The Structure and Performance of the Aquaculture Value Chain in Myanmar

January 28, 2016

Ben Belton (MSU), Aung Hein, Kyan Htoo, L. Seng Kham (MDRI-CESD) Ulrike Nischan (IFPRI), Thomas Reardon (MSU), Duncan Boughton (MSU)

This study is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The study was also supported by financial assistance from the Livelihoods and Food Security Trust Fund (LIFT). The contents are the responsibility of Michigan State University (MSU) and do not necessarily reflect the views of USAID, the United States Government, or LIFT and its donors.
Value chain structure

Upstream: Input supply (seed, feed)

Midstream: Farm (land, labor, capital)

Downstream: Marketing, processing
Methodology

• Focus on freshwater aquaculture only (shrimp <5% of total production)

• Pond survey using satellite images: Identified and catalogued all pond clusters in every township in the delta

• Worked in seven townships accounting for 75% of pond area + Yangon city

• Conducted 250 semi-structured interviews, including up, mid and downstream enterprises

• Focused on “meso” level changes structure in the chain over the last 10 years, and the “micro” level behavior of actors
Hatchery segment
Nursery segment
Seed

- Hatcheries – relatively few, clustered, frequently part of vertically integrated operations
- Limited number of fish species produced – many fish that make significant contributions to aquaculture elsewhere in Asia are absent or produced only on an experimental basis
- Nurseries – in all pond clusters, often co-located with hatcheries in large numbers
- Nursery boom in last 10 years as farms stock larger fingerlings
- Provides a point of entry into aquaculture for smallholders
Feed segment
Feed

- Market for feeds and feed ingredients for fish equal in size to market for all other animal and poultry feeds combined
- Agricultural byproducts account for >80% of feed use; increases revenues for agro-processing
- Low degree of market penetration by formulated feeds (<20%)
- Feed manufacture dominated by one company, plus vertically integrated farms.
- Formulated feed prices highest in Asia
Other Specialized Inputs & Services
Farm segment
Farm structure

- In terms of production volumes, aquaculture is dominated by large scale operations – from the low 100’s-1000’s of acres
- However, also large numbers of ‘medium-sized’ farms, from 5-50 acres, including integrated poultry-fish operations
- Several specialized seed production hubs with private hatcheries and large numbers of nurseries (mainly 1-5 acres)
- ~200,000 ‘backyard’ ponds (main purpose is drinking water supply, but increasingly stocked with fish)
- The existence of small and medium farms is rarely recognized
Homestead ponds in Kayan township, with close inset (Source Google Earth)
Land

• The Union (state) is the ultimate owner of all land.
• All land designated as paddy land must be used to grow rice
• Conversion of agricultural land to non-agricultural requires special permission (“La Na 39”)
• Obtaining La Na 39 is complex, costly and time consuming
• However, enforcement is uneven
  • Unofficially relaxed in most well-developed pond clusters (e.g. turning a blind eye to farms <10 acres)
  • Strict in some areas with potential for pond expansion (e.g. Mon)
• Raises transaction costs and risks for fish producers
Land (continued)

• Private land rental markets underdeveloped due to insecure tenure (barrier to smallholder entry)

• Aquaculture Law of 1989 promoted aquaculture by allowing companies to convert “wastelands”

• Large numbers of concessions granted (including some land worked by paddy farmers)

• Land concentration due to large fish farmers buying land from heavily indebted paddy producers

• Together, these sets of policies result in a sector dominated by large farms
Labor

• Aquaculture is relatively labor intensive in comparison to paddy cultivation (harvesting a pond = 10 person days/acre; harvesting paddy = 4 person days/acre)

• All medium and large scale fish farms employ permanent labor to tend ponds (migrants from remoter rural areas)

• Rising wage rates and occasional labor shortages in pond clusters

• Rental services for mechanized earthmoving equipment increasing to save costs
Capital/credit

• The costs of investing in aquaculture substantial (feed costs alone ≈$1500-$2500/acre)
• Myanmar has one of the least developed financial systems in the world
• Paddy farmers receive agricultural loans disbursed by MADB, but formal credit unavailable to most fish farmers
• Large fish traders provide output tied loans to large farms at 3%/month
• Smaller producers borrowing from private money lenders 4-6%/month
• The cost of informal credit has fallen as volume of formal and microcredit loans has increased
Marketing and distribution
Marketing

• Limited influence of modern retail so far
• Little ‘intermediation’ between farm and primary wholesale
• Volume of fish traded more than doubled over last 10 years
• Four major categories of buyer from Yangon wholesale:
  1) Wholesalers in distant urban markets (≈50%)
  2) Retailers and small wholesalers located in and around Yangon (≈30%)
  3) Cold storages/processors/exporters in Yangon (≈20%)
  4) Small-scale processors around San Pya (small, but growing rapidly)
Inter-state trade

• Dramatic growth in trade of aquaculture fish from Yangon to Upper Myanmar since 2011

• Huge increase in the number and volume of consignments followed liberalization of regulations on motor transport and completion of Yangon-Mandalay express way

• Number of inter-city busses doubled, freight transport costs down 40%, transport times reduced

• All of this is occurring despite formal restrictions on inter-state trade in fish
Conclusions

• The aquaculture value chain in Myanmar occupies an intermediate stage of development: Dynamism and under-development co-exist at all value chain segments
• ‘Dual speed’ development linked Myanmar’s unique political economy and ongoing economic transition
• High degree of concentration in all VC segments (geographically and market share)
• However, commercial small and medium aquaculture producers more numerous than generally recognized
Conclusions

• Other countries have greater numbers of more diverse actors of all scales, in all VC segments (Competition driving innovation and efficiency)
• A more diverse sector in Myanmar driven by commercial smallholders and SMEs could deliver more inclusive development, through denser rural growth linkages and more equitable distribution of benefits
• Greater productivity and technological diversification would also support food and nutrition security by increasing the range and volume of products accessible to poorer consumers and reducing prices
• Excellent potential for more ‘balanced’ sectoral development if structural constraints (especially land & credit) can be removed or reduced to create a level playing field
Thank You