



# Current Status Of The *Pangasius* Industry In The Mekong Delta, Viet Nam

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- Dr. Nguyen Van Hao is director of the Research Institute for Aquaculture No. 2 and coordinator of Vietnam's National Mekong fisheries program.
- He has led a variety of projects to advance aquaculture in Vietnam, including programs on better management practices for catfish production and aquatic animal health strategies in sustainable aquaculture systems.
- He has a doctorate in fish physiology from the All Russian Research Institute for Aquaculture in Moscow,
- Dr Van Hao has been project leader on programs for selective breeding for *Pangasius* and carp, as well as viral disease management in shrimp.

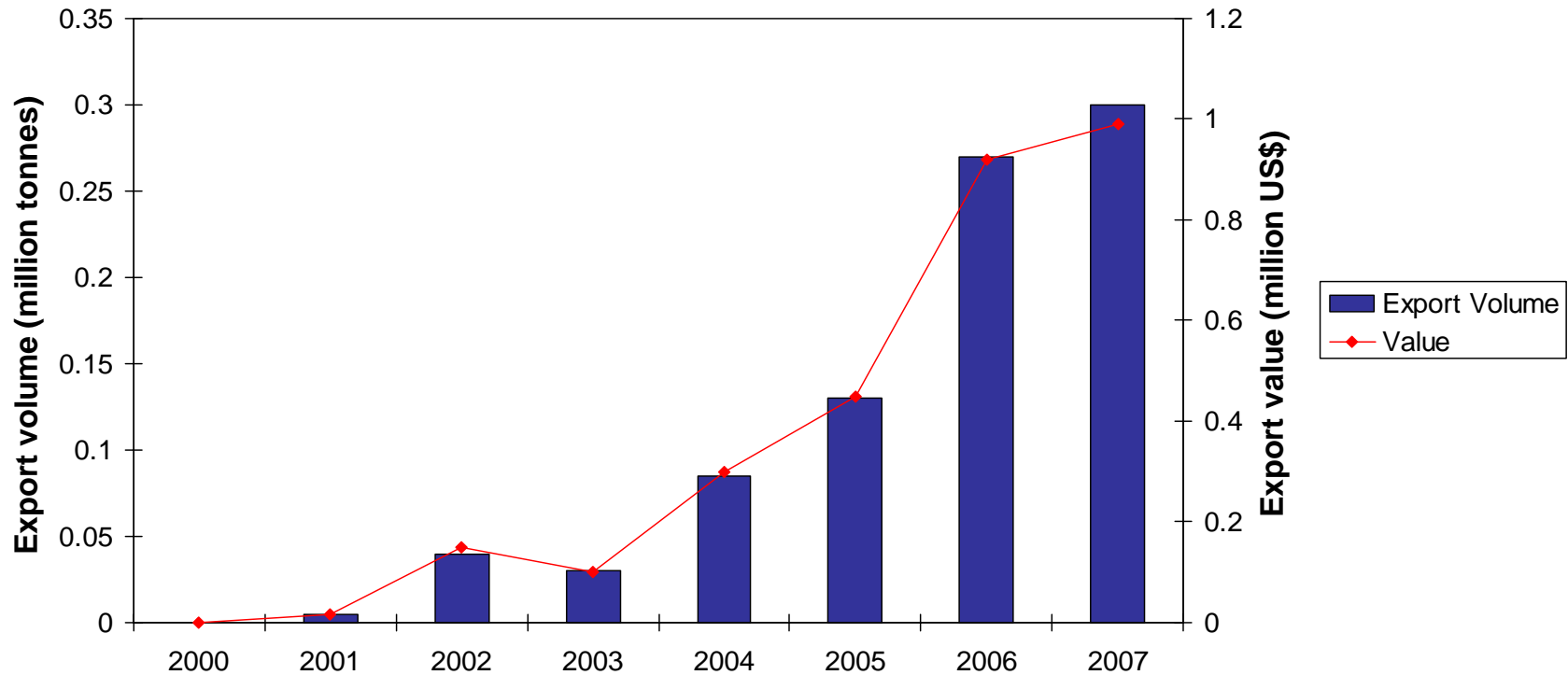


# Introduction

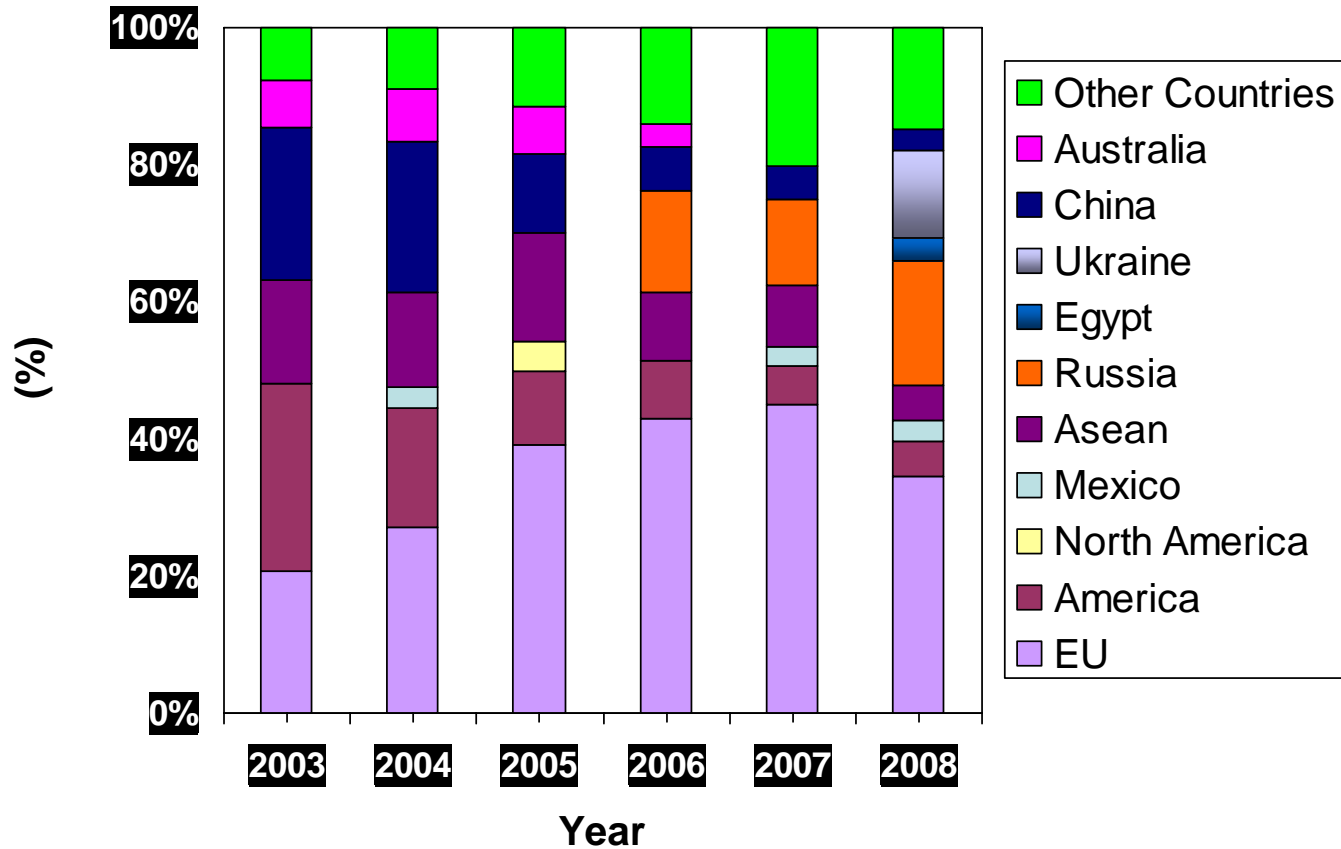
- A unique aquatic farming system.
- Production is fastest growth recorded in any aquaculture sector.
- Over 90% of the farmed catfish is processed and exported to more than 100 countries globally.
- Its acceptability and popularity is growing due to affordable “white fish.”
- Many issues on its quality and the nature of the farming system have been raised.



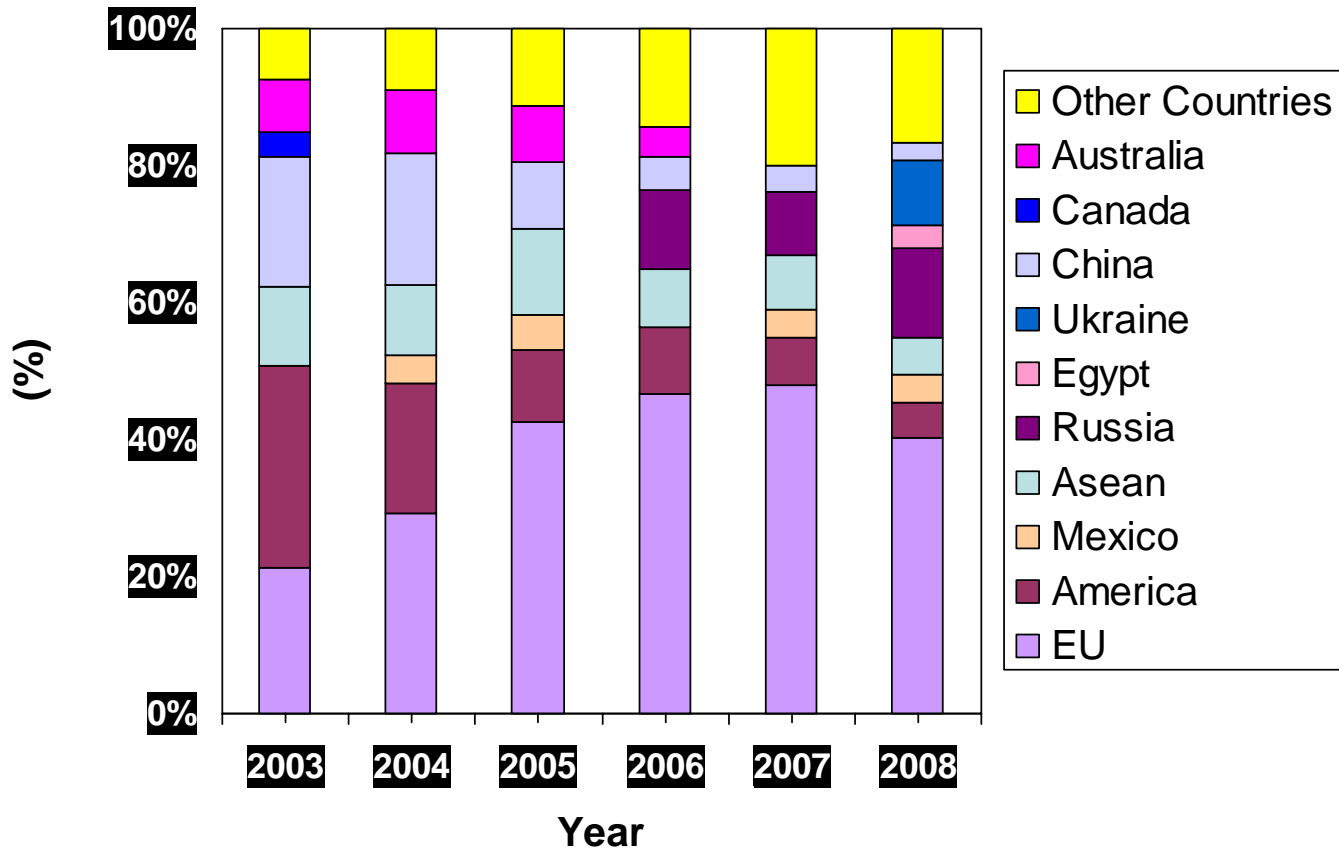
# Export Volume and Value



# Volume of Export Markets



# Value of Export Market Share



# Seed Production

- 1950's - From the wild
- 1970's - Research started
- 1990's - Widely applied
- Produce all year round
- GSI >10%
- Fecundity: 400,000 fries/female (5 kg)



# Seed Production

- Maturation age : 3 years for domesticated and 4 years for wild broodstock.
  - Re-maturation capacity: 3-4 times /year.
  - Time of broodstock exploitation: 3 -4 years.
  - Recently fingerling production:
    - Approximately 6,000 nursery farms and 150 hatcheries produce 10 billion fries (1 billion fingerlings).
    - The potential is about 50 billion fries/year.
  - Uncontrolled management of broodstocks.
  - Unhealthy seed market competition.
    - The price of fries is extremely cheap.
    - The price of fingerling is unstable and relatively low.
- No collaboration between seed and grow-out producers.





# Seed Production

- Improving seed quality.
- Breeding program designed and operated by RIA2 (2001-2008)
  - To increase growth and fillet yield.
  - Growth improved 13% per generation.
- Dissemination programme:
  - Started in 2010 to deliver 300,000 selected broodstocks to six provinces of Mekong delta.
- New breeding program for disease resistance in 2010.



# Growout Systems

- Traditional career since 1950's: Pond and cage; practice by experience; mainly for domestic consumption.
- Catfish farming operations were rarely vertically integrated.
- Catfish farm size based on relatively small holding, farmers owned, operated and managed (72% farms less than 5 ha).
- This is intensive farming system.



# Growout Systems

- Pond design is different from other farming systems, with most farms (69%) having pond water depths of 3.5 to 4.5 m
- 76% of the farms yielded 300 tons/ha/crop or more.



# Feeds and Feeding

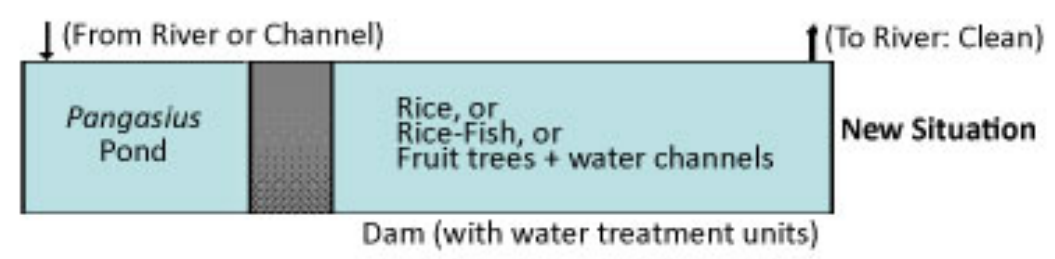
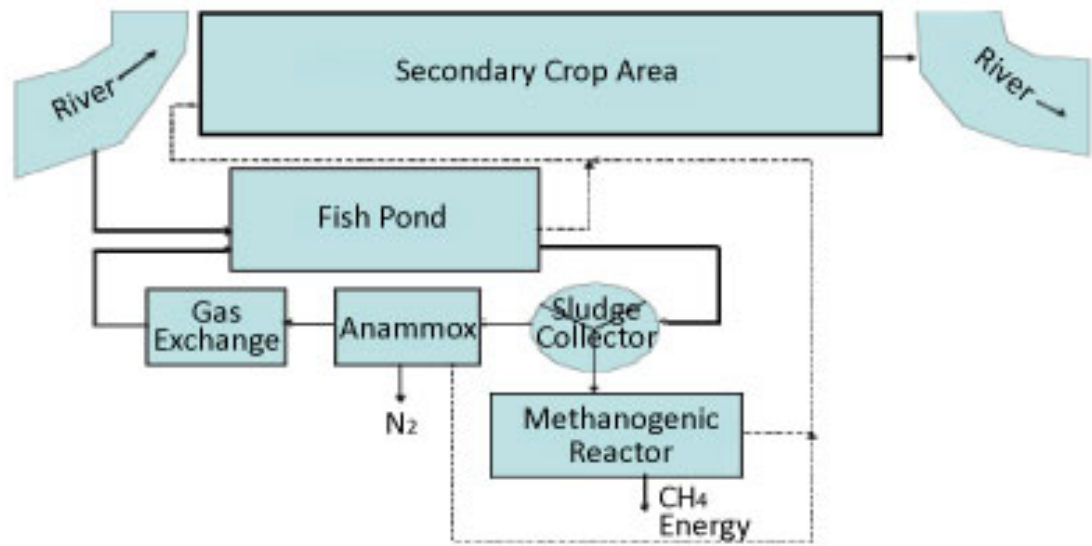
- Most farm (97%) use commercially made feeds, while 37% of farms used farm-made feed, 49% of which produced on site.
- Many international and national feed millers (40 companies) have tried to become established in the region to obtain a share of this market.
- Farmers confirm that using farm-made feeds not only resulted in a better production but also was cheaper or more cost effective.
- Culture cycle when using farm made feed is often 4-6 weeks longer than when using commercial feed.



# Environment

- The amount of water used for the production of one ton of catfish was 4,023 m<sup>3</sup>.
- Farms mainly discharged water directly to the main river (63%), primary canals (19%), or to rice fields or gardens (11%).
- Nitrogen at 47.3 kg /ton of catfish is discharged (FCR= 1.69, protein= 25%); equivalent to 70,950 tons nitrogen/ 1.5 million tons of catfish/per year.
- This is almost negligible when compared to input of other agriculture activities: 170-182 kg of plant nutrients were applied per seeded ha of paddy ( 7.48 million ha in 2000).





# Diseases

- Mortality of fish in the first week following stocking is about 7%. This was typically up to 30% during the early to mid months of the production cycle, and <10% in later months.
- BNP (Bacillary Necrosis of *Pangasius*), parasites and white gills are the more severe diseases.
- The occurrence of disease symptoms was highest in June and July, which corresponded with the onset of the wet season and increased rainfall.

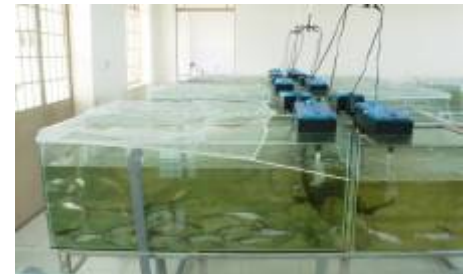




# Diseases

- Research on producing vaccines
  - Research on producing vaccines against white spot disease caused by bacteria *-Edwardsiella ictaluri* NAVESCO & RIA2- MARD 2006-2008.
  - Pathogen identification
  - Immune response to antigen
  - Determination of vaccine safety
  - Proper route of vaccination
  - Efficacy of vaccine on fish-farm level.

Parasitic and bacterial infection is common diseases of river catfish. Chemical Therapy can control these with survival 70-80 % at harvest time





# Diseases

- Prevalence of Fishborne Trematode in Mekong delta (An giang province) FIBOZOBA project, DANIDA RIA2
  - Results: 2047 fish, 7 districts
    - 3 intestinal flukes: *Haplorchis pumilio*, *H. sp.*, *Centrocestus armatus*
    - Prevalence of metacercaria:
      - 1.7% found on wild fish only (not in catfish)
      - All of them are intestinal
    - No seasonal prevalence

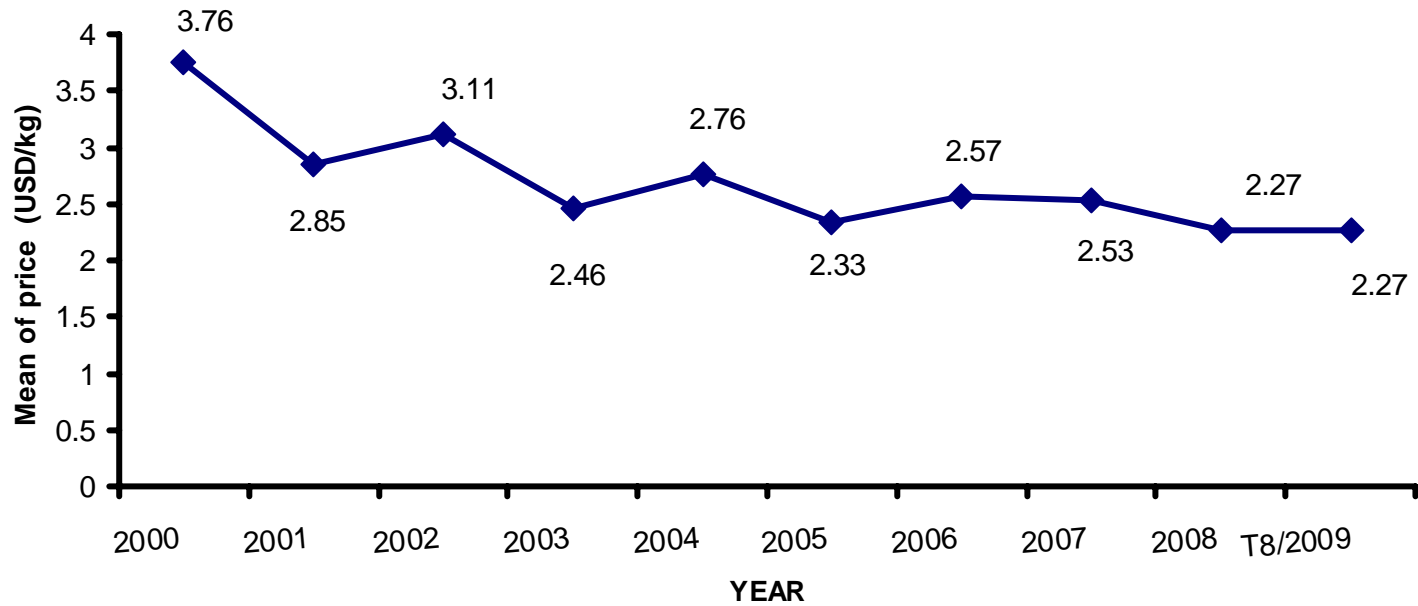


# Market

- It was rather unusual that no middlemen were involved in the marketing process.
- Of the farms surveyed, 89% accepted prior payment from the buyers, ranging from 10-50% of the total estimated selling price.
- Farmers (41%) also accepted delayed payments from the buyers, especially when there was limited demand from the processing plants.
- Most (67%) farmers indicated that the standard of living had increased since taking up catfish farming, but only 11% of farmers plan to expand their farms in the future due to unstable or low fish prices.



# Product Price



# Certification & Stabilization Activities

- The Blue Planet Label (2007) between Dutch importer (Seacon) and Navico. In 2008 Navico planned to certify approximately 300 ha of ponds to produce organic fish.
- AGIFISH establishing the “Pure *Pangasius* Union” with SGS. In 2008, the union included 120 ha (32 members) supplying between 35-50,000 MT/year.
- The Naturland standards focus on specific organic criteria. Two certified *Pangasius* farms - 900 MT/year (0.001%).
- Butler’s Choice using SA 8000 Social Accountability system and ISO 14001 with a price premium of around 20%. Only 500 MT of certified product was exported to Denmark.



# Certification & Stabilization Activities

- GlobalGAP is shifting from food quality and safety to environmental and social certification. Global GAP has opened up the development of its standard setting process to the scrutiny of NGO and industry representative in Southeast Asia.
- VietGAP being tested in 2009 with the assistance of GTZ. This standard is to focus on improving production output rather than assisting producers to incrementally improve their farming practice.



# Certification & Stabilization Activities

- *Pangasius* Aquaculture Dialogue (PAD) to develop set of certification standards that effectively address the sustainability of *Pangasius* industry. The questions still remain as to what capacities the majority of farmers will require to be certified
- Catfish BMP project (NACA, CARD, PIRVic, DPI, AusAID).



# Certification & Stabilization Activities

- BAP *Pangasius* standards released in August 2010 – currently processing applications for four *Pangasius* facilities.
- The success of certification in steering towards more sustainable production practices will depend largely on the capacity and willingness of farmers to adopt voluntary international standards.
- Success will also depend on to what extent influence can be exerted on related industry stakeholders.



# Comments & Recommendations

- The growth rate of *Pangasius* aquaculture has placed considerable pressure on policy makers at all levels.
- The government faces the challenges of balancing growth in international markets with environmental and social sustainability.
- Planning falls below the development, the dynamic and the complexity of the industry.
- Impacts to rural communities, the environment and livelihood in term of land use, ecological capacity of the Mekong River and market requirement.
- Disease outbreaks become more serious.
- Limited monitoring and management of seed quality, feed, water environment, and final product.





# Comments & Recommendations

- Conflict among stakeholders such as producers, suppliers, retailers, processing companies and exporters in term of profit sharing.
- The monopoly status of Vietnamese *Pangasius* could not be maintained for a long time.
- Farm gate prices are now extremely low - probably due to unhealthy competition between processing plants.
- Reduce the availability of raw material due to large proportion of the farmers are making losses. They stop farming.
- Request to apply high standards and quality controls by Buyers/Retailers. More investment is a big challenge, because the current farm gate price is extremely low.
- The deterioration in *Pangasius* fillet quality can impact the long term reputation of Vietnamese aquaculture products.



# Comments & Recommendations

- Harmonize the balance between production increment with environmental protection and social stability.
- Promote the cooperation between different stakeholders and line agencies for setting up a good strategic plan for catfish farming in Mekong Delta.
- To assist small and medium producers to better comply with international requirements, the Vietnamese government has developed a new Cooperative Law , with special attention to smaller scale “ production group.”
- Supply chain study for the industry.
- Vertical integrated enterprises.
- An excellent brand name of Vietnamese catfish.
- Community-base and co-management .
- To strengthen the inspection network for the whole supply chain.
- Mekong Delta Catfish Association.



# Comments & Recommendations

- Urgently needed is to determine the real potential of private governance arrangements and their compatibility with existing government regulation, and improved understanding of the willingness and capability of farmers to participate and respond to certification standards.
- Accelerate the incorporation of updated biotechnology into the industry's different components.
- Set up an effective surveillance system capable of timely and accurate detection of outbreaks.
- To develop an effective extension network to support the industry.
- Information network development at both the national and international levels.
- Strengthen international collaboration.

