

AQUACULTURE AS A BETTER LIFE OPTION THAN FISHING IN SOUTHERN INDIA



Dr Janine Pierce & Renjith Rengaraju

Ideas for this paper

- A trip to southern India in November 2015 by Janine who was accompanied by two wonderful drivers and guides including Renjith (below) who was also the co- researcher & Ben photographer
- *Previous research into aquaculture compared with fishing in China, Vietnam, Australia*
- PhD in Aquaculture & sustainability created interest in aquaculture for a better life



Problems re food and fish

- *Two-thirds of the world's fish stocks are either fished at their limit or over fished.*
- Raising farm incomes is described as the core of the antipoverty effort as three quarters of the poor today are farmers (Dugger,2007)
- *Protein/energy malnutrition is a key problem in many developing countries*



***Declining fish stocks in China,
fishermen now have to go out for
many days into deep and more
dangerous waters for less catch,
young men do not want to take
over the boats***



Declining Indian Fisheries

- Eighty-five percent of all fishermen surveyed reported **declines in fish catch**, and 69% of all fishermen reported **declines in other marine species** that were incidentally caught.
- Most fishermen, including 30% of trawl net using fishermen in Maharashtra, blamed trawl nets for fish catch declines (Karnad & Karanth, 2013)



Fishing is hard long hours with less fish today:
too many boats chasing too few fish



**40 fishermen (Perumathura beach) southern India take nearly 2 hours to pull in
3 nets from ocean for reduced catch than previous years**

Long hours after fishing tending nets



**Fishermen told of reduced catch and competition
from faster boats (Puthenthoppu beach)**

Kaniyapuram fish market: Woman selling fish from morning to night-up to 12 hour days



I started selling fish at 15 years. Returns from fish are low today only 300 rupees per day due to high competition. I start at 11am and reach home by 9pm.

If I got icebox and more capital could start my own business.

Sometimes I am forced to sell fish in underquoted price due to no icebox. Spending 240 rupees for transport. I want auto rickshaw for transport & icebox

Women at fish market come from Maryanaadu and Thumpa

Women fish sellers have hard life at home and work. Not there for children or teenagers many problems as unsupervised. Husband is fisherman



Very difficult to live due to many diseases, especially headache. Husband is a drunkard he drinks all 7 days and gives no money. Living in the seashore in a hut made of pvc. I start from home by 10am in the morning and back by 8.30pm. No other way to improve life this is only way of life. Own vehicle and icebox would improve life

There must be a better life



I am selling fish for last 20 years. My husband passed away from cancer. No house, own house given as dowry to oldest girl's marriage. I am diabetic patient. I start from home early home by 8.30pm. Makes 5-10 US \$ per day. Want grandson and God's call.

Fish selling produces barely a living in recent years, no life quality



Two children, husband died, mother 85.

Was selling fish at 20 years old, was good at that time. Today very hard, materials & transportation very expensive. Not thinking about future, have lost faith in life.

Women in fish market:10-12 hrs per day



These women need a better life closer to home



Selling fish in the market, too far and dangerous to walk home and have fish containers to carry, ending day late, high cost to catch taxi home for safety. Taxi cost reduces profits

Themes from men & women interviewed

Women fish sellers

- *Only skill they have*
- *Less return today than 10 years ago*
- *Long hard hours*
- *Problems at home and they are not there*
- *Hard life & ill health*
- *Own auto rickshaws would make life cheaper & safer trips home & save money*
- *Iceboxes would keep fish fresher and maintain fish quality for longer sale & no spoilage*
- *Lost spirit & sense of no hope for future*

Fishermen

- **Less return from fishing than in previous years**
- **Working even longer hours for less return**
- **Competition from faster boats**
- **No transferable skills**

Aquaculture Opportunities

- Coastal aquaculture offers great scope for enhancing income and employment in India (Krishnan & BIRTHAL, 2002)
- *As production from capture fisheries has remained virtually constant **further aquaculture growth will be needed** to meet the rising global demand for seafood (FAO, 2012, p.192)*
- Aquaculture is tipped to supply a rising share of this consumption, with a World Bank report tipping **world farmed fish production to grow from 63 million tonnes to 93 million tonnes by 2030** - from 5 million tonnes three decades ago (Lynch, 2014)



Vakkom new aquaculture project

- **Vakkom** is a small coastal village located at Thiruvananthapuram District, the capital of Kerala State in south western India.
- ***Crisis for Vakkom with decline of coir industry. Many jobless and in financial distress***



Sundaytimes.lk



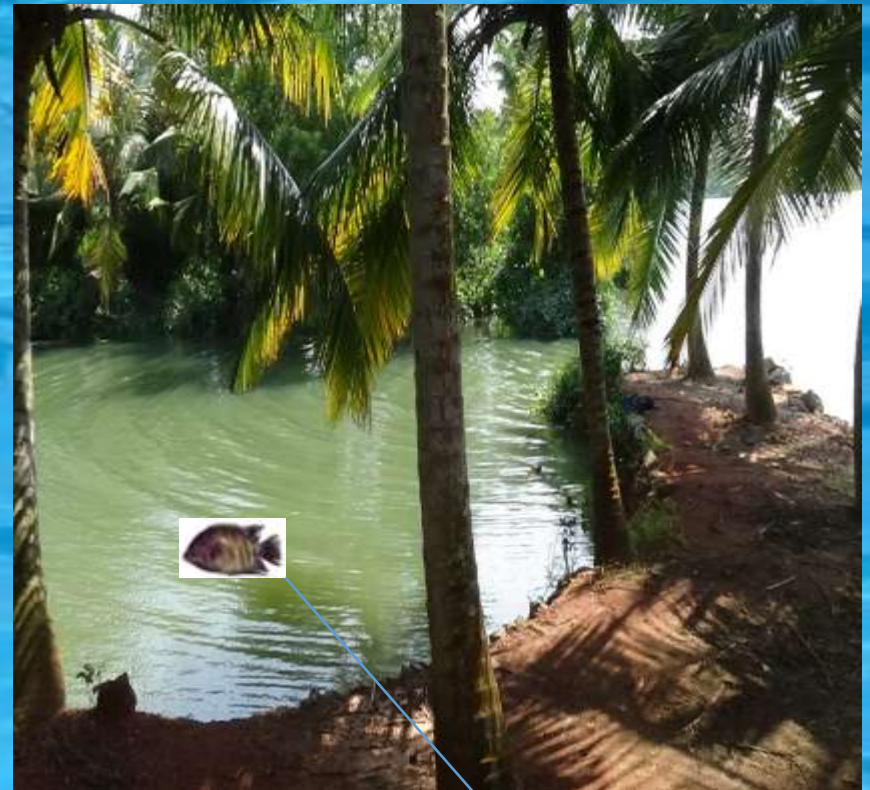
The Opportunity & viability: look to your assets

Former coconut husk ponds lay idle

Coconut soaking ponds can be transformed into aquaculture ponds



Working with nature to create a new future has possibilities for aquaculture



Pearl fish

Aquaculture in India :Ornamental fish culture

OL & AwF entrepreneurship



- *“Ornamental fish keeping is the second most popular hobby in the world. ... a renewable, sustainable and profitable business opportunity. Ornamental aquarium fish is now a multi-billion business with a total turnover in excess of US\$8 billion per annum* (Geeji Madathil Tharanath from OL,2015)
- **Steps to this:** OL workshop in 2015 on nurturing the entrepreneurship opportunities in aquarium fish seed production, culture and trade among the unemployed youth of Kerala State, India at Snehasena Hall, Kaloor, Ernakulam, Cochin.



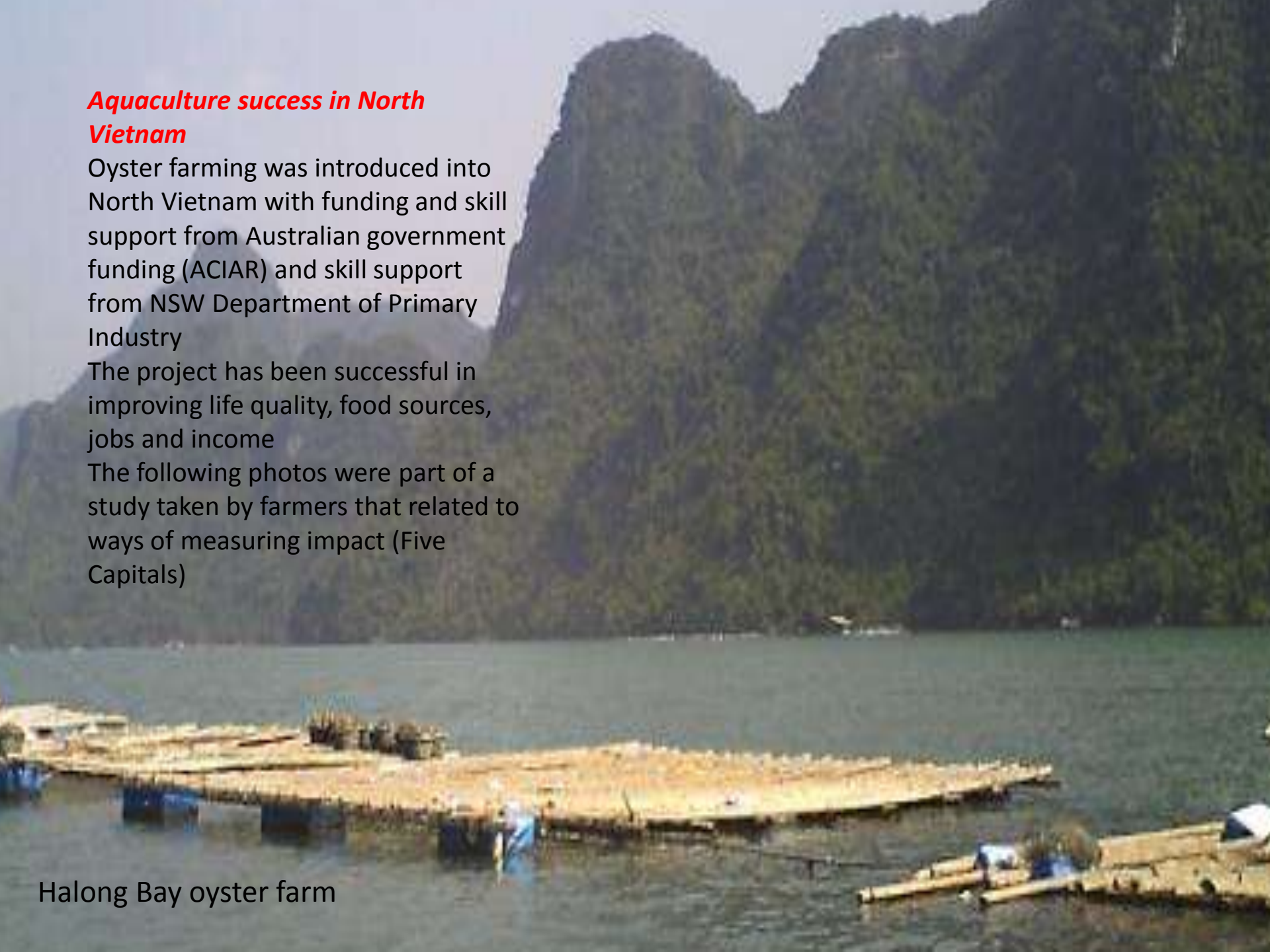
Aquaculture success in North Vietnam

Oyster farming was introduced into North Vietnam with funding and skill support from Australian government funding (ACIAR) and skill support from NSW Department of Primary Industry

The project has been successful in improving life quality, food sources, jobs and income

The following photos were part of a study taken by farmers that related to ways of measuring impact (Five Capitals)

Halong Bay oyster farm



Environmental impact: the positives



Oyster is the species, which can grow with natural feed, so it doesn't affect the living environment of humans



With money from oysters, 100% of households in the village had clean water wells. They don't have to use water from open stream for cooking as in the past.

Human Capital: the positives



*Oyster farming creates jobs
for my family and village*



*Attracting workers, creating jobs for
farmers and young people, so that
they do not have to go to work in
other locations.*

Social capital: the positives



With money from oysters, a villager also bought a shuttle boat to transfer passengers around and about the village.



Looking at the development of oysters, we have more trust in positive outcomes

Institutional Capital



A positive: Farmers are happy when receiving financial support for oyster farming



A negative: There should be more wholesale agencies, so that the trade between farmers and consumers is more convenient

Produced Capital : the positives



As a family specializing in marine culture, I realise that oysters are easy to grow, highly profitable, with low input cost.



Many families use money from oyster farming to develop fresh-water fish culture, serving themselves and others in the village.

Vietnam: Jobs, income, protein food source

*Oyster farming creates **jobs** for my family and village*

*Oyster is a **rich nutrition seafood**, so it is selected by housewives. It appears in daily meals of Van Don people*



Aquaculture has its own issues

- Water scarcity & available sites
- Environmental carrying capacity
- Potential to degrade the environment (land & marine habitats) chemical pollution, risk to biodiversity
- Not always supportive environmental regulatory mechanisms
- Gender issues for those in the industry
- Market forces impact on pricing



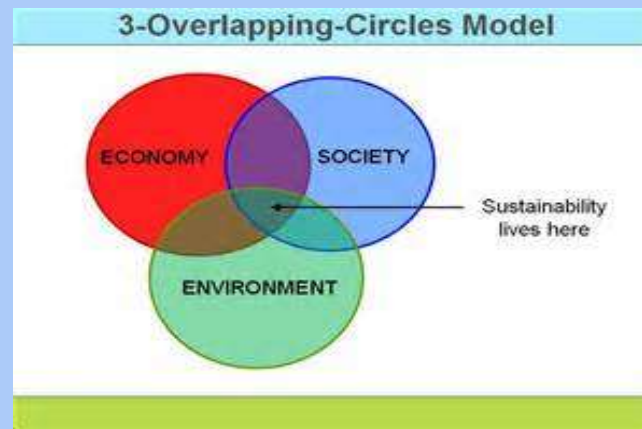
Vietnam oyster farmers: Market pride is issue we are worried about



Needed sustainability approach

An ecosystem approach to aquaculture (EAA) follows similar considerations and it has been defined as: “a strategy for the integration of the activity within the wider ecosystem such that it promotes sustainable development, equity and resilience of Interlinked social-ecological systems.” (FAO,2010).

Environment, social & economic



Empowerment through Aquaculture

- *Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime (Chinese proverb)*
- Aquaculture can change lives with protein food and income, efficient to grow
- Strong women focus in AwF as women are those impacted most by poverty and lack of skills



*Women AwF
leaders from
many countries*

The way forward

- Aquaculture has potential to help alleviate food and fish shortage issues for growing world population in India & all countries
- **But:** a shared vision between the public and private sectors is needed
- **Governments:** can enforce policies and regulations re the environment, unsustainable production, price control & support research
- **Private sector:** Move beyond short term selfish practices re non consideration of ecological protection, (including water, non native species) & worker & community consideration

'Without this shared vision, an expanded aquaculture industry poses a threat, not only to ocean fisheries, but also to itself' (Naylor et al, 2000, p.1017)

REFERENCES

- FAO. 2012,.*The State of World Fisheries and Aquaculture 2012*. Rome. 209 pp.
- FAO. 2010. *Aquaculture development. 4. Ecosystem approach to aquaculture*. FAO, Technical Guidelines for Responsible Fisheries. No. 5, Suppl. 4. Rome. 53 pp.
- Karnad, D, Karanth, K 2014, Declining Indian fisheries:perceptions of fisher Folk from Maharashtra and Tamil, viewed 20 april 2016, Nadu<http://www.conservationindia.org/articles/declining-indian-fisheries-perceptions-of-fisher-folk-from-maharashtra-and-tamil-nadu>
- Krishnan, M & Biethal, P 2002, P.S Aquaculture development in India: an economic overview with special reference to coastal aquaculture, *Aquaculture Economics & Management*, vol.6, Issue 1-2, pp.81-97.
- Lynch,J 2014, Aquaculture industry hopes to cash in on world demand for fish, *Sydney Morning Herald*. Viewed 21 April 2016, <http://www.smh.com.au/business/aquaculture-industry-hopes-to-cash-in-on-world-demand-for-fish-20140704-3bdqf.html>
- Naylor, L,Goldburg, R, Primavera, J, Kautsky, N, Beveridge, M, Clay, J, Lubchenco, J Mooney, H ,Troell, M, 2000, Effect of Aquaculture on Food Supplies,, *Nature*, 405, pp. 1017-1024 (29 June 2000)

Thankyou to all who supported Renjith and Janine on this journey
of research through driving, advice and photos (Ben)
Particular thanks to the women fish sellers and fishermen for sharing your
stories