

Policy Agenda for Addressing Climate Change in Bangladesh

Copenhagen and Beyond

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18 November 2009

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Introduction

- Climate change is one of the greatest environmental, social and economic threats that the world faces today
- The main characteristics of climate change are:
 - increases in average global temperature (global warming);
 - changes in cloud cover and precipitation particularly over land;
 - melting of ice caps and glaciers and reduced snow cover and
 - increases in ocean temperatures and ocean acidity – due to seawater absorbing heat and carbon dioxide from the atmosphere
- The Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC) gives detailed projections for the 21st century. These projections show that global warming will continue and accelerate:
 - *Under a business as usual scenario, greenhouse gas (GHG) emissions could rise by 25 – 90 percent by 2030 relative to 2000*
 - *The best estimates indicate that the Earth could warm by 3° C by 2100.*
 - *Even if countries reduce their greenhouse gas emissions, the Earth will continue to warm. Predictions by 2100 range from a minimum of 1.8° C to as much as 4° C rise in global average temperatures.*

Climate change is not a myth anymore, it is a scientific reality!

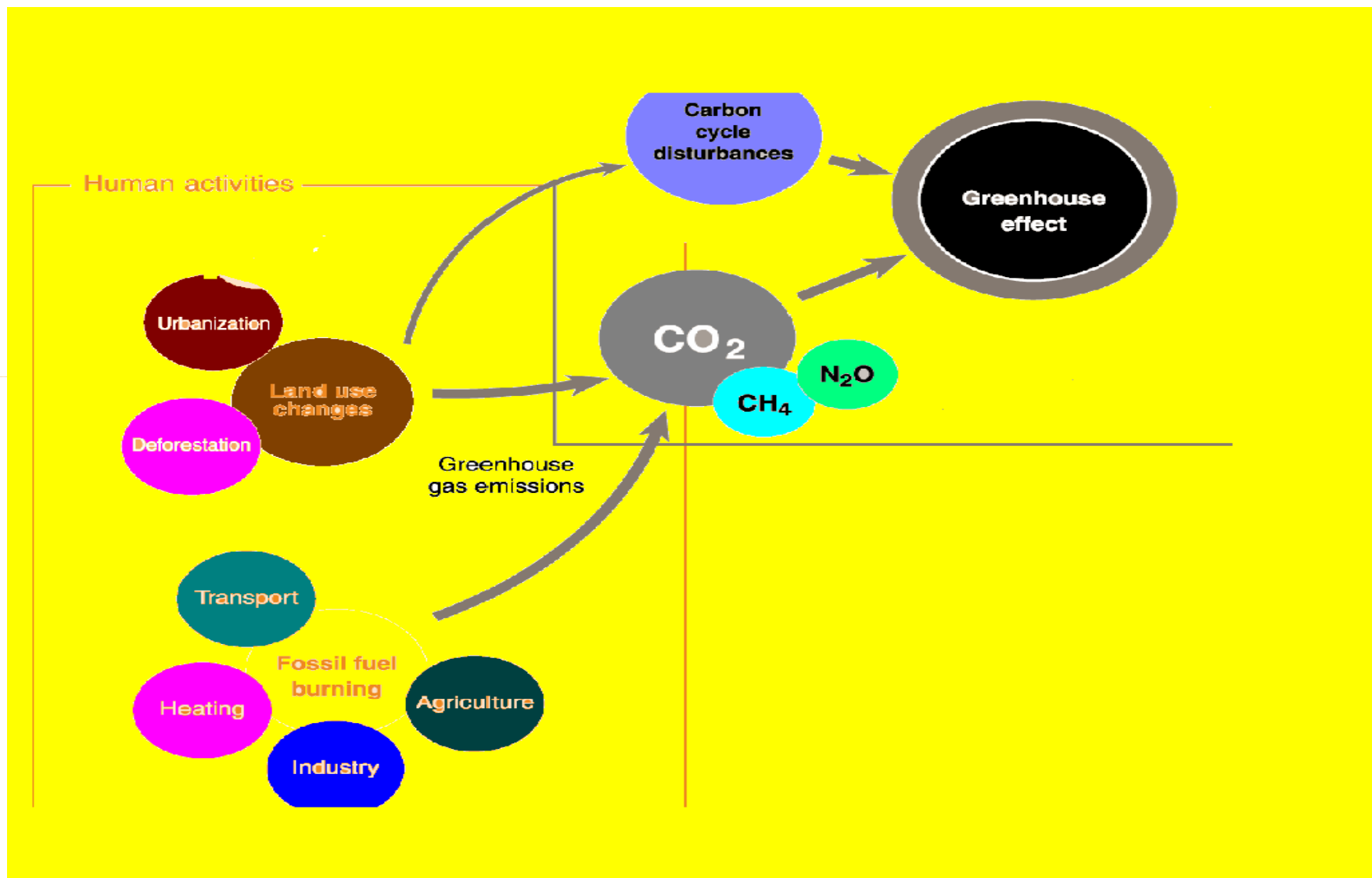
Introduction



No time to waste. Act now!



Climate Change Process



The process of climate change resulting in increased green house gas is man-made.



Main Climate Characteristics and Major Threats

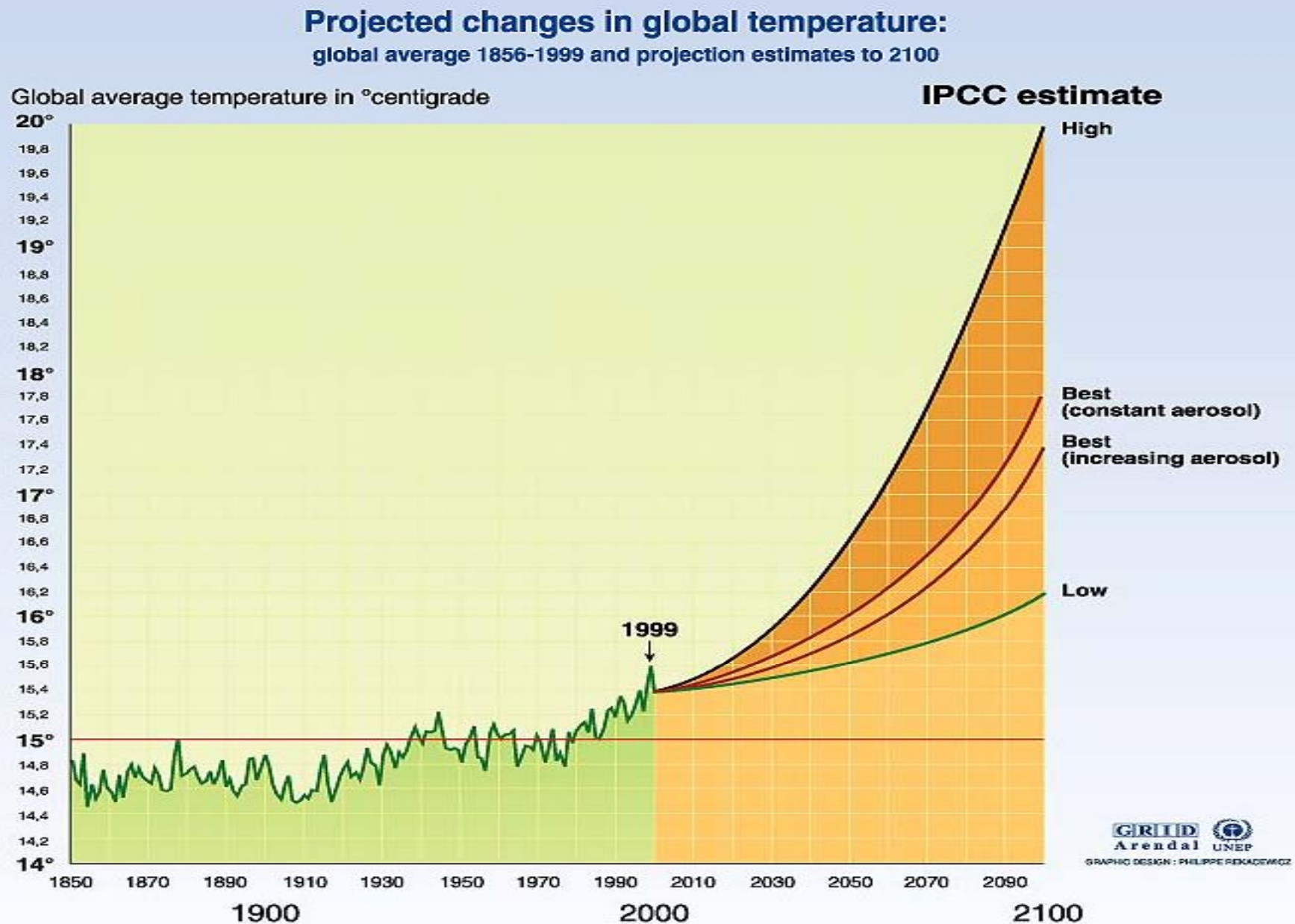


Some Facts on Climate Change

- Global atmospheric CO₂ concentration has increased from pre-industrial 280 ppm to 379 ppm in 2005;
 - CO₂ emission has grown up about 80% between 1970 to 2003; Almost all other greenhouse gases have also shown significant increase in the same time periods;
 - 11 of the last 12 years (1995-2006) rank among the 12 warmest years of surface temperature (since 1850)
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- Global average sea-level rose at an average rate of 1.8 (1.3 to 2.3) mm per year between 1961 to 2003 and the rate for the 1993 to 2003 was 3.1 (2.4 to 3.8) mm
 - Globally about 20 to 30% of plant and animal species are highly vulnerable (risk of extinction) to a change of temperature of 1.5 to 2.5°C
 - Over the 20th century, precipitation has mostly increased over land in high northern latitudes, while decreases have dominated from 100S to 300N
 - Glaciers and ice caps have experienced widespread mass losses and have contributed to sea-level rise during the 20th century



IPCC Projection of Global Mean Temperature



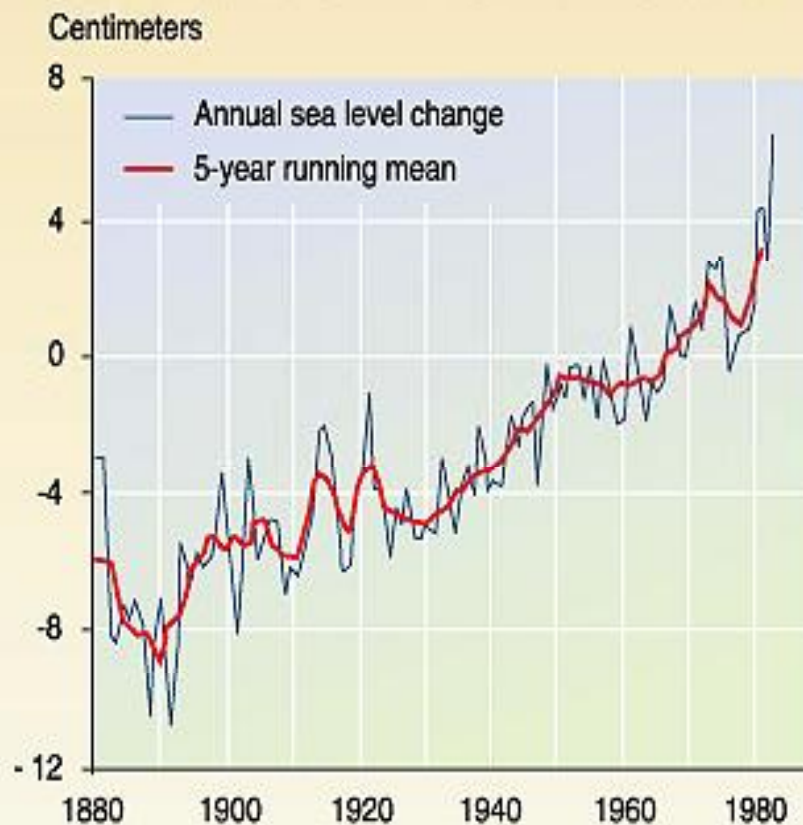
Source: UNEP/GRID-Arendal



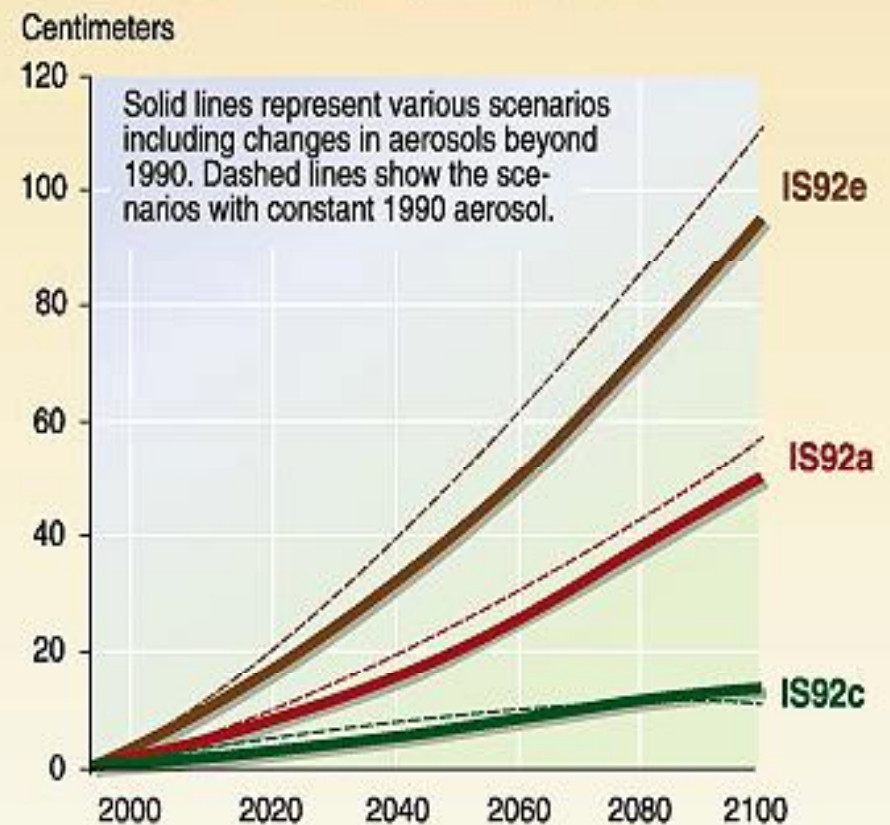
IPCC Projection of Sea Level Rise

Sea level rise due to global warming

Sea level rise over the last century



Sea level rise scenarios for 2100



GRID
Arendal UNEP

GRAPHIC DESIGN: PHILIPPE REMACEWICZ

Source: Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge University Press, 1995. Sea level rise over the last century, estimated from Amundsen and Church 1987.



Impact of Climate Change

- Increase in global average air, ocean temperatures will likely to change the pattern of rain and snowfall, droughts and heat waves, intensity of tropical cyclones and flood and global mean sea level
- Sea Level rise will lead to increased rates of coastal erosion, loss of coastal vegetation, intrusion of salt water into groundwater systems and coastal ecosystem etc

Several types of impact will be visible due to climate change:

1. Productivity will decline -poor people's access to and security of livelihood assets will reduce; lead to infrastructure damages and water stress due to changes in precipitation
2. Changes in temperature, water and vegetation- increased prevalence of disease which could mean there would be less effective coping strategies and increase the vulnerability of the poor. This will also affect their employment and income.
3. There will also be qualitative changes in the lives of the poor as health and education will be disrupted
4. Reduce the agricultural and natural resources leading to decreased industrial output and labour productivity. This will lead to a perpetual cycle of economic inequality having a negative effect on poverty.

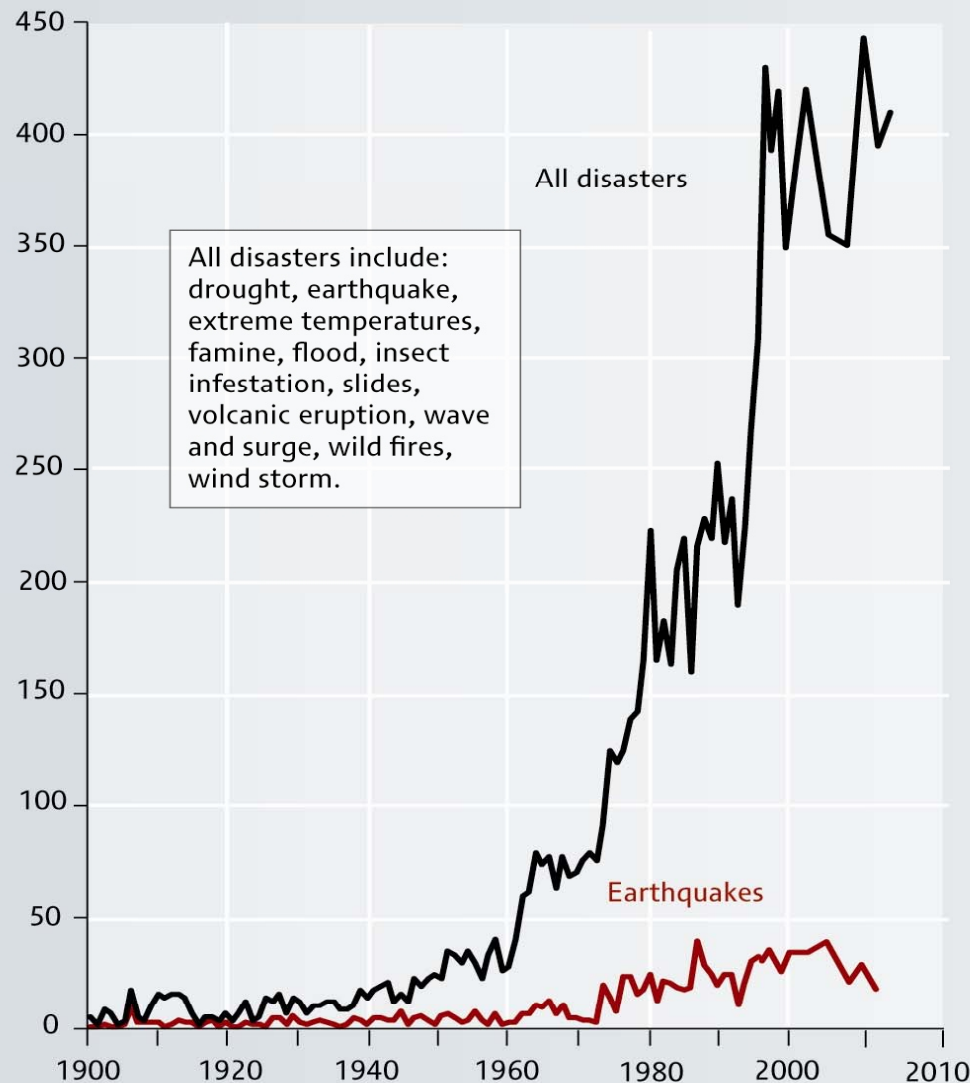
Climate change and poverty are two entwined challenges to be addressed simultaneously. Otherwise achievement of MDGs may be hampered.



Increasing Trends of Global Disasters

Number of disasters

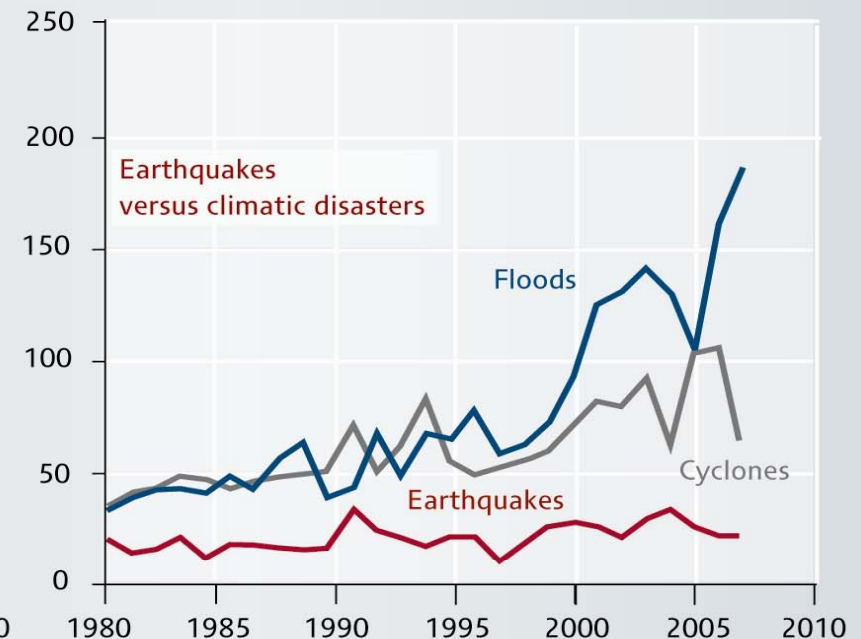
per year



Source: CRED Annual Disaster Statistical Review 2006, 2007.

Trends in number of reported disasters

Much of the increase in the number of hazardous events reported is probably due to significant improvements in information access and also to population growth, but the number of floods and cyclones reported is still rising compared to earthquakes. Is global warming affecting the frequency of natural hazards?



Estimated costs of global climate change in terms of future GDP levels

<i>Source</i>	<i>Costs in terms of global GDP</i>	<i>Costs in terms of 2006 global GDP</i>	<i>Explanation</i>
Stern Review 2006	1%	€385/\$484 billion Costs by 2050.	Stabilisation target: 450 ppm CO ₂ or 500-550 ppm CO ₂ e.
Lord Sten 2008	2%	€771/\$968 billion Costs by 2050.	Stabilisation target: below 500 ppm CO ₂ e.
UNDP 2007	1.6%	€617/\$774 billion Average annual costs between 2007 & 2030.	Stabilisation target: 450 ppm CO ₂ e, halving global GHG emissions by 2050 relative to 1990 levels.
Vattenfall 2007	0.6%	€231/\$290 billion	Costs of limiting GHG concentrations to 450 ppm CO ₂ by 2030. Focus on least-cost opportunities.
EC 2007	0.5%	€193/\$242 billion	Investment in a low-carbon economy over the period 2013-2030. Stabilisation target: 450 ppm CO ₂ e.
OECD 2008	0.5% in 2030 2.5% in 2050	€193/\$242 billion in 2030, €0.923/\$1.21 trillion in 2050.	Reduction of GDP below Baseline estimates in 2030 and 2050. Stabilisation at 450 ppm CO ₂ e, reducing GHG emissions by 39% by 2050 relative to 2000 levels.
IPCC 2007	0.6% in 2030 1.3% in 2050	€231/\$290 billion in 2030, €501/\$629 billion in 2050	Average macro-economic costs for multi-gas mitigation in 2030 and 2050. Stabilisation at 535-590 ppm CO ₂ e (440-485 ppm CO ₂).

Projected Impact of Climate Change in Bangladesh

Projected Changes in the Climatic Condition of Bangladesh

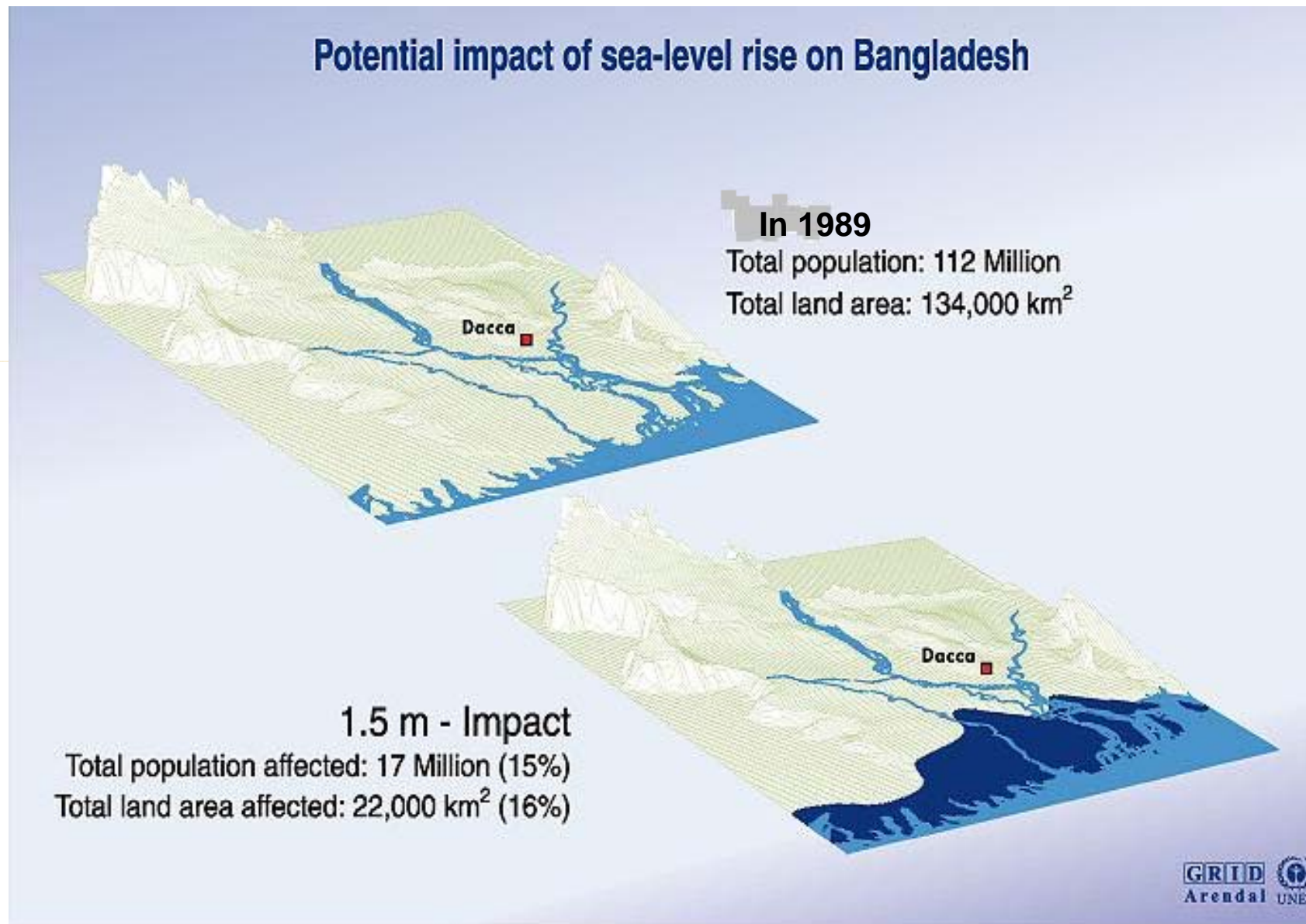
Year	Mean Temperature Change (C)			Mean Rainfall Change (mm)			Sea Level Rise	Sediment
	Annual	Dec., Jan. Feb	June, July, Aug	Annual	Dec., Jan. Feb	June, July, Aug		
Baseline Average 2030	1.0	1.1	0.8	+3.8	-1.2	+4.7	14	325
2050	1.4	1.6	1.1	+5.6	-1.7	+6.8	32	700
2100	2.4	2.7	1.9	+9.7	-3.0	+11.8	88	1350

Source: Agrawala *et al* 2003; IPCC 2001, 2007.

Projected Impact of Climate Change in Bangladesh

- IPCC (2007) forecasted that a mere 1 metre rise in sea-level will inundate 20% of its landmass and thus loss of much of our coastal regions permanently and thus affect the coastal agriculture
- IPCC (2001) also projected an increase by 5-88 cm by the year 2100;
- A global climate change model shows that the overall global crop productivity will reduce by 20-30% because of climate change and South Asia is particularly vulnerable
- Bangladesh will loose about 8% of its rice and 32% wheat production by the year 2050 (IPCC; 2007)

Projected Impact of Sea Level Rise in Bangladesh



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



Impact of Climate Change in Bangladesh: **CYCLONE**



Impact of Climate Change in Bangladesh: **FLOOD**



Impact of Climate Change in Bangladesh: **DROUGHT**



Impact of Climate Change in Bangladesh: **HEALTH HAZARD**



Impact of Climate Change in Bangladesh

- Risks in the form of increasing incidences of extreme events like storms, cyclones, floods, heat waves,
- Due to poor resilience capacity in the Bangladeshi society there will be more casualty due to climate change;
- Loss of biodiversity due to climate change will affect the capacity of inventing new medicines as many important medicinal plants, trees and other species will disappear;
- Large-scale migration in the urban areas may make our cities (which are already under severe stress) more vulnerable to health hazards;
- Reduction in the availability of freshwater may affect people's health as many will be bound to use unclean water and there may be more epidemics in the near future;
- The poor, women and children will particularly be more vulnerable from various health related problems.

Impact of Climate Change in Bangladesh

- There may be change in the social structure due to changes in occupational patterns;
- Due to sea-level rising there may be impacts on the overall socio-cultural life-forms of the affected people;
- Large-scale migration of climate refugees to the urban areas may jeopardize the urban socio-cultural patterns;
- Many of the indigenous communities may lose their cultural traditions with increasing pressure from climatic impacts;
- There is also possibility of losing many of the inherited social norms and customs as there may be much changes in people's life-styles, occupations, health status, etc.



Towards Copenhagen: Major Milestones

- The Copenhagen Conference 2009 is the final step towards creating a new and effective global agreement on climate change replacing the Kyoto Protocol which set commitments till 2012.
- Developments in the world since the Kyoto Protocol which was negotiated in 1997 show that a new agreement is needed.
- For the first time the Kyoto Protocol introduced binding targets for greenhouse gas emissions in 37 industrialised countries from 2008 to 2012.
- After several years of uncertainty as to whether a sufficient number of countries would ratify the treaty the Protocol came into force on 16 February 2005 despite opposition by many countries like the USA
- Several member countries of the UNFCCC have not ratified the Kyoto Protocol and do not acknowledge its requirements regarding emissions.
- Since 1997 China has replaced the USA as the largest emitter of greenhouse gases, and the price of oil has soared.
- And meetings of the “Ad Hoc Working Group on Long-term Cooperative Action under the Convention” (AWG-LCA) show that the parties still have differing opinions regarding what the future agreement should contain.



Towards Copenhagen: Major Milestones

- However, the Bali Conference made a roadmap aimed at hammering out a new ambitious global climate agreement by December 2009 in Copenhagen which will replace the Kyoto Protocol (beyond the year 2012)
- With the Bali Action Plan, all countries agreed on five elements:
 - a shared vision for long-term cooperative action, including a long-term global goal for emissions reductions;
 - enhanced national/international action on climate change mitigation;
 - enhanced action on adaptation to climate change;
 - enhanced action on technology development and transfer to support action on mitigation and adaptation; and
 - enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation, and technology cooperation.
- There were several discussions/negotiations about the specific content of each individual building block
- Conferences/meetings in Poznan (2008), Geneva (2009), Bangkok and finally, in Barcelona (2009) had the specific goal of creating a legally binding regime for carbon reduction by creating a successful ground for the proposed climate policy

Issues for Bangladesh

- With a VISION to eradicate poverty and achieve economic and social well-being, the Government seeks to achieve this through a PRO-POOR and CLIMATE RESILIENT STRATEGY, based on the four building blocks of the Bali Action Plan
- The government has formulated the National Adaptation Programme of Action (NAPA) 2005 and Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2008 which has been revised in 2009.
- The BCCSAP 2009 has identified six priority areas: *food security, social protection and health; Comprehensive disaster management; infrastructure; research and knowledge management; mitigation and low carbon development, and capacity building and institutional strengthening*
- Over the last 35 years, GoB made investments for flood management schemes, coastal polders, cyclone and flood shelters, and the raising of roads and highways above flood level

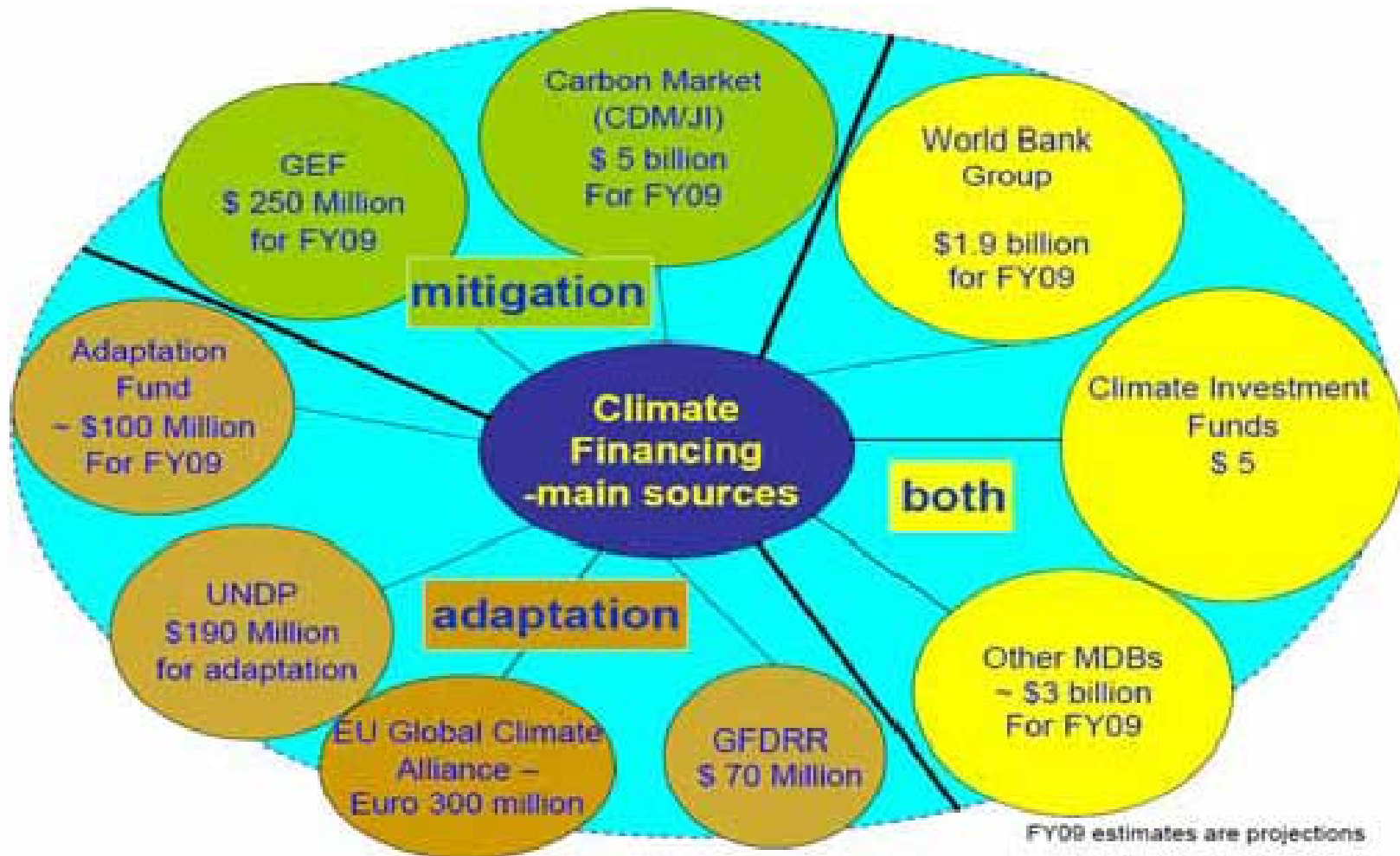
1. Adaptation versus mitigation

- Bangladesh contributes negligibly to the global GHG emission
- With only one fifth of one percent of world total in terms of GHG emission major focus of Bangladesh is to devise adaptation policies and measures. Measures are required in the following areas, among others.
 - **Agriculture, forestry and fisheries**
 - **Water supplies**
 - **Extreme events**
 - **Capacity building including research**
 - **Coastal zones**
 - **Infrastructure**
 - **Human health**
 - **National policies**

2. Financing climate change

- Adaptation to climate change will bring with it additional costs for both public and private sectors
- The Copenhagen negotiation will focus on separate international funds for adaptation and innovation
- Developing countries have to be reassured that there will be new and additional fund for adaptation, which compliments rather than compete with ODA
- One of the fundamental questions regarding finance is where it will come from:
 - *direct contributions from developed country governments, as preferred by developing countries; or*
 - *market mechanisms, as preferred by developed countries*
- There are several proposals on the table to provide the necessary financing, which developing countries claim will be on the order of hundreds of billions of USD per year
- However, the need for adaptation funds is overshadowed by other funds

2. Financing climate change

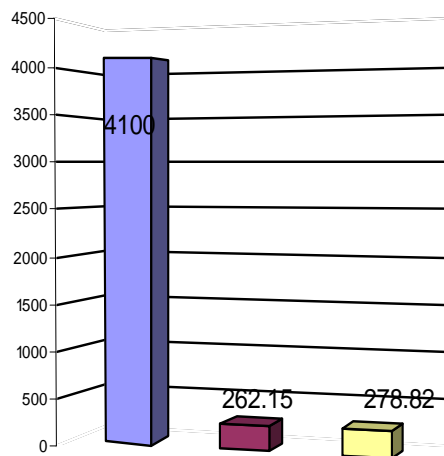




Issues for Bangladesh

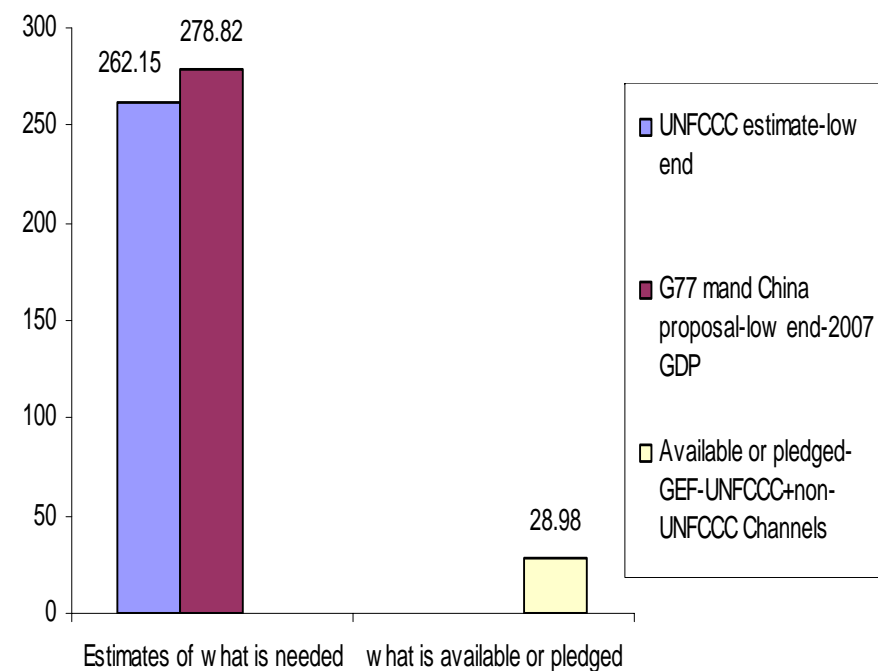
2. Financing climate change

Comparison of Financial Sector Bailouts by Developed Countries and Estimated Climate Financing Needs (USD bln)



- G77 and China proposal -low end-2007 GDP
- UNFCCC annual climate finance estimate-low end
- Financial Sectors bailout by developed countries (commitments in 2008)

Climate Financing Mismatch between Needs and Availability (USD bln)



**Commitments for climate fund is far too less than requirement!
Priorities are somewhere else.**

2. Financing climate change

- The issues is not only about how to raise the money, but also about how finance is channeled and governed
- Public financing is generally channeled through large centralised funds while market-based financing is typically delivered through myriad individually developed projects
- Large funds have issues with **governance, conditionality, efficiency, and direct access**, while market mechanisms have issues of distribution, sustainability, effectiveness, and unintended consequences
- All funds have a limited time horizon, with no commitments made beyond the 2012
- This short timescale is indicative more of a **piloting phase rather than any new long-term architecture of global environmental funding**
- The experience gained through disbursing currently available funds, however, will provide much valuable experience on how to channel global funds to tackle climate change in developing countries over the long term

2. Financing climate change

- GoB is working towards building up a climate fund to address the climate change
- In FY2008-09, the government established a National Climate Change Fund worth USD45 million while in the national budget of FY2009-10, an additional USD105 million was added to this fund.
- The UK pledged to grant Bangladesh a total of USD132 million for its adaptation and mitigation options.
- The Comprehensive Action Plan (2009-2018) on climate change prepared by the GoB estimated USD500 million for implementing its first 2 years.
- The Action Plan estimates that USD5 billion will be needed for the first 5 years
- New sources of climate funds can be explored. One such source could be “Aid for Trade” (A4T) set up under the auspicious of the WTO during the course of the Doha Round negotiation on global trade

3. Technology transfer

- Transfer and diffusion of environmentally sound technologies is a key element of any effective international response to the global climate change challenge and one of the pillars of the UNFCCC
- In case of technology transfer the main issues on the table are **technology financing, research and development, including intellectual property rights (IPRs) and institutional arrangements**
- Under Article 66.2 in TRIPS, developed countries are required to provide incentives to their national enterprises to promote transfer of technologies to LDCs.
- Developed countries are not effectively implementing this article and as such, are not fulfilling their obligations under the WTO

3. Technology transfer

- Technologies that are required to be developed and transferred to countries such as Bangladesh for fighting climate change are:
 - Agricultural technology
 - Health technology
 - Industrial design for low carbon, high energy-efficient technology
 - Renewable energy resources/ technology
 - Financial resources for adaptation to natural disasters (infrastructure development)
 - Research and development in the fields such as:
 - New varieties of tolerant crops
 - New sources of renewable energy

4. Climate change and trade

- Trade has an important place in the globalization process as well as climate change mitigation and adaptation
- The Bali Roadmap recognizes the importance of “opportunities for using markets to enhance cost-effectiveness of, and to promote, mitigation actions”. Trade has implications for the five elements and vice-versa
- Trade is an important channel for the diffusion of goods to mitigate climate change
Lowering trade barriers from goods brings their prices closer to world market prices, making them more affordable to consumers thereby reducing climate mitigation costs overall
- Trade encourages the spread of technological innovations that are beneficial in mitigating climate change.
- Lowering tariffs on climate mitigation goods can also contribute to UNFCCC technology transfer mandates by facilitating access to these goods

4. Climate change and trade

- Due to its extreme vulnerability to climate change as well as its growing participation in global trade, Bangladesh should be alert of the inter-linkages between trade and climate change
 - Issues such as carbon emission reduction, border measures and cross border carbon trading are being discussed with regard to climate change and trade issues.
 - Moreover, reduction or elimination of tariffs and non tariff barriers (NTBs) from environmental goods and services (EGS) is being negotiated as part of the WTO's Doha mandate.
-
- Bangladesh is yet to have a position on the relationship between trade and climate change, and the ways trade can be used to fight climate change
 - There is a need to contribute to the global debate on
 - (i) how trade policy tools such as tariffs and para-tariffs, subsidies, quotas, standards and labeling affect climate change;
 - (ii) how trade can assist in addressing climate change;
 - (iii) whether climate change measures violate world trade rules or affect trade patterns; and
 - (iv) how the trade rules can/should be amended/interpreted for the realization of climate change as well as sustainable development goals.

4. Climate change and trade

- However, before Bangladesh enters into any agreement on liberalisation of EGS issues such as definition of the EGS, classification and description of harmonised system across countries, changes in technology, tariff measures, access to technology and issues related to perceived impacts on domestic industries must be examined carefully
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- Yet another issues is trade protectionist measures in the name of environmental improvements
- The USA, Canada and the EU have made proposals to "level the playing field" by using carbon tariffs, that is duties imposed on imports from countries having less control on greenhouse gas emissions
- Bangladesh should also be watchful against green protectionism by the developed countries and demand for greater help to deal with their eco-problems

Concluding Remarks

- Being one of the most affected and vulnerable countries in the world due to climate change Bangladesh is certainly well positioned to raise its voice and bargain for getting a fair share in a global climate deal
- The prerequisites for these include adequate knowledge to present the right issues and reasons clearly and loudly
- The negotiators have to have a clear understanding of the depth and extent of the problem in terms of its impact on various sectors of the economy both in physical and economic terms
- Given the fact that climate change is a complicated and technical issue there is need for include experts, representatives from NGOs, CSOs and all stakeholders to tackle the problem domestically and to devise a position for negotiation at the international levels

Concluding Remarks

- In parallel with international negotiations initiatives at the domestic level are needed for improving the use of **financial resources** and **quality of technology transfer**
- Develop adequate human and organizational capacity: *Adequate technical, business, management, and regulatory skills*
- Create an appropriate enabling environment:
Participation of all stake holders – private actors, public agencies, NGOs, CSOs and grassroots organizations
- Establish effective mechanisms:
Improve transparency of project approval and public procurement procedures; reduce corruption

River pollution



Concluding Remarks

River encroachment: Turag River



Concluding Remarks

Emissions



Concluding remarks

Clearing forests: Kewra forest



Concluding remarks

The house has to be set in order too!





Thank You