Considerations on the policy environment for aquaculture in Vietnam

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1. Introduction
2. Issues related to lands, forests, water, and NARs
3. Finance and investment
4. Seed (Supply, use and management)
5. Feed (Supply, use and management)
6. Chemicals/drugs (Supply, use and management)
7. Marketing, processing & quality of products
Production of aquatic products from capture & aquaculture of Vietnam

(MoF, 1990-2007)
Unsuccessful level of shrimp & P. catfish farming in the MKD
(Sinh & ctv. 2006; Sinh & Nga, 2005; Sinh, 2007; and MOF, 2007)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shrimp farms (%)</td>
<td>9.4</td>
<td>54.1</td>
<td>30-50</td>
<td>25-35</td>
<td>~ 30</td>
</tr>
<tr>
<td>Catfish farms (%)</td>
<td>-</td>
<td>-</td>
<td>23</td>
<td>23.6</td>
<td>~ 40</td>
</tr>
</tbody>
</table>
TREND & MAJOR ISSUES

2. Diversification: systems & species.
3. Higher intensive level (shrimp) & Cage => Pond culture (catfish).
4. Cumulative pollution & Disease problems.
5. Increasing production costs & Decreasing of net profits.
6. WTO integration process & Marketing problems/Price fluctuation.
7. More concerns on the quality of seed and products.
8. More concern on the env’tal and social impacts (water, conflicts).
Protected/Buffer/Economic zones?
Where is for shrimp?
Rate of mangroves/water? 7/3, 6/4, 5/5, ???
Rotation of rice & shrimp?
• Profits from shrimp? 200,000 ha for shrimp.
• Food/rice security? 100,000 ha for rice.
Conversion of fertile lands & fruit tree gardens into fish ponds without planning & management:

=> Food security, pollution, conflicts, marketing.
Sea culture/ Clam culture & certificate of land use rights
Impacts of irrigation systems & spread of oil spills in Bentre province (Sinh et al., 2007; Tấn Vũ & Hùng Anh; 3/2007)

Impacts of tourism in Cangio & problems caused by clam robbers in Kiengiang (2007)
### Projected investment for fishery sector by 2010 (bil. VND)

(Vietnam’s Economic Times, 13/05/2002)

<table>
<thead>
<tr>
<th>Sources &amp; distribution</th>
<th>Plan 1</th>
<th>Plan 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Government budget</td>
<td>11,767</td>
<td>15,948</td>
</tr>
<tr>
<td>2. Credits</td>
<td>11,677</td>
<td>15,857</td>
</tr>
<tr>
<td>3. Other sources</td>
<td>10,406</td>
<td>14,586</td>
</tr>
<tr>
<td><strong>Total budgets</strong></td>
<td><strong>38,637</strong></td>
<td><strong>51,180</strong></td>
</tr>
<tr>
<td>Of which: + Infrastructures</td>
<td>33,850</td>
<td>46,393</td>
</tr>
<tr>
<td>+ Extension</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>+ Research &amp; application</td>
<td>2,316</td>
<td>2,316</td>
</tr>
<tr>
<td>+ Export program</td>
<td>2,370</td>
<td>2,370</td>
</tr>
</tbody>
</table>

- Agriculture including fishery sector received 2-3% of total FDI of VN.
- MKD received about 8-9% of total FDI investment of VN.
High level of investment for commercial aquaculture!

### Number of borrowers and amount of loans for aquaculture in Angiang

<table>
<thead>
<tr>
<th>Description</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>Jul 05</th>
<th>Jun 08</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of borrowers (farmers)</td>
<td>7,788</td>
<td>7,396</td>
<td>8,216</td>
<td>7,276</td>
<td>?</td>
</tr>
<tr>
<td>Value of loans (VND billion)</td>
<td>188.2</td>
<td>261.0</td>
<td>297.6</td>
<td>304.0</td>
<td>?</td>
</tr>
<tr>
<td>Overdue (VND billion)</td>
<td>2.6</td>
<td>22.6</td>
<td>2.6</td>
<td>12.8</td>
<td>30-40%</td>
</tr>
</tbody>
</table>


### Number of borrowers and amount of loans for aquaculture in Camau

<table>
<thead>
<tr>
<th>Description</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of borrowers (farmers)</td>
<td>51,720</td>
<td>52,930</td>
<td>53,600</td>
</tr>
<tr>
<td>Value of loans (VND billion)</td>
<td>1,020</td>
<td>1,056</td>
<td>1,233</td>
</tr>
<tr>
<td>Overdue (VND billion)</td>
<td>15-20%</td>
<td>20-25%</td>
<td>20-25%</td>
</tr>
</tbody>
</table>

*Source: The Bank of A&RD, Camau province (2008).*
<table>
<thead>
<tr>
<th>System</th>
<th>No loans</th>
<th>With loans</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Intensive/Semi-Int.</td>
<td>52</td>
<td>43.7</td>
<td>72</td>
</tr>
<tr>
<td>Mono-extensive</td>
<td>45</td>
<td>57.7</td>
<td>47</td>
</tr>
<tr>
<td>Shrimp-rice</td>
<td>29</td>
<td>56.9</td>
<td>53</td>
</tr>
<tr>
<td>Shrimp-crab</td>
<td>38</td>
<td>43.7</td>
<td>44</td>
</tr>
<tr>
<td>Shrimp-mangrove</td>
<td>11</td>
<td>52.4</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>175</td>
<td>49.2</td>
<td>225</td>
</tr>
</tbody>
</table>

From the middle of 2008, about 500,000 tons of over-size P. catfish available, but still be kept in ponds. The processing plants can process about 50,000 tons/month, only. The farmers are difficult to sell the fish, if they can then they will be paid by processors after the harvest 1.5-3 months (1,000 bil. VND are available but processors do not want to borrow!)
Registration of the hatcheries & design for water treatment.

Site setting & reproduction techniques.

Seasonality of supply of & demand for seed.

Sources & use of broodstocks & protection of natural aquatic res.

Checking the quality of broodstocks.

Quality checking & management of seed trading.
Environmental impacts (> 3 mil. tones of wastes/yr from P. catfish farming)

Inappropriate management & Inefficient enforcement:

=> Pollution, conflicts, quality.
### Frequency of shrimp disease occurrence by farming systems (Stirling-CTU-RIA2, 2006)

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Shrimp farming system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intensive</td>
</tr>
<tr>
<td>White spot disease</td>
<td>90.57</td>
</tr>
<tr>
<td>Red-body disease</td>
<td>28.30</td>
</tr>
<tr>
<td>Yellow head disease</td>
<td>27.36</td>
</tr>
<tr>
<td>White feaces disease</td>
<td>31.13</td>
</tr>
<tr>
<td>Black gill disease</td>
<td>10.38</td>
</tr>
<tr>
<td>Bacteria infection</td>
<td>9.43</td>
</tr>
</tbody>
</table>
Occurrent frequency of fish diseases (Sinh et al. 2005)

1. Bacillary necrotic in Pangasius (BNP)
2. Haemorrhage disease
3. Parasite in Pangasius
4. Jaundice
5. Intestime damage
6. Pop-eye
7. Columnariss disease
8. Epizootic Ulcerative Syndrome (EUS)
9. Monogenean disease
10. Fish swimming around the front of cage
11. Swollen of kidney
12. Fungal disease

(Đức Vinh, 2006)
From 1998-2005, underground water level decreased 15 m in Baclieu coast.

### Reasons for increasing the use of chemicals/medicines
(% of the No. of farmers; *Sinh & Nga, 2005*)

<table>
<thead>
<tr>
<th>Reason</th>
<th>2003-2004</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>More culturists</td>
<td>20,0</td>
<td>44,5</td>
</tr>
<tr>
<td>Long treatment time/quality of medicines</td>
<td>12,0</td>
<td>19,5</td>
</tr>
<tr>
<td>More fish infected</td>
<td>44,0</td>
<td>13,9</td>
</tr>
<tr>
<td>Changes in weather</td>
<td>20,0</td>
<td>11,1</td>
</tr>
<tr>
<td>Higher stocking density</td>
<td>4,0</td>
<td>11,1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100,0</td>
<td>100,0</td>
</tr>
</tbody>
</table>
Marketing channels for black tiger shrimp in the mKD (Sinh, 2006) (7.959,6 kg/ Int. & S-Int. farms; 706.5 kg/ Ext. farm).

- Marketing efficiency => shorter marketing channels are better.
- % of total production lost during the marketing => grading & quality?
Seasonality in the supply of postlarvae & raw shrimp
(Sinh, 2004; Sinh & Phüong, 2006)

Price of Postlarvae (by Lunar month)

(Sinh., 2004).

Price in the MKD
Price in the Central

Extensive-2004
Extensive-2005
In/SI-2004
In/SI-2005
Harvest, transport, preservation & processing

=> Time (15-25hrs/holder), loses, quality?
Shrimp prices Japan and USA
(Helga Josupeit, GLOBEFISH, 2004)

Representative Shrimp Prices

US$/lb

Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
Recognition & impacts of the US antidumping in 2004 (Sinh, 2006):

- Recognised by 84.7% of farmers, 97.4% of traders and 100.0% of processors/exporters.
- Resulted in a decrease of shrimp price and an increase of trade barriers.
- Negative impacts on 69.0%, 73.7% and 100.0% of the number of respondents of these 3 groups, respectively.

The most important solutions (Sinh, 2006):

1. to save the production and marketing costs,
2. to improve the quality of shrimp,
3. to increase the proportion of value added products for export.
4. to harvest bigger shrimp
5. to improve the linkage between different stakeholders
6. to obtain a better understanding on the international trade/laws & markets.
Marketing of Tra fish cultured in the Mekong Delta (Son, et al., 2003)

Markets for Vietnam's Tra/Basa production (MoF, 2000-07)

End Users (international markets)

End Users (domestic markets)

Markets for Vietnam's Tra/Basa production (MoF, 2000-07)

Domestic markets: quantity, types, quality?
The 8 principles for responsible shrimp farming (NACA, 2006)

- Farm Siting
- Farm Design
- Water Use
- Broodstock and Postlarvae
- Feed Management
- Health Management
- Food Safety
- Social Responsibility

The 8 principles for Pangasius aquaculture (PAD 2007-08)

- Legal Compliance
- Land & Water Use
- Water pollution & Biodiversity
- Feed Management
- Health Management
- Antibiotics/Chemicals
- Social Responsibility/User conflicts
Successful level of shrimp farms (Sinh et al., 2005)

- Int/S.int: 80.0%
- Mono-Ext: 66.7%
- Shr-Mang: 75.6%
- Sh-Mg-Crab: 85.9%
- Sh-Mg-Cr-Oth: 71.4%
- Average: 80.6%

<table>
<thead>
<tr>
<th>Percentage (%)</th>
<th>Int/S.int</th>
<th>Mono-Ext</th>
<th>Shr-Mang</th>
<th>Sh-Mg-Crab</th>
<th>Sh-Mg-Cr-Oth</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive prof. (+)</td>
<td>80.0</td>
<td>66.7</td>
<td>75.6</td>
<td>85.9</td>
<td>71.4</td>
<td>80.6</td>
</tr>
<tr>
<td>Negative prof. (-)</td>
<td>20.0</td>
<td>33.3</td>
<td>24.4</td>
<td>14.1</td>
<td>28.6</td>
<td>19.4</td>
</tr>
</tbody>
</table>

Successful level of shrimp farms (Sinh et al., 2005)
• White leg shrimp (*Litopenaeus vanamei* or *Penaeus vannamei*) is easier to cultured, higher yield, shorter crop duration, lower costs and lower price.

• Ministry of Fisheries (MOF) banned the reproduction and culture of white leg shrimp (*Litopenaeus vanamei* or *Penaeus vannamei*) from 2003. The reasons were the concern on illegal import of broodstocks & PL & diseases.

• MARD issued the article 228/CT-BNN-NTTS/25 Jan 2008 on the development of farming white leg shrimp to diversify species and products.

• The standard ”28 TCN 191: 2004 Shrimp farming area – Conditions for food safety”, Degree 02/2004/QĐ-BTS/14 Jan 2004 by MOF) is applied to the hatcheries/farms for white leg shrimp in the planned areas. Hatcheries in the MKD: designed capacity ≥ 500 mil. PL15/yr, but 50% in the Central region.
Catfish in cage => Red tilapia, Silver barb,....
Reasons for farming organic shrimp (Sinh et al, 2008):
- Lower costs, easy to culture, less risky (63.8%)
- Stable and higher price, easy to sell (57.1%)
- Better profit level (49.8%)
- Better results and more sustainable (10.2%)

Solutions (Sinh et al, 2008):
(i) Appropriate planning and zoning;
(ii) More supportive policies/regulations for the whole marketing chain;
(iii) More training on organic shrimp, both reproduction & grow-out;
(iv) To buy and to process different sizes of organic shrimp;
(v) Better marketing promotion;
(vi) Study of applicable rate of mangroves;
(vii) Diversification of species in the grow-out systems.
62.7% of the farmers know about the techniques of farming clean fish. 40.3% of the number of applicants => the quality of fish is better, fish is easier to sell. Also higher price, less diseases, less chemicals/drugs used.

**Difficulties:**
- Not really familiar with the technique;
- Lack of technical knowledge;
- Higher production costs.

**Solutions:**
- Appropriate planning and zoning;
- More training on reproduction and grow-out (SQF 1000CM, GAP, BMP);
- More care is given to the seasonality of production;
- Better financial support/loans.
Improvement of the linkages for development of fishery sector
(Sinh, 2006)

- Important integration & linkage of aquaculture with Capture/protection of NARs
- Marketing & Processing ↔ Supportive services.
- Better stakeholders’ cooperation ↔ Participation of farmers into the shared comp.
Complete horizontal linkage in P. catfish industry
(Nguyen Huu Dzung, VASEP, 2008)

**Services:**
- Seed
- Feed
- Medicines

**Grow-out farms**
- Major input supply

**Processors & Exporters**
- Raw material supply

**BANK**

**INSURANCE**

**CERTIFICATE**

*Cont. 1*

*Cont. 2*

*Cont. 3*

*Cont. 4*

*Cont. 5*
Thank you very much for your attention & comments!