Environmental Refugee in Bangladesh

Campaign Brief 5 November 07 Impact of Climate Change in Bangladesh

Background

Bangladesh being predominantly a riverine country, it has 250 rivers, big and small, with a stretch of 2,400 kilometre of bank line. The country is a living delta formed of alluvial soil, which is very prone to erosion with any degree of river activity or water movement. 283 locations as well as 85 towns and growth centres along the long bank line are seriously affected by river erosion almost every year. Besides, another 1200 kilometre of bank line is vulnerable to erosion. Around half of the river eroded population can not find a new home due to poverty and resource constraint. They live a floating life; there are more or less 4.0 million such home less people in the country. In most cases such floating families live on public land such as char lands, embankments, abandoned railway trucks, slopes of highways etc. With rural urban migration many of them increase concentration of population in urban slums.

Aside with the above natural phenomenon, the predicted sea level rise in the long term and its collateral impacts on river flow and ocean discharge regimes will cause displacement of many millions of people currently living in coastal areas.

The coastal areas which are bordered on the ocean side by low-lying coastlines are sandy and muddy in some cases. General beach elevations range from 2-3 m above sea level. Most of the country's major cities are coastal, including port and commercially important cities like Chittagong, Khulna. The cost of dislocation - which will include salinisation of coastal aquifers and other low-lying fresh water resources- and loss of infrastructure, will be difficult for poor countries to bear.

Historical Statistics of People's Displacement in Bangladesh

Towards the end of the 21st century, projected sea-level rise will affect low-lying coastal areas with large populations. The cost of adaptation could amount to at least 5-10% of GDP. Mangroves and coral reefs are projected to be further degraded, with additional consequences for fisheries and tourism.(IPCC 2007: 10).

About 1,200 km of riverbank is actively eroding and more than 500 km face severe problems related to erosion. Recent satellite image studies of the Gangage- Brahmaputra- Middle Meghna Rivers between 1982 and 1992 shows that 106,300 hectares was lost during this period, when only 19,300 hectares was accreted. This amounted to a net loss of 8700 hectares annually, most of which is agricultural land. Riverbank erosion has more enduring effects as it may turn surplus households landless, thereby exacerbating impoverishment and marginalization. It has estimated that about 1 million people become directly affected by riverbank erosion each year. Another estimate suggests that landlessness in riverbank erosion prone areas could be as high as 70 percent.

By using satellite images and population data the ISPAN study noted that during 1981-1993 period, a total of 728,439 people were displaced by riverbank erosion this suggest that the annual number of displaced persons to be 63,722. Riverbank erosion affected households and people are being forced to migrate and settle in new areas; others have little option but to settle in more disaster prone areas, such as chars. There are many instances that households have to move a number of times as their new habitats also get eroded away.

Kutubdiapara: A Slum of Environmental Refugees in Cox's Bazar Urban Areas

Kutubdia, an outreach island situated in the south-eastern part of the Bay of the Bengal, have been eroding fast due to strong tidal action, as well as by cyclonic action and storm surges. This island, once which was 250-square kilometre in size, lost around its 65 percent during last 100 years and more than 60 percent of its population migrated in urban areas and, many others are thinking to be migrated as presently 2700 people live in per square kilometre areas.

Table: Predicted picture of sea level rise by 2050-2100 Global Warming, Sea Level Rise and Environmental Refugee

Average	Scenario Worst		Parameters Scenario	
	2050	2100	2050	2100
Total relative sea level rise,cm	83	340	153	460
Absolute sea level rise, cm	13	200	13	220
Land subsidence, cm	70	70	140	240
Shoreline erosion km	1	2	1.5	3
Loss of habitable land, skm	1	26	16	34
Population displaced,%	7	30	13	40
Reduction of Mangrove areas	50	75	79	95

(Woods Hole Oceanographic Institute, 1986).

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Over the last 100 years Bangladesh has warmed up by about 0.5 degree C and 0.5 m rise of sea level in the Bay of Bengal (BUP 1993). We all opined that climatic change is occurring all over the world due to green house effect, and anticipated sea level rise is likely to destroy most of the existing coastal areas, if preventive measures can not be taken with integrated effort globally.

Factual information regarding the extent of sea level rise in Bangladesh is very limited. In the South-western Khulna region 5.18- mm/year sea level rises is recorded which may goes up to 85 cm by 2050. World Bank's study on the impact of Sea level rise in Bangladesh reveals that, 15 to 17 percent land areas i.e. 22135 to 26562 square kilometres will be inundated within next 100 years by 100 cm sea level rise, which will make 20 million people environmental refugee and a country like Bangladesh may will not be able to accommodate such huge uprooted people.

Sea level rise also will reinforce the trend of river erosion by slowing the flows of upstream water. The geo-physical environment of Bangladesh is strongly influenced by the Ganges Brahmaputra Meghna (GBM) river system that carries immense volume of water silt. During the monsoon, GBM system carries about 1.7 billion tons of silts per year causing severe turbulence the rivers. This results in gradual undercutting of riverbanks leading to erosion.

Sea level rise will strengthen upward tidal forces, which alternatively will slow down the velocity of upstream water flow causing more siltation and undercutting of river banks. On the other hand, strong wave action and tidal force would be significant causes of erosion in coastal areas. Siltation raises river bed up that reduces the intensity of water flowing. As force of upstream water flow reduces, seawater tends to flow upstream. Such intrusion of saline water affect to the coastal agriculture and fisheries.

By river bank erosion Bhola has suffered from a net loss of about 227 sq. km in the last 50 years, Hatiya has reduced from 1000 sq. km to only 21 sq km over 350 years and Swandip has lost 180 sq km in the last 100 years. Such erosion adversely affect on the ecosystem, navigation, planned agriculture development and drainage system. It has also affect on inland navigational route as of shifting and migration of channels.

Recommendation

a) Early warning system is a crucial in reducing the losses and hardship of the people within the river basin areas.

b) The victims of riverbank erosion often lack resources to cope with post- disaster situation. Helping for fast shifting and emergency supply of food are very important.

c) In building of structure to mitigate riverbank erosion (such as spurs and embankments) concerned authorities should take into consideration about the adverse and unintended consequences on other adjoining areas.

d) Linking settlement with income generating activities is of high importance. The settlements are to be designed with active participation of the affected households. Skill development programmes are to be introduced so that affected households can learn new trades and use their skills to be engaged in income generating activities.

e) Char areas need housing with specific structural designs that are easy to dismantle and shift.

f) Right to *khas* land, particularly for those who have loss land to the river, need to be achieved by the affected household

participates
in survival strategies
of coastal poor

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