



USAID | BANGLADESH

FROM THE AMERICAN PEOPLE

March 2006

A Pro Poor Analysis of the Shrimp Sector in Bangladesh

Sarah Gammage, Kenneth Swanberg, Mubina Khandkar, Md. Zahidul Hassan, Md. Zobair, and Abureza M. Muzareba

This research brief summarizes the findings from a larger report “A Pro-Poor Analysis of the Shrimp Sector in Bangladesh” prepared by the Greater Access to Trade Expansion (GATE) Project. The research explores the nature of production and the terms and conditions of employment along the shrimp value chain in Bangladesh. The primary objectives of the report are to identify opportunities to improve market outcomes, raise productivity and wages, and foster pro-poor growth in the sector. To meet these multiple goals, the report employs several intersecting and overlapping frameworks to analyze the costs and returns within this sector.

A pro-poor livelihoods approach considers the entirety of production and earnings for the poor and assesses how shrimp and prawn fit into a household’s strategy for income and employment. This study also uses a value chain approach, focusing on the institutional arrangements that link producers, processors, marketers, and distributors, while recognizing that power differentials among actors may influence outcomes along the chain. Included within the value chain approach is a gender analysis of the chain—highlighting the different positions of men and women across the chain and addressing issues of power reflected in the production and exchange relationships.

INTRODUCTION

Shrimp export and cultivation in Bangladesh has undergone rapid expansion over the last two decades. Shrimp is a particularly valuable export crop generating substantial revenues and foreign exchange, earning in excess of \$360 million annually and accounting for 4.9 percent of exports in 2004. After the garment industry, shrimp production ranks second in Bangladesh in terms of the sector’s ability to earn foreign exchange. Not only does this crop earn valuable foreign exchange, but the sector also employs significant numbers of rural workers and provides a livelihood for households throughout much of Bangladesh. Our study estimates that as many as 1.2 million people may be directly involved in shrimp production with an additional 4.8 million household members supported by the industry.

SHRIMP PRODUCTION

There are two kinds of shrimp that are cultivated in Bangladesh—saltwater shrimp (bagda) and freshwater shrimp (golda). Of the two, bagda dominates the market although golda commands a higher price.

Bagda shrimp can be caught at sea and sold for processing and export. Brood mothers are often caught this way and sold on to hatcheries which produce about 50 percent of the fry used

by farmers. However, trawling for shrimp and harvesting brood mothers can lead to over-fishing and increase pressure on fisheries, which in turn, threatens the food security of coastal people and contributes to the erosion of biodiversity in the region.

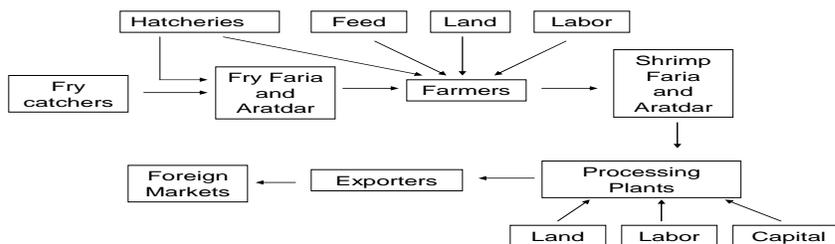
Both bagda and golda shrimp are also farmed. The majority of shrimp exported from Bangladesh are farmed. Farm methods range from traditional to semi-intensive production in Bangladesh. Traditional shrimp farms require few inputs and produce low yields. The majority of shrimp cultivated in Bangladesh are grown using traditional methods. Modified traditional production uses more inputs and increased technology. These modifications may include: the use of electric pumps to bring in salt water; the practice of mixing shrimp with other products such as fish, or sequentially cultivating salt or rice; and, the adoption of partial processing and post-harvest management techniques. Semi-intensive production requires greater inputs and investment such as regulated water temperature, supplementary feed, and better infrastructure.

THE SHRIMP VALUE CHAIN

The shrimp sector is a buyer-driven chain where producers, particularly small producers, have little ability to influence the price at which they sell their product and are frequently locked into contracts that limit the price they receive. At lower ends of the chain, among fry collectors and intermediaries, bargaining is limited and few agents are more than price-takers. At higher ends of the chain, among the larger farmers and processors, there is more opportunity for negotiation.

Figure 1 provides a simple flow diagram of the sector that traces how inputs are transformed into outputs and how shrimp are grown, processed and exported.

Figure 1. Flow Diagram of the Shrimp Value Chain



Fry are caught in the surf and in rivers and estuaries, or produced in hatcheries, and then sold on to intermediaries. Faria and aratdar are the intermediaries who buy and sell fry and shrimp and provide informal credit to fry catchers and farmers.

Lacking land and assets, the fry collectors are the most vulnerable workers along the chain. Fry collectors typically borrow money from fry faria in the lean season and commit to selling the fry to that lender at a price determined by the lender. Many spend years locked in a cycle of debt and earn little more than \$1 per person per day.

Fry aratdar typically buy fry from the fry faria and sell fry to the commission agent. Often faria and aratdar are indebted to intermediaries higher up the chain and are committed to sell fry exclusively to that lender. These contracts are sanctioned through strict social codes and occasionally enforced by violence.

Shrimp are farmed using primarily traditional and some modified practices. There are approximately 150,000 farms producing shrimp, employing more than 600,000 workers. There are 130 processing plants in Bangladesh. Of these, 65 are in operation. Most plants clean, preserve, and package shrimp. A number of plants are also beginning to cook or semi-cook the shrimp to increase the value added of the product.

Approximately 30,000 workers are employed in shrimp processing factories, over 60 percent of who are women. The work is laborious and repetitive, and health concerns abound for the workers, including reports of arthritis, urinary tract infections, repetitive strain, and diarrhea due to cool, damp work environments, stress, and exposure to parasites

GENDER ISSUES WITHIN THE VALUE CHAIN

There are several critical gender issues along the value chain. There is clear gender segmentation, wage differentials, and differences in the terms and conditions of labor throughout the chain. Moreover, women are absent in several nodes of the chain, limiting their ability to economically gain from this lucrative sector.

The shrimp value chain reveals a highly sex-segmented labor market. Women and men cluster in different activities in the value chain and their time is used unequally. Women and girls comprise 40 percent of all fry catchers and 62 percent of all processing plant workers. Very few women are intermediaries. Men and women also receive different wages along the value chain. Women fry catchers and sorters earn about 64 percent of what male fry catchers and sorters earn. While women receive 82 percent of men's wages in pond repair and casual agricultural labor, they only receive 71 percent of men's wages in the packing section of the processing plants and a mere 60 percent of men's wages in cooking/breading section of the processing plants.

Similarly, inequality in women's participation is evident in the security of their tenure and the work relationships they engage in along the value chain. In most segments of the value chain where women are employed, a greater proportion of female time is in temporary or casual employment. In farming, although there are more men reported to be working, 73 percent of women's labor time is concentrated in temporary or casual employment as compared with 31 percent of men's time. For example, in processing, where estimates reveal that women outnumber men, 92 percent of the women's labor time used is considered temporary or casual.

The most vulnerable actors are the male and female fry catchers, the shrimp farmers, and the workers in the processing plants. The value chain is characterized by multiple intermediaries and cycles of indebtedness which may lead to coercive relationships between fry catchers and intermediaries or farmers and intermediaries, for example.

CONCLUSIONS

Shrimp is an important export for Bangladesh and through its production provides livelihoods for the poor, small 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.

It is clear that the most vulnerable actors in the chain occupy the least secure employment, depend on open-access resources, and have limited opportunities to upgrade their production or change the terms and conditions of their labor and product exchange. Women are not visible in many activities, in particular as *faria* and *aratdar* and as management in processing. Instead, they are concentrated in the more flexible and insecure nodes of the value chain as fry catchers, farm laborers, and workers in shrimp processing plants. Insecurity in the chain is synonymous with low incomes and a greater vulnerability to poverty.

In order to increase the opportunities and benefits from trade, there is an urgent need to raise productivity and improve production methods in the shrimp sector. Additionally, efforts need to be made to reduce indebtedness lower down the value chain and free up producers to sell in local markets without being tied to lenders. There are an excessive number of intermediaries in the sector. These intermediaries perform an important function injecting informal credit into a system that faces substantial credit constraints at lower levels of the chain and aggregating inputs and product over disperse geographical areas. Yet, the density of intermediaries is also illustrative of substantial inefficiencies in the sector. Indebtedness binds fry-catchers and farmers into sub-optimal contracts with intermediaries reducing their returns and depressing incomes. Additionally, significant loss or spoilage occurs as the fry or shrimp pass through multiple intermediaries before reaching the farm or processing plant. Finally, social and environmental costs hamper growth in the sector. These costs can be addressed through improved aquacultural practices and better legislation and enforcement. As a result, national policies concerning the sector need to be revisited and a broader consultative process among all stakeholders developed.

RECOMMENDATIONS.

Short-term interventions

- **Shift to modified traditional practices.** Increase production and returns by supporting small farmer's adoption of modified traditional practices such as increasing the feeding rate, reducing the population of fries, and introducing fertilizer to the ponds. Men and women within the household should be trained in these approaches and trainings should factor in women's household responsibilities when and where trainings take place.,
- **Support Complementary Production.** Poly-culture of shrimp and other crops can increase food security, diversify the income portfolio and raise incomes for the rural poor.
- **Foster and Expand Spot Markets.** Spot markets and auctions offer farmers and intermediaries higher prices. Injecting credit into the sector lower down the value chain and expanding spot markets could release many small farmers and intermediaries from usurious contracts.

Long-term interventions

- **Increase Golda Production.** Golda garners higher prices in the market, faces fewer risks from viral contamination, and is associated with lower environmental impacts than bagda. Because golda farms are generally smaller than bagda farms and women are

more visibly engaged in golda production as farmers, feed production workers, and in nurseries.

- **Support the Development of Domestic Feed Production.** In addition to the diversification of homestead and small-farmer production, there are opportunities to substitute domestically produced feed for imported feed. Sourcing nationally will increase the backward linkages in the sector and secure employment benefits. Additionally, some of these inputs could be produced locally by small producers, cooperatives, and women-owned businesses. USAID could provide resources to expand the local production of feeds with a higher nutritional content that target small producers and women-owned businesses.
- **Diversify Products for Export.** For processors, adding new products and diversifying the range of products available provides another opportunity for value addition. Exporting “heat and eat” and semi-cooked products may provide a new retail niche for Bangladeshi shrimp exporters.
- **Develop a Welfare Fund.** Informal and sub-contracted workers do not have access to those benefits extended to formal workers, including health care and pensions. One way the Government of Bangladesh could formalize the provision of these benefits to informal workers in the sector could be through a Welfare Fund, taxing not the employers but the revenues generated in the sector.¹ The welfare fund could operate hospital and dispensaries, award scholarships, and provide school supplies and uniforms to the children of shrimp sector workers. Such a system could be particularly useful to ensure that the children of informal workers in the shrimp sector, including fry catchers, have the opportunity to go and remain in school.
- **Encourage Ethical Trading.** Another avenue for distinguishing Bangladeshi shrimp, increasing market share, and ensuring improved terms and conditions of employment could be through supporting ethical and fair trading initiatives.

ABOUT THE GREATER ACCESS TO TRADE EXPANSION (GATE) PROJECT

The GATE Project, funded by USAID’s Office of Women in Development and implemented by Development & Training Services, Inc. (dTS), works with eight USAID Missions to better integrate gender considerations into economic growth and trade-related programs in order to help expand areas of opportunity and mitigate the adverse effects of economic and trade expansion for poor women and men. This full report was produced for USAID/Bangladesh by the GATE Project.

To receive the full report, or for more information on other gender and trade-related research, please email GATEProject@onlinedts.com or call 703-465-9388.

¹ India has a similar system for *bidi* workers who produce hand-rolled cigarettes (Jhabvala and Tate, “Out of the Shadows”). The *Bidi Workers Welfare Act* (1976) stipulates that revenues generated by the sector be taxed to create a welfare fund administered by the Government.