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Empowering Fish-Farmer through Coastal Field School: Toward sustainable aquaculture practice

TAY JUHANA FOUNDATION x BLUE FORESTS Yayasan Hutan Biru

Where does most of our seafood source from?

Sea

Fish Pond

In last decade, the total catches in fisheries are stagnant at **90 million tons**.

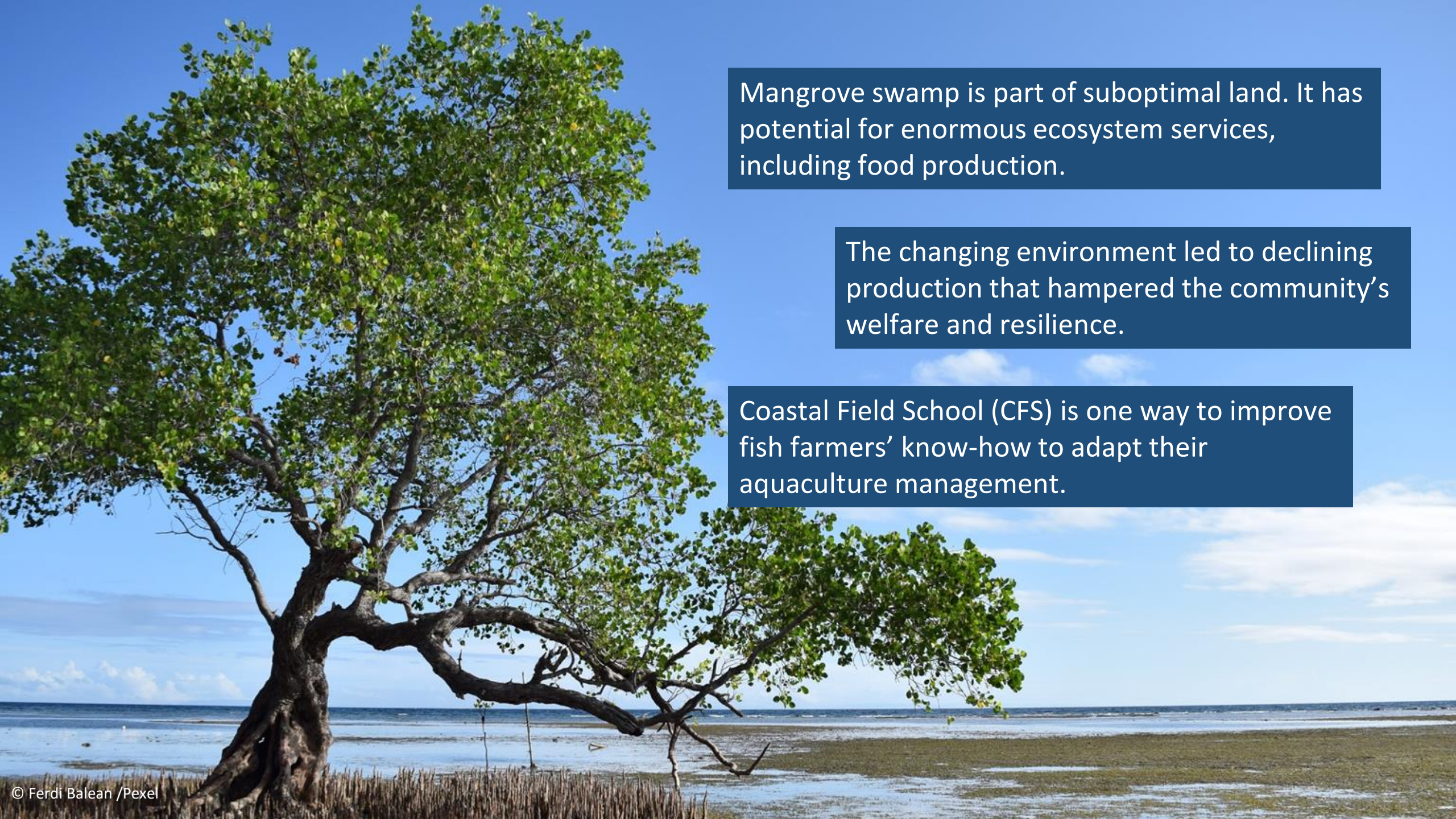
Aquaculture production has been growing from 20 to nearly **115 million tons** between 1950 and 2018.

Indonesia is the 2nd largest seafood producer in the world

Central Java is among the largest domestic producers with nearly 500,000 tons of aquaculture yields in 2017.

This hefty contribution also comes with a challenge. **Abrasion and robs flood** have adversely affected the ponds.

Just like what happens in Demak.

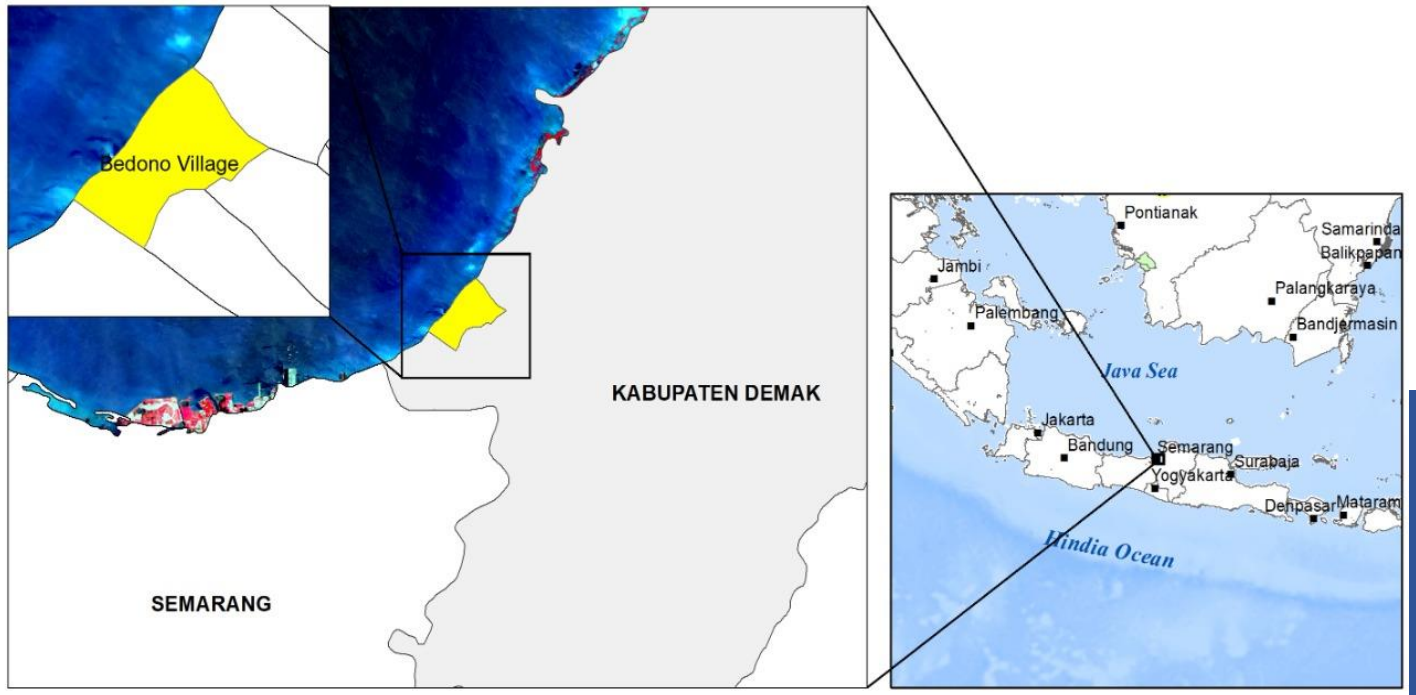


Mangrove swamp is part of suboptimal land. It has potential for enormous ecosystem services, including food production.

The changing environment led to declining production that hampered the community's welfare and resilience.

Coastal Field School (CFS) is one way to improve fish farmers' know-how to adapt their aquaculture management.

Study Area



This study focuses on assessing the program that was conducted during March 2019 to September 2020 in this location.

The research focused on the CFS implementation in **Bedono** village, Sayung Sub-district, Demak Regency, Central Java Province.

Bedono Condition

Coastal areas in Demak is known for its brackish aquaculture commodities. However, the pond embankments have been severely damaged due to:

- Land subsidence
- Flood
- Decreasing water quality

Coastal Field School (CFS)

Weekly meeting on CFS

CFS is implemented 2015 – 2020 under BwN consortium.

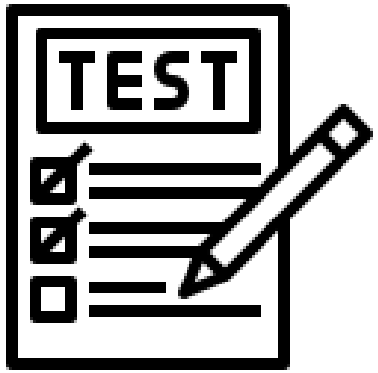
This approach is adopted from Farmers Field School (FFS) which facilitates farmers to identify the problem they face and how to address them using their own resources.

CFS duration lasts for one farming cycle or a year with a total number of meetings that might range from at least 12 up to 16 meetings.

Method

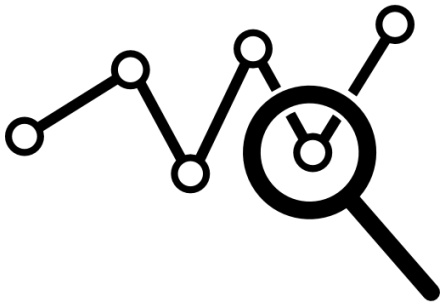
Measuring CFS contribution to the improvement of farmers' knowledge and aquaculture practice

Farmers' Pre & Post-test



Shapiro-Wilk was applied to examine data's normal distribution ($p > 0.05$) and paired t-test was used to determine impact.

Demonstration Plot Comparison



Compare the control plot (business as usual) and treatment plot (LEISA) to examine the productivity.

Profitability

Improvement of the farmers' capacity

Among 26 participants, only 10 managed to consistently attend the whole meeting and took the pretest and posttest (N=10).

There is a strong relationship (p=0.001) that CFS improves farmer capacity.

Sustainable Aquaculture Practice

LEISA enables farmers to achieve higher income and attain sustainability through:

a) Optimizing the use of locally available resources;

b) Minimizing the use of external inputs, except for serious deficiency.

The comparison of control and treatment plot

Parameter	Unit	Control plot	Treatment plot
Initial baby shellfish	Kg	100	100
Weight	g/piece	2	2
Harvest	Kg	102	120
Average weight after harvest	g/piece	6.2	10.5
Cost	IDR	872,500	963,300
Gross profit	IDR	1,224,000	1,440,000
Nett profit	IDR	724,000	940,000

The method boosted shellfish productivity up to 65%.

Increase in harvest yield is in line with the profitability rise by nearly 30%.

Economic Profitability

Name	Pond Area (in ha)	Equipment Cost (in IDR)	Seeds Cost (in IDR)	Profit per Ha (in IDR)
M Khaidir	1.2	5,000,000	9,000,000	58,333,333
Suminah	1.5	6,000,000	3,000,000	10,666,667
Mahmudi	0.5	6,000,000	6,000,000	52,000,000
Matsairi	1.8	22,975,000	697,000	330,278
Slamet	2.8	10,625,000	625,000	2,750,000
Umar	1	1,970,000	960,000	5,500,000

Different pond areas, farming duration, seeds quantity, and aquaculture treatment have made the farmers experience different results.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Conclusion

Sustainable management of coastal areas is the key to protect aquaculture practice in Demak and anywhere else.

CFS along with LEISA strengthen farmers resilience by facilitate them to transform abandoned ponds into productive one.

Scaling up this effort, esp. in suboptimal land, can be part of promoting actions to sustainably manage food and livelihood resources.

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