

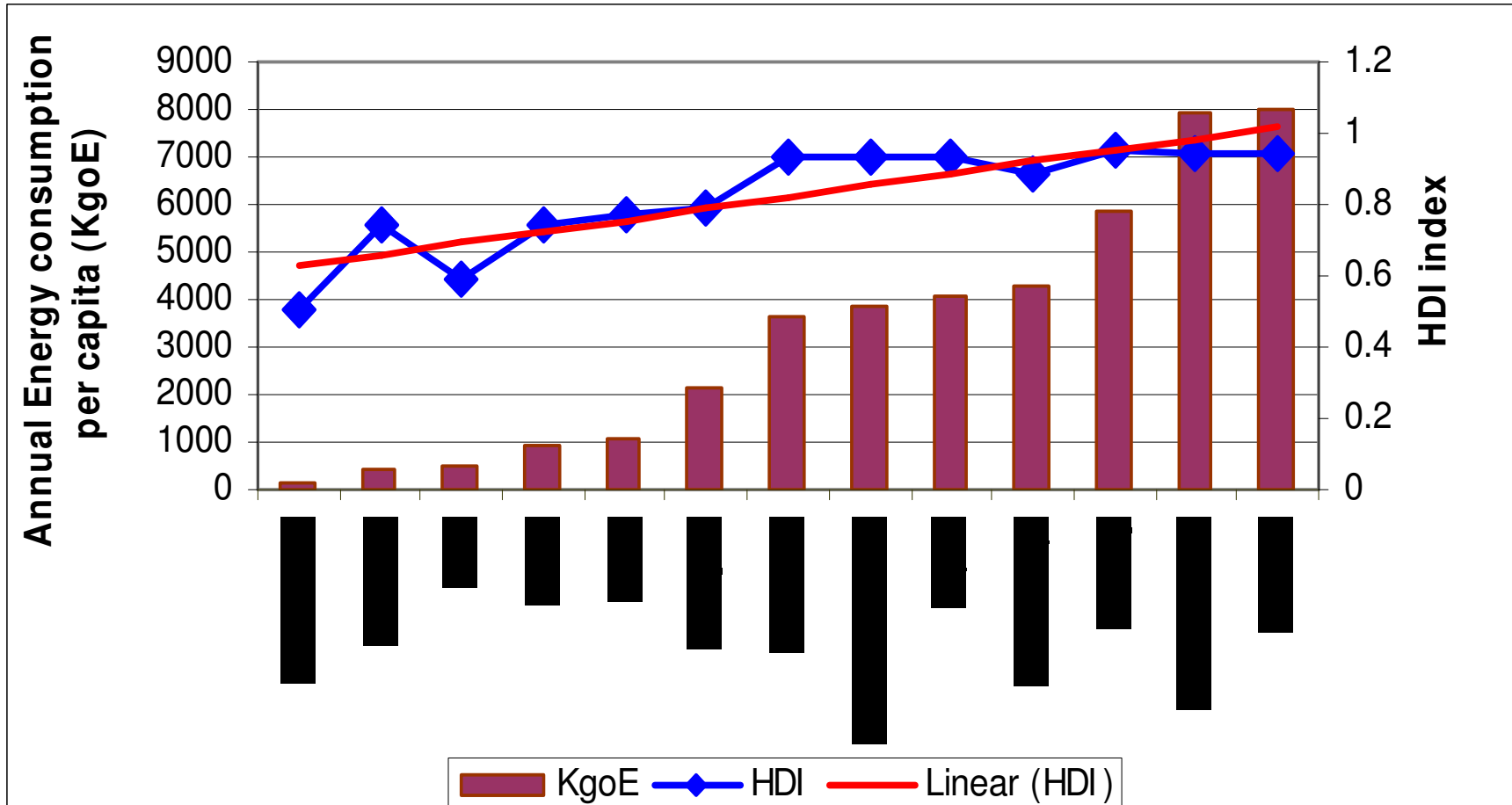


National Action Plan on Climate Change

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Prime Minister's Council on Climate
Change

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Energy is Critical For Development & Improving HDI



Source: World Development Indicators Database



India's imperatives

- Over 487 million people without access to electricity (2005)
- 80.4% of the population is below the \$2 per day poverty level, and 34.3% below the \$1 per day level (1990-2005).
- India needs GDP growth of 8%+ over the next 25 years to lift the bottom 40% of her citizens to an acceptable level of economic & social well being. This is not possible without increased energy use.
- ***We must be able to pursue accelerated social and economic development. Development is also an imperative for us for adaptation (i.e. actions to cope with climate change e.g. in agriculture, health, to tackle sea-level rise, disaster mitigation, risk financing etc.)***

India's Present and Projected Energy Mix (mtoe)

	2003-04	2031-32
Coal	167	816
Hydro	7	43
Oil	119	435
Natural gas	29	224
Nuclear	5	115
Total	327	1234

Some Key Existing Climate Change Related Policies and Actions

- **Integrated Energy Policy, 2006:** Key GHG related Provisions:
 - Energy efficiency in all sectors
 - Emphasis on mass transport
 - Emphasis on renewables including biofuels and fuel plantations
 - Accelerated development of nuclear and hydropower Technology Missions for Clean Energy
 - Focused R&D on several climate change related technologies

Some key policies and actions...

- **Reforming Energy Markets (Electricity Act 2005, Tariff Policy 2003, Petroleum & Natural Gas Regulatory Board Act, 2006, etc.):**
 - Remove entry barriers and raise competition in exploration, extraction, conversion, transmission & distribution of primary and secondary energy
 - Institute price reform. Full competition at point of sale. Net back pricing for non-traded energy if domestic market not competitive
 - Tax reform to promote optimal fuel choices.
 - Augment and diversify energy options, sources and energy infrastructure: Feed-in tariffs for renewables (solar, wind, biomass cogen)
 - Strengthen or introduce independent regulation



Some key policies and actions...

- **Rural Electrification Policy 2006:**
 - Promotes renewable energy technologies where grid connectivity is not possible or cost-effective
- **Energy Conservation Act, 2001:**
 - Aims to reduce specific energy consumption in different sectors, and sets up a specialized Bureau of Energy Efficiency to institutionalize energy efficiency measures, monitoring, and measurement at plant and macro-levels



Some key policies and actions...

- **New and Renewables Energy Policy, 2005:** Promotes dependence on sustainable, renewable energy sources, accelerated deployment of renewables through indigenous design, development and manufacture
- **Biodiesel Purchase Policy:** Mandates biodiesel procurement by petroleum cos.



Some key policies and actions...

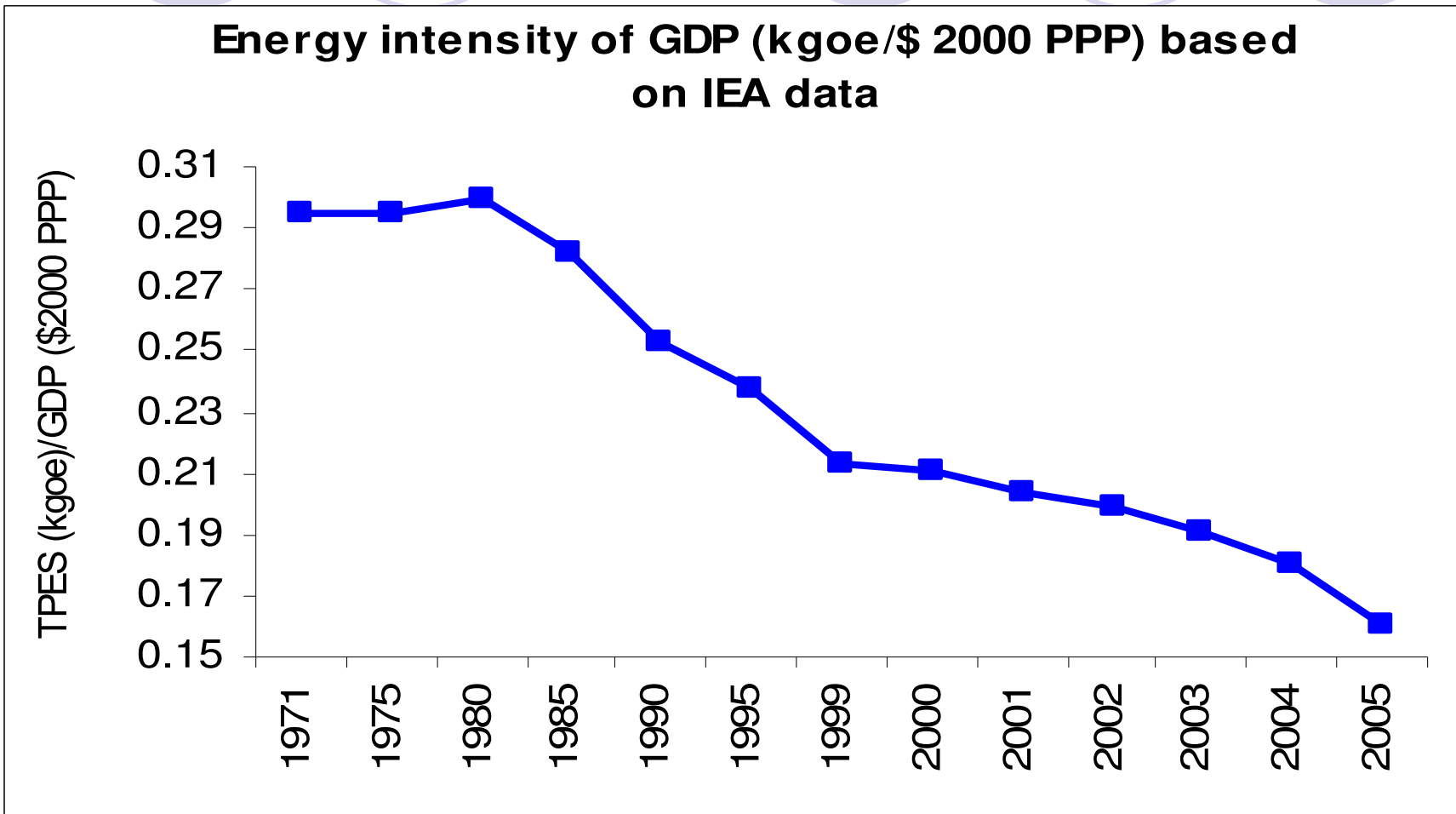
- **Ethanol Blending of Gasolene:**
Mandates 5% blending of ethanol with gasoline from 1 January 2003 in 9 States and 4 Union Territories
- **Energy Conservation Building Code, 2006:** Mandatory energy efficiency code for all building with > 500 kVA connected load or conditioned floor area > 1000 m²



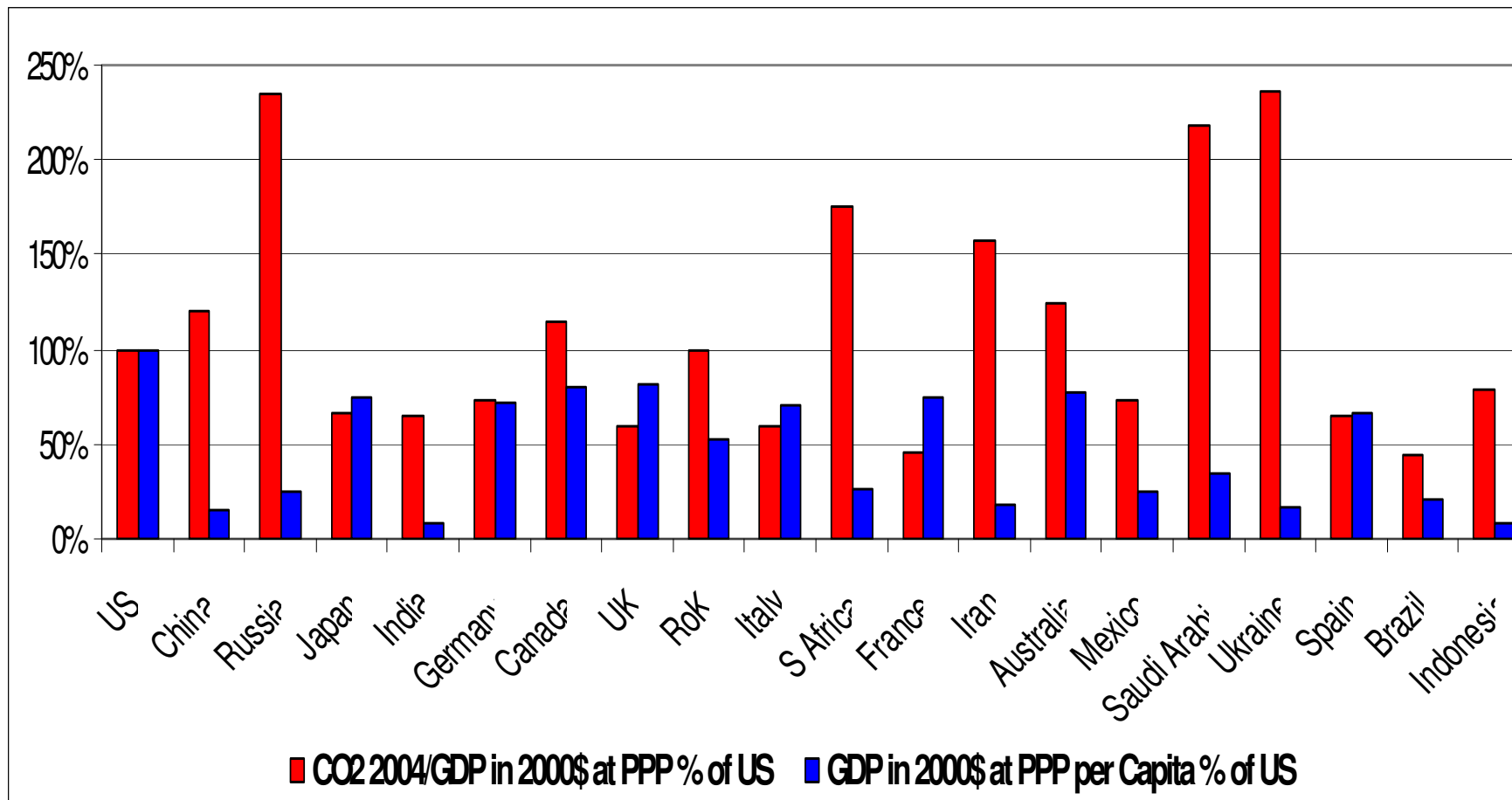
Some key policies and actions...

- **Bachat Lamp Yojana:** Country-wide programme for replacement of incandescents by CFLs in households using CDM credits to equate purchase price; safe collection and disposal of used CFLs
- **50,000 MW Hydroelectric Initiative, 2003:** 162 hydel projects have been identified for project preparation and implementation
- **Several others:** Promotion of solar thermals, solar PVs, wind, biomass gasifiers, biogas and manure management, promotion of fuel cells, energy recovery from urban wastes, etc.

Outcome: India's Decreasing Energy Intensity



The fossil fuel CO2 intensity of the Indian economy in 2004 was the same as Japan; better than Germany!

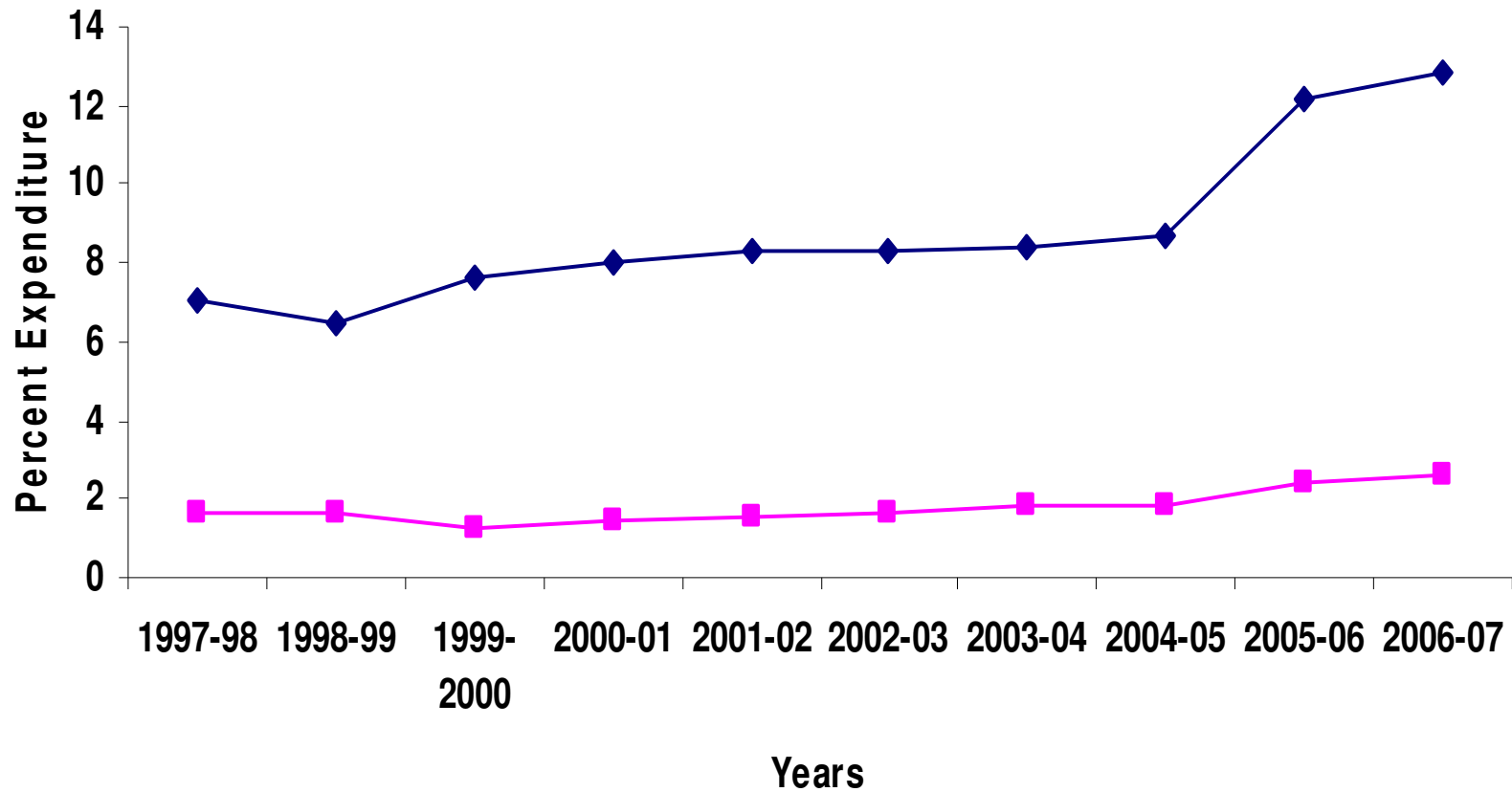


Data: "Growth and CO2 Emissions – How do different countries fare?" : Roger Bacon and Soma Bhattacharya: World Bank, 2007:



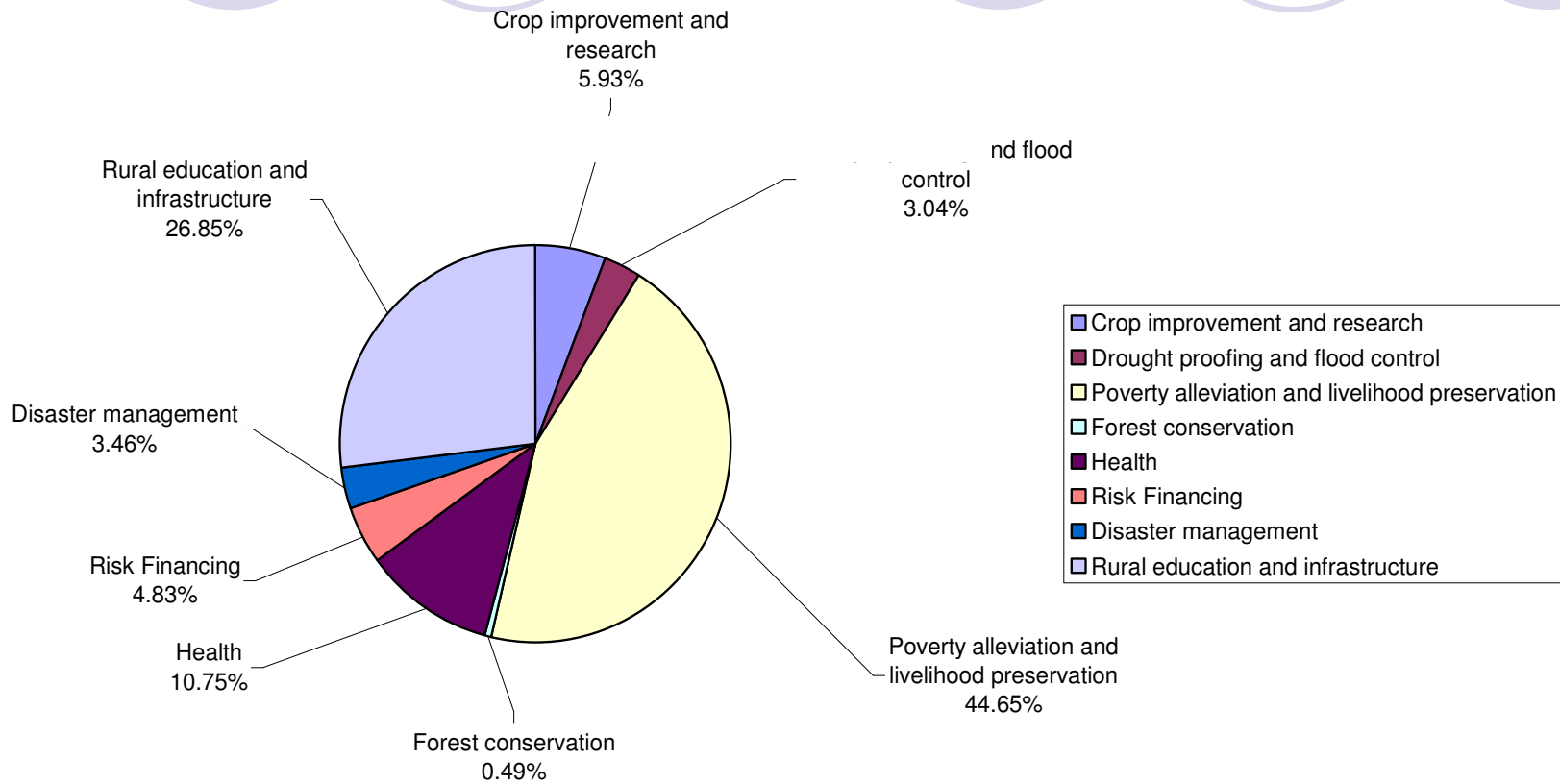
Adaptation to Climate Change

- India is historically vulnerable to climate variability: floods, droughts, vector borne disease, cyclones, ocean storm surges, etc.
- For over 6 decades, India has had large, nationally funded programmes to address climate variability and disasters.



India's fiscal expenditures on programs directly related to adaptation to climate variability was 2.63% of GDP in 2006-07!

Fig.1 proportion of critical components in total adaptation expenditure - 2006-07



Proportion of critical components in total adaptation expenditure 2006-07

National Action Plan on Climate Change

- NAPCC document released by PM on 30th June, 2008
- Comprehensive framework with approval of the PM's Council on Climate Change
- Relates to sustainable development, co-benefits to society at large, focus on adaptation, mitigation, and scientific research

Principles of NAPCC



- Protecting the poor through an inclusive and sustainable development strategy, sensitive to climate change
- Achieving national growth and poverty alleviation objectives while ensuring ecological sustainability
- Efficient and cost-effective strategies for end-use Demand side management
- Extensive and accelerated deployment of appropriate technologies for adaptation and mitigation
- New and innovative market, regulatory, and voluntary mechanisms for sustainable development
- Effective implementation through unique linkages – with civil society, LGUs, and public-private partnerships.



Approach

- *The National Action Plan on climate change identifies measures that promote our development objectives while also yielding co-benefits for addressing climate change effectively.*
- *It outlines a number of steps to simultaneously advance India's development and climate change-related objectives of adaptation and mitigation.*



Eight National Missions

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission on Sustainable Habitat
- National Water Mission
- National Mission for Sustaining the Himalayan Ecosystem
- National Mission for a Green India
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge for Climate Change



National Solar Mission

- A National Solar Mission will be launched to significantly increase the share of solar energy in the total energy mix while recognizing the need to expand the scope of other renewable and non-fossil options such as nuclear energy, wind energy and biomass.
- High potential for solar: At present efficiency levels 1% of land area sufficient to meet electricity needs of India till 2031
- Permits decentralized distribution of energy empowering people at grassroots level
- Need to enable creation of more affordable and more convenient solar power systems and enable storage of solar power for sustained long term use



National Mission for Enhanced Energy Efficiency

- ❑ Four new initiatives proposed to enhance energy efficiency:
 - ❑ Enhancing cost effectiveness of improvements in energy efficiency in energy-intensive large industries and facilities, through certification of energy savings that could be traded
 - ❑ Accelerating the shift to energy efficient appliances in designated sectors through innovative measures to make them affordable
 - ❑ Creation of mechanisms that would help finance demand side management programmes in all sectors by capturing future energy savings
 - ❑ Developing fiscal instruments to promote energy efficiency.

National Mission on Sustainable Habitat

- Targets improvements in energy efficiency in buildings, management of solid waste and accelerating modal shift to mass transport
- 3 initiatives integral to urban planning and urban renewal:
 - Energy Conservation Building Code to be extended in its application, and incentives to be provided for re-tooling existing building stock
 - Recycling of materials and urban waste management; technology development for producing power from waste
 - Better urban planning and modal shift to public transport
- Mission would focus on improving resilience of infrastructure, community based disaster management, and measures for improving the warning system for

National Water Mission



- Focus on ensuring integrated water resource management to conserve water, minimize wastage and ensure equitable distribution across and within states
- In line with provisions of National Water Policy, develop a framework to optimise water use
 - Recycling of waste water to meet large part of water needs of urban areas
 - Adoption of new and appropriate technologies such as low temperature desalination for coastal cities
 - Basin level management strategies in consultation with states
 - Enhanced storage
 - Rain water harvesting
 - Equitable and efficient management structures
 - Optimize efficiency of existing irrigation systems (rehabilitation, expansion along with increase in storage capacity, incentives for water-neutral or water-positive technologies, re-charging of underground water sources, adoption of efficient large-scale irrigation programmes)

National Mission for Sustaining the Himalayan Ecosystem

- To evolve management measures for sustaining and safeguarding the Himalayan glacier and mountain eco-system
- Mission would seek to understand whether and the extent to which the Himalayan glaciers are in recession and how the problem can be addressed
- Seeks to establish an observational and monitoring network for the Himalayan environment to assess fresh water resources and health of ecosystem
- Community based management of Himalayan ecosystems to be promoted with incentives to community organizations and panchayats (village level institutions) for protection and enhancement of forest lands

National Mission for a Green India

- Green India initiative to focus on enhancement of ecosystem services including carbon sinks
- PM has already announced a Green India campaign for afforestation of 6 million hectares:
 - To reach national target of 33% land area under forest and tree cover from the current level of 23%
- Mission to be taken up on degraded forest land through direct action by communities, organized through JFM Committees and guided by Dept of Forests
 - Initial corpus of over Rs 6000 crores (\$1.5 bn) earmarked for CAMPA (Compensatory Afforestation Fund Management and Planning Authority) to commence work; scaled up activity

National Mission for Sustainable Agriculture

- Mission to devise strategies to make Indian agriculture more resilient to climate change
- Identify and develop new varieties of crops (thermal resistant crops, alternative cropping patterns, capable of withstanding extreme weather)
- Orientation of agricultural research systems to monitor and evaluate climate change and recommend changes in agricultural practices
- Convergence and integration of traditional knowledge and practice systems, information technologies and biotechnology
- Focus on improving productivity of rainfed agriculture

National Mission on Strategic Knowledge for Climate Change

- Mission to identify the challenges of and the responses to climate change
 - Funding of high quality and focused research into various aspects of climate change
- Socio-economic impacts of climate change including impact on health, demography, mitigation patterns and livelihoods of coastal communities
- Establishment of network of dedicated climate change related units in academic and scientific institutions
- Climate change research fund to be created
- Private sector initiatives to be encouraged through venture capital funds
- Research to support policy and implementation through identified centres; dissemination of new knowledge based on scientific findings



Other Initiatives

Choice of mitigating technologies

- Super critical technologies
- Integrated gasification Combined Cycle
- Natural gas based power plants
- Closed cycle 3 stage nuclear power
- Hydro power
- Other renewable technologies- (RETs for power, RETs for transportation, grid connected systems)

Other Initiatives

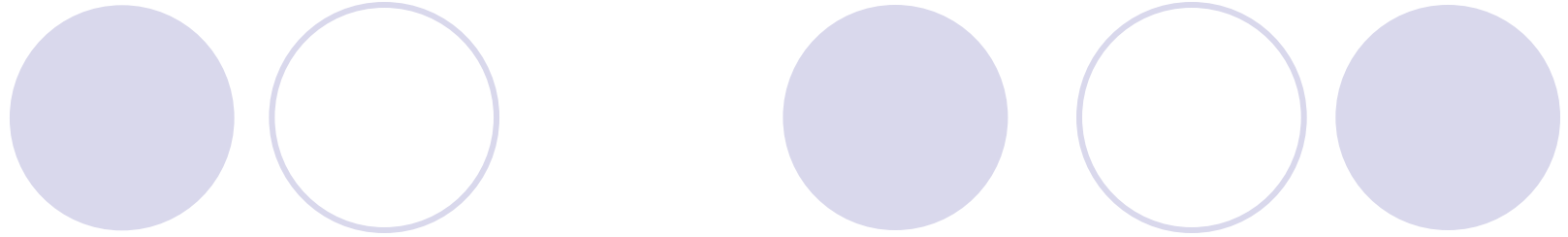


- Disaster management response to extreme weather events-
 - Infrastructure design,
 - communication networks,
 - protection of coastal areas,
 - health care services,
 - capacity building at regional/State level
- International cooperation –
 - Technology transfer
 - Financing flows,
 - CDM,
 - Enhanced cooperation

Way forward



- National Missions and other initiatives to be institutionalized by respective ministries and organized through inter-sectoral groups
- Each Mission to evolve specific objectives spanning remaining years of the 11th Plan and 12th Plan period (2012/13 – 2017/18)
- Comprehensive Mission documents detailing objectives, strategies, plan of action, timelines, monitoring and evaluation criteria have been prepared. 3 Missions: Solar, Energy Efficiency, and Strategic Knowledge have been approved in principle by the PMs Council on Climate Change
- Council to periodically review the progress of Missions
- Each Mission to publicly report on its annual performance
- Public awareness creation to play a key role
- Capacity building to support the goals of the National Missions



Thank You for Your Attention!