

Adaptation and management options for disease problem: Insights from Sri Lankan Shrimp Aquaculture Industry



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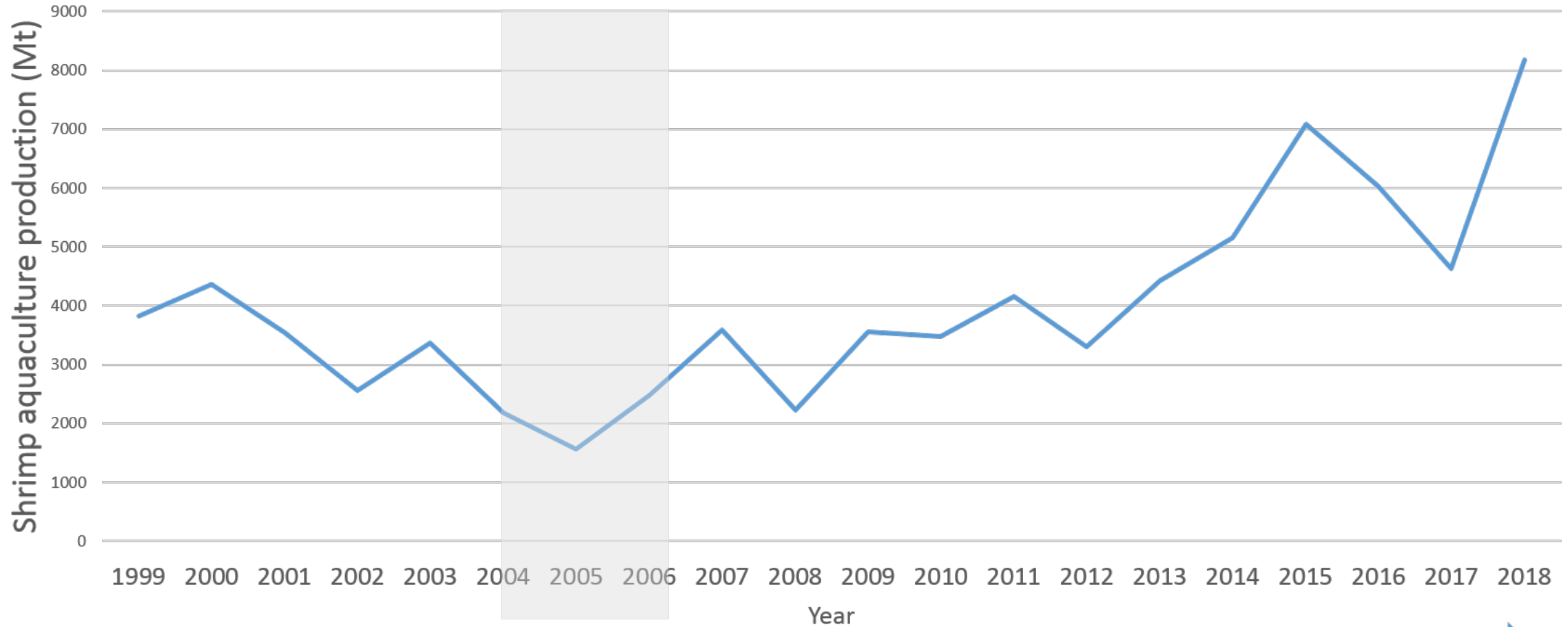
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Background and context

- Location: Northwestern Sri Lanka
- Culture species: Tiger prawn/shrimp (*Penaeus monodon*)
- Impacts of pests/pathogens:
 - Monodon Baculovirus-MBV (since 1988)
 - Systemic Ectodermal and Mesodermal Baculovirus-SEMBV (since 1996)
 - Yellow Head Virus-YHV (since 1996)
 - Carriers: crustaceans, birds
- Implications:
 - Huge economic loss
 - Large-scale producers quit the industry
 - Increase vulnerability of small-scale producers (livelihoods, nutrition, food security)



But now, this industry persists (sustainable)



No. of
farmers

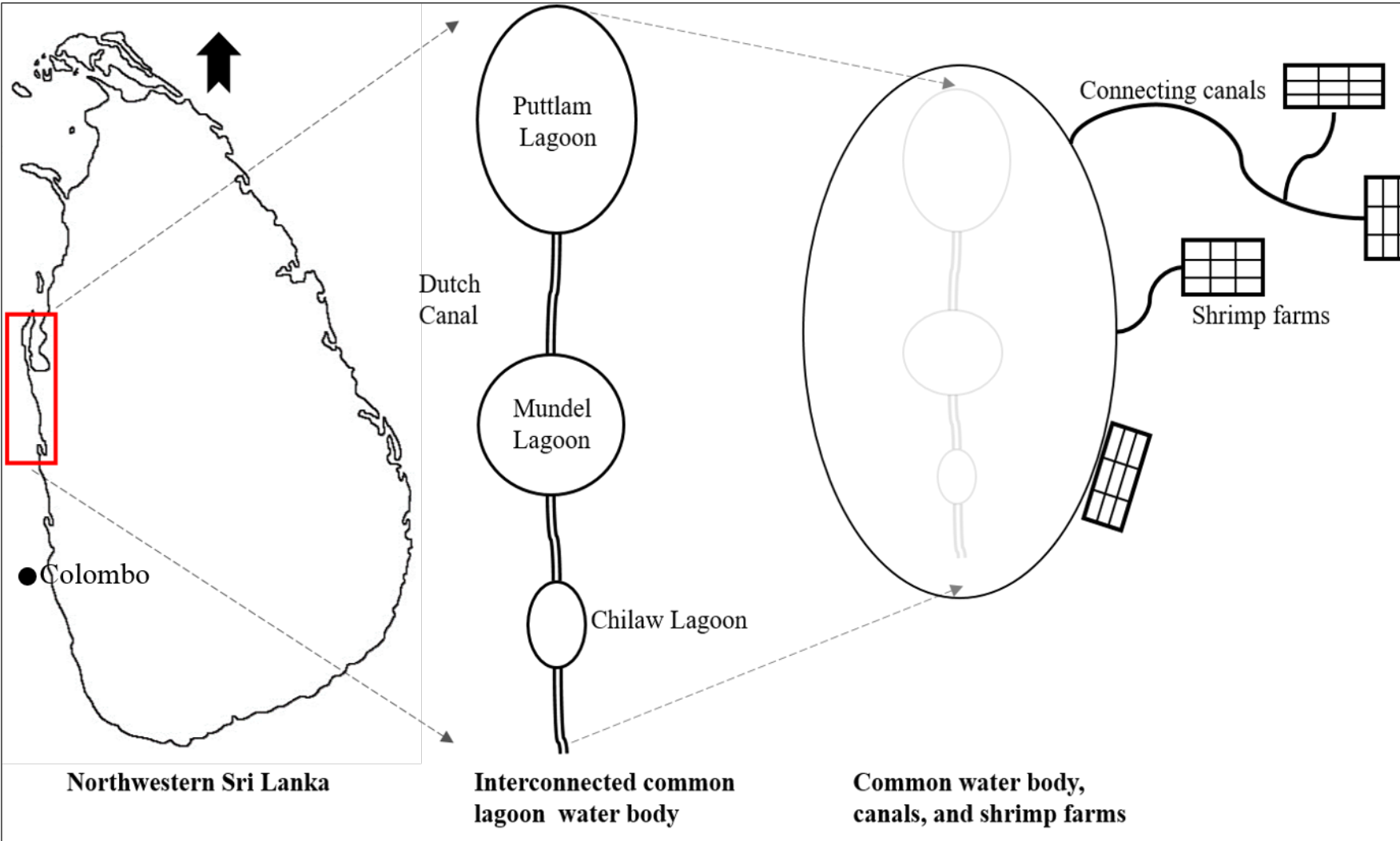
← ~1000-1500 →

← ~600 →



What is the problem?

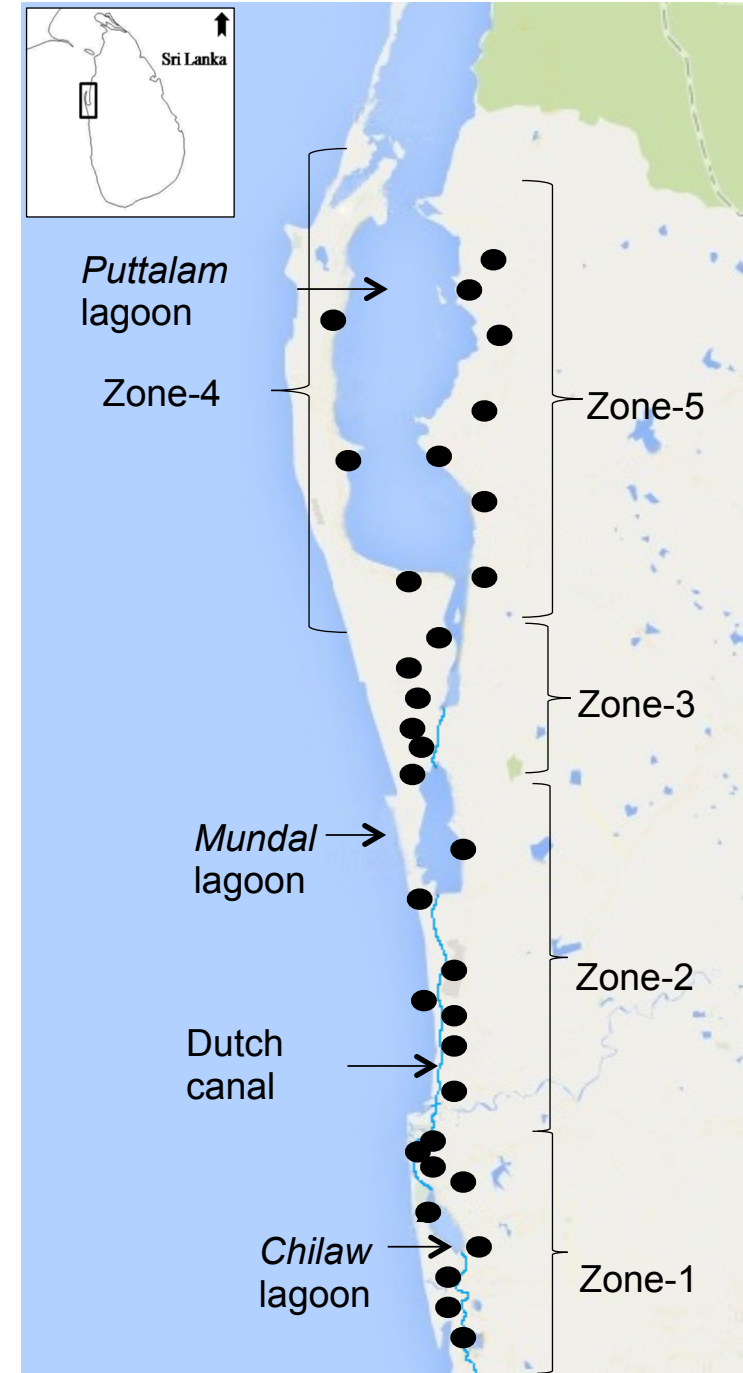
- Disease spreading through the **interconnected** lagoon waterbody



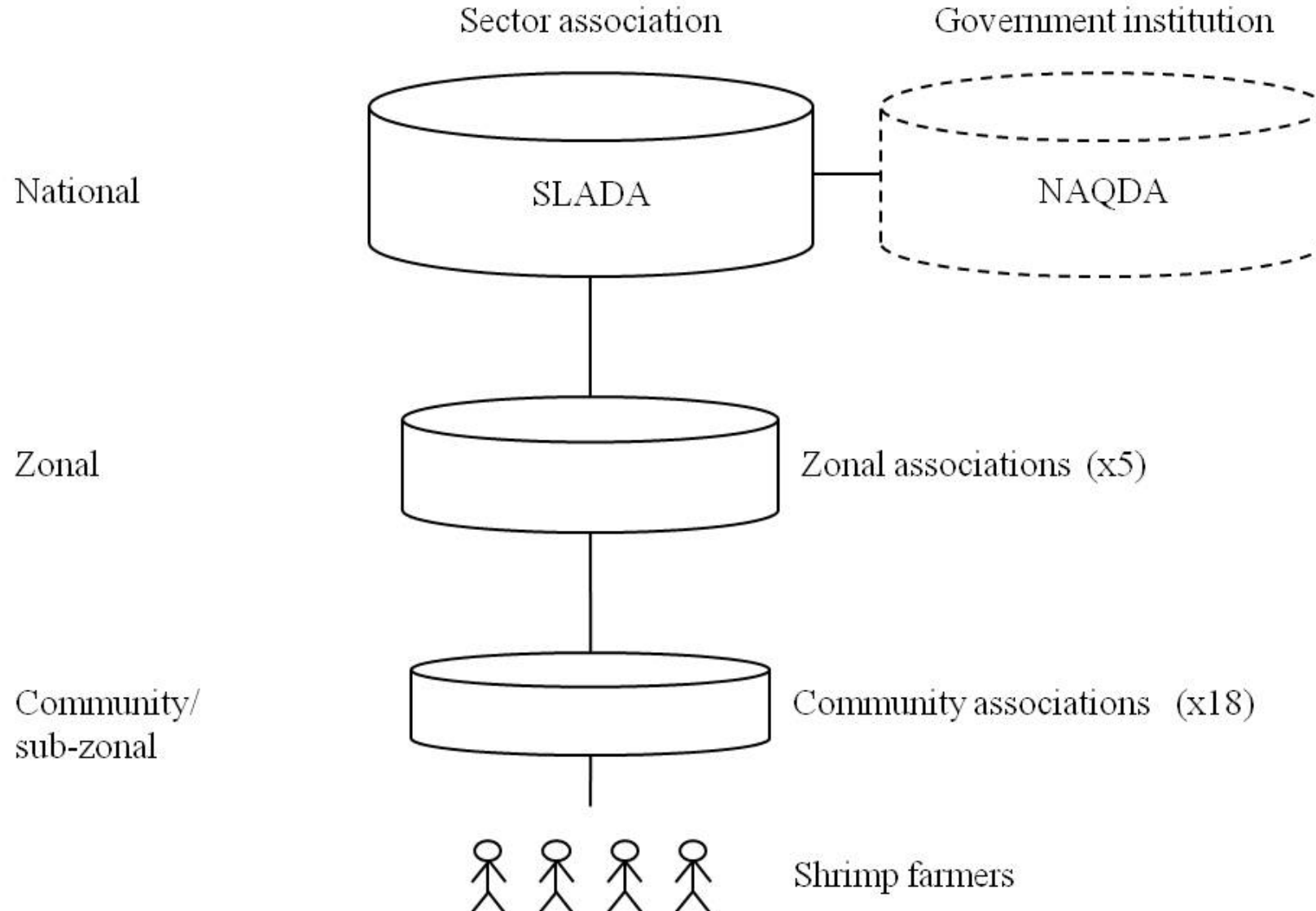
- Climate change impacts
 - Droughts or floods
 - Unusual monsoon patterns
 - Temperature fluctuations
- Increases uncertainty and complexity

Zonal crop calendar system

- Manage discharge and withdrawal dates from the common water body
- Create buffer zones: when zone 1 and 3 active, leave zone 2 inactive
- This serves to manage (not 'eradicate') shrimp disease
- Disease spreading patterns are study annually
- The zonal crop calendar system is revised yearly
- It requires 'collective action' and 'collaboration'
- Achieved through community associations (*samithi*), collaborating with other *samithi*



Multi-level management: adaptive institutions



Supportive characteristics



Use different kinds of knowledge

- Local environmental knowledge: disease spreading, mangroves, tides
- Practice collective action: how to run a *samithi*, zonal/national meetings
- Production techniques: handle disease situation



Diversification strategies

- Species: milk fish, white shrimp
- Livelihoods: feed selling, broodstock supplying, rice farming



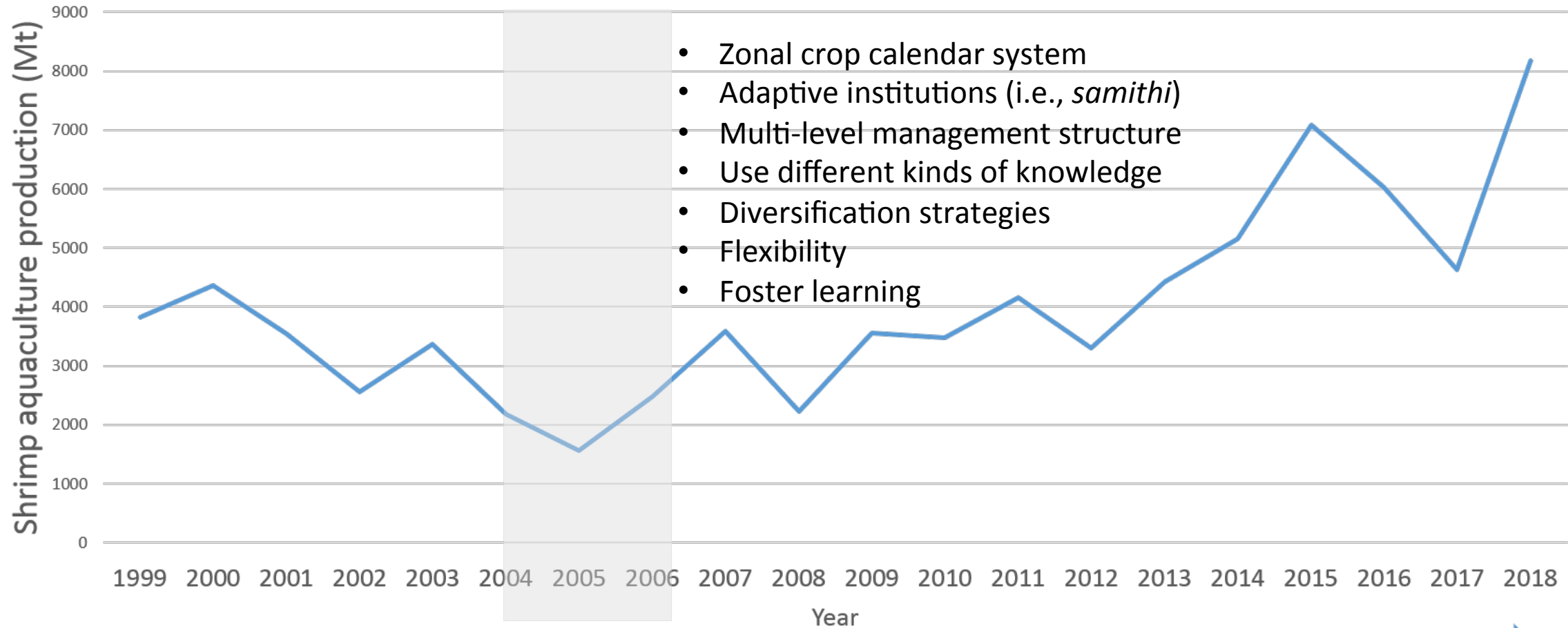
Flexibility: adapting best management practices-BMPs



Foster learning while living with the challenge of disease under climate change impacts



What adaptive management approaches make the industry resilient and adaptive?



No. of
farmers

← ~1000-1500 →

← ~600 →

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