



# Climate change disasters: Biodiversity loss

Bangladesh is the least responsible for but the most vulnerable to rapid human-induced climate change for which her biological foundation, the main means of her people's survival, is eroding alarmingly.

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(Khan, 2001).

**T**HE most complex manifestation of human-induced global change is its climate. And climate change is blaring a global warning for the low-lying sea-facing over-populated countries like Bangladesh although they are hardly responsible for this. In Bangladesh, climate change effect is marked in the changing atmospheric conditions, seasonal behavioral pattern which are giving rise to natural calamities.

These climatic disasters have already begun to take toll of biodiversity. Unfortunately, the climatic threats to national biodiversity have caught little attention. This write-up intends to elucidate in brief how climate change and climate change-induced disasters are having deadly impacts on biodiversity, the natural power house of the planetary health, of this territory with some suggestions.

### Importance of biodiversity

Bangladesh owns a diverse set of ecosystems abundant with innumerable life forms despite its relatively small geographical area. This rich biodiversity contributes significantly to the country's economy and to the diversified livelihood sources of her people. For example, over 60 million people are dependent on aquatic resources every day. One million people are full-time fisher folk and 11 million have taken to part time fishing in the country. The fishery sector contributes about 3.3% of the total export revenue and employs 5% of the country's total workforce (Parveen and Faisal, 2001). The agriculture sector provides 63.5% of the country's employment and contributing 24% of the GDP (BBS, 2002). The Sundarbans alone provides livelihood and employment to an estimated 112, 000 people

### Climate change are disasters

Bangladesh has always been a victim to climate variability. This is due to its geographical location. In an assessment of climate risks throughout the world in 2006 conducted by IPCC, Bangladesh ranked the second among 10 extremely vulnerable countries to climate change and climate induced extremes (Ahmed, 2009). However, the disasters that the recent climate variability has made more a reality in Bangladesh include flash flood, abnormal monsoon flood, drought, tropical cyclone and storm surge, untimely rainfall, riverbank erosion, landslide, hail storm, salinity intrusion, tornado and sea level rise. The total number of natural disasters has quadrupled in the last two decades.

### Impacts

Climate change is already a bitter reality for the living kingdom of the territory. Scientists warn that even a one degree increase in the average temperature, if it comes rapidly, will push many species over the brink. Again, raising ambient temperature may result in decreased fertility and fetal survival in mammals. Fish, reptiles and invertebrates that are subject to environmental sex determination may also be affected directly. For example, higher temperature produces more males of alligators and crocodiles and more females of some turtles, (Head et al. 1987). Climate change tends to reduce the genetic diversity of individual species. Besides, rising temperature may jeopardize the forest succession processes. It may result in low productivity and poor vegetative cover of the forest and affect its rich biodiversity.

One of the most frequently visiting climatic disasters in Bangladesh is flood. Some of the abnormal floods occurred in the last two decades saw a

death toll of livestock, reduction in livestock reproduction, submergence of pasture for long and thus shortage of livestock feed. The number of rainy days will increase by about 20 days. On an average, about a quarter of the country's land mass is currently flood-prone in a normal hydrological year which may increase to 39% while the fre-



quency of a catastrophic flood could increase under climate change scenarios (Climate Change Cell, 2006). Prolonged flood will cause a serious loss of biodiversity especially of the wild species.

The most devastating climatic disaster in Bangladesh is severe tropical cyclone with storm surge. Due to rapid climate change, the Bay of Bengal, a northern and extended arm of the Indian Ocean often becomes rebellious and severe cyclone sweeps over the coastal belt. World Vision published its report entitled "Reduce Risk and Raise Resilience" on 6 October 2009. The report states "Over the last 30 years the wind speed and duration of tropical cyclones have increased by 70% and destructive capacity has increased by 60% from 1958 to 2001 (The New Nation, October 7, 2009).

Sidr was the strongest cyclone to hit Bangladesh since the Cyclone of 1991. Plants and animals of the Sundarbans suffered enormous devastation. This largest mangrove forest in the world with an area of 41, 14000 hectares is the

safe abode of 425 species of trees, herbs and creepers and 246 species of animals. About 26.5 percent of the Sundarbans was damaged. Experts say that the forest would take about 40 years to recover completely. Sidr was a practical evidence of climate change. The intensity of Sidr was much greater than anticipation due to high sea water

winter and pre-monsoon temperature will rise significantly and thus drought intensity will be further augmented. It will cause a sharp decline in river flow. Salinity will penetrate inland that will ultimately restrict choice for the most preferred crops. High and moderate level water demanding plants and organisms will go extinct locally. Lean flow in the distributaries of the Ganges will jeopardize the forest succession processes in the Sundarbans resulting in low productivity and poor vegetative cover of the forest. This will in turn affect the biodiversity of the forest (Climate Change Cell, 2006).

### Suggested actions

Bangladesh is the least responsible for but the most vulnerable to rapid human-induced climate change for which her biological foundation, the main means of her people's survival, is eroding alarmingly. To mitigate climate change and save her biodiversity from the deadly impact of climate change, some suggestions are made vis-à-vis the existing limitations.

There is much lack of information as to how many species of both domesticated and wild plants and animals are exposed to the impact of human induced-climate change and how many and particularly which species are getting locally extinct and endangered? In the mean time, many species have permanently disappeared from the country but we don't know how many we have lost. So, a detailed scientific study is urgent to assess the impact of climate change on the country's biological resource in a specific way.

The pressure from the vulnerable developing countries like ours should be increased so that a comprehensive climate change response treaty addressing all the sectors including biodiversity can be completed in the COP-15 with concrete commitment from the developed countries and also from China and India, the front line developing countries, of climate change mitigation and also of funds for the climate change vulnerable countries like Bangladesh.

### Concluding remarks

Under the present circumstances of climate change impacts and climate

change-fuelled disasters, the future of Bangladesh flora and fauna looks very bleak. If we can't preserve our biodiversity health, it would be a paradise lost as the country's economy and livelihood are largely dependent on her biological resources. Let us all discharge the duties and responsibilities normally and morally bestowed on us from respective platforms as an aware and united nation. If we do so thinking globally and acting locally, we will hopefully be able to save many things let alone biodiversity from the impacts of climate change and climate extremes.

Muhammad Selim Hossain is an MS student of the Department of Geography and Environment at the University of Dhaka, researching on environmental and disaster management issues.

### Climate change spells

CONTINUED FROM PAGE 30 also raise the number of floating people and slum dwellers in the city. Climate change accelerate the following hazards-

#### What is headway?

We need to be anticipatory and proactive to tackle the disastrous effects of climate change, because the process is slow. We need to see our future by projection and modelling, and acting accordingly. The knowledge base should be integrated containing knowledge from core science and local knowledge at all level, from forecast of impact to implementation of adaptation programme.

To combat the catastrophic climate change we need

- \* Sufficient infrastructure for adaptation
- \* Short-term measures to adapt to climate change impacts
- \* Awareness raising and preparing society to combat climate change
- \* Extensive research on adaptation and vulnerability assessment
- \* Institutional capacity building
- \* Mitigation strategy to implement low-carbon or carbon neutral development

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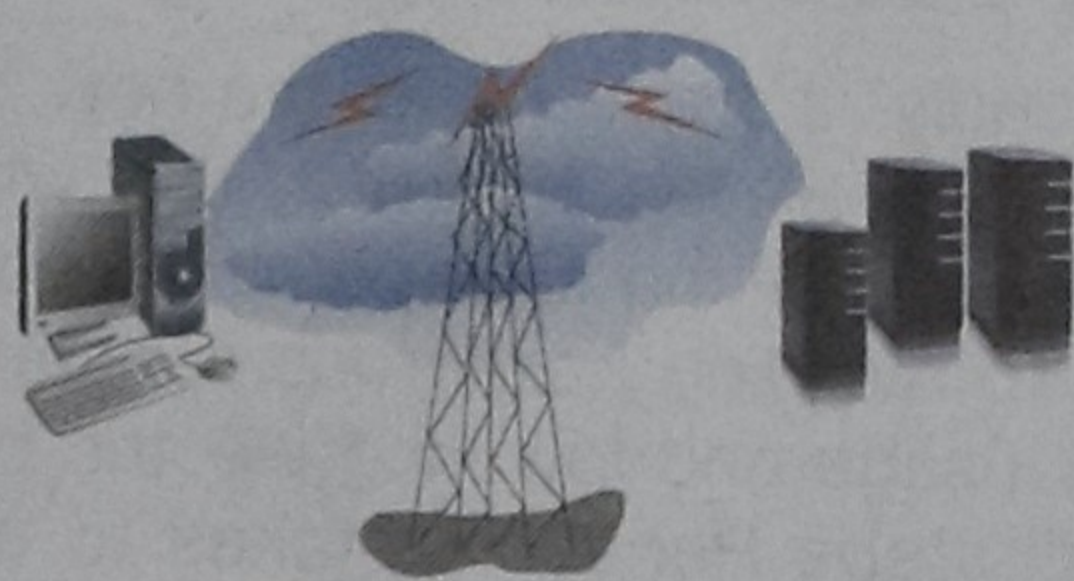
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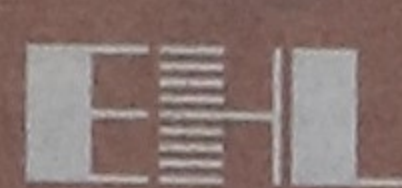
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