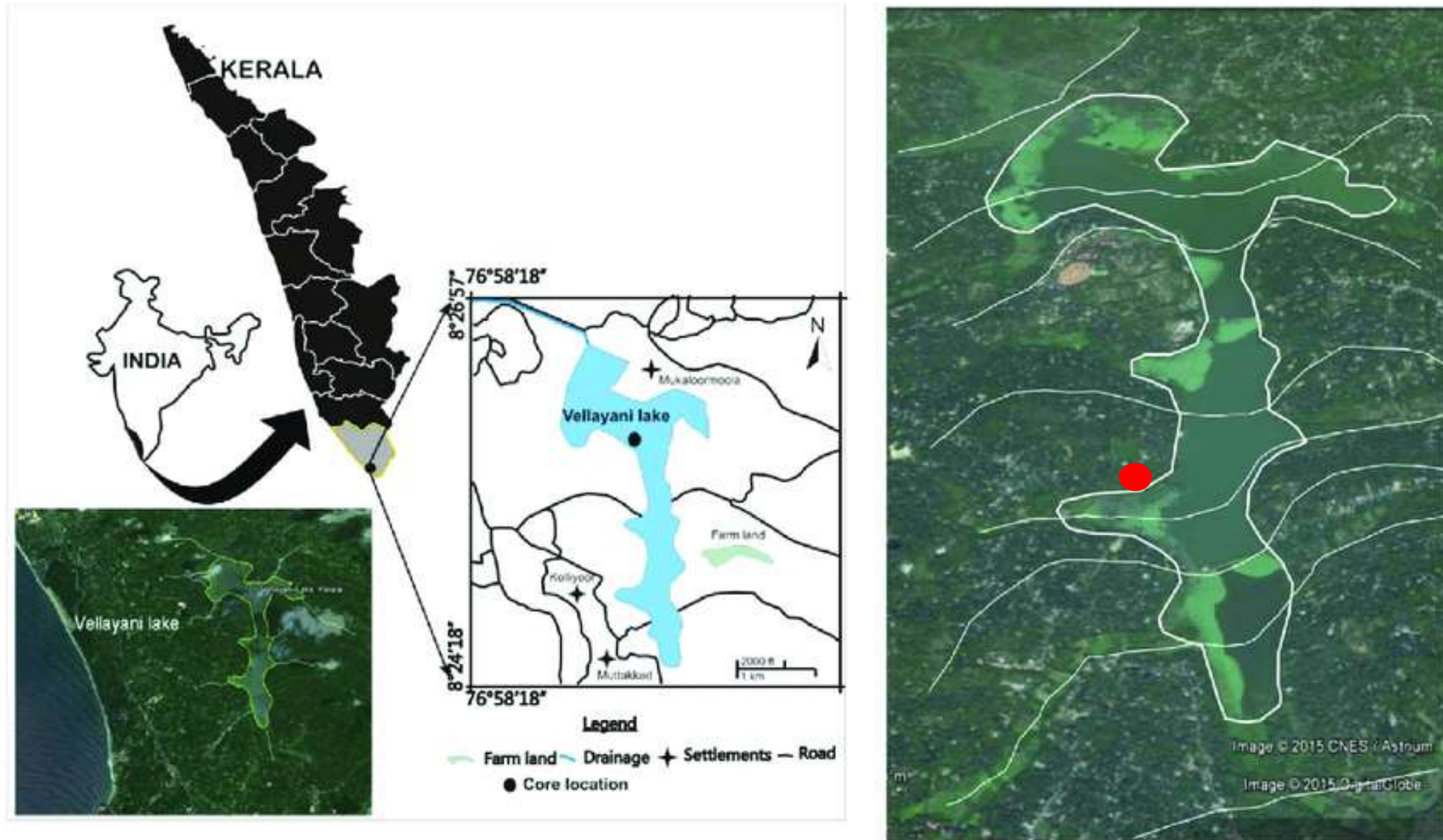


Figure. 1: Vellayani Lake

# METHODOLOGY

- ❖ Conducted in Vellayani, Thiruvananthapuram district of Kerala in South-west coast of India.
- ❖ Started by a diploma graduate women farmer Mrs. **Vishnupriya V S.**
- ❖ She started cage farming during covid pandemic in 2021.
- ❖ Got information on cage culture from YouTube videos and fellow farmers.



Figure. 2: Received woman farmer award on National Fish Farmers Day celebrated on July-10-2022



Major indicators	Particulars
Size of the unit	4×4×2.5
Year of establishment	2021
Species farmed	<i>Etroplus suratensis</i> (pearl spot)
Stocking density	40 m <sup>3</sup>
Crop duration	8 months
Feed type	Floating pellet
Feeding rate	Twice a day
Harvest	Partial harvest
Yield	200 Kg/ unit
Farm gate price	Rs. 500/ Kg (US \$6)
Culture practiced	Monoculture

# RESULTS

Sl. No:	Economic Indicators	Cost (INR)	Cost (US Dollar)
1	Initial investment of the cage	2,10,000	2579.50
2	Total Annual fixed cost	1,58,500	1946.91
3	Total Operating or Variable cost	54,400	668.21
4	Total cost of production	2,12,900	2615.13
5	Yield of species (in kg)	200	
6	Gross revenue	1,00,000	1228.34
7	Net income	<b>45,600</b>	560.12
8	Net operating income	2,04,100	2507.03
9	Cost of production (Rs./kg)	1064.5	13.08
10	Price realized (Rs./kg)	500	6.14
11	Capital Productivity (Operating ratio)	<b>0.54</b>	

# GROWTH PARAMETERS

Sl. No:	Growth Parameters	Value (g)
1	Initial weight (g)	5
2	Final weight (g)	400
3	Mean weight gain (g)	395
4	Specific Growth Rate (SGR)	164.58



Figure. 3: Seed of *etroplus suratensis*



Figure. 4: Adult *etroplus suratensis*



Figure. 5: Woman farmer giving pellet feed to the fish



Figure. 6: Farmer engaged in activities



Figure. 7: Selling



Figure. 8:  
Harvested adult fish

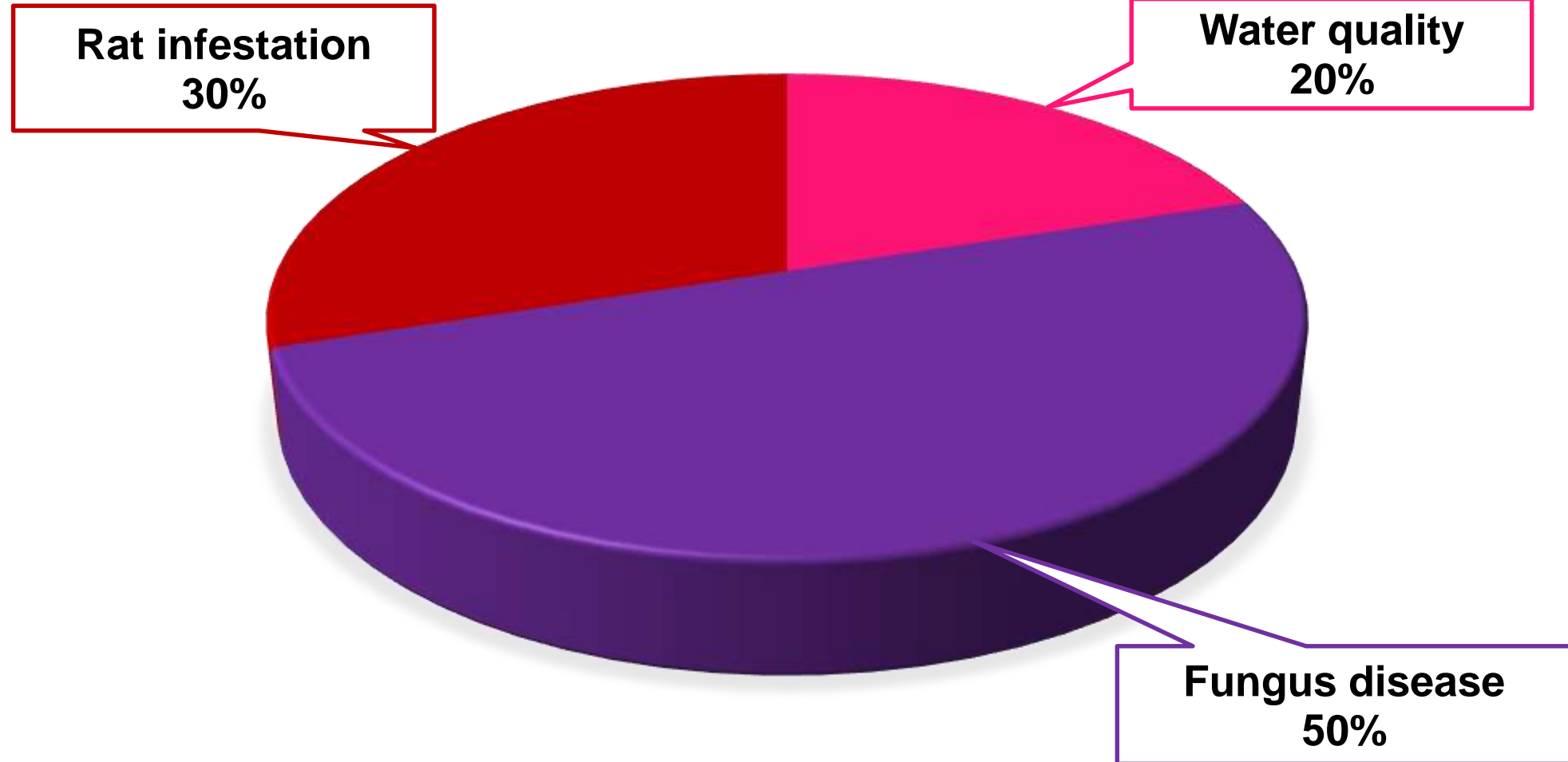
- ❖ Culture of *etroplus suratensis* fetches **good market price**.
- ❖ Cost of feed was **higher** compared to the cost of seed.
- ❖ The profit or loss - depends on the **survival of the animal**.
- ❖ Algal growth and net clogging is almost **absent**.
- ❖ Cage culture - **economical** and **profitable** agricultural model.
- ❖ **Additional income** generated - **Socio- economic upliftment** of the family.

- ❖ Support from family
- ❖ Fixed income generation.
- ❖ Daily expenses and cage aquaculture extension activities.
- ❖ Involved in the cage related activities.

## **Market Linkage**

- ❖ Sold at farm gate and through fisheries society.
- ❖ The State Fisheries Departments, research institutes and National Fisheries Development Board (NFDB) - institutional and financial support.

# CONSTRAINTS





# CAGE MAINTENANCE

Routine monitoring

Cleaning nets

Mending of  
damaged nets

# CONCLUSION

- ✓ Cage culture is developing rapidly because of its socio-economic viability.
- ✓ Need women friendly approach.
- ✓ Need support from the government, research institutes and organizations.
- ✓ Encourage women farmers to take up the farming activities.



**THANK YOU**

