

# The “Quiet Revolution” in Myanmar’s Aquaculture Value Chain

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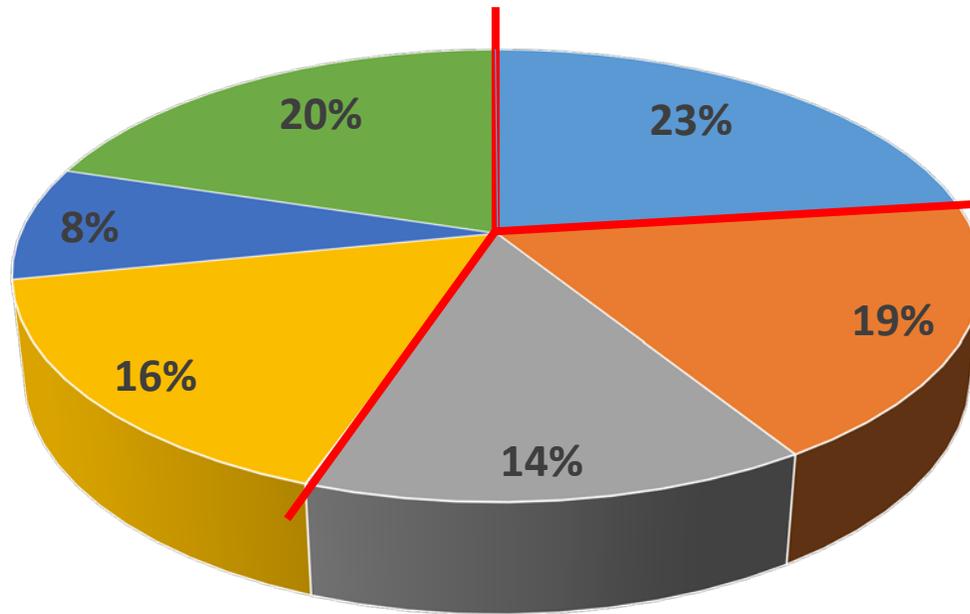
# The “Quiet Revolution”?

- Huge (but often overlooked) changes in developing country food systems
- Occurring across developing countries for multiple commodities (e.g. Reardon et al, 2012; Reardon et al, 2018)
  - Farm commercialization, intensification, specialization
  - Growth of supporting off-farm enterprises
- Driven by changes in demand

# Changes in Demand

- Rapid urbanization (66% by 2050)
- Urbanization → Higher incomes
- Higher incomes → Diet change
- More demand for non-staple foods (including fish) as diets diversify

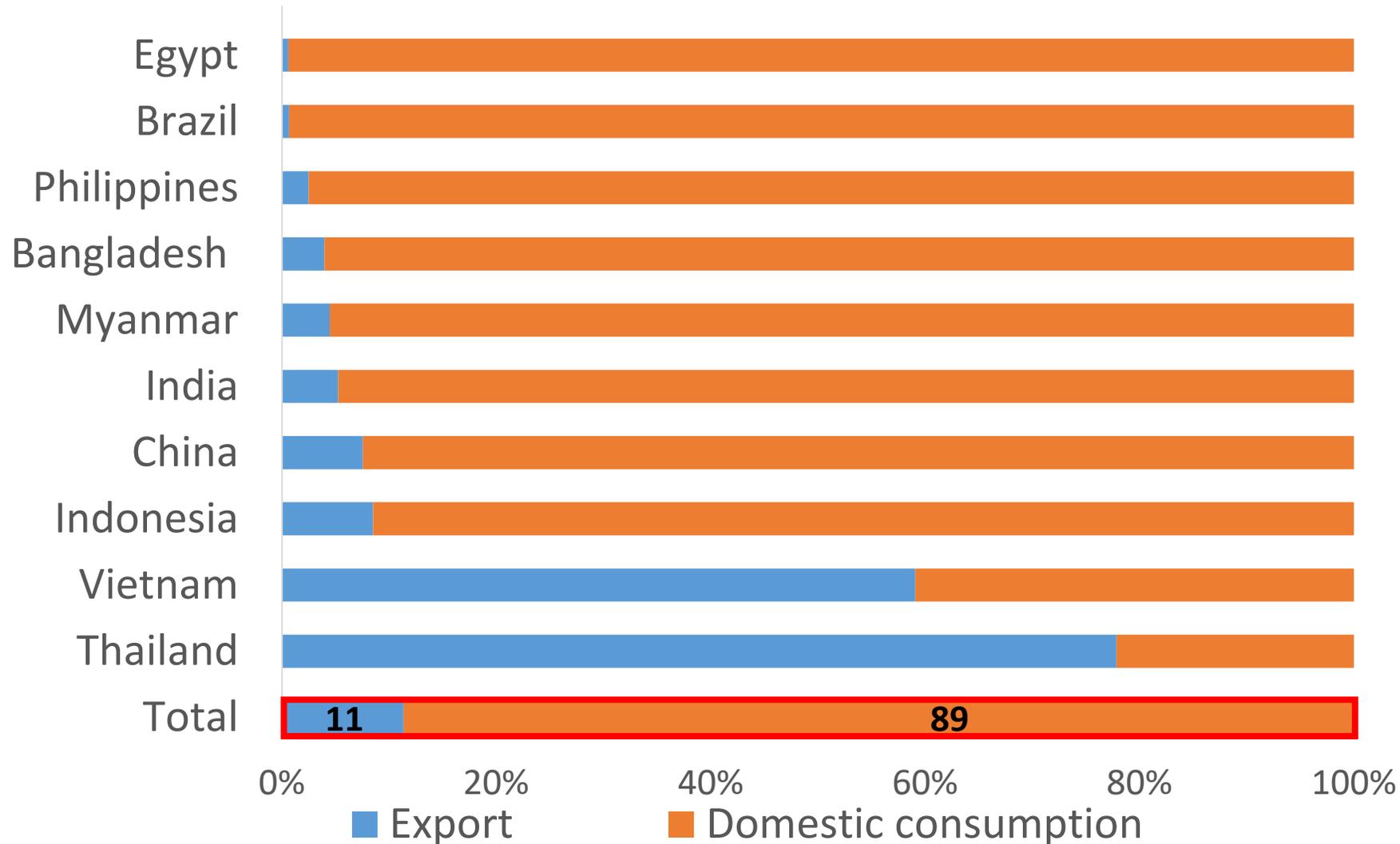
# Expenditure on animal source foods exceeds expenditure on staples



- Rice and other staples
- Meat, eggs & milk
- Fish
- Vegetables & fruits
- Food & beverages taken outside home
- Other foods & beverages

**Share of Myanmar food expenditure by food group (%)** (Source: Belton et al. 2015)

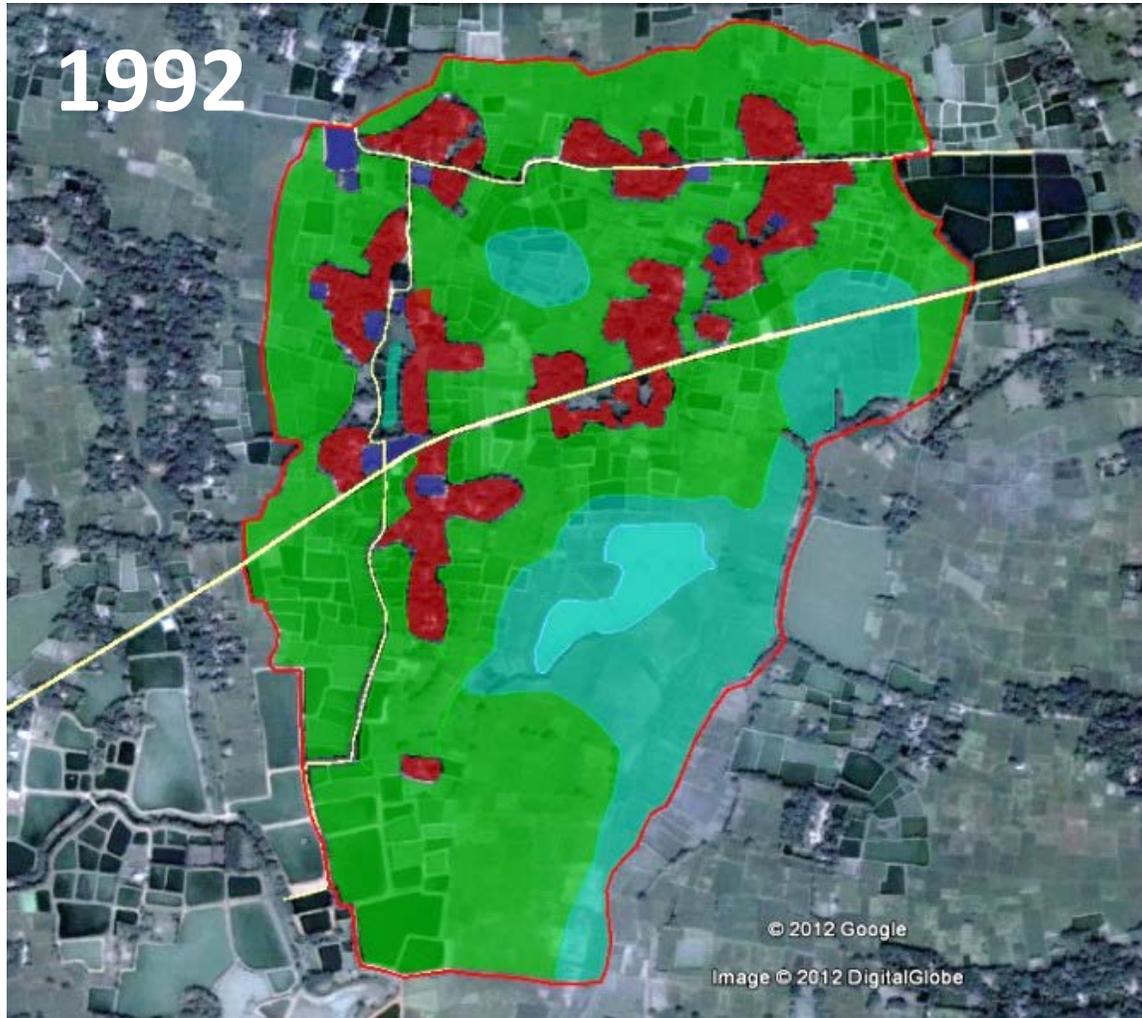
# Domestic markets dominate demand



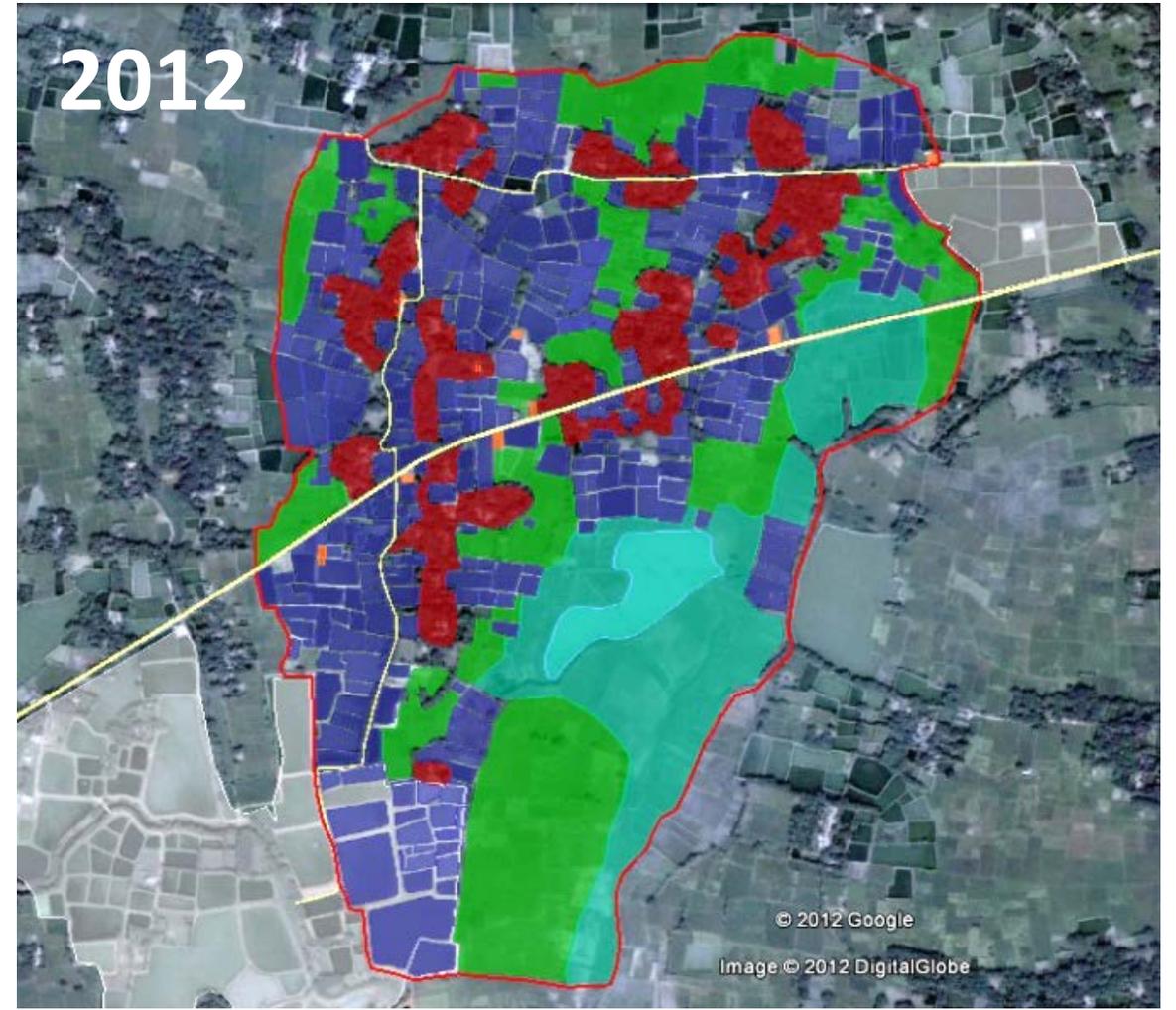
Aquaculture exports and domestic consumption from the top 10 aquaculture producing developing countries

(87% of global farmed fish production)  
(Belton et al, 2018a)

# Changes in Supply



## Fish farm expansion (Belton et al, 2017)



# Commercialization, intensification, specialization

- Shift to production for sale, not subsistence
- Formulated feeds
- Larger fingerlings
- Pumps, aeration, chemicals
- New species
- Higher yields
- Most aquaculture at 'intermediate' stage of development



# Growth of Off-Farm Value Chain Segments

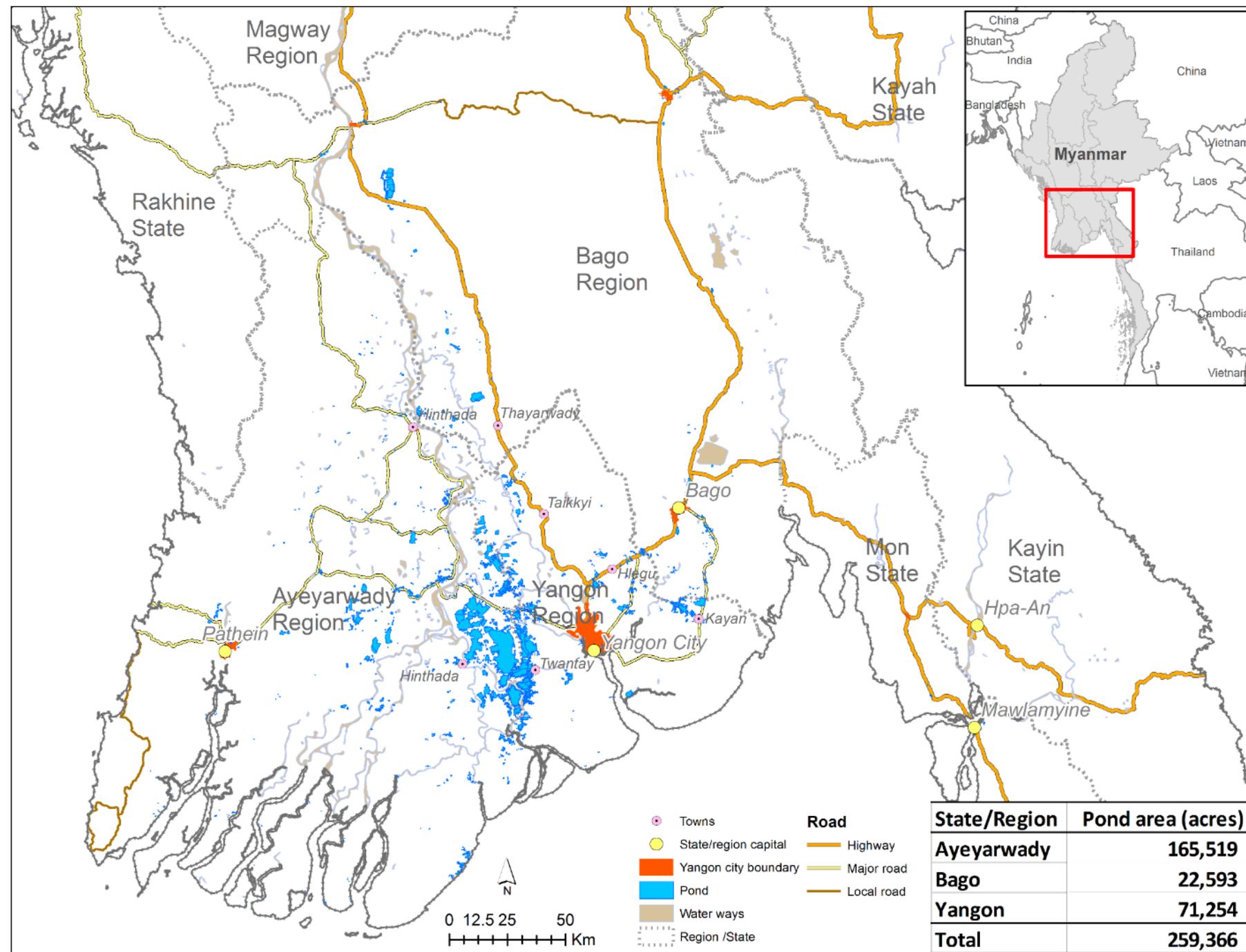
- Farm growth facilitated by growth and innovation in ‘upstream’ and ‘downstream’ VC segments
- Development in ‘clusters’ that facilitate specialization, reduce costs, increase efficiency

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

Inventory of enterprises in the aquaculture value chain, in villages with high concentrations of fish farms, Myanmar, 2006-2016 (Belton et al, 2018b)

# Clustered fish farm development in Myanmar

- Rural-urban linkages
- Agro-ecology
- Water control infrastructure
- Land use policy



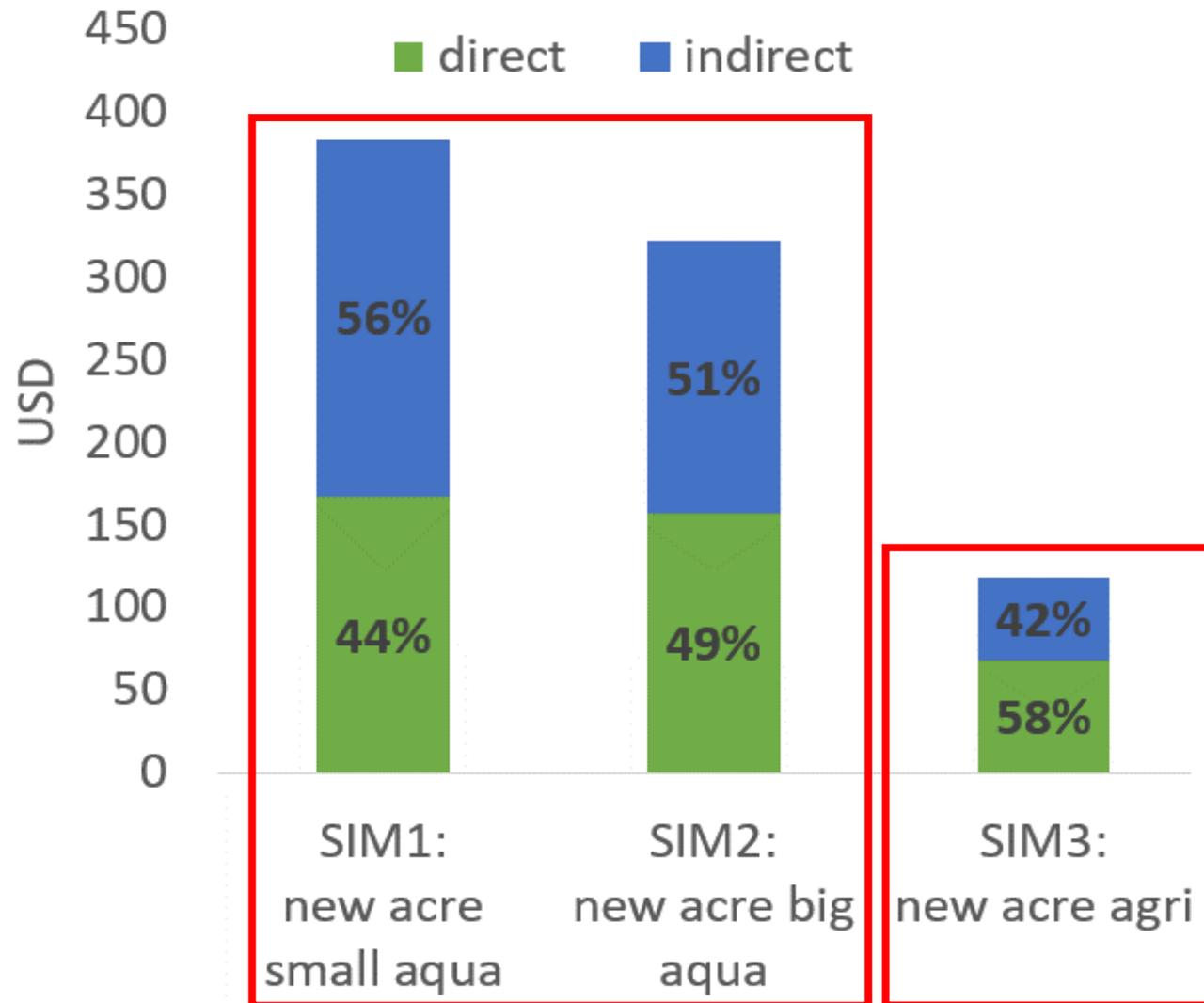








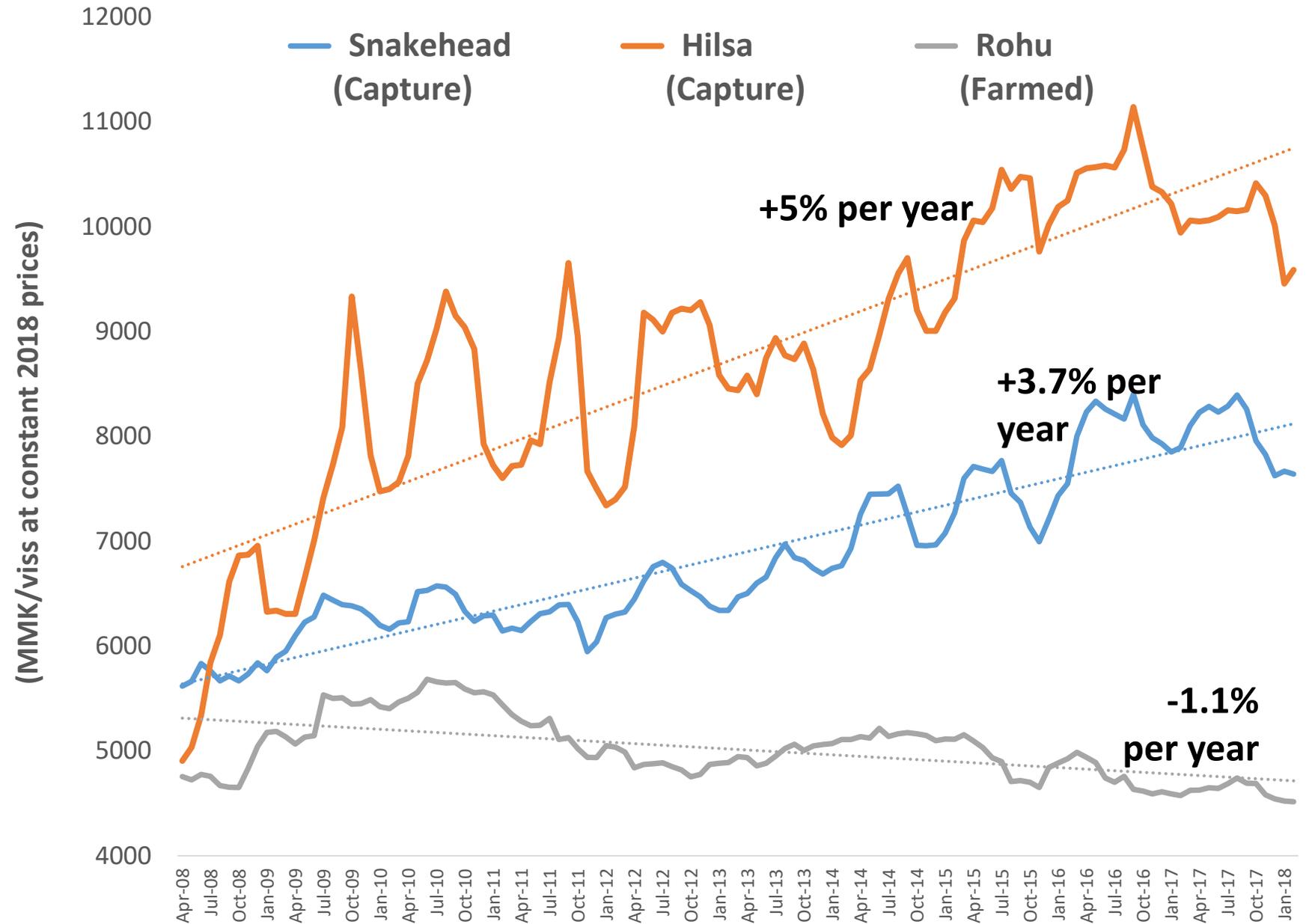
# Development impacts through employment & income spillovers



- Fish farms produce bigger economic spillovers than crop farms
- Small commercial fish farms produce bigger indirect spillovers than large fish farms

**Estimated local economy-wide direct and indirect income gains from additional acre of land utilized by large fish farm, small fish farm and crop farm, Myanmar (Filipski & Belton, 2018)**

# Farmed fish prices falling relative to wild fish



Long run trend in real prices of key fish species from capture fisheries and aquaculture in Myanmar (2008-2018)

# The Quiet Revolution in Myanmar's Aquaculture Value Chain

- Driven mainly by changes in domestic demand
- Growth, intensification, specialization, and innovation by farms and enterprises throughout value chain
- Clustered pattern of development
- Many livelihood opportunities created, both on and off-farm
- Large income spillovers, especially from smaller commercial farms
- Increasing availability and accessibility of farmed fish
- Liberalization of land use policy and better access to credit could spur further growth & diversification