

Destruction of Chakaria Sunderban: A Case of Ecological Debt in Bangladesh

M. Shamsuddoha^a and Rezaul Karim Chowdhury^b

^a Participatory Research and Development Initiatives, House 13/1, Road 2, Shyamoli, Dhaka 1207, Bangladesh

^b Coast Trust, House # 9/4, Road # 2, Shyamoli, Dhaka 1207, Bangladesh

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This story is about wholesale destruction of a natural forest, Chakaria Sunderban, a 7500 ha mangrove patch which was located in Cox's Bazar district in the southeastern Bangladesh along the northeastern coast of the Bay of Bengal. The Chakaria Sunderban, the oldest mangrove forest in the subcontinent and the second largest mangrove patch in the country, lost all its 20 species of trees with the expansion of World Bank and Asian Development Bank supported shrimp cultivation project, which was imposed to the country with a loan package of US\$26.5 million under Structural Adjustment Program (SAP).

Introduction

The Chakaria Sunderban which once formed a unique ecosystem, wildlife sanctuary and used to support way of living of the local people is now turned to poisonous fenland with high contents of acid sulphate in the soil. The irresponsible financing of the World Bank and Asian Development Bank on shrimp cultivation in Chakaria Sunderban benefited mostly non-local individuals, organizations and companies but caused complete destruction of biological diversity putting local people in distressed livelihood condition and exposed them to increased hydro-metrological disasters. And, in broader sense, the destruction of Chakaria Sunderban reduced earth's bio-capacity, which is required to sequester carbon dioxide (CO₂) emissions from fossil fuel combustion. The value of the goods and services of the Chakaria Sunderban that we lost should be considered as 'Ecological Debt' of the development partners to the poor and at-risk coastal people in Bangladesh.

Time scale of destruction

Chakaria Sunderban, the naturally grown mangrove patch in the southeast of Bangladesh, came under institutional regulation in 1903 while the then British government formed the Chakaria Sunderban Range covering 8510 ha forest area; among which 7490 ha was declared as reserve forest and 1020 ha as protected forest (Hossain et al., 2001). In 1926, the British government leased out more than 1600 ha of forest land to landless families for settlement and formed an association of settlers for co-operative farming. Although many of the early settlers in Chakaria used to earn living from the mangrove ecosystem services but their intervention didn't cause any destruction to the Chakaria Sunderban. Comparison of forest coverage map in 1952 with an aerial photograph taken in 1975 showed that the mangrove coverage remained unaltered i.e. 7500 ha in both the cases though the local people used the forest resources (Hossain et al., 2001).

Following the oil price hike in the 1980s that caused crisis in country's balance of payment (BoP), the multilateral development banks (MDBs) like the World Bank and Asian Development Bank started pushing the country for the expansion of export-oriented shrimp farm especially farming of tiger shrimp (*Penaeus monodon*) that only grows in saline water, as this species has potential market demand in the USA and EU countries. Therefore, wholesale attack on the Chakaria Sunderban began in the 1980s when these MDBs started financing shrimp farms in the forest lands. In 1977, about 2251 ha of mangrove forest were converted into shrimp farm and again in 1982 another 694 ha were cleared for shrimp farming. In fact the direct financing on clearing forest by the MDBs started in 1982 with a loan from the ADB that helped set up over 100 shrimp farms each 11 acres in size and build a 16 kilometers embankment (Philip, 2002).

The largest portion, about 3577 ha of mangrove forest, was leased for shrimp farming during 1985-1988 as the World Bank and UNDP provided \$26.5 million (U.S. dollars) under a project called 'Shrimp Culture Project (World Bank Credit No. 1651 BD). Eventually, the remaining portion of the mangrove forest was leased during 1995-1996 and in the subsequent years, the entire mangrove forest of Chakaria Sunderban was cleared mainly for shrimp farming with little salt bed and minor human settlement (Figure 1).

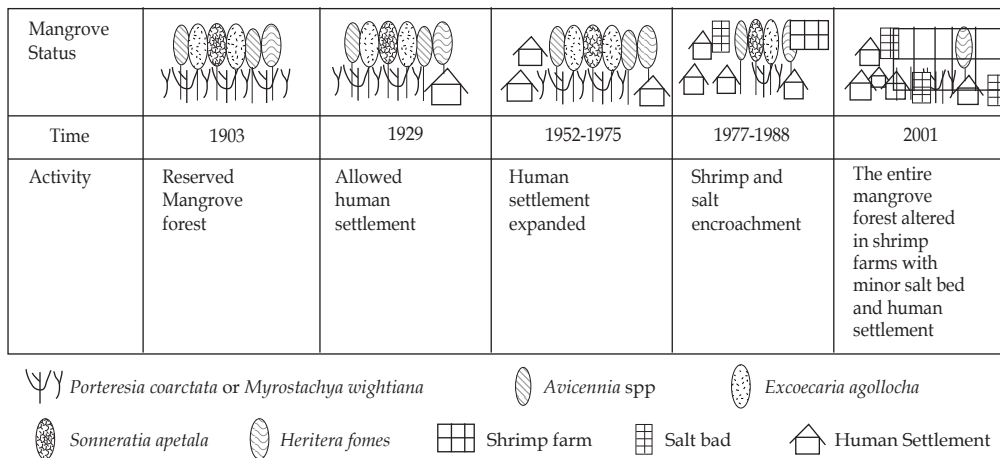


Figure 1. Historical changes of Chakaria Sunderban mangrove forest in Cox's Bazar coast for 100 years time scale (Hossain et al., 2001)

Devastation of development: hypocritical confession of the WB and ADB

The ADB project completed in 1986 and the WB project in 1993. By then, the entire mangrove forest wiped out but, interestingly, the project completion report of both the agencies came up with false and contradictory statement. The World Bank report said:

There are no negative environmental effects caused by the project. On the contrary, some of the adverse effects which existed under the pre-project conditions, such as water logging and uncontrolled cuts in embankments have been minimized or eliminated by the project interventions. No mangrove forests have been destroyed as a result of the project

On the other hand the ADB report said;

about 800 ha of mangrove forest was (or is being) cleared to culture brackish water shrimp. A large portion of the approximately 100, 000 ha of land now being utilized for shrimp culture in Bangladesh was originally mangrove forest the clearing of 800 ha of mangrove in the Chakaria Sundarban under the project has clearly reduced shrimp/fish breeding and nursery grounds in the area

Against the above duplicitous confession of the WB and ADB, the Landsat TM data of 1988 showed that the mangrove forest removed completely except some patches on the banks and almost entire forest of 7500 ha has been converted to shrimp farms. (Study of Chakaria Sunderbans Using Remote Sensing Technologies, May 1990).

Climate change and weather extreme events: defenseless coastal people

Research and experience show that forest ecosystems play an important role in reducing the vulnerability of communities to disasters, both in terms of reducing their physical exposure to natural hazards and providing them with the livelihood resources to withstand and recover from crises. The storm buffering characteristic of the mangroves has become more evident after the Indian Ocean Tsunami that ravaged parts of Asia in December 2004. Similar claims on the benefits of coastal forests was observed in Bangladesh while southwest part of the country was affected by Category 4 Cyclone, Cyclone Sidr, in November 2007. In contrary, many in the conservation community have voiced the opinion that the

destructive power of the storm, cyclone Nargis in 2007, was intensified by recent loss of forest in Myanmar (Anon, 2008; FAO, 2008). Research indicates that a network of coastal defenses, especially a belt of mangroves, is capable of absorbing 30 to 40 per cent of the total force of a tsunami or typhoon and ensuing waves before they swirl over inhabited areas by the shore.

Therefore, the complete destruction of Chakaria Sunderban in the southeast coastal belt made people more exposed to natural hazards. The absence of mangrove forest in that coastal part first felt in April 1991, when a super cyclone hit the country and caused death of 138,000 people. That cyclone reminds the importance of mangrove forest as a 'bio-shield' to safeguard the coastal people. In the following years of 1991 cyclone a few organizations tried to re-grow a part of the Chakaria Sunderban but failed to reverse the destruction. In the recent years, people of Chakaria Sunderban area are feeling more insecure than ever before as global warming is causing more frequent and intense disasters, especially of the hydro-metrological disasters like tropical cyclone and storm surge.

Destruction of ecological goods and services: a growing demand for reparation and compensation

Mangrove forest is considered as an extremely important resource both ecologically and economically. In long-term, the goods and services (e.g. carbon storage, increased fisheries production, or water purification) provided by mangrove forests are likely to be more valuable than gains from unsustainable agriculture or aquaculture (Huitric et al., 2002; Barbier, 2006). Besides, vegetation can, over the long term, alter topography and bathymetry through processes of sediment accretion, reducing the vulnerability of the landscape to future inundation (Day et al., 2007).

The fringe like root system of the mangroves act as a coastal stabilizer and binders of sediment and so aid in preventing erosion in the coastal areas. In addition, mangroves provide goods and services to the local communities also serves as the provision of feeding, breeding and nursery grounds for fish, shrimp, crab, mollusc and other aquatic organisms. The annual economic value of mangroves, estimated by the cost of the products and services they provide, has been estimated to be US\$ 200,000 - \$ 900,000 per ha (Wells, 2006). Therefore the economic loss for the destruction of 7500 ha Chakaria Sunderban in Bangladesh should be compensated for the restoration of ecosystem services. Communities around the world are demanding reparation and compensations of this historical exploitation of natural resources.

Conclusion

The Chakaria Sunderban was a part of global public commons which once used to provide "public goods", such as the absorptive capacity of the atmosphere. Thus, in broader sense, the destruction of Chakaria Sunderban reduced earth's bio-capacity which is required to sequester (through photosynthesis) the carbon dioxide (CO₂) emissions from fossil fuel combustion. On the other hand, the goods and services of "Chakaria Sunderban", to which we all have an innately equal claim, have been destroyed completely to satisfy the consumer demand in the rich countries. The value of the goods and services of the Chakaria Sunderban that we lost should be considered as 'Ecological Debt' of the development partners to the poor and at-risk coastal people in Bangladesh. The debtor should pay this ecological debt to mitigate the impact of climate change in Bangladesh.

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