



SEAT is an FP7 funded project

Bangladesh Tilapia and Pangasius Value-Chain Stakeholder Workshop

Faculty of Fisheries
Bangladesh Agricultural University (BAU)
Mymensingh-2202

Saturday, 6 March 2010, 9.30am – 1pm

www.seatglobal.eu



SEAT Project, Bangladesh Agricultural University, Mymensingh-2202



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Plates 1 and 2: Introducing stakeholders to the aims of the workshop

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Executive Summary

This half-day stakeholder workshop was convened by Bangladesh Agricultural University (BAU), Faculty of Fisheries, Mymensingh. BAU is a part of a consortium implementing Sustaining Ethical Aquaculture Trade (SEAT); a large-scale collaborative research project (EU FP7) investigating the sustainability of seafood trade between Asia and the EU.

The main purposes of the workshop were to familiarize local stakeholders in the farmed pangasius and tilapia value chain with the aims of SEAT and secondly to identify stakeholder perceptions regarding opportunities and constraints for development of an export trade. A final purpose was to gauge potential for collaboration with small and medium enterprises (SMEs) in an action research component of the project.

After an introductory presentation (Appendix 2) participants were divided into five groups to discuss constraints and opportunities. The groups were (1) research, government and NGO's (2) feed and other service providers (3) processors and exporters (4) large commercial farms and hatcheries (5) small-farmers. No major processors or exporters attended the workshop reflecting the as yet relatively undeveloped nature of value chains for these species.

Pangasius was considered to have greater export potential than tilapia. Several shrimp processors are already experimenting with fillet processing for supply to the EU and ex-Soviet block countries. This diversification is a response to substantial over-capacity in the shrimp-processing sector.

Various constraints were identified. Pangasius pond farming clusters are established in four upland locations enjoying low flood risk and good road connections. However, water exchange capacity is limited with implications for water quality and accelerated sludge build-up. Consequently production intensity is very low compared to potential export-competitors such as Vietnam.

Feed quality is a major constraint. There are trade-offs to be made between price, performance and reputation. For example the use of imported meat and bone meals banned for livestock use in the EU although locally acceptable, may compromise export potential.

Food safety traceability is a key priority for sustainable trade. A need for a registration scheme combined with a national good aquaculture practices (GAP) certification scheme was identified. Although it was felt that this would be more straightforward than the shrimp sector, weak regulatory capacity is a major constraint. Lack of marketing infrastructure e.g. cold-storage capacity in cluster areas is a further problem. Some participants felt that only larger farmers would be able to comply with such standards.

Yellow flesh colour and off-flavours were identified as two areas that could create negative consumer performance. Off-flavours were attributed to low pond water exchange rates and poor feed quality while there was less consensus on the causes underlying yellow flesh colouration.

Potential conflicts with other land and water-uses included (i) conversion of agricultural rice-lands raising concerns around wider food security impacts, (ii) uncontrolled effluent discharge associated with lack of planning/ zoning regulation (iii) potential biodiversity impacts on wild fish populations.

Poor seed quality and disease were also mentioned. Although not a significant problem as yet, losses to disease are growing and there remain few effective/ legal treatments available in the market place.

Opportunities include potential for further intensification, a dynamic private sector already rapidly developing a domestic market-base on which to build exports, export orientated processing experience in other seafood sectors combined with growth in global marketing opportunities, regional as well as to the EU. Climate, natural resources and availability and low cost of labour offer further advantage compared to other competitors.

Concentration of production and processing will increase opportunities for local recycling of by-products bringing potential for greater self-reliance for ingredients and improved feed quality. Recycling strategies should be built into planning. There is also potential for re-use of nutrient rich sludge in other agricultural systems.

1. Aims of the workshop

The workshop, convened and chaired by Prof. Dr. Md. Abdul Wahab, FoF, BAU had the following aims:

- I. To familiarize stakeholders along the entire pangasius and tilapia value-chain in Bangladesh with the aims of the SEAT project.
- II. To identify opportunities and constraints for the development of the industry both locally and for export, as perceived by different stakeholder groups.
- III. Identification SMEs with interest/ potential to participate in action research (WP9).

A list of workshop invitees and participants is given in Appendix 1.

1.1 Workshop schedule

9.30 Registration

10.00 Recitation – Holy Quran (Mr Safayet), Holy Gita (Ripon Adhikary)

10.10 Welcome address – Prof. Dr. Md. Abdul Wahab, FoF, BAU

10.30 SEAT project Introduction

11.15 Tea Break

11.30 Group discussions

12.30 Group presentations and questions

12.55 Concluding remarks

13.00 Lunch

2. Outcomes of workshop

2.1 SEAT introductory presentation

The presentation given jointly by Prof. Dr. David C. Little – IoA, Stirling, Dr. Francis Murray – IoA, Stirling and Dr. M. Mahfujul Haque (Ripon) – Associate Prof., FoF, BAU, is presented in Appendix 2.

Note: Following confusion at an earlier workshop in Thailand – care was taken to emphasise that the EAFI is intended as a decision support tool for different stakeholders and not a new independent standard.

2.1.1 Questions/ comments following the presentation

Dr Kamal (Prof. BAU FoF – processing and quality control expert)

- Bangladesh production potential is enormous but exports constrained by quality and management issues.
- The Vietnamese model is not possible in Bangladesh, as the same degree of water exchange is not possible
- Key researchable issues include
- How to minimize feed costs?
- Food safety traceability inc. residue control – especially antibiotics in feeds and ponds (difficult problem)
- Quality issues already emerging following experimental pangasius exports
- Demand volatility: tilapia currently high in the USA – while the shrimp market is down
- Pangasius buyers need to form an association (c.f. shrimp exporters association.)
- Fish Inspection and Quality Control (FIQC) branch of DoF already established to address quality issues: project mechanism well understood.
- SEAT should consider internal legal constraints e.g.1997 laws on antibiotic supply subsequent amendment.
- Almost all shrimp farms (some1,90,000) are now registered in the principle culture Districts.
- Registrations extended to other shrimp/ prawn-growing districts for which Upazila officers are receiving training
- (Muktagaha Upazila – will be first to list pangasius farmers – though not yet as part of any formal registration scheme)
- Along with registration, a good aquaculture practices (GAP) with associated certification is required to implement a traceability scheme

- USAID want official (Govt.) control of primary production – i.e. Upazila checklists etc.

Sazzad Hossain – (*Pangasius producer, feed and processing factory owner*)

- Vietnam exports 30% of its pangasius – success has also been based on development of a large domestic market
- Currently we produce 4 million mt/yr - we can't sell this volume of fish door to door
- Already we export 4500 million/yr of potatoes commodities to Malaysia - this should be an example
- We need to encourage farmers to maintain standards – a few weak farmers feeding 'bad materials' can have adverse affects on all
- Probably only 10-20% of farmers can comply
- Further development of quality feeds is also required
- These improvements will help to stimulate demand amongst middle classes for example encouraging parents to give children fish for their 'tiffin'.
- If we satisfy local consumers – then exports can increase
- Yellow fish flesh is a problem for export. If this is genetic can we import new seed from Vietnam to breed and improve new stocks?
- Re-use the waste: we need to make better use of our by-products for example or maize and rice bran is exported to India for processing and by-product retained.
- There is also 30-35% wastage of fish harvests; only flesh, not bones etc. are used
- In Vietnam such waste used to make fishmeal; if fish eat fish then the flesh colour becomes whiter!
- Here bad practices such as incorporating DDT, sand etc in the feed result in 'non-hygienic' fish
- Improvement is a process that will take time; GoB Ministries (and this type of research project) are starting to address the problems – which will take time to solve.

2.2 Group discussions and presentations

Participants were divided into 5 groups and asked the questions listed in Table 1 with the support of SEAT facilitators. After one hour of discussion – results were summarized on posters and presented back to the reassembled workshop for further discussion. The membership of the different groups is indicated in Annex 1.

As no major processors or exporters responded to invitations, group 3 consisted of industry support agency representatives (4) and one large-scale vertically/horizontally integrated pangasius producer. Poor attendance could be attributed to the lack of any developed export sector for these species as well as lack of demand for filleted products in Bangladesh. However, discussions revealed that three shrimp processors: Peninsula in Chittagong, Quality in Khulna and Golden Harvest in Gazipur have or are considering diversifying into pangasius fillet export. The first two have already sent 'experimental' batches to the EU (Italy) and the Ukraine.

Table 1: Stakeholder groups and questions for the discussion activity – ‘opportunities and constraints for development of the sector’

Stakeholder Groups	Questions	Facilitators
1. Academics, research, NGOs and Govt. Institutions	SWOT analysis for FW sector – domestic and export potentials	Kamal
2. Feed manufacturers and other service providers	- Major changes last 5 yrs - How would you deal with the following issues should export markets develop? a. anti-biotic residues b. meat and bone meal inputs c. yellow flesh colour (maize)	Utpal
3. Processors and exporters	What constraints do you face in marketing? List and discuss opportunities and constraints for export	Dr Francis
4. Large-scale farmers and hatcheries	- Major issues affecting the success of your business - How have they changed for better or worse over the last five years?	Dr Ripon
5. Small-scale farmers	As above	Dr Wahab and Swan



Plate 3: Group discussion presentations (Group 2: Feed manufacturers and other service providers).

2.2.1 Summary of presentations

Group 1: Academics, Researchers, NGOs and Govt. Institutions

Presented by: Dr Shamsur Rahman (DoF)

Strengths (considered to greater than weaknesses)

- Present production status is increasing remarkably
- Suitable species for intensification (high SD)
- Labour availability
- Climate and environment is suitable
- Social and cultural acceptance
- Species with short culture periods, high growth rates and un-selective feeding habits
- Species suitable for poly culture
- Species with good disease resistance
- Big local market
- High survival rate

Weaknesses

- Yellow flesh of Pangasius
- Off-flavours / odour of flesh
- Lack of farmer awareness on feed and management
- Some degree of consumer aversion
- Water quality management poor
- Lack of water exchange capacity
- Infrastructure – roads etc lacking
- Marketing and processing facilities lacking (cold chain?) including storage facilities in cluster areas such as Mymensingh
- Poor seed quality
- Feed price and quality generally unacceptable

Opportunities

- Global market opportunities increasing
- Further intensification possible
- Expanding area throughout the country

- Scope for value-addition
- Support from research institutes
- Re-use of sludge rich in nutrients for other agriculture processes

Threats

- Competition with indigenous fishes and loss of biodiversity
- Volatility in market and profitability
- Conversion of agricultural land and wider food security impacts
- Effluent management

Group 2: Feed manufacturers and other service providers

Presented by Md Mozahar Ali (Square Pharmaceuticals)

Trends in aquaculture feeds

- Huge changes have occurred in the fisheries (aquaculture) sector including a move from 'loose' (unprocessed) low quality feeds; oil-cakes, rice bran etc. to formulated sinking and floating pellets.
- Less than 2% of farmers are using floating feeds but the level is growing
- Floating feeds are more likely to include soy products (now mainly used in the poultry sector)
- There are a total of around 100 commercial feed companies – approx. 40 of them 'large'.
- Quality raw materials have a high cost (notably fish meal) for which there is competition with poultry sector. Many fish-farmers employed poultry feeds containing fish meal before specialist diets became available
- Fishmeal was used mainly for poultry diets – however it is now being diverted to aquaculture diets – driven (in part?) by diseases that have reduced poultry production.
- The move to use of complete feeds has also helped improve water quality i.e. compared to the use of 'loose' feeds – farmers relied mainly on lime treatments in the past.
- Competition between feed companies also means quality is gradually improving (note: contrast this with opinions in group 1)
- Other management methods of improving feed efficiency e.g. staggered feeding schedules: 15%: 30% crude protein on alternating time periods – speaker cited paper he had published.

Other inputs

- Probiotics can reduce antibiotic use and consequently problems with withdrawal periods
- Water exchange or water management
- Use of quality fish meal or alternative source, i.e. soya-meal
- Use of wheat bran instead of maize.

Group 3: Processors and exporters

Presented by: Nurul Islam (PRICE, USAID)

Industry structure and development

- There are four pangasius pond clusters in: Mymensingh (primary area), Bogra, Comilla, Narshindi
- These cluster patterns were attributed to three main factors:
 - Non-flooding areas
 - Good communications (accessibility to anywhere in Bangladesh)
 - History of Govt. and NGO support (including DANIDA Extension Project)
- The private sector prioritized the first two factors, while others prioritized the last factor. One participant countered that BAU in the Mymensingh area has as yet, not produced any pangasius seed.

Local markets

- Pangasius has moved from a 'festival fish' (consumed on special occasions as an indigenous river fish) to a low-cost 'poor man's fish' since farmed fish have become widely available – however attitudes are changing and it is gradually become more widely acceptable with middle classes.
- Problems with off-flavours and other qualities have a more persistent effect on consumer perceptions.

Constraints to export

- Yellow/red flesh colour is not a problem for the local market – but acknowledged as a significant potential problem for export markets.
- There was a divergence of opinion of the causes of yellow coloration, yellow colouration was attributed to three factors:
 - Water quality related to low water exchange rates and use of 'loose feeds'
 - Directly due to feed quality: this is highly variable 'pellets one week and loose feeds the next', 'poultry drops' etc
 - Genetic factors associated with the mix of indigenous and exotic strains.
- Whilst all three factors were accepted as possible causes there was a divergence of opinion as to which was the primary cause.

Institutional constraints

- Weak enforcement or absence of Govt. regulatory rules for the sector (though an interdepartmental committee was established 6 months ago)

- Support to farmers through a certified good aquaculture practices (GAP) scheme is required to support any traceability scheme – but the Govt. has little capacity to support this. However, it was felt this should be easier to achieve than a shrimp certification scheme.
- Only larger farms are likely to achieve necessary export standards
- Producer organizations are weak or absent – the only exception was when a group of farmers came together to fight land taxes.

Opportunities

- Shrimp processors are currently working at 20% or less of their capacity (they currently enjoy a 10-15% export subsidy) so pangasius could be a good diversification strategy.
- Processing would generate substantial by-product (40-45% of weight) and opportunities for recycling (fish meal etc).
- Promote yellow-flesh colour as a differentiation strategy?
- As only 3-4 countries are currently exporting pangasius, it was felt to have greater potential than tilapia (c.f. Chinese production).
- Greater water exchange (drainage) capacity in upland areas – could help ameliorate off-flavour problems.
- Low cost and availability of labour

Group 4: Large-scale farmers and hatcheries

Presented by: M. Mahfujul Haque (Ripon – Assoc. Prof. FoF, BAU)

Constraints

- Low water exchange rates and rapid sludge build-up
- Poor feed quality and high price of feed
- Poor marketing infrastructure for large production volumes
- Feed and seed quality should be regulated by Govt. agencies
- Inbreeding/ cross breeding problem
- High energy costs and increasing
- Disease problems increasing – but no medicine development

Opportunities

- Hatcheries independently trying to improve seed quality based on good private sector knowledge
- Technical improvements over last 5 years e.g. effective sludge pumps
- Seed and feed quality have decreased while prices have increased

- Private banks better credit provision than Govt. banks but interest rise also faster
- It has become easier for farmers to sell fish at the farm gate.
- Govt. attempts at quality improvement are slow
- Energy subsidies for agriculture are not enjoyed by other sectors (inc. fisheries?)
- Availability of Drugs and medicines for Pangasius
- Farmers are developing roads themselves enabling larger farmers to expand ponds beside rivers.

Group 5: Small-farmers

Presented by Mr Munjural Islam (small-scale pangasius farmer)

- Price of feed is increasing, but quality is decreasing
- Disease problems increasing – but lack of effective medicine availability
- Seed quality better from Bogra than Mymensingh (where there is lower growth due to in-breeding).
- Water quality problems (irrigation and water exchange)
- Lack of communication with high officials (successful farmers advise other farmers)
- Mr Munjural invested 25 to 35k in small ponds, gradually increasing farm size without drainage planning. Unplanned farm development is a growing problem without effective Govt. support regulation.
- Road and transport facilities are poor
- Profit is in decline
- In the past there were fewer ponds – but unit profitability was higher
- In the past we took produce to market, now we can sell for cash at the farm gate – lower prices but has allowed higher sales over a wider area.
- Lack of support from fisheries and bank officers
- Small-farmer can't hold (store) fish in there for as long as larger farmers i.e. this incurs feed maintenance and other costs. Thus smaller farmers operate lower culture duration systems; stocking and harvesting twice per year.
- There has been a move from home to purchased feeds and home-made pellets
- Feed ingredients have also changed (imported from further afield) e.g. bone and meat meal (not used in the past), oil cake, maize ingredients
- Pond water quality is no longer good for domestic use
- Pangasius culture has improved livelihoods in the area

- Smaller fish from small-farms have less of a yellow flesh problem (belly but not muscle)
- Greater use of medicines for prevention and control of disease and sometimes water quality improvement

3. Comments, questions and answer session

Tanvir Islam (PRICE – USAID):

- There are Lots of products on the market with no demonstrated benefits to farmers – better regulation is required.
- Further research is required on:
 - Adequate withdrawal periods for antibiotics
 - The causes of yellow flesh colour e.g. genetics or feed
 - Low water exchange rates is also a problem for shrimp farmers – this problem requires better Govt. strategy
 - The Govt. should also develop a traceability support scheme (for pangasius?)
 - Farmers should be encouraged to use floating feeds; sinking feeds result in huge loss.

S.M. Istiaque (Bangladesh Shrimp and Fish Foundation - BSFF)

- Felt that SEAT was a good initiative
- An Environmental NGO has just attempted to have the shrimp (Bagda) sector closed down in Bangladesh
- *P. monodon* can't be produced in Bangladesh as claimed by the NGO
- The BSFF organization will work with the DoF on Good Aquaculture Practices (GAP) development
- Current Govt. regulatory practices should be researched by SEAT

Prof. Fuzlul Awul Mollah (FoF, BAU)

- The Govt. also taking issue on flesh quality – (he?) feels primarily a genetic issue, but also associated with water quality
- Many problems are due to unplanned development
- The Govt. should link research more closely with development
- GAP will solve many of the current problems

AKM Nurul Haque (Brahmaputra Fish Hatchery proprietor)

- Suggested hybridization of two pangasius species (the local and exotic - one with red the other with white colour flesh?) could help solve the flesh colour problem?

Ruhul Amin (American Soy Bean Association)

- GAP is necessary to solve problems facing the sector
- Floating feed should be used – this does not represent a great technical change and it will reduce costs of production
- We need to better define carrying capacity – reducing stocking density will reduce associated problems

Large-scale Farmer

- Very low quality meat and bone meal products are being imported to Bangladesh (often as fertilizer!?) - better regulation is required.

Sazzadd Hossain – (Pangasius producer, feed and processing factory owner)

- Bangladesh 5th in world for aquaculture production – but lags far behind in exports
- Pangasius to the value of 50-60k crore Tk was produced (last?) year
- There is great potential for entry to EU market with the introduction of necessary skills e.g. processing plant being developed at Gazipur (north of Dhaka)
- Proper regulations are required for the development of an export sector.

4. Concluding remarks – Prof. David Little (IoA, University of Stirling)

- Applied research important to address the opportunities and constraints facing these sectors; such stakeholder involvement is an example
- FW aquaculture development is speeding up – regional markets should be considered as well as the EU – Vietnam is selling to over 80 different countries – many in Asia.
- There are choices for feed processors between price and reputation
- Waste reprocessing was raised as a key issue - it should be incorporated into planning.

Appendix 1: List of participants, other invitees and membership of discussion groups

Group 1: Academics, research, NGOs and Govt. Institutions

SL.No	Name and designation	Institution	Mobile
1.	Dr. Md. Kamal	BAU	01713423232
2.	Dr. Shahroz Mahean Haque	Faculty of Fisheries BAU	
3.	S. M. Shamsur Rahman, Upazila Fisheries Officer	DoF	01716436893
4.	Sabikun Nahar Extension Officer, Muktagacha, Mymensingh	DoF	01717073797
5.	Sadequr Rahman	Research Assistant, SEAT project, BAU	O1723229101
6.	Prof. Zoerder	BAU	01712269016
7.	Dr Nesar Ahmed	BAU	01716093440
8.	Dr. Mst. Kaniz Fatema	BAU	
9.	Dr. M.A. Salam	BAU	01711024408
10.	Md. Fazlul Awal Molla	BAU, Faculty of Fisheries	
11.	Dr. Md. Sharif Uddin	DoF, Marine, (AD)	01711985072
12.	Dr. Mostofa Hossain	BAU, Faculty of Fisheries	01711045364
13.	Dr. Md. Ali Reza Faruque	BAU, Faculty of Fisheries	01711456119

Group 2: Feed manufacturers and other service providers

SL.No	Name and designation	Institution	Mobile
1.	Dave Little	University of Stirling	
2.	Utpal Kumar Dutta	Research Associate, SEAT project, BAU	01712261573
3.	Md. Hasen Ali T. S. E (Aqua), SK+F	SK+F, Agrovet Division	01712637050
4.	Md. Tipu Sultan Dealer, Muktagacha	Quality Feed Ltd.	01711137128
5.	Mr. Rezvee	Rahat Feed Ltd	01729408781
6.	Ruhul Amin	ASA-IM (American Soybean Association)	01711989016
7.	Md. Mozahar Ali	Input, Square Pharmaceuticals Ltd	01730337842
8.	Md. Khaled Hossain	Input, DGM, Shushama feed Ltd	01713016063
9.	Sazzad Hossain	Shushama Feed Mill	01711 648218

Group 3: Processors and exporters

SL.No	Name and designation	Institution	Mobile
1.	Francis Murray	University of Stirling	
2.	S. M. Istiak, Chief of Programme	BSFF	01711943019
3.	Hazrat Ali	Research Assistant, SEAT project, BAU	01712308428
4.	M. Nurul Islam	Processing and export, PRICE, USAID	01730056313
5.	Tanvir Islam	Processing and export, PRICE, USAID	01730056315
6.	Aktar Hossain Khan	Processing and export, PRICE, USAID	01730056322

Group 4: Large-scale farmers and hatcheries

SL.No	Name and designation	Institution	Mobile
1.	Dr Mahfuzul Haque	Associate Professor, BAU	01711462240
2.	Ripon Kumar Adhikary	Research Assistant, SEAT project, BAU	01911969016
3.	S.A.M. Munir	M A Fisheries	01711462240
4.	Ritis Pondit	Reliance Aqua Farms	0171353242
5.	A.K.M. Nurul Haque	Brahmaputra fish seed complex (Hatchery)	01711335045
6.	Md. Delwar Hossain CEO	RM Agro and Fisheries Ltd. (Farm Owner)	01674005522
7.	A.K.M. Saiful Islam	Input, Remi Pharms Ltd	01714035093
8.	Goutam Kumar Roy	Large scale farmer, Comilla	
9.	A.M.M. Samsul Alam	Agro 3 Hatchery	01714010740
10.	Ataur Rahman	Small farm, Dhanikhola, Trishal	01711164613
11.	Mahbubul Haque Shahin	Rupol Integrated, Satrashia, Muktagacha.	01920144825
12.	Shohel Miah	Adarsha Matsya Arat, Satrashia, Muktagacha.	01822808444

Group 5: Small-scale farmers

SL.No	Name and designation	Institution	Mobile
1.	Dr. Md. Abdul Wahab	BAU, Faculty of Fisheries	0175099156
2.	SK. Ahmad-Al-Nahid	Research Associate, SEAT project, BAU	01712505698
3.	Md. Monjurul Islam	Small farm, Muktagacha	01745584863
4.	Md. Zahirul Islam	Small Scale Farmer Malotipur, Muktagacha, Mymensingh.	01914854688
5.	Md. Faridul Islam	Small scale farmer, Malotipur, Mymensingh.	01926214225
6.	Sazid Mahmudullah	Malotipur	01925531114
7.	Md. Abul Kalam	Malotipur	01190175015
8.	Md. Sadruzzaman	Malotipur	01914136295
9.	Md. Majibar Rahman	Trishal	01735364192
10.	Md. Bualer Hossain	Trisal	01713533379

BAU FoF students

SL.No	Name and designation	Institution	Mobile
1.	Nipa Gupta	M. S. in Aquaculture	
2.	Fatema tuz Zahura Upoma	M. S. in Fisheries Management	
3.	Mst. Zohura Khatun Meera	M. S. in Fisheries Management	
4.	Halima Sultana	BAU	01712991353
5.	Md. Shariful Islam	The Daily Prothom Alo BAU, Mymensingh	01721606550
6.	Md. Safaet Hossain	L-4,S-2, BAU	01724192425

Invited participants who could not attend

SL. No.	Name and designation	Institution	Mobile
1.	Mamunur Rashid	FoF, BAU	
2.	Mohsin Ali	FoF, BAU	
3.	Prof. Dr Nazrul Islam	FoF, BAU	
4.	Dr Md Abul Hossain, PRICE Project	PRICE Project, Dhaka	01730056308
5.	Mr Bill Collis, Director, World Fish Center, Dhaka	WFC	
6.	Dr Monjurul Karim, WFC, Dhaka	WFC	
7.	Dr Mahmudul Karim, Bangladesh Shrimp and Fish Foundation, Dhaka	BSFF	
8.	Dr.M.G.Hassain Director General	BFRI	01715155480
9.	Dr.Sahh Uddin Ahmad Director	BFRI	01718305952
10.	Dr. Jahangir	BFRI	01715132369
11.	Dr Nitya Nanda Das, PD, Marine Shrimp, DOF, Khulna	DOF	01718445317
12.	Mr Saleh Ahmed, PD, FIQC, DOF	FIQC/ DOF	
13.	Dr Nitya Nanda Das, PD, Marine Shrimp, DOF, Khulna	DOF	01718445317
14.	Syad Arif Azad, DFO, Mymensingh	DoF	01714746403
15.	Shah.Md.Enamul Haque SUFO,Trishal	DoF	01717785265
16.	Md.Abdul Maleque FM,Trishal	DoF	01717212036
17.	Mr. Nannu Bhuiyan , Tilapia Farmer, Barura, Comilla	Tilapia farm & hatchery owner, Comilla	01199814174
18.	Pangus hatchery, Dhala, Mymensingh	Pangus hatchery	
19.	Abdul Mohid Talukder, GM aquaculture Ltd, Adamdhigi, Bogra	Pangasius Hatchery owner, Bogra	01711413605
20.	Abdul Baten, Commission agent, Trishal	Commission agent, Trishal	01713598360
21.	Ronie, Soudi Bangla fish feed dealer, Muktagacha	Fish Feed Dealer	01912898689

Appendix 2: Introduction to SEAT - power point presentation

Sustaining Ethical Aquatic Trade

A brief overview

David Little and Francis Murray
Faculty of Fisheries,
Kasetsart University
26th February 2010



Background

- Seafood trade - highest value food sector
- Asia main EU supply – rapid growth
- EU standards: food safety, (animal welfare)
- Market standards: environmental, social
- Harmonisation?
- Evidence-based multidisciplinary approach

Project Scope

Country/ Species	Tilapia	Pangasius Catfish	Marine Shrimp	Freshwater Prawns
China	√√	√	√	?
Vietnam	√	√√	√√	(√)
Thailand	√	√	√√	√
Bangladesh	(√)	√	√√	√√
Europe	(√)	(o)	(o)	(o)

Main objectives

- Increase volume and value of trade of four major farmed seafood commodities through:
 - improved scientific, trade and policy linkages between Asia and EU
 - support to SMEs (action research) in Asia and EU
 - Development of Ethical Aquatic Food Index (EAFI) – not a new standard! – a decision support tool for different stakeholders

Demand for Aquaculture Products

(FAO Food Outlook 2008)

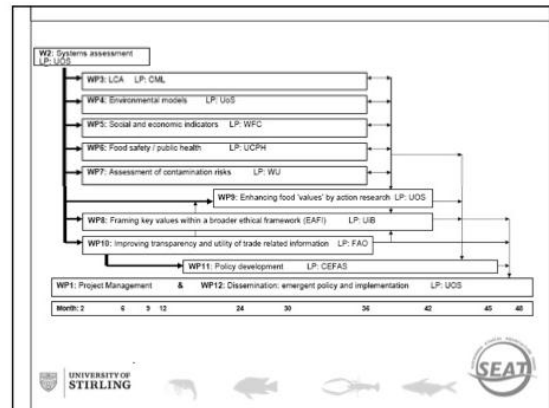
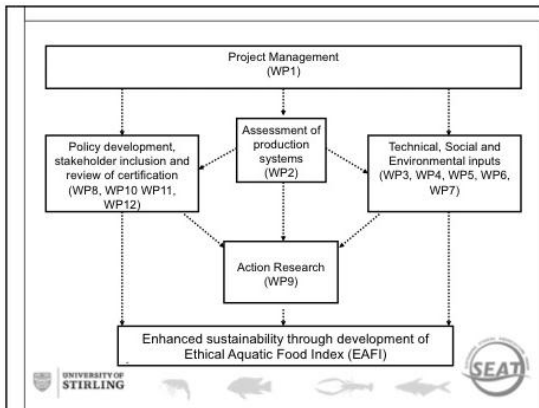
Per caput food consumption: kg/year	2005	2006	2007	07/06 %+
Food fish	16.7	17.2	17.4	1.2
From capture fisheries	9.3	9.5	9.5	0.0
From aquaculture	7.4	7.7	7.9	2.6

Changing markets

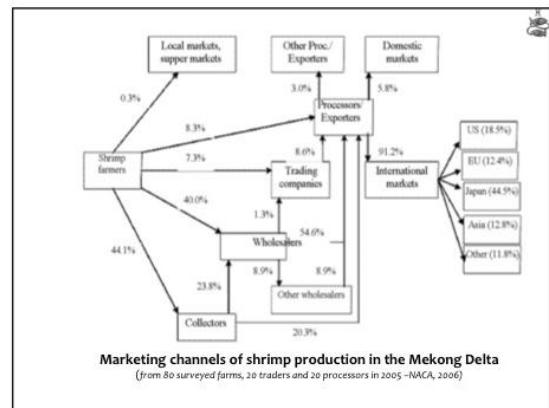
- Demand for seafood reflects changing consumer values
- Food safety still paramount
- Food never cheaper (% purchasing power)
- Emerging values: conserving environment
 - locally e.g. water quality
 - globally e.g. climate change
- Social impacts on those directly involved
- Welfare of animals
- Consumer expectations managed by standards/certification



- ### Work Packages
- Systems analysis
 - Life Cycle Analysis (LCA)
 - Environmental & contaminants modelling
 - Food safety and public health
 - Social and economic issues
 - Action research with SMEs
 - Certification dialogue
 - GVCs & access asymmetries
 - Ethical matrix assessment



- ### The 'value chain'
- Subsistence-immediate production and consumption compare traditional production and consumption to modern for pangasius
 - Global value chains
 - How can they be made fair and sustainable?



Systems analysis

- What is it why we need to do it and how we should do it
- need to understand the whole picture as a whole rather than only the 'best bits'
- Scoping study to understand the value chain as a whole – from farm to consumer
- Setting boundaries and basis for prioritising and designing follow-on research

Life Cycle Analysis (LCA)

- Overall picture - beyond economics
- Energy and resources involved in any process
- Boundaries from systems analysis
- e.g. farm – fork or cradle – grave?

Which is better ?

Ceramic cup	Plastic cup
• 10 kg crude oil	• 5 kg crude oil
• 1 kg iron ore	• 2 kg iron ore
• 5 kg hardwood	• 1 kg hard wood
• 100 l water	• 10 l water
• 10 kg sand	• 6 kg sand
• 100 kg CO ₂	• 50 kg CO ₂
• 10 kg CH ₄	• 10 kg CH ₄
• 1·10 ⁻⁹ kg dioxin	• 4·10 ⁻⁹ kg dioxin
• 5 kg NO _x	• 0.1 kg NO _x

Environmental & contaminants modelling



Social and economic issues



Food safety and public health

- Still the main quality requirement for trade with the EU
- EU hygiene package
- Differences in emphasis between US (pathogens e.g. salmonella) and Europe (e.g. antibiotic residues)

Impacts on direct stakeholders

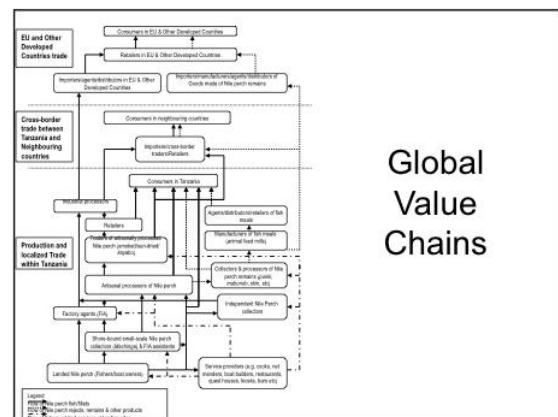
- The value chain=from farm to fork
- Producers –owning/controlling resources and employed
- Processors
- Adding 'value'

Impacts on broader society

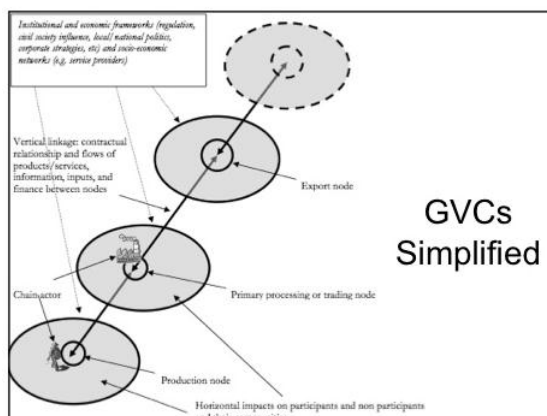
- Trade barriers
- Access to information
- EU Hygiene Package
- Certification

Action research

- Supporting beneficial change for micro, small and medium enterprises (MSMEs)
- Private sector and researchers as co-learners
- 'Upgrading' options for value chains



Global Value Chains



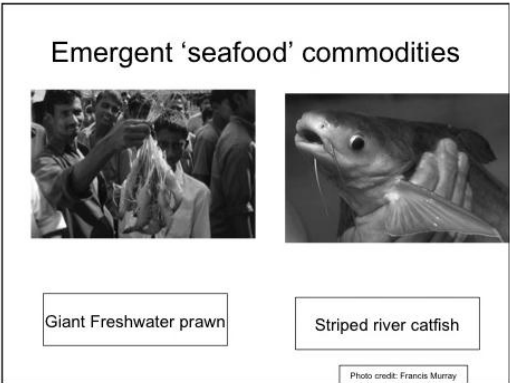
Example scenario - Pangasius

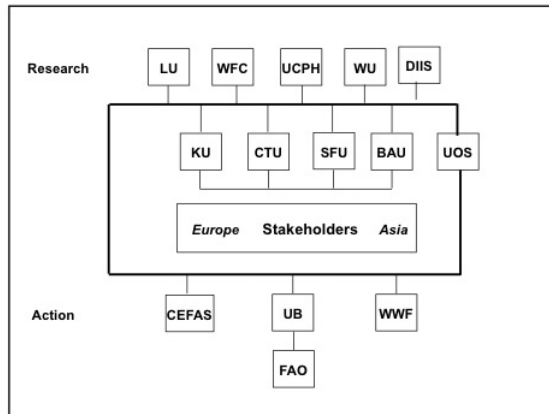
- Step1 – Diagnostic findings
 - WP5: Periodic yellow flesh colour – reduces fillet value – possible rejections by processors
 - WP2: Attributed to interactions between diet, infection and pond water quality
 - WP4&7: Increasing frequency of pond water exchange can reduce severity of the problem
- Research Question
 - How can the problem be addressed to benefit different stakeholders?

- Step 2:** - collective assessment
 - list & group interventions
 - Identify best option(s)
- Hatcheries: hybrid varieties (e.g. Claresse – Fishion/ Anova, Netherlands)
 - Producers, feed and pharmaceutical companies: experiment with flushing frequency, diet composition, diagnostic capacity etc
 - Processors, plant suppliers, retailers: Electro-static smoking process (low yield loss - added value)
 - Consumers, retailers: Yellow flesh as an ethical food option?

- ### Ethical Framework
1. Practical evidence-based ethical advice
 2. Transparent deliberative methods for quality assurance
 3. Identifying opportunities for harmonizing ethical standards and certifications
 4. Overall ethical aquatic food index (EAFI)

- ### Examples of ethical worries relating to aquaculture - sustainability
- Fish feed → transforming cheap fish into expensive fish? → increasing the strain on natural fish resources?
 - Fish escapes → genetic threat to wild stocks? → diseases? → threatening cultural identity?
 - Environmental discharges -> avoidable?
 - Environmental degradation -> bad management schemes? Regulations?
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Sustainability

- Sustainability
 - weak and strong
 - production to consumption
- Ethical consumption
 - power relations in producer countries and between consumer and producer networks
- Standards setting and certification-major issues

'Qualities'

- Food safety as given
- A host of ethical and sometimes contradictory qualities
- Deliverable by smaller- scale producers?
- Optimising benefits to poorer actors
- Certification as entry barriers

Reducing risks of global trade

- Trends to consolidation
- Continued importance of family enterprises and MSMES
- Clusters of enterprises-
 - environmental impacts
 - health management issues
 - BUT accessibility to producers

Challenges

- Increasing trust among consumers
- A 'sustainability' and 'QC' culture among producers
- Asymmetries in information flows
- Support a move away from single interest standards
- Two way responsibilities of consumers and producers