

Impacts of Flood Polder on Social Processes in Bangladesh Southwest Delta

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This policy brief highlights the main findings of research ‘Impacts of Flood Polder on the social processes in Bangladesh southwest delta’ under UNESCO-IHE Partnership Research Fund (UPaRF), integrating the dynamics of social and biophysical processes to support delta management (add-on NICHE Bangladesh 155 and NWO WOTRO Bangladesh). *The full report is available upon request from m.kooy@unesco-ihe.org or hamidul.huq@ulab.edu.bd or at www.unesco-ihe.org and www.csd-ulab.edu.bd*

Key findings

Flood polder, which was constructed in early 1970s in Paikgacha, created scope and opportunity of intensive rice cultivation from which farmers were benefitted increasingly. They, even the landless, small and medium farmers have had ‘food’ for the whole year. Respondents reported, they have had enough number of cattle, chicken, duck and goat from which they earned their income in terms of selling milk, eggs, and selling cattle and goat. They could grow vegetables at homestead or in neighboring lands. There were also plenty of fruit trees at homestead. Open water fisheries were very rich. The villagers could catch enough fish from river, canal, floodplains and ponds for their consumption. Fishermen community lived on open water fisheries. The respondents commented, we had almost everything during those days except enough cash money. We lived in peace during those days meaning the first decade after polderisation.

However, commercial shrimp farming, since 1980s, has displaced agriculture, open water fisheries, livestock, trees, vegetables and fresh water from this area. Over the period, agricultural lands have been brought under salt water shrimp farming. Outside investors, in collaboration with large insider farmers, have taken farmers’ lands introducing leasing system. If the farmers were not willing to lease out their lands, the investors used coercive measures (using muscle power, damaging lands with saline water, suing the land owners false, etc.) in order to take their lands for shrimp farming. Farmers became unemployed and gradually have lost their livestock. Open water fisheries got closed; hence the fishermen have lost earning opportunity that they lived on.

A large number of men members migrated to big cities including the capital city Dhaka leaving their families behind. Many go on temporary migration or seasonal migration whereas many families have migrated to cities permanently.

Almost all the households of landless, small and medium farmers are indebted to local traditional moneylenders and the microfinance NGOs, because they have no alternative of borrowing money for household expenditures. Of course, they try to invest in income generating activities, but seldom are they successful, because of lack of skills and business scope and opportunity. Though the landless and small farmers are engaged in wage labour work, but only for seasonal.

The changes in the bio-physical state resulted in power struggles between different interest groups. Conflicts exist between new shrimp farm owners and the old ones, insiders and outsiders. The conflicts between shrimp farm owners and land owners exist over the time. The women are compelled to work as wage labourers in the shrimp farm at even lower wage, because their male members migrated to cities leaving all the liabilities of running the family. In the polderised Paikgacha, commercial shrimp farming has given birth to a vicious cycle where the control over land and water has shifted from farmers to shrimp farm owners, money lenders and shrimp businessmen.

Farmers want to go back to their own land to grow crops as they did until the shrimp farming was introduced. They want to see the end of shrimp farming in their land as they have heard that in many areas of Bagerhat, Khulna and Satkhira the farmers are back to their own lands with agriculture which were used for shrimp farming. As soon as the investors were withdrawn from shrimp farming, the farmers are back to their land with a new approach of growing rice, fish and shrimp (Golda). This practice is popularly known as ‘Pocket Gher for rice-prawn-fish’ cultivation.

Polderisation

The southwest coastal region of Bangladesh is full of opportunities and vulnerabilities (Coastal Zone Policy, 2005). These two dynamics tried to deal with local landlords' initiatives of construction of small embankments around individual land to limit saline water overflow and prevent crop damage since the 17th century. The villagers collectively built earthen embankments on both sides of river bank to protect their Aman crop. This embankment was built for eight-month period every year, because this earthen embankment was washed away by the monsoon tidal surge (Nady, 2011). However, this traditional mechanism of construction of embankments through local efforts practically ceased in 1947 (Islam, 2006).

Following Krug Mission's report, the government designed the Coastal Embankment Project (CEP) in 1961 and constructed 129 polders, 5588 kilometers coastal embankment and 1062 sluice gates to cover 1.01 million hectare coastal land area in tidal floodplains of Bangladesh coastal delta by the end of 1971 with USAID funding support and the World Bank's loan (PDO-ICZMP, 2005). The main purpose of the polder construction was to increase agriculture production in southwest region (ibid).

Rapid change in land use occurred in the area after the polderisation. Farmers made their land very productive. They went for intensive rice cultivation. High yield varieties of rice were introduced. Rice production had increased significantly. Some yields increased by 200–300% (Nishat, 1988). The polderisation contributed in significant socio-economic changes in southwest region. These changes embracing land based production increased; land owners' benefits ensured small, marginal, and landless farmers got scope of doing agriculture through sharecropping systems, and the landless got employment opportunities in agriculture fields. But, these benefits were evaporated within a decade with the introduction of shrimp farming in the agriculture lands (Nandy et al, 2007). The salinity in tidal river water increased because of obstacles in tidal system by the dykes and lowering of upstream freshwater flow (Nady, 2011). Around the same time, there was an increased demand and a high price for shrimp on the international market. To earn hundred times the hire profit, the powerful people among the rich farmers, businessmen and party political leaders including local and outsiders initiated the shrimp (*Penaeus monodon*, which is popularly called Bagda) farming in the polderised rice field. Conflicts appeared on the surface centering changes in the land use, e.g., taking away small farmers agriculture land for shrimp farming by the power groups, violating embankment regulation (dike cut) to bring salt water for shrimp farming, creating oppression on the shrimp farming protesters, abuse of women, violence against the small, marginal and landless farmers, unemployment was increased, migration generated and land tenure system changed (Nandy et al 2007). All these have given a new shape to social and biophysical processes. Therefore, research is intended to understand clearly the polderisation induced shaped and reshaped socio processes of southwest region of Bangladesh.

Research objectives:

1. Investigate the impacts of polderisation in social processes of coastal tidal floodplains;
2. Investigate the social processes of socio-biophysical interplays, focusing on 'transformation of rice cultivation to shrimp farming';

Research Questions:

The main research question of this research was 'how did constitutive socio-nature processes shape the social landscape in the polderised southwest floodplains of Bangladesh;

Research Methodology

In order to attain the research objectives and explore the answers to research questions, attempts were made to collect both secondary and primary data. Secondary information were collected from reports, publications and printed materials of relevant government organizations e.g., Fisheries Department, Agriculture Department, Bangladesh Water Development Board, Upazilla Parishad, Export Import Bureau, and local NGOs working in flood polder areas. Main focus was given on primary data collection. Primary data were collected from the primary stakeholders of the study area. Primary stakeholders included small, medium and large farmers. These farmers were engaged in rice cultivation in the first decade of polder; they are now displaced from agriculture because of commercial shrimp farming has been introduced in this study area after 10/12 years of polderisation. Other groups of primary stakeholders are landless and shrimp farm laborers, shrimp fry collectors, shrimp feed collectors (snail collectors), and labor in shrimp/fish landing markets. Another category of primary stakeholders were women from small and medium farmers' households and landless people.

Primary data were also collected from power group members like shrimp farm owners, village leaders, political party leaders, local moneylenders, brokers, shrimp traders, outside investors, and local government representatives, police, government officials.

The study followed several methods and techniques for primary data collection. Several PRA Tools such as Social Mapping, Focus Group Discussion, and Transect Walk were utilized for data collection. Other methods such as group discussion, individual interview, case study, and observation were also adopted during the study.

The field research was carried out during the period of March - October 2014. On the basis of literature review and scoping study, discussions with Khulna based journalists, NGO leaders (who run projects in flood polder areas), and researchers from Khulna University, it was convincing that Paikgacha Upazilla is more relevant for conducting this research. Paikgacha, which is located at about 35 km towards southwest of Khulna city consisted of 10 Unions (Union Parishad is the lowest tier of rural local government). All these 10 unions are located inside the Polder no. 23. The whole polderised area was brought under intensive rice cultivation. But, at some point (after one decade of polderisation), the rice fields were brought under shrimp farming over a period few years. The whole area under polder no. 23 has experienced with socio-natural interplay processes.

The field research for primary data collection was conducted in the villages around the shrimp farms. Field research was conducted by the Postdoctoral Researcher Dr. Hamidul Huq with assistance of a Research Assistant. Help of local college students, school teachers, village leaders, officers of Bangladesh Fisheries Research Institute was taken in identifying the primary stakeholders and in organizing interviews, group discussions, focus group discussions and field observations. Furthermore, a checklist/questionnaire was followed in conducting interviews with individuals and groups, and in conducting FGDs. Note book, audio recorder, flip chart paper, and camera were used to keep data recorded. The research assistant aided the research process by transcribing, organizing and processing field data.

Research Findings

This research found that the flood polders have been taken by the power groups (businessmen, politicians, moneylenders, large farmers, local government leaders) as an advantage of creating scope and opportunities of introducing saline water shrimp farming. This has led the transformation of rice fields into shrimp farms. This transformation generated complexities in biophysical systems and generated serious impacts of social processes, e.g., established hegemony of power groups, destructed institutions and social harmony, created food insecurity, displaced the marginal, small and landless people from agriculture, established power groups' hegemonic land tenure system, created coercive environment for the marginal and poor people, pushed the women in vulnerability, and made the farmers indebted to moneylenders, both traditional and microcredit NGOs. Following sections present findings related to impacts of polder on social processes.

Agriculture

For the first 10-12 years after polderisation it did have a positive effect on the economic situation of the people from Paikgacha. Due to a comparatively successful management of the flood during monsoon, farmers in the area were able to grow rice. People of the area observed ample food production and food security was ensured to an extent.

Though surplus food was not produced at that period, at-least people had enough to pounce on. Due to sufficient natural siltation there were enough crops, while the water eco-system services were also available in ample quantity. There were practices of shared cropping and the community used to have open access to fisheries. The bio-diversity and natural environment supported the livestock. As the farmers depended on each other for farming, there were limited, if not any, power exercise between themselves or by external forces. The landless farmers worked in the lands and earned living, while the rich bio-diversity and open access to the natural food sources allowed them to avoid conflicts with landlords or bigger farmers. The family structure was simple in a sense that the work between men and women were segregated. The females looked after the household and in addition to that grew vegetables, fruits and took care of livestock adjacent to their household. The males on the other hand, were responsible for making the food available for the family through work outside household. The society was in harmony with the nature during the initial stages of the polderisation, which meant that there was no conflict over the usage of land or water bodies.



Crop field during 1st decade of polderisation looked like this.

According to the *gher* owners (shrimp farm owners), who participated in the Focus Group Discussion (FGD), before shrimp farming was introduced in the area, the lifestyle was joyful and had a peaceful life; and there were no scarcity of food or livelihoods. There were cattle almost in every household and fodder was available. Chicken, duck, goat were also there. Plenty of open water fish was there. There were lots of trees around this area and lots of fruits were available. The participants of the FGD shared: *'We had food for the whole year; we did not buy anything except salt. Though we did not always have cash money in hand, we were not indebted. We were happy and there was peace in our area'*.

The respondents shared their seriousness about bringing back the pre-shrimp culture practices e.i., agriculture in their lands. They already know that many shrimp farms have already been transformed into rice-fish culture in Bagerhat, Khulna and Satkhira districts where shrimp farming were initiated first. Shrimp farm owners are withdrawn because of losses caused by virus affect, cyclonic disaster. The landowner took opportunity of bring back their land into agriculture practice. The farmers have innovated a new approach of growing rice-fish-shrimp, which is popularly known as "pocket gher". The farmers of Paikgacha are very much keen in this approach. They are seemed to be waiting for an opportunity of practicing this approach in their own lands.

Shrimp farming

After a decade of polderisation, external businessmen, in collaboration with local large farmers, party political leaders, started saline water shrimp (*Penaeus monodon*, locally known as *Bagda*) farming taking more lands on lease from the small and medium farmers applying force/muscle power. They bring saline water for shrimp farming breaching the rules and regulations.

Over a period of 10/12 years, the whole area was brought under shrimp farming. Highly profitable export market of shrimp was the main attraction of shrimp farming.

Land leasing

Initially when the farmers leased out their lands, they received money for two years and within a year or at times before, they finished the money. There were also conflicts with regards to the lease rate as initially farmers did not understand how much was enough for them and later when new investors arrived, they offered more money to the farmer/land owners. So, negotiation took place between the land owners (farmer) and the old party. During this period the whole region experienced such negotiations inducing conflict between old investors (generally outside parties) and middleman, while new opportunists (local investors) kept on offering higher prices for leasing out land. Dissatisfaction between shrimp *gher* owners (investors and middlemen brokers) and farmers intensified due to the mentioned complexities. During this whole process farmer lost control over their land and eventually the land had to be leased to the powerful shrimp *gher* owners.



A proud owner on the blink of his shrimp farm

Unemployment

The immediate implication of shrimp farming was displacement of rice cultivation, which generated unemployment of the farmers really fast. Shrimp farming required only 10-15 labours for 30 acres of land annually, while at least 10 to 15 labours were employed by rice cultivation per .33 acre per season.

Though the farmers earn money against leasing out their lands, but they had no scope or very limited scope of investment for income generation. In the initial stage of shrimp farming leasing rate was taka 2000 (price of three *maund* rice/120 kg rice by which a family can run one month) per .33 acre land, currently it is around taka 8000 (price of five *maund* rice/200kg rice by which a family can run one month). A farmer who has three acre land can earn around taka 70000 - 72000 (Euro 700) per annum by which he can meet up food only for 8 -9 months. But, a family has many other expenses. The respondents reported that the farmers can run family four to six months by the earned money against land leasing.



Farmers as wage labour in fish market

As the landless farmers, do not have access to natural resources anymore, such as land and water, they become workless and idle. In this situation they are forced to migrate in search of work. They go to cities to work as rickshawpuller, construction labourer, etc. They also go to other inland districts to work in paddy fields during winter time. They return home in rainy season when there are some employment opportunities in the area.

Indebtedness

These conflicts with regard to control over land and water use led farmers to borrow money from multiple sources. They started taking loans from local money lenders and also forced their wives to borrow from micro-credit NGOs. As the official purpose of micro-credit is to invest in income generating activities, while they did not have access to their land where they could use it for farming or other purpose, the money borrowed is used for consumption. Hence, the loan from the NGOs became a burden for the family. The farmers migrate in search of income sources and also avoid the legal and social responsibilities associated with their loan. In the meanwhile, the women remain at home and face all the difficulties with regard to being responsible for the rest of the family (both financially and socially), bringing up her children and experiencing pressure from NGOs or money lenders. Furthermore, due to the financial responsibility of the family, the women are somewhat forced to choose to work in the shrimp *ghers* in low wages. The migration of the males leads to multiple burden on the women as they are left alone to face family livelihoods burden, social oppression, and loan burden. Eventually, to suffice the multiple pressures the land has to be sold and loose the asset to shrimp *gher* owners.



Farmers are in search of alternative employment

Gender relation

Gender roles have changed over the period of changes through decades of shifting from rice cultivation to shrimp cultivation. Due to the regions' reasons for shifting to shrimp business, the women became vulnerable to oppression. They were oppressed economically by the shrimp *gher* owners, while their multiple-additional roles of a housewife and bread earner have made the women socially more

vulnerable. Moreover, knowing that there are limited investment opportunities, male are forcing their wives to borrow money from NGOs. The female face pressure to payback borrowed money and are oppressed. So women's situation becomes far more oppressed, undermined, ignored, and discriminated in the region.

Dowry has increased along with divorce rate. Family ties have broken and mutual respect, cordiality has gone away. The family conflicts have increased and the social structure has changed, while the young generations have spoiled. Social ills like addictions, robbery, rape and women oppression have increased. Another decadence of the society is happening through employing women as daily wage labourers in the shrimp *ghers*, where the poor women are oppressed and abused.



Women as wage labour in shrimp farm

Role of Government

The respondents opined, the polder was built with an intention to protect the land from saline water intrusion which happens with the emergence of tidal surge. The foremost goal of polderisation was increasing cropping intensity and for some years the farmers were vastly benefitted by polderisation. But with the introduction of saline water shrimp farming, the main objective of polderisation got slowly started to become dysfunctional. Government did not respond against the inclusion of shrimp farming in the region, nor did they consider the consequences. The respondents expressed, in one way government prohibited bringing saline water in to the cropland, and on the other hand allowed the investors to adopt shrimp farming in the same land. Such an unwanted situation could take place because the investors in shrimp farming belonged or associated with the political party leaders, elected parliamentary members, rich businessmen, and collaborated with the local administration including police and higher *mastans* (hooligans) assisted by the political party leaders. The respondents expressed their highly critical observations on government role in relation to using the advantages of flood polder.



Shrimp business is under control of power group

Government, seeing that the local people, especially the farmers, using land and water in line of official objectives of the flood polder, that is growing crops intensively, growing livestock and using the benefits of open water fisheries, allowed the commercial shrimp farming that displaced the agriculture all out. Bangladesh Water Development Board (BWDB) held back rather than taking any actions against the shrimp farm owners who breached the law – cut embankment, kept the sluice gates open to bring saline water in the croplands for shrimp farming. The respondents opined, if the law was enforced, shrimp farming would never have possible by the outsiders in their area, and the area would have flourished with continued cropping intensity. The farmers, the land less, the fishermen, even the businessmen would have benefitted in terms of food security, economic growth and social harmony. Livelihoods of landless and the fishermen would have been better.

Conclusion

Impacts of flood polder on socio-natural processes are explicit. This study focused on social processes. The study explored that flood polder created enabling environment for agricultural practices of the local people, which contributed in improving livelihoods, economic growth, livelihoods assets, and food security. But, allowing (government kept silent against it) shrimp farming in place of rice caused displacement of crops cultivation, livestock, livelihoods opportunities, and access to ecosystem services of the local people. Official objectives of flood polder were diminished by the shrimp farming against which no action was taken by the government. Though the farmers, except the very large farmers who were partnering with outside investors, protested but failed to prevent shrimp farming because the investors happened to be very powerful and protected by the government agencies and party political forces. Agriculture, after polderisation, benefitted all level of local people, while shrimp farming benefitted only the investors; outside businessmen, local moneylenders and a small number of traders the most. Some local people are benefitted in the market chain as small traders, wage labourer, transport worker, and retailers. Some people are benefitted out of selling fish feed, catching and selling shrimp fry and working in shrimp farm as wage labourer.

There have been many project interventions in the area by the government, NGOs and private business organizations. But, as the respondents shared, all these projects have rather created more liabilities of the local people instead of solving their problems. It is because; shrimp farming has closed the scope and opportunity of diversifications that used to prevail in the area. Apart from salinisation, river got silted up, canal and channels have been filled up long ago, water flow slowed down and thus biodiversity has been lost. Study suggests, interplays between bio-physical and social process in polderised areas are highly influential in shaping the social processes. Well documented interplays between biophysical system and social processes of polderised areas need to be accounted in policy processes and governance systems. This study also suggests, the technical universities/institutions need to include this interplays issue in their academic programme.