Meeting the Demands and Challenges of Globalization of Trade in Aquaculture:

the Role of a Regional Inter-Governmental Body

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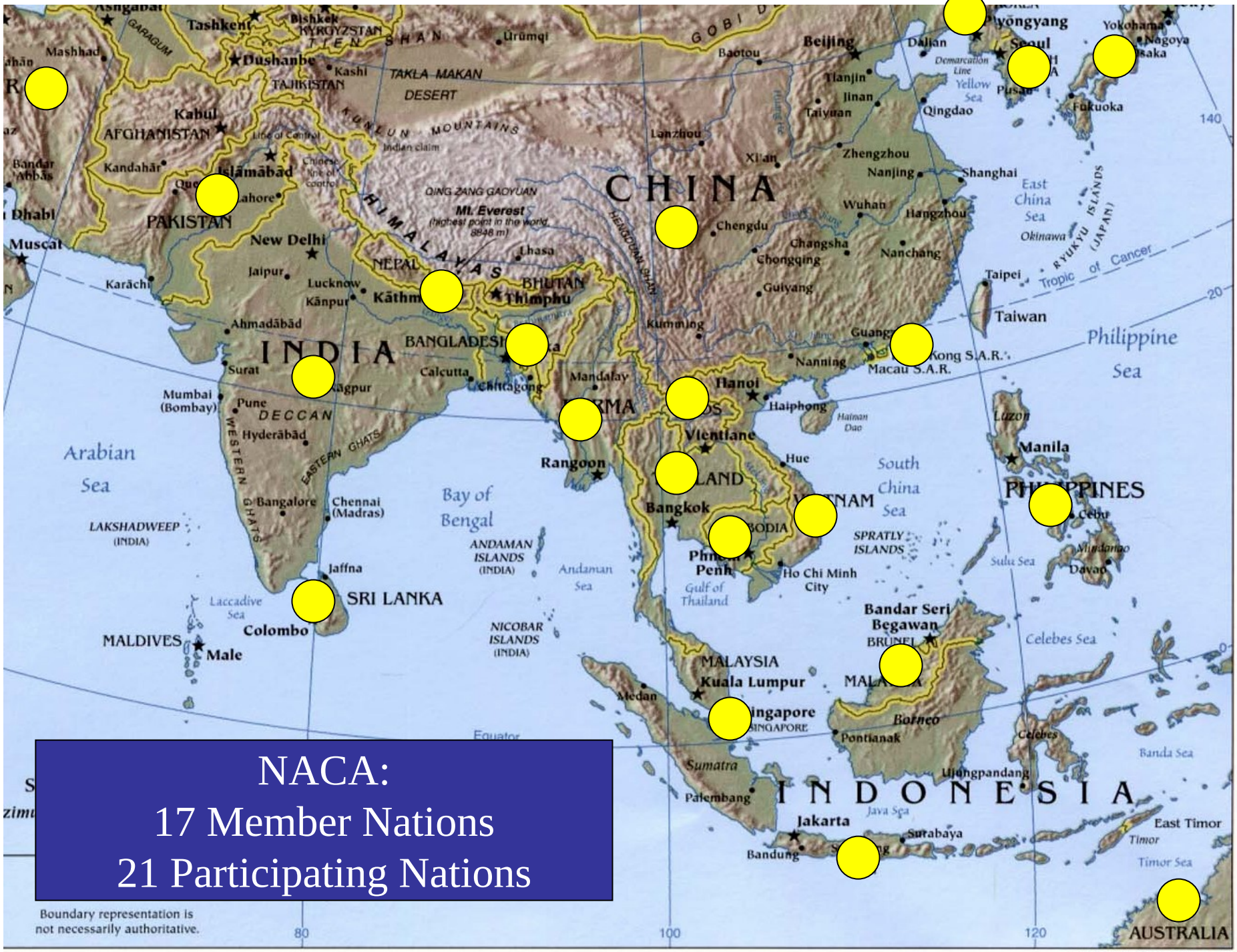
Outline

- What is NACA
- Asian aquaculture in a nutshell
- Trade in aquaculture
- Challenges facing Asian aquaculture
  - What is being done
  - What has been achieved
- Future directions to meet global demand

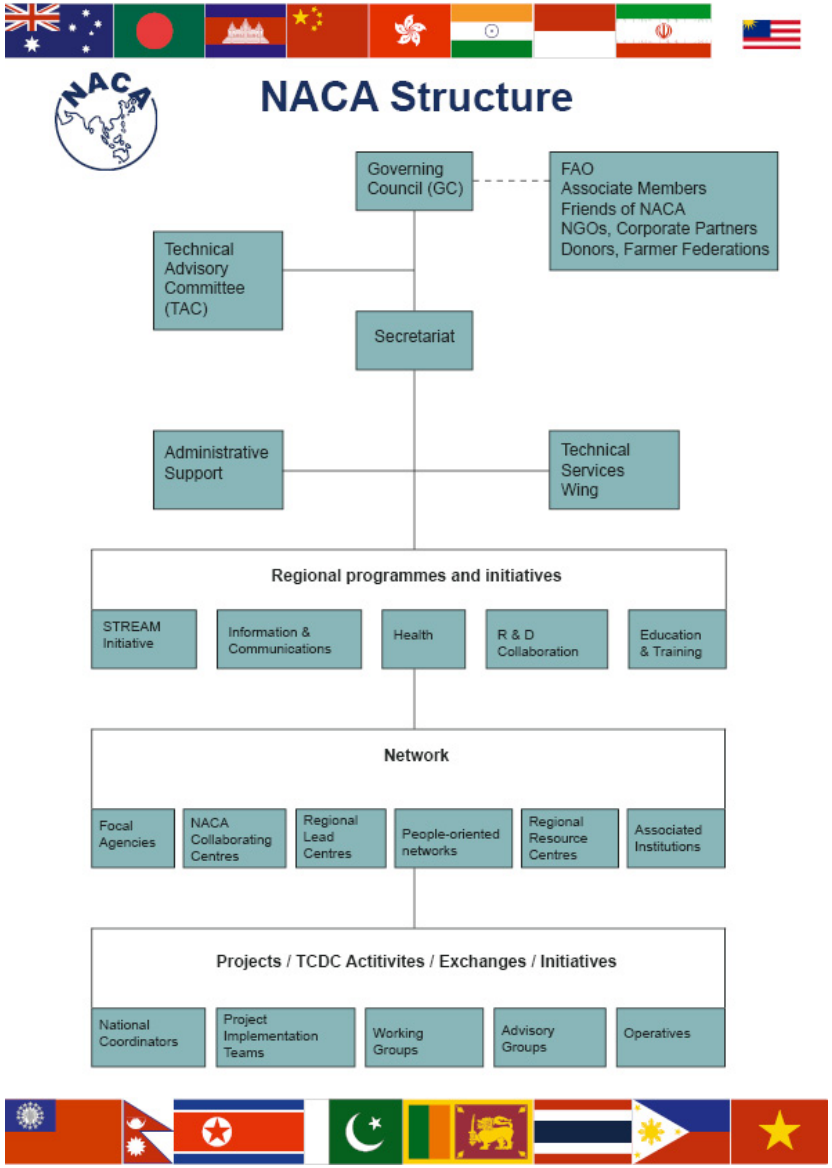
About NACA

- Intergovernmental organization
  - 17 member countries (governments)
  - 1 associate member (SPC)
- Promotes rural development through sustainable aquaculture
  - Technical cooperation among members
- NACA members produce > 80% of world aquaculture production by volume
  - Members are:
    - Australia, Bangladesh, Cambodia, China, Hong Kong SAR, India, Indonesia, IR Iran, DPR Korea, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam



NACA:
17 Member Nations
21 Participating Nations

NACA- Structure & operating mechanisms



NACA Centres

- **Regional Lead Centres**
  - Freshwater Fisheries Research Centre, China
  - Central Institute for Freshwater Aquaculture, India
  - Inland Fisheries Research & Development Bureau, Thailand

- **Collaborating Centres**
  - Aquaculture Department of SEAFDEC

- More than 30 participating centres throughout the region
  - Collaborating in research
  - Sharing information and resources
  - Training and exchanging expertise

Asia-Pacific Marine Finfish Aquaculture Network

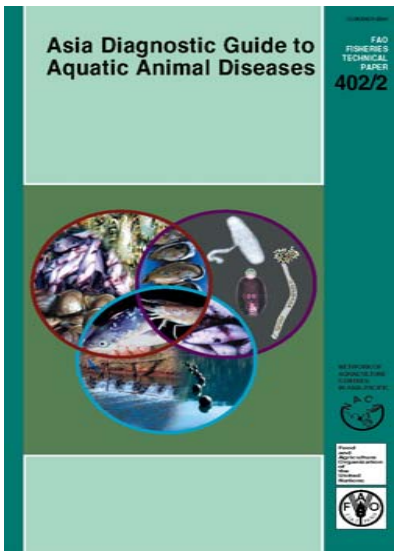
- **Cooperative R&D programme to support development of sustainable marine fish farming**
  - **People-based network with institutional participation**
  - **Multi-sector participation:**
    - **Government Policy and R&D, Farmers Groups, Traders, Industry, NGOs**
  - **ACIAR, Skretting, CSIRO, QDPI, RIM-Gondol, RIA 1, Krabi CFRDC, BADC-Situbondo, AFCD-Hong Kong and more**
  - **Electronic e-magazine and e-newsletter**

Shrimp Farming and the Environment

- **Main partners are the World Bank, NACA, WWF, FAO, and UNEP.**
- **"To analyze and share experiences on better management of shrimp aquaculture in coastal areas".**
- **Multi-sector participation:**
  - **Government Policy and R&D, Farmers Groups, Traders, Industry, NGOs**
  - Collaborators from government, private sector, academia, and NGOs, totaling over 100 researchers in 20 countries.
- **Development of an internationally agreed document adopted/endorsed by NACA and FAO**
  - Globally accepted management principles for "responsible" shrimp aquaculture
- **Guiding principles and guiding criteria**
- **Support to implementation ongoing, with special reference to small-scale farmers**
- **Developing market links for responsible BMP product**
- **Electronic Newsmagazine and newsletter**

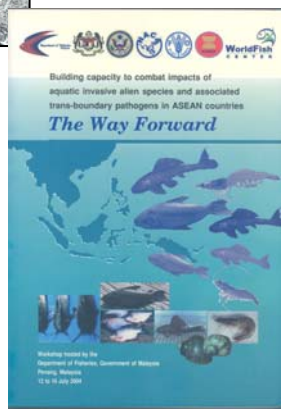
Aquatic Animal Health

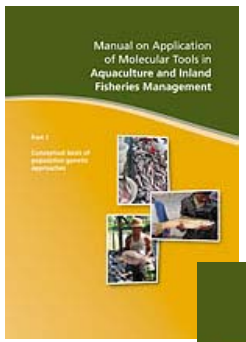
- **Reduce the risk of aquatic animal disease impacting on trade, environment & human health**
  - **Development of policy framework**
  - **Implementation of practical health management strategies at farm, local, national and regional levels**
  - **Regional surveillance system**
  - **Technical support through sharing of expertise and laboratory facilities**
  - **Participation of primary producers**
  - **Address emerging issues such as food safety and new disease (KHV, WTD, TS)**
  - **FAO, OIE, ACIAR, AusAID, SEAFDEC, AAHRI, DAF, MPEDA and more**



Genetics & Biodiversity

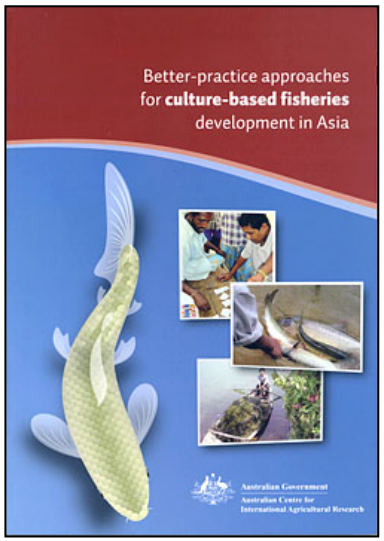
- Support members to conserve aquatic biodiversity and genetic resources by:
  - Building capacity for national aquatic resource management programs
  - Coordinate cooperative R&D programs
  - Development of broodstock management programmes for economically important and newly emerging indigenous species
  - Contribute to conservation plans for enda species
    - e.g. Mekong giant catfish
  - Kasetsart University, DOF Thailand, FAO, MRC, WFC, Deakin University, Malaysian Fisheries Society





Culture-based Fisheries

- **Development of extensive, community-based aquaculture through:**
  - **Development of 'best practice approaches' to culture-based fisheries**
  - **Effective use of small water bodies for low cost fish production amongst rural communities**
  - **Application of co-management principles to culture-based fishery and stock enhancement activities**
  - **Dissemination of findings from completed projects in member countries**
  - **ACIAR, Deakin University, RIA 1(Vn), Laos PDR, Kelaniya University (SL), University of Stirling**



Translated into Lao & Singhalese

Support to Regional Aquatic Resource Management

- **Address rural development and poverty alleviation issues by promoting:**
  - **Improved understanding of the livelihoods of poor fishers and farmers**
  - **Institutions that better support the livelihoods objectives of poor fishers and farmers**
  - **Policy development that reflects the livelihoods objectives of the poor fishers and farmers**
  - **Improved communications among the poor, service providers, institutions & policy makers**
  - **AusAID, DFID, FAO, VSO, APEC**

Special Programme in Response to the Tsunami

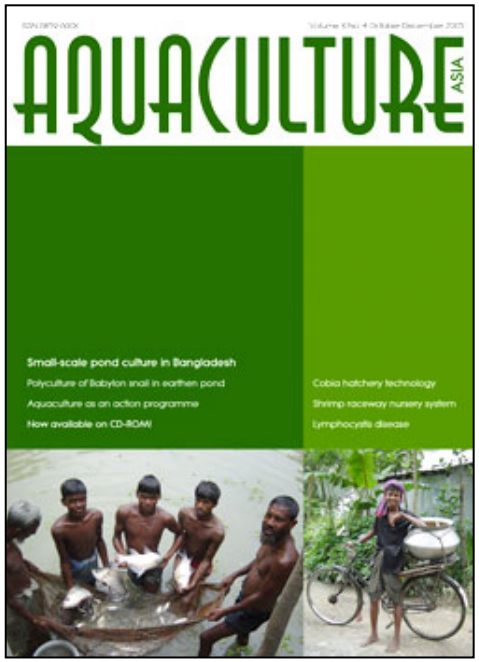
- Practical (needs-driven) assistance (direct) to affected farmers
  - **Implementation is by community**
  - **Emphasis on self help**
- Regional – **CONSRN (BOB-IGO, FAO, NACA, SEAFDEC, WFC**
- Thailand
  - **Rehabilitation of cage culture (Rotary Int', AmerFS)**
  - **Training in marine finfish culture (FAO, DOF)**
  - **Environmental education (Chiba,Japan civic group)**
  - **Support to DOF coordination**
  - **Microcosm hatchery pilot (NORAD and AQVAPLAN NIWA)**
- Aceh Indonesia
  - **Supporting local governments and communities in rehabilitation of the aquaculture sector (ETESP Grant, ADB);**
  - **Microcosm hatchery pilot (NORAD and AQVAPLAN-NIWA)**
- Sri Lanka
  - **Community participatory and livelihoods training (STREAM with FAO Grant)**

Education, Training & Study tours

- Promote (capacity building,) human resource development and technical exchange
  - **Participating centres share expertise**
  - **Short term courses, workshops, study visits**
  - **Training is coordinated by Secretariat**
  - **Customized training as requested**
  - **RLCC, DOF Thailand, CIFA India, Pulau Sayak Prawn Production Centre, Malaysia, GRIM and Situbondo Centres, Indonesia, many more**

Communications

- Improve communication and information sharing between members through:
  - Portal website on aquaculture
    - News and events
    - Free download of all NACA publications (>700)
    - Discussion forums / online community
  - Training in digital publishing and website management
- Visit www.enaca.org



Want to know more?

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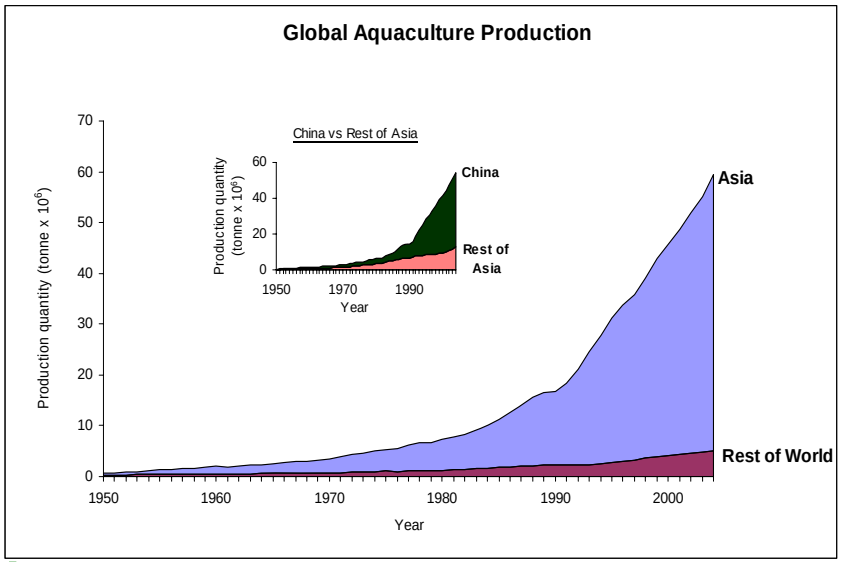
  - Ph: +66 (0)2 561 1728
  - Fax: +66 (0)2 561 1727
  - Email: naca@enaca.org
- Or visit:
  - www.enaca.org

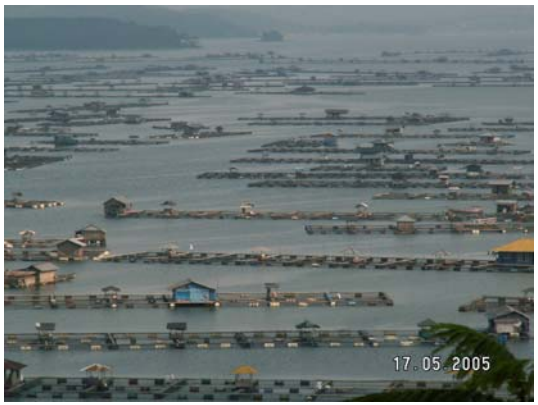
Asian aquaculture in a nutshell

- Asia is the largest global
  - **aquaculture producer**
  - **exporter of aquaculture produce**
    - Major exporters:
      - **Thailand**
      - **India**
      - **PR China**
      - **Vietnam**
    - Emerging exporters:
      - **Myanmar**
      - **Bangladesh (to Middle East)**



Asian aquaculture in a nutshell

- **The great bulk of Asian aquaculture production**
  - **Is through small scale, individual holdings**
  - **Holdings clustered together**
    - **generate synergies**
  - **Easier for dissemination of**
    - **Technologies**
    - **best management practices**



Cirata Reservoir, Indonesia

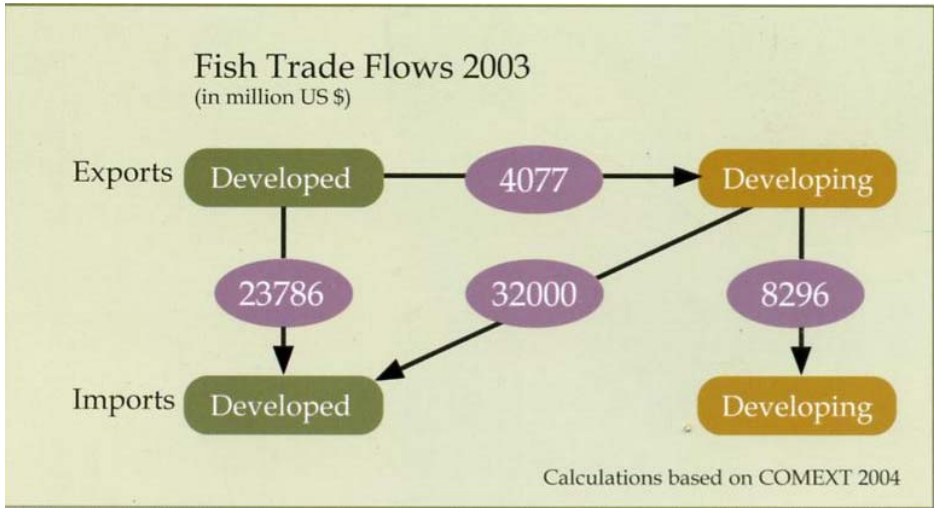
XinCun Bay, PR China

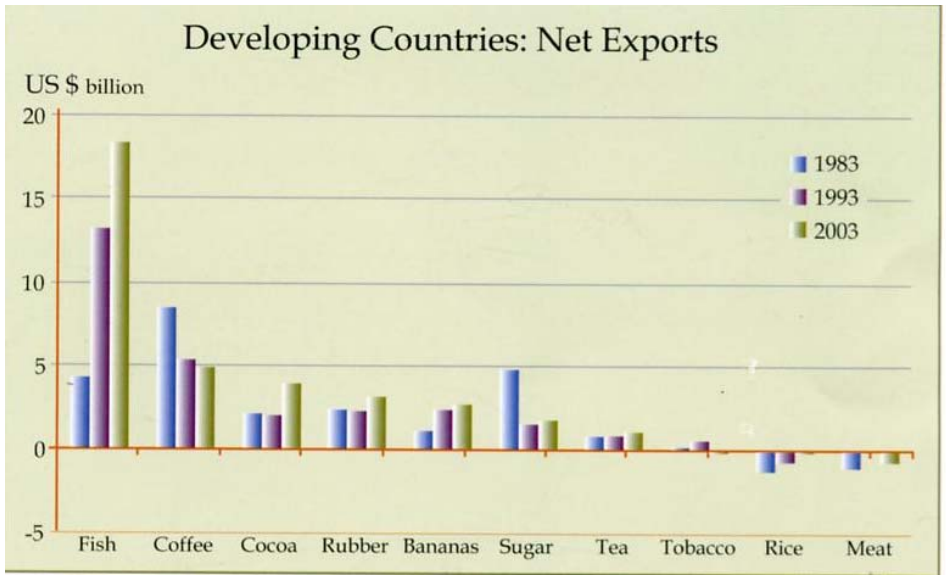
Shrimp farms in Thailand

The trends

- Increasing emphasis on mariculture
  - High valued species
  - Export
  - Increasing middle classes in PR China, India; upper level local markets
- Increasing awareness
  - of market needs
  - Environmental integrity
- Increasing adoption of BMPs;
  - Small scale farmers
    - E.g. Indian shrimp farmers
- Very dynamic: changes occur to suit market demands
  - E.g. the newest; Myanmar freshwater finfish aquaculture
    - Culture practices changed within a two year period
    - To meet the growing export market demand to the Middle-East

Fisheries - trade



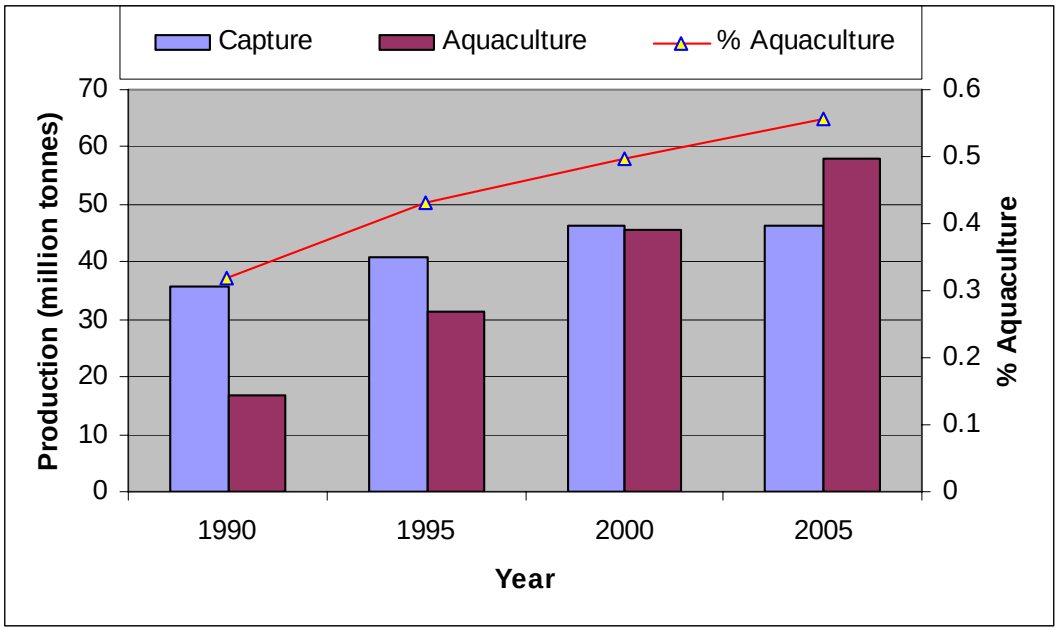


(From Kurien, 2005)

For developing countries fisheries is becoming an increasingly important and significant traded commodity (ies)

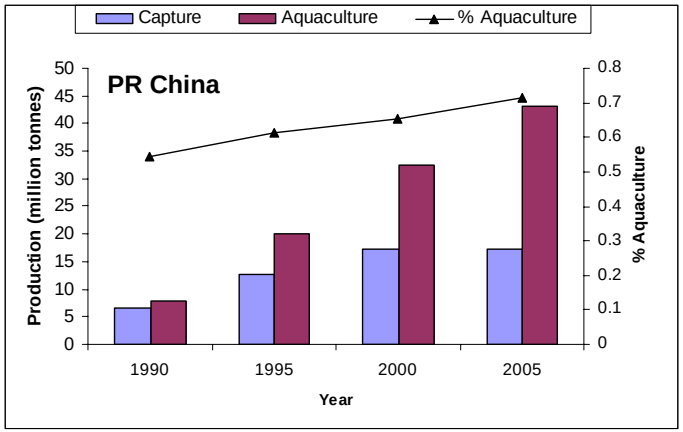
- Income generation
- Increased livelihood opportunities
- Better nutrition
- Foreign exchange earnings

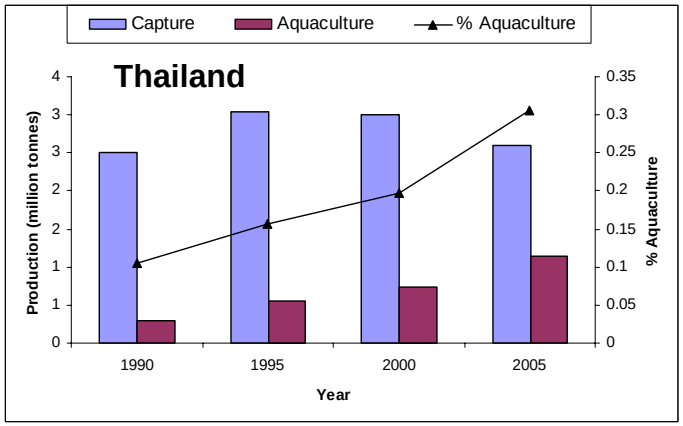
Fisheries - trade

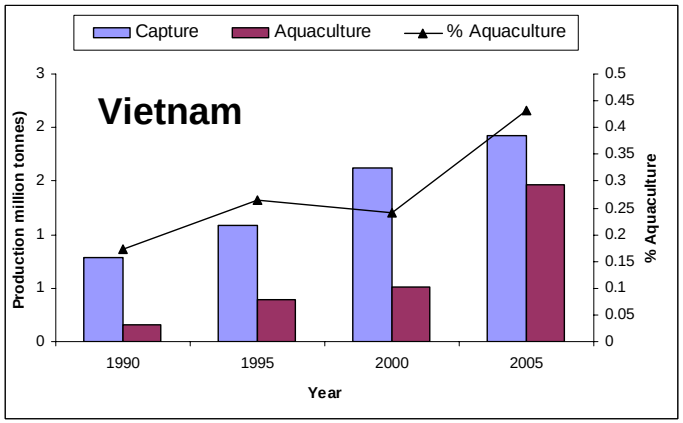


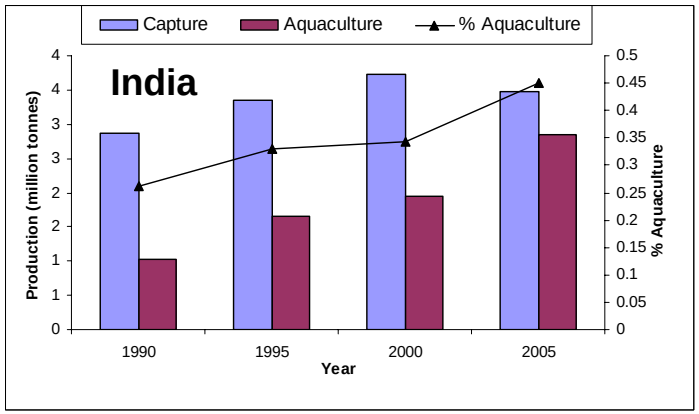
In Asia an overall increase in the predominance of the aquaculture sector:
reflected in the trade of fishery products also

Fisheries vs Aquaculture – production/ trade









In almost all major 'fish' producing countries in Asia the dominance of aquaculture is increasing & hence in the trade of fishery products

Aquaculture – trade: Increasing contribution to GDP

Increased dominance of aquaculture is reflected in the GDP of Asian nations

Production value as percent GDP (data from RAPA, 2004)

	Capture Fisheries	Aquaculture
Bangladesh	1.884	2.688
PR China	1.132	2.618
Indonesia	2.350	1.662
Lao PDR	1.432	5.775
Malaysia	1.128	0.366
Philippines	2.184	2.633
Thailand	2.044	2.071
Vietnam	3.702	3.497

Challenges (1)

- Promoting sustainable aquaculture
  - **environmentally friendly**
  - **socially responsible**
  - **complies with international standards**
    - **meets food safety requirements**
    - **remain profitable**

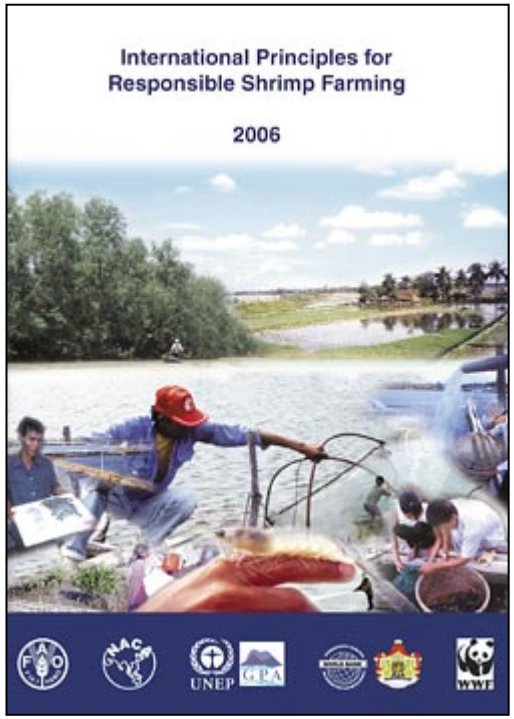
Challenges (1)- What has been achieved

- International shrimp principles
  - Development and promotion of BMPs for shrimp
    - **India, Vietnam, Indonesia, others**
- Development of BMPs for other aquaculture commodities
  - Catfish
  - Other major Asian aquaculture commodities in pipeline..
- Involvement of small-scale farmers
  - Clusters/ aqua-clubs/ societies

What is being done: Adoption of BMPs: the case of shrimp farming, India

Shrimp Farming & the Environment

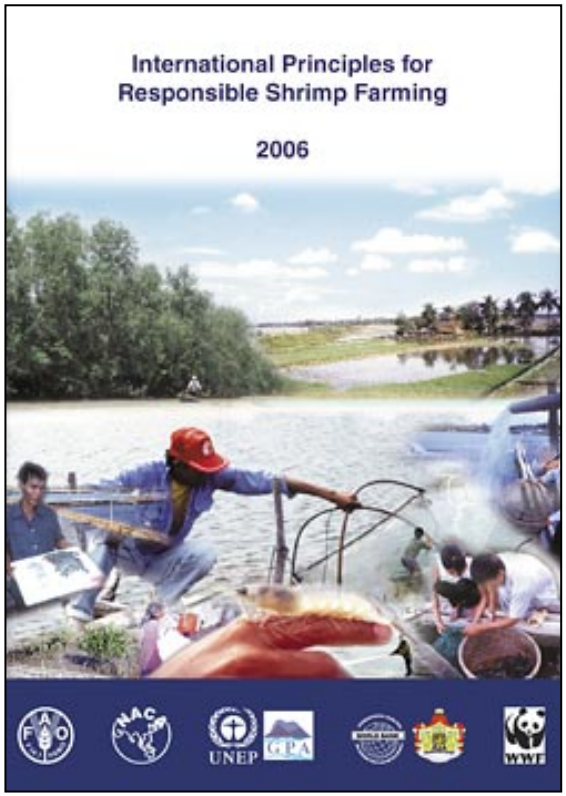
- **Support development & adoption of Better Management Practices**
  - **Focused on small-scale farmers**
  - **Increase productivity by reducing risk of shrimp health problems**
  - **Reduce impacts of farming on environment**
  - **Improve food safety & product quality**
  - **Improve social benefits of shrimp farming**
  - **Consortium with FAO, NACA, UNEP, World Bank, WWF**



Adoption of BMPs: the case of shrimp farming, India

Shrimp Farming & the Environment

- NACA together with
  - FAO,
  - WWF,
  - World Bank
  - UNEP
- received the "Green Award" from the World Bank, 2006



Translated into Chinese; Spanish; French; Arabic; Portuguese; Myanmar language

MPEDA / NACA: Shrimp Health Management

Village Demonstration Programme: an initiative to put principles into practice among small-scale farmers in India

Outcomes include significant reduced shrimp disease prevalence

AP

Year	Demo ponds	Non demo	+
2003	82%	89%	+ 7%
2004	37%	52%	+20%
2005	15%	42%	+27%

Karnataka

Year	Demo	Non-Demo
2003	100%	-
2004	71%	-
2005	33%	46%
2006	0%	55%

Geraladibba, KR, AP

Good Crop, WG, AP

Year	2006
Demo	6%
Non Demo	67%

Tamilnadu

year	2005	2006
Demo	5%*	0%

Gujarat

Progress in last 6 years

2001
Survey
365 ponds
Nellore n
West God.
Risk factors
BMPs

2002

Contract hatchery Seed Production

2003

Pilot trace-ability

2004

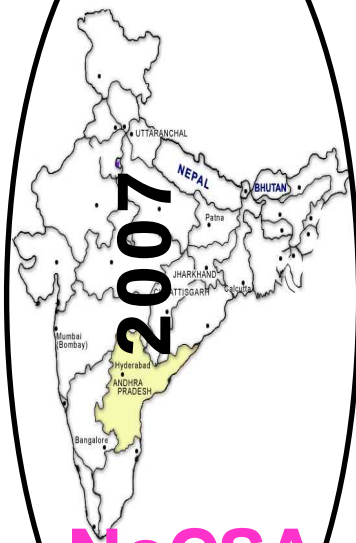
Expansion to other states

2005
AP
KA
GU

Expansion to 5 states

2006
AP
KA
OR
TN
GU

2007

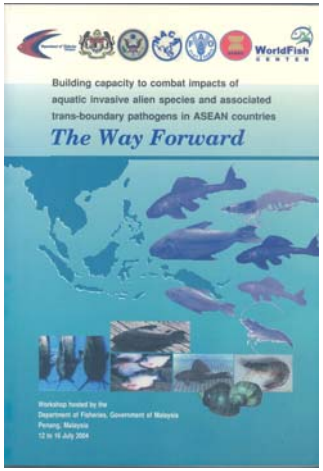


NaCSA

2002	2003	2004	2005	2006	2007+
Farm level demonstration	Village level extension	Creek level extension	State level expansion	5 States	**National Centre for Sustainable Aquaculture**
5 farmers	1 Village	6 Villages	3 States	28 Aquaclubs	
10 ponds	1 Aquaclub	7 Aquaclubs	19 Aquaclubs	730 farmers	
7 Ha	58 farmers	130 farmers	736 farmers	**1370 ponds**	
4 tonnes	**108 ponds**	**254 ponds**	**1187 ponds**	813 Ha	
	58 Ha	173 Ha	663 Ha	**1000 t (exp)**	
	22 tonnes	**40 tonnes**	**672 tonnes**		

Challenges (2)

- Compliance to international standards
  - (e.g. WTO-SPS, Codex Alimentarius)
  - Awareness and capacity building activities
  - Project driven activities
    - strengthening aquatic animal health capacity
    - biosecurity in ASEAN



Challenges (3)

- Access to information
  - Regional resource base
  - Regional lead centers
  - Sharing of information and expertise

Challenge (4)

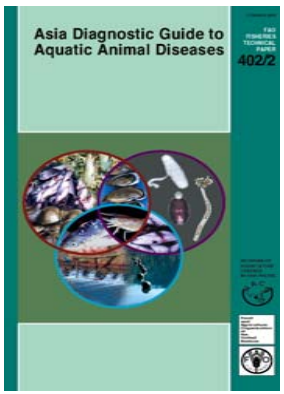
- Access to financial and technical services for sustainable aquaculture
  - Insurance
    - **Workshop: bring together insurers, bankers & farmers**
  - One-stop aquashop concept (STREAM). Improving servicing of the small-scale aquaculture sector
  - Credit to farmer groups
    - **aquaclubs of India**

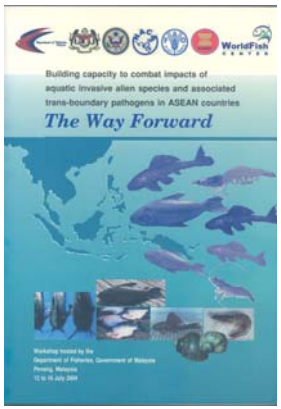
Challenges (5)

- Responding to stringent market requirements
  - Development of BMPs along the supply chain
  - Piloting traceability systems
    - **BMP project in India**
  - Developing guidelines for aquaculture certification
  - Connecting the responsible small-scale producer to markets

Challenges (6)

- Risk of introduction and spread of aquatic animal diseases in Asian Aquaculture
  - Technical guidelines:
    - **responsible movement of live aquatic animals**
    - **adopted by 21 governments**
  - Surveillance/ regional quarterly aquatic animal disease reporting (QAAD) system
  - Capacity building
    - **disease diagnosis**
    - **risk analysis**
    - **Surveillance**
    - **epidemiology, etc**
  - Promoting responsible introductions





  - SOPs for responsible movement of live food finfish within ASEAN

Challenges (7)

- Harmonization of approaches for diagnosis and risk assessment
  - PCR calibration work
    - India and Indonesia
    - (Vietnam, Malaysia)

Calibration of PCR service providing Labs

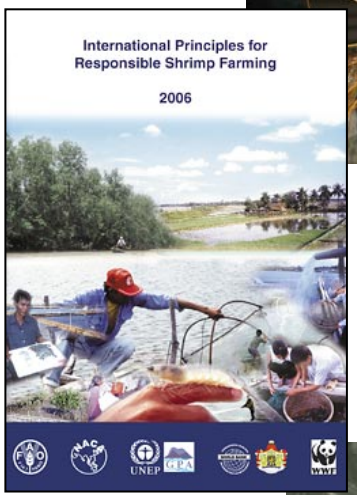
- India
  - One Voluntary WSSV PCR calibration exercise completed in June 2006 (37/49 labs returned results)
  - PCR calibration in Feb 2007 (33/51 labs returned results)
  - PCR laboratory accreditation program for India being developed (in conjunction with MPEDA)
- Indonesia
  - I PCR calibration completed in Indonesia in March 2007 (33/34 labs returned the results)
  - II PCR inter calibration planned in August 2007
- Lessons learnt
  - Assess the quality of results received by the shrimp farmers
  - Opportunity for the labs to evaluate their own performance and compare with other labs
  - Opportunity for labs to maintain confidentiality and seek technical assistance
  - Possibility of expanding the scope of the exercise to other countries e.g. Malaysia, Vietnam

Calibration of PCR service providing Labs

- ACIAR funded regional project
- "Application of PCR for improved shrimp health management" (Jan 2005- Dec 2007)
- Partners:
  - CSIRO (Australia), Mahidol U. (Thailand), MPEDA, CIBA, COF (India) and NACA
- Purpose:
  - to prepare the labs for a future laboratory accreditation programme
- The Process:
  - Preparation of samples (5 DNA+5 Tissue samples per lab)
  - Validation of results in 3 laboratories (CSIRO, CIBA, COF)
  - Seeking expression of interest from labs
    - Allotment of laboratory codes
    - Distribution of samples
    - Collation of results
  - Providing summary results back to all the participating labs
  - Providing technical assistance, where required

Certification of aquaculture produce: issues

- Universal agreement that responsible aquaculture programs need to be developed
  - Promote best practices
    - Ensures product safety,
    - Wholesome sea foods
    - Produced in a socially responsible manner
    - Supports profitable and economically viable aquaculture



Challenges (8): Certification of aquaculture produce: issues

- Developments of certification processes should
  - Support and encourage sustainable aquaculture
  - And not be a barrier for entry into major markets
    - **Impact on small scale farmer**
      - **Selling; cost of certification**
  - Setting of market standards should not be done by a single group or through a coalition of companies/ retailers:
    - **Anti-competitive**

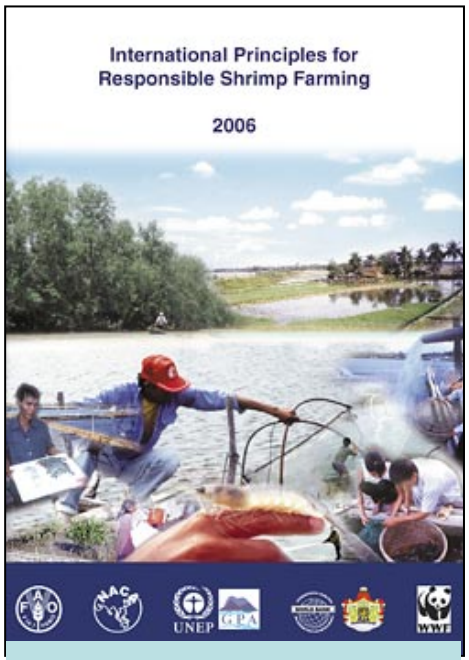
- Definition of boundaries between public regulations/ private markets?
    - **Public regulations: challengeable at the WTO**
    - **Private regulations?**

Certification of aquaculture produce

- Challenge will be to ensure small-scale aquaculture sector is:
  - empowered
  - Supported
    - not disadvantaged in modern certified aquaculture product market chains

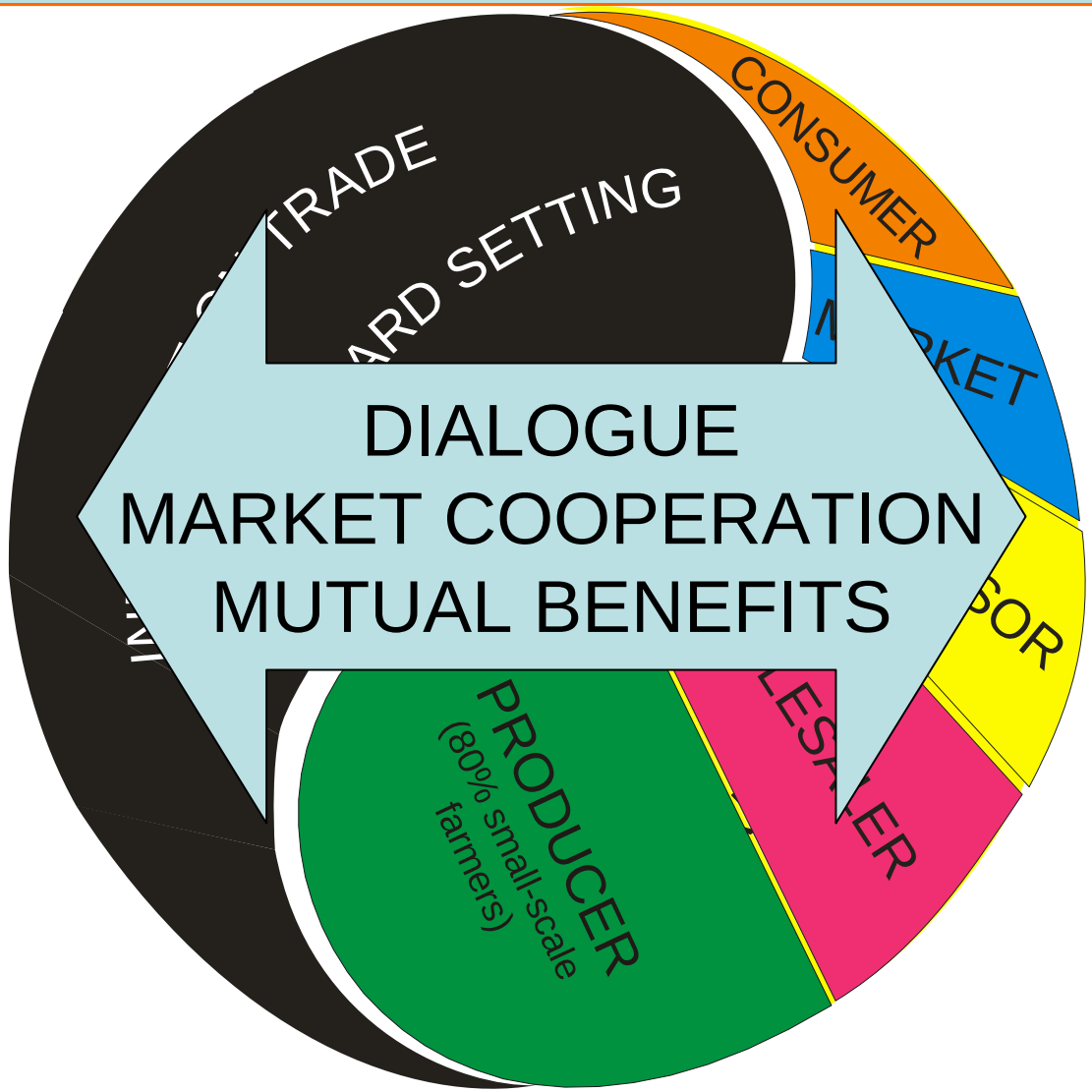
Certification of aquaculture produce

- Developing certifications is relatively easy
- But:
  - Certifications need to be relatively easily applicable/ adoptable
    - Need to be pragmatic
    - Should be not “alien” to any in the value chain
    - Should be cost-effective
      - Very important for small scale producers
  - Needs compliance of
    - All stakeholders in the value chain
    - Governments
- Hence the consultative efforts
    - FAO, NACA, Thai Governments and others



A previous success story

Certification of aquaculture produce



RESTORING BALANCE

Certification of aquaculture produce

- What could be done by us?
  - Facilitate BMP adoption
    - **Aquaclubs etc.**
    - **Capacity building**
      - **Results in safer product**
  - Facilitation of dissemination of market requirements
  - Create market links between “good” farmers and the market
  - Bring about harmonization between national regulations
    - **Rationalized, regional approach to product safety**
      - **Facilitates purchasing**
      - **Cost saving**

Conclusions

- Certification, ecolabelling, traceability;
  - Modern day requirements
  - Ensures food safety & quality
- It is equally important to safeguard the producer
- Certification best done:
  - Not through intermediary “organizations’ alien to the producer
  - But through organizations working at the coal face
    - Expects “big” trading houses to adopt such strategies
- Only the above will ensure
  - consumer safety
  - A fair deal to the producer
  - Sustainability of production practices
  - Fair play in global trade

Thank You All

Challenges: increasing production

- Effective utilization of natural resources
  - Culture based capture fisheries
    - >5 x10^6 ha of non-perennial water bodies
    - Utilize for fish production
  - Reservoir stocking policies
    - Policy developments
    - Strategies for increasing production
      - Minimizing impacts on biodiversity
      - Use of GIS techniques
  - Development of good practices