The Emerging ‘Quiet Revolution’ in Myanmar's Aquaculture Value Chain

Ben Belton

Food Security Policy Project

Myanmar Fisheries and Aquaculture Research Symposium
Novotel, Yangon
November 16, 2017

Background

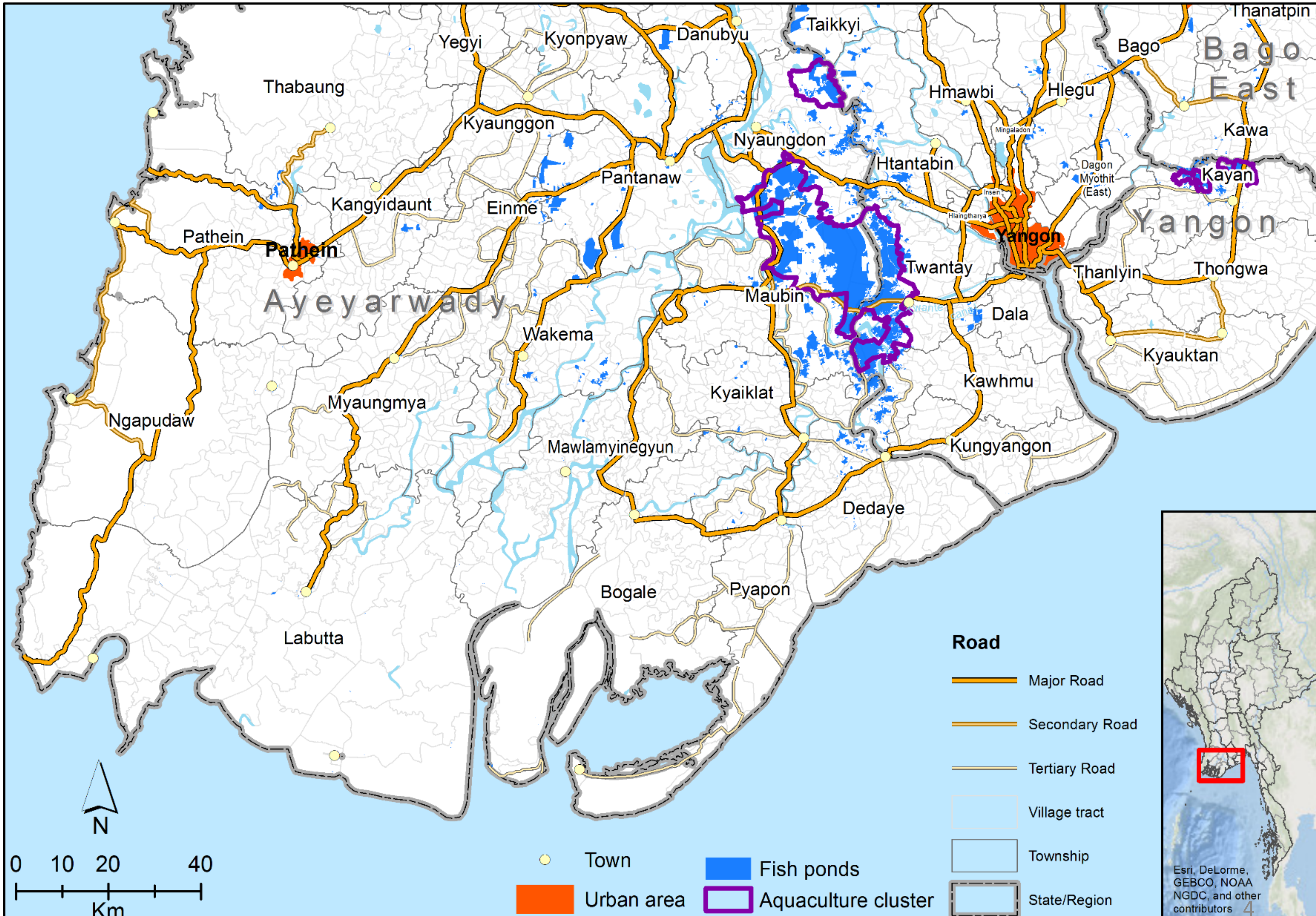
- Myanmar among the world's leading aquaculture producers. But less is known about its fish farm sector than any other Asian country.

- Previous grey literature characterized Myanmar’s aquaculture as:
  1. Strongly export oriented
  2. Dominated by very large farms
  3. Small fish farms non-existent due to strict regulations on conversion of paddy fields to ponds
  4. Technologies of big farms ‘traditional’ and extensive/semi-intensive

Methods

- Analysis of pond area, using satellite images
- Value chain study: 250 semi-structured interviews
- Household survey: 1100 HH in main fish farming areas, including fish farming, crop farming and landless HH
- Community survey: 73 villages – recall of numbers of aquaculture-related businesses over past 10 years

Fish farm & survey locations

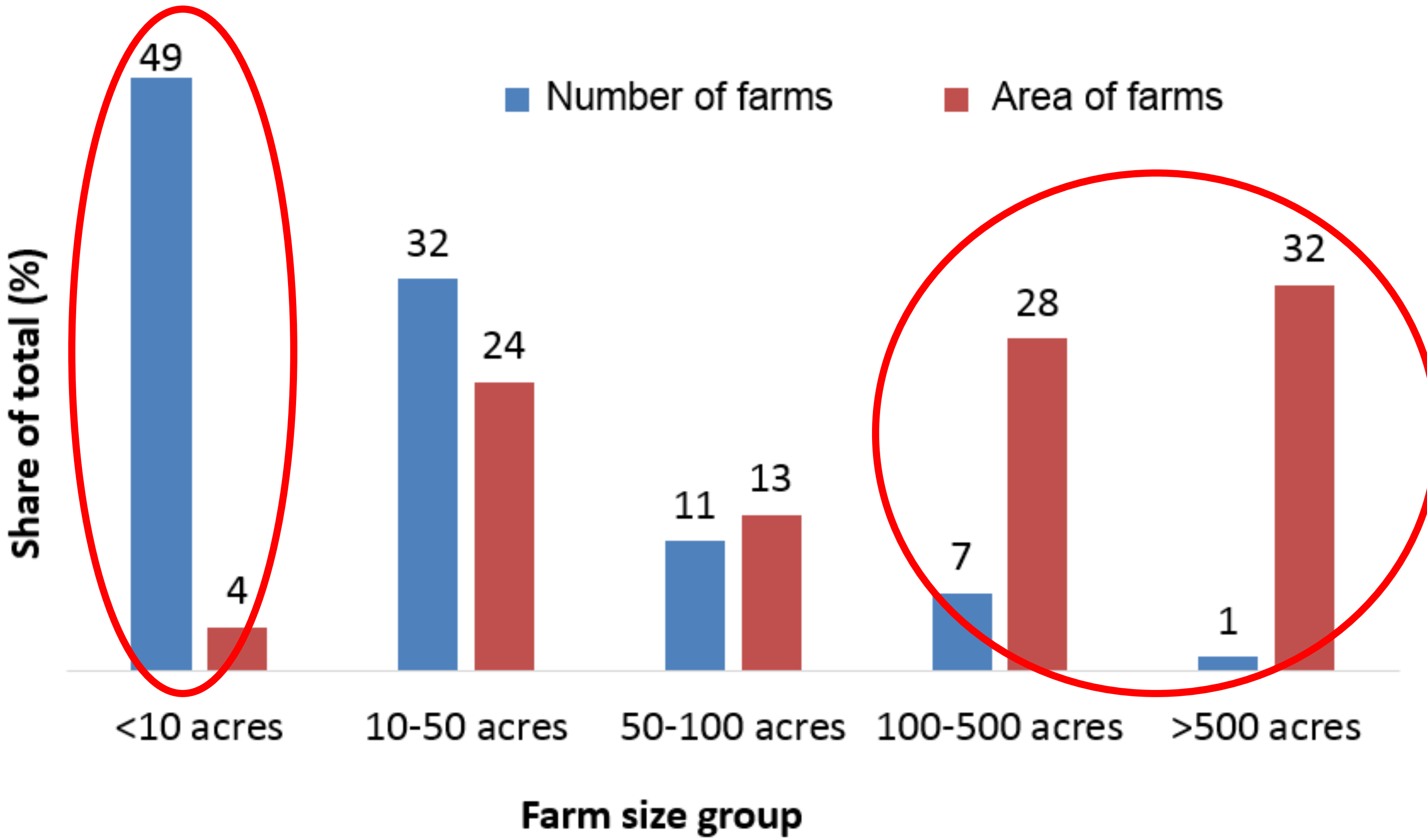


Finding 1: Most farmed fish produced in Myanmar is sold on the fast growing domestic market

- >75% of fish sold through San Pya market, of which:
  - 40–50% to domestic markets outside Yangon;
  - 30% to markets in and around Yangon;
  - 20–30% for international export (mostly to Middle East)

- Distributed throughout country by truck and express bus
- Proliferation of transport services post-2011
- Better connected markets, faster, cheaper distribution to more distant locations inside Myanmar

Finding 2: Large fish farms dominate in terms of area, but there are many small/medium commercial farms and nurseries

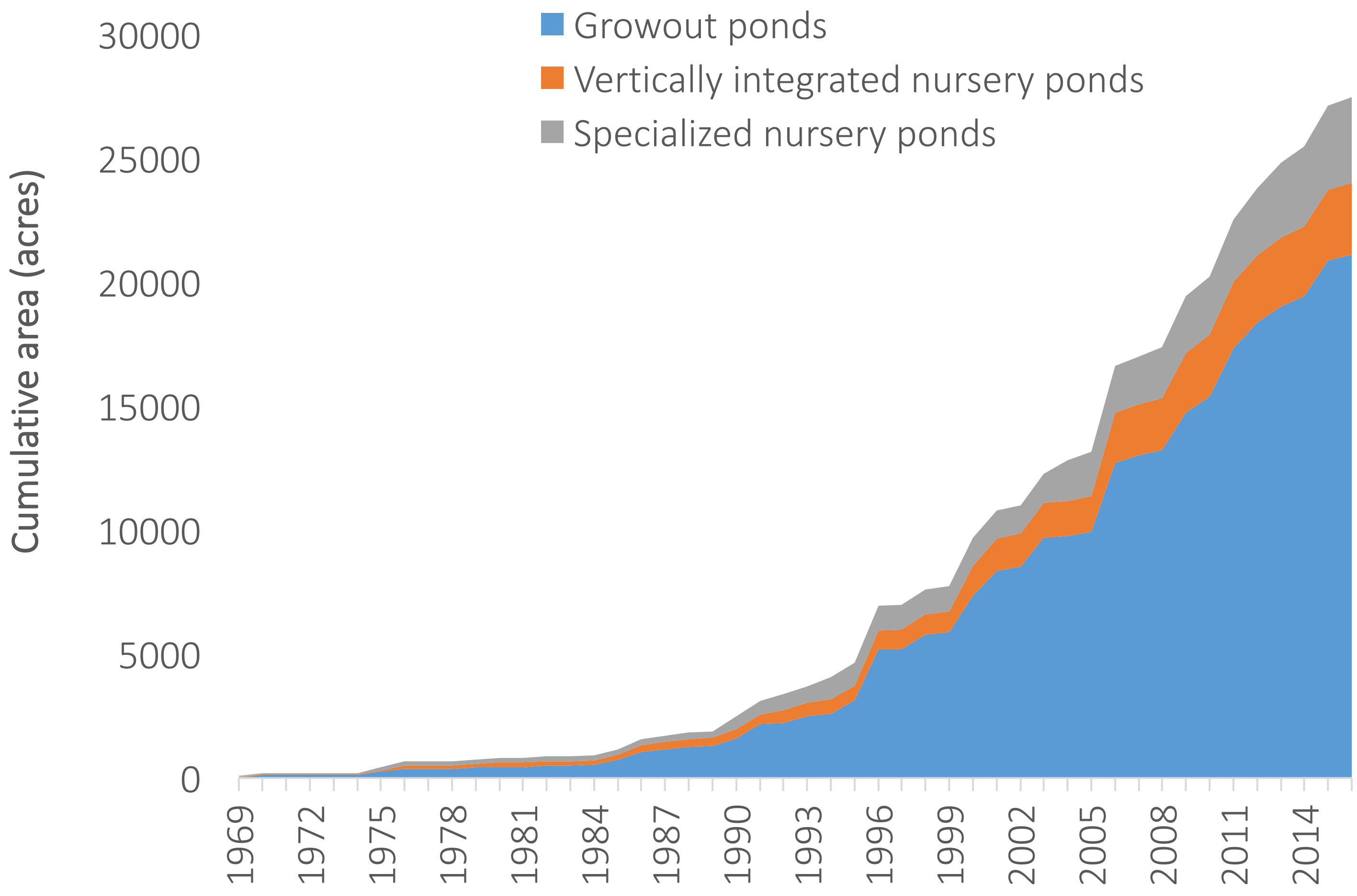


Share of farms (frequency and area), by farm size category

Large numbers of ‘invisible’ homestead ponds

Homestead ponds in Kayan township, with close up inset (Source Google Earth)

Finding 3: In the main fish farming zones, smaller farms have "worked around" restrictions on agricultural land use conversion



Cumulative area of ponds constructed, 1969-2015

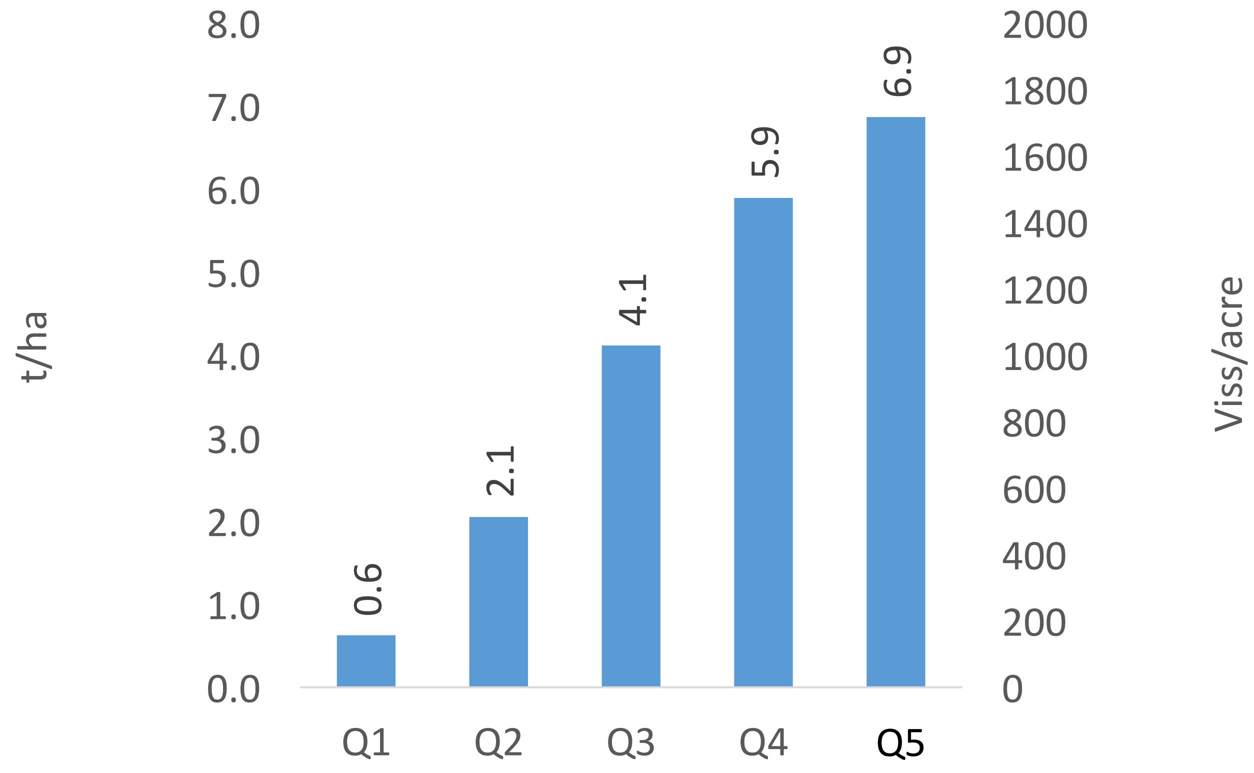

Need for informal arrangements:
increases entry barriers & costs
reduces tenure security
slows down farm growth

Finding 4: Upstream (feed and seed) and midstream (wholesale and logistics) VC segments have grown fast, driven by private investments of SMEs

Enterprise	2006	2016	% change	Reference area
Hatchery	30	60	100	Village tract
Nursery	501	1538	207	Village tract
Seed trader	166	265	60	Village tract
Pelleted feed trader	5	11	112	Local town
Rice bran/oil cake trader	112	175	56	Local town
Small boats for hire	115	216	88	Village
Fish trader	46	68	47	Local town
Ice factory	9	16	82	Local town
Mechanical excavator hire	2	24	961	Local town
Trucks for hire	1	20	1900	Village


MILA

Finding 5: Farms (large and small) are using a mix of traditional and more modern farming practices and technologies



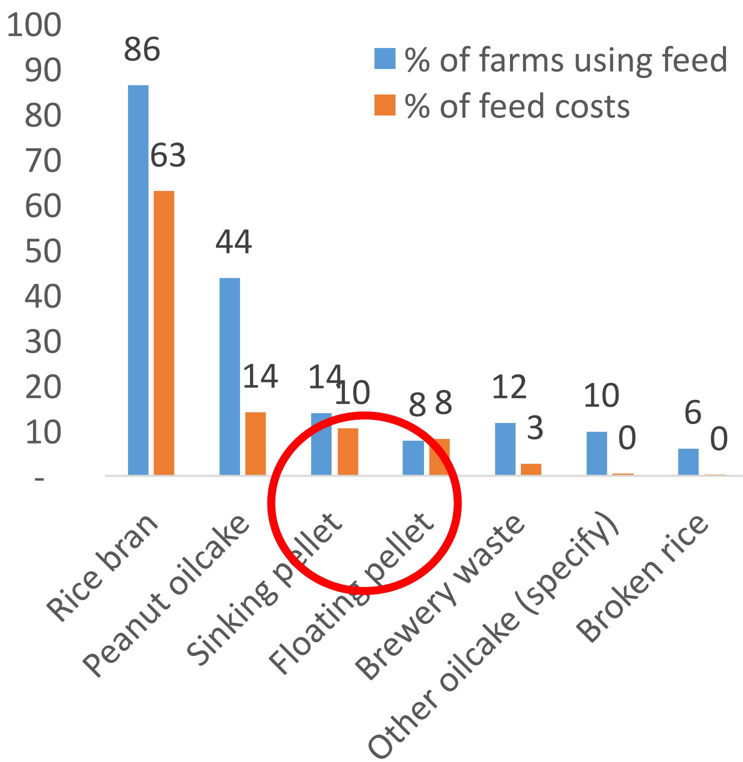
Average yield, by yield quintile

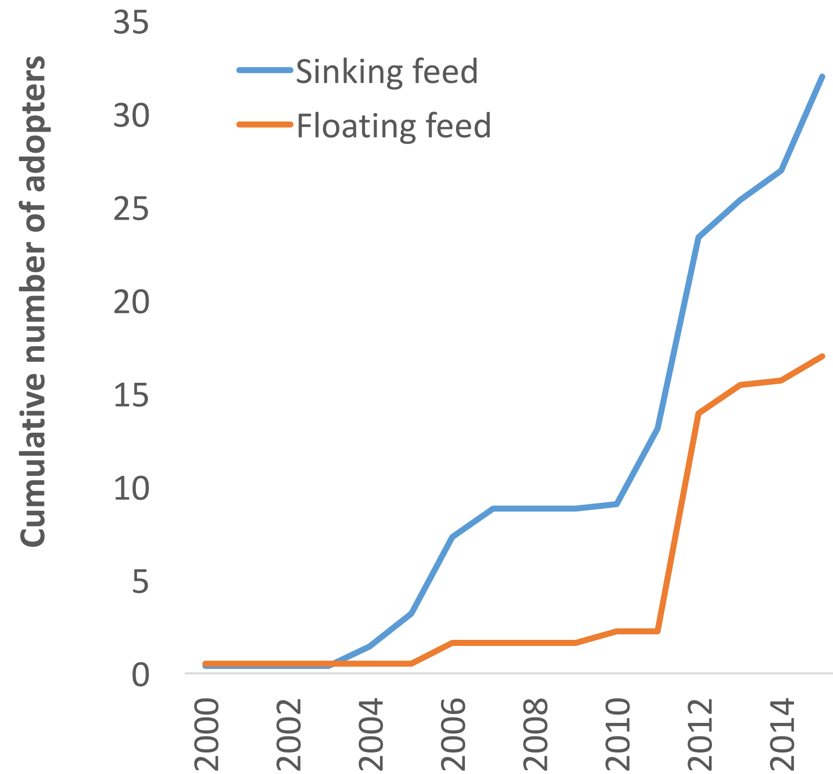
Hlegu pond cluster (2004-2014)

Pond area: 274 ha → 697 ha

Integrated ponds: 0% → 74%

Use of pelleted feeds increasing (from low base)

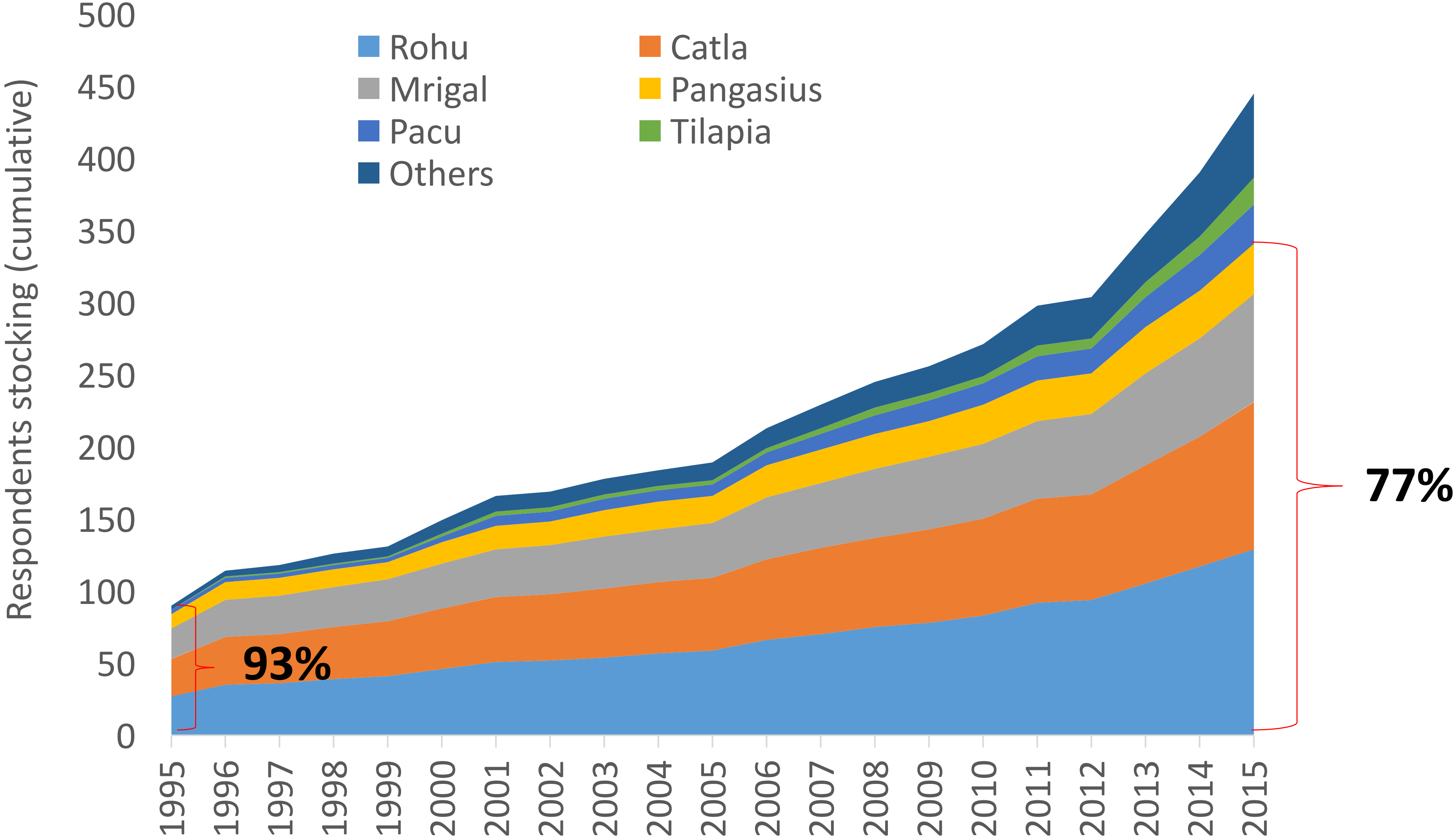




Share of farms using feed inputs, by feed type, and share of feed type in total value of feed inputs (%)

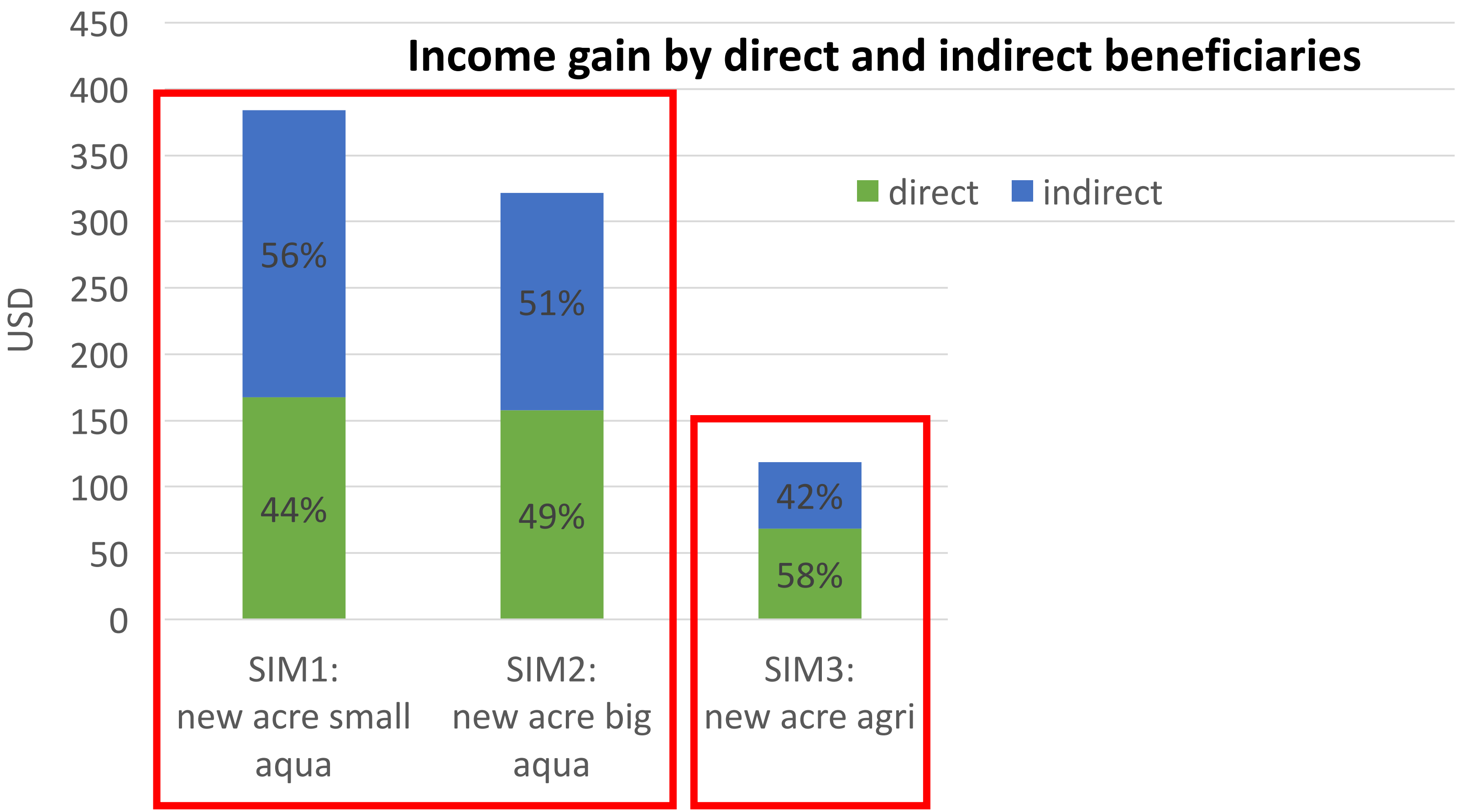
Cumulative adoption of pelleted feed, by year and feed type (2000-2015)

Some species diversification (from low base)



Cumulative number of respondents farming species, by species and year

6) Fish farms produce bigger economic spillovers than crop farms; small fish farms produce bigger indirect spillovers than large fish farms



Conclusions

- The domestic market for farmed fish is vibrant and growing, exports relatively unimportant.
- Many smaller commercial farms and nurseries have emerged in last decade.
- Land use restrictions not enforced uniformly, but still hamper small farm development
- Off-farm segments of value chain have grown quickly in step with farms
- Some technological change and diversification in farming
- Aquaculture generates much larger economic spillovers than agriculture; small commercial fish farms generate bigger indirect spillovers than large fish farms
- A Quiet Revolution is emerging Myanmar’s aquaculture value chain, but still has potential to go much further

Thank you!

ARTICLE IN PRESS

Aquaculture xxx (xxxx) xxx–xxx

ELSEVIER

Contents lists available at ScienceDirect

Aquaculture

journal homepage: www.elsevier.com/locate/aquaculture

The emerging quiet revolution in Myanmar's aquaculture value chain

Ben Belton[a,*], Aung Hein[b], Kyan Htoo[b], L Seng Kham[c], Aye Sandar Phyoe[d], Thomas Reardon[a]

[a] *Michigan State University, USA*
[b] *Center for Economic and Social Development, Myanmar*
[c] *Livelihoods and Food Security Trust Fund (LIFT), Myanmar*
[d] *Asian Institute of Technology, Thailand*

A R T I C L E I N F O

Keywords:
Myanmar
Value chain
Farm size

A B S T R A C T

Myanmar is among the world's leading aquaculture producers. But less is known about its fish farm sector than any other major aquaculture-producing country in Asia. The literature has characterized aquaculture in Myanmar as strongly export oriented, and dominated by very large farms. Past literature had it that small-scale