White Paper on Vietnamese Pangasius Farming

Background

Farmed pangasius production began in Vietnam as far back as the 1940s using small ponds and wild caught fingerlings. By the early 1960s, small-scale subsistence cage culture was the norm primarily located directly on the Mekong River with cages often suspended below floating houses. Initially both basa (*Pangasius bacourti*) and tra (*Pangasionodon hypophthalmus*) catfish species were grown. Early pangasius feeds were homemade from trash fish, rice bran, and broken rice, which were then cooked to produce the feed. This initial production was primarily for home consumption and as supplemental household income.

Over time pangasius production systems, location, quality, and productivity have changed significantly due to several factors including deteriorating environmental condition of the Mekong River, as well as social and financial issues. Subsistence cage culture was replaced by extensive cage culture, which eventually shifted to pens (fences) and, finally, to pond-based systems, which currently represent more than 95 percent of annual production. The intensified environmental problems (water quality, flow, and diseases, etc.) in the Mekong River system was the principal driver in the switch to pond-based systems. However, over 80 percent of production is still located in the Mekong Delta, primarily the provinces of An Giang, Dong Thap, Can Tho, and Vinh Long. Several additional provinces are also producing pangasius. Most production occurs near two branches of the lower Mekong River: Tien Giang (upper) River and Hau Giang (lower) River.

Pangasius growers shifted to hatchery-produced fingerlings beginning in the early 2000s and there are currently 175 hatcheries in the Mekong Delta with a production capacity of 2.36 billion juveniles. This major shift was likely caused by two factors: a ban by the Cambodian government on the collection of wild stocks and the success of artificial propagation. Development of commercial feeds has also contributed significantly to the growth in farmed production with 98 feed mills producing 1.69 million metric tons of pangasius feed in 2010.

Development of better farming systems, hatcheries (with high-quality broodstock), and commercial feeds has resulted in tremendous growth in Vietnamese pangasius production over the past decade. Currently average production of Vietnamese pangasius per hectare is among the highest in the world at 269 metric tons per crop or as much as 500 to 600 metric tons per hectare of yearly output.
Currently there are several types of pangasius operations:

- Vertically Integrated Operations (VIO) with feed mills, hatcheries, farms, processing plants, and marketing
- Companies focused totally on large-scale pangasius farming
- Contract growers associated with processing plants – mainly small-scale household farms
- Small-scale household farms without growing contracts.

While the trend is toward more integrated operations, small-scale farms still represent the largest percentage of farms. In 2009 there were 4,416 household farms of less than 1 hectare (water surface), 812 farms between 1 and 5 hectares, and 165 farms over 5 hectares. The largest farms range up to 40 hectares in water surface. Total land area devoted to pangasius farming is approximately 6,000 to 7,000 hectares.

Advances in pangasius farming have resulted in rapid growth in production and expansion of export markets. For 2010 Vietnamese pangasius production totaled 1.14 million metric tons (2.5 billion pounds live weight).

Globally, Vietnamese pangasius has found a solid niche as a value-priced whitefish. According to the Vietnam Association of Seafood Exporters and Producers (VASEP), in 2010 Vietnam exported 659,000 metric tons of pangasius worth US $1.43 billion to 140 markets worldwide. A 7.4-percent increase in volume and a 5.2-percent increase in value. The European Union (35.8%), United States (12.4%), and ASEAN (Association of Southeast Asian Nations) countries (5.5%) were the leading markets.

While the EU is the leading pangasius market, the United States is the leading import country with 49,000 metric tons imported in 2010 worth US $176 million. Pangasius now ranks tenth in per capita seafood consumption in the United States.

**Sustainability**

While Vietnamese pangasius has gained a strong position in the EU and US markets, it has not been without controversy over food safety, quality, and sustainability. In early 2011 the World Wildlife Fund (WWF) in Germany gave Vietnamese pangasius a “red” rating. Additionally, WWF Germany created a
documentary of the pangasius industry, which suggested that contaminated and untrusted aquaculture products from the fishery were sold in Europe.

The Senior Vice President of the European Parliament’s Fisheries Committee initially called pangasius farming a “dirty, unhygienic, and polluted business.” However, after a tour of Vietnamese pangasius operations he recanted most of his negative remarks.

When initially introduced into the United States, pangasius was marketed under a variety of names including white roughy, white bacourti, basa, tra, and catfish. While some of these market names, such as white roughy, were ultimately not allowed by the US Food and Drug Administration (FDA), the use of “catfish” as a species identifier was made illegal though an act of Congress supported by the US Catfish Farmers Association (CFA). Fighting to protect their market share, the CFA also questioned the quality and sustainability of Vietnamese pangasius and eventually filed an anti-dumping suit against imported pangasius. The suit was upheld and tariffs imposed on pangasius imports from Vietnam.

While the Monterey Bay Aquarium Seafood Watch Program rates domestic catfish as a “best choice,” imported catfish is listed as a “good alternative.” However, the Seafood Watch rating is based upon a 2005 report (updated in December 2007), which lists cage culture as a major concern (although almost no cage culture is conducted currently). In addition, the rating cites concerns over management of pangasius farming as another issue which likely has caused pangasius not to get a “best choice” rating.

Currently there are two internationally accepted standards for pangasius: GLOBALG.A.P (based in Europe) and GAA/BAP (Global Aquaculture Alliance/Best Aquaculture Practices). As of mid-2011 there are 45 Vietnamese pangasius farms certified under GLOBALG.A.P standard, while only one farm was certified under the BAP standard. However, there were also two processing plants certified under BAP standard. By mid-2011, the Aquaculture Stewardship Council (ASC) standard (Pangasius Aquaculture Dialogue, or PAD) had nearly completed their certification system but had not identified auditors qualified to conduct audits under the standard. It has been reported that a number of audits are pending but waiting to comply with the ASC requirement that records be maintained for 6 months prior to certification.

Vietnam has also recently announced that pangasius farms will be required to meet the agriculture standard VietGAP, which will be available free and mandatory for all farms. It is thought this will be a “threshold level” standard and not a replacement for the recognized international certifications and ecolabels.

**Sustainability Issues in Pangasius Farming:**

1. **Farm effluents**

One of the major issues in any farming activity is farm effluent as it directly affects the quality of the water in the natural environment. Although treatment
ponds are required by the national government, many pangasius producers do not have treatment ponds. However, there are some that show the allocation of a treatment pond but most of the time this pond is also being used for production. Direct intake and discharge to and from the natural water bodies is the common practice by most producers. With the amount of fish being produced in the region, the amount of feeds and other nutrients being dumped into the system might be more than double the amount of the fish produced. This practice needs to change in order to mitigate the negative impact of the effluents to the river’s catch basin.

Direct intake of water from the river may also post serious problem in the production system. There are various activities going on in the upper part of the Mekong River (agricultural, industrial, households, etc.). These activities could potentially affect the quality of the water being used by pangasius farmers.

2. Diseases and Antibiotic use
Antibiotics are still commonly used in pangasius farms, though this practice is not documented. Although results of the monitoring conducted by SFP from 2007 through 2009 showed an insignificant amount of residue, this issue still needs to be examined and monitored. It is still evident that producers are using drugs and antibiotics and, in some cases, the sources of these chemicals are not traceable. SFP must address the issue of transparency as well as limiting the use of these chemicals.

3. Feed sourcing and feed efficiency
SFP is also trying to address this industry’s feed issue, in terms of both sourcing and efficiency. SFP will work with key players in the pangasius feed industry in order to collect information on the sources of feed ingredients, particularly fishmeal. Feeding efficiency should also be monitored and improved. Fishfeed is one of the biggest investments in the pangasius industry and it also one of the contributors to the deterioration of water quality.

4. Economics
The market has dictated the success of the pangasius industry for the past decade. The price of the product has been erratic and it has directly affected the growth of the industry. Several pangasius operators have abandoned their farms already, as they cannot accommodate the varying trends in the market. Most of the farms that are still operating and gaining profit are those that are vertically integrated or have a close relationship with the processing plants. Although the government is already taking some measures to protect the industry (i.e., setting a ceiling rate for the farm gate price), there are still many farms that cannot keep up with the growing industry.

Regional Aquaculture Impacts and Issues
The rapid growth in pangasius farming in Vietnam, coupled with the high rate of production per hectare (400 – 500 mt) and the number of small farms involved, presents the potential for regional and cumulative adverse environmental
impacts and may not be identified by monitoring individual farms. The impact of the effluents from a single farm may be insignificant if we compare it to thousands of producers in the area. Additionally, improvement in the management of a single farm in an aquaculture region may have no significant bearing on the improvement of the larger surrounding environment, considering the size of the region. Hence, regional management and improvements are necessary in order to fully address the issues introduced by pangasius farming.

**SFP’s Role in Vietnamese Pangasius Aquaculture**
SFP has been working in Vietnam since 2007 to develop a better understanding of the current state of pangasius aquaculture with an emphasis on potential environmental issues. SFP has also implemented a benchmarking project to conduct farm audits against the current international standards to identify how the standards’ criteria are aligned and where they differ. During this period, SFP has been in close collaboration with Can Tho University/College of Fisheries and Aquaculture and very recently with ICAFIS (International Collaboration Center for Aquaculture and Fisheries Sustainability). Together with SFP, these two organizations are working to promote responsible farming, as well as addressing the existing issues in the pangasius industry.

**1. Water quality research with Can Tho University**
Research – SFP implemented monitoring of water effluents of pangasius farms in the region. Findings on this research indicated that some farms in the region are exceeding both the national regulations and the existing international standard. The result of this research was presented to stakeholders during a workshop in Can Tho. Furthermore, the information generated in this research was shared during the development of standards for the water quality on ASC PAD standard. SFP will carry out relevant research to identify science-based solutions to address sustainability issues in the pangasius industry.

**2. Measuring Regional Environmental Impact Workshop**
SFP, in collaboration with ICAFIS, conducted a workshop called “Measuring the regional-level ecosystem impact of aquaculture.” The objective of this workshop was to assess several assessments conducted in the pangasius industry/aquaculture farms and to develop a checklist that can be used in assessing the environmental impact of pangasius farms. This checklist will include all aspects of the industry, as well as the surrounding environment, to ensure coverage of the cumulative impact of aquaculture. Additionally, output of this workshop will be used in other AIP regions of SFP.

During the workshop, the limitations and weaknesses of the different assessments reviewed were highlighted. Participants of this workshop developed recommendations and a checklist for doing similar assessments in other aquaculture regions.

**3. Pangasius Farming Standards benchmarking**
SFP led the implementation of the field-based comparison of the three main pangasius standards (ASC, GLOBALG.A.P, and GAA/BMP) in 12 farms. These
farms are located in all pangasius-farming areas in the southern part of Vietnam (Can Tho, Vinh Long, An Giang, and Dong Thap). This exercise is expected to be complete by the end of July 2011. The report on this exercise is expected to be complete by September 2011. This exercise included a wide range of production scale, from small-scale producers to vertically integrated producers in the region. This benchmarking will provide information on the commonalities of the different standards and will also identify the common non-compliances in the region. The results of this benchmarking activity will be used by SFP in its harmonization or equivalency work on aquaculture standards. Additionally, results of this comparison can be used to influence both producers and buyers to work together in addressing the sustainability issues. This will also contribute to the AIP implementation.

4. Aquaculture Improvement Project (AIP)

The primary aim of an SFP aquaculture improvement project (AIP) is to reduce or mitigate the potential cumulative and combined impacts of pangasius farming practices that can arise from poor water usage practices, over-density of farms, inappropriate zoning/siting, inefficient feed management, and insufficient coordination of disease incidences and treatments. AIPs can also serve as forums in which farmers share lessons learned regarding better practices and can work together to press for improvements in other sectors that impact their operations, such as non-point source pollution from upstream agriculture or industry.

The Vietnamese pangasius AIP is not a standard or certification process but will work with both certified and uncertified farmers within a designated region. Unlike SFP’s fishery improvement projects (FIPs), where there is a final phase where the fishery achieves MSC certification or verification that it meets the MSC standard for sustainability, an AIP, once organized, may eventually be integrated into a regional aquaculture management plan that includes ongoing aquaculture monitoring and continuous improvement through better aquaculture practices as they apply to regional impacts. The ultimate goal of an AIP is not to certify all producers in the region, but to get farms to a certifiable level in terms of management practices in farming pangasius.

Major activities under the Vietnamese Pangasius AIP:

- **Awareness campaign on sustainability issues and recommendation**
  SFP is continuously increasing the awareness of the producers in the southern part of Vietnam regarding sustainability issues through meetings/seminars and workshops. SFP is also doing a communicating one on one with several producers to inform them of the existing sustainability issues in the industry.

- **Networking with responsible producers**
  SFP continues to play a role in facilitations between responsible producers, input providers, and, most importantly, responsible buyers.
This activity will continue through one-on-one communication, site visits, meetings, and conferences.

- **Continuous monitoring of the industry through site visits**
  One of SFP’s advantages in terms of monitoring the industry is its local networks and coordinator. SFP has a coordinator based in Can Tho, one of the provinces where pangasius is being cultured. Through the local coordinator and SFP’s relationship with Can Tho University, monitoring is easier to accomplish.

- **Capacity building for important players in the industry**
  SFP also provides technical assistance to build the capacity of important players in the industry (producers, input providers such as feed millers, processors, etc.). SFP has been researching the existing issues in the industry and will use its results to advise the industry. SFP is also forming a science advisory group for the industry to offer science-based advice on sustainability issues in the industry.