



सत्यमेव जयते



जहाँ है हरियाली ।
वहाँ है खुशहाली ॥

India and Climate Change

30th June 2009

**Ministry of Environment & Forests,
Government of India**

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Agenda

- **Background and Context**
- GHG Emissions – Some Facts
- International Response Framework
- Path to Copenhagen
 - A Primer
 - Milestones
- India's Negotiating Position – Basics
- India's NAPCC: Missions and Critical Initiatives

There is strong evidence of global climate change

- **IPCC finding shows unequivocal evidence of warming of climate systems**
 - CO₂ atmospheric concentration up from 280 ppm (pre-industrial) to 379 ppm (2005)
 - GHG emissions up by 70% between 1970-2004
 - Global mean temp. rise 0.74°C from 1906-2005
 - Last 11 years (1995-2006), among the 12 warmest years since 1850
 - Global sea level rise 1.8mm/yr during 1961-2003, faster during 1993-2003 (@3.1 mm/yr)
- **Projections of future climate change**
 - Across all scenarios, average warming is 0.2°C per decade

India itself is facing major climatic variability

- **Already observed adverse climatic trends in India**

- Warming of 0.4 °C in surface air temperature over the period 1901-2000
- The glaciers in the Himalayas are receding¹

- **Major projected changes by the year 2100**

- Increase in rainfall by 15-40% with (high regional variability)
- Warming more pronounced over land areas with maximum increase in North India
- Warming, relatively greater in winter and post-monsoon seasons
- Increase in annual mean temperature by 3 °C to 6 °C

¹ There are a few glaciers that may be advancing as well.

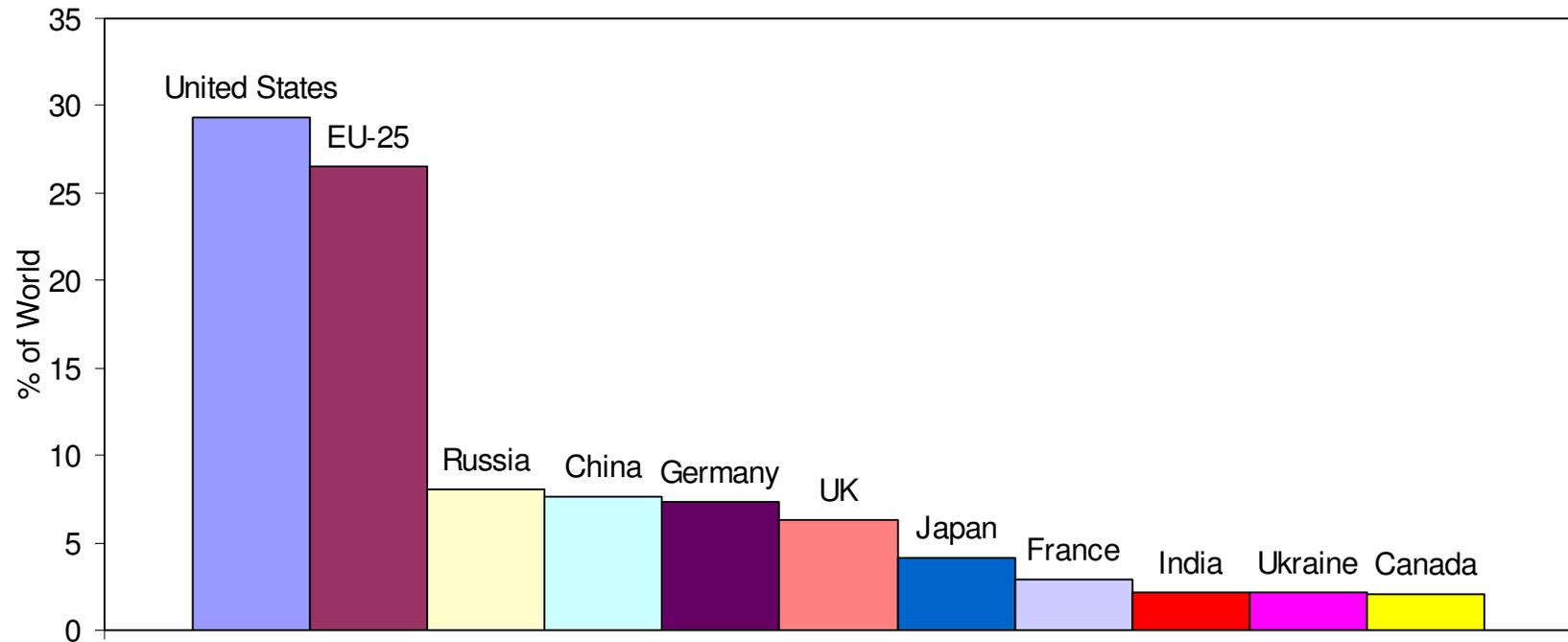
² There is no conclusive scientific evidence as yet to suggest that the retreat of Himalayan glaciers is being caused by climate change; the retreat could be a result of natural cyclical processes

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Developed countries bear the primary “historical responsibility” for GHG emissions

Cumulative CO2 Emissions (1850-2002)



Even today, developed countries have much higher per capita emissions and global share of emissions

Country	Per capita CO2 emissions (in tonnes)	% of global share of CO2 emissions
World	4.5	
OECD	11.5	
Developing countries	2.4	
USA	20.6	20.9
UK	9.8	2
Germany	9.8	2.8
Japan	9.9	4.3
Canada	20	2.2
China	3.8	17.3
Brazil	1.8	1.1
South Africa	9.8	1.5
India	1.2	4.6

(Source: HDR 2007)

Data indicates that India's emissions growth path has been on sustainable lines; this is validated by objective third-party studies

16% of the World's population but only 4.6% of the global CO2 emissions

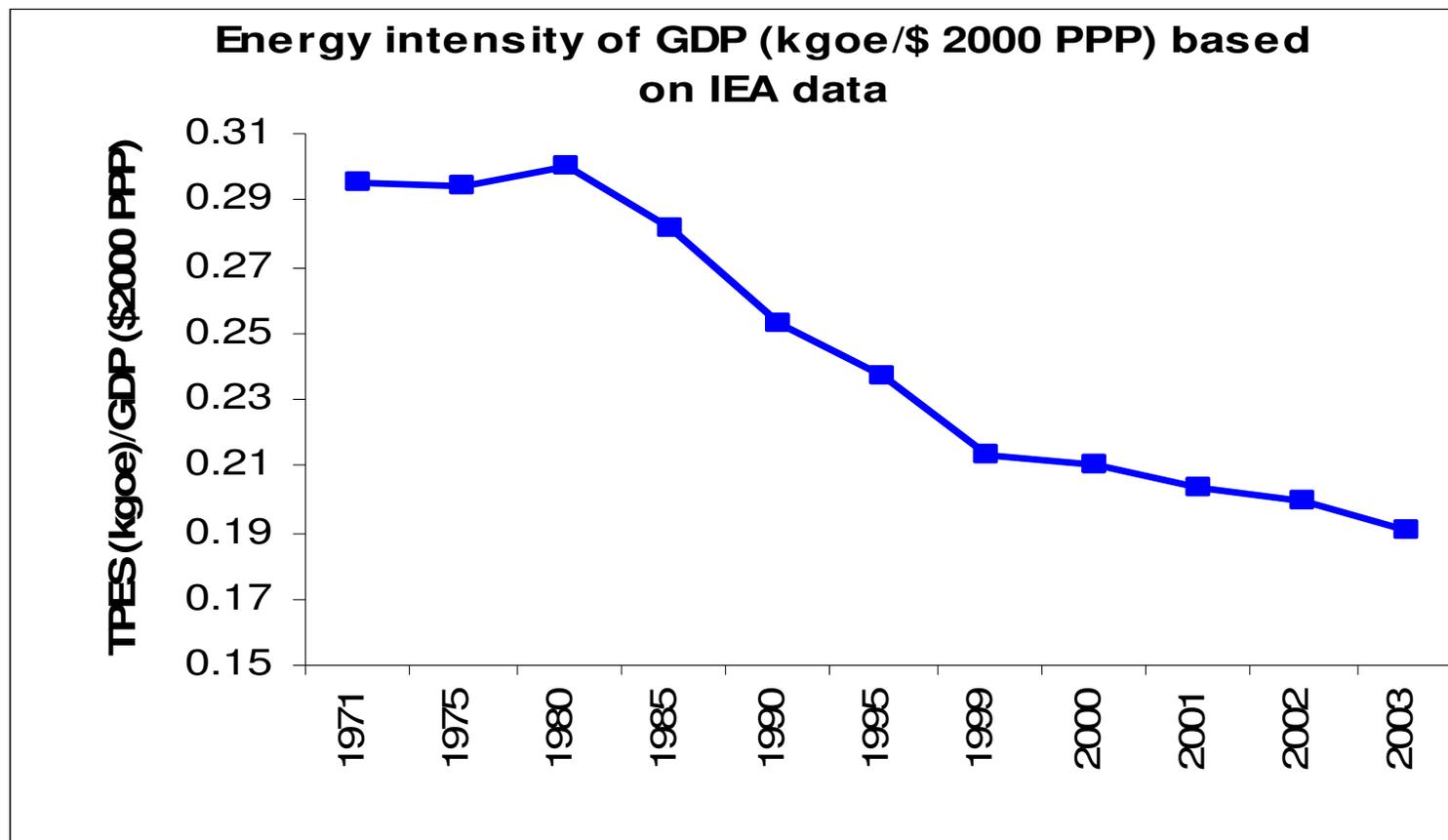
World Bank Assessment

- India is a relatively low carbon economy
- Among 70 countries studied, India ranks 63rd for per capita emissions, 48th for CO2 emissions per unit of GDP
- Offsetting factor for CO2 emissions is high
 - 30% of GHG growth offset by lowering energy intensity and improving the carbon intensity of its fuel mix; Russia and China show much lower performance
 - Achieved this despite a low initial emission level and against a backdrop of increasing CO2 intensity world wide between 1999-2004



Most independent projections indicate that India's CO2 intensity is likely to continue to decline through 2030-2050

India is on a sustainable development path with impressive declining energy intensity of GDP



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UNFCCC and the Kyoto Protocol provide the guiding global framework for addressing climate change

UNFCCC

- Established 1992; 192 members today
- Objectives:
 - GHG stabilization
 - Food Security
 - Sustainable economic and social development
- Based on principles of:
 - Common but differentiated responsibilities (historical emissions)
 - Respective capabilities (level of industrialisation)
- “Soft target” for industrialized countries to return to 1990 levels of GHG emissions by 2000

Kyoto Protocol

- Requires 41 “Annex 1” parties¹ to reduce GHG emissions between 1990-2012
- 3 “Flexible mechanisms” to create a global market in carbon credits
- USA only Annex I Party yet to ratify Kyoto Protocol (Australia ratified in 2007)

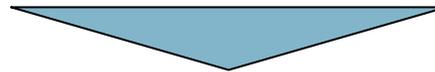
¹ Annex 1 Parties are the developed economies as per UNFCCC who undertook GHG reduction targets under Kyoto Protocol

² “Economies in Transition”

The Kyoto Protocol has had positive but limited impact

Outcome

- Annex I countries¹ (excluding EIT ² countries) have **increased GHG emissions** by 10% over 1990-2004, as compared to return to 1990 level by 2000 and a reduction of 5.2% promised by 2012



Developed countries must take ambitious targets post-2012 and deliver on them

¹ Annex 1 countries are the 41 developed economies that undertook GHG reduction targets as per Kyoto Protocol
² “Economies in Transition”

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Path to Copenhagen

A Primer

- **Mandate:** Enhance long-term cooperation on Climate Change under the Bali Action Plan (BAP)
 - **Not about re-negotiating** the UN Framework Convention on Climate Change (UNFCCC), but rather enhancing its implementation
- Envisages **long-term cooperation** in terms of:
 - Enhanced action by developed and developing countries reducing greenhouse gas emissions (**Mitigation**)
 - Increasing the capacity to meet the consequences of climate change that has already taken place and is likely to continue to take place (**Adaptation**)
- These objectives must be **supported** by:
 - Sufficient financial resources (**Finance**)
 - Technology transfers (**Technology**) from developed to developing countries
- We expect that Copenhagen will result in an **agreed outcome**:
 - A **cooperative** global response
 - Also, **fair and equitable**
 - In accordance with the **principle of common but differentiated responsibilities and respective capabilities**, a principle that the entire international community has enshrined in the UNFCCC, concluded in 1992 at the historic Rio Summit

Path to Copenhagen

Key Milestones

- 1-12 June 2009: UNFCCC Negotiations on Bali Road Map, Bonn, Germany
- 22-23 June 2009: Third Preparatory Meeting of the Major Economies Forum, Mexico City, Mexico
- 30 June - 3 July 2009: Greenland Dialogue, Iluissat, Denmark
- 8-10 July 2009: G8 Summit / MEF Summit, L'Aquila, Italy
- 10-14 August 2009: UNFCCC Negotiations on the Bali Road Map, Bonn, Germany
- 22 Sep 2009: UN High Level Event on Climate Change, New York, USA
- 28 Sep - 9 Oct 2009: UNFCCC Negotiations on the Bali Road Map, Bangkok, Thailand
- **22-23 Oct 2009: *Conference on Technology Development & Transfer, New Delhi, India***
- 2-6 Nov 2009: UNFCCC Negotiations on the Bali Road Map, Barcelona, Spain
- 16-17 Nov 2009: Pre COP Consultations by Denmark, Copenhagen
- 27-29 Nov 2009: CHOGM Summit
- 7-18 Dec 2009: UNFCCC COP-15, Copenhagen, Denmark

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India's Position on Climate Change: Highlights

- Prime Minister has stated that **India's per capita emission levels will never exceed** that of the per capita emission levels of developed countries
- India cannot and will **not take on emission reduction targets** because:
 - Poverty eradication and social and economic development are the first and over-riding priorities
 - Each human being has equal right to global atmospheric resources (i.e., Principle of Equity)
 - “Common but differentiated responsibility” is the basis for all climate change actions
- India will **continue to be a low-carbon economy** (World Bank study)
- India's **primary focus is on “adaptation”**, with specific niches for “mitigation”
- India has already unveiled a **comprehensive National Action Plan on Climate Change** whose activities are in the public domain. Work on the Action Plan has been initiated
- Only those Nationally Appropriate Mitigation Actions (NAMAs) can be subject to international **monitoring, reporting and verification** that are enabled and supported by **international finance and technology transfer**
- India wants a comprehensive approach to Reducing Emissions from Deforestation & Forest Degradation (REDD) and **advocates REDD+ that includes conservation, afforestation and sustainable management** of forests
- India advocates **collaborative research** in future low-carbon technology and **access to intellectual property rights** (IPRs) as global public goods

Some Issues of Concern

- **Differentiation amongst developing countries** sought to be introduced
 - Alternative multilateral forums
 - Parallel bilateral negotiations
- **Sectoral approaches** to mitigation actions outside Bali Plan being advocated
- Making all nationally appropriate mitigation actions (**NAMAs**) **subject to international monitoring, reporting and verification**
- Requirement for quantification of **deviation from BAU**
- **Ambiguity in responsibility** for finance and technology transfer
- Move to **limit scope of** Clean Development Mechanism (**CDM**)
- Bill passed by US House of Rep before the US Senate proposes to **impose trade penalties** on countries that do not accept limits on global warming pollution

India's Proactive Contribution to Climate Change Negotiations

- Actively involved with **G77 & China** to evolve **common position** on negotiations
- Made **9 submissions** to UNFCCC on **Finance, Technology, Forestry** and other areas, e.g.,
 - Suggested a mechanism for technology transfer and development
 - Suggested a financial architecture for climate change
 - Presented a proposal for comprehensive approach to REDD+
- Worked with China, Brazil, South Africa and 33 other countries to present a **joint proposal for emission reduction targets by Annex 1 countries in second commitment period**

India has also established a network of research institutions for preparing National Communications (NATCOM) on Climate Change

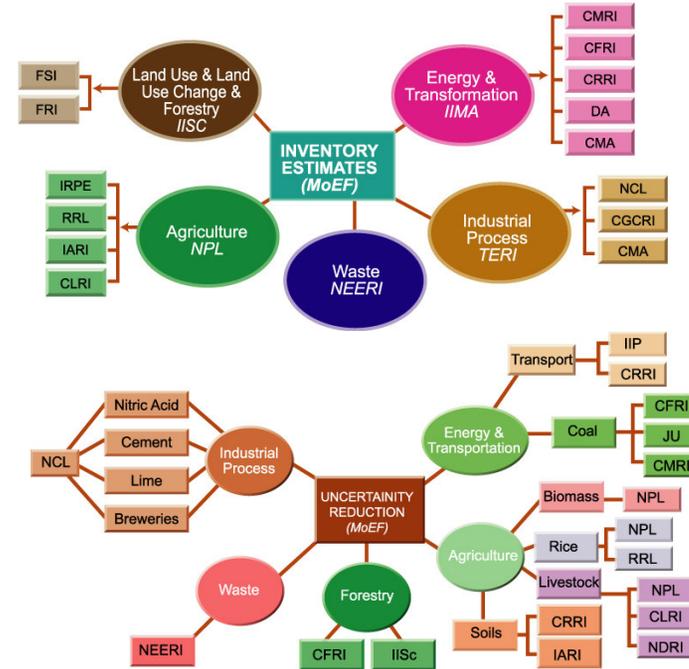
Institutional Arrangement for NATCOM - I



Inventory estimation

Uncertainty Reduction

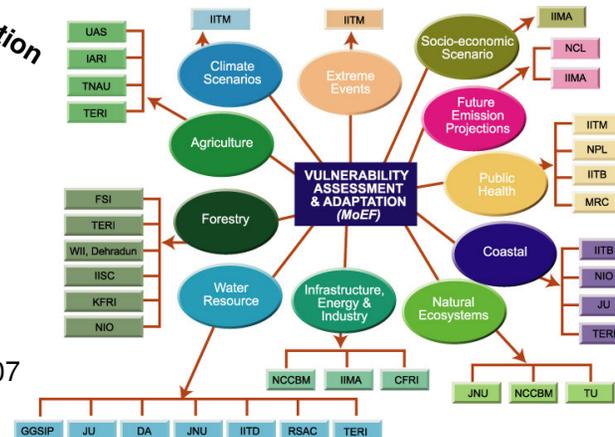
Vulnerability Assessment & Adaptation



Institutions involved in each Activity

A.	Inventory Estimation	19
B.	Uncertainty Reduction	17
C.	Vulnerability Assessment and Adaptation	36
D.	Data Center and Website development	2
E.	Targeted Research proposal	26
F.	Ministries/ Departments	14
G.	Other Steps to Implement the Convention	17
Total		131

Source: MoEF, 2007



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India's National Action Plan on Climate Change envisages India's efforts being led through 8 Missions, 2 of which are focus on 'Mitigation' and 5 on 'Adaptation'

Mission	Objective	Responsible Entity
<i>National Solar Mission</i>	<ul style="list-style-type: none"> • 20,000 MW of solar power by 2020 	Ministry of New & Renewable Energy
<i>National Mission for Enhanced Energy Efficiency</i>	<ul style="list-style-type: none"> • 10,000 MW of EE savings by 2020 	Ministry of Power
<i>National Mission for Sustainable Habitat</i>	<ul style="list-style-type: none"> • EE in residential and commercial buildings, public transport, Solid waste management 	Ministry of Urban Development
<i>National Water Mission</i>	<ul style="list-style-type: none"> • Water conservation, river basin management 	Ministry of Water Resources
<i>National Mission for Sustaining the Himalayan Ecosystem</i>	<ul style="list-style-type: none"> • Conservation and adaptation practices, glacial monitoring 	Ministry of Science & Technology
<i>National Mission for a Green India</i>	<ul style="list-style-type: none"> • 6 mn hectares of afforestation over degraded forest lands by the end of 12th Plan 	Ministry of Environment & Forests
<i>National Mission for Sustainable Agriculture</i>	<ul style="list-style-type: none"> • Drought proofing, risk management, agricultural research 	Ministry of Agriculture
<i>National Mission on Strategic Knowledge for Climate Change</i>	<ul style="list-style-type: none"> • Vulnerability assessment, Research & observation, data management 	Ministry of Science & Technology

Missions focused on 'Mitigation'
 Missions focused on 'Adaptation'

In addition, India has 24 other “Critical Initiatives” in the anvil, for which detailed plans and an institutional framework is being prepared (1/2)

Type	Initiative
<i>Energy Efficiency in Power Generation</i>	Super critical technologies
	Integrated Gasification Combined Cycle (IGCC) Technology
	Natural Gas based Power Plants
	Closed Cycle Three Stage Nuclear Power Programme
	Efficient Transmission and Distribution
	Hydropower
<i>Other Renewable Energy Technologies Programmes</i>	RETs for power generation
	Biomass based popup generation technologies
	Small scale Hydropower
	Wind Energy
	Grid connected systems
	RETs for transportation and industrial fuels
<i>Disaster Management Response to Extreme Climate Events</i>	Reducing risk to infrastructure through better design
	Strengthening communication networks and disaster management facilities

In addition, India has 24 other “Critical Initiatives” in the anvil, for which detailed plans and an institutional framework is being prepared (2/2)

Type	Initiative
<i>Protection of Coastal Areas</i>	Undertake measures for coastal protection and setting up Early Warning System
	Development of a regional ocean modelling system
	High resolution coupled ocean-atmosphere variability studies in tropical oceans
	Development of a high-resolution storm surge model for coastal regions
	Development of salinity-tolerant crop cultivars
	Community awareness on coastal disasters and necessary action;
	Timely forecasting, cyclone and flood warning systems
	Enhanced plantation and regeneration of mangroves and coastal forests
<i>Health Sector</i>	Provision of enhanced public health care services and assessment of increased burden of disease due to climate change
<i>Creating appropriate capacity at different levels of Government</i>	Building capacity in the Central, State and other Agencies/Bodies at the local level to assimilate and facilitate the implementation of the activities of National Plan