

## Ecological gloom over economic gain

SHRIMP cultivation is suitable where brackish water is available. Initially, businessmen from outside seeking profit introduced shrimp farming in the coastal areas, particularly in Khulna and Cox's Bazaar, and there was little participation by the local people. There was no national policy or strategy for the industry. Many of the owners of these farms used to take land on lease either from the government at a very nominal price or from the local people. And having little or no knowledge of shrimp cultivation, villagers initially provided labour to those farm owners. With the passage of time, shrimp cultivation has now become deeply rooted in some coastal areas of the country, generating employment for men and women of those localities.

The shrimp sector has been contributing significantly to the national GDP by earning over US\$ 300 million a year in foreign currency. However, this macro-level performance of the sector is not a reflection of wellbeing of the people at the grassroots. At micro-level many issues have been raised by concerned people and agencies such as access to water, control of land, environmental degradation, health hazards, fertility of soil, etc. All these issues are closely related to the present and future livelihood of the people in the locality.

A report by UNESCAP on the role of shrimp culture in socio-economic development and its effects on environment and ecology found that unplanned and uncontrolled growth of shrimp enclosures have led to destruction of mangrove forest areas and reduction in livestock. Besides, shrimp culture produces adverse effects on the subsistence economy because the level of employment is reduced. Experts have pointed out that unplanned shrimp farming has largely been responsible for the socio-economic and environmental problems in the coastal areas.

Mofizur Rahman, a gher (enclosure for shrimp cultivation) owner, said, "Somebody is causing harm to environment while cultivating shrimp. I have gher - one on my own land and three others on leased property at Ashashuni Upazila.

"Shrimp cultivation alone should not be blamed for change or degradation of the soil. Several decades ago when there was no embankment in the Sunderbans belt, the influx of saline water during tides did not allow us to cultivate rice. Rice cultivation actually began in this region after the construction of embankments. Now we have come back to the old situation with only one difference that currently the saline water compartments are developed for shrimp and the land is not allowed for being flashed by tides.

"Even in non-saline areas once we used to hear the croaking of frogs. But with the expansion of infrastructures and increase of population, none can see frogs in expanding towns. But how can one stop the population increase and expansion of infrastructures.

Rangalal Mondol, 65, is a street-side seed trader who vends vegetable seeds at a local market on the

Shrimp culture has emerged as an important economic activity contributing significantly to the country's export earnings. It has also created employment opportunities. However, environmentalists and experts are still worried about the possible ecological havoc it may wreak



Boon or bane?

Satkhira-Shyamnagar road.

He said that shrimp cultivation did not affect his business as his commodity still has a demand among the local people. "Rather people are now more interested to buy vegetable seeds for kitchen gardening since the shrimp farming has replaced rice cultivation in most areas of the neighbourhood. They are getting the yield too."

Abus Shukur, 35, a van driver and also a farmer from Munshiganj Bazar, Shyamnagar, owns a piece of land he had inherited from his father. The land provides his family with their meals for nearly eight months of the year. The rest of the time he earns the bread for his family driving his rickshaw van.

He realises that shrimp cultivation has caused a significant loss not only to traditional agriculture, but also to environment. "You will not find any fruit bearing trees around. During the (Bengali month of) Chaitra, the concentration of salinity on the soil becomes severe causing deforestation over the years."

Abdus Salam, 25, a shrimp fry collector from Nildumur is originally a bawali, the profession he had inherited from his forefathers who used to live on felling trees from the Sunderbans, of course complying with the forest rules.

However, shrimp cultivation changed his profession making him a shrimp fry collector.

Abdus Salam and his fellow colleagues now collect 2000 to 3000 shrimp fries everyday from the Sunderbans where they spend more than ten days of a month. They sell each fry to the traders at a cost of Tk two to three, which give them a huge margin after paying for the nets or boats.

Researchers have not produced any conclusive evidence that shrimp culture alone has damaged coastal environment. Examining the socio-economic impact of shrimp farming, Mazid and his colleagues

(1993) notes that shrimp farmers who lease out land are mainly medium to small farmers and most of them are owners-cum-sharecroppers. The conflicting relationship between large shrimp farmers and small farmers led to long-term socio-economic problems, such as discriminatory income distribution, increase of landlessness, migration to urban areas, violence, etc.

A study by the Institute for Development Policy Analysis and Advocacy has found that marginal households are less benefited than the non-marginal households. Most importantly, shrimp culture has raised the land value, forcing the households to opt for fishing for their livelihood. The Institute of Fish Research in 1994 reported that shrimp culture destroyed fertility of land, food for cattle, and mangrove forestry, which in turn changed the livelihood patterns of the local population.

Rahman (1990) identified a number of shrimp-related environmental and social problems in Khulna and Cox's Bazar. The study's most important finding was the sudden change in the cropping pattern in the coastal area with the advent of shrimp farming. Other negative impacts of shrimp culture includes fall of poultry and livestock population, decline of productivity of land, destruction of trees, decline of meat and milk supply and shrinking of grazing fields in both Khulna and Cox's Bazar areas. The study concluded that shrimp farming had in general brought gains individually and socially. In an earlier study, Rahman and his colleagues (1987) pointed out that shrimp culture created various jobs for the poor people during harvesting season.

They also pointed out that shrimp cultivation had reduced the number of livestock and poultry in the shrimp producing area because of converting grazing land into shrimp enclo-

tures. The study also observed that standard of living had deteriorated for the vast majority of the middle and small farmers, landless, and day labourers. The commercial shrimp cultivation thus left a long-standing impact, changing the livelihood patterns of the vast majority of the coastal people. In a later study, Rahman (1994) contended that shrimp cultivation had not only destroyed the sustainable livelihood but also intensified social contradictions, which had broken the traditional safety nets. They also noted that the primary beneficiaries of shrimp culture have been the outside-leaseholders - not the local poor.

Ahmed (1997) gave a dismal picture of environmental and social impacts of the shrimp industry that includes violation of human rights, crime and violence in the coastal villages, rape and sexual assaults of women. He further showed that due to salinity over a decade, livelihoods of the coastal villages have been devastated. The study said that shrimp cultivation has brought an end to sharecropping and thus has restricted a supplementary source of income for the land-less. Evaluating the socio-economic impact of shrimp farming, Mazid (1993) pointed out that primarily medium to small farmers lease out their lands who were mostly owner-cum sharecroppers. The conflicting relationship between large shrimp farmers and small farmers might cause long-term socio-economic problems such as unequal income distribution, increasing the proportion of landlessness, migration to urban areas, violence etc. In other words, the most affected people are the small landholders.

Ahmed (1996) reported that unregulated shrimp cultivation left negative impacts on people's livelihood because extensive shrimp farming resulted in destruction of bio-diversity and disruption of local

economy through loss of employment in fresh water fisheries, and decline in livestock and poultry farming. Ahmed suggested the formation of an institutional framework to protect the human rights and people's livelihood.

In general, fishing incomes have regular seasonal variation. A report by UNIBIG (1987) revealed the seasonal variation of employment and income of the fry collectors in shrimp farming areas. This study provided early evidence of the problems faced by many people engaged in the shrimp sector in sustaining a livelihood. In a similar study, Ahmed and Rahman (1996) described the impact of shrimp farming on the livelihood of people. The authors reported that shrimp culture affected the poultry and livestock as well as local fisheries resources. Shrimp cultivation increased unemployment for those involved in agriculture, fishing, home gardening, poultry and livestock rearing. As a result, rural poverty had increased. In the face of severe unemployment many people had started migrating to different localities to earn their livelihood. It also has affected the social system that has contributed negatively to sustainable occupational patterns in the coastal areas.

Most recently, Begum and Alam (2000) noted that the local shrimp farmers have started replacing outside investors resulting in reduction of poverty to a great extent. But still, the social tension among different interest groups has increased. The authors argued that shrimp culture has produced some economic benefits in the communities that include increased savings, better infrastructures, greater local solidarity, and improved social and natural environments. The study also reported some negative effects, such as increased dowry demands and violence against women. Most importantly, shrimp

culture has led to social conflicts evolving around sluice gate and water management, payment of lease money, etc. The study concluded that proper planning of shrimp farming could result in positive social and environmental benefits for the smaller shrimp farmers, marginal farmers and the landless. Begum and her associates also conducted a study in polder 23 under Paikgacha Upazila and polder 33 under Dacope Upazila in which they reported that the livelihood of people in those areas were mostly dependent on agriculture, fishing, crab and shrimp fry collection, etc. Shrimp culture has created opportunities for employment of the rural poor and marginal people that substantially changed the livelihood patterns of people of the area.

Ahmed (1997) contended that commercial shrimp farming had resulted in unsustainable livelihood. He found that salinity threatened people's livelihood by reducing water and soil quality and food supply. Thus, intensive shrimp production should be discouraged. Huq (1983) examined the effects of shrimp cultivation on the livelihood of the coastal region. Shrimp cultivation involves activities, such as beheading of shrimp, ice breaking in the ice factories and shrimp fry catching. These new activities have

generated new jobs for the local people. Initially, shrimp cultivation needs additional labour for embankment construction. However, in the subsequent years labour demand decreases as embankment construction is not required every year. Huq further argued that compared to paddy cultivation, employment opportunities in shrimp culture is unstable, which affects the livelihood patterns of the poor and marginal population. Increased shrimp cultivation is affecting the supply of grass for cattle and duck rearing, he pointed out.

The authors (Ahmed, 1997 and Huq, 1983) predicted that shrimp cultivation would undermine sharecropping as a supplementary source of income of the landless and in the long run result in the creation of a surplus labour. Thus, in the absence of job opportunities in their own locality, migration would take place (labour displacement). In other words, job opportunities and the long-term security that the local agrarian economy provided earlier would be seriously affected due to large-scale cultivation of shrimp. With the spread of shrimp farming, fishermen have lost access to common property resources, such as ditches and canals. Net income has significantly increased through shrimp cultivation but it is unequally distributed. A survey by the Agricul-

ture Research Institute revealed substantial reduction in cattle production.

In sum, review of shrimp related studies suggested that shrimp culture significantly changed the livelihood patterns in the coastal belt. A large number of households are pursuing shrimp related activities as a means of their livelihood. Many of them are pursuing this under compulsion as saline water is penetrating in and around their cropland. Almost all studies have shown immediate benefits of shrimp farming. And a number of studies have shown its negative impacts, such as exploitation of the poor, creation of landlessness, environmental degradation, violation against women and children, unequal distribution of gains, reduction of access of rural poor to natural resources, and creation of class conflicts. The introduction of shrimp reduced the cultivation of paddy as more agricultural land has gradually been converted into gher. There has also been reduction in tree coverage, bushes and grazing land, which constituted an important feature of the pre-shrimp land use pattern in the coastal areas.

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## AGENDA FOR URBAN CONCERN

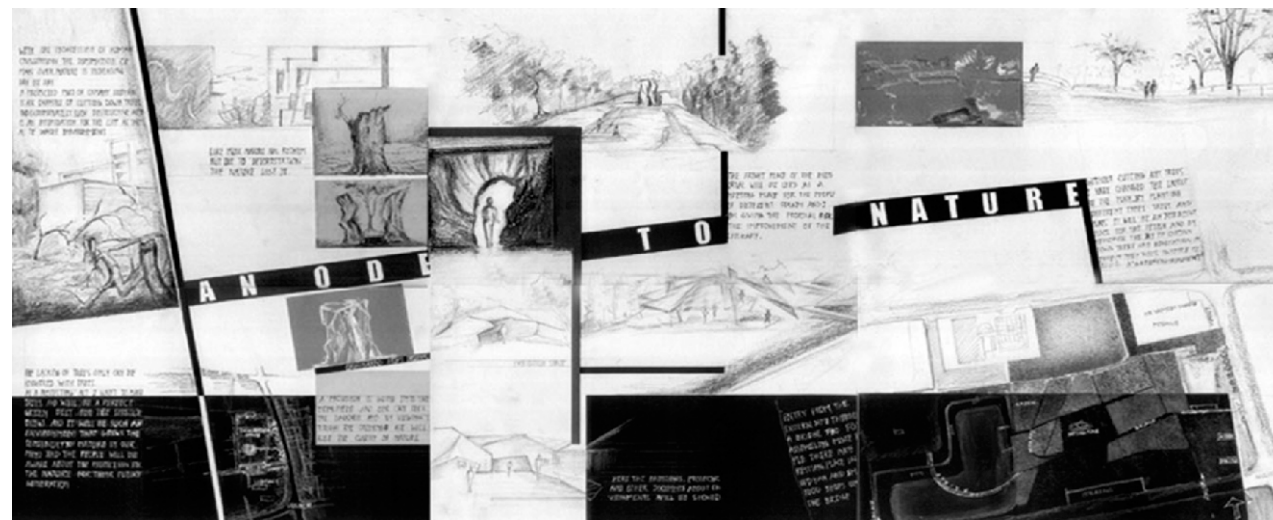
### Restoring the symphony

SHIMUL SARKAR

Like music, nature has rhythm, but due to deforestation nature is losing it. With the progression of human civilisation, the domination of man over nature is increasing day by day. A protected part of Osmany Uddyan is an example of cutting down trees indiscriminately. Such a destructive act is an intimidation for the city as well as the whole environment.

The lack of trees can only be recovered with more trees and it is proposed that this place will be a perfect green belt for the surroundings which can create such an environment that allows sensitivity to nature to grow in our minds. The people will become aware about preserving nature for their future generations and at the same time it will keep fresh in our minds the destructive act of July 2001.

At the place where the trees were



shimul

destroyed, the memorial is placed. The front court of the memorial will serve as a gathering place for people of different classes. Behind it

there is an exhibition space where paintings, slides and other documents about the environment will be shown. Near the memorial there are

small food shops, souvenir shops and sitting places, all constructed without cutting any trees and bringing nature into the spaces. A new

walkway layout has been proposed and it will be an attractive place for people to build-up nature awareness.

### Creating contrast for realisation

MOHAMMAD MAMUNUR RASHID

Osmany Uddyan, a park situated in the very busy commercial heart of the city, is the 'lungs' of this area. Various types of people come near this area, but very few people actually enter it. In this project I tried to create a green pocket, accessible to the public, with a miniature sculpture gallery, which takes its form from the roots of trees, because that is the most important part of living trees. I have placed the gallery beneath the artificial roots to give the underground hidden view of the root beneath the trees. When people visit the gallery they can realise that a destructive incident took place at this site. The exhibits here will commemorate nature.

As one approaches the memorial with no trees around, because they have been cut, one feels the heat of

the surroundings without any protective shading. But as they enter the gallery, which is accessed by

going down into the ground, one can feel the cooler environment in comparison to the hot surface

above ground. The effect of cutting the trees is thus felt directly. People will then learn to question them-

selves about the justification of cutting trees and take decisions to stop this sort of destruction.



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