



WELCOME

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TO

BANGLADESH COUNTRY PAPER

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**Regional Workshop on Strategies and
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Mainstreaming Climate Change Adaptation into Development Planning in Bangladesh

Country Paper

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Introduction

Bangladesh is the worst affected and the most vulnerable country to climate change due to its geographic location, low-lying deltaic nature and flat topography, high population density, reliance of many livelihoods on climate sensitive sectors, particularly agriculture and fisheries, and inefficient institutional aspects



KEY issues of the country paper

Current trends in climate Change vulnerability and its impact on agriculture and water sector

Impacts on agriculture

Impacts on water resources

Investments in research and development to meet the challenges of climate changes

Adaptation Measures and Practices of Bangladesh

Policies and programs designed to integrate the adaptation measures

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Issues and challenges in mainstreaming adaptation

Climate Change Scenarios for Bangladesh

(Compared to 1990 and based on 3rd IPCC Projection)

Year	Temperature increase (°C) Mean		Precipitation fluctuation (%)		Cyclone (%)
	Monsoon Season	Dry Season	Monsoon Season	Dry Season	
2020	0.8	1.1	+6.0	-2.0	5
2050	1.1	1.6	+8.0	-5.0	10
2100	1.9	2.7	+12.0	-10.0	20

Sectors of Climate Change Impacts in Bangladesh

Sectors that are specially vulnerable or susceptible to, or unable to cope with adverse impacts of climate change are:

- **Coastal zone;**
- **Hydrology and water resources;**
- **Agriculture;**
- **Forestry;**
- **Extreme weather events; and**
- **Health.**

Impacts on Agriculture

- Could be adversely affected through effects on soil moisture, pest/insects, weeds and plant diseases;
- Increased levels of CO₂ could increase photosynthesis which might increase plant growth as well as crop yields;
- A decrease in light intensity due to cloud cover could negate or offset the production

- Agricultural land area of the country is declining at the rate of 200 ha/day
- Overall cultivated area has increased due to increased crop intensity (176 in 2001)
- Cultivated area under High Yielding Variety (boro) has increased significantly
- Significant decrease is observed in Aus cultivation

Aus cropped area has declined over the years

- In 1980, it was 3.11 Mha and became 2.11 Mha in 1990
- In 2000, it was only 1.33 Mha
- Major changes noticed in northwest and central regions



Aman cropped area has declined significantly over the years

- In 1980, it was 6.03 Mha and became 5.77 Mha in 1990.
- In 2000, it was only 5.71 Mha.
- Changes noticed in northwest and north-central regions

Impacts on Hydrology and water resources

- Rise of temperature could increase the rate of snowmelt in the Himalayas;
- Could alter the rainfall pattern in the downstream countries, including Bangladesh;
- Increased precipitation in the catchments area of the **GBM** river system could increase the frequency, duration and depth of floods in Bangladesh.
- Ground water level is decreasing.



Investments in research and development to meet the challenges of climate changes

Over the last 35 years, the Government of Bangladesh, with the support of development partners, has invested over \$10 billion to make the country more climate resilient and less vulnerable to natural disasters. These investments include flood management schemes, coastal polders, cyclone and flood shelters, and the raising of roads and highways above flood level. In addition, the Government of Bangladesh has developed state-of-the-art warning systems for floods, cyclones and storm surges, and is expanding community-based disaster preparedness. Climate resilient varieties of rice and other crops have also been developed

Adaptation Measures and Practices of Bangladesh

- flood management schemes to raise the agricultural productivity of many thousands of km of low-lying rural areas and to protect them from extremely damaging severe floods;
- flood protection and drainage schemes to protect urban areas from rainwater and river flooding during the monsoon season;

- coastal embankment projects, involving over 6,000 km of embankments and polder schemes, designed to raise agricultural productivity in coastal areas by preventing tidal flooding and incursion of saline water;
- over 2,000 cyclone shelters to provide refuges for communities from storm surges caused by tropical cyclones and 200 shelters from river floods;
- comprehensive disaster management projects, involving community-based programs and early warning systems for floods and cyclones;

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- irrigation schemes to enable farmers to grow a dry season rice crop in areas subject to heavy monsoon flooding and in other parts of the country, including drought-prone areas;
- agricultural research programs to develop saline, drought and flood-adapted high yielding varieties of rice and other crops, based on the traditional varieties evolved over centuries by Bangladeshi farmers;
- Coastal 'greenbelt' projects, involving mangrove planting along nearly 9,000 km of the shoreline.

Policies and programs designed to integrate the adaptation measures

To integrate climate risk into development plans and processes, the government, through its Department of Environment has recently launched the preparation of the Climate Change Policy and Action Plan for Bangladesh. Government established Climate Change Cell in DoE under the Ministry of Environment and Forests supports the mainstreaming of climate change into national development planning and has developed a network of 34 'focal points' in different government agencies, research and other organizations.

Policies and programs designed to integrate the adaptation measures

- **Mainstreaming climate change into development and national planning**
- **Climate change policies, planning and institutions**

The Climate Change Action Plan is a 10-year program (2009-2018) to build the capacity and resilience of the country to meet the challenge of climate change. The needs of the poor and vulnerable, including women and children, will be mainstreamed in all activities under the Action Plan which is highlighted in the next slide.

In the first five year period (2009-13), the program will comprise six pillars:

- Food security, social protection and health
- Comprehensive Disaster Management
- Infrastructure
- Research and knowledge management
- Mitigation and low carbon development
- Capacity building and institutional strengthening

Issues and challenges in mainstreaming adaptation

- Salinity, drought and flood (water logging) tolerant crop varieties should be invented and it should be made popular and available.
- Water conservation techniques must be developed along with new technologies (e.g. rain water harvesting).

- Grassroots communities should also be educated on the dissemination of climate information and traditional approaches to weather forecasting. For its part, the Meteorological Department should improve its weather forecasting techniques and ensure the effective dissemination of climate and weather data to the rural population especially farmers.
- Capacity building for integrating climate change in planning, designing of infrastructure, conflict-management and land water zoning for water management institutions.
- Construction of flood center, and information and assistance center to cope with enhanced recurrent floods in the major floodplains along with flood proof seed bed.

- Development of eco-specific climatic knowledge (including indigenous knowledge) on adaptation to climate variability to enhance adaptive capacity for future climatic change.
- Adaptation to fisheries in areas prone to enhanced flooding in North East and Central Region through adaptive and diversified fish culture practices.
- Promoting adaptation to coastal fisheries through culture of salt tolerant fish special in coastal areas of Bangladesh.

- Exploring options for crop insurance and other emergency preparedness measures to cope with enhanced climatic disasters.
- Government should allocate more funds for research and development of appropriate technology to encourage farmers to diversify into heat and drought-tolerant crops as well as disease-resistant livestock.
- Incorporate climate change adaptations in long-term planning and developmental programs.
- Encourage and enhance conservation and recycling of water including inter-basin transfers with more storage facilities.
- Intensive research on groundwater level and its management

Conclusion

To strengthen climate change adaptation mechanism in Bangladesh, sectoral research and awareness should be geared up. This will help undertake sectoral mitigation and adaptation measures. Even if the climate change of alarming magnitudes does not occur! the adaptation and mitigations options will pay in the long run to keep the future environment congenial.

A photograph of a flooded rural area. In the background, there are several traditional houses with thatched roofs and lush green trees. The foreground is dominated by murky, rippling floodwater. The word "THANKS" is overlaid in large, bold, orange, hand-drawn style letters across the center of the image.

THANKS