FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

TECHNICAL COOPERATION PROGRAMME

Country:	Bangladesh
Project title:	Building trade capacity of small-scale shrimp and prawn farmers in Bangladesh – Investing in the Bottom of the Pyramid Approach
Project symbol:	MTF/BGD/046/STF (STDF/PG/321)
Starting date:	1 April 2012
Completion date:	31 March 2014
Government Ministry Responsible for project execution:	Department of Fisheries, Ministry of Fisheries and Livestock, Dhaka, Bangladesh
Budget covering STDF contribution:	USD 568 750[1]

[1] For FAO purposes: plus USD 68 250 (12 percent PSC)

PROJECT AGREEMENT

1. Upon request from the Government of **Bangladesh** (the Government), and within the framework of its agreement with the World Trade Organization (WTO), the Food and Agriculture Organization of the United Nations (FAO) will supply assistance for the execution of the following project once it is also accepted by the WTO.

Project Title: Building trade capacity of small-scale shrimp and prawn farmers in Bangladesh – Investing in the Bottom of the Pyramid Approach

Project Symbol: MTF/BGD/046/STF (STDF/PG/321)

A detailed description of the project, including background, rationale, project framework, implementation and management arrangements as well as oversight, monitoring, management information and reporting, is provided in the attached Project Document.

FAO OBLIGATIONS

2. FAO shall be responsible for the recruitment, international travel, salaries and emoluments of the international personnel scheduled in the Project Document. The candidatures of these international staff shall be submitted to the Government for clearance following FAO's procedures. FAO shall also be responsible for the recruitment, salaries and emoluments of the national experts, national consultants, and national personnel as scheduled in the Project Document, except for counterpart personnel assigned by the Government.

3. FAO will procure, in accordance with its rules and regulations, the equipment and supplies described in the Project Document. The equipment will remain the property of FAO for the duration of the project. Its ultimate destination shall be decided by FAO in consultation with the Government and with the WTO.

4. FAO will arrange for periodic technical supervisory, support or review missions to the project, with the full costs to be financed from the project's budget.

5. All FAO's obligations arising under this Project Agreement shall be subject to: (i) the decisions of its Governing Bodies and to its constitutional, financial and budgetary provisions; and (ii) the receipt of the necessary contributions from the WTO. All financial accounts and statements shall be expressed in United States Dollars and shall be subject exclusively to the internal and external auditing procedures laid down in the Financial Regulations, Rules and directives of FAO. Any obligations assumed by FAO may, at any time, be taken over by the WTO.

6. FAO may, in consultation with the Government, execute part or all of the project by subcontract. The selection of the subcontractors shall be made, after consultation with the Government, in accordance with FAO's procedures.

GOVERNMENT OBLIGATIONS

7. The Government shall take all necessary measures to facilitate the execution of the project and to assist the FAO staff in obtaining such services and facilities as they may require to fulfil their tasks. The Government shall apply to FAO, its property, funds and assets, its officials and to the

persons performing services on its behalf in connection with the project: (i) the provisions of the Convention on Privileges and Immunities of the Specialized Agencies; and (ii) the United Nations currency exchange rate.

8. The Government shall deal with any claims brought by third parties against FAO, its personnel or other persons performing services on its behalf in connection with the project, except when it is agreed by FAO and the Government that such claims arise from gross negligence or wilful misconduct of such persons.

9. The Government shall be responsible for the recruitment, salaries and social security measures of its own national staff assigned to the project. The Government shall also provide as and when required for the project, the facilities and supplies indicated in the Project Document.

10. The Government shall grant to the staff of FAO and of the WTO and to persons acting on their behalf, access to the project site and to any material or documentation relating to the project, and shall provide any relevant information to such staff or persons.

11. The Government shall be responsible for the cost of import and customs clearance of the project's equipment, its transportation, handling, storage, and related expenses within the country; its insurance, safe custody, and maintenance, after delivery to the project site, as well as replacement if necessary.

REPORTING AND EVALUATION

12. FAO will report to the Government (and to the WTO) as scheduled in the Project Document.

13. The Government shall agree to the dissemination of information, like descriptions of the project and of its objectives and results, for the purpose of educating public opinion.

14. The project may be subject to independent evaluation according to the arrangements agreed to between the donor, recipient government and FAO. The evaluation report will be treated as confidential with restricted access by parties not directly involved in the project. However, FAO is authorized to prepare a brief summary of the report for the purpose of disseminating broadly its main findings, issues, lessons and recommendations as well as to make judicious use of the report as an input to evaluation synthesis studies.

CLAIMS, AMENDMENTS AND TERMINATION

15. Any dispute, controversy or claim arising out of or in connection with this Agreement or any breach thereof, shall, unless it is settled by direct negotiation, be settled by arbitration in accordance with the UNCITRAL Arbitration Rules in force on the date when this Agreement takes effect. The parties hereto agree to be bound by any arbitration award rendered in accordance with this Section as the final adjudication of any disputes.

16. The present agreement shall be governed by general principles of law, to the exclusion of any single national system of law.

17. Nothing in or related to any provision in this Agreement shall be deemed a waiver of the privileges and immunities of FAO.

18. This Project Agreement may be amended or terminated by mutual consent. Termination shall also take effect sixty days after receipt by either party of written notice from the other party. In the event of termination, the obligations already assumed by the Government shall remain in force to the extent necessary to permit orderly withdrawal of the funds and assets of FAO, and of personnel performing services on its behalf.

19. This Project Agreement shall enter into force upon signature by both parties.

On behalf of: The Government of Bangladesh	On behalf of: The Food and Agriculture Organization of the United Nations
Name:	Name: **Laurent Thomas**
Title: **Economic Relations Division (ERD)** **Ministry of Finance**	Title: **Assistant Director-General** **Technical Cooperation Department**
Signed: _____	Signed: _____
Date:	Date:

Attachment: Project Document with
Annex 1 Budget
Annex 2 Logical Framework
Annex 3 Terms of Reference
Annex 4 Work Plan
Annex 5 Implementation Structure

EXECUTIVE SUMMARY

The Standard Trade Development Facility (STDF) project will assist the Government of Bangladesh to fill gaps in existing Sanitary and Phytosanitary Measures (SPS) assistance, and particularly to develop effective "bottom of the pyramid" solutions for compliance with the World Trade Organization's agreement on the Application of Sanitary and Physosanitary Measures (WTO/SPS) and related Codex Alimentarius and World Organisation for Animal Health (OIE) standards. It will build on lessons learned from India and Indonesia and help facilitate the transfer of relevant experiences to Bangladesh to reduce the risks of antimicrobial contaminants in shrimp and prawn aquaculture products. The project will empower small-scale farmers and farming sector to better manage their farming practices, thus reducing the risks of antimicrobial contamination in shrimp and prawn products, subsequently improving the compliance to SPS-based trading standards and access to trade.

The project will assist 800 small-scale shrimp and prawn farmers to organize into manageable clusters, develop and implement risk-based Better Management Practices (BMPs), and empower them to implement better standards for export. The project will develop and implement BMPs based on national and international guidelines, principles and standards (FAO Code of Conduct for Responsible Fisheries, FAO Aquaculture Certification Guidelines, Bangladesh National Shrimp Code of Practice, OIE and WHO/Codex standards) through a cluster management approach with a view to increasing market access through improved compliance to international trade requirements. Once the BMPs are implemented the small-scale farmers will be able to produce a product which is in compliance with international trading standards, in particular food safety and animal health and also covering environment and social aspects, thus improving the market access for shrimp and prawn products from small-scale farming sector in Bangladesh. As an end result, the concept of BMP and cluster management to accomplish responsible and sustainable farming will be further strengthened, risks to food safety will be significantly reduced, small-scale farmers will secure better markets, thus improving their social welfare. The project, which will be implemented by FAO, will be executed by the Department of Fisheries (DOF) in Bangladesh in close collaboration with the World Fish Centre (WFC). Relevant industry organizations, including the Bangladesh Shrimp and Fish Foundation (BSFF) will partner the project.

The total contribution from the STDF to the project is estimated at USD 568 750. In addition, FAO, WFC and the Government of Bangladesh will make in-kind contributions of USD 78 800, USD 51 000 and USD 57 000, respectively, through the provision of technical support. With the addition of these contributions the total project cost is estimated at USD 755 550.

The project will be initiated on 1 April 2012 and will be completed within two years.

SECTION 1. BACKGROUND

1.1 General Context

Aquaculture is widely considered to make important contributions to meeting the UN Millennium Development Goals (MDGs) of poverty reduction and food security[2] and can be a source of wealth creation, supporting national economic development. While the fish supply from capture fisheries appears to have reached a plateau, the demand for fish and fish products is rising. This increasing demand is being met by aquaculture (fish farming), with an average annual growth rate of 8 percent over the past two decades. Aquaculture is the fastest growing food producing sector in the world, dominated by small-scale farmers and farms, and currently accounts for almost 50 percent of the world's fish food supply (Figure 1).

Asia is the cradle of aquaculture contributing 90 percent to global farmed food fish supply. China continues to be the biggest producer and along with seven others in the region are in the top ten ranked aquaculture producers in volume and value. All six countries that have attained a production level of more than 1 million tonnes a year are in the Asia region. One of these six countries is Bangladesh.

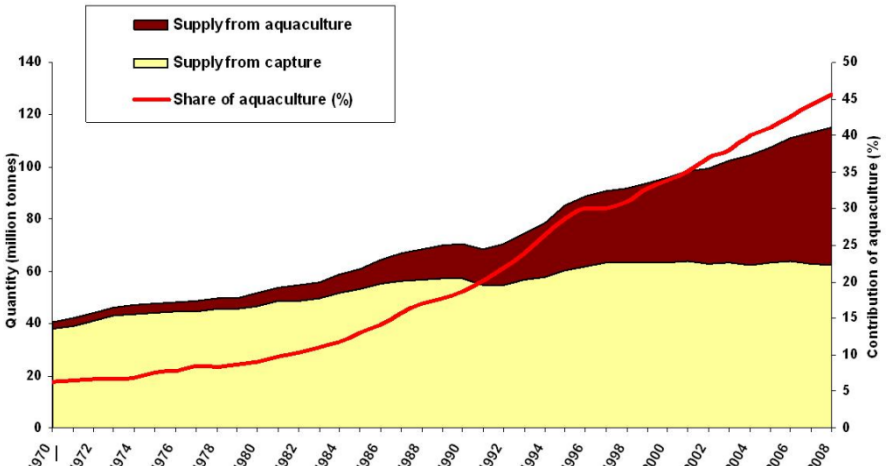


Figure 1. Contribution of aquaculture to global food-fish production (1970-2008)

Aquatic animal products have become the most traded food commodity from the developing countries of the world. As more and more aquatic products are traded globally, international standards have been introduced to protect consumer health as well as the environment at large. In order to access and maintain export markets, producers need to apply appropriate controls and practices to ensure that their product meets relevant international standards. Aquaculture is a sector dominated by small-scale producers. They are poor and are neither well organized nor empowered to be resilient to complying with international trading standards. Consequently, many small-scale farmers are going out of business and face serious livelihoods problems including food security.

[2] Fisheries and aquaculture contribute to several of the MDGs, in particular MDG 1 (Eradicate poverty and hunger); MDG 4 (reducing child mortality) and MDG 7 (Ensure environmental sustainability).

1.2 Sectoral Context

Aquatic products are the most internationally traded agriculture commodity in the world. The global seafood market is estimated around USD 80 billion and farmed products make up an increasingly greater proportion of the trade due largely to stagnating wild fisheries supplies. The highest value commodity group traded around the world is "crustacean"; the group to which shrimp and prawn belong to. Over 70 percent of the crustacean production originates from small-scale aquaculture farms. The two major crustacean species produced in the world are; *Penaeus* spp. (marine **shrimp**) and *Macrobrachium* sp. (freshwater **prawn**). Major market for these products from Asia is the European Union (European Union).

Shrimp and prawn are important export commodities for Bangladesh as well. In 2008, Bangladesh produced 69 350 tonnes of shrimp and prawn products and exported 69 326 tonnes, mainly to the European Union and the United States of America, valued at USD 564 million (Figure 2 and Table 1). Shrimp and prawn is the second most important export commodity in Bangladesh next to textiles. A very small volume of shrimp and prawn products is consumed in the country.

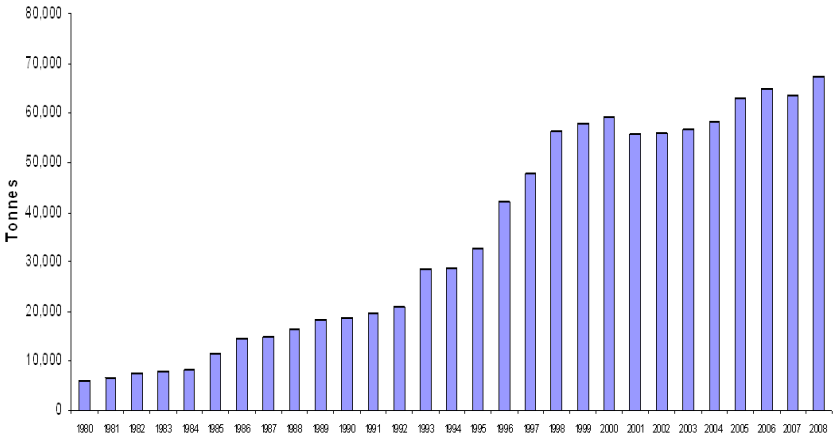


Figure 2. Shrimp Aquaculture production in Bangladesh 1980 – 2008.

Shrimp and prawn products represent the bulk of exports to the European Union and the United States of America. The majority of production comes from small-scale farmers who are unorganized, not well informed and vulnerable[3]. Individually they do not have the capacity to implement good biosecurity measures and better management practices which keeps pathogens away from their production systems. Since the small-scale sector is not well organized and the farmers still operate as individuals with little or no biosecurity and health management measures included in their management practices, farmers regularly encounter disease and health-related problems. This situation forces them to find quick-fix solutions, mainly based on therapy and antimicrobial treatment. As a consequence, residues of banned antimicrobials and other substances accumulate in the shrimp and prawn products and get rejected at importing country borders, in particular by the European Union and the United States of America, resulting in loss revenue, income and livelihoods for a large number of small-scale farmers and their families. This project will address the problem at grass root level, finding reasons for disease incidents in shrimp farming, applying better management practices to minimise them, thus reducing the use of antimicrobials and other therapeutic agents and chemicals which may result in residues and contaminants in internationally traded shrimp and prawn products.

[3] While precise estimates are lacking, over 80 per cent of shrimp and prawn aquaculture in Bangladesh is small-scale, less than 0.5 ha in size and practiced by resource-poor small operators.

Bangladesh is a member of FAO, OIE, World Health Organization (WHO) and the World Trade Organization (WTO). Bangladesh is obliged to report to OIE on a regular basis on the national status and the occurrence and spread of animal diseases, including aquatics. Bangladesh is also obliged to have measures in place to comply with the Codex Alimentarius and OIE trading standards as well as relevant European Union and the United States of America regulations. Apart from having measures in place, Bangladesh is also obliged to implement those measures to ensure the safety of shrimp and prawn products, including the control of residues and contaminants in live animals and animal products.

Table 1. Shrimp and prawn production and export from Bangladesh in 2008

	Volume [tonnes]	**Value [USD]**
Total Production	69,350 (Aquaculture: 67,197)	274,281,000
Imports	209	804,000
Exports	69,493 (to European Union: 27,900)	564,228,000
Domestic consumption (Estimated)	66	N/A

Source: Fishstats (ISSCAAP Group: Shrimp and Prawn - 2009)

1.2.1 Development priorities, World Food Summit objectives and MDGs

The project contributes to FAO's Strategic Objective D - Improved safety and quality of food at all stages of the food chain. The project also supports the Declaration of the World Summit on Food Security 2009 calling for support for initiatives aimed at helping farmers; particularly small-scale producers increase production and integrate with local, regional and international markets (see Para 22 of the Declaration[4]). Successful implementation of the project will contribute significantly to meeting MDG goals 1, 7 and 8 by lifting rural incomes, promoting environmentally sustainable farming practices and building partnership to achieve development goals.

The shrimp sector in Bangladesh provides employment for approximately 600 000 people of which 36 percent are female. In more detail, 62 percent of employment in the processing segment of the shrimp value chain are female, and 90 percent of casual workers are female as well. The project is gender neutral but given the participation of women in the farming sector, the project can be expected to have positive empowerment and impact on women through growth in rural household incomes and prosperity.

1.2.2 NMTPF and UNDAF

The Bangladesh Government gives high priority to aquaculture as a major foreign exchange income earner and employment provider in the country, thereby contributing to food security. Fisheries and aquaculture development is fully integrated into national development policies, strategies and plans, such as National Fisheries Policy 1998, Export Policy, 2009-2012, Poverty Reduction Strategy Paper (PRSP II, or National Strategy for Accelerated Poverty Reduction II, FY 2009-11), Sixth Five-Year Plan (2011-2015) and Long-term Perspective Plan (Vision 2021), the

[4] The Declaration of the World Summit on Food Security 2009
http://www.fao.org/fileadmin/templates/wsfs/Summit/Docs/Final_Declaration/WSFS09_Declaration.pdf

National Medium-Term Priority Framework (NMTPF) and the UN Development Assistance Framework (UNDAF).

1.3 Sectoral Policy and Legislation

The Government of Bangladesh is committed to improving food safety standards of aquatic products destined for international markets and considerable measures have been taken to improve policy, legal frameworks and laboratory testing and monitoring procedures. For example, the responsibility for fish inspection and quality control is with the Department of Fisheries (DOF), which maintains several laboratories to certify the quality of exportable fish and fishery products. The Fisheries Ordinance is further implemented by the Fish and Fish Product (Inspection and Quality Control) Rules (1997), which include HACCP requirements for shrimp processing plants. However, there is no legislation in place for controlling fish movement, disease, use of chemicals and veterinary drugs, and use of feed. In addition, there is little or no efforts are made to improve the farm management knowledge base of the thousands of small-scale farmers engaged in aquatic food production by training so that irresponsible use of banned antibacterials can be reduced. This project will organize and train small-scale farmers to better manage their farms thus reducing the irresponsible use of antimicrobials and other therapeutic drugs and chemicals..

In order to ensure long-term sustainability and efficiency of better management practices, the project will have clear farmer training and empowerment and policy strengthening components. A key part of the project will include the identification of causes of disease, better understanding of current veterinary drug use and practices and assistance towards implementation of appropriate Codex Codes of Practice guidelines and OIE standards. The project is designed not only to strengthen the capacity of the shrimp sector but also to link farmers and the farming sector with policy makers, buyers, retailers and certifiers in the international trading arena, and strengthen public-private-partnerships (PPPs) along the shrimp and prawn value chain, so that the project outcomes will be long lasting and sustainable.

The project will foster strong PPP through bringing together the industry and state together in managing small-scale farming sector. The BMPs to be developed will fully comply with the FAO Code of Conduct for Responsible Fisheries, the Code of Conduct for Bangladesh Shrimp Industry, jointly prepared by the Department of Fisheries and the BSFF in March 2011. The project will complement the trainer training programme on implementation of Shrimp Code of Conduct initiated by the BSFF with the advice and assistance of the United States Food and Drug administration (USFDA) and the Joint Institute for Food Safety and Nutrition (JIFSAN, a University of Maryland and FDA collaboration),

SECTION 2. RATIONALE

2.1 Problems and issues to be addressed

2.1.1 Problem

Shrimp and prawn products from Bangladesh are regularly rejected at international borders due to the detection of contamination and residues, particularly those deriving from banned antibacterials. As a consequence, Bangladesh has been subject to the Rapid Alert System for Food and Feed (RASFF) of European Union notifications for many years for residues of veterinary medicinal products in aquaculture products traded with European Union. This has caused serious problems in the trade of aquaculture products with the European Union, in particular shrimp and prawn products, and led to economic losses throughout the value chain, affecting not only the processors and exporters, but also the large number of small-scale farmers and women and men employees in the aquatic food business.

According to the latest report of the Food and Veterinary Office (FVO) issued in mid-2010, between November 2008 and March 2010 there were 54 RASFF notifications for residues of veterinary medicinal products in aquaculture products traded between Bangladesh and the European Union. All notifications were for findings of the marker residue (SEM) for the nitrofuran drug nitrofurazone in freshwater crustaceans. Based on the results of a FVO mission in 2009 and these RASFF notifications, Bangladesh imposed a voluntary ban on the export of freshwater prawns to the European Union, resulting in complete stoppage of trading of freshwater prawns and prawn products between Bangladesh and the European Union. Following negotiations with the European Union, the ban was partially lifted in early 2010 and few processors have been allowed to export to the European Union. Similar rejections have also taken place in the United States of America.

During 2010, there was a reduction of RASFF notifications. This was due to some changes in the analytical procedures used by the European Union laboratories. However, notifications still persist and only very few processing plants are approved for exporting shrimp and prawn products to the European Union. As a result Bangladesh shrimp and prawn exports to the European Union have been drastically reduced. An essential part of the strategy to reduce the use of antimicrobials and other veterinary drugs in freshwater crustaceans is the application of best practices to ensure a healthy product and therefore eliminate the need to use veterinary medicines.

Even after improved efforts by the competent authorities, the national quality control management for contamination of aquaculture products and their compliance with international trade standards is still inadequate. Most efforts are targeted towards improving and strengthening National Residue Monitoring Programme (NRMP) capacity through improved detection procedures, laboratory testing methodologies and stringent rules and regulations. However, since the effective enforcement of regulations is generally weak due to inadequate resources, both human and financial, the problem of contamination and residues in shrimp and prawn products continues to persist. Furthermore, there have not been any organized, comprehensive, targeted and sustained efforts to address the problems related to residues in shrimp and prawn products at grass-root level, i.e. farmer and farm levels. An important part of the training of farmers under the project will be to determine/increase understanding of the causes of disease which lead to the use of veterinary drugs. An assessment of current habits of use of veterinary drugs will also be undertaken. This will lead to the adoption of practices to prevent disease.

Many small-scale farmers face increasing problems in participating equitably in modern value chains in international trade due to, among others, difficulties in complying with increasingly high production standards, food safety and quality assurance requirements. The small-scale aquaculture sector is weak and continuously faces pathogen incursions and disease threats. This is mainly due to lack of organization, good production management and adequate technical knowledge and know-how. As a result, small-scale farmers tend to find quick-fix solutions to disease problems, such as the irresponsible use of antimicrobials and veterinary drugs.

It is also evident that in Bangladesh some veterinary drugs are incorporated into shrimp and prawn feeds for various reasons. There is also evidence that ingredients used in feed preparation are not up to the required standards. Thus, feeds have become a source of antimicrobial residues in shrimp and prawn products, too.

2.1.2. How to address the problem

The currently available public and private shrimp and prawn aquaculture support services (e.g. government extension systems and private feed companies) do not adequately support the small-scale farmer and do not provide a mechanism for improvement. This is partly due to the fact that small-scale farmers are scattered, remote and difficult to reach, and often the necessary skills and financial resources are not available with the national authorities. Well-planned and targeted technical and financial assistance projects can achieve good success by helping farmers to organize in "clusters" (self-help groups) and adopt Better Management Practices (BMPs)[5]. Clustering of smaller producers can create economies of scale and volumes that attract business, sellers of fish feed and fry, buyers of aquaculture products, and build social capital.

During a recent study conducted on request of the DOF in Bangladesh, FAO accordingly recommended to develop, disseminate and implement system-specific BMPs for golda (prawn) and bagda (shrimp) production, and possibly for both hatcheries and farms. BMPs should focus not only on all aspects of production including prevention of disease and prudent use of antimicrobials, but also on fostering collaboration between farmers and the establishment of farmer groups. It was also recommended to link BMP farmers to markets requesting more sustainable products and to explore options for (environmental and social) certification.

Years of experience of FAO working on BMPs in many countries in Asia (i.e. India, Indonesia, Thailand and Viet Nam) confirm that the effective way to provide sustainable support is to work at grass-root levels, i.e. farmers and service providers (i.e. those providing farm inputs - hatcheries, feed producers, veterinary drugs and chemical traders, etc.). Investing in a better organization of smaller producers and improved technical and financial services pays dividends.

Farmer cooperatives have been widely promoting mechanisms in agriculture, but there is little documented information on cluster farming by commercially-oriented small-scale aquaculture producers. Recent experiences in India and Indonesia show that the promotion of cluster farming in aquaculture and managing these clusters with technical improvement, such as through application of BMPs, can yield economic and social benefits. Such value-chain approaches can be successful tools for improving aquaculture governance and management of small-scale producers to work

[5] Better Management Practices (BMPs): Management practices aimed at improving the quantity, safety, and quality of products taking into consideration animal health and welfare, food safety, and environmental and socio-economic sustainability. See also Kassam, L; Subasinghe, R and Phillips, M. Aquaculture Farmer Organisations and Cluster Management: Concepts and Experiences. FAO Fisheries and Aquaculture Technical Paper 563. pp 88. FAO, Rome. (In Press).

together, improve production, better compliance with international standards (Codex and OIE) and SPS requirements, develop sufficient economies of scale and enhance knowledge that allows participation in modern market with shorter supply chain (less transaction costs) and thus reduce vulnerability. In addition, economics of scale could strengthen a negotiation power of the farmers with hatcheries and feed mills to procure better quality seeds and feeds (i.e. no antibiotics).

Such governance and management approaches can lead to an improved economic performance of the aquaculture sector, better farm incomes and improve resilience of farm production systems and households. In India, under a programme initiated by FAO, the Marine Products Export Development Authority (MPEDA) and the National Centre for Sustainable Aquaculture (NaCSA) have supported self-help groups and small-scale shrimp farmers to adopt BMPs. The establishment and application of BMPs aimed at reducing disease risks in farming, thus reducing the use of antimicrobials in culture has been a success in India under the NaCSA/MPEDA initiative. As of March 2010, NaCSA has formed 531 societies (clusters) covering 12,091 farmers and 12,889 ha. This model offers a very good platform to promote responsible use of permitted therapeutics in aquaculture and reduce antimicrobial contamination of aquaculture products. ***The last FVO report on India stated that the efforts made in Andhra Pradesh in India on the "own-check residue programme" (part of the NaCSA/MPEDA programme) have been effective but yet to be implemented nationwide.***

Whilst more studies are needed, economic analysis also suggests that investments in services can yield substantial social and economic benefits – experiences in India during 2004-2009 showed that for each Indian Rupee invested in the technical assistance programme, a profit of nearly 16 Rupees was provided for coastal shrimp farmers (an investment of USD 100 by a small-scale shrimp farmer generated a USD 1,600 profit).

Another experience is in the Aceh Province, Indonesia. Shrimp and milkfish are the major aquaculture products from Aceh, a mix that contributes to export earnings and food security, along with growing volumes of tilapia, and minor species such as catfish, crabs, seabass and grouper. A coalition of partners including FAO and the WorldFish Centre (WFC) has worked together in Aceh since 2005 to assist coastal fish and shrimp farmers and communities recover from the December 2004 earthquake and tsunami, and to build better livelihoods. Good progress has been made in physical rehabilitation of ponds and canals, introducing improvements in farming practices (BMPs) which have been well accepted by farmers, and rebuilding a traditional system of village farmer groups supported by innovative Aquaculture Livelihoods Service Centres (ALSC). This approach - helping farmers to organize themselves and development of community services - has worked well. In 2010, over 2600 poor households from 82 villages joined a voluntary BMP programme, supported by the four ALSCs, generating improved household incomes of USD 600-800/farmer – a substantial improvement in a poor province. The approach is becoming exceedingly popular, with an estimated 6000 farmers now showing interest and other farming communities wishing to establish ALSCs in their areas.

Under the STDF project, lessons learnt in India and Indonesia on establishing cluster farms/farmers and implementing BMPs to better respond to risks, enhance exports and raise income levels will be adapted to local conditions in Bangladesh, implemented in the field and disseminated to other countries in the region.

In Bangladesh, the WFC currently supports a small number of coastal farmers to improve shrimp farming practices and reduce risks of contamination, using similar concepts. FAO has also recently implemented a project in support of improving the quality control of shrimp hatchery production in Bangladesh. Subsequently, many hatchery operators produce postlarvae with improved quality, without using banned antimicrobials and other drugs. The STDF project will

build on these experiences, combined with a cluster approach, and establish a "bottom of the pyramid" production system which will empower small-scale farmers to be resilient and to be able to reduce health risks, thus ensuring their products are free of antimicrobial residues.

2.2 Stakeholders and Target Beneficiaries

2.2.1 Target Beneficiaries

The project will specifically assist 800 small-scale shrimp and prawn farmers to organize into manageable clusters, develop and implement risk-based BMP, and adopt better standards for export. Better market access and increased household income will indirectly benefit over 3000 people (family members). Once the farmers achieve better market access, many people along the value chain (such as feed and input suppliers) will also benefit.

The beneficiaries will be selected during the first phase of the project by the Department of Fisheries in consultation with FAO, WFC and other stakeholders using a set of criteria focusing on farmers' needs, farming systems practised, economic and social status of farmers, educational status, abilities to learn and understand better management practices and willingness to work as a member of a team/cluster. The criteria will also ensure that gender and child labour issues are addressed in the selection of beneficiaries.

Aquaculture is a priority production sector in Bangladesh and the export of aquatic commodities is considered an important economic activity in the national development plans. The project thus fits well within the national development strategies and policies and will further assist in development of policies to improve market access for aquaculture products.

2.2.2. Ownership and stakeholder commitment

In line with the Government's strong commitment to improve the quality and safety of aquaculture products, thereby ensuring compliance with WTO/SPS requirements, as reflected in various national policies, strategy and planning documents, the Department of Fisheries has developed the project in a participatory way. As part of the project preparation process, extensive consultations were conducted with the key stakeholders, including with shrimp farmers by various FAO missions, and their views have been considered in formulating the project.

The Department of Fisheries has also demonstrated its ownership of the project by endorsing the project's "Investing at the Bottom of the Pyramid" approach and committing itself in writing to assist in achieving the project's objective. Other major stakeholders - FAO, WFC, and BSFF - have also provided a similar written commitment to the project. All these documents are part of the project preparation file. There is a high level of interest and buy-in into the project's objectives and value-chain approach.

The following major stakeholder involvements are envisaged in the project:

Food and Agriculture Organization of the UN (FAO)

The Food and Agriculture Organization of the United Nations[6], is the lead agency for agriculture, forestry, fisheries and rural development. The Fisheries and Aquaculture Department

[6] http://www.fao.org

of FAO provides technical assistance and policy advice to its membership in sustainable development of aquaculture. FAO has a long track record in assisting sustainable aquaculture, including major market commodities such as shrimp, prawn, salmon and tilapia. This STDF project, which will be implemented by FAO in collaboration with other partners, will draw on the resources, experiences, and lessons learned from those projects as well as other projects with relevance to small-scale farmer organization, management, BMP application, and certification.

WorldFish Center (WFC)

The WorldFish Center[7] is one of the 15 centres supported by the Consultative Group on International Agricultural Research (CGIAR), a group of investors worldwide including governments, development banks, philanthropic organizations and development institutions. With partners, the Center carries out research-for-development to improve small-scale fisheries and aquaculture. The WorldFish Center has a strong track record of working with FAO and other partners in Asia. In Bangladesh, the Center has worked for over 20 years on small-scale fisheries and aquaculture, in close cooperation with the Government, NGO and private sector stakeholders. Under this STDF project, WFC will work closely with the Government and the network of grass roots partners of farmers and their local NGOs network.

Department of Fisheries Bangladesh (DOF)

The competent authority for aquaculture and fisheries activities in Bangladesh, the Fisheries Department, will be fully involved in executing the project. Capacity building work and training programmes will include state personnel and the outcome of the project will be expanded in the country by the Department of Fisheries.

Bangladesh Shrimp and Fish Foundation (BSFF)

Bangladesh Shrimp and Fish Foundation (BSFF), a non-profit private research and advocacy organization dedicated to providing services and support to the country's aquaculture-based shrimp and fish industry (details in section on Sustainability), will be a major partner in implementing the project. BSFF will be responsible for assisting project implementation and carrying out special studies and activities as required. Further, the project will liaise and communicate with any other agencies and organizations working towards achieving the project objectives, either directly or indirectly.

FAO and WFC have an informal network of buyers in major importing countries in Europe and the US. The project plans to work with this network to identify private seafood companies interested to partner with stakeholders in Bangladesh to facilitate future market access arrangements. In this respect, letters of support from two major seafood buyers; Aqua Star and Source, have been received.

2.3 Project Justification

Aquaculture is important to Bangladesh and is included in various national planning documents; accordingly the sector is receiving significant priority by the Government. Compliance

[7] http://www.worldfishcenter.org

with WTO/SPS requirements continues to be a key element in delivering poverty reduction and economic growth through trade.

The objective of the project is to improve international market access for shrimp and prawn products originating from the small-scale farming sector in Bangladesh. This would be achieved through building the capacity of aquaculture industry stakeholders in Bangladesh and implementing international standards for aquaculture products, in particular addressing the issue of antimicrobial contamination and residues in shrimp/prawn products. Particular attention is directed towards the development of "bottom of the pyramid" solutions for small-scale producers in rural aquaculture communities to implement SPS standards combined with certification.

In particular, the project will assist 800 small-scale farmers to increase their access to markets and support over 3000 people (family members) to achieve a better household income. Once the farmers achieve increased market access, many other people along the value chain will also benefit.

The project is also intended to assist public and private stakeholders and shrimp and prawn value chain partners to design and develop tools and policies that will bring, particularly, small-scale farmers into SPS improvement schemes, thus contributing to national development goals for poverty alleviation and economic growth. This will be a highly complementary and innovative approach for STDF, with benefits beyond Bangladesh to other major aquaculture producers.

The project will develop and implement BMPs through a cluster management approach in Bangladesh with a view to increase market access through improved compliance with international trade requirements.

BMPs in the aquaculture context outline norms for responsible farming of aquatic animals. BMPs are management practices, the implementation of which is voluntary. Promoting the adoption of BMPs by small-scale farmers is not simple. Dedicated teams of field workers need to work with farmers on a daily basis to bring about attitudinal changes in the small-scale farmers and wean them from preconceived ideas and concepts and conventional practices that are not conducive to the environment, sustainability and food safety. This is a slow process and takes lot of time and resource investment. It will require a common understanding of existing practices in the industry, why disease occurs and why veterinary drugs are used. The project will develop and use appropriate extension methodologies to bring about change in the attitude of farmers, encouraging them to change their culture practices by incorporating BMPs. Provision of science based information to farmer groups through effective networking and communication is one important key to the success.

The project will also attempt to benchmark the provisions included in the better management practices (BMPs) on better shrimp and prawn farming using cluster farm management approach with the recently approved FAO Guidelines on Aquaculture Certification[8]. FAO Aquaculture Certification Guidelines are currently being pilot tested and benchmarked against shrimp and tilapia cluster farm management practices in several countries. FAO Aquaculture Certification Guidelines have been developed in response to a request made by FAO membership with the view to providing guidance for the development, organization and implementation of credible aquaculture certification schemes. The guidelines will encourage responsible trade, consistent with the FAO Technical Guidelines on Responsible Fish Trade, and should provide the opportunity for aquaculture products to enter international markets without obstacles to trade.

[8] http://www.fao.org/fishery/aquaculture/en

As an end result, the project aims to strengthen the concept of BMPs and cluster management in Bangladesh to accomplish responsible and sustainable farming, to significantly reduce food safety risks and secure increased market access for small-scale farmers, thus improving their social standards.

Cost-effectiveness

The problems addressed through the proposal are neither simple nor straightforward. Main line national institutions and government regulations cannot solve them that easily. What is required is a fundamental change in the attitude of farmers and other stakeholders at the grass-root levels. Ensuring a linkage between government approaches and work by farmers will be important. This requires enormous awareness and capacity building support. Outdated and conventional extension approaches used in many of the developing countries cannot satisfactorily address these concerns.

This project proposes the implementation of science-based BMPs through a cluster management approach. Based on the successful cases in India and several other countries in the region[9] it can be confidently concluded that it is the most cost effective and sustainable approach to bring about a practice and attitude change. Once primary producers realize the enormous benefits of BMPs and the cluster management approach, there is no return. The DOF strongly considers the BMP and cluster management approach to be cost effective when addressing the problem compared with alternatives. Investing in the bottom of the pyramid, i.e., the small-scale farming sector, will be comparatively cost effective rather than investing all in state sector capacity building.

2.4 Past and Related Work

Many efforts, as in the past, are being made to address the issue of improving compliance with WTO/SPS requirements, in particular the issue of food safety in aquaculture products in Bangladesh. They include the following:

- TCP/BGD/3101 “Developing a National Shrimp Seed Certification System in Bangladesh”. This FAO Technical Cooperation Programme (TCP) project, implemented from August 2007 to December 2009[10], developed a comprehensive shrimp seed quality assurance programme (SSQAP) covering the shrimp production “supply chain” from broodstock capture to the delivery of shrimp seed to farmers with the objectives of: (a) assuring quality seed delivered to shrimp farmers; and (b) compliance with international best practice and standards. ***The present STDF project will build on these outcomes. The development of localised better management practices (BMPs) during the STDF project will take full account of the SSQAP.***

- On request of the Government of Bangladesh, in 2009 FAO fielded an expert mission. One of the main objectives of this mission was to try to identify the source/s of nitrofuran residues in prawns from Bangladesh. The investigation was carried out during the period 8-14 July 2009 through interviews with government officials (DOF, Department of

[9] **Kassam, L.; Subasinghe, R.; Phillips, M. 2010.** Aquaculture farmer organizations and cluster management: concepts and experiences. *FAO Fisheries and Aquaculture Technical Paper.* No. 563. Rome, FAO. 2011. 85 pp. (In Press)

[10] : https://extranet.fao.org/fpmis/fpmis.htm?TRX=BuildProjectData&PRJ=593002&SEARCH_PARAM=null

Livestock Services/DLS and Bangladesh Drug Administration/BDA), stakeholders throughout the supply chain, analysis of the European Union "rapid alert" and processing plant data and visits to farms, hatcheries, feed mills, laboratories and "medicine shops". This comprehensive report to the Government of Bangladesh provided a basic understanding and analysis of the current problem and also provided background for developing an effective programme through this STDF project for reducing the risks of antimicrobial residues in shrimp and prawn products from Bangladesh. ***The present STDF project will fully utilize the contamination pathway analysis developed during the mission for the development of risk-based BMPs for small-scale shrimp and prawn farming.***

- During 2009 and 2010, FAO assisted the national competent authorities in Bangladesh for training on standard residue testing procedures by bringing experts from Thailand.

- In 2006, the USAID produced a report entitled "pro-poor analysis of shrimp sector in Bangladesh" (http://www.usaid.gov). It concluded that shrimp is an important export for Bangladesh and through its production provides livelihoods for the poor, small-scale farmers, as well as many intermediaries and exporters. However, the profits that are generated from shrimp exports are not broadly shared throughout the chain. There are marked differences in the benefits accruing to middlemen and exporters in contrast to the returns realized by farmers and fry catchers. Moreover, gender disparities permeate the chain leading to occupational segmentation, wage inequality, and increased job insecurity for women. ***However, the study did not address the issue of WTO/SPS compliance and food safety and international trade.***

- In 2007, the International Trade Centre (ITC) issued a report entitled "Review of the National SPS Infrastructure of the Peoples Republic of Bangladesh". The study concluded that a systematic and comprehensive assessment of SPS capacity and needs in Bangladesh is necessary. These assessments should be carried out using the tools developed for this purpose by OIE, FAO (for food safety) and under the auspices of IPPC, and should aim to identify major weaknesses and gaps in the existing capability, having regard to both current and prospective threats and to prospective needs for enhanced capacity in the light of opportunities to increase export trade in agricultural products. ***The study focused on improving residue testing capacity and establishing a strong regulatory framework, but did not address the issue of how to minimise the risks of antimicrobial residues. The report recommended improvements in SPS capacity by strengthening the national framework and regulation. However, it did not look at the options at grass-root level, working with small-scale farmers, hatchery operators, and others.***

- The Bangladesh Quality Support Programme, funded by the European Union, was set up in 2007 and is also supported by NORAD, UNIDO and ITC. It also, to some extent, addresses the issue of shrimp quality. ***However, the emphasis is mainly on improving the quality and capacity of processing plants and residue testing laboratories.***

- The Bangladesh Shrimp and Fish Foundation (BSFF) currently implements a project entitled "Sustaining the Shrimp Industry with Better Market Access by Ensuring Food Safety and Traceability". The overall objective of the project is to help sustain the shrimp industry by supporting the national strategy for poverty reduction and economic growth. The specific objectives include: (a) tracing nitrofurans and preventing their transmission to the shrimp; (b) development of Code of Conduct for the shrimp industry value chain; and (c) establishing a traceability system in the shrimp export sector. The BSFF is currently developing another programme assisting the Bangladesh Department of Fisheries (DoF) in improving laboratory testing of aquaculture products for residues, etc. The

above-mentioned traceability system does not take into consideration the small-scale farming sector and their inputs to shrimp and prawn produce. ***Although these projects complement the objective of overall SPS compliance, as they do not focus on empowering small-scale farming sector and implementing appropriate BMPs as a measure to reduce the risks of disease incidence and subsequent antimicrobial contamination in the final product, the proposed STDF project will fully complement the efforts by BSFF as outlined above. The BSFF will be a major implementing partner in the proposed STDF project.***

- The Greater Noakhali Aquaculture Extension Project (GNAEP) is a project of the Government of Bangladesh (GoB) supported by Danish International Development Assistance (Danida), under the overall responsibility of the Ministry of Fisheries and Livestock (MoFL) and implemented by the Department of Fisheries (DoF) since 1998. GNAEP works with households from the three districts of Noakhali, Lakshmipur and Feni to improve the lives of the poor fish farmers by raising income from their available water resources, through the promotion of improved and sustainable cultivation practices. The project supports development of integrated prawn farming to achieve a more positive impact on poverty alleviation by increasing poor farmers' household income. ***The experiences of the project will provide valuable inputs to the STDF, particularly in grass-roots organization of farmer groups, development of BMPs and local services to improve farming practices. The GNAEP experience will be brought into the initial analysis and BMP development components of the current STDF project.***

- The recent European Union-funded project "Improving Food Safety, Quality and Food Control in Bangladesh" aims at: (a) developing coherent national food quality and safety policies and strategies including risk-based food control programmes; (b) prevention of food safety and quality problems through strengthened and enhanced education and communication; (c) strengthening the food inspection and enforcement services through the development and implementation of risk-based inspection programmes, implemented by properly trained, resourced and supervised food and sanitary inspectors; and (d) enhancing food analysis capability and capacity through the creation of a core of trained analysts with appropriate sampling and testing equipment and methodology. Most of these objectives are focused on strengthening the state sector capacity, in particularly the policy and regulatory frameworks dealing with off-farm products, to manage food safety and quality issues. ***The project at present does not assist aquaculture sector issues.***

- A UNIDO/European Union funded project (Strengthening of fish inspection and quality control services in Bangladesh) is now operational and addresses the issue of fish quality control through strengthening institutional capacity on fish inspection and implementation of HACCP and traceability in processing plants. The project will strengthen inspection and quality control laboratories, create general awareness on food safety, improve women's involvement in fisheries and also improve market access. The main features of the project include training on Good Agriculture Practices (GAP) among the beneficiaries of the project, establishment of demonstration farms and creating awareness for production, processing and marketing of safe food. ***This project has some synergy to the current STDF project. However, it does not explicitly address the issue of farmer organizations, farm cluster management, BMP application, etc.***

- The WorldFish Center's current programmes in Bangladesh focus on the major development issues of the region as defined by governments, international organizations and civil society: food security, poverty reduction and nutrition. WorldFish is focusing on the integration of small-scale aquaculture into farming cycles, raising incomes and

producing micro nutrient dense fish for markets. WFC is currently working with small-scale shrimp farmers in the south west through the USAID funded PRICE Programme, working with the EC to integrate disadvantaged ethnic minorities into aquaculture value chains in the programme, conducting large scale adaptive research into rice-fingerlings systems in the north west of the country funded through the DFID-supported Research In Use (RIU) programme and with small pond-vegetable systems as part of coping strategies for cyclone affected households in the south west. ***The WorldFish Center is a partner of the current STDF project and will work closely with FAO and the Bangladesh Department of Fisheries and will directly provide expertise and knowledge during design, analysis and implementation.***

The Enhanced Integrated Framework Secretariat (EIF) recently started work in Bangladesh on the development of a Diagnostic Trade Integration Study (DTIS), in collaboration with the World Bank. A DTIS concept note is currently under development.

Many projects, except recent projects of the WorldFish Centre aim at improving laboratory testing procedures and higher-level public institutions. Some deal with strengthening NRMP and capacity building and training in the state sector. They also focus on improving legislature and policies, but only a few, if not any, address the problem of grass root level – the four to five million farmers who produce the aquaculture product that feeds into domestic and international markets – this represents a major gap. The problem of SPS compliance, food safety and antibacterial residues cannot be tackled only by labs, tests, and law – a grass root initiative involving strong ownership and skills development of farmers is required for building the "base of the pyramid" of sustainable seafood production and compliance with international trading standards. The skills development should be based on scientific risk-based analytical approach and should address the entire value chain, focusing on all stakeholders and service providers; seed suppliers, feed suppliers, veterinary drugs and other chemical suppliers.

The present project is designed to address this significant gap in current and planned assistance, whilst being complementary to other donor and government initiatives aimed at building public sector capacity and frameworks. This project will also endeavour to provide guidance and advice to the competent authorities in Bangladesh, in particular policy-makers, to become more proactive in policy development and regulation and take account of small-scale producers in developing robust and pro-active SPS policies.

2.5 FAO's Comparative Advantage

FAO[11], the lead agency for agriculture, forestry, fisheries and rural development, was founded in 1945 and currently comprises 191 member countries plus one member organization, the European Community. Its mandate is to raise levels of nutrition, improve agricultural productivity, better the lives of rural populations and contribute to the growth of the world economy. FAO mobilizes and manages millions of United States Dollars provided by industrialized countries, development banks and other sources to make sure that thousands of field projects achieve their goals. FAO provides the technical know-how and in a few cases is a limited source of funds.

FAO Bangladesh currently implements several projects assisting food safety improvement in Bangladesh. This STDF project, which will be implemented by FAO in collaboration with other partners, will draw on the resources, experiences and lessons learned from those projects as well as other projects with relevance to small-scale farmer organizations, management, BMP application and certification.

[11] http://www.fao.org

SECTION 3. PROJECT FRAMEWORK

3.1 Impact

Increase income of small-scale aquaculture farmers and value chain partners and reduction on poverty in Bangladesh.

3.2 Outcome and Outputs

Outcome:

Increased international market access for shrimp and prawn products originating from small-scale farmers in Bangladesh.

Outputs:

1. Project implementation plan is finalized and the detailed value chain analysis is completed, from the farm to fork including buyers and retailers of shrimp and prawn products from small-scale farmers, specifically addressing SPS risks associated with food safety and animal health, and more broadly environmental and social issues.

2. Small-scale shrimp and prawn farmers are organized into registered clusters, totalling 40 farm/farmer clusters (20 shrimp and 20 prawn) involving approximately 800 small-scale farmers.

3. Better Management Practices (BMPs) for reducing the risks of diseases in shrimp and prawn aquaculture are developed. These BMPs complement FAO aquaculture certification guidelines, FAO Code of Conduct for Responsible Fisheries (CCRF) and Bangladesh National Code of Conduct on Responsible Aquaculture. *The application of these BMPs will help in producing shrimp and prawn products which comply with national food safety and animal health standards (Codex and OIE) and other aquaculture certification standards including those of private certifiers. Such compliance will ensure better market access.*

4. Web-based traceability system is developed and operationalized. *The traceability system will be developed jointly by the project, BSFF and DOF and will be hosted and operated by BSFF and/or DOF (to be decided during the project implementation).*

5. Clusters of small-scale farmers have the skills and knowledge to apply BMPs and at least five clusters are delivering to international seafood buyers and national authorities have the skills for monitoring and assisting small-scale farm cluster management activities.

6. Project results and lessons learned are disseminated at national and regional level, through printed materials, virtual information, a national policy improvement and cluster management scaling up strategy and a project terminal workshop attended by government officials of other countries in the region and the private sector.

The main activities and other information are further detailed in the annexed logical framework (Appendix 2) and the work plan (Appendix 4).

3.3 Sustainability

Sustainability

The long-term sustainability of the project's outcome is important and considered a key priority. The involvement and ownership of the project by the Department of Fisheries will greatly contribute to the sustainability of the project. Aquaculture is recognized as a priority sector in Bangladesh and the Government is committed to improving the sector's performance and ensuring better market access. Further, as expressed in its letter to FAO requesting assistance in arranging grant funds for the project from the STDF, the Government (Ministry of Fisheries and Livestock) is committed to upscaling the programme and successful outcomes of the project, thus ensuring sustainability. One of the outputs of the project is a comprehensive strategy for the GoB to upscale the cluster farming concept in the country based on the lessons learned and experience gained during the project.

FAO's experience in development and application of BMPs in shrimp aquaculture in Asia indicates that the project is highly sustainable and can provide a strong catalytic role in terms of applying the approach elsewhere in the country. To promote the programme on a large scale, cluster leaders and lead farmers, who will be selected following interactions with farmers in selected farming clusters, will be trained. The cluster leaders will subsequently take the message back to the farmers. While selecting officers from the Department of Fisheries, conditions on officials remaining in service for a certain period of time should be given due consideration.

Public-Private-Partnership

It is clear from the previous experiences in India and Indonesia that there is no other sustainable and cost-effective way to address the issue of antibacterial residues and other international trading compliance with food safety, except by developing a strong public-private-partnership and empowering small-scale farmers for self-governance through better management and application of BMPs. These public-private-partnerships may include various combinations of private public investments and cooperation. The project will be able to bring all the key national players together and harness their individual strengths and work with small-scale farmers directly. There are many organizations and agencies, both private and public, working on improving aquaculture sustainability in Bangladesh. However, little or no work has been done so far on working directly with small-scale farmers, implementing BMPs and strengthening farmer and service provider capacities for better compliance with SPS-based standards and abidance to appropriate regulations.

The project will promote various types of cooperation between the public and private sector, along the value chain, designed towards finding and implementing effective solutions to address contaminations and residues of shrimp and prawn aquaculture products. The project will cooperate with existing larger buyers in the United States of America (through an existing cooperation between FAO and WorldFish and "Aqua Star", an importer and distributor of seafood based in the United States of America) and Europe (through an existing cooperation between WorldFish and "Oursource", a Netherlands-based company specialising in connecting developing country aquaculture and fisheries producers to European markets). The project management will liaise and communicate closely with Aqua Star and Oursource during the project to explore possibilities of contractual agreements on direct buying from farm clusters to be established, once they are successful in implementing the BMPs. The project will learn from this relationship by seeing how such cooperation can be improved for wider impact and replication.

The Bangladesh Shrimp and Fish Foundation (BSFF) will be a major implementing partner of the project. As a supportive and advocacy organization, BSFF's mission is to work for the growth of the shrimp and fish industry on an economically, socially and environmentally sustainable basis. BSFF achieves its mission through dialogues, conferences, research, demonstrations and advocacies. The BSFF has also been engaged in facilitating better international market access by promoting food safety and quality programmes.

Following rejections of fresh water shrimp consignments in European Union, the Government constituted an 18-member National Working Committee (NWC) chaired by the Joint Secretary, Ministry of Fisheries and Livestock, comprising representatives from concerned government agencies, industry associations, research, advocacy and development partners, where FAO is a member. The NWC has formulated a National Action Plan (NAP) to combat nitrofuran hazards, establish a credible traceability system and formulate a Code of Conduct for the major stakeholders in the entire value chain. To institutionalize the NAP, and recognizing that addressing food safety and quality issue is a huge task that would require the support of all stakeholders, the Government approved the establishment of an Aquaculture and Aquatic Food Safety Center (AAFSC) as a PPP entity on 22 November 2009. The AAFSC has yet to be established and this STDF project may act as the platform for further strengthening PPP in shrimp and prawn under AAFSC. The Government also decided that the AAFSC would be managed through BSFF under the guidance of a Board comprising public and private sector representatives. Furthermore, on 20 June 2010, the Ministry of Fisheries and Livestock decided that "non-lab activities related to food safety will be given to AAFSC". As development partners are represented on the National Working Committee, it is envisaged that, to ensure synergy, in the long run all donor support for aquaculture food safety will be channelled through the AAFSC. As preparatory activities of NAP, the Department of Fisheries and BSFF have jointly prepared nine sets of Codes of Conduct for the shrimp industry value chain, covering, among others, hatcheries, farms and feed mills. In late March 2011, the Ministry of Fisheries and Livestock endorsed the nine sets for implementation by the value chain participants. In addition, with the assistance of the United States Food and Drug Administration (USFDA) and the Joint Institute for Food Safety and Nutrition (JIFSAN, a University of Maryland and FDA collaboration), BSFF initiated a programme of training of trainers. However, for sustained efforts more funds and technical support will be required, particularly at the grass-root level. This project is expected to provide this grass-root assistance.

3.4 Risks and Assumptions

Given that the Government has given high priority to aquatic food safety and has allocated financial and manpower resources for its sustainable development, the risks envisaged in the proposal are not that significant. Since seafood exports contribute significantly to the economy, farmers, government departments and policy-makers will be amenable to adapting to changes. The changes will bring benefits to the society and country. FAO and WFC, with their extensive working experience in Bangladesh and other seafood producing countries, could steer the programme in the right direction taking into confidence all the relevant stakeholders and bringing about a positive change in the seafood industry of Bangladesh. Nonetheless, a risk that is external to the sector is potential damage to shrimp farms and other infrastructure due to natural disasters, such as major floods and cyclones. However, the country has developed good disaster preparedness programmes and the lessons learned from the FAO-assisted project named "Emergency 2007 Cyclone Recovery and Reconstruction Project" in rehabilitating affected fish farmers would be useful for the STDF project. Furthermore, FAO's experience in providing BMP support to shrimp farmers in Aceh, Indonesia, following the 2004 Tsunami would also be taken into consideration in developing mitigation plans. There are a few risks such as buyers not willing to enter into agreements, etc. which are included in the log frame.

SECTION 4. IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

4.1 Institutional Framework and Coordination

The project will be implemented by FAO, in collaboration with DoF Bangladesh, WFC and BSFF. The project will interact, communicate and collaborate with relevant private sector value chain partners (seed and feed producers, veterinary drug and chemical suppliers, processors, small-scale farmers, etc.) and other stakeholders such as relevant NGOs and agencies.

The FAO Project Technical Director (Dr Rohana Subasinghe), with experience and expertise in health management, small-scale farmer management, application of BMPs and aquaculture certification, will provide backstopping and management assistance as well as technical support throughout the project.

FAO will also provide specialized expertise on aquaculture certification for benchmarking BMPs against the FAO Aquaculture Certification Guidelines (Dr Rohana Subasinghe) and food safety and international trade (Dr Lahsen Ababouch) issues in aquaculture products, as required. FAO will also provide project management and operational support (Mr Koji Yamamoto). The project will draw on any additional available resources from FAO and WFC in Bangladesh.

A fulltime in-country Project Coordinator (to be selected by FAO and DoF) will be employed for general coordination of the project. There will also be six Field Staff or Cluster Managers, working throughout the project, organizing farmers and implementing BMPs (to be identified). Four of the field staff will be supported by the STDF project and the other two by WFC Bangladesh. Two specialized technical experts, i.e. a Value Chain Expert (Dr William Collis) and an Aquaculture Expert (D. Mike Phillips), will provide specialized inputs to the project on a regular basis from WFC. An in-country Field Supervisor (to be identified), partly supported by both STDF and WFC, will work closely with the in-country Project Coordinator, field staff and other technical staff to ensure field activities are run smoothly. The following are the project implementation contact points in FAO, WFC and DoF Bangladesh:

Dr Rohana P. Subasinghe: Senior Aquaculture Officer, Aquaculture Service,
Fisheries and Aquaculture Department, FAO.
Viale delle Terme di Caracalla, 00153 Rome, Italy.
Tel:+ 39 06 570 56473, E-mail: Rohana.Subasinghe@fao.org

Dr Lahsen Ababouch: Director, Fisheries and Aquaculture Policy and Economics Division,
Fisheries and Aquaculture Department, FAO
Viale delle Terme di Caracalla, 00153 Rome, Italy.
Tel:+ 39 06 570 54157, E-mail: Lahsen.Ababouch@fao.org

Mr Koji Yamamoto: Associate Professional Officer, Aquaculture Service,
Fisheries and Aquaculture Department, FAO.
Viale delle Terme di Caracalla, 00153 Rome, Italy.
Tel:+ 39 06 570 53970, E-mail: Koji.Yamamoto@fao.org

Mr Dominique Burgeon: FAO Representative, Dhaka, Bangladesh
House 37, Road No. 8, Dhanmondi RA, Dhaka – 1205 Bangladesh
Phone: +880 2 8118015 – 8, Email: Dominique.Burgeon@fao.org

Dr William J Collis: Director South Asia, WorldFish Center, Bangladesh

House 22B, Road 7, Block-F, Banani, Dhaka 1213, Bangladesh
Tel: (+880-2) 881 3250, E-mail: worldfish-bangladesh@cgiar.org

Dr Michael Phillips: Senior Scientist (Aquaculture), WorldFish Center
P.O. Box 500 GPO, 10670 Penang , Malaysia
Tel: +604 6202 160, Email: M.Phillips@cgiar.org

Mr Syed Arif Azad: Director Generral, DoF, Dhaka, Bangladesh
13, Shohid Captain Moonsur Ali Sharani
Department of Fisheries
Matshya Bhaban, Ramna, Dhaka-1000
Bangladesh, Email: dg@fisheries.gov.bd; s_arif_azad@yahoo.com

Dr Mahmudul Karim: Bangladesh Shrimp and Fish Foundation (BSFF)
House 465, Road 8 East, DOHS, Baridhara, Dhaka-1206
Phone: 880-2-8417731 (work), Fax: 8412709; Mobile: 01711-590366, Email: karim@shrimpfoundation.org;
dr_mahmudul_karim@yahoo.com

Project Management and Supervision

FAO will serve as the lead technical and administrative institution for the project and will implement the project. The project's Technical Director, Dr Rohana Subasinghe (FAO), will provide overall technical backstopping to the project. The project will be administered by the FAO Fisheries Department Project Administration Unit. The travel of the PTD is always linked with technical backstopping or consultancy support as outlined in the detailed budget.

WFC will provide some specialized technical expertise as well as part of the field staff and will be involved with the day-to-day operation of the project.

DoF will collaborate closely with FAO in implementation and will also provide additional technical assistance, including group formation and training support, at the field level.

To ensure sustainability of the project outcome, and in line with its mandate, the National Working Committee, headed by the Joint Secretary, Ministry of Fisheries and Livestock and comprising identified stakeholders of the shrimp and prawn value chain, project partners and implementing agencies, will oversee and monitor project implementation and management. The Working Committee will meet at least once every three months, as and when required, to discuss project implementation and management. Meetings will also be conducted using teleconferencing and virtual technology; necessary costs will be shared by FAO and WFC.

4.2 Strategy/Methodology

Empowering small-scale farmers to improve international market access for their aquatic products is central to the STDF project. While the project will essentially build on the BMP experiences and lessons learned from India, Indonesia and other countries in the Asia region, it will adopt a flexible approach and develop its programmes to meet the local needs and conditions of the stakeholders. The project will also encourage small-scale farmers to adopt new science-based approaches and promote "learning by doing", as well as making changes that would further improve their productivity and income levels.

It is planned that a project inception workshop comprising all stakeholders would be organized shortly after approval of the project by the STDF Working Group and signing of the contract between WTO and FAO to develop a detailed project implementation plan.

Some of the project's strategic elements to support small-scale farmers are as follows.

- strengthen the capacity of small-scale farmers to better manage the shrimp and prawn farming sector, which will allow the outcomes of the project to be more sustainable and long lastin, and contribute more effectively to poverty reduction among small-scale producers in Bangladesh.

- better understand the risk factors posed by other input and service providers such as seed and feed producers and will endeavour to find solutions to reduce such risks.

- organize small-scale farmers into clusters and bring about a practice and attitude change in an organized and consolidated manner.

- link farmers and buyers by assisting farmers to certify their products based on FAO Guidelines on Aquaculture Certification, which will in turn further increase market access and economic benefits to rural communities.

- connect small-scale farmers to interested international buyers to build better and more sustainable links between producers and buyers, providing incentives for better management.

4.3 Government Inputs

4.3.1 Prior obligations and prerequisites

No prior obligations and prerequisites.

4.3.2 Financial and/or contributions in kind

The Department of Fisheries will work closely with FAO and WFC and provide direct national technical and logistical support for the implementation of the project. DoF will provide; (a) adequate staff time to ensure adequate national supervision and coordination throughout implementation including the nomination of a national project coordinator; (b) office space and facilities for project management, workshops, training activities, etc; and (c) vehicles and drivers for the project activities. DoF will also provide laboratory facilities and services required for training and sample testing needs of the project. The Department will also provide necessary field equipment such as water quality and soil quality meters to the cluster farmers for carrying out regular monitoring of environmental quality, etc., during the project. Meeting and discussion facilities and office space for cluster farmer groups will also be provided by the Department. The value of in-kind assistance to the project, in terms of secondment of paid staff and other assistance, is USD 60 000.

4.4 Contributions and Resource Allocations

4.4.1 Personnel services

Designation	Responsibility	Selection Criteria	Contributing Outputs no.
Project Technical Director	Dr Rohana Subasinghe, Senior Aquaculture Officer, FAO/HQ – **Throughout project** Dr. Subasinghe will manage project implementation and backstop the project during its lifetime. He will make four visits to Bangladesh during the project period including inception and closure. These travels are linked with technical backstopping or consultancy support as outlined in the detailed budget. Only travel costs and DSA are included.	Not applicable	1, 2, 3, 4, 5 and 6
Project Administrator	Mr Koji Yamamoto, Associate Professional Officer, FAO/HQ – **Throughout project** Mr Yamamoto will look after the overall administrative aspects of the project, mainly based in Rome. He will make two visits to Bangladesh during the project period, as necessary. This travel is linked with project administration support as indicated in the detailed budget. No salary costs are included.	Not applicable	1 and 6
In-country Project Coordinator	To be recruited by FAO and the Department of Fisheries, Bangladesh - **Throughout project** The person will be responsible for the day to day running and coordination of the project. He/she will be based in DoF or FAO Dhaka (to be agreed during inception meeting) and work in the project full time for two years (24 months). His/her local travel and salary costs are included.	Recruitment will be done jointly by FAO and DoF using formal FAO selection procedures.	1, 2, 3, 4, 5 and 6
International Expert of Trade and Value Chain Analysis	Dr William Collis, Director Asia, WFC Bangladesh – **Throughout project** Dr Collis is a vital person in the project. He will provide technical support and advice on market access, market improvements, regional and international trade, etc. His local travel costs are included.	Not applicable	1, 2, 3, 4, 5 and 6 (emphasis on 1)

Designation	Responsibility	Selection Criteria	Contributing Outputs no.
International Expert on Aquaculture	Dr Michael Phillips, Senior Scientist, WFC/HQ – **Throughout project** The expert will provide necessary technical advice on aquaculture aspects, in particular technical and technological improvements required for implementing BMPs and other applications at field level. The expert is WFC staff and 15 percent of time will be devoted to the project. Five percent of his total salary will be covered by WFC and the remaining10 percent by STDF during the lifetime of the project. He will make one visit to Bangladesh during the project period. His local travel costs are included.	Not applicable	1, 2, 3, 4, 5 and 6 (emphasis on 3)
In-Country Field Supervisor	To be identified - **Throughout project** The person will be an expert attached to the WFC office in Dhaka/Bangladesh. He/she will oversee the field activities and the work of six field staff. His/her role is vital to smooth implementation of the project as it is important to closely monitor the field activities and the work of field staff and advice them as required. 50 percent of his time will be devoted to the project and WFC will cover 10 percent and STDF will cover 40 percent of his/her salary. Local travel and salary costs are included	WFC rules and procedures apply.	1, 2, 3, 4, 5 and 6 (emphasis on 2, 3 and 4)
Field Assistants x 6	To be identified - **Throughout project** The field assistants will be fully engaged in field activities under the supervision of the in country Field Supervisor and the in-country Project Coordinator. Field assistants will be the key staff liaising and working closely with the farmers and farm clusters at field/pond level. They will be staying in the field and will work with communities direct on assisting BMP application and other activities. Two assistants will be supported 50 percent by WFC and 50 percent by STDF, while the other two will be fully supported by STDF. Their costs are included in the budget.	Formal selection process will be followed. FAO and/or WFC rules apply.	1, 2, 3, 4, 5 and 6 (emphasis on 2, 3 and 4)

Designation	Responsibility	Selection Criteria	Contributing Outputs no.
Aquaculture Food Safety Expert	Dr Lahsen Ababouch, Director, Fisheries and Aquaculture Policy and Economics Division, FAO/HQ – **Ten days** Dr Ababouch will assist in backstopping issues of food safety. He will make one visit (seven days) to Bangladesh, and three days inputs from Rome during the project. Only travel costs and DSA are included.	Not applicable	3
Aquaculture certification Expert	Dr Rohana Subasinghe, Senior Aquaculture Officer, FAO/HQ – **Two weeks** Dr Subasinghe will also provide services as the Aquaculture Certification Expert. Technical service will be provided during the visits as the Project Director for administrative and other purposes. No salary costs included.	Not applicable	4 and 5
Regional BMP Expert	To be identified **– Sixteen weeks** This person, to be selected from India, should be a person involved in shrimp cluster farm management programme in Andhra Pradesh. He/she will travel three times to the project and stay five to six weeks at each time providing advice on establishing and implementing BMPs at farm/cluster level. His/her travel, DSA, honorarium all included in the budget.	A suitable person will be selected by the Project Director in consultation of the In-Country Project Coordinator.	3
Cluster Management Expert	To be identified **– Twelve weeks** This person, also to be selected from India, should be a person involved in shrimp cluster farm management programme in Andhra Pradesh. He/she will travel three times to the project and stay four weeks at each time providing advice on establishing and functioning farm clusters (farmer clusters) at community levels, using his/her experience in India. His/her travel, DSA, honorarium all included in the budget.	A suitable person will be selected by the Project Director in consultation of the In-Country Project Coordinator.	2

Designation	Responsibility	Selection Criteria	Contributing Outputs no.
Web Design Expert	To be identified **– Lump-sum contract** This person should have a good understanding of web-based data management and traceability and a history of working with FAO on similar design activities. A person or a company will be hired and a contractual agreement will be developed for the envisaged work, which will include the development of a web-based traceability system to be hosted by BSFF or DoF.	A suitable person will be selected by the Project Director in consultation with the In-Country Project Coordinator. FAO rules and procedure apply.	4
Traceability Expert	To be identified – **Four weeks** This person will develop the logical components of the traceability system localised to the needs of small-farmer clusters in Bangladesh. This person will undertake two travels (from region) and stay two weeks at each time.	A suitable person will be selected by the Project Director in consultation with the In-Country Project Coordinator. Preferably expert based in the region such as Thailand.	4
International Expert on Institutional Analysis	To be identified **– Two weeks** This expert will travel to the country, stay for two weeks and conduct an institutional analysis on how to improve institutional arrangements of the Department of Fisheries and other relevant agencies in Bangladesh to develop an institutional strategy for institutionalizing the cluster management concept and operations. He/she will attend the Project Terminal Workshop (Regional Workshop). His/her DSA, travel costs and honorarium is included in the budget.	A suitable person will be selected by the Project Director in consultation with the In-Country Project Coordinator.	6

A National Working Committee comprising identified stakeholders of the shrimp and prawn value chain, project partners and implementing agencies will oversee and monitor the project implementation and management. The following table lists the project personnel and their responsibilities and descriptions. The more detailed terms of reference (TOR) are provided in Annex 3, and the implementation structure in Annex 5.

4.4.2 Travel

International travels will be carried out by the international and regional experts, as well as the participants of regional workshops (SAARC/ASEAN) during Activity 6. Resources are also allocated for domestic travels to ensure that project staff are fully engaged in the groundworks and provide guidance and supports to farmers and their clusters. Further detail is provided in the budget.

4.4.3 Contracts, letters of agreements or contractual service agreements

Contractual agreements are proposed for two services; 1) to conduct rapid assessment of shrimp and prawn value chains and identification of field sites and potential locations for value chain analysis – Activity 1; and 2) to develop an internet-based information system including a practical and usable traceability system – Activity 5. The agreements will be finalized during the inception phase of the STDF project.

4.4.4 Materials, supplies and equipment

The STDF project will procure two computers with appropriate software, related equipments and services, following FAO regulations for procurement. The computer is one of the most essential tools for completing the development of traceability systems and fulfilling market requirements. The computer will be purchased during Activity 6, and provided to the farmer clusters, followed by training courses. The official inventory document will be prepared at the end of the project to hand over the equipment to the Government or any other entity to continue the specific work related to the use of the equipment.

4.4.5 Training

The project will emphasise the cluster approach and establish a “bottom of the pyramid” production system which will empower small-scale farmers. In order to ensure the full participation of such an approach, a number of village-level meetings, workshops, consultations and in-country training workshops are proposed. Details are given in the budget.

SECTION 5. OVERSIGHT, MONITORING, MANAGEMENT INFORMATION, AND REPORTING

5.1 Monitoring and Knowledge Sharing

The Project Steering Committee will meet twice a year and also as necessary and will monitor progress against the objectives, activities, outputs and performance indicators as outlined in the Logframe. As appropriate, corrective measures will be taken to address any problems with the implementation progress.

The STDF Working Group may decide to carry out a final *ex post* evaluation of the project against its objectives.

5.2 Communication and Visibility

The project results will be disseminated during the project through the various capacity-building and training activities as outlined in the project document. The final results will be disseminated through the final regional workshop, FAO and STDF channels and various planned publications.

5.3 Reporting Schedule

The Project Technical Director is responsible for providing mid-year progress reports (five reports in two years), including an Inception and a final Project Terminal Report to the STDF. These reports will contain the inputs from the project NCW and the local authorities regarding their monitoring and supervision of the project.

All technical outputs of the project, i.e. BMP manuals, cluster management manuals, policy briefs, etc., will be published by FAO, in collaboration with WFC and DoF, and will make proper reference to the financing of the project by STDF.

ANNEX 1. PROJECT BUDGET

Country: Bangladesh

Project title: Building trade capacity of small-scale shrimp and prawn farmers in Bangladesh – Investing in the Bottom of the Pyramid Approach

Project symbol: MTF/BGD/046/STF (STDF/PG/321)

Budget line	Component Description	Sub Comps. [USD]	Main Comp. [USD]
5013	**Consultants**		**305,750**
5542	Consultants – International	121,750	
5543	Consultants – National	184,000	
5014	**Contracts**		**45,000**
5650	Value chain analysis (rapid assessment & field survey)	5,000	
5650	Web design and software development	40,000	
5021	**Travel**		**106,000**
5684	Consultants - International (inclue local travel)	41,500	
5685	Consultants – National	33,000	
5692	Travel TSS (FI)	31,500	
5023	**Training**		**68,000**
5920	Training Budget	68,000	
5024	**Expendable Equipment**		**5,200**
6000	**Expendable Equipment Budget**	5,200	
5025	**Non Expandable Equipment**		**20,000**
6100	**Non Expendable Equipment Budget**	20,000	
5027	**Technical Support Services**		**11,600**
6111	Printing, Reporting Costs	5,900	
6150	Technical Support Services	5,700	
5028	**General Operating Expenses**		**7,200**
6300	General Operating Expenses Budget	7,200	
	Sub Total		**568,750**
	FAO Project Servicing Cost	68,250	
	Total		**637,000**

The above table sets out the contribution of STDF. In addition to the above, the FAO, WFC and the Bangladesh Government will be making in-kind contributions of USD 78 800, USD 51 000 and USD 57 000, respectively, bringing the total cost of the project to USD 755 550.

ANNEX 2. THE LOGICAL FRAMEWORK

	Design Summary	Measurable indicators	Sources of verification	Assumptions and risks
Goals (Impact)	Increase income of small-scale aquaculture farmers and value chain partners and reduction on poverty in Bangladesh.	1. 10 percent increase of the income of 800 small-scale shrimp and prawn farmers 2. Improvement in income of the people involved in the value chain in Bangladesh.	Baseline data to be collected under the Activity 1.4. National statistical surveys. Project surveys (baseline and terminal).	No catastrophic environmental impacts. No significant price reduction of shrimp and prawn commodities in the market. Government taking over and scaling up the project.
Objective (Outcome)	Increased international market access for shrimp and prawn products originating from small-scale farmers in Bangladesh.	1. Increased national shrimp/prawn production volume. 2. Increased national shrimp/prawn export volume and value. 3. Number of cluster farmers trading with international buyers within 5 years after the project. 4. Reduced rapid alerts on rejections.	National statistical surveys. Ongoing initiatives by FAO and WFC. Project surveys (baseline data & post project). Project monitoring activity reports. European Union rapid alert for foods and feeds (RAFF) system.	Assumes continued priority to aquaculture sector and export markets by the government. Policy priority for shrimp/prawn sector as a large revenue earner for Bangladesh continues.

	Descriptions	Measurable indicators	Sources of verification	Assumptions and risks
Expected results (Outputs)	1. **Project implementation plan is finalised and the detailed value chain analysis is completed.** *The value chain analysis will take the farm to fork approach including buyers and retailers of shrimp and prawn products from small-scale farmers, specifically addressing SPS risks associated with food safety and animal health, and more broadly environmental and social issues.*	a. Inception workshop held b. Detailed project implementation plan available c. Detailed value chain analysis available	1. Revised project plan. Value chain analysis report. Inception workshop report.	Project partners, farmers, processors, traders, government personnel will actively participate in the project. Farmer identification for cluster developments will be appropriate. Farmers will collaborate and show interest in cluster formation. Competent authorities will agree for making arrangements for formalising and registering the farm clusters. Industry partners and competent authority personnel will be effectively engaged in the dialogue and efficiently contribute to the process. Project partners will actively engage in capacity building and trade and market development activities. Project partners will
	2. **Small-scale shrimp and prawn farmers are organized into registered clusters**, totalling 20 farm/farmer clusters (10 shrimp and 10 prawn) involving approximately 800 small-scale farmers.	a. Shrimp farmer clusters are identified and formed. Cluster structure and rules established. Monthly cluster meetings held. Trainers trained for training cluster farmers on better management. Training teams established and training material produced.	2. List of clusters. Expert report. The project progress reports. Clusters' meeting minutes. Cluster management manual. Training workshop reports.	
	3. **Better Management Practices (BMPs) for reducing the risks of diseases in shrimp and prawn aquaculture are developed.** *These BMPs complement FAO aquaculture certification guidelines, FAO Code of Conduct for Responsible Fisheries (CCRF) and Bangladesh National Code of Conduct on Responsible Aquaculture. The application of these BMPs will help in producing shrimp and prawn products which comply with national food safety and animal health standards (Codex and OIE) and other aquaculture certification standards including those of private certifiers. Such compliance will ensure better market access.*	a. BMPs developed, pilot tested, verified and implemented by the farmers with the assistance of field staff and the project team. b. Trainers have the capacity to conduct the BMPs training courses. c. Small-scale farmers receive training in cluster groups. d. Farmers in clusters are complying with BMP requirements.	3. BMPs manual. Expert report. Report of compliance to the guidelines. The project progress reports. Training workshop reports.	
	4. **Web-based traceability system is developed and operationalized for pilot testing**. *The traceability system will be*	a. Traceability system available. b. Cluster farmer information and data is	4. Expert report. The project progress reports. Traceability	

	developed jointly by the project, BSFF and the DOF and will be hosted and operated by BSFF and/or the DOF (to be decided during the project implementation). See details in Activity 4.1.	included in the traceability system.	system accessible online.	actively engaged in evaluation and monitoring activities.
	5. **Clusters of small-scale farmers have the skills and knowledge to apply BMPs** and at least 5 clusters are delivering to international seafood buyers (Oursource and Aqua Star) and national authorities have the skills for monitoring and assisting small-scale farm cluster management activities. *See details under Activity 5.1.*	a. Relevant state officials and value chain partners (hatchery, nursery, processing, feed industry and veterinary services) have improved capacities to be engaged and contributing to management of the small-scale farm clusters. b. Training workshops and meetings conducted. c. Document evidence of communications and agreements between farmer clusters and buyers.	5. The project progress reports. Business report. Minutes of stakeholders meetings.	
	6. **Project results and lessons learnt are disseminated** at national and regional level, through printed materials, virtual information, a national policy improvement and cluster management scaling up strategy, and a project terminal workshop attended by government officials of other countries in the region and the private sector.	a. Project partners, technical staff, aquaculture stakeholders and competent authorities are engaged in policy reviews, discussions, debates and dialogues. b. Project partners and shrimp/prawn industry personnel involved in evaluation of the project outcome and up-scaling concepts and methodologies. More requests are received for establishing cluster farms from different parts of the country. c. Draft national strategy for up-scaling cluster management in small-scale shrimp and prawn farming in Bangladesh is available. d. Regional workshop held and countries in the region are developing similar programmes. e. Final project review and report to STDF completed.	6. Regional workshop report. Policy review. Terminal project report.	

Activities	Project description	Measurable indicators/Targets/Time	Sources of verification	Assumptions and risks
Activity 1	**Project implementation plan & value chain analysis** Project partners, together with representatives from industry and national authorities are briefed and agreed on the project activities at the inception workshop and a detailed project implementation paln is developed. Field surveys and stakeholder consultations are conducted to analyse existing shrimp and prawn value chains, base line data (e.g. income level), SPS risks and management practices, and to identify options for improving health and reducing SPS risks associated with shrimp and prawn aquaculture.			Partners and stakeholders collaborate effectively
	1.1. Conduct inception workshop	1.1 Conducted at M1	Inception workshop report with the project work plans, TORs for partners, and project staff recruited.	
	1.2. Conduct rapid assessment of shrimp and prawn value chains and identify field sites and potential locations for value chain analysis.	1.2 Conducted at M2	Rapid assessment report	
	1.3. Fine tune methodologies (based on the result of rapid analysis), prepare a field manual for survey teams, and train field survey staff.	1.3 Completed by M2	Rapid assessment methods and a field manual, trained field staff	
	1.4. Conduct field surveys around key shrimp and prawn value chains.	1.4 Completed by M3	Baseline date collected for income level of targeted farmers. Detailed reports on value chain and management practice evaluation and analyse. Identified and verified key management intervention.	

Activities	Project description	Measurable indicators/Targets	Sources of verification	Assumptions and risks
Activity 2	**Cluster development & operationalisation** Identify location of farmers, farm clusters, and mobilize field staff to organize pilot farm clusters, consult farmers, develop the management structure, cluster management manuals and monitor the progress of the clusters. *The Cluster Management Expert from India will travel three times and spend 90 days in the field.*			Farmers and field staff will effectively engage in technical work and collaborate adequately
	2.1. Conduct village level meetings and workshops to initiate clusters. 20 selected clusters to organize farmers (10 shrimp and 10 prawn).	2.1. Conducted in M4-6	Meeting reports.	
	2.2. Facilitate consultation with stakeholders and formalise structure and regulation (e.g. internal control system).	2.2. Conducted at M6	Consultation reports. Document with cluster management structure and regulations.	
	2.3. Prepare cluster management manual	2.3. Completed by M7	Cluster management manual and training reports.	
	2.4. Facilitate farm clusters to be registered with the authorities.	2.4. Completed by M20	Registration document,	

Activities	Project description	Measurable indicators/Targets	Sources of verification	Assumptions and risks
Activity 3	**Development of BMPs and implementation** Prepare in a participatory way with stakeholders the practical sand pragmatic implementable "better management practices" (BMPs) based on the knowledge gained through value chain analyses including both farm level management and group or/cluster management arrangements for implementation among small-scale shrimp and prawn farmers. *Regional BMP Expert will travel three times and spend 120 days in the field.*			Farmers and field staff will collaborate and work efficiently and effectively
	3.1. Assess and evaluate national codes of conducts and other standards developed by the public & private sector, with special references to FAO CCRF & FAO technical guidelines on Aquaculture certification.	3.1. Conducted in M3	Assessment report	
	3.2. Conduct initial farm/cluster level meetings and consultations for 20 selected clusters for developing BMPs (10 shrimp and 10 prawn).	3.2. Conducted in M7	Identify key local issues and practices, and meeting/ consultations reports	
	3.3. Develop localized BMPs.	3.3. Completed by M7	Draft BMPs	
	3.4. Conduct final cluster/farm level meetings to finalise BMP implementation arrangements. Field officers stay/travel in the clusters and learn with farmers.	3.4. Completed by M8	BMP implementation plans and arrangements. Field officers report.	
	3.5. Support BMPs implemented by farmers in the clusters.	3.5. Continuously M8-20	Project reports	

Activities	Project description	Measurable indicators/Targets	Sources of verification	Assumptions and risks
Activity 4	**Development of web-based traceability system** Develop web-based traceability system, jointly with BSFF and DOF, complementing past and ongoing efforts by those organisations, and taking into consideration the complexities of the value chain in small-scale shrimp and prawn farming. *Traceability Expert will travel twice and spend 30 days.*			Members of the value chain will take part and provide data and inputs
	4.1. Conduct consultation with BSFF, DOF and the private sectors to review past/ongoing traceability efforts and agree on contents on traceability system.	4.1. Conducted at M6	Consultation report	
	4.2. Develop innovative web-based system to manage the traceability system utilising available and affordable communication tools (e.g. mobile phone).	4.2. Completed by M7	Project progress report	
	4.3. Enter cluster production, products and other relevant data (20 clusters) in the traceability system and pilot test it.	4.3. Completed by M 8-20	Project progress report	
	4.4. Fine tune and finalise the traceability system and conduct training workshop for the stakeholders based on the feedbacks from the stakeholders and finalise it for web-based system	4.4.Completed by M 22	Project progress report. Internet-based information system including cluster traceability	

Activities	Project description	Measurable indicators/Targets	Sources of verification	Assumptions and risks
Activity 5	**Market access** Organize a meeting with small-scale farm cluster leaders and their representatives with interested international buyers (Aqua Star and Oursource) and other stakeholders in the value chain (hatchery, nursery, processing, feed industry and veterinary services) to build better and more sustainable links between producers and buyers providing incentives for better management. 5.1. Conduct participatory or virtual meetings with the two potential buyers to identify the business opportunities and need for capacity improvements. 5.2. Conduct training workshops to improve capacities of clusters and other stakeholders in the value chain to comply the requirements sets by the international buyers (e.g. bench marking against FAO certification guidelines, etc.). 5.3. Facilitate coordination between clusters and international buyers, and finalise commercial agreement between them.	5.1. Communicate with buyer throughout the project. M8 onwards. 5.2. Completed by M19 5.3. Completed by M22	Project progress report. Meeting reports and agreements between buyers and farmers on trading of products Project progress report. Initiated international trading arrangements.	International buyers will discuss and negotiate with small-scale cluster operators and farmers

Activities	Project description	Measurable indicators/Targets	Sources of verification	Assumptions and risks
Activity 6	**Information Dissemination** Project results and lessons learnt are collected and disseminated through printed materials and virtual information to other relevant stakeholders in the countries of the region. Organize and conduct a regional workshop to bring other countries in the region that may benefit from the project experience.			All extension material will be written up in time for publication Invitees from regional countries will attend the workshop
	6.1. Synthesise and fine-tune and finalise all extension materials developed and used in the project and publish them.	Completed by M16	Published extension on cluster management and BMP materials.	Project activities will be terminated in time
	6.2. Conduct training workshops for state personnel as trainers for implementing cluster management, BMPs, and traceability system.	Conducted at M17	Training workshop reports, participant lists of state officials..	
	6.3. All project details and other knowledge gained during implementation (e.g. extension materials, reports) are disseminated on the website (hosted by DOF and/or BSFF). Also develop a special component on antibacterial contaminant management in the FAO aquatic animal health website.	Completed by M18	DOF and/or BSFF website. AAPQIS (http://www.aapqis.org) is updated with special component on antimicrobial residues and contaminants ready.	
	6.4. Conduct expert workshops on national policies on sustainable aquaculture for better food safety, quality and markets. Examine and analyse the national policies that support responsible and sustainable production of aquatic products with compliance to international food safety standards and SPS requirements. Identify the policy gaps and provide recommendation.	Completed by M20	Workshop reports containing policy improvement needs and recommendations. Policy briefs prepared. Government policy makers agreed policy guidelines.	

	6.5. Conduct Project Terminal Workshop with national stakeholders in the supply chain, government officials, and over 20 regional representatives. Present project findings and discuss scaling up of BMP application procedures, national policy improvements. 6.6. Submit final report	Completed by M22 Completed by M24	Stakeholder agreements on scaling up strategies at national level. Meeting reports on project success and contribution to shrimp and prawn sector. Final report	

ANNEX 3. TERMS OF REFERENCE

The project implementation will be supported/assisted and supervised by the following three organisations, and key staff. Under the overall direction of the Lead Technical Officer, the organizations and associated key staff will work closely to assure the successful implementation of the project. Their respective responsibilities are given below.

Specific TORs will be prepared for them, when they are on project mission or travel.

Food and Agriculture Organization of the UN

Key staff:

Dr Rohana P. Subasinghe (Lead Technical Officer)
Senior Fishery Resources Officer (Aquaculture)
Fisheries and Aquaculture Management Division
Fisheries and Aquaculture Department, FAO of UN
Viale delle Terme di Caracalla
00153 Rome, ITALY
Phone: + 39 06 570 56473
Fax: + 39 06 570 53020
E-mail: Rohana.Subasinghe@fao.org

Dr Lahsen Ababouch
Director, Fisheries and Aquaculture Policy and Economics Division
Fisheries and Aquaculture Department, FAO
Viale delle Terme di Caracalla
00153, Rome, ITALY
Fax: +39 06 57053020
Tel: +39 06 57054157
E-mail: Lahsen.Ababouch@fao.org

Mr. Koji Yamamoto
Associate Professional Officer
Aquaculture Service
Fisheries and Aquaculture Management Division
Fisheries and Aquaculture Department, FAO of UN
Viale delle Terme di Caracalla
00153 Rome, ITALY
Phone: + 39 06 570 53970
Fax: + 39 06 570 53020
Email: Koji.Yamamoto@fao.org

Dr Rohana Subasinghe, Senior Aquaculture Officer of FAO, the Project Technical Director, will supervise all the work leading to the seven outputs. He will also provide technical assistance in the field of aquatic animal health management and training activities. Specific tasks will include:

- Coordinate the overall implementation of the project
- Liaise with national focal points in Bangladesh
- Interact with various project implementers and guide the implementation of the project
- Develop project implementation and monitoring plan

- Coordinate the reporting obligations of the project
- Also participate in the process of HACCP and BMP development by providing specialist inputs in the field of aquatic animal health, certification and aquaculture
- Contribute to the training activities of the project

Dr Lahsen Ababouch, Director, Fisheries and Aquaculture Policy and Economics Division, will assist the project in bringing HACCP procedures into the development of better management practices (BMPs). Dr Ababouch will also assist in special training on WTO/SPS compliance and international trading standards. Specific tasks include:

- Travel to project sites in Bangladesh and understand the specific problems facing the sector
- Develop HACCP procedures for aquaculture
- Assist the project in bringing HACCP procedures and concepts into the development of BMPs
- Assist the project in developing BMPs to address food safety issues
- Identify the training needs of primary producers, extension officers, sea food processors and policy-makers
- Facilitate conduct of training programmes to build capacity and awareness on WTO/SPS measures and HACCP

Mr Koji Yamamoto will provide administrative and technical assistance on a regular basis, as and when required.

FAO will identify several experts (regional and international) to assist implementation of the project. The details are given in Section 4.4.1 – Personal Services.

The WorldFish Center

Key staff:

Dr William J Collis
Director South Asia
WorldFish Center Bangladesh and South Asia
H 22B, Rd 7, Block F, Banani, Dhaka 1213, Bangladesh
Tel : 8813250, 8814624, Fax: 880-2-8817300
Email: w.collis@cgiar.org
Web site: www.worldfishcenter.org

Dr Michael Phillips
Senior Scientist, Aquaculture and Genetic Improvement
The WorldFish Center
Jalan Batu Maung, Batu Maung
11960 Bayan Lepas, Penang, Malaysia
Tel: +604 6202 160 (direct line)
Cell phone (Malaysia) +60124755606
Email: M.Phillips@cgiar.org

The WorldFish Center will support the project from the South Asia regional office in Dhaka and headquarters in Penang. Mr William Collis, Regional Director for South Asia, will particularly assist in implementing the project in Bangladesh and providing market and value chain expertise while Dr Michael Phillips from Penang will provide specialist inputs on aquaculture. The WorldFish Center will provide the following services:

- Travel to project sites in Bangladesh and discussions with relevant stakeholders
- Assist in identification of sites for BMP testing/cluster management pilots
- Facilitate coordination with other government, NGO and private sector partners in Bangladesh
- Contribute to the preparation of Inception Report
- Conduct a market chain assessment for shrimp and prawn aquaculture products in Bangladesh
- Analyze potential points of contamination of the market chain
- Identify of management interventions to reduce contamination risks
- Advise of development of pilot initiatives to test management interventions
- Review outcomes of pilots and preparation of report

The WorldFish Center will also manage a cluster management expert and field staff in Bangladesh. The field staff will work under the direction of the cluster management expert, who will be responsible for:

- Travel to project sites in Bangladesh and discussions with relevant stakeholders
- Assist in identification of sites for BMP testing/cluster management pilots
- Facilite coordination of field activities.
- Manage field staff
- Assist farmers in clusters in organization and management of clusters
- Conduct progress monitoring
- Contribute to preparation of reports

The Department of Fisheries in Bagladesh

Key staff:

Mr M. Mahbubur Rahman Khan
Director General
Department of Fisheries
Matshya Bhaban, Dhaka

Phone: 0088 02 9562861 (office)
Fax: 0088 02 9568393
Email: dg@fisheries.gov.bd

- The Department of Fisheries team, headed by the Director General, will collaborate with FAO on project implementation.
- Detailed TOR will be developed during the inception workshop.

Bangladesh Shrimp and Fish Foundation

Key staff:

Dr Mahmudul Karim of BSFF

Bangladesh Shrimp and Fish Foundation
House 465, Road 8 East, DOHS, Baridhara, Dhaka-1206
Phone: 880-2-8417731 (work), Fax: 8412709; Mobile: 01711-590366
Email: karim@shrimpfoundation.org;
dr_mahmudul_karim@yahoo.com

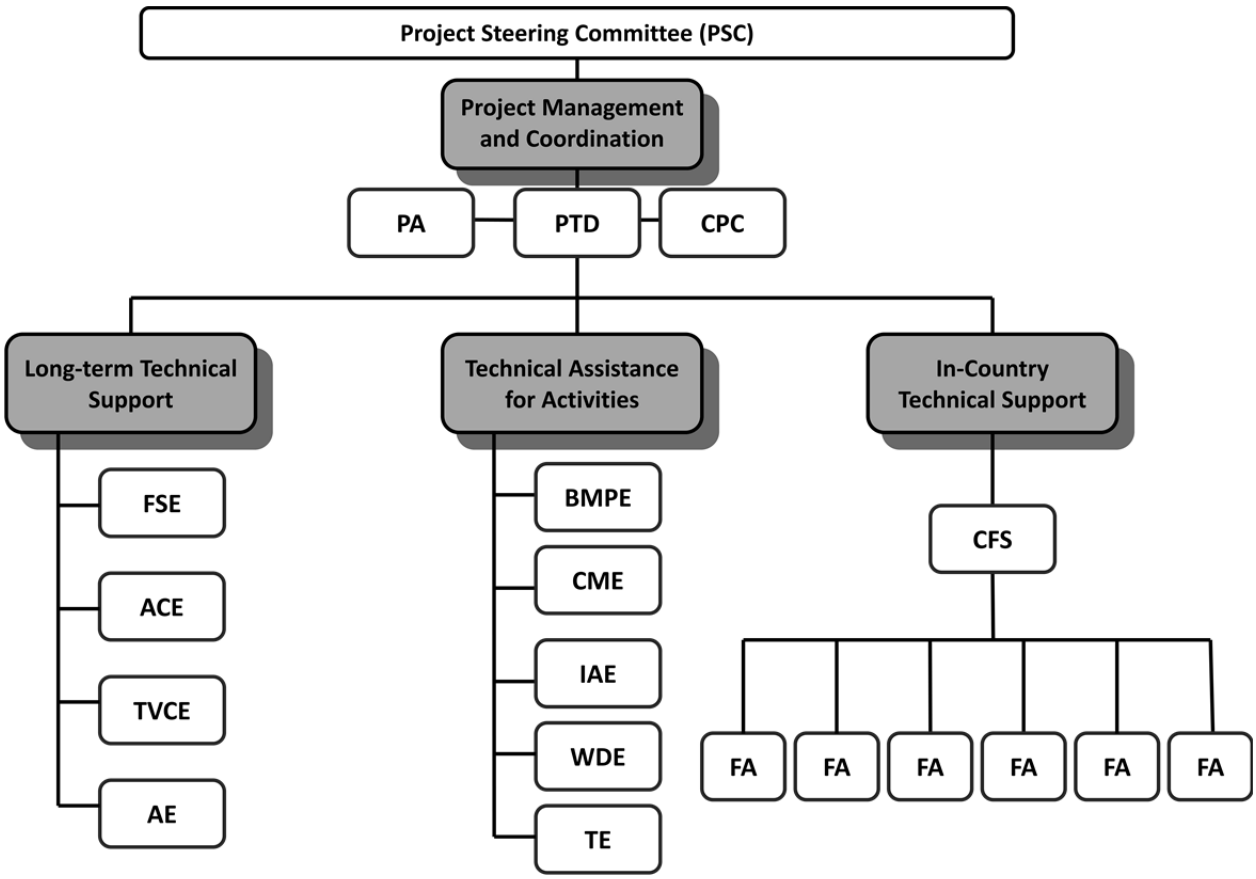
- The BSFF will be a main implementing partner of the project.
- Detailed TOR will be developed during the inception workshop.

ANNEX 4. WORK PLAN

Project starting date: April 2012 (Proposed). *Project completion date*: 24 months from the starting date

OUTPUTS / ACTIVITIES	YEAR 1												YEAR 2											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Activity 1: Implementation plan & Value chain analysis																								
Activity1.1: Conduct inception workshop	X																							
Activity1.2: Conduct rapid assessment		X																						
Activity1.3: Fine-tune methodologies & preparation		X																						
Activity1.4: Conduct field surveys			X	X																				
Activity 2: Development & Operationalisation of Clusters																								
Acitivity2.1: Conduct village level meetings				X	X	X																		
Acitivity2.2: Formalise structure and regulations						X																		
Acitivity2.3: Prepare cluster management manuals							X																	
Acitivity2.4: Register with the authority																				X				
Activity 3: Development & Implementation of BMPs																								
Activity 3.1: Assess existing public & private standards			X																					
Activity 3.2: Conduct cluster meetings							X																	
Activity 3.3: Develop localised BMPs							X																	
Activity 3.4: Conduct cluster meeting to finalise BMPs								X																
Activity 3.5: Support implementation of BMPs at clusters								X	X	X	X	X	X	X	X	X	X	X	X	X				
Activity 4: Development of web-based traceability system																								
Activity 4.1: Review past/ongoing efforts on Traceability						X																		
Activity 4.2: Develop traceability system applicable to farmers							X																	
Activity 4.3: Manage production and products data electronically								X	X	X	X	X	X	X	X	X	X	X	X	X				
Activity 4.4: Fine-tune traceability system and launch online																						X		
Activity 5: Market Access																								
Acitivity5.1: Communicate with buyer								X	X	X	X	X	X	X	X	X	X	X	X	X				
Acitivity5.2: Conduct workshop training with stakeholders																			X					
Acitivity5.3: Facilitate coordination and commercial agreement																						X		
Activity 6: Information Dissemination																								
Activity 6.1: Synthesise and publish extension materials																X								
Activity 6.2: Conduct training workshop for state personnel																	X							
Activity 6.3: Disseminate materials on websites																		X						
Activity 6.4: Conduct expert workshop on policy analysis																				X				
Activity 6.5: Conduct terminal workshop																						X		
Activity 6.6: Submit final report																								X

ANNEX 5. IMPLEMENTATION STRUCTURE



PSC: Project Steering Committee
PTD: Project Technical Director
PA: Project Administrator
CPC: In-country Project Coordinator
FSE: Aquaculture Food Safety Expert
ACE: Aquaculture Certification Expert
TVCE: International Expert of Trade and Value Chain Analysis
AE: International Expert on Aquaculture
BMPE: Regional BMP Expert
CME: Cluster Management Expert
IAE: International Expert on Institutional Analysis
WDE: Web Design Expert
TE: International Expert on Traceability
CFS: In-Country Field Supervisor
FA: Field Assistants