POVERTY, CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

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June 19, 2012
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125,000 years ago…

- The polar regions were significantly warmer than present for an extended period
- … which led to reductions in polar ice volume and sea level rise of 4 to 6.

Palaeoclimatic information supports the interpretation that the warmth of the last half century is unusual in at least the previous 1,300 years.

Source: IPCC
Observed Changes

- Global average temperature
- Global average sea level
- Northern hemisphere snow cover

Source: IPCC
Increase In Global Average Temperatures

2090-2099 relative to 1980-1999

Continued emissions would lead to further warming of 1.1°C to 6.4°C over the 21st century (best estimates: 1.8°C - 4°C)

- Most of the observed increase since the mid-20th century is very likely due to the observed increase in anthropogenic GHGs.
- Discernible human influences now extend to other aspects of climate, including ocean warming, continental-average temperatures, temperature extremes and wind patterns.

Source: IPCC
Socioeconomic development interacts with natural climate variations and human-caused climate change to influence disaster risk.

**Disaster Risk:**
the likelihood of severe alterations in the normal functioning of a community or society due to weather or climate events interacting with vulnerable social conditions

**Vulnerability:**
The predisposition of a person or group to be adversely affected
Fatalities are higher in developing countries

From 1970-2008, over 95% of natural-disaster-related deaths occurred in developing countries

Source: IPCC
Increasing exposure of people and assets has been the major cause of changes in disaster losses.

Pakistan floods, 2010. 6 million left homeless

Source: IPCC
A changing climate leads to changes in extreme weather and climate events.

Increasing vulnerability, exposure, or severity and frequency of climate events increases disaster risk.

Source: IPCC
Climate models project more frequent hot days throughout the 21st century

In many regions, the time between “20-year” (unusually) warm days will decrease

Source: IPCC
Limits to resilience are faced when thresholds or tipping points associated with social and/or natural systems are exceeded posing severe challenges for adaptation.
Emerging economies continue to drive global energy demand

Growth in primary energy demand in the New Policies Scenario

Global energy demand increases by one-third from 2010 to 2035, with China & India accounting for 50% of the growth

Vulnerable populations

- Vulnerability in developing regions and among poor & marginalised communities is aggravated by low adaptive capacity and non-climate stresses, such as:
  - Dependence on climate-sensitive resources
  - Integrity of key infrastructure
  - Preparedness and planning
  - Sophistication of the public health system
  - Exposure to conflict

Without appropriate measures, climate change will likely exacerbate the poverty situation and continue to slow down economic growth in developing countries

Source: IPCC
Impacts on food fiber and forests

- Consequences for **downstream agriculture** which relies on glacial melt and rivers for irrigation will be unfavorable in most south Asian countries.

- **Complex and localized impacts of climate change** will effect groups with low adaptive capacity such as:
  - Small holders
  - Subsistence farmers
  - Pastoralists
  - Artisanal fisher folk

Source: IPCC
Effective risk management and adaptation are tailored to local and regional needs and circumstances

• Changes in climate extremes vary across regions
• Each region has unique vulnerabilities and exposure to hazards
• Effective risk management and adaptation address the factors contributing to exposure and vulnerability

Source: IPCC
The age of fossil fuels is far from over, but their dominance declines

Shares of energy sources in world primary energy demand in the New Policies Scenario

Oil remains the leading fuel though natural gas demand rises the most in absolute terms

Policies could radically alter the long-term energy outlook

World primary energy demand by scenario

In the New Policies Scenario, demand increases by 40% between 2009 & 2035

RE growth has been increasing rapidly in recent years

- 140 GW of new RE power plant capacity was built in 2008-2009.
- This equals 47% of all power plants built during that period.

Source: IPCC SRREN
Technical Advancements: For instance growth in size of typical commercial wind turbines.

Source: IPCC
RE costs have declined in the past and further declines can be expected in the future

Source: IPCC SRREN
RE and Climate Change Mitigation Policies 2004

Source: IPCC
RE and Climate Change Mitigation Policies
2011

Source: IPCC
LaBi
LIGHTING A BILLION LIVES
“A technological society has two choices.

First it can wait until catastrophic failures expose systemic deficiencies, distortion and self deceptions…

Secondly, a culture can provide social checks and balances to correct for systemic distortion prior to catastrophic failures”

- Mahatma Gandhi