Changed Scenario of trade of Shrimp in India: Needed Policy Measures

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Introduction

- Fisheries – a sunrise sector

- Recorded faster growth than crop & livestock sectors (Kumar et al., 2006)

- Recognized as a powerful income & employment generator as it stimulates a no. of subsidiary industries

- Fish- a key ingredient in the global menu, a vital factor in the global environmental balance and a basis for livelihood worldwide (World Fish Center, 2000)

- Fish – source of cheap and nutritious food, besides being a Forex earner (Ayyappan & Krishnan, 2004)
Introduction (contd...)

- Global demand - doubled within the last decade - US $ 49.32 billion

- Past 25 years, growth rate of total fish production was 4.60%; of which marine fish production was 3.24% and inland fish production was 6.20%

- India – 3rd largest producer of marine fish & 2nd largest producer of freshwater fish in the world

- Current policies of the government also favour the enhancement of fish production to about 10 million tonnes by the end of XI FYP

- Likely increase in fish production, the necessity of developing an efficient marketing system assumes great importance
## Fish Production and Trade: The Global Scenario, 2005

<table>
<thead>
<tr>
<th>Country</th>
<th>Capture production</th>
<th>Aquaculture production</th>
<th>Exports</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>China &amp; Hong Kong</td>
<td>18.2</td>
<td>32.7</td>
<td>9600</td>
<td>6400</td>
</tr>
<tr>
<td>India</td>
<td>3.5</td>
<td>2.8</td>
<td>1600</td>
<td>100</td>
</tr>
<tr>
<td>Japan</td>
<td>4.1</td>
<td>0.7</td>
<td>1300</td>
<td>14400</td>
</tr>
<tr>
<td>USA</td>
<td>4.9</td>
<td>0.5</td>
<td>4200</td>
<td>12000</td>
</tr>
<tr>
<td>EU$</td>
<td>5.7</td>
<td>1.3</td>
<td>19400</td>
<td>32700</td>
</tr>
<tr>
<td>World</td>
<td>93.3</td>
<td>48.1</td>
<td>78400</td>
<td>81500</td>
</tr>
</tbody>
</table>

1Live weight equivalent; 2 Including intra-trade
Fish Trade: Export Vs Domestic

- Total fish production in India (2006-07) – 6.87 million tonnes
  - Quantity exported - 9%
  - Quantity available for domestic market - 91%
- While the export market has received the maximum attention, the domestic marketing has not received its due care.
  - neither efficient nor modern and is mainly carried out by private traders
- Newer models of Supply Chain Management
- Challenging issue - How to involve small and poor fisher folks in this process?
Historically, it is in private hands and highly unregulated; Intervention of govt. is minimal, except licensing the fishing vessel, creation of some infrastructures, giving subsidies for tool kits etc.

Physical facilities and infrastructure in all types of fish markets are far from satisfactory (FAO, 2001)

Problems in fish marketing include high perishability, bulkiness of material, high heterogeneity, high cost of storage and transportation, no guarantee of quality and quantity of commodity (Ravindranath, 2008).

Other problems
- Difficulty in assembling from too many production sites.
- Wide spatial and temporal variations in market arrivals and prices.
- Lack of information on fish price.
- Restricted entry into auctioning and wholesale trading.
Export Marketing

- Capture fisheries account for a lion's share of India’s exports of fishery products.
- Marine products is the largest foreign exchange earner for India.
- Marine products constitute around 13 per cent of India’s total agricultural exports (in value terms).
- Majority of Indian fisheries products are exported to various South East Asian markets, Japan, and European Union.
- The export basket of fishery products is changing over the years.
Marketing at Different Stages

- Primary production / Landing Sites
  - Marine Fish Landing Centre
  - Reservoir sites
  - Ponds
  - River Banks
  - Open waterbodies
- Wholesale Markets
- Retail Markets
- Retail Outlets
Marketing & Trade of Shrimp

• Shrimp - major constituent in the export basket of marine products
• *Penaeus monodon* – major species exported in various processed forms
• Early 90’s - White Spot Syndrome Virus infection made our prime competitors China, Thailand & Vietnam to switch over to *P. Vannamei*

This led to

• Crash in export price of India’s shrimp
• Opened up a new opportunity of exploring domestic market especially among the growing middle-class and the consuming population of high value food products

This paper studied the growth and instability of marine products in India, their supply channels, fishery trade & WTO negotiations, price behaviour & price spread in order to sustain the international trade as well as promote the domestic marketing of shrimp in the changed market scenario
Data & Methodology

- Both primary and secondary data were used

- Primary data (2008) - AP, TN, Kerala and Delhi

- Information collected –
  - Fish prices
  - Quantities traded
  - Marketing functions
  - Marketing costs
  - Marketing margins
  - Monthly price data (1998 to 2007) of important marine fish species

- Analysis done –
  - Price spread
  - Compound growth rate for shrimp exports and instability in prices (Cuddy-Della index)
  - Price transmission
Results & Discussion

Composition of India’s Agricultural Exports: 2006
Global Fishery Imports: 2006

- USA: 15%
- EU: 42%
- Japan: 15%
- China & Hong Kong: 8%
- Others: 20%
- India: 0%
## Commodity-wise Performance of Marine Products Exports from India

*(Qty: Million tons; Value: Rupees crores)*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qty</td>
<td>Value</td>
<td>Qty</td>
<td>Value</td>
</tr>
<tr>
<td>Fr. Shrimp</td>
<td>95.7</td>
<td>2356.8</td>
<td>137.4</td>
<td>4506.0</td>
</tr>
<tr>
<td>Fr. Finfish</td>
<td>100.1</td>
<td>372.2</td>
<td>270.7</td>
<td>1452.8</td>
</tr>
<tr>
<td>Fr. Squid</td>
<td>45.0</td>
<td>319.5</td>
<td>55.7</td>
<td>797.3</td>
</tr>
<tr>
<td>Fr. Cuttlefish</td>
<td>33.8</td>
<td>260.8</td>
<td>47.2</td>
<td>568.3</td>
</tr>
<tr>
<td>Dried items</td>
<td>7.4</td>
<td>44.2</td>
<td>24.3</td>
<td>183.1</td>
</tr>
<tr>
<td>Live items</td>
<td>1.7</td>
<td>31.3</td>
<td>2.4</td>
<td>64.0</td>
</tr>
<tr>
<td>Chilled items</td>
<td>2.7</td>
<td>26.0</td>
<td>7.2</td>
<td>117.3</td>
</tr>
<tr>
<td>Others</td>
<td>9.6</td>
<td>89.9</td>
<td>67.5</td>
<td>674.3</td>
</tr>
<tr>
<td>Total</td>
<td>296.2</td>
<td>3501.1</td>
<td>612.6</td>
<td>8363.5</td>
</tr>
</tbody>
</table>
## Commodity-Wise Growth and Instability in India’s Marine Products Exports: 1995-96 to 2005-06

<table>
<thead>
<tr>
<th>Market</th>
<th>CGR (%) Export Quantity</th>
<th>CGR (%) Export Value</th>
<th>Instability Index Export Quantity</th>
<th>Instability Index Export Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr. Shrimp</td>
<td>3.90</td>
<td>2.59</td>
<td>4.60</td>
<td>9.76</td>
</tr>
<tr>
<td>Fr. Finfish</td>
<td>4.46</td>
<td>5.04</td>
<td>24.31</td>
<td>22.53</td>
</tr>
<tr>
<td>Fr. Squid</td>
<td>2.79</td>
<td>5.41</td>
<td>2.61</td>
<td>4.42</td>
</tr>
<tr>
<td>Fr. Cuttle fish</td>
<td>3.62</td>
<td>4.81</td>
<td>6.17</td>
<td>6.45</td>
</tr>
<tr>
<td>Dried items</td>
<td>8.81</td>
<td>13.29</td>
<td>13.81</td>
<td>12.40</td>
</tr>
<tr>
<td>Live items</td>
<td>3.16</td>
<td>3.92</td>
<td>8.48</td>
<td>10.93</td>
</tr>
<tr>
<td>Chilled items</td>
<td>8.94</td>
<td>11.01</td>
<td>15.00</td>
<td>20.27</td>
</tr>
<tr>
<td>Others</td>
<td>20.40</td>
<td>17.09</td>
<td>6.85</td>
<td>15.67</td>
</tr>
<tr>
<td>Total</td>
<td>5.16</td>
<td>4.19</td>
<td>9.63</td>
<td>10.69</td>
</tr>
</tbody>
</table>
• Indian shrimp - *Penaeid* - exported from Maharashtra & Kerala; Cultured black tiger shrimp from West Bengal & AP

• Despite quantity increase, share declined considerably; Relative shift - finfish and diversification of the export basket

• Frozen shrimp - largest exported item; Trade destinations - EU, Japan & USA

• Threat to India from the *Vennamei* shrimp exports originating mainly from the East Asian and, Central and South American countries

• India’s export basket - dent towards low-value exports routed to South East Asian and Middle East countries at the expense of premium priced shrimp

• Plummeting prices worked against shrimp trade
WTO & Fish Trade

- Fish & fishery products not covered under AoA

- **Doha round negotiations on improved market access for fishery imports** is included in Market Access for Non-Agricultural Products

- Post Uruguay Round - average weighted import tariffs on fishery products in developed countries were reduced to 4.5%

- Tariff peaks & tariff escalation for processed products keeps the market access of value added fishery products low

- Non-tariff barriers hinder fishery trade - related to the agreements on Sanitary and Phytosanitary issues and Technical Barriers to Trade

- **Shrimp** - prone to health hazards
  - BIS for monitoring
  - EIC for quality control & pre-shipment inspection
  - FSMSC for export certification
Common Supply Chain for Shrimp Export

- Marine capture
- Landing site/auction
- Independent/common preprocessing units
- Fish processors
- Agents
- Overseas importers

- Aquaculture production
SPS Detentions: Major Causes

- Adulteration issues
  - Bacteria
  - False catfish
  - Filth
  - Histamine
  - Listeria
  - Poison
  - Salmonella
  - Unsafe additives
  - Veterinary drug residues

- Non-adulteration issues
  - HACCP issues
  - Others
Price Behaviour of Shrimp

- International prices exhibited a declining trend
- Differences in prices explains the exportability

Domestic and international price trends for shrimp
## Price Spread of Shrimp in Major Consuming Markets

### Markets

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Delhi</th>
<th>Cochin</th>
<th>Nellore</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prices received by fishermen / fish farmer</strong></td>
<td>-</td>
<td>165.00</td>
<td>95.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(66.00)</td>
<td>(55.88)</td>
</tr>
<tr>
<td><strong>Auctioneer’s commission / Costs incurred by Financier</strong></td>
<td>-</td>
<td>35.00</td>
<td>10.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(14.00)</td>
<td>(5.88)</td>
</tr>
<tr>
<td><strong>Margin</strong></td>
<td>-</td>
<td>-</td>
<td>20.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(11.76)</td>
</tr>
<tr>
<td><strong>Wholesaler’s purchase price</strong></td>
<td>-</td>
<td>-</td>
<td>125.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(73.53)</td>
</tr>
<tr>
<td><strong>Costs incurred</strong></td>
<td>-</td>
<td>-</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(2.94)</td>
</tr>
<tr>
<td><strong>Margin</strong></td>
<td>-</td>
<td>-</td>
<td>10.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(5.88)</td>
</tr>
<tr>
<td><strong>Retailer’s purchase price</strong></td>
<td>261.00</td>
<td>200.00</td>
<td>140.00</td>
</tr>
<tr>
<td></td>
<td>(88.18)</td>
<td>(80.00)</td>
<td>(82.35)</td>
</tr>
<tr>
<td><strong>Marketing cost</strong></td>
<td>10.60</td>
<td>4.45</td>
<td>10.00</td>
</tr>
<tr>
<td></td>
<td>(3.58)</td>
<td>(1.78)</td>
<td>(5.88)</td>
</tr>
<tr>
<td><strong>Margin</strong></td>
<td>24.40</td>
<td>45.55</td>
<td>20.00</td>
</tr>
<tr>
<td></td>
<td>(8.24)</td>
<td>(18.22)</td>
<td>(11.76)</td>
</tr>
<tr>
<td><strong>Price paid by consumer</strong></td>
<td>296.00</td>
<td>250.00</td>
<td>170.00</td>
</tr>
<tr>
<td></td>
<td>(100.00)</td>
<td>(100.00)</td>
<td>(100.00)</td>
</tr>
</tbody>
</table>

*Note: Figures in parenthesis indicate percentages to consumer price*

*Note: Cochin market trades shrimp captured from marine waters, while Nellore market trades shrimp cultured from aquaculture ponds*
### Elasticity of Price Transmission between Domestic Markets

<table>
<thead>
<tr>
<th>Markets</th>
<th>WB</th>
<th>GJ</th>
<th>TN</th>
<th>AP</th>
<th>OR</th>
<th>MH</th>
<th>KL</th>
</tr>
</thead>
<tbody>
<tr>
<td>KA</td>
<td>NI</td>
<td>NI</td>
<td>0.90*</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
</tr>
<tr>
<td>WB</td>
<td>0.58*</td>
<td>NI</td>
<td>NI</td>
<td>0.81*</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
</tr>
<tr>
<td>GJ</td>
<td>NI</td>
<td>NI</td>
<td>0.33*</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
</tr>
<tr>
<td>TN</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
</tr>
<tr>
<td>AP</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
</tr>
<tr>
<td>OR</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
</tr>
<tr>
<td>MH</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** NI denotes lack of price integration.

The arrows in the subscripts indicate the dominant direction of price transmission between markets.

KA: Karnataka; WB: West Bengal; GJ: Gujarat; TN: Tamil Nadu; AP: Andhra Pradesh; OR: Orissa; MH: Maharashtra
Domestic Market Integration

- Wide price differentials indicated scope for domestic trade
- Long-run equilibrium existed between the Orissa & West Bengal
- Direction of price signals - West Bengal to Orissa market
- Gujarat and West Bengal were also integrated
- Kerala and Maharashtra were not integrated with other markets
- Andhra Pradesh, which produces mostly cultured shrimp, was not integrated with rest of the markets, as it transports most of its catch to Tamil Nadu for further dispatch to export markets
Conclusions

• Despite quantity increase, share declined considerably; Diversification in export basket is happening. Still, shrimp continues to dominate the fishery export basket. To sustain export and counter competition from SEA countries, we should diversify our shrimp culture into *P. vannamei* from *P. monodon*.

• Shrimp processing is still at low level in our country. There is a need to create more processing units at major producing states such as Maharashtra, West Bengal and Orissa.
Conclusions

• In recent years, food safety has assumed greater importance among the consumers, resulting in development of various restrictions on food trade. Our processing industries should be proactive in ensuring the required quality expected by importing countries.

• There are good prospects for exploiting domestic market, targeting high income group so that producers get a sizeable share in consumer rupee.

• There is a weak domestic price integration, suggesting scope for improving domestic marketing infrastructure and efficiency.