

# **Shrimp Industry Study: Problems, Prospects and Intervention Agenda**

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## Management Summary

Shrimp is one of the leading export items of Bangladesh. It accounts for roughly 2.5 percent of global exports and fetches a fair amount of foreign exchange (\$250-330 million for last three years). There is ample demand in the international market for shrimp and Bangladesh is blessed with an environment congenial for shrimp production. However, the industry is fraught with many obstacles at present.

A primary study was undertaken to detect the problems plaguing the different levels of the value chain of shrimp in the country. Consequently, a study was conducted in which the participants were representatives of the various stakeholders in this industry. The discussion that ensued aimed to identify obstacles to the growth of the industry, develop some intervention strategies that would help eradicate these obstacles and begin to develop a strategic model to achieve an export target of \$1 billion by 2010. The problems that were revealed through the study are the following:

- Inefficient management
- High mortality rate
- Low quality shrimp
- Negative country image abroad
- Indiscriminate catching of brood mothers
- Lack of an integrated agriculture policy
- Inadequate Sanitary and Phyto-Sanitary Measures (SPS)
- Lack of standards and Lack of traceability
- Vertical competition amongst different actors in the value chain due to supply-demand inconsistency
- Lack of coordination amongst donor agencies
- Lack of monitoring of compliance on the part of the government
- Lack of awareness
- Unfair practices by agents
- Almost non-existent R&D endeavors

Results of the field level survey suggests that by pursuing an integrated policy, under the current capacity figures, the shrimp production per unit area of land can be raised manifold provided that the current bottle necks are eliminated. It is therefore quite possible to attain the year 2010 export revenue target of \$1 billion if the above-mentioned obstacles are overcome.

The intervention strategies towards achieving this target generated by the study are enumerated below:

- The study strongly recommends an integrated model for both *Golda* and *Bagda* projects. It suggests formation of strategic business units based on clusters incorporating members of value chain.
- Strategic business units can be cooperative based, where groups of farmers work together under a commercial umbrella, or individual based where existing agents are enlisted to disseminate technical information and training to their farmer clients.
- Dialogues and forums should be held regularly with exporters and importers to raise and address questionable trade practices and standards.
- The government must formulate an integrated agricultural policy to ensure sustainable development in this sector. Enforcement of the policy must be done with the assistance of industry groups.
- Instead of working in isolation, the donors should address these problems collaboratively so that transfer of learning and experience is ensured.
- Donors should also formulate smooth exit strategies whereby projects are handed over to the private sector after completion.
- Ecological protection and gender equity issues can be controlled by working with the aforementioned strategic units to prohibit certain dangerous practices like land grabbing, indiscriminate catching, child labor and participation of women across the value chain, etc.

- Mass awareness can be generated on such issues as bio-security by again working through the established industry channels that will benefit from them. These again are the business units and association groups.
- The SSOQ and DANIDA models can be applied in this area. The positive aspects of both the models may be applied in the value chain.

The study suggests that implementation of these strategies is quite possible if all the stakeholders in the sector confront them jointly in an integrated fashion. Given the various existing interest groups, there is a fair amount of negotiation and information dissemination that has to be done to ensure implementation success.

Intervention strategies are outlined in more detail within this document.

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## List of Abbreviations

1. **ATDP-II:** Agro-based Industries and Technology Development Project II
2. **LDC:** Least developed country
3. **PL:** Post Larvae
4. **WTO:** World trade organization
5. **DANIDA:** Danish International Development Agency
6. **SSOQ:** Shrimp Seal of Quality
7. **USAID:** U.S. Agency for International Development
8. **SPS:** Sanitary and Phyto-sanitary measures
9. **EU:** European Union
10. **EC:** European Commission

## Introduction

Secondary studies extensively indicate that the Shrimp industry of Bangladesh is one of the most important contributors for economic sustenance at present and is the second largest export commodity of the country. In addition Bangladesh produces 2.5 percent of the global production of shrimp generating more than US\$300 million annually. The main cultured species is the tiger shrimp (locally known as *bagda* shrimp) of which the technical name is *Penaeus monodon* (around US\$250 million contributed from *bagda* alone). It is a marine shrimp and is cultivated in brackish water. The next most important cultured species for export is the fresh water variety, locally called *galda*, technically known as *macrobrachium rosenbergii*. The shrimp industry provides direct employment to over 600,000 people who in turn support well over 3.5 million dependents. The geographic coverage of the shrimp industry in Bangladesh is depicted in Annex One.

The industry suffers from significant production inefficiencies and is exposed to important social and environmental risks. The sector suffers from a lack of vision and strategic direction. However, the contribution of the industry both in terms of helping the poor as well as earning foreign exchange is immense and thus is considered by many as the future prospect of the country. ***The industry urgently needs an integrated strategy for sustainable growth*** and to respond to emerging trends in the competitive global market place.

## Objective

The objective of this study is to identify the industry-embedded problems and then to layout intervention strategies at each step of the value-chain to address the same.

The ultimate goal of the research is to assess the possibilities of developing a strategic business model that can help achieve an export target worth US\$1 billion by 2010.

### Methodology

The methodology entailed both secondary and primary qualitative study. The secondary research included both local and international studies conducted on the subject. This was followed by a primary study involving depth interviews of actors across the value chain. The findings of the first phase of the study was validated in a stakeholders workshop focusing on problems outlined by the members of the value chain and the intervention strategy developed based on the outcome of the study.

### Scope of the Study

The scope of the study included the entire value chain and covered both *bagda* and *galda*. Geographic coverage was Cox's Bazaar, Chittagong, Noakhali, Dhaka, Bagerhat, and Khulna. The study also covered in detail the models under SSOQ-ATDP and GNAEP-DANIDA (Annex 3). Representatives from the following members of the value chain were interviewed as a part of the study:

- Brood Agency
- Hatchery/Nursery
- Transport Agency
- Trade Agency
- Depot
- Farm-Shrimp/Nursery
- Processing Industry
- Financial Agency
- Laboratory
- Wholesale Market
- Department of Fisheries
- Facilitating Agency
- Shrimp Technologist
- Association
- Donor Agency

## The sector map of the Bangladesh shrimp industry

The existing value chain in the shrimp industry is provided below and the details on the shrimp industry are presented in annex four.

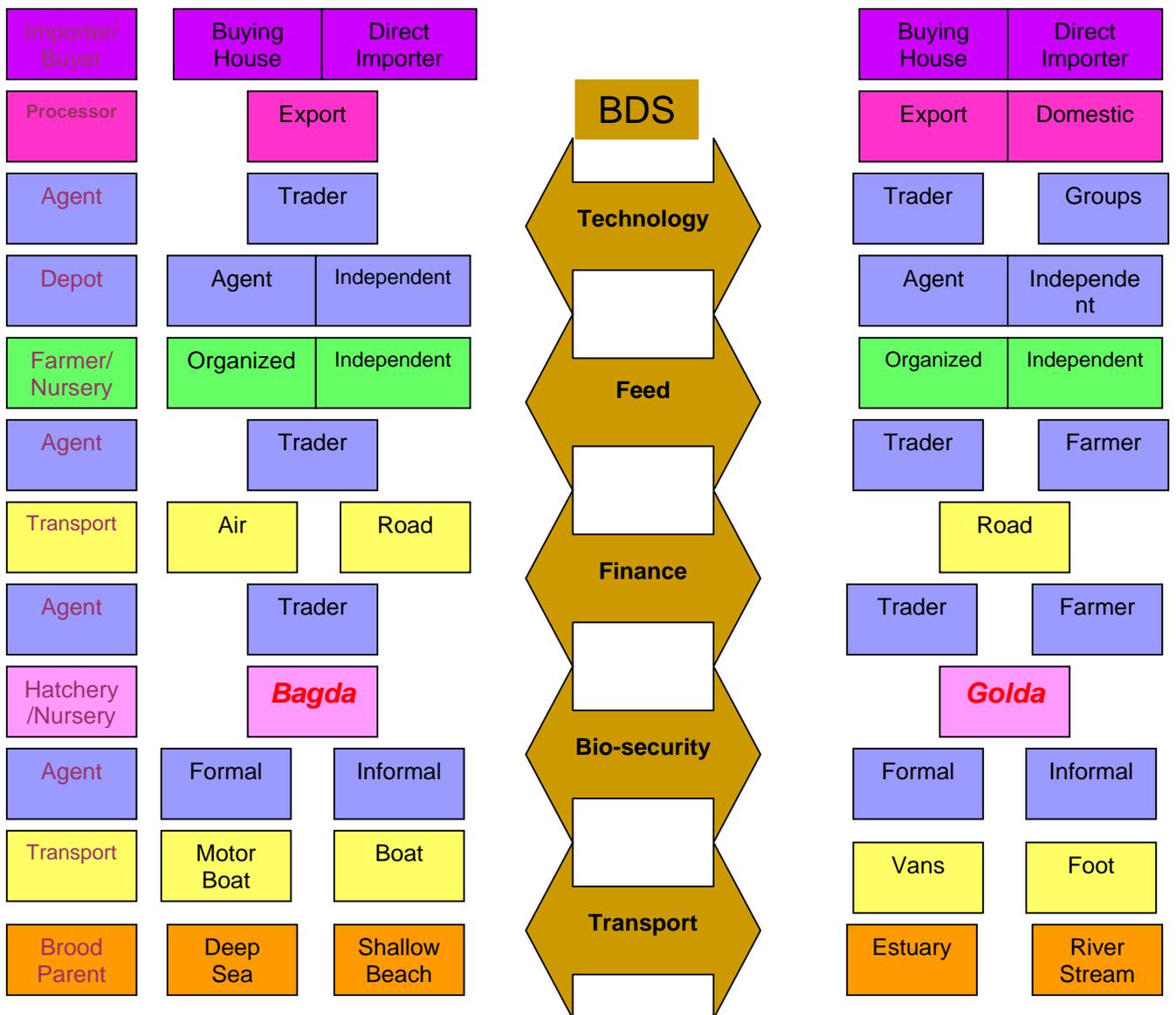


Figure: The Value Chain of Shrimp Industry

## Problems in the Shrimp Industry:

The problems described below were pointed out by the participants in the primary study. The workshop also shed light on some additional problems. The problems prevalent at different levels of the value chain are enumerated below:

### 1. General

- An integrated agricultural policy is a prerequisite for the development of any primary market. However, the present agricultural policy can at best be described as disjointed and non-functional.
- There also exist serious shortcomings in the government regulation and control of the following environmentally important issues:
  - Wild Fry Collection
  - Standards maintenance
  - Land grabbing
  - Inadequate Sanitary and Phyto-sanitary measures (SPS)
- Lack of standards at all levels of the value chain.
- The members in the value chain also seem to be involved in vertical competition.
- There are quite a large number of hatcheries operating within the country under capacity. The farms are running at capacity (although with high mortality rates) as a result the farms have abundant demand for their supply. Thus a captive market results in manipulation by the agents.
- The processors are faced with huge demand from the international markets. But they aren't able to meet this demand because of failure of the part of the farms to supply them with adequate shrimp.
- Inconsistency in the supply chain results in substantial and rapidly changing price structure. As a result unethical practices are prevalent in the value chain. In order to meet the necessary weight requirements, farmers sometimes inject the shrimp with illegal material.
- The various donor bodies at the field level are working in isolation as opposed to creating partnerships. As a result transfer of learning and experience is sporadic and uncoordinated. Endeavours by BRAC, DANIDA and ATDP-II

have yielded positive results in their respective fields. However, very little effort has so far been taken to share the knowledge gathered which could have resulted in even better results.

- Lack of a proper monitoring mechanism plagues every level of the value chain.
- There also exists no formal exit strategy on the part of the donors. Moreover the exit strategy lacks transfer to the private sector. The present practice is geared towards either the government or creation of NGO based private sector which seriously affects free market principles.
- The extension workers provided by the government have so far performed very poorly and failed to facilitate the farmers properly.

## 2. Brood Parent Collectors

- Indiscriminate catching of brood mothers has emerged as a serious threat. In fact, experts forecast that brood mothers may become extinct in two to three years from Bangladesh waters if this present practice persists.
- In Bangladesh the male and female shrimp are harvested together. There is no mechanism to harvest the brood mother separately. In the case of *galda* cultivation however, the mechanism for collecting brood mothers only has been developed.
- Inadequate policy measures regarding the time of catching, technology, human resources, etc. also presents a great threat to the brood parent collection. There exists no legal mechanism for licensing the nets and vessels used for this purpose.
- Lack of appropriate technology is also a big problem. Fry collection from the sea, called *baish dhora* in Cox's Bazaar and *baccha dhora* in Satkhira/Khulna, is skilled work that requires hard physical labour and local expertise is inadequate which results in the death of a large number of fries.
- A large number of the poor — men, women and children (child labor) — do such work in these areas. Child labour seems to be more rampant in *golda* cultivation. In case of *bagda* farming children are mainly employed for

catching fry. The sector however, ensures gender equality. In fact the majority of the workers involved in this sector are female especially in the processors and hatcheries.

- People involved in this business as well as those who live in the shrimp habitats have no knowledge regarding wild life.
- Lack of monitoring of compliance afflicts this level of the value chain as well.

### 3. Agents (brood)

- These agents are mostly traders with local influence in the society and thus have entered the business not due to need in business but by force. The traders also force the farmers to buy shrimp of PL in stocks. It is often found that only 5% of this stock contains brood mothers.
- Quality and price control measures are compromised due to inadequate supply. This level of the chain is also characterized by too much dependence on catchers and they eventually dictate prices.
- Inadequate monitoring and control by law enforcing and monitoring agencies is also a troubling issue in this phase of the chain.

### 4. Hatchery/Nursery

- Unlike the other levels in the value chain, this level is characterized by too many players. However, almost all of them are engaged in marginal operations. No extensive studies have been undertaken so far to ascertain the required number of hatcheries.
- Most investors are motivated to turn black money white. Production and sales figures are often exaggerated to override the law. That is why frequent changing of hands (of facilities) is quite a common practice in this field.
- Inadequate bio-security measures such as drainage, bacterial control, viral control, use of medication, etc. due to inadequate technology base also results in high mortality rate and low quality of the product. The disease called White Spot Syndrome Virus (WSSV) effects the *bagda* species specifically and is the

sole contributor behind falling productivity of *bagda*. In the case of *golda* bio security related problems mainly involve bacterial infections and contaminated medicine and feed. The EU imposed a ban on Bangladesh shrimp imports in 1997 because of a failure to comply with EU quality regulations. These events have resulted in a bad image of Bangladeshi shrimp in foreign markets. As a result Bangladesh cannot demand the same price as its competitors in the international market.

- Lack of trained human resources in this field necessitates the influx of foreign technicians. In fact 70% of technicians are from outside the country. The majority (50%) of them are Indian nationals. These foreign experts at times enter the country illegally and apply their technology, medication, and at times even strains without any pre-testing measures. This quite clearly represents a potential threat to bio-security.
- Weak association among the different hatcheries exist since a large number are involved in unethical business practices and are least concerned about business development.
- Although businesses change hand regularly, they do not close indicating that unethical practices rather than business itself promotes sales. Most of these unethical practices are a direct result of government incentive programs directed in favour of the hatcheries.
- The cost of undertaking R&D activities at the hatchery level is clearly uneconomical for private industry and other stakeholders to undertake at the present capacity utilization rates.

### 5. Agents (Post Larvae - PL)

- These agents constitute the major profit making actor in the chain with the least risk.
- These agents are very influential in the value chain and determine prices. Lack of working capital and availability of special interest rates are outlined as major constraints faced by the group.

- High mortality rates during transshipment from hatchery to farms especially in the case of *bagda* are also observed.
- These agents control both farmers as well as hatchery owners. On one hand, they purchase on credit from the hatchery owners and on the other they derive commission from the farmers.
- In the case of *galda*, a large amount of the PL is imported from neighbouring India. Some PL imported from India contains excess amounts of nitrofurine which is a prohibited substance.

### 6. Transport Agency

- The poor transportation infrastructure of the country further cripples the industry. This problem is even more acute in the case of *bagda* as in this case the shrimp have to be transported from Cox's bazaar to Khulna.
- Lack of landing facility for air transporters in Khulna results in high carrying and time costs which ultimately results in the farmers paying higher prices.
- Idle capacity for air transport during off-season makes it difficult for them to sustain their operations.
- Inadequate aircraft parking facility in Cox's bazaar airport during peak season contributes to even more delay in shipment.
- It takes a total of thirty hours to reach the farms from Cox Bazar to Khulna by road. Some hatcheries have taken it upon themselves to transport the PL by road; however, this has not yet improved the situation.
- Policy regarding licensing for air transport is inadequate – the status of both leased aircraft and owned aircraft are regarded as same.
- Temperature and oxygen controlled vans for road transport are still at the experimental stage.

### 7. Farmer/Nursery

- Low awareness level regarding proper farming practices results in high mortality rates and diseases in the farms.

- The weak financial capability of the farmers is also a great barrier towards development. Inadequate banking support makes it impossible for the farmers to obtain the funding they require.
- High mortality of Post Larvae of both *bagda* and *golda* result primarily from the previously mentioned shortcomings.
- Although export benefits are extended to this sector, the processors are the ones who mostly get to enjoy the same. They pass some of the benefit to the agents in the form of higher prices. However, the other members of the value chain are not able to absorb much of this benefit.
- The farmers in Bangladesh get higher prices for their products compared to farmers in countries like Thailand primarily due to higher production cost resulting from low management capability, inefficient quantity management and high mortality. This on the other hand affects the market share in the international market. This aspect can be summarized in the illustration from group discussion presented below.
  - High prices do not necessarily mean high profits as the cost of operation are also high in these farms. After covering all the overheads a very meagre profit is left. On an average, 20% of the overheads fall under labour.
  - The sales price is completely independent of costs.
  - The price is dictated by competition alone.
  - Management inefficiency and lack of technology are considered the main contributing forces behind these rising costs of production.
  - Primary production cost is quite low in Bangladesh compared to other countries as 90% of the *Bagda* larvae are traditionally produced and therefore entail no spending at all. In fact some regard this as the sole reason behind the survival of this sector in Bangladesh.
  - The start-up capital and input cost is much lower in Bangladesh. However, it is important to properly define sustainability in this aspect.
  - Although some shrimp farms are sustaining, the owners are doing so by engaging themselves in side businesses.
  - A study conducted under the ATDP surveyed about 600 such farmers and found that average production was less than 100 kg per hectare even though it was required to produce 148kg per hectare to break even considering the price of land.
- The government has also failed to play a constructive role, evidenced by the lack of support from government extension workers.

- The cost of maintaining nurseries and undertaking experiments is at times too risky and expensive.

### 8. Agents (shrimp)

- No special interest rates for working capital are available.
- As mentioned before, there exists a huge gap between the demand for shrimp by processors and the supply of the same provided by the farmers.
- Processors dictate prices based on international market rates.
- Too many depots are engaged in this stage and a large number of these depots and sub-depots are either owned or controlled by agents. All adulteration is performed in the depots or sub-depots. Here shrimp are injected with fluids and other substances or immersed in water to increase their weight.
- Again, the measures taken by the government in monitoring of compliance are alarmingly inadequate.

### 9. Processor

- The quality of raw material (shrimp/prawn) supplied to the processors is not satisfactory because of adulteration, cool chain maintenance, size variation etc. *Processors should reject these shipments but do not due to their desperate need for raw material to fulfil orders.*
- It has also been observed that, some processors engage in this business only for the period for which the tax holiday has been extended. After expiry they simply get a new registration. This practice results in financial default.
- Lack of marketing efforts and a negative country image are also great obstacles. The negative country image is solely responsible for the low prices Bangladeshi shrimp commands in the international markets and its failure to increase its market share and acquire new markets.
- Inadequate technology and knowledge transfer also impact operations.

- Although in recent times, there have been efforts to comply; compliance with HACCP (Hazard Analysis Critical Control Point) is still not adequate.
- Non tariff barriers from the developed world at times are considered inappropriate by local producers. For instance, although EU regulations prohibit child labour, in Bangladesh complete abolition of the practice is impossible as the children are forced to work for their very sustenance mostly at the lowest ladder of the value chain.
- EU regulations also necessitate the availability of proper sanitary conditions which most of the farms simply cannot afford. In fact some requirements of the SPS don't even fall under the standard regulations of health and sanitation. For example in case of *golda*, the acceptable level for nitrofurans required by the EU is substantially and impractically lower than that approved by general health and sanitation standards. This is a perfect example of inappropriate grounds for rejection by the developed countries. International laws can therefore sometimes be questionable.

### Business Development System (BDS)

The general barriers prohibiting the establishment of a healthy Business Development System (BDS) in this sector are listed below:

#### 1. Coordination among industry participants

- There is virtually no coherent coordination among participants in the value-chain; hatchery operations are set up for reasons other than the interest of the industry. Export incentives accrue directly to processors leaving out the rest of the chain.
- Industry needs are not well communicated and coordinated with donor activities and programs.
- Donor activities are not well coordinated amongst themselves.
- Government activities are largely non-existent.

## 2. Technology

- R&D activity is almost non-existent in this industry.
- Donor programs are not designed to take the long term planning needed to help develop appropriate technologies.
- Imported technology has proven to be not appropriate for our environment or else too expensive.
- Human resource development for long-term sustainability is not satisfactory, especially in the hatcheries.
- The hatcheries seem to be interested only in profit sharing but not technology sharing.

## 2. Feed

- Price of quality feed is beyond the reach of the poor farmers under their current farming methods.
- The only reliable source of quality feed in the country is the multi-national CP.
- Most available feed suppliers/manufacturers are substandard which result in low quality shrimp and prawn.
- Monitoring of feed and drug manufacturing system and products is inefficient.

## 3. Finance

- Financial agencies consider financing farms non profitable and high risk and therefore are reluctant in extending loans.
- The knowledge base of financial operators regarding the industry is not adequate. Although they are willing to grant loans to hatcheries, they have very little idea of the demand supply status in the industry.
- Loan disbursement to a large extent is either directed towards hatcheries or processors as they seem to be the larger compared to the rest of the actors in the value chain.

### 4. Bio-security

- Agents are commercially driven and therefore engage in overselling certain medications such as antibiotics and hormones just to gain profits.
- Inadequate laboratory facilities result in low R&D endeavours.
- Low level of knowledge base regarding bacterial and fungal infestation prohibit them from taking proper measures in preventing and curing such diseases which is why a lot of exports turn out to be infected.

### Target Achievement

Based on the figures associated with production of PL, shrimps/prawn capacity utilization and processing capacity utilization it is evident that US\$1 billion target is achievable provided certain bottlenecks are removed. The main bottleneck therefore remains with the farmers where the production is unacceptably low. With the dissemination of technology through programs like SSOQ production in the farmer's level may be increased 4-5 fold making it possible for the industry to reach the desired target.

The intervention strategy therefore needs to be concentrated on these bottlenecks without putting too much emphasis on increasing capacity across the chain. The strategy need only concentrate on increasing operating and management efficiency and decreasing the high mortality rate.

### Intervention Strategy

The intervention strategies that were uncovered by the primary study in addition to the workshop are illustrated below. Order of illustration does not reflect importance:

#### 1. Policy: Agriculture

- Both agricultural policy and land policy are important in this regard. An integrated agricultural policy should be the objective. This policy can be applied when calculating land productivity and allocations for various sub-sectors such as shrimp, grains, horticulture, jute, etc. The ministry of agriculture and the ministry of land should work jointly to come up with such policies.
- Separate policies should be developed for *bagda* and *golda* as the requirements for these two species are completely different and it is also important that the fisheries department and other relevant ministries such as land, commerce, and environment acknowledge these differences.
- Some integration in policies has already been done especially in the case of *golda* cultivation and some of these principles can be applied to *bagda*. However, as 70% of the foreign exchequer from shrimp is contributed by *bagda*, emphasis should be placed there.
- In addition, the shrimp industry policy should also be integrated rather than kept it in isolation. Hatcheries, Farmers and Processors should be considered as a single unit rather than competitors when such policy is developed.
- Policies should also be formulated to address the issue of the lack of transparency on the part of the foreign technicians.
- Policy assessment and updating should be done on an annual basis based on international market scenario.

## 2. Policy Issues: Brood & Hatcheries

- Brood parent catching for both *bagda* and *golda* should be closely monitored. The local producers suggest that for *bagda* ban should be imposed during certain months of the year to enable a consistent flow of brood mothers. However, some experts suggest that instead of imposing bans on some ascertained period, bans should be put to effect on certain areas which are essential for the larvae to grow. This is more applicable in the case of *golda* as bans on some strategically important areas in the Sundarbans and Shatkhira can produce effective results.

- Brood mother collecting methods in Bangladesh must be changed immediately to prevent the extinction of brood mothers with learning from other countries.
- A 100% ban should be imposed on natural PL catching for *bagda*. In the case of *golda* however, only 10% of the PL requirement is met through hatcheries and therefore natural PL collection cannot be prohibited. Banning natural fry collection in this area will therefore render the industry non-existent. However, these bans should not go into effect before alternative sources of livelihood have been ensured for those who will be affected by the restrictions.
- In the 1990s the government took steps and allowed establishment of *bagda* hatcheries in Cox's Bazaar under tax holiday environment. Similar steps should also be taken for *golda*.
- Restrictions should also be imposed on the type of nets used, boats in operation and the technology used. Individuals without proper trade license should not be allowed in this trade. The coast guard, with help from environment and fisheries division, must be given the responsibility to monitor the activity.
- Training programs on proper brood mother rearing techniques could also be launched. BRAC has attained huge success in this field.
- As *golda* requires less investment and does not need a marine environment, establishment of cottage industries throughout the country can be encouraged. These are also easily manageable. However, the position of these ventures should be ecologically justifiable. Since it is much easier to transport brine than PL of fries, these can be very profitable undertakings.
- The government machinery is well aware of the fact and thus it is believed that a little push from the private sector operators and support from the donors should be initiated.

### 3. Policy: Bio-security

- Bio-security measures must be undertaken across the chain, rather than being introduced at different stages of the value chain. If a proper free market

mechanism can be established, the demand for biologically safe food will automatically force the farmers to adopt bio-security measures.

- At present the industry relies heavily on foreign technicians. Locals should be extensively trained in this field so that proper testing measures can be undertaken.
- A policy for transparency on the part of the foreign technicians should also be devised. Certification programs like the SSOQ can also play a major role in this respect as it helps create value addition in the form of higher quality and better product image in the minds of the consumers. SSOQ has a laboratory in Cox's Bazaar, which tests fries for any sign of infection; the larvae are then supplied to SSOQ farmers. This also increases productivity substantially as the mortality rate is reduced greatly.
- Bio-security policy should include viral, bacterial and fungal issues. Policies concerning use of feed, antibiotic or any other form of chemical should be outlined in detail and strict adherence must be enforced. The type of activity across the chain will vary and thus awareness drive through leaflets can be a good method. The environment activists along with the mass media can use this proactive approach. In order to create mass awareness, education programs can be undertaken where the participants are imparted knowledge pertaining to importance of bio-security measures.
- Traceability is another important issue. In order to ensure the same farmers need to form organizations. They should be given the necessary training on record keeping and certification procedures. Cooperatives can play a vital role in that respect. The SSOQ-GNAEP model can be considered as the standard and implementation as such can ensure traceability. Traceability has to be guaranteed at each and every stage in the value chain including the importer. However, traceability needs to be formally defined at first and it should be ascertained as to which level traceability should be pursued. Bangladesh should enter dialogues with the importing countries to jointly come up with a specific definition for traceability and enlighten them on the problems involved in maintaining traceability in case of small farms. This proactive approach can lead to larger exports.

#### **4. Policy: Financial Monitoring**

- Restriction on number of hatcheries to control financial corruption may be considered. These restrictions can put an end to the unethical practices currently rampant in the sector.
- A managed market approach rather than a free for all strategy should be followed. The government should undertake investigation before granting new hatcheries/processors permission to operate.
- Tax holiday benefits may be directed to the farmers in the form of low interest loans to ensure that traders do not take all the advantage. Most experts agree that subsidies are not advisable in this regard as it fails to render the farmers any real financial assistance. Furthermore, importing countries like the US has imposed antidumping measures towards subsidized goods. On the other hand tax holidays on imports is encouraged.
- Incentives can be made more effective if farmers are required to meet certain bio-security measures to be eligible for the incentive.
- The overall financial infrastructure of the country needs to be improved for these incentives to function properly and yield the desired results.

#### **5. Policy: International**

- In the last few years the international market has experienced quite a revolution. The consumers have grown much more aware about food safety and environmental and human rights issues. They want to know whether the imported shrimp is produced maintaining international codes of conduct for food safety, whether it is produced in an environmental friendly way, whether the human rights and labour rights requirements are followed while producing shrimp. The inclusion of international market scenario while formulating international standards therefore should be ensured.
- In order for all WTO members to benefit equally from the Agreement on SPS, and to ensure that such measures are not used as a market access barrier, and in order to assist LDCs build the capacities necessary to guarantee compliance,

it is important to undertake concerted effort, on a global scale, to address some of the relevant issues.

- The SPS provisions should be formulated in a transparent and accountable manner where LDCs also have equal opportunities to participate in a fair standard setting process; although EC was sending signals for sometime before the ban was actually imposed, there was considerable lack of awareness about the HACCP regulations both at GOB, as well as plant, levels.
- If standards are to be harmonised, these should take into consideration regional conditions; interestingly, at the time of the EU ban, exporters were able to divert a part of the consignments to USA and Japan, markets which are not particularly known for any lack of vigilance in terms of quality and hygiene standards.
- Full implementation of SPS measures should be sensitive to trade disruptive and trade restrictive nature of such measures for exports from the LDCs; adequate preparatory measures must be ensured in the exporting countries prior to imposition of any penalty on their exports.
- Adequate financial and technical assistance should be given to the LDCs to facilitate conformity with SPS requirements; the nexus between trade and aid should be strengthened; programmes under the Integrated Framework Initiative, which envisages technical assistance for trade related capacity building in the LDCs, should be adequately funded and supported.
- Mutual recognition of conformity assessment and certification procedures should be pursued to avoid conflicting interpretations with respect to standards.

### 6. Policy: Donor Agencies

- The donor agencies should develop a joint country strategy to ensure smooth and effective functioning. Implementation maybe divided on a functional basis.
- Regional divide may cause political insatiability. The donor agencies need to hold regular dialogues in order to ensure greater transfer of knowledge and

expertise. This will increase the effectiveness of the respective projects as they can learn from the other's mistakes and implement the other's success stories.

- The donor agencies should develop a plan based on a long term exit strategy rather than on a time elapsed basis. The transfer of ownership should follow a smooth and efficient process with focus on sustainability.
- The intervention by the donor agencies should be light-touched. Instead of acting as a source of financing only, donors can also function as brokers and thus ensure local coordination in agriculture. They can also aid the government in formulating an integrated agricultural policy and an action plan.
- Focus should however be put on the private sector as it has been substantially more successful than the government in this sector. From the period of 1986 to 1996, the government was able to establish only a couple of hatcheries. In the same period, the private sector was able to set up 55 and with much less funds.
- The donors can also aid in export diversification and country image promotion design.

## 7. Operational Strategy: General

- The operational strategy must be designed as an integrated unit. A national shrimp/prawn association should be formed with representatives from all actors across the value chain. It can take the form of a cluster based Strategic Business Unit with representation from rural producer groups, farmers and community-based organizations. In Bangladesh two hatchery associations and one processor association already exist. They currently work mainly in isolation of each other. They should all be encouraged to work under an umbrella organization.
- There are a few existing agents who control a significant number of farmers and hatchery supply. These agents can be enlisted to help in the information gathering from and dissemination to as well as monitoring of farm activities.

- The SSOQ model could be used in ensuring increase in production. The model can also help in documentation and traceability. It has already yielded in positive response from the buyers.
- The inputs from the buyers must be taken into consideration in developing the quality seal. Such organizing efforts can also generate creative ideas.
- National target on exports (for a certain period) may be directed at the national association with performance targets for all levels of the value chain. To ensure efficiency integration and mergers should be encouraged at the association level.
- *Bagda* and *Golda* are two different generic brands with different target markets. Thus they should have separate promotional strategies to ensure larger international market shares.
- The government should not sanction any new hatcheries or processors prior to achieving satisfactory capacity utilization data. Furthermore, restrictions on further expansion of shrimp/prawn farms should also be imposed and stress be given on low mortality and higher productivity.
- Government (fisheries department) should strengthen the shrimp liaison cell to ensure smooth functioning of the industry.
- In developing an operational strategy, the grass root problems have to be addressed at the organization level. It has been often observed that, as the organization expands, inefficiencies creep in as the focus strays away from the micro-level issues. It seems that the relevant issues often get ignored.

### 8. Operational Strategy: Integration - golda

- For *golda* projects regional integration models can work very effectively where all the actors (including local government representative as advisor) in the value chain can operate regionally as part of the same association. Once they are matured they may attempt to form a limited company.

- The GNAEP model can be a very good starting point with technical support from ATDP-SSOQ model. In this field the GNAEP model has so far yielded the best results.
- The model should have an ultimate goal of transition from project phase to private sector phase.
- The regional association maybe considered for financial support and a single unit for receiving export incentives.
- All movement of goods from hatcheries to the processor can easily be recorded since a single entity concept is in operation. Again, the GNAEP model can be explored for necessary guidelines.
- In addition, *golda* can also be cultivated in a poly-culture system with other species, such as Carp, to boost production.

### 9. Operational Strategy: Integration – bagda

- Unlike *golda*, hatcheries cannot be stationed across the country in this case as the hatcheries need to be located near the coastal areas. Therefore, for *bagda* the strategy needs to be different due to geographical proximity of hatcheries and the rest of the actors in the value chain. Hatcheries can also operate as separate units and look for export options.
- Hatcheries can jointly run the transport of PL and may start working on technology using road as a means of transport. Transportation should be based on batch numbers against each farm. Batches shipped must be catalogued during shipment and transferred to the farmers on delivery. Code numbers for hatcheries and farms can help efficiency in transport, distribution, and traceability. Catalogue should be maintained and the data should be transferred to the processors on delivery. In this way, they can set up a certification system and then link themselves with the next stages of the value chain.
- To support the hatcheries a standard testing unit with recognized international standardization should be in operation (strengthening of SSOQ model).

- The farmers should be helped to form groups (strategic business units) based on minimum order quantity from the processors end. In addition, the bargaining power of the farmers has to be boosted so that equitable distribution of benefits is guaranteed. The farmer group representatives will act as agents to ensure both traceability as well as ensuring higher profit margins and lower costs. Farmers of a specific geographical region should be tagged with regional processors to ensure easy accessibility, supervision, and traceability.
- Government agencies with international certification should enforce quality and monitor bio security measures through sample testing procedure at the farm gate point. Farmers should be provided financial support on group basis and should also be considered as export oriented industry.
- The technology and production efficient support model of ATDP-SSOQ has been excellent (environmental and social friendly) and they may learn from the group model used by GNAEP and BRAC. An integration of these three models can ensure the benefits arising from both the integrated system (GNAEP), the quality control and production efficiency measures (SSOQ), and group formation mechanism (BRAC).
- The cooperative (strategic business unit) approach discussed so far holds excellent prospects. However, the cooperatives have to be allowed freedom. They are business entities and not charities and the role of donor agencies should be that of facilitators and sponsors.

### 10. Operational Strategy: Integration – Processors

- The following three promotional strategies are suggested.
  - The strategy should be focused on country image in which support can be sought from the government and the donor agencies.
  - The strategy should also be generic – *Bagda* or *Golda* and thus may be undertaken by the two different integrated forums representing all the actors. This will ensure enhancement of market share through two different positioning strategies.

- The strategy should also be unit based directed towards brands. This will ensure industrial competition within the country.
- The processors should also
  - Maintain data bank of products purchased based on the catalogue supplied by the farmers.
  - Maintain liaison with the market and transmit information down the chain for changes modification or complaint handling.
  - Act as the spokesperson for the *Bagda* and *Golda* integrated units.

### 11. Operational Strategy: Integration - R & D

- Research and development facility can be mobilized through linkages with the various universities of the country.
- R&D should not be undertaken at the expense of the farmers or hatcheries as the case may be. The universities can be helped to develop field based R&D centres.
- Research activities can be initiated either by the regional integrated units or joint effort by the hatcheries of *bagda*.
- Strong linkage with the SSOQ units will be required during the initial stages to transmit field experience.
- Internship programs for the students of universities can be developed at all levels of value chain to ensure adequate human resources development in the future.

### 12. Operational Strategy: Integration - Donors

- The donor agencies should develop an integrated intervention strategy.
- The donors should continue with the SSOQ model to ensure smooth transition and placement of technology transfer.
- The donors should play a role for a period based on a plan developed on a mile stone basis rather than a time bound basis in the areas of technology, standardized operations, and developing marketing strategies.

- On the completion of a project, it should be designed to ensure smooth transition to the private sector. An integrated model should be developed where the private sector representatives will work from the very beginning of the project as members of the group.
- A typical NGO driven model should be avoided since it lacks transition. Partnership with public sector may lead to ownership issues and thus should be avoided.

### Conclusion:

As the above findings suggest it is theoretically possible to achieve the target of US\$1 billion. Integration of activities both in terms of value chain and region is considered an answer to success. Formation of sustainable strategic business units based on cluster and cooperative mix is an option. Another option is to work through existing PL supply agents who control a significant number of farmers. These existing agent networks can ensure quick dissemination of information and technical training. The right incentives can also ensure compliance with codes of conduct.

Donor presence, in the absence of strong government guidance, is required for a logical and planned time period as facilitators only. Their conduct should be milestone oriented and they should function as catalysts. The model should ensure smooth transition to the private sector that is actually an integral part of the value chain. The project should be handed over only after sustainable profitability has been ascertained. The government must change the present policy and ensure strict monitoring and updating of standards to ensure success. The donors should outline policy framework based on standards required by the buyers and ask the government to ensure implementation. The role of the fisheries department should be clearly outlined and updated to ensure that the industry can operate smoothly.

If all these strategies are implemented properly, Bangladesh can increase its market share and ultimately become one of the leaders in the global shrimp market.



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