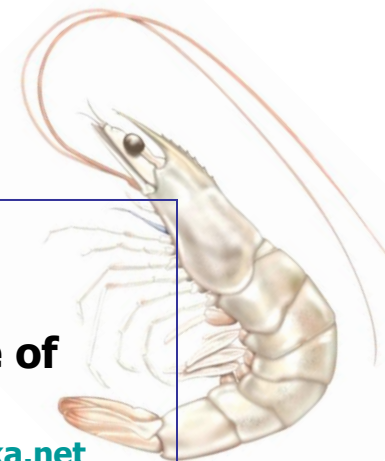




Sea Food Export from Bangladesh and Current Status of Traceability



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Vision 2020
Earning from frozen food
Target US\$ 1.50 billion
BD Taka 12,000 Crore+

Black Tiger Shrimp of Bangladesh





Industry Overview

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Background

- **Shrimp culture is of central importance to the fisheries sector in Bangladesh particularly in the context of export earning.**
- **Third most important source of foreign exchange earning amounted US\$ 543.84 million in 2012-2013. Fisheries sector contributes 4.39 % to GDP and 2.79% to foreign exchange earning.**
- **The shrimp industry also provides direct employment to over 1 million people who in turn support well over 3.5 million dependents**
- **This sector also supports large varieties of ancillary industries**
 - **Shrimp processing plant**
 - **Feed mills, Ice plants**
 - **Hatcheries, Culture**
 - **Net factories,**
 - **Home-based bamboo screen, mat, baskets**
 - **Rickshaw van, tempo, boat**





Shrimp Culture



- **Shrimp culture mainly is done in traditional method and annual yield is 250-300 kg/ha**
- **Total shrimp farming area: 276,000 ha**
- **Marine shrimp: 195,000 ha and freshwater shrimp: 86,000 ha**
- **Districts involved: 20; Upazilla: 52**
- **The bagda hatchery sector has expanded rapidly over the last few years.**
- **The country's 60 BT hatcheries produce about 12.0 billion shrimp larvae which are enough to meet the target of production.**
- **Fresh water prawn hatchery: 80 mostly small**
- **At present, there are about 75 feed mills in operation and 20 more in pipeline. Most of these are producing both poultry and fish feeds in which only 10 feed mills exclusively producing fish and shrimp feeds**
- **Shrimp feeds, usually with a poor shelf-life are supplied at the farm level, leading to adverse effects on shrimp farming**





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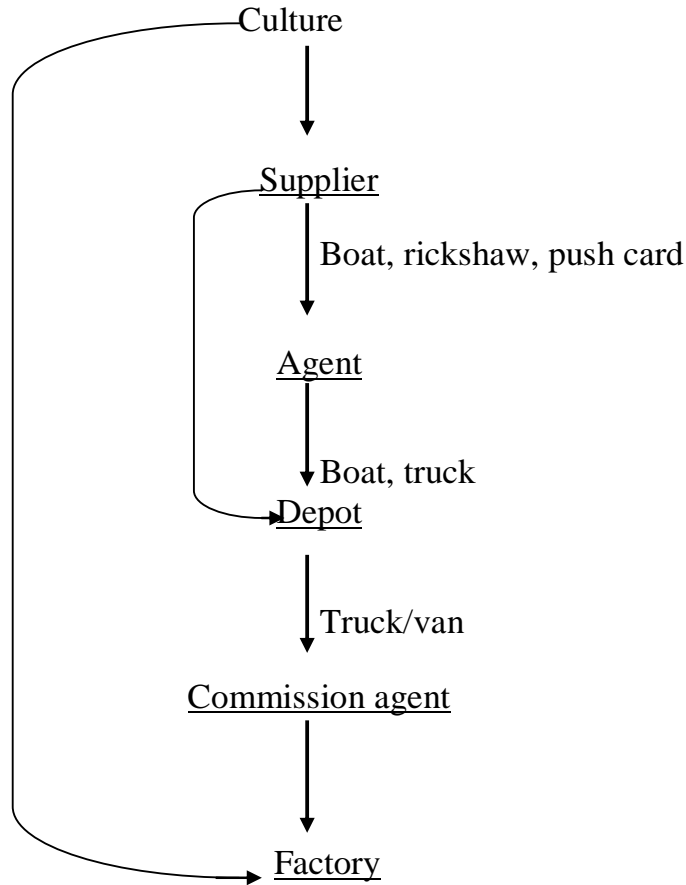


Fig: Supply chain of shrimp/prawn



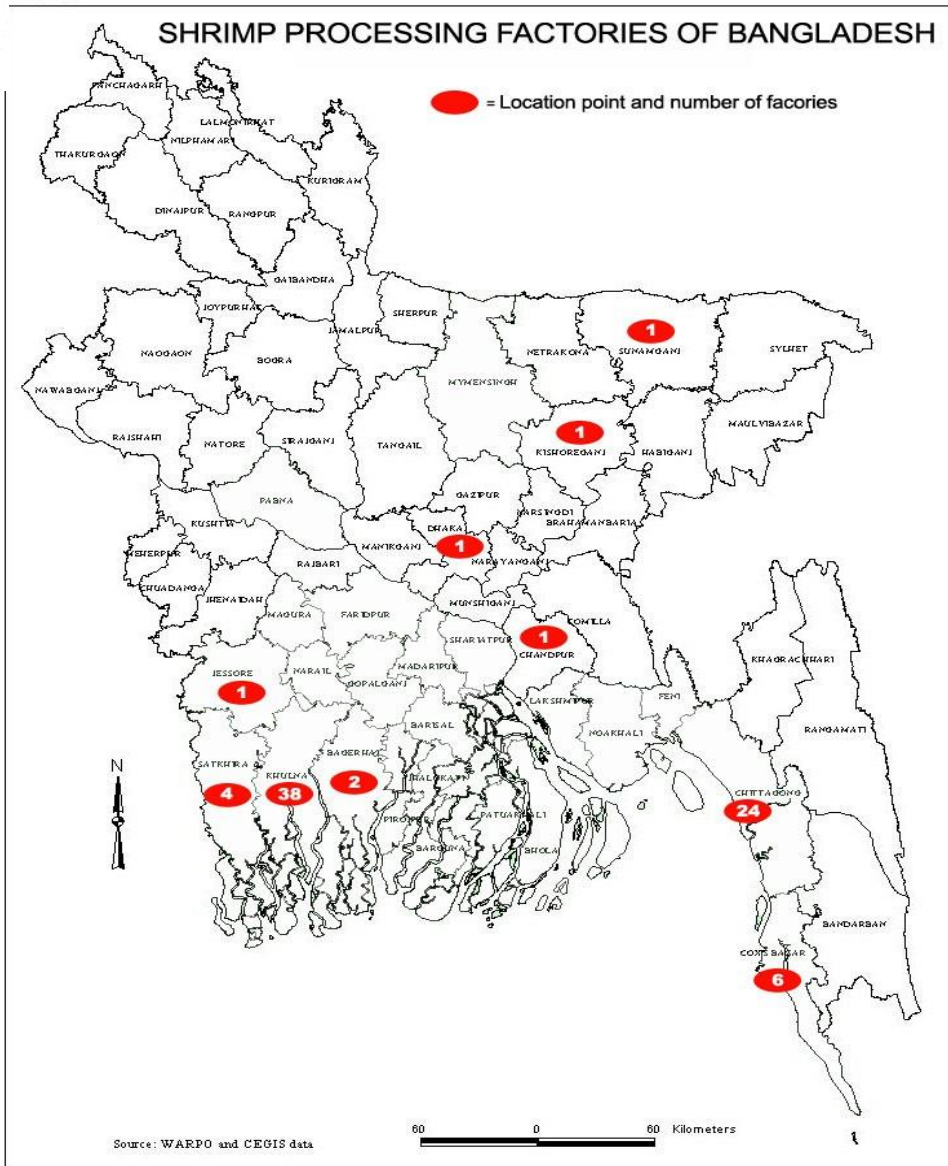
Shrimp Processing and Export

- The contribution of Bangladesh shrimp is small in terms of its share of the international market (i.e. 2-3% of world production of farmed shrimp)
- It is the 12th largest cultured shrimp producer in the world
- There are 162 fish processing plants in the country of which 96 plants are GOB licensed.
- Annual production capacity of the 96 plants is more than 3,50,000 MT
- But due to scarcity of raw materials those plants run at about 15-18% of their installed capacity .
- Out of 96 plants, 78 plants are European Union compliant and 30 Plants are USFDA Green ticketed.
- HACCP has already been introduced in most of fish processing establishments
- Traceability system is implementing gradually in each step of shrimp producing, processing and export.





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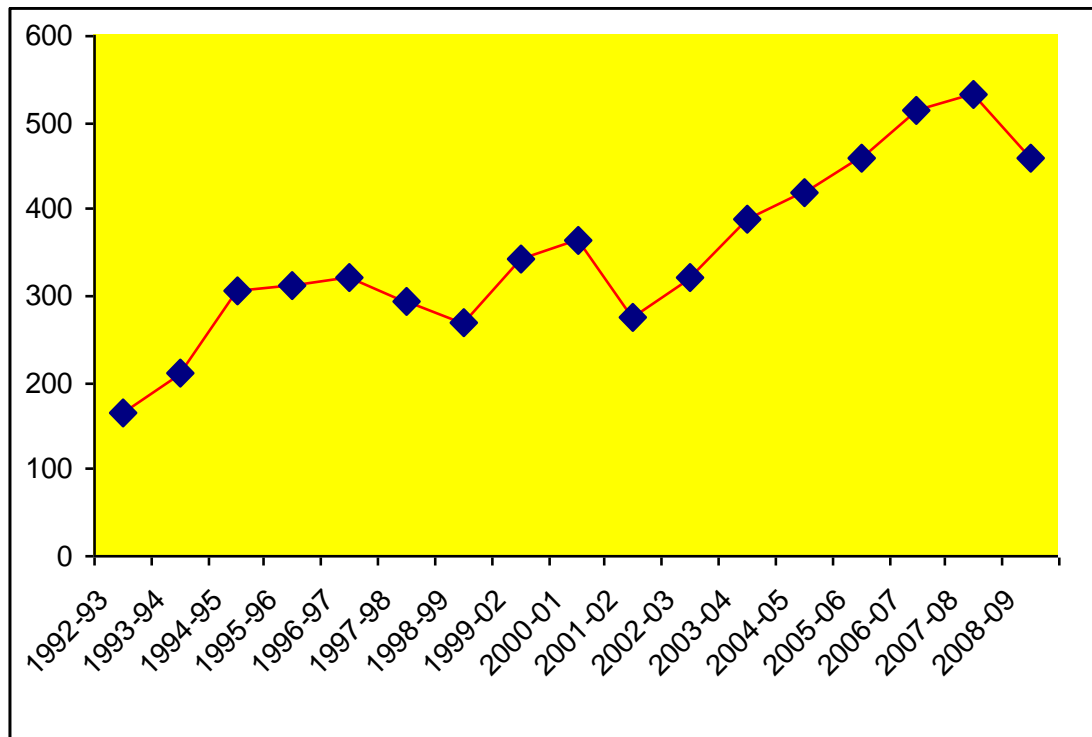
TOTAL: 162
GoB Licensed: 96
EU approved: 78
USFDA green : 30

Fish & Shrimps exported in 2012-13: about 204 Million Lbs
Earning US\$ 543.84 million





Export Trends



From only US\$ 0.261 million in 1972-73, the Fisheries export earning in 2012-13 recorded US\$ 543.84 million



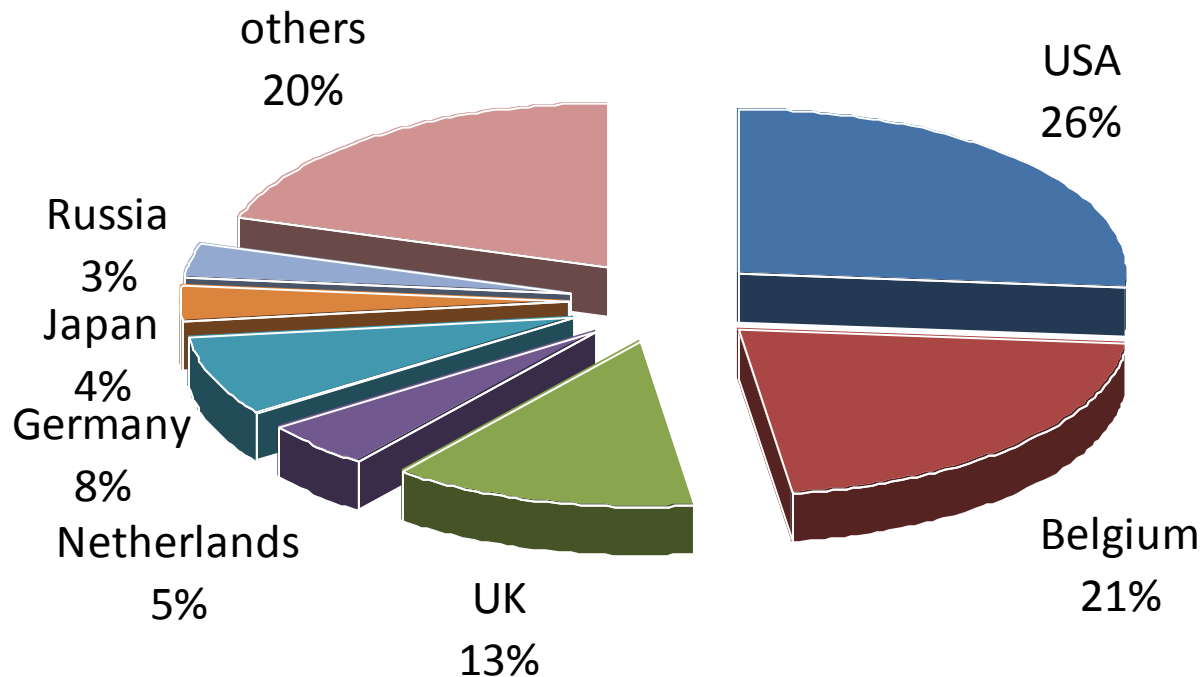
Trend of Shrimp Export by Year





Export Trends

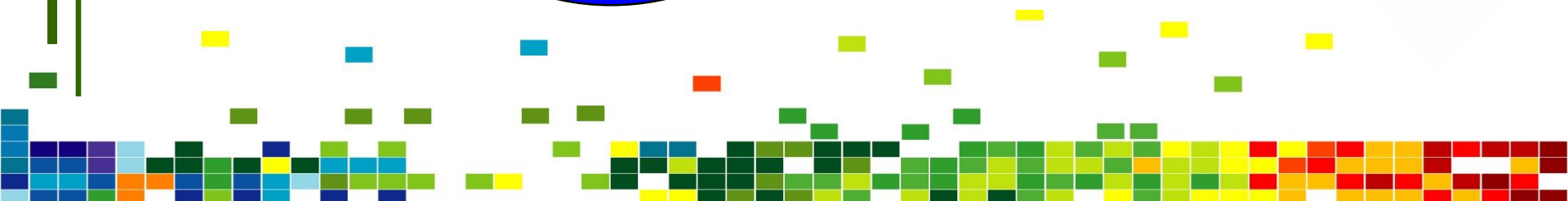
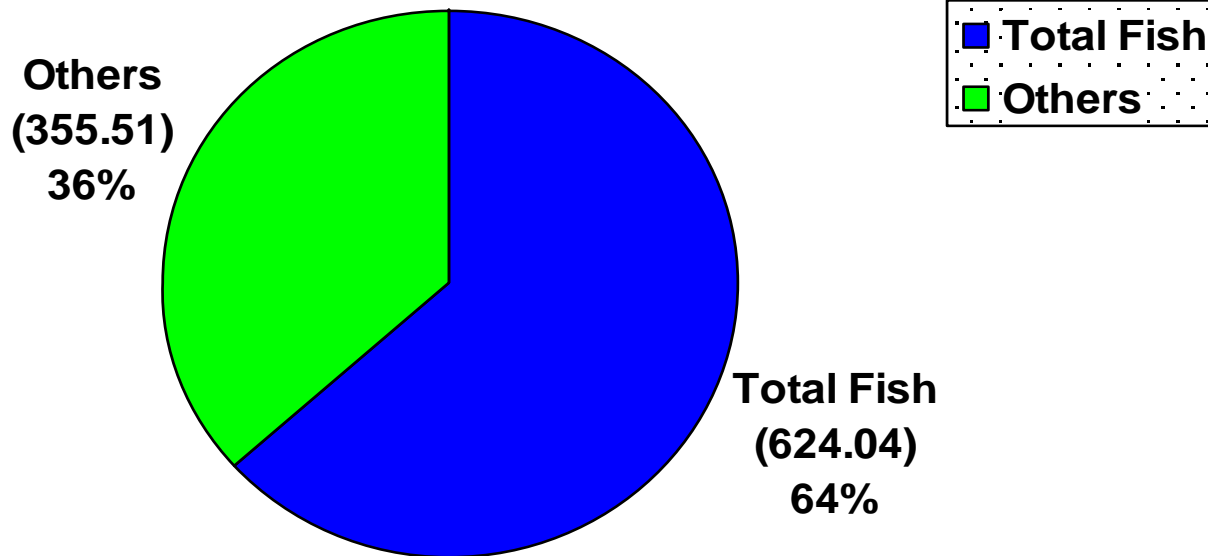
Major Export Destinations in 2010-11 FY





Place of fisheries in export of primary agri commodities

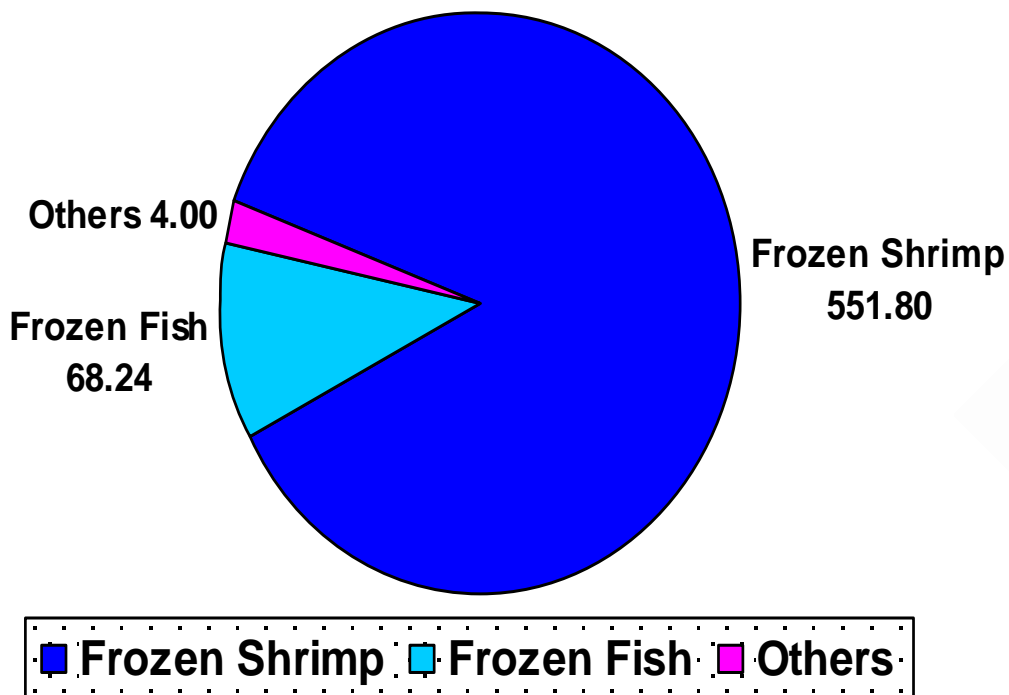
Total agricultural commodity 2010-11
(US\$ 979.55 Million)





Place of shrimp in total fisheries export

All Fisheries 2010-11
(U\$ 624.04 Million)





Potentials

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- Shrimp production in Bangladesh is almost organic in nature. So it is natural as well as tasty compared to the shrimp of other countries.
- Fresh water shrimp (Golda) is especially suitable for the poor farm households and offers a great income earning opportunity
- International demand for shrimp is strong despite global recession
- The industry still has huge potential for both vertical and horizontal expansion
- Number of importing countries is on the rise
- Processing factories have 80% surplus capacities
- Value added and diversified products can bring more foreign exchange earnings
- Shrimp does not only employ thousands of women as labors in the processing factories but also provide huge opportunities to be involved as shrimp farmers



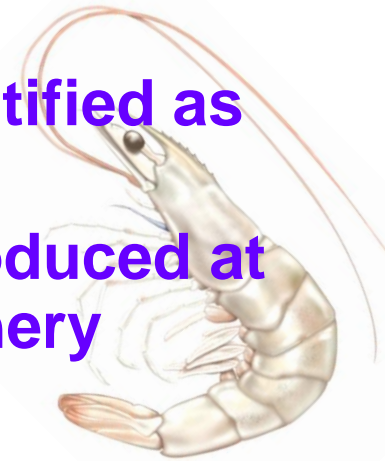
Natural Availability of aquaculture production areas of Pangasius in Bangladesh

- Pangasius is available in all major rivers of the middle and southern parts of the country.
- **Pangasius sutchi introduced in 1990 and being cultured in all over the country**
- Bangladesh is 2nd largest producing country of Pangasius in the world.
- No enough idea for processing and exporting of Pangasius
- Mostly consume in local market
- Pangasius production is about 50-70 MT/per hectare so huge potentials to increase production.
- Existing processing plants have surplus capacity to process and export of Pangasius.



Continued2

- Value addition & diversification of Pangasius can contribute more foreign exchange earning.
- International demand for Pangasius is increasing
- Tremendous scopes for vertical and horizontal expansion of Pangasius production.
- Monosex Tilapia and Baramundi can be identified as new species for production and export
- HACCP and Traceability system can be introduced at farm level easily than shrimps and other fishery products.
- Record keeping is easy.





Related to Non-tariff trade rules by importing countries

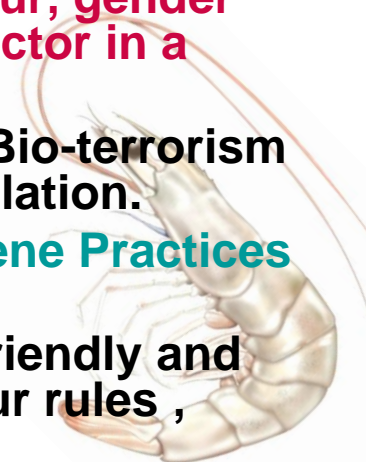
- **Food Safety**
- **Human Rights– Labour Rules**
- **Environmentally sustainability**
- **Socially responsibility**
- **Ethical Trade Practice**
- **Bio-terrorism**
- **Traceability**





Food Safety Issues

- Food must be safe for human health
- Food must be produced, handled and stored strictly complying with hygienic and sanitation rules , at all levels
- Food must be free from pathogenic bacteria, prohibited antibiotics (nitrofurans and chloramphenicol) and other hazardous chemicals: pesticides, heavy metals, hormones, histacin, and of course filth & dirt, etc
- Recently environmental aspects, human rights, child labour, gender development and similar issues have again placed this sector in a critical juncture.
- These have been further complicated by inclusion of the Bio-terrorism Act, Antidumping Act, COOL system and traceability regulation.
- Compliance of Good Aquaculture, Environment and Hygiene Practices at all relevant levels
- Food must be produced and handled in an environment-friendly and socially responsible manner and in compliance with labour rules , maintain traceability regulations is highly recommended



CONTAMINATION WITH PATHOLOGICAL BACTERIA: **Major problems in the past**

- Rejections of the finished products due to contamination with pathogenic bacteria: Vibrio, Salmonella, Escherichia, and occasionally Shigella
- These bacteria cause various enteric problems
- They live in the gut of human and many other warm blooded animals
- Also live in natural aquatic environment including shrimp farms
- Proper sanitation at farm and subsequent levels important
- Thorough washing with potable water and cooking the shrimp is strongly recommended

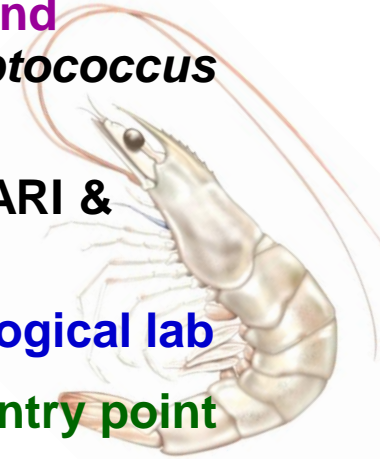




RECENT IMPROVEMENTS



- Bangladesh shrimp industry has substantially upgraded processing factories and improved sanitation of the farms, field depots to guard against pathogenic bacteria.
- DoF conducts aquaculture residue monitoring:
 - (i) Chemical: Antibiotics, pesticides, heavy metals, dye, steroid, stilben, growth hormone
 - (ii) Microbiological: Three DoF labs routinely conduct following microbiological tests: Total Plate Count, Total coliform, faecal coliform/*E. coli*, *Vibrio cholerae*, *V. parahaemolyticus* and *Salmonella*. On any special demand from buyers, *Streptococcus* and *Shigella* are also tested
- For reference purpose, DoF-FIQC uses BCSIR, AEC, BARI & ICDDR'B
- All EU approved processing factories have a microbiological lab
- Recently EU has withdrawn the mandatory lab test in entry point within EU countries.



No rejection due to pathogenic bacteria in recent years



Role of FIQC

Back ground:

- The concept of quality control laboratory for pre-shipment inspection & microbiological examination of exportable fish was first mooted in 1973, primarily to meet the requirement of the foreign buyers.
- The FIQC was sanctioned in 1975 – 1976. It got its legal backing in 1983, when govt. enacted a comprehensive legislation entitled 'The Fish & Fish Product (Inspection & Quality Control) Ordinance, 1983. It has three laboratories: Khulna, Chittagong and Dhaka
- The driving forces for establishing FIQC was to tackle the quality problems (Detection of *Salmonella*, filths and extraneous substances) of Frog legs and Shrimps detected at the US ports.
- Microbiological and biochemical analysis of the collected samples from the factories done for issuing pre-shipment health certificate
- There are four LC/MS/MS machine in Dhaka laboratory mainly used for analysis of nitrofurane, chloramphenicol, tetracycline, malachite green and crystal violet.





Major Activities of FIQC

- **Inspection of the processing plants, ice plants, landing centers, Depots, fish feed millers & traders, farms & hatcheries**
- **Collection of samples from the above mentioned establishments for laboratory analysis**
- **Collection of samples for detection of residues (According to the "National Residue Control Plan (NRCP)"**
- **Lab. Analysis of collected samples((Microbiological, Chemical & filth)**
- **Inter lab. tests of the samples**
- **Issuing pre-shipment health/salubrity certificate for export**
- **Issuing Licence for the processing plants, ice plants, landing centers, Depots**
- **Registration of farm and hatcheries**
- **Conducting training programs for all stakeholders (Farmers, shrimp collectors/depot owners, ice plant owners, factory personnel)**
- **Conducting awareness programs regarding emerging problems like Nitrofurans, Chloramphenicol, etc.**
- **Implementation of HACCP and traceability through development project**
- **Monitor Compliance of Labour Rules**





STATUS OF KNOWLEDGE IN BANGLADESH ABOUT NON-TARIFF TRADE ISSUES

- **Very little about five years ago**
- **Only a few FIQC officers of DoF and Exporters knew about the issues**
- **Stakeholders at hatchery, farm, depot, shrimp transport, processing plant, feed mill and ice plant had very little knowledge specially implementation of Traceability**





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Shrimp Farm



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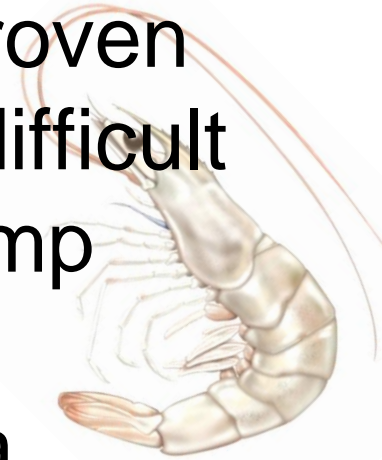


Preparing shrimp for export



THE PROBLEM

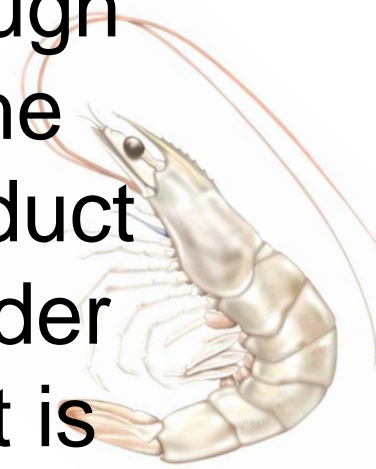
To ensure continuing access to export markets for Bangladesh seafood, and in particular to the the EU (EC Regulation N° 178/2002), Bangladesh needed a proven traceability system. It is particularly difficult in Bangladesh and other similar shrimp exporting countries, due to the large number of very small suppliers and a complex and irregular system of intermediaries.





TRACEABILITY

Traceability is an important element in quality assurance, and especially in food safety. Traceability means that, through detailed record keeping throughout the value chain, the origin of a faulty product or batch can be easily identified in order to block further supplies until the fault is rectified



Current Status

In cooperation with FIQC/DOF and BFFEA, BQSP/UNIDO Project develop paper based Traceability frame work and introduced a complete traceability System since 2009.

- Development of Traceability forms : (Farm Registration, Farm Information , Depot information , receiving and product information for the shrimp processing industries).
- Piloting in 3(three) Upozillas followed by industry-wide implementation.

Contd. 2

- Registration of all 1,98,325 shrimp & prawn farms on the basis of area.
- Training on Traceability involving : 9,804 farmers , 1,325 collection depot managers & Staff, 409 export processing plant officials, 48 Ice factory managers and 600 DoF's Inspectors , trainers and extension Officers.



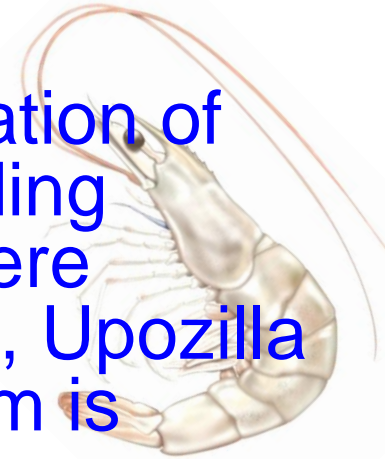
Implementation Strategy

1. Identification of actors in shrimp value chain.

- Main actors are farmers , Ice producers , middlemen, Depot owners and processing industries.

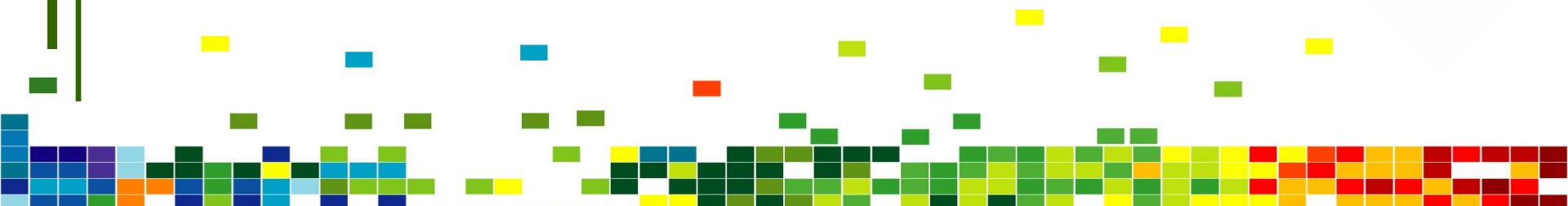
2. Area coding and selection of pilot run area :

- BQSP/ UNIDO with the active participation of DOF and BFFEA formulated area coding system and finalized area coding, where country code followed by district code, Upozilla code, Mouza and finally individual farm is decided.



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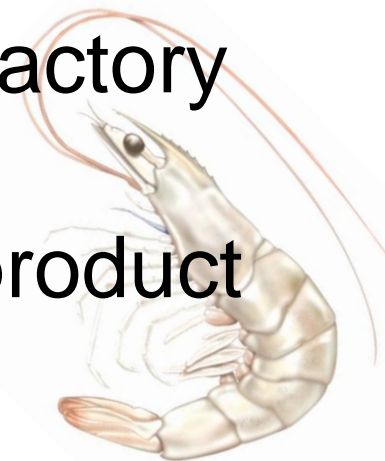
- ❖ The first step was to check the traceability system in shrimp value chain in a pilot run of small area. Three upozillas, Fultala of Khulna , Rampaul of Bagerhat and Ukhia of Cox's bazar were selected.
- ❖ Feed mills and Hatheries were not incorporated for pilot run area.



Contd.

3. Document preparation

- ✓ The traceability documents prepared are farm registration form , farm information form, depot information form, Ice factory hygiene information form , factory processing information form and product shelf life information form



Disadvantage of paper based Traceability systems:

- Document retrieval can be time consuming .
- Quantity of document archived can be overwhelming.
- Paper is vulnerable to humidity , fire etc.
- Information exchanged only at certain times and locations.
- Paper can be easily copied or forged.
- Error prone.
- Once lost, the information can not easily be reconstructed.
- Analysis, Statistics and data mining is challenging.





Current usage of paper based traceability documents

- Farmers and depots are not willing to fill documents
- Too much work
- No controls
- Nobody is doing that
- No personnel benefit
- Industry fills docs on best guess based on area where shrimps came from

Constraints faced

- Too many small farmers
- Individual catch per day is too small
- Education level of farmers is too low or nil
- Too many intermediaries
- Traceability at field level is very challenging





Next step towards e-traceability

- UNIDO has conducted feasibility study for computer based traceability
- Prepared the framework for computer based traceability
- Piloting will start in 2014
- Major concern: running and maintenance cost of e-traceability
- Until then, we are using paper based traceability

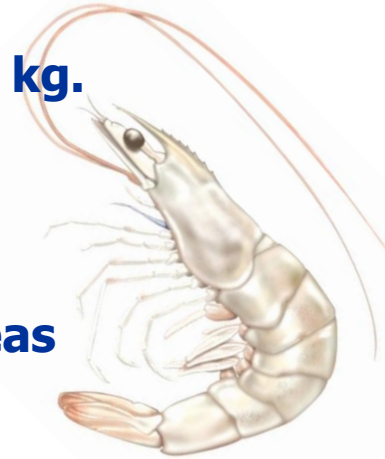




BFFEA Vision 2020



- **BFFEA has fixed export target Tk. 12,000+ crores or US \$ 1.5 billion against the present US \$ 543.84 million**
- **BFFEA has fixed their production target 300 Million Lbs against present production 200 Million Lbs**
- **Culture area target 3,00,000 hectare against present 2,76,000 hectare**
- **Per hectare production target 700-1000 kg from 300 kg.**
- **BFFEA farming system preferences:-**
 - **Shrimp rotated with paddy/salt/fin fish**
 - **More than one shrimp crop in saline non-paddy areas**
 - **Environment friendly and socially responsible**
- **Implement GAqP , HACCP, Traceability at all levels**





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**THANK YOU FOR
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