

Climate Change and Bangladesh

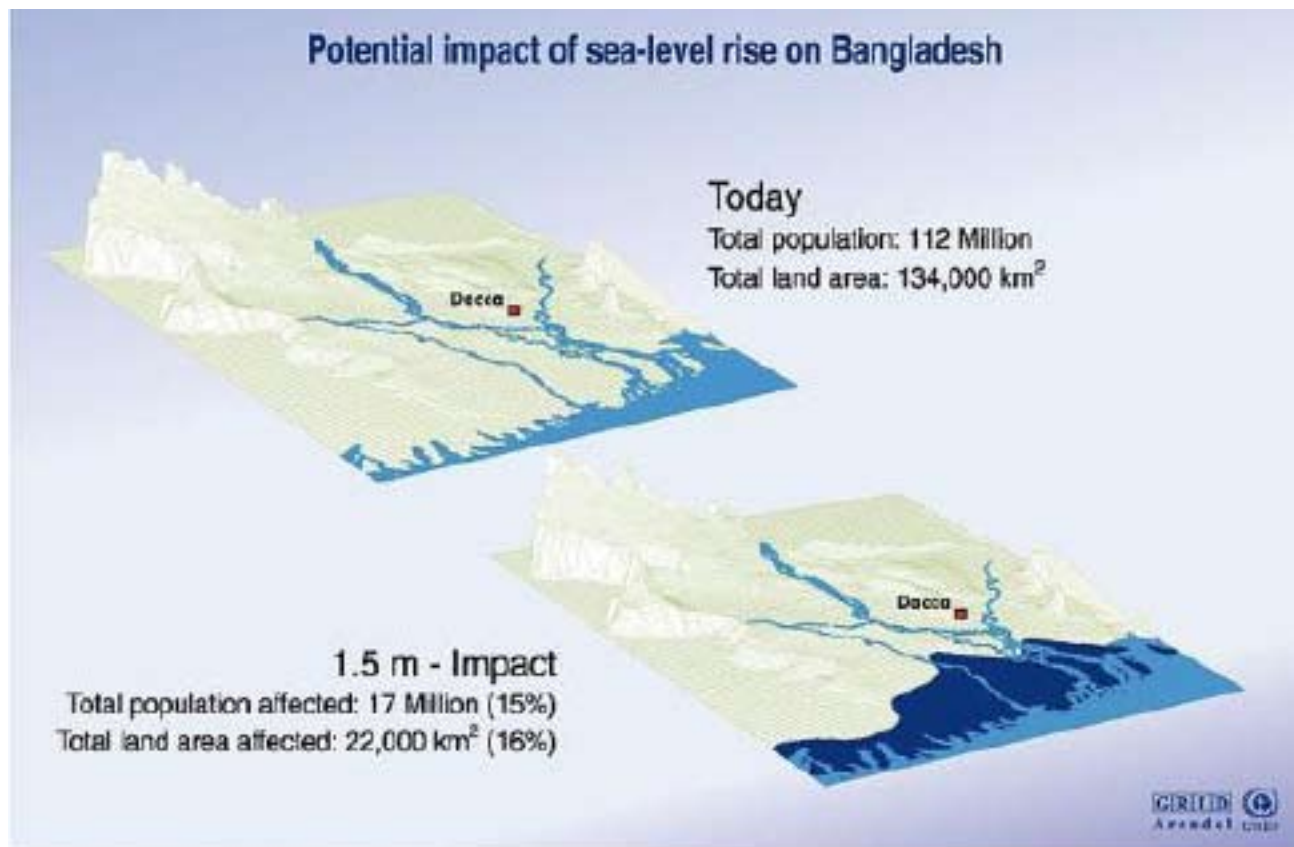
Water resources and sea-level rise

Climate change and the likely impacts of global warming are constantly on the global news agenda, often focusing on the predicted impacts on developed countries. Less often addressed is how climate change will affect developing countries and, specifically, the public health of those countries. Recently, scientists have begun considering how climate change may affect the work of ICDDR,B in the future and the public health outlook in Bangladesh in general.

Research conducted and reported on from several sources (most notably GRID/Arendal of UNEP), indicate that climate change is likely to have several important impacts on Bangladesh. The most significant may be through sea-level rise. The Intergovernmental Panel on Climate Change Special Report on the Regional Impacts of Climate Change indicates that Bangladesh is "especially at risk" from sea-level rise and its implications: coastal erosion and land loss, inundation and sea flooding, and increasing salinity of rivers. Different estimates of likely sea-level rise range between 1.5 metres and as high as 6 metres by 2100. Dhaka, the 23rd largest

city in the world and the city with the most rapidly growing population worldwide, sits only 5 metres above current sea level. If some of the more pessimistic predictions of Arctic ice-cap melting and the collapse of parts of the Antarctic ice shelf come about, we may face an even more rapid sea level rise.

In the short term, how regional governments react to the threat of climate change may be more important than the actual effects. India is already expressing concern about rapid melting of the Himalayan glaciers, which are expected to reduce by 80% by 2035. In particular, the Gangotri Glacier, the source of the Ganges River, is retreating at accelerating speed. In response to this, the Indian Government may well decide to implement the Inter Linking River Project, which has been under consideration for many years. Projects like this and others would redirect the big rivers, including the Ganges, reducing water flow to Bangladesh and devastating the water supply for Dhaka and the north and central agricultural areas of the country. In addition to these possible Indian projects, China also has revealed that it plans



Source : UNEP/GRID Geneva; University of Daegu; JRC Munich; The World Bank; World Resources Institute, Washington D.C.



to dam the Brahmaputra River in Tibet in 2009 and divert water to the Yellow River and surrounding areas.

Even without these projects, a receding water table caused a quarter of all shallow tubewells used for irrigation and drinking water in north and central Bangladesh to run dry in 2006. The reduction in river flow caused if these projects are implemented could greatly exacerbate an already serious water problem.

Infectious diseases

In addition to its effect on sea level and government policy, climate change also is likely to have important effects on the prevalence of infectious diseases in Bangladesh. Currently, malaria is not considered a major challenge in the national health sector programme because it is limited to 'minority' populations in the Chittagong Hill Tracts and similar areas, but over 10 million people are at risk of malaria. The *Anopheles* mosquitoes tend to prefer a temperature range from 24 to 27 degrees Celsius. If the overall temperature were to rise as predicted, their habitat may be reduced, leading to a possible decrease in malaria with climate change.

Dengue is also a problem periodically for Bangladesh, and most government emphasis has been on improving treatment, mainly through rehydration. It is possible that

global warming would produce more rapid replication of the dengue virus.

Visceral leishmaniasis (VL), also known as kala azar in this region, occurs in approximately 14 northern districts (of 64 nationwide) and is moving south. It is unclear how visceral leishmaniasis might respond to higher temperatures, but reported cases seem to cluster near flood control embankments, and building more embankments seems a likely response to sea-level rise. This in turn is expected to favour VL vectors and may result in increasing cases of visceral leishmaniasis in Bangladesh.

Cholera and other diarrhoeal diseases are an obvious risk in Bangladesh. We know there is a link between cholera outbreaks and blooms of blue-green algae. These blooms are in turn associated with rising concentrations of phytoplankton that follow El Nino, the well known warm phase of the large warm/cold oscillation in the water and atmosphere of the Pacific region that has been described as the world's largest and most powerful weather engine. How climate change might affect El Nino is unknown, but it appears to be a delicate system very sensitive to background inputs meaning climate change could well have an effect.



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