



## Codes of practice and better management: a solution for shrimp health management?

*Flavio Corsin, C.V. Mohan,  
Arun Padiyar, Koji Yamamoto  
Pornlerd Chanratchakool*




# From DAA5 to DAA6

## Farm-level risk factors for White Spot Disease outbreaks


F. Corsin, J.F. Turnbull,  
C.V. Mohan, N.V. Hao, K.L. Morgan

*Institute of Aquaculture – University of Stirling*

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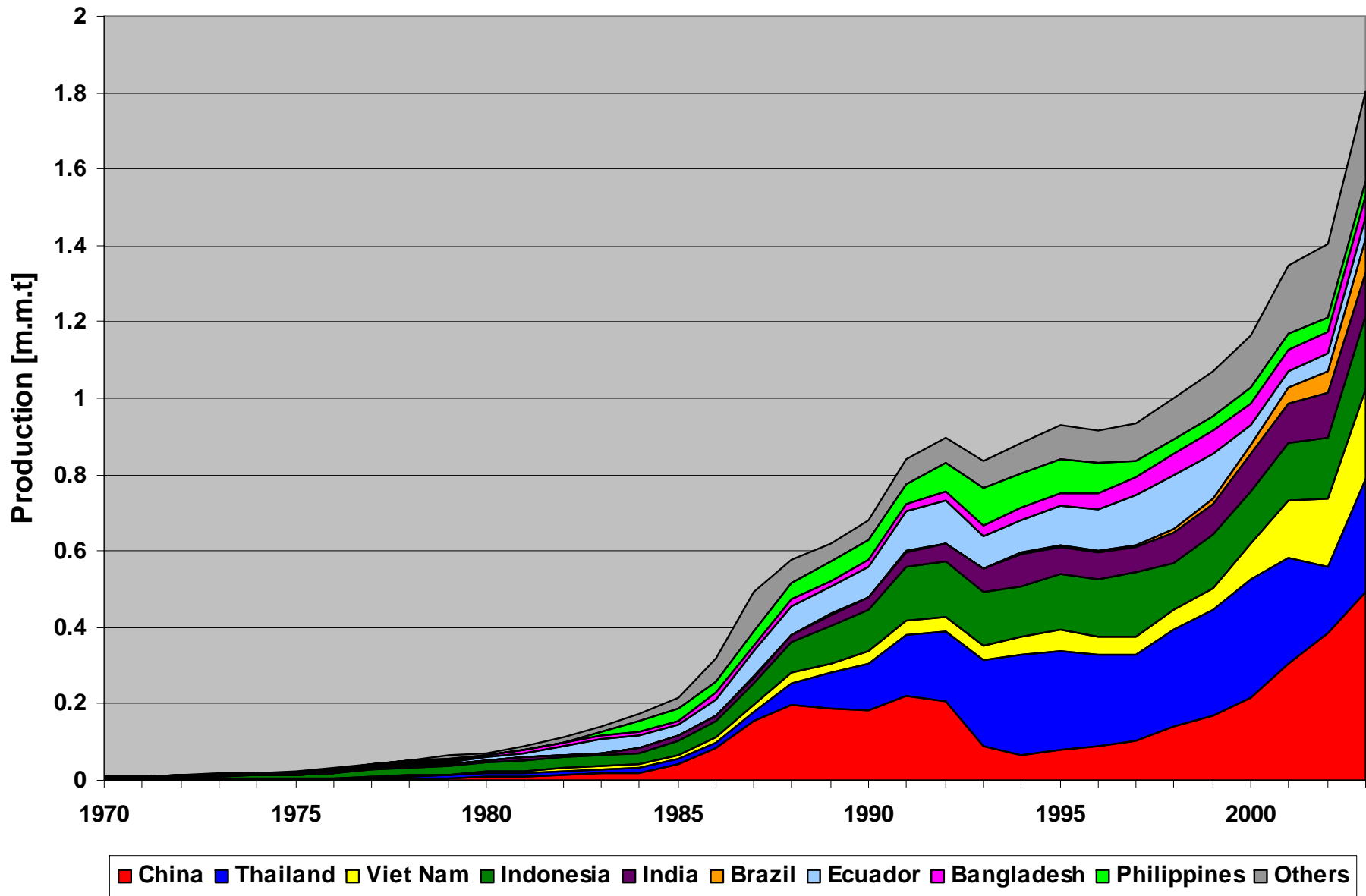
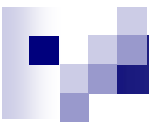
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# A rapidly growing sector

- Global shrimp production (in 2003)
  - 1.8 million metric tons
  - Valued USD 9.3 billion
- Asia produced (in 2003)
  - 1.5 m.m.t. (83% of the global production)
  - Valued USD 7.8 billion
- Rapidly growing in recent years
  - China 3.4-fold increase (1998→2003)
  - Vietnam 4.5-fold increase (1998→2003)

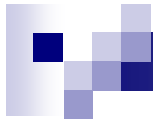




# Major challenges

- New diseases with old impacts
  - YHD, WSD, TS...
- Environmental degradation
- Increasing demand for healthier products (residues, pathogens)
- Allegations for poor socio-economical sustainability
  - Declining global prices





Need for  
better = more sustainable  
ways to do shrimp farming!





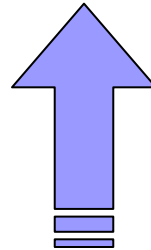
## Responsible shrimp farming

- FAO CoC for Responsible Fisheries (whole fisheries sector)
- Principles for responsible shrimp farming
  - Consortium program  
(WB, NACA, WWF, FAO, UNEP, ...)
- Efforts from the private sector & governments
  - Develop & implement better practices (BMP/GAP...)



# Principles for sustainable shrimp farming

Valid regardless of the species or system



Specific to the system

Better Management Practices  
Good Aquaculture Practices

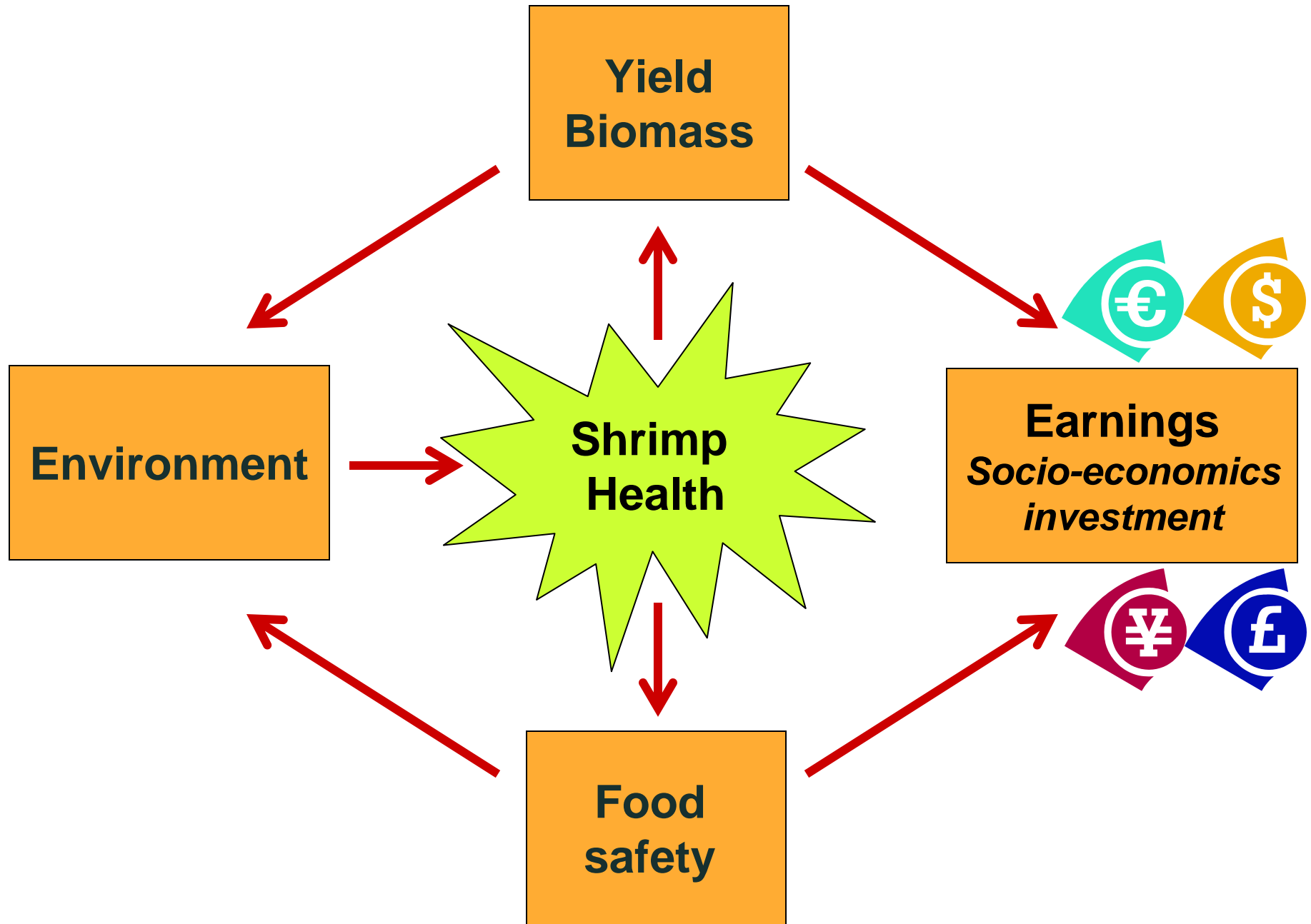


# Better Management Practices

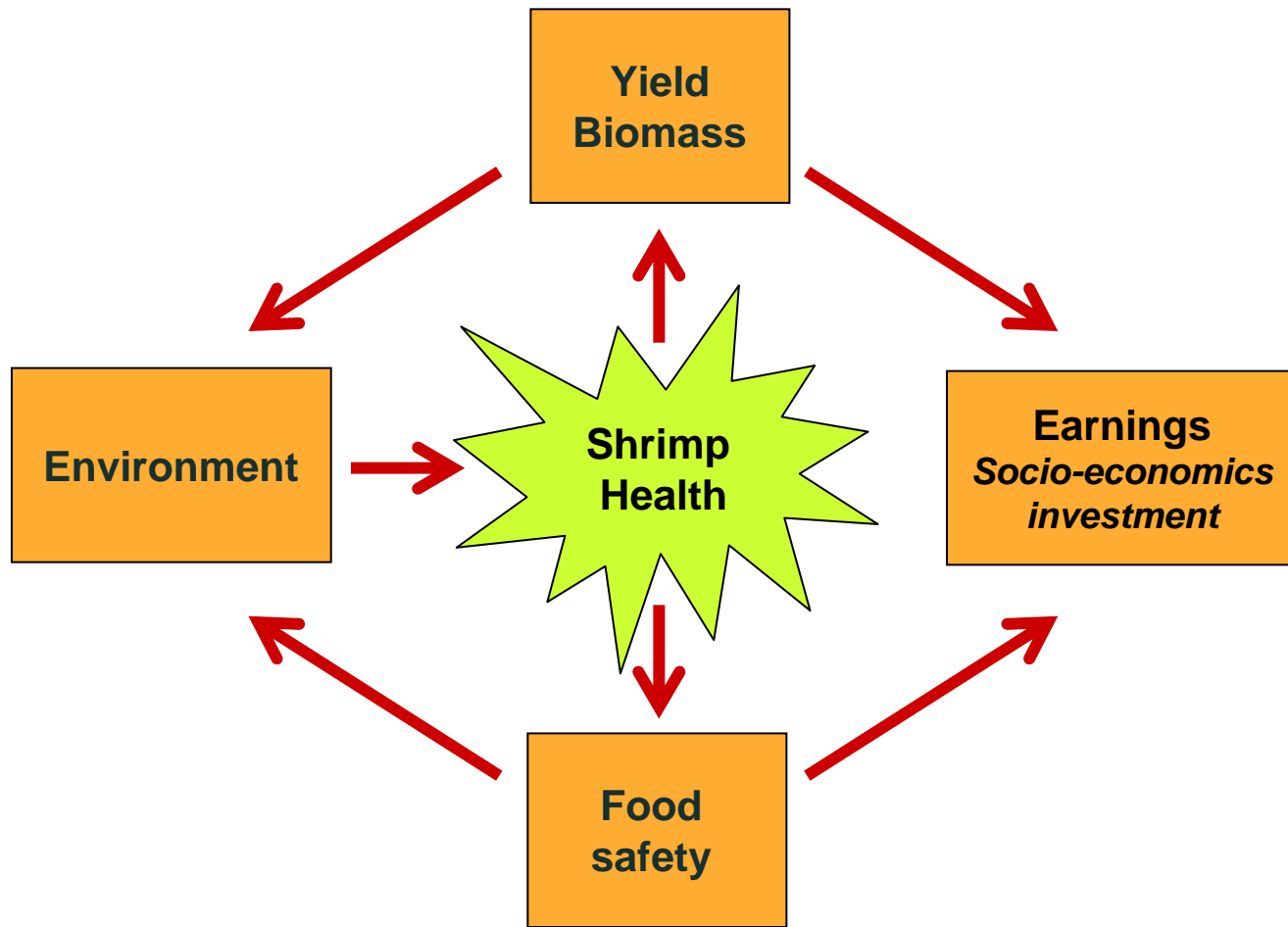
- BMP are practices that target:
  - Environment protection
  - Improved shrimp health
  - Improved food safety
  - Socio-economic sustainability

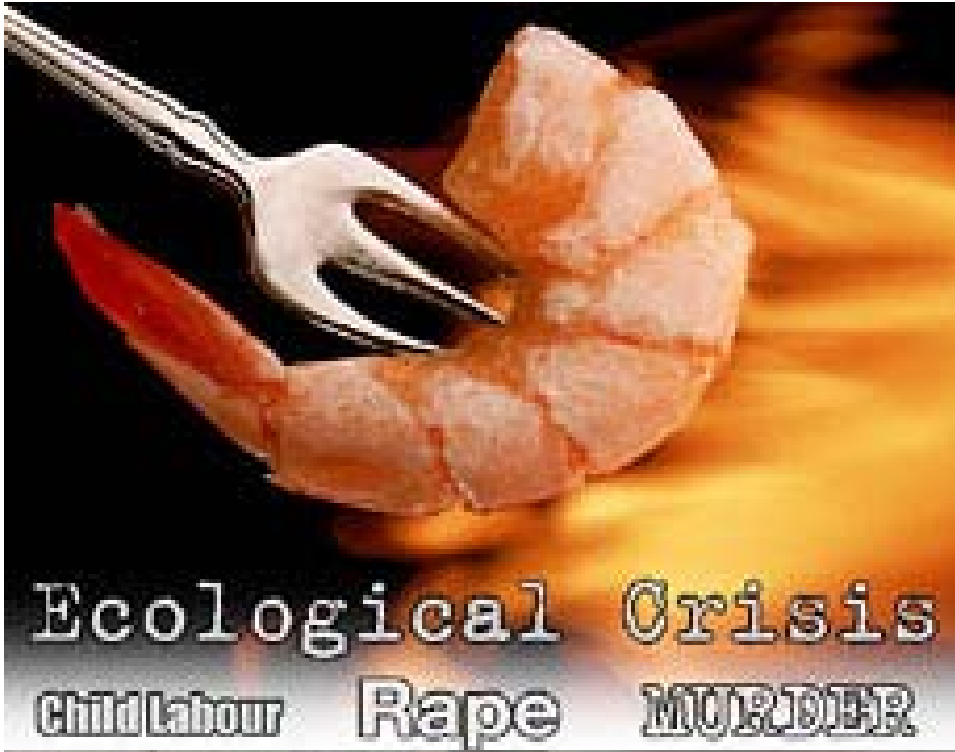


Need to looking at shrimp health in a broader sense (all is inter-connected)



# Consumer perception



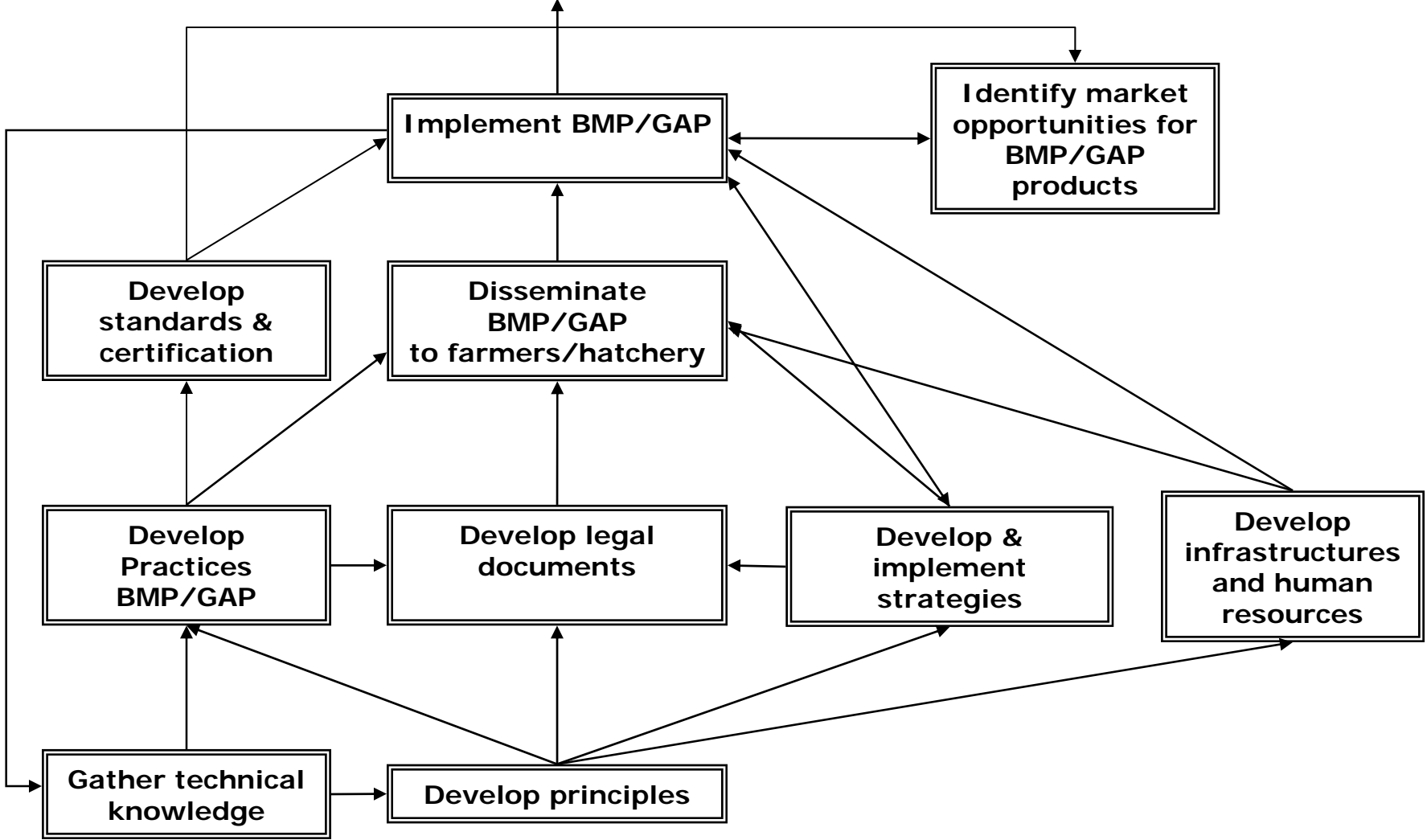




**How can we  
achieve all this?**



**Responsible Shrimp Farming**



Responsible Shrimp Farming

**Consumers**

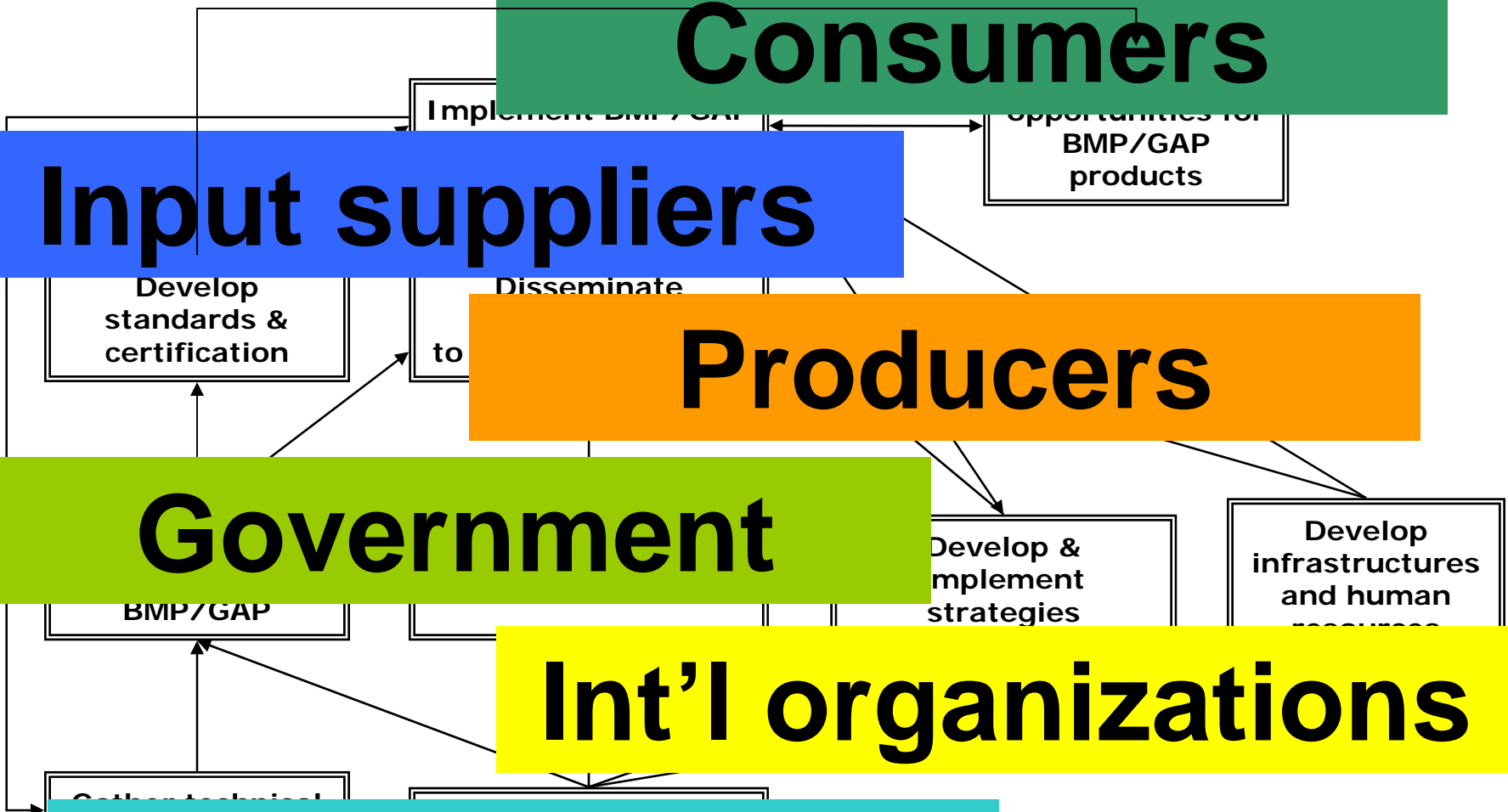
**Input suppliers**

**Producers**

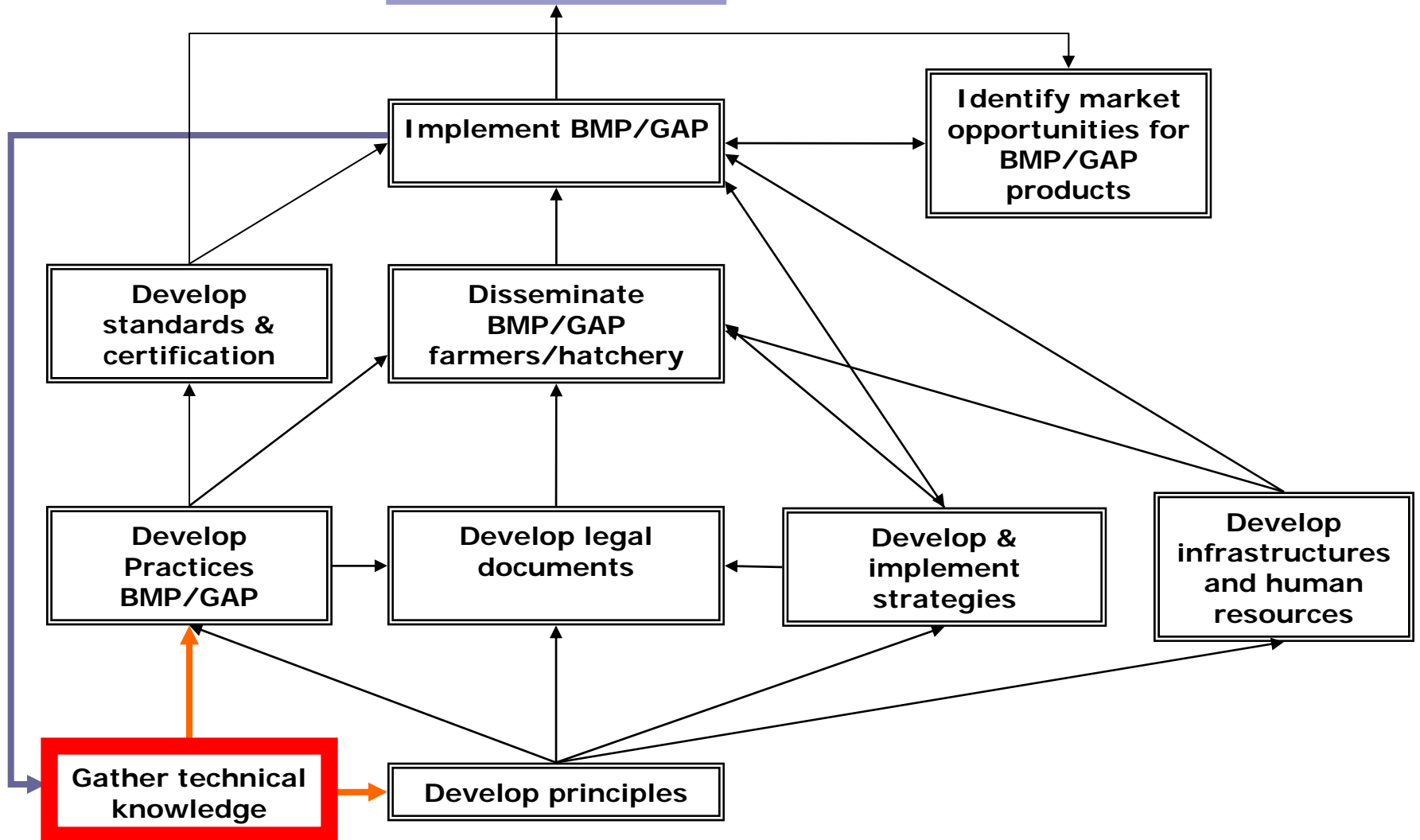
**Government**

**Int'l organizations**

**Researchers**



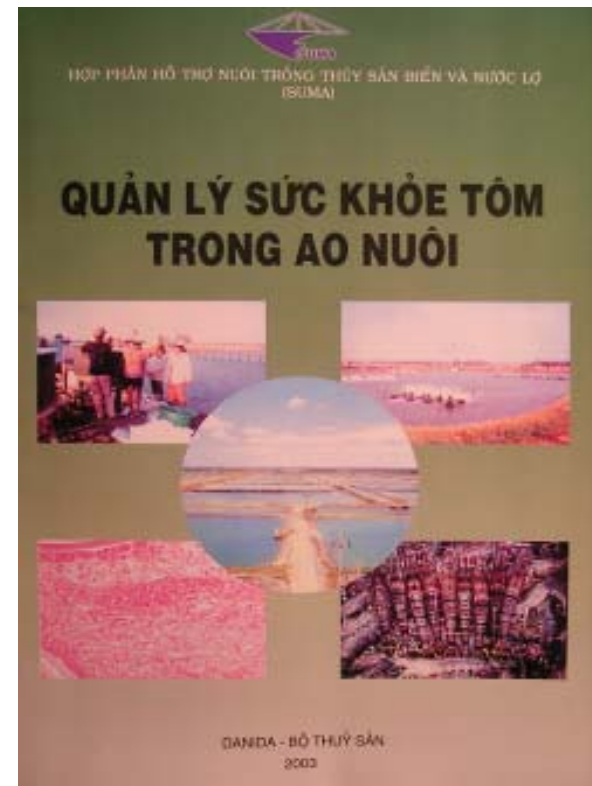
**Responsible Shrimp Farming**

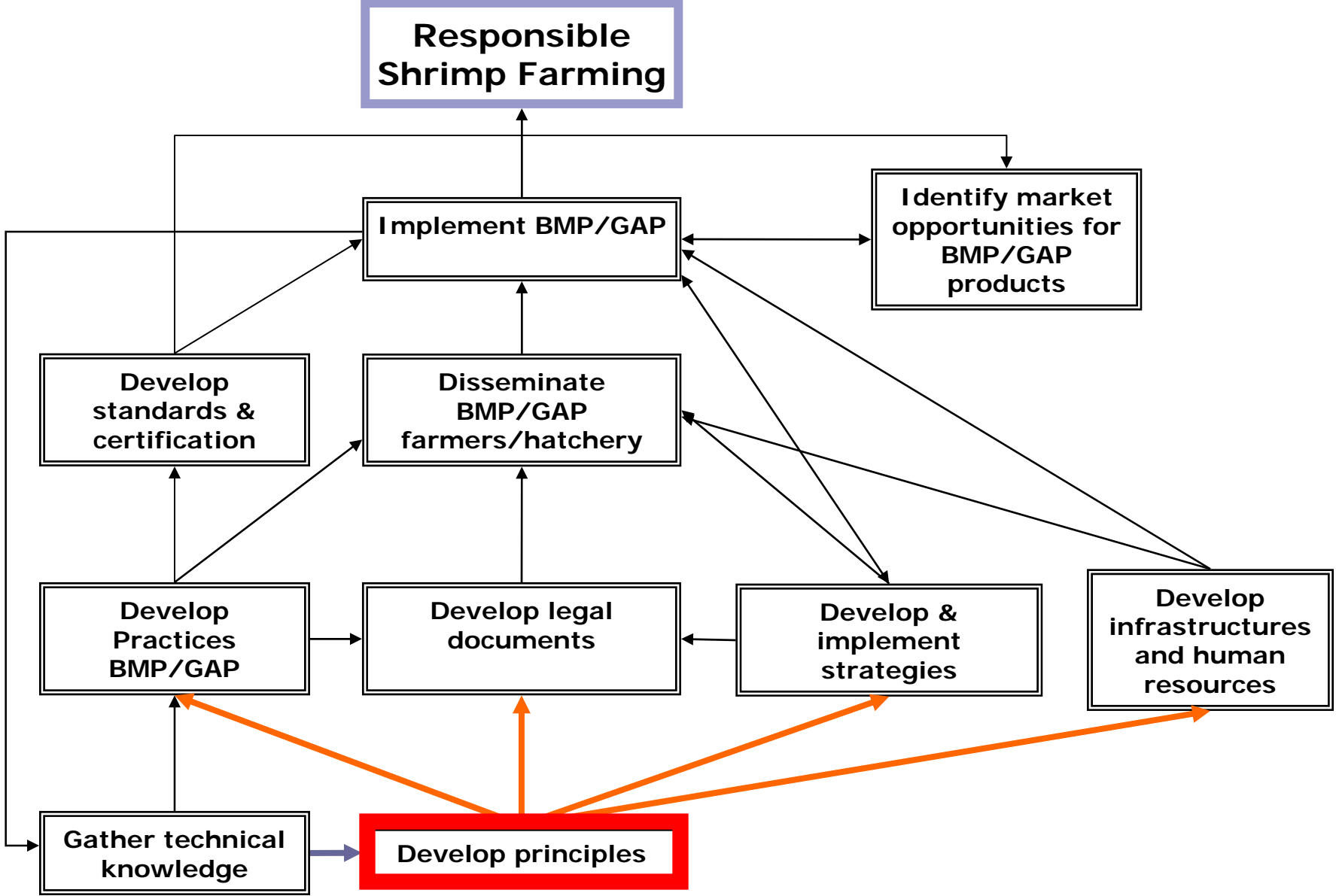
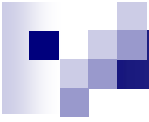




# Gather technical knowledge

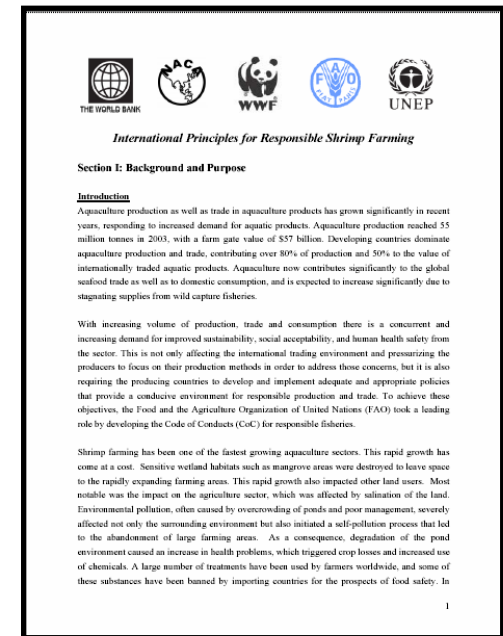
- Manuals
- Expert opinion
  - International
  - National
  - Local (farmers)
- Research
  - Learn from experiences
  - Monitor & evaluate

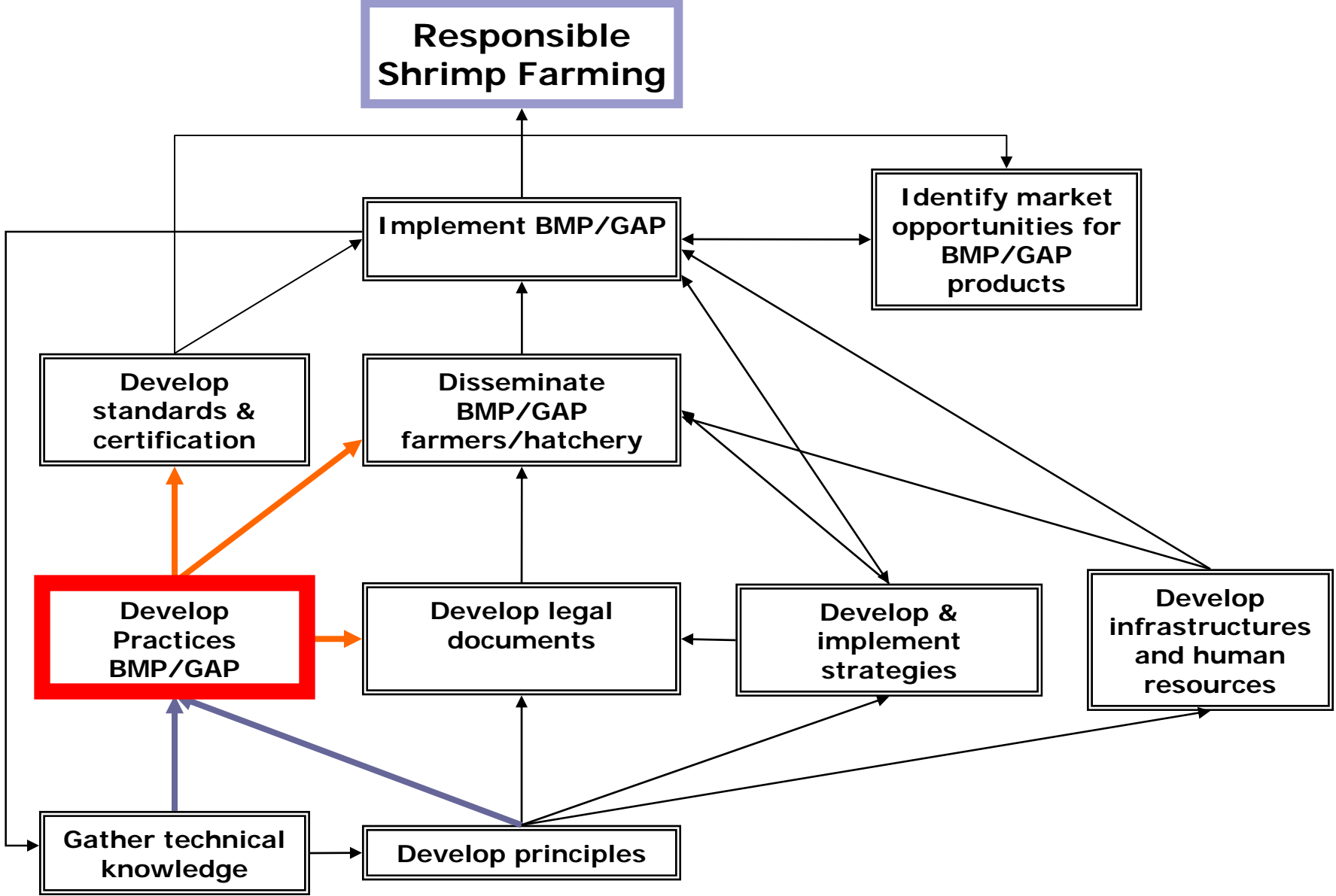
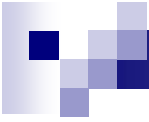




# International Principles

- Consortium program ('99)
  - World Bank
  - NACA
  - WWF
  - FAO
  - UNEP (new)
- Several stakeholder consultations
  - Workshops, meetings,...
- Now on the web for comments
- To be submitted to COFI-Aqua (Sept 2006)





# Develop better practices

The aim is to convert the principles into practices that farmers can follow

- System/time specific
- Simple
- Practical
- Cost-effective
- Applicable by all (small-scale)
- Not only for grow-out
  - Hatcheries
  - Middlemen



# Develop better practices

What are those practices?

- Pond location and construction
- Pond preparation
- Seed selection & stocking
- Improve pond management
- Monitor pond bottom, water quality & shrimp health



## Develop better practices

- Improve biosecurity during production
- Keep records
- Better management of health problems
- Be a good neighbor/employer



# Develop better practices

- Focus on farmer groups
  - Share costs (e.g. seed testing)
  - Improve water management
  - Reduce disease risk
  - Voluntary extension workers

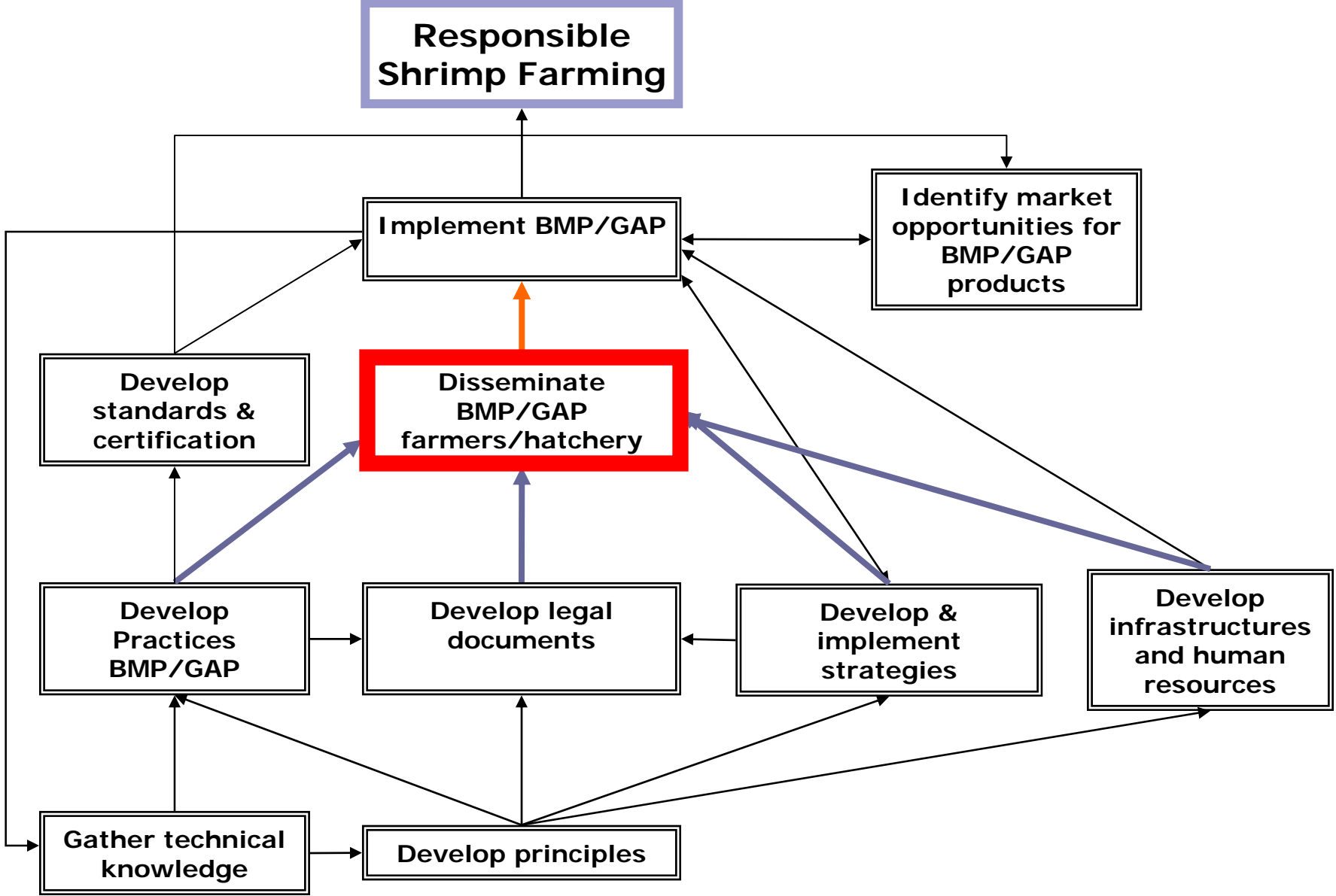
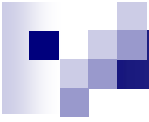




## Develop better practices

- BMP/GAP (Viet Nam)
- BMP (India)
- GAP/CoC (Thailand)
- BMP Thailand
- BMP Indonesia
- BMP Iran
- BAP (GAA/ACC)
- others





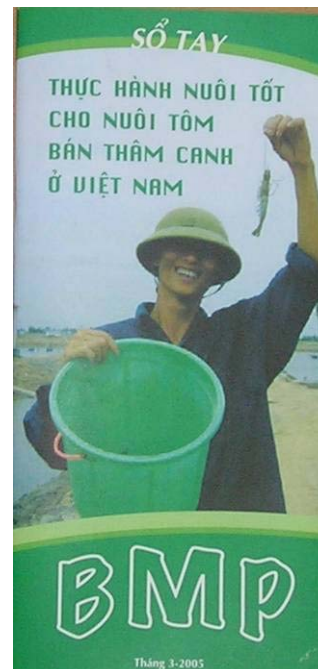
# Dissemination

- Extension system plays important role
- Input suppliers (seed, feed)
- Farmer to farmer (voluntary EW)



# Dissemination

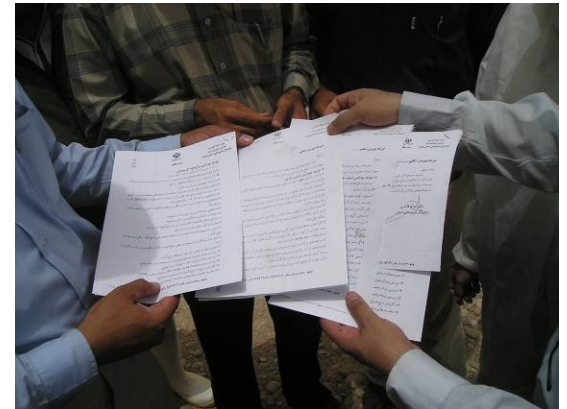
- Extension material
- Farmers meetings
- Regular pond visits





## Develop legal documents

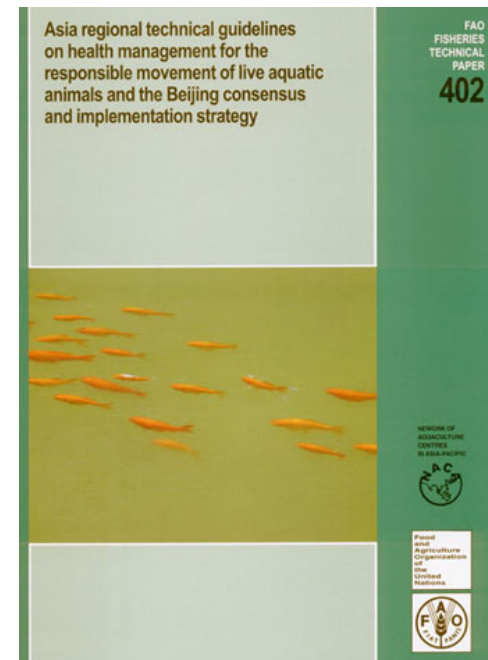
- Government responsibility
- Regional / Int'l assistance
- Several countries in the region
  - Thailand
  - India
  - Viet Nam...
- Have to be based on better practices!  
(practical, affordable, cost effective...)





# Develop/implement strategies

- Task for many stakeholders (govt, regional/int'l organizations...)
- National strategy for AAH
- Surveillance system
- Contingency planning
- Traceability
- Extension strategy







# Infrastructures & human resources

- Many stakeholders involved
- Infrastructures
  - Disease diagnostic labs
  - Water quality labs
  - Monitoring stations
  - Data analysis centers



# Infrastructures & human resources

- Training
  - Level 1-3 diagnostics
  - BMP/GAP  
(for extension workers...)
- Awareness building
  - Policy makers
  - Researchers







## Implementation of better practices

- Key to responsible shrimp farming and health management!
- Starting with pilot/demonstration farms
- Need incentives!
  - Produce more and better quality
  - Better market price?
  - Free diagnostic services?
  - Free pond books & extension services?

**Do they work?**

# Implementation in Viet Nam



- In 2004 start of pilots in several provinces
  - NAFIQAVERD of the Ministry of Fisheries
  - NACA/SUMA (Danish govt.)
- In total 8 pilot provinces: hundreds of farms
- Farmers accept BMP/GAP
- Higher yield
- Improved probability of making a profit
- Good quality product (within standards)
- Lower occurrence of shrimp health problems



# Implementation in India

- Started in 2001
- Now >1000 ponds (650ha)
- Government promoted
- Aquaclubs
- Contract hatcheries
- Over the years
  - Better yield (by 30%)
  - Reduced diseases (by 60%)



Australian Government  
Australian Centre for  
International Agricultural Research



# Implementation in Thailand

- 2 areas; 70 ponds
- Higher chances to make profit
- Increasing benefits over the years
- Increasing participation
- Farmer groups lead to better success
- Now linking with government program





# Implementation in Iran

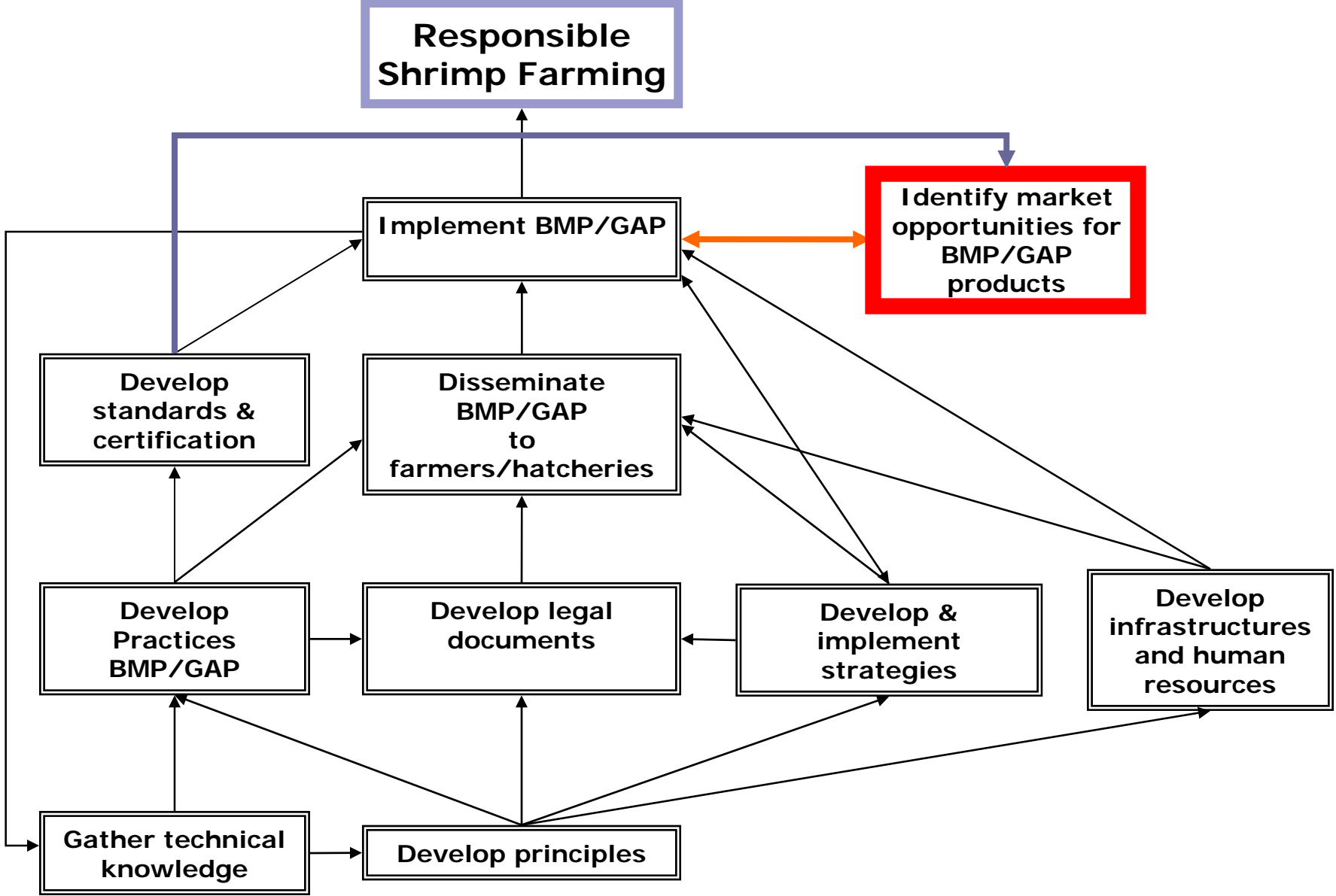
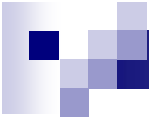
- Started in 2005 (major WSD outbreak)
- 2 major shrimp farming provinces
- Focus on shrimp health (etc.)
- Farmers/hatchery/Govt partnership
- Sets of practices developed
  - Shrimp farming
  - Broodstock/seed
- Will start next year





# Implementation of better practices

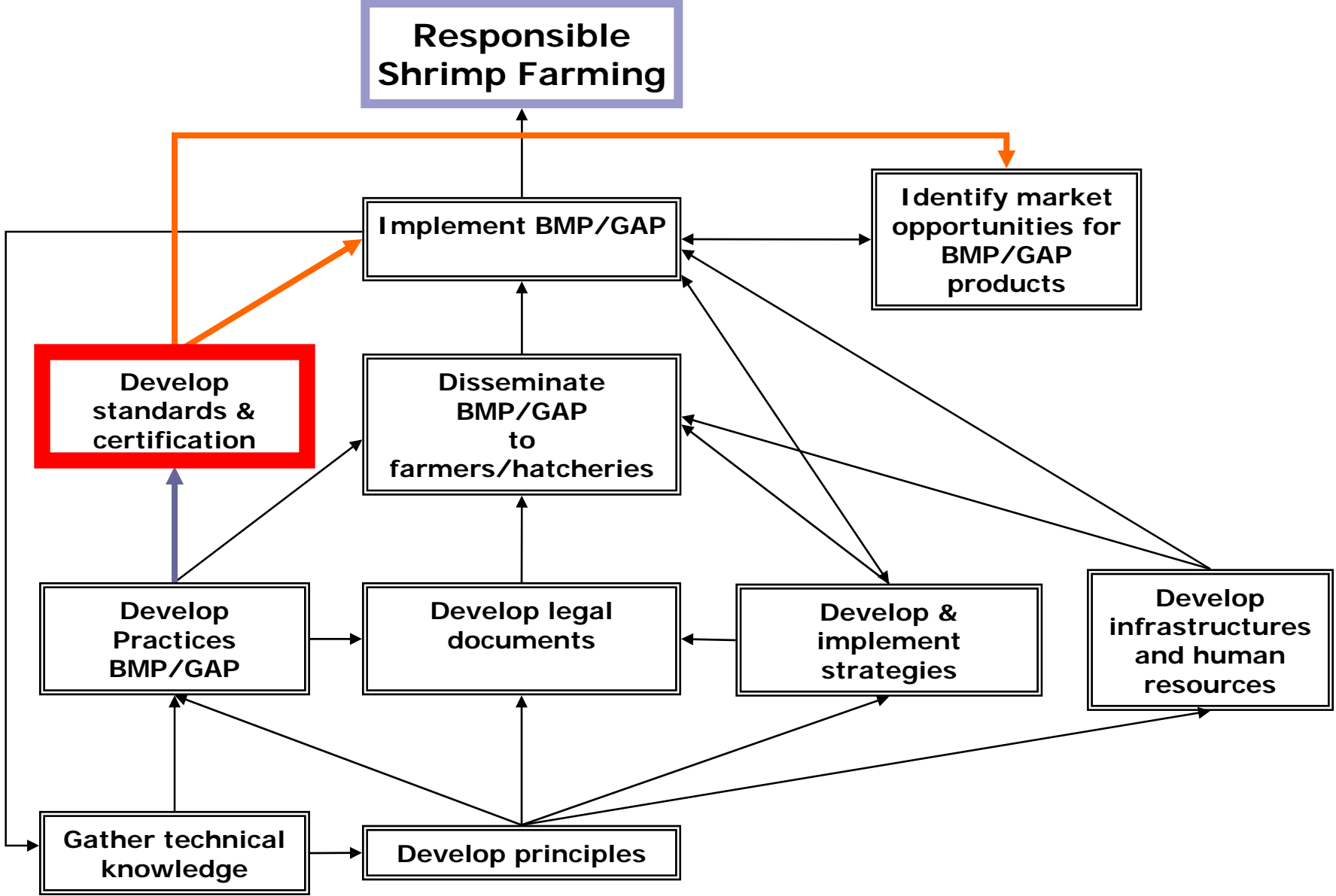
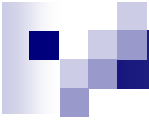
- What is the price of implementation?
  - Reduced through farmer group operations
  - Sometimes cheaper (e.g. better feeding)
- Is implementation sustainable?
  - Yes, if incentives are present
  - Better market price would help



# Identify market opportunities

- Try to get a better price
  - Difficult (India)
  - In Viet Nam now 18-20% higher price
  - In Thailand. Maybe possible
- Link farmers to markets (COOP Italy)
- Create consumer awareness





# Develop standards/certification

- There are several examples
  - GAA/ACC
  - SQF
  - Thai quality shrimp
  - Governmental programs
    - Viet Nam (NAFIQAVED)
    - India (MPEDA)
    - Indonesia
  - Retailers/Consumer associations





## Develop standards/certification

- Often expensive (farmer group/association can help)
- Have to be credible internationally
  - Government certification
  - Need for 3<sup>rd</sup> party certification (SGS...)?
- Harmonization required. Need to look at international principles
- Monitoring implementation to keep consumer confidence
- Sometimes only for processors



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management: a solution for  
shrimp health management?**

***Yes! ... one solution***



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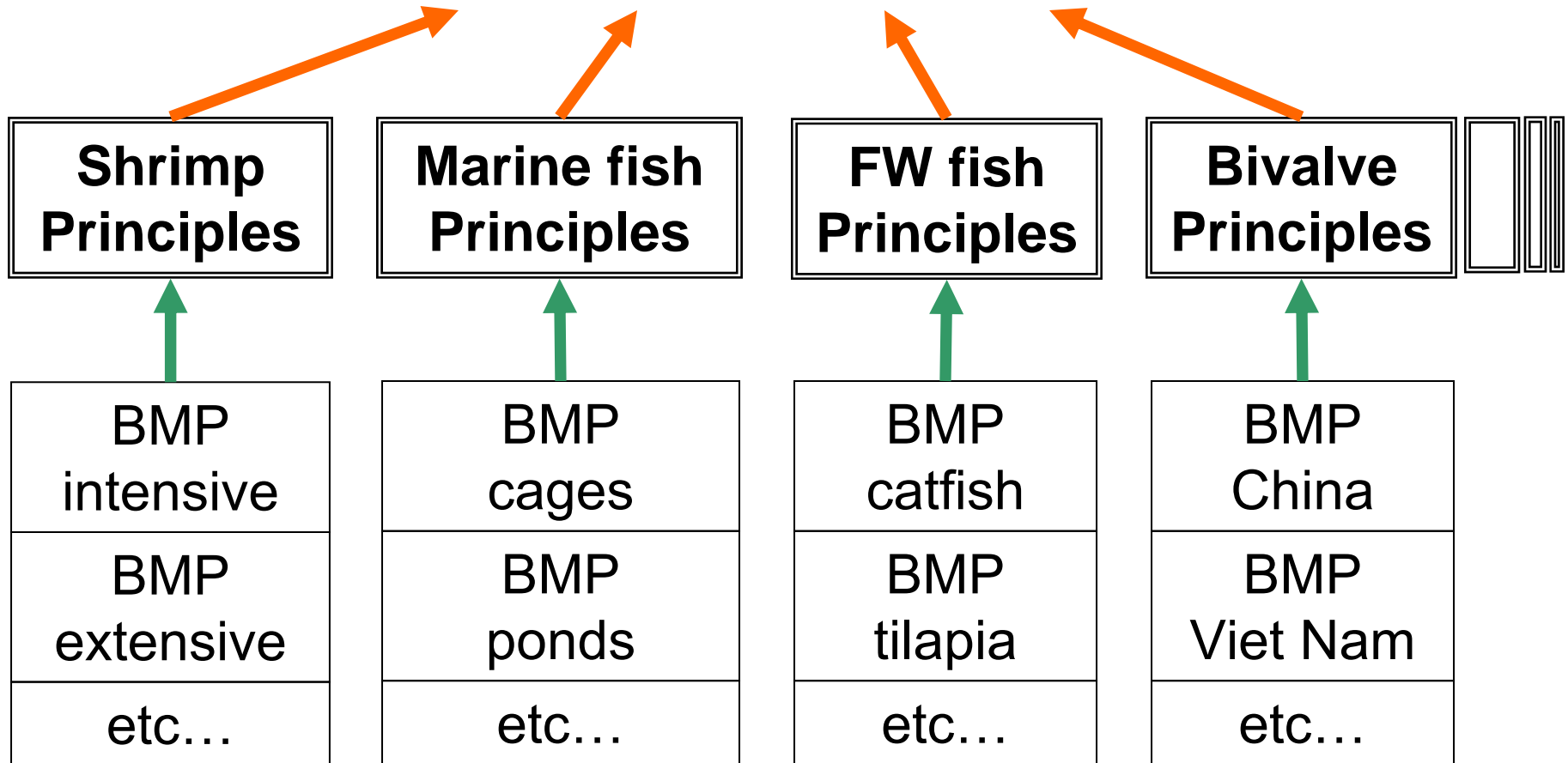


# Codes of practice and better management: a solution for aquatic animal health management?

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# FAO CoC Responsible Fisheries



**Chezu tinbade**

**Xie xie**

**Terima kasih**

**Danyavad**

**Ar kun**

**Salamat**

**Gracias**

**Merci**

**Cam on**

**Nandri**

**Khawp jai**

**Thank you**

**Merbani**

**Dhanyabaad**

**Arigato**

**Istuti**

**Khawp khun**

**Kamsahamnida**

