



GLOBAL CLIMATE CHANGE

SEPTEMBER 2003



USAID's climate change activities in India include promoting clean energy, efficient energy use, and pollution reduction in key industrial sectors. Initiatives and investments in clean technology practices, climate-friendly environmental management systems, and capacity building are having an important impact on reducing greenhouse gas emissions.

Background. India is the second most populous country in the world, with more than 1 billion citizens in an area little more than one-third the size of the United States. Despite its gross domestic product of \$390 billion, its enormous population means its economy ranks low on the world scale per capita.

India is the world's fifth¹ largest source of greenhouse gas (GHG) emissions and the second fastest growing source of emissions after China. Electric power generation is the largest source of greenhouse gases, followed by the transportation sector. Carbon dioxide emissions from land use changes are also a concern in India, as rapid deforestation degrades more than 50% of India's land area. Given these environmental challenges, USAID/India's environment objectives include increasing environmental protection in the energy, industrial, and urban sectors.

Sector-Specific Climate Change Activities. USAID's energy- and industry-related activities include promoting clean energy development, efficient energy use, and pollution reduction in key sectors, such as power plants, textiles, cement, fertilizer, and steel. USAID is strengthening incentives for the adoption of clean technology practices and certified environmental management systems that are climate-friendly, thereby reducing GHG emissions.

Efficient Energy Use. In the energy efficiency sector, USAID assisted the government in legislating the Indian Energy Conservation Act aimed at promoting end-use energy conservation and efficiency improvements. USAID provided training to relevant stakeholders, technical assistance to implement the bill, and suggestions for the draft bill. Under this Act, the Bureau of Energy Efficiency was established to promote energy efficiency in both the public and private sectors.

With USAID support, the Center for Power Efficiency and Environment Protection (CenPEEP) was created in India's National Thermal Power Corporation (NTPC), which focuses on improving the operating efficiency of the coal-fired power plants owned by NTPC and state electricity boards. This has resulted in saving millions of dollars in coal costs and has also increased technology transfer and cooperation with the U.S. Department of Energy's National Energy Technology Laboratory (NETL). CenPEEP continues to expand its effectiveness and has cemented its reputation as functional, prestigious, and competent. Two regional CenPEEP

¹ World Resources Institute, "Earthtrend Data Tables Climate and Atmosphere," <http://earthtrends.wri.org/datatables/index.cfm?theme=3&CFID=368722&CFTOKEN=31724535> (1999).

USAID's partners in climate change activities in India include*:

- Confederation of Indian Industry (CII)
- Electric Power Research Institution (EPRI)
- Godrej Corporation
- Government of Andhra Pradesh
- ICICI Bank
- Indian Chamber of Commerce
- National Thermal Power Corporation (NTPC)
- Nexant
- Petroleum Conservation Research Association
- Southern Research Institute
- Tennessee Valley Authority (TVA)
- U.S. Department of Energy (DOE)
- U.S. DOE's National Energy Technology Laboratory (NETL)

* Because partners change as new activities arise, this list of partners is not comprehensive.

offices have been established to disseminate and replicate lessons learned. Nominated by USAID, CenPEEP has been recognized twice for its contribution to mitigating the effects of climate change. First, CenPEEP was selected by the International Energy Agency for the 2002 Climate Technology Award for its contribution to GHG mitigation. Second, CenPEEP received the 2003 Climate Protection Award from the U.S. Environmental Protection Agency.

With its technical assistance, USAID helps further many programs and advances within India. An example of this was the creation of a demand-side management (DSM) cell in three locations. These cells conduct research, consumer and data analysis, and DSM project screening, and implement a communications program for promoting end-use energy efficiency projects. Another USAID-supported program is the Energy Efficiency Business Exchange, created to facilitate the exchange of information toward development and implementation of energy efficiency projects.

USAID has also extended its assistance to the Green Business Center (GBC) of the Confederation of Indian Industry (CII), which promotes green technologies and services. USAID/India has provided a \$1.2 million grant to CII for the development of the GBC, which leveraged approximately \$4 million from private sector resources. The Center is currently under construction, though outreach activities to industry and government have already started. Once construction is complete (expected in October 2003), the Center will showcase technologies, policies, and procedures that will assist Indian industry with conservation of environmental resources and GHG mitigation. A major thrust will be in the area of green building construction, energy efficiency, and cleaner production strategies.

USAID, through NETL and Winrock International India, provided technical assistance, training, and grant funds to private sugar industries to set up advanced cogeneration facilities using bagasse (sugarcane waste) as fuel for power generation. Using this renewable-resource fuel instead of coal or oil reduces pollution and cuts operating costs. With USAID assistance, nine such projects have been commissioned in five Indian states with an aggregate installed capacity of 195 megawatts. They generate power more than 270 days in a year and sell it to an electric grid.

Mobilizing Clean Energy and Technologies Through Leveraged Resources. A variety of USAID initiatives and tools enable the Agency to tap into financial and in-kind resources of other organizations, such as private sector organizations, examples of which follow. USAID supports the India Zero Emission Transportation program, which leveraged a major Indian auto manufacturer to invest in precommercial launch of electric vehicles. USAID also leveraged ICICI Bank financing of over \$2 million for pilot and commercial production of electric vehicles in India. Through

investments in clean technology of over \$7 million and GHG emissions reduction equipment of \$700,000, USAID prompted the NTPC to invest its own funds totaling \$1.25 million into the project. Finally, through provision of a partial loan guarantee to some commercial financial institutions under USAID's Development Credit Authority,² the Agency was able to leverage private capital in the amount of \$7 million for the development of a biomass-based power plant.

Mitigation of Fugitive GHG Emissions in Urban Areas. Options for mitigating GHG emissions from cities are being demonstrated through USAID's cooperation in the area of solid waste management and transportation. USAID has assisted in capacity building to address methane capture/flaring from a planned municipal landfill. In another municipality, a design for a new traffic management plan was created as a low-cost option for GHG mitigation from the transport sector.

Future Plans. With public and private sector partners, USAID/India plans to build upon past successes in GHG mitigation, which to date have resulted in avoidance of a cumulative total of 10.5 million tons of carbon dioxide. New opportunities lie ahead in promoting clean alternative fuels in the transport sector, exploring the hydrogen economy, establishing decentralized energy systems, harmonizing energy regulatory policies, and expanding outreach and communication on climate change issues.

For more information on India, visit
USAID/India's Mission Web site at:

- <http://www.usaid.gov/in/>

² The Development Credit Authority (DCA) is an entity that seeks to further economic growth in USAID-assisted countries through the use of credit guarantees. As such, DCA is a financing tool designed to allow USAID to fund financially viable activities where credit is determined to be preferable to traditional grant funding.