

ENVIRONMENT ASSESSMENT (SUMMARY)¹

1. The statutory and regulatory framework for managing and addressing environmental protection was established in the 1970's in India, and is complemented by a policy framework. The policy statement for abatement of pollution and the National Conservation Strategy and policy statement on environment and development were developed by the Ministry of Environment and Forests in 1992, and sought to develop and promote initiatives for environmental protection and improvement. The Environmental Action Programme (EAP) was formulated in 1993 with the objective of improving environmental services and integrating environmental considerations into development programs.

1. Environmental Challenges

2. The key environmental challenges facing India today include (i) air pollution; (ii) poor management of waste; (iii) growing water scarcity; (iv) declining levels of groundwater; (v) water pollution; (vi) forest preservation and quality; (vii) loss of biodiversity; (viii) land and soil degradation; and (ix) increasing frequency of natural disasters, including droughts and floods. Coupled with the demands of India's increasing population, these challenges place mounting pressure on India's environmental resources. Growth of India's economy will place further pressures on India's natural resource base, and reinforce the need to sustainably exploit and manage these resources. This is particularly important because India's poor suffer most from declining natural resource productivity.

3. The Government of India has increasingly adopted an integrated view of the inter-connections in environmental management. The focus of the government's Twelfth Five Year Plan have included (i) securing watershed and catchments, (ii) cumulative impact assessments for vulnerable regions, (iii) carrying capacity studies on selected river basins, (iv) maintaining acceptable water quality and quantity through effective pollution control of water resources, and (v) restoration of wetlands and lakes and management of wastewater discharge from industrial and commercial establishments into major water bodies. Additional issues are adapting agricultural practices to serious alterations in climatic conditions, and more comprehensive and efficient management of water resources.

4. Similarly in the power sector, the government has suggested action on both the supply and demand sides, with emphasis on investment in renewable energy, particularly solar, wind, and second-generation biofuels. Development of sustainable hydropower is critical to maximizing renewables. There is also growing emphasis on enhancing the efficiency of agricultural pump-sets and industrial equipment by facilitating adoption of best-available technology. Priorities include the need to modernize transmission and distribution systems to reduce technical and commercial losses to global average levels, establishing universal access to electricity, and accelerating power reforms and adopting new frontier technologies (e.g., smart grids).

5. In the transport sector, the government recognizes the need to improve the efficiency of public transport systems and the fuel efficiency of vehicles through market-based and regulatory mechanisms.

¹ This summary is based on: ADB, 2011. *Environment Programme. Greening Growth in Asia and the Pacific*. Manila; Government of India, Ministry of Environment and Forests 2009. *State of Environment Report India*. New Delhi; Government of India, Planning Commission. 2012. *Twelfth Five Year Plan*. New Delhi; and Government of India, Prime Minister's Council on Climate Change. 2008. *The National Action Plan for Climate Change*. New Delhi.

2. Climate Change Threats in India

6. India's emissions are increasing dramatically as the country becomes one of the world's fastest developing countries. India is the fourth-largest greenhouse gas (GHG) emitter in the world, behind the United States, People's Republic of China, and Russian Federation.² The most recent Intergovernmental Panel on Climate Change report suggests that India will experience the largest increase in energy and GHG emissions globally if it sustains its current high annual economic growth rate. The International Energy Agency predicts that India will become the third-largest emitter of GHGs by as early as 2015.³ There is an increasing demand to reduce net GHG emissions. The government and international organizations within India are increasing their efforts to address climate change in the course of their activities.

7. India has a large population that depends on climate-sensitive sectors (such as agriculture, water, and animal husbandry). Natural resources are subject to degradation, further enhancing the vulnerability of the poor (notably the landless poor), who are the most vulnerable to current climate variability, and to projected climate change. Programs based on sound macroeconomics can be affected by climate-related impacts that need to be addressed. It is acknowledged that India will be adversely affected by climate change. Because of the nature of the climate change impacts, the government's policy response has been to coordinate actions and seek synergies across all relevant sectors, in an approach that is consistent with ADB strategy.

3. Support for Dealing with Climate Change

8. The government has taken steps to mainstream both climate change mitigation and adaptation within its developmental framework through policies and action plans. India's Eleventh Five Year Plan (2007–2012) recognized the urgent need to balance the growth–environment tradeoff, given the dangers posed by India's large population, economic growth, and ever increasing demands on natural resources including water. India has made admirable efforts on its climate change programme through the National Action Plan on Climate Change (NAPCC). In response to the NAPCC, all Indian states have been directed to prepare a state climate change action plan (SCAP), detailing sector-specific plans to adapt to and mitigate climate change. A few states have already initiated studies to prepare their state's climate action plans, and aim to identify the most vulnerable sectors and regions to projected climate change and to develop adaptation projects. These action plans also aim to assess GHG emissions and identify potential mitigation programmes and projects.

9. India launched its NAPCC in June 2008, and has established eight national missions to address various aspects of climate change mitigation and adaptation: (i) solar energy, (ii) enhanced energy efficiency, (iii) sustainable habitats, (iv) water, (v) sustaining the Himalayan ecosystem, (vi) national mission for a green India, (vii) national mission for sustainable agriculture, and (viii) strategic knowledge for climate change. ADB has been at the forefront of supporting some of these missions and mainstreaming climate change adaptation and mitigation concerns into its operations, in line with India's Twelfth Five Year Plan. The latter emphasizes mainstreaming of climate change interventions across sectors and supports the development of SCAPs that may be dovetailed into the NAPCC by developing specific action

² World Resources Institute. 2006. *Navigating the Numbers - Greenhouse Gas Data and International Climate Policy*. Washington DC.

³ Intergovernmental Panel on Climate Change. 2007. *The Fourth Assessment Report, Climate Change Synthesis Report*. Bonn.

programmes for sector operations to facilitate mitigation and adaptation action against the challenge of climate change.

4. Asian Development Bank's (ADB's) Strategy

A. Mainstreaming Climate Change Mitigation

10. India's energy policies include initiatives to promote climate change mitigation through renewable energy promotion and other measures. The Integrated Energy Policy (2006) specifies regulatory measures for (i) optimizing the power supply mix, including greater use of indigenous hydropower resources and renewable energy; (ii) pursuing technologies that maximize energy efficiency, demand-side management, and conservation; and (iii) continuing related power sector reforms, including reducing technical and commercial losses of the state transmission and distribution utilities and other restructuring efforts. Additional initiatives and policies specifically related to renewable energy promotion include the 50,000 Megawatt Hydropower Initiative (2003), the New Hydro Policy (2008), and the Jawaharlal Nehru National Solar Mission in 2010.

11. ADB's assistance to India encompasses both demand- and supply-related programs to enhance the impact of the government's initiatives, and will be achieved through a combination of lending and technical assistance. The interventions include (i) reducing technical and commercial losses in transmission and distribution networks and facilities; (ii) developing renewable and alternative energy sources, including hydro and solar power; and (iii) mainstreaming demand-side management and energy conservation while ensuring environmental and social sustainability. ADB's Energy Efficiency Initiative (EEI), Carbon Market Initiative, and Asia Solar Energy Initiative are being employed to leverage resources for such interventions and to allow promotion of renewable energy and energy efficiency. In addition to core activities, involving state-level assistance, sector restructuring and critical investments to support transmission and distribution system efficiency improvements and system reliability (which play a role in climate change mitigation) will also be pursued.

12. Many ADB programs and funding initiatives have promoted projects contributing to climate change mitigation, including the following:

- (i) **Energy for all.** Includes the development of strategic approaches and partnerships to expand access by the poor to modern and clean forms of energy.
- (ii) **Carbon market program.** Seeks to harness the global carbon market to fund low-carbon development; mobilized over \$150 million to cofinance Clean Development Mechanism projects. The programme was started in 2005 as an EEI financing facility. The Clean Energy Financing Partnership Facility was set up in 2007, and was designed by EEI to fund small energy efficiency investments that require quick transactions, finance some technology transfer costs of clean technologies, and provide grant assistance for activities such as developing the knowledge base on clean energy technologies. As a result of its success, it evolved into the clean energy programme in 2010. The program has an expanded mandate to support clean energy (through both energy efficiency and renewable sources) in energy sector projects and also in the urban (water supply and sanitation), transport, and agriculture sectors.
- (iii) **Sustainable transport initiative.** Goals call for synergistic land use and transport planning designs, plus sustainable and integrated transport solutions, including more public and non-motorized transports.

- (iv) **Cities and clean air development initiative for Asia.** This initiative works with cities, development partners, and the private sector to implement needed investments for sustainable urban development, including in public transport, solid waste methane capture, energy efficiency in buildings, and alternate energy sources.

B. Mainstreaming Climate Change Adaptation

13. India, with 2.4% of the world's total area and 17% of the world's total population, accounts for only 4% of the total available freshwater. ADB is expanding its engagement in the water sector in India, in areas as varied as irrigation efficiency improvement, integrated water resource management, coastal zone management, and flood control. The strategic use of water resources that encompasses climate change adaptation concerns is becoming critical. Significant progress has been made over the past 2 years in mainstreaming climate change adaptation concerns into ADB's India program. A close working relationship has been developed with the central government, including the Ministry of Water Resources and the Central Water Commission, and with various state-level water resources departments (e.g. in Assam, Himachal Pradesh, Karnataka, Madhya Pradesh, Punjab, and Tamil Nadu).

14. ADB has long recognized the growing significance of climate change as an economic and environmental threat to Asia and the Pacific. In response, ADB is taking a leadership role to help the region mitigate the causes and adapt to the consequences of climate change. In line with Strategy 2020, ADB is integrating climate change into planning and investment, to ensure continued economic growth and a sustainable future for all in Asia and the Pacific.⁴ With an economy that is heavily dependent on natural resources and climate-sensitive sectors such as agriculture, water, and forestry, India is central to ADB's climate change strategy. Core priorities of ADB's climate change program that will be pursued in India include (i) scaling up clean energy, including expanding the proportion of renewable energy supply in Asia and the Pacific, as well as promoting energy efficiency; (ii) promoting low-carbon, climate-resilient transport and urban development; (iii) investing in climate-resilient development; and (iv) supporting associated policy and institutional strengthening.

15. Importantly, Strategy 2020 as well as sector-specific strategies all highlight the importance of adaptation and mitigation to climate change through streamlined environmental initiatives.

⁴ ADB. 2010. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank, 2008–2020*. Manila.