



# AgriFoSe2030

Agriculture for Food Security 2030  
- Translating science into policy and practice



## Commercial Shrimp-farming in South-west Bangladesh: Challenges and opportunities for policy interventions

*Since the mid-1980s commercial shrimp-farming has expanded exponentially in coastal Bangladesh. The majority of these farms cultivate saline-water shrimps while some also cultivate fresh-water prawns. These products have come to be known as 'white gold' in the popular discourse because of their high profitability and capacity to bring in foreign exchange.*

The shrimp sector has been highly promoted by both the national government and international lending agencies. However, since the early 1990s there has also been recurrent concerns regarding the environmental and socio-economic impacts of large-scale commercial shrimp-farming, for example biodiversity loss, increasing soil-salinity, and disruptions in the agricultural resource-dependent traditional way of life.

This study provides a synthesis of existing literature on the socio-ecological impact of shrimp farming in Bangladesh. The study further attempts to highlight opportunities for policy interventions that can be beneficial for smallholder farmers.

### Key messages

- Shrimp farming has had unforeseen and far-reaching socio-economic and environmental impacts.
- These impacts both aggravate existing inequalities such as those based on gender, class, and land-ownership; and make the region more susceptible to climate-change induced degradation due to increased soil-salinity.
- Limitations of current policies for shrimp farming in Bangladesh include the absence of a well-thought out plan for addressing gender inequality within the sector, as well as lack of attention towards farmers who wish to diversify their crop cultivation.
- To address these impacts, a set of policies needs to be put in place that can respond to the particular needs of the local communities and protect the most vulnerable groups from loss of livelihoods, exploitative pricing, and decreasing biodiversity which affects their traditional diet and their ability to cultivate crops other than shrimp.

## Commercial Shrimp-farming in South-west Bangladesh

Since 2000, there has been a more than a 50% expansion of the area under use for shrimp cultivation and shrimp production in Bangladesh has increased by almost 70%. Of all the shrimp farms in the country, about three-quarters are located in the south-western coast in the districts of Khulna, Satkhira, and Bagerhat. These areas are deltaic and rich in mangrove forests which make them both naturally amenable to commercial shrimp-farming and ecologically sensitive.

A number of historical events are associated with the emergence of commercial shrimp-farming in Bangladesh. With the aim of creating a Green Revolution for internal food security, the government implemented a project called “the Coastal Embankment Project (CEP)” in south-west Bangladesh in the early 1960s, assisted by the World Bank.. The CEP brought an end to traditional small-scale shrimp farming and encouraged farmers to turn to large-scale commercial shrimp farming, a development driven by a strong international market and high prices for shrimp. Equally important was the fact that it was no longer financially viable to cultivate rice because agricultural lands were already affected by salinity. Expansion of the shrimp



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## Shrimp farming

Shrimp farming is generally divided into traditional, extensive, semi-intensive, and intensive management practices. The traditional form of shrimp-cultivation requires almost no additional inputs and has very low yields. The extensive form of cultivation is a slight improvement on this traditional form, in terms of the management practices and engineering aspects. In the semi-intensive form of cultivation, the biogenic capacity of the ponds is improved through supplemental feeding and improved culture practice, selective stocking, planned post-harvest and marketing. The intensive format represents the highest density, almost absolute management control, high quality complete feed, prophylactic treatment, etc. leading to the highest production potential.

sector was further facilitated by the Structural Adjustment Programs of the World Bank in the 1990s.

## Socio-economic Impacts

Commercial shrimp-farming has had an increasing contribution to the GDP of the country and the productivity of the agriculture and fisheries sector. It has undoubtedly yielded increased incomes for many thousands of households and facilitated the inflow of foreign exchange into the national economy. At the same time, it has resulted in unforeseen environmental and social outcomes that need to be reckoned with.

The loss of biodiversity in the ecologically sensitive mangrove region is one of the prime concerns documented in literature. Destruction of mangroves is caused by increased soil salinity which also hinders farmers to resume rice cultivation or adopt crop rotation. The large-scale conversion of land from rice to shrimp cultivation has led to loss of rural livelihoods and out-migration. The structure of supply chains and markets – organized into multi-tiered networks of dealers, brokers, and middle-men – overwhelmingly favours large farmers and renders small and landless cultivators more vulnerable. Thus, women and smallholders have



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been disadvantaged in reaping the gains from the flourishing commercial shrimp sector in the region.

### **Climate Change and Environmental Impacts**

Bangladesh faces risks from a combination of climatic variables such as rainfall, flooding, droughts, cyclones, sea-level rise, levels of salinity, and sea surface temperature.

The fear of climate-change led adverse outcomes was found to be slightly higher among farmers who combined rice and shrimp cultivation on their plots or were planning to diversify into resuming rice cultivation on some part of their land. This may be attributed to the fact that shrimp-farming is more resilient to increased soil-salinity than rice crops. However, shrimps thrive within a narrow margin of salinity and beyond that range they face a high risk of getting infected by various diseases. The farms that only cultivate shrimps were also found to be closer to the coastline and were therefore susceptible to cyclonic storms.

In recent times there have also been occurrences of both cyclones and droughts in the region, a clear

marker of climate change. Many farmers reported that drought reduced the amount of staple food consumption, including rice, fish, vegetables, and fruits. Destruction of life and property during cyclones also poses major setbacks for farming households.

### **Existing Policies and ways forward**

The Government of Bangladesh has identified a number of priority areas within its agricultural policy including: research and development, decentralization, export-orientation, and climate change resilience among others. To address these priority areas the government has introduced legislation such as the National Food Policy (2008), the National Agricultural Policy (2013), and the National Agricultural Extension Policy (2015). The main aim of these policies has been to formalize a grassroots structure of farmers' associations through which micro-level planning, dissemination, and uptake of agricultural technology can take place.

While many of these policies have yielded benefits for the sector, a few major limitations to their effectiveness remain. One of these is the absence



Shrimp fishing in southern Bangladesh.

of a well-thought out plan for addressing gender inequality within the sector. Another limitation is observed in the lack of attention towards farmers who wish to diversify their crop cultivation.

The following policy recommendations seek to address these gaps within the larger context of structural inequalities:

- Support in the form of income protection, social insurance and technical support to shrimp-farmers who are willing to shift to a diversified crop base such as combined shrimp-rice cultivation or prawn-fish-rice cultivation.
- A community-based approach towards making investments into constructing physical infrastructure that can assist in controlling levels of salinity.
- Integrating approaches towards tackling climate change, protecting mangrove forest cover, and conserving biodiversity in the form of Integrated Coastal Zone Management programs that are tailored to the particular needs of local communities.
- Land reforms encompassing secure lease arrangement, individual and collective tenure

regimes and secure land title for the landless or land poor.

- Special support structures for women farmers in terms of access to land, credit, and social protection
- Action against exploitative price behaviours of intermediaries in the global shrimp value chain.

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The brief is based on the AgriFoSe2030 Report 14 entitled "Commercial shrimp farming in south-west Bangladesh: Challenges and opportunities for policy interventions.

We thank the AgriFoSe2030 programme and the Swedish International Development Agency for the financial support provided.

Review acknowledgement to AgriFoSe2030 Communication and Engagement Team.

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