

## **Climate Change Assessment and Adaptation Policy in India**

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The Climate Change is unequivocal [IPCC 2007] and has emerged as a development challenge. The policy makers face a double challenge of understanding how to adapt to climate change and how to make a transition to a low carbon growth path. However, the question that comes to the policy makers working on climate change adaptation is “what changes are going to happen to the climate” i.e. what will be extent and magnitude of climate change and its impact.

Scientific information on future weather events and climate parameters is significant for decision making in addressing the impact of climate change in sectors like agriculture, water resources, forests & biodiversity, health etc. However the challenge in policy making and formulating adaptation strategies is the uncertainty in climate change projections and integrating climate data into the adaptation process.

The degree of uncertainty depends on the scale of analysis (global averages are much more certain than projections at regional and sub-regional level) and important climate variable (projections of temperature are much more certain than for rainfall). The IPCC Fourth Assessment Report provides the latest understanding regarding climate change but at the continental level. The details at the regional and sub-regional levels are inadequate.

In India the vulnerability assessment and adaptation studies of climate change have been made in various sectors as a part of India’s Initial National Communication to the UNFCCC [NATCOM 2004]. An Expert Committee on Impact of Climate Change set up by the Ministry in June 2007 assessed the impact on sectors like water, agriculture, natural ecosystem, health and coastal areas.

India released its National Action Plan on Climate Change (NAPCC) in 2008. It outlines a national strategy through eight National Missions to enable the country adapt to climate change and enhance the ecological sustainability of country’s development path.

With a view to enhance knowledge about the impacts of climate change at the national and sub national level, the Minister for Environment & Forests in 2009 announced launch of the Indian Network of Climate Change Assessment (INCCA). INCCA is a network-based scientific programme designed to assess drivers and implications of climate change through scientific research; prepare climate change assessments; develop decision support systems; and build capacity towards management of climate-change related risks and opportunities [INCCA 2010]. It brings together a review of what is known about the impacts of climate variability in the four

major climate sensitive regions in India-- the Himalayan region, the North-Eastern region, the Western Ghats and the Coastal region. Further, it presents an assessment of the impacts of climate change in the 2030s on four key sectors of the economy that are climate dependent, namely, Agriculture, Water, Natural Ecosystems & Biodiversity and Human Health.

Assessments made at such short time lines are useful, as they can be used to develop adaptation strategies for a foreseeable future [INCCA 2010].

The dominant paradigm to adaptation, however, is the “top-down” scientific scenario approach, which is based on impact assessment research. Impact assessment research is a complex challenge because it includes physical, biological and socio-economic aspects, and the tools used for these assessments need to continuously evolve so as to upgrade the scientific rigour of the findings [INCCA 2010]. Moreover the climate models are the only source of scientific information which represent and inherent uncertainties in assumptions and data gaps.

The “bottom-up” approach starts with an assessment of vulnerability to present and recent trends, which is best expressed through the experiences of the most vulnerable groups whose livelihoods are intimately connected with climate and environment in which they live. Scientists can become more aware of which aspects of climate people’s livelihoods are actually sensitive to. However, human experience is very subjective, and issues such as attributing climate events to particular causes including climate change can only be solved scientifically.

In India, the Central Government remains primary actor in shaping up climate change policy. To implement this policy, the State Governments have come out with their respective State Action Plan on Climate Change (SAPCC). The State Action Plans provides a “bottom-up” approach to implementing climate change adaptation strategies at the regional level. The SAPCCs provide for inclusion of community knowledge/ experiences along with scientific assessment of climate scenarios and impact on various sectors.