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International Centre for Climate Change and Development

POLICY BRIEF

March 2022

What does the IPCC Working Group II say about Bangladesh in its Sixth Assessment Report?

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IPCC WGII

- Intergovernmental Panel on Climate Change (IPCC) was established in 1988, by the World Meteorological Organization (WMO) and United Nation Environment Program (UNEP). IPCC is responsible for advancing knowledge on human induced climate change globally.
- Working Group (WG) II concerns impacts of climate change, vulnerabilities and possible adaptation methods.
- Sixth Assessment report (AR6) is the sixth report by the WG II group on climate change impact, adaptation, and vulnerabilities.

In March and April 2017 Bangladesh experienced drastic floods which affected 220,000 ha of nearly ready to be harvested summer paddy crop and resulted in almost a 30% increase in paddy prices. An attribution study of those pre-monsoon extreme rainfall events in Bangladesh concluded that anthropogenic climate change doubled the likelihood of the extreme rainfall events resulting in such floods.

Forecast-based financing, which automatically triggers funds when threshold forecasts are reached for an extreme event, used in Bangladesh prior to a 2017 flood event, allowed low-income, flood-prone communities to access better quality food in the short term without accruing debt.

IPCC Key findings on Bangladesh

The successive reports of the Intergovernmental Panel on Climate Change (IPCC) are the starkest evidences of climate change having drastic impacts on society, economy, and natural system and will continue to do so. IPCC reports gather information from three working groups: Working group (WG) I is associated with physical science and understanding the scientific evolution of climate change; WG II concerns impacts of climate change, vulnerabilities and possible adaptation methods; and WG III focuses on mitigation and reduction of greenhouse gas emissions.

Since 1990, total six assessment reports (AR) have been published by IPCC and the latest one has been published on 28 February 2022. AR6 WG I report published in August 2021 clearly stated that increasing anthropogenic activities has definitely increased the global mean temperature by over 1°C resulting in increased frequency and intensity of extreme weather events such as floods, cyclones, wildfire, and heat waves globally. The WGII report now highlights that climate induced loss and damage is not disproportionate anymore and is happening in both rich and poor countries and will continue to be so.

Bangladesh, a strong representative of climate vulnerable nations from the Global South, has received significant amount of attention in the last few decades for its vulnerability, and recently for its role in climate change adaptation. In the AR6 of WGII, Bangladesh was mentioned 430 times in total and the details are stated below:

Vulnerability to Sea Level Rise (SLR)

- Nearly 26 million people are currently exposed to very high (>1500 µS cm-1 50) salinity in shallow groundwater in coastal Bangladesh
- Indo-Gangetic Basin reveals that sustainable groundwater supplies are constrained more by extensive contamination (e.g., arsenic, salinity) than depletion
- Many low-lying coastal aquifers are contaminated with increased salinity due to land-use change, rising sea levels, reduced stream flows, and increased storm surge inundation
- Cyclone Amphan hit coastal West Bengal and Bangladesh on 20th May 2020. It was the first super cyclone to form in the Bay of Bengal since 1999 and one of the fiercest in the last 100 years. The cyclone intensified from a cyclonic storm (Category 1) to a super cyclone (Category 5) in less than 36 hours
- From 2012 to 2050, freshwater river area is expected to decrease from 40.8% to 17.1%-19.7% under different sea-level rise scenarios in the southwest coastal zone of Bangladesh

Human Health

- High diarrhoeal disease burdens mean that small changes in climate-associated risk are projected to have significant impacts on disease burdens.
- Up to 2.2 million more cases of E. coli by 2100 in Bangladesh under a 2.1°C GWL is projected, while up to an 11-fold and 25-fold increase by 2050 and 2080
- Multiple case studies have already highlighted the cases of rising hypertension in southern part of the country.
- Human-tiger conflicts in Bangladesh and increased predatory pressure on Indigenous Peoples' livestock

Food Security

- Failure and reduced access to fish, which contribute to non-economic losses associated with involuntary migration and the malnutrition of children
- In 2017, floods affected 220,000 ha of nearly ready to be harvested summer paddy crop and resulted in almost a 30% year on year increase in paddy prices
- The severity of drought increases the likelihood of farmers adopting supplementary irrigation in Bangladesh
- Salinity intrusions into freshwater aquaculture systems have changed water quality of inland ponds, resulting in loss of fisheries production

Adaptation and Resilience

- Aquaculture is often viewed as an adaptation option for fisheries declines
- Forecast-based financing, which automatically disperses funds when threshold forecasts are reached for an extreme event this allowed low-income, flood-prone communities to access better quality food in the short term without accruing debt
- Adaptation actions help to build the capacity of the community to engage with service providers
- Multi-level governance measures that support local governments can foster robust adaptation approaches and address risks and vulnerabilities across scales
- Strengthening resilience through social protection programmes
- Design programmes with climate and disaster risk considerations in mind and implemented in close synergy with existing programs, such as on sustainable livelihoods, early warning systems, and financial inclusion

Limitations to Adaptation

- Unavailability of funds for resettlement, how to manage relocation from communally owned lands, how to value privately owned land to be abandoned, and the potential for loss and damage claims
- Limited public budgets allocated to coastal adaptation and relying on international donor aid
- Existing institutions often lack the human capacity and resources needed for coastal adaptation

Gender

- Addressing gender dimensions of climate risks, and solution pathways
- Gender inequities amplify the tertiary health effects of climate change

Economic and Non-economic Loss & Damage

- Losses and damages from tropical cyclones, such as the southern coastal districts of Bangladesh, in particular Khulna and Satkhira
- Loss of social networks that has lasting implications for psychological health
- Extreme climatic events pose serious disruptions to local livelihoods and asset bases and require reconstructing, transforming and diversifying livelihoods
- Loss in capacity to sustain livelihoods, such as food and a place to live, due to severe damage to houses, homesteads, properties, livestock and crops, loss of family members and relatives, and anxiousness about securing employment and income in the future.
- Loss of wetlands worth of USD 18-20 million
- Extinction of certain species such as *Hoolock gibbon*
- Loss of coral reefs in St. Martin

Community based Adaptation (CBA) and Nature based Solution (NbS)

- Tree plantation, rainwater harvesting, increasing height of plinth, replacing mud walls with bamboo, changing roof materials to strengthen and protect during cyclones
- Multiple cropping sessions, crop rotation and using salt tolerant varieties
- Rehabilitated springs and traditional water wells on hill tracts using indigenous knowledge

Climate Resilient Pathways

- Livestock rearing can prove to be a viable substitute for crop production in areas prone to riverbank erosion.
- Bangladesh Delta Plan (BDP) 2100 is the plan moving Bangladesh forward for the next 100 years from resilience to prosperity
- Social protection that is well-designed and implemented can be a more long-term approach; enhance human capital and productivity, reduce inequalities, build resilience, and end inter-generational cycle of poverty

References

IPCC (Intergovernmental Panel on Climate Change) (2022) Climate Change 2022: Impacts, Adaptation and Vulnerability, the Working Group II contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/

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