

Flood Hazards: A Case Study of the Floods in Bangladesh, Asia

Presented at the Course GEOG6023
'Physical Geography in Environmental Management'

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November 30, 2009

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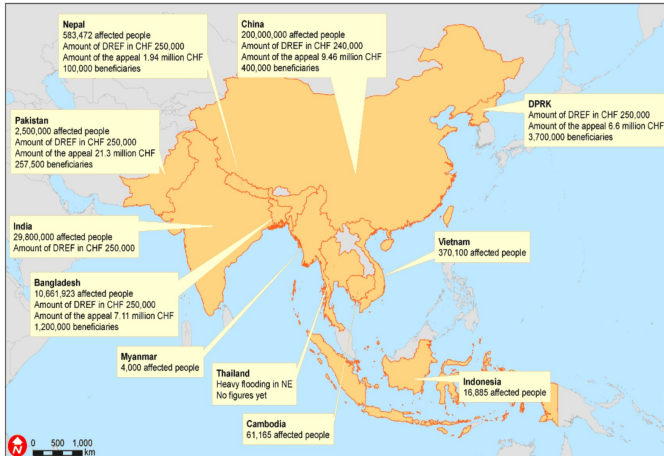
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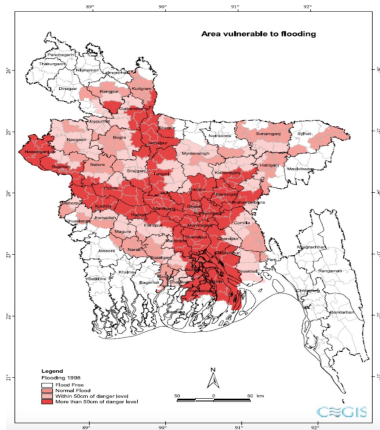
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The maps used do not imply the expression of any opinion on the part of the International Federation of the Red Cross and Red Crescent Societies or National Societies concerning the legal status of a territory or of its authorities.
Map data sources: OCHA/IFRC, ECHO, Federation



Bangladesh: areas vulnerable to flooding

Key points on Bangladesh:

- ▶ Bangladesh is among the countries that are the most affected by climate change
- ▶ Frequent natural disasters, loss of life, damage to infrastructure and economic assets, impacts on lives and livelihoods
- ▶ Floods, tropical cyclones, storm surges and droughts are likely to become more frequent and severe in the coming years
- ▶ Lies in the delta of three of the largest rivers in the world – the Brahmaputra, the Ganges and the Meghna
- ▶ Mostly low and flat topography, susceptible to river and rainwater flooding
- ▶ More than 50 million of people still live in poverty
- ▶ Many people live in remote or ecologically fragile parts of the country, such as river islands
- ▶ Approximately one quarter of the country inundated each year
- ▶ The poorest and most vulnerable living in the exposed areas suffer the most

Bangladesh: Socio-Economic Vulnerability

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- ▶ Poorer segments of society live closer to the river
- ▶ Inundation levels significantly higher for poorer households
- ▶ Impoverished face a higher risk of flooding and are more vulnerable
- ▶ The higher the exposure level and income inequality, the less access to a natural resources
- ▶ Average damage costs and coping capacity higher for wealthier households
- ▶ Households with higher income take preventive measures and have significantly lower damage costs
- ▶ Unequal income distributions in villages with higher risk exposure
- ▶ The least well prepared both in terms of household-level and community level face the highest risk of flooding

Impacts of the Flood Hazards in Bangladesh

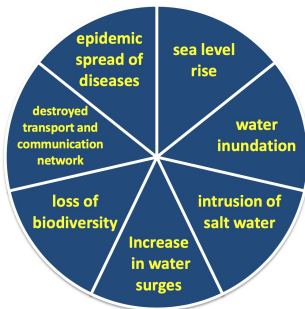
Impact of Event = \sum Intensity of Event * \sum Baseline Conditions * \sum Adaptive Capacity
In the coastal areas of Bangladesh communities are impacted by the following factors:



Destructions in Bangladesh after flood.
Photo: Dev Saint_Martin's_Island
Saint_Martin's_Island astation by SIDR, source: web



The Sunderbans - the world's largest tropical mangrove forests
- is already losing islands from climate change impacts
including coastal erosion and sea level rise. The forest
has a unique ecosystem and rich in biodiversity.



Flood in Bangladesh, June 11 2007. Photo taken from
<http://rus.newsru.ua/world/11jun2007/bangladesh.html>



Likely salinity ingress in Southern Bangladesh,
Agrawala et al. (2003)

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Impacts of the Major Floods in Bangladesh

Impacts of Major Floods in Bangladesh during the last 50 years

Event	Impact
1954 floods	Affected 55% of country
1974 flood	Moderately severe, over 2,000 deaths affected 58% of country followed by famine with over 30,000 deaths
1984 floods	Inundated 52,520 km ² , cost estimated at US\$ 378 million
1987 floods	Inundated over 50,000 km², estimated damage US\$ 1.0 billion, 2055 deaths
1988 floods	Inundated 61% of country, estimated damage US\$ 1.2 billion, more than 45 million homeless, between 2,000-6,500 deaths
1998 floods	1,100 deaths, inundated nearly 100,000 km², rendered 30 million people homeless, damaged 500,000 homes, heavy loss to infrastructure, estimated damage US\$ 2.8 billion
2004 floods	Inundation 38%, damage US\$ 6.6 billion, deaths 700, affected people nearly 3.8 million

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Table 2. Causes of Impacts, Vulnerable Areas and Impacted Sectors in Bangladesh:

Climate and Related Elements	Critical Vulnerable Areas	Most Impacted Sectors
Sea Level Rise and Salinity Intrusion	Coastal Area Island	Agriculture (crop, fisheries, livestock) Water (water logging, drinking water) Human settlement Energy Health
Floods	Central Region North East Region Char land	Agriculture (crop, fisheries, livestock) Water (urban, industry) Infrastructure Human settlement
Temperature rise and drought	North-west	Agriculture (crop, livestock, fisheries) Water Energy Health

During the flood hazard

- ▶ the poor,
- ▶ poor-healthy,
- ▶ women will suffer much more disproportionately than the well-being and healthy men, more so in the coastal and rural areas than elsewhere.

Thanks

Thank you for attention !

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