



## GLOBAL CLIMATE CHANGE

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*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 (US). Despite its gross domestic product of \$719.8 billion, its enormous population means its economy (measured per capita) ranks low on the world scale. Due to its high rate of energy consumption, (growing at a rate of over 5% annually) it will become the world's fourth-largest energy consumer in the world after the US, China and Japan. It is also the world's fifth-largest source of greenhouse gas (GHG) emissions and the second fastest growing source of emissions after China. India is also the world's fourth-largest emitter of carbon dioxide (CO<sub>2</sub>), according to the UNDP's Human Development Report 2007/2008. In addition, between 1990 and 2004, emissions climbed by 97 percent, one of the fastest rates of increase in the world, according to the UNDP report. Its high level of emissions stems from electric power generation, followed by the wastes of its 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 and urban sectors.

USAID is cooperating with the Government of India (GOI) to foster clean energy (coal) generation, promoting national and state energy efficiency strategies and programs that create sustainable "best practice" models of power distribution. USAID is strengthening incentives for the adoption of clean technology practices and certified environmental management systems that are climate-friendly. USAID's work in GHG mitigation continues its dual role of financing clean energy projects and providing select technical assistance to advance adoption of GHG emission reduction technologies.

### SECTOR-SPECIFIC CLIMATE CHANGE ACTIVITIES

#### EFFICIENT ENERGY USE

Since signing the Energy Conservation and Commercialization (ECO) bilateral project agreement in January 2000, USAID has partnered with the GOI on reducing the rate of greenhouse gas emissions through the commercialization of energy efficient technologies. Phase III of the program has focused on three major initiatives: the development and implementation of Energy Conservation Action Plans in the states of Gujarat and Punjab; launching India's first comprehensive Energy Conservation Building Code, spear-headed by the Indian Bureau of

## PARTNERS

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

- Indian Bureau of Energy Efficiency (BEE)
- Indian Energy Development Agency (SDA)
- International Resource Group (IRG)
- National Energy Technology Laboratory (NETL)
- PA Government Services, Inc.
- U.S. Department of Agriculture
- U.S. Department of Energy (USDOE)
- U.S. Environmental Protection Agency (USEPA)

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

Energy Efficiency (BEE); and launching a national compact fluorescent lamp (CFL) program based on the success of the USAID supported Bangalore Electricity Supply Company (BESCOM) Efficient Lighting Program in 2005.

The Building Code is the country's first voluntary program aimed at fostering the adoption of energy saving measures in government, commercial and residential buildings. Work is in progress to assist in raising awareness and technical training workshops to develop a cadre of building energy professionals and increasing capacity at educational institutions for building energy modeling and building science.

Designed with the assistance of the utility, the BESCOM Efficient Lighting Program increased consumer awareness of energy efficient lighting, and helped to increase the monthly sales of CFLs from 50,000 to more than 300,000.

### THE DISTRIBUTION REFORM UPGRADES AND MANAGEMENT (DRUM)

This project was designed to improve the efficiency of electricity distribution in India by making it more commercially viable and accountable to its customers. Key activities include institutional strengthening and training/capacity building of the GOI departments and entities engaged in distribution reform. Over the past year, more than 5000 engineers, managers and technicians were trained in best practices on loss reduction, operation and maintenance, demand side management, etc. The project supports climate change mitigation by improving efficiency and decreasing technical losses in the power sector, thereby reducing fossil fuel consumption for meeting current and future energy demand.

### MOBILIZING CLEAN ENERGY TECHNOLOGIES THROUGH LEVERAGED RESOURCES

Under USAID/India's collaboration with the Clean Technology Initiative (CTI), three industrial firms were ISO 14001 certified in 2004. Additionally, 11 more firms were targeted for ISO certification in the small and medium enterprises of foundry, glass and diesel generator manufacturers. In 2005, USAID provided financial support to four clean energy projects in the private sector. These projects have contributed to the greenhouse gas reduction of about 67,000 tons of carbon dioxide. Additionally, USAID, along with the West Bengal Renewable Energy Development Agency, co-funded the first demonstration project of two 30 kilowatt state of the art biogas operated micro-turbines which were commissioned in July 2006. This technical demonstration project will help stimulate the market for micro-turbine based distributed generation systems in India.

### MITIGATION OF GREENHOUSE GAS EMISSIONS

The Greenhouse Gas Pollution Prevention (GEP) project, a key USAID activity for mitigating carbon dioxide emissions, has helped India to avoid emitting approximately 12.4 million tons of CO<sub>2</sub>. The purpose of the project is to reduce greenhouse gas emissions per unit of power produced, and build the capacity of the local institutions to understand and respond to the growing concerns of climate change. GEP has helped create the National

Thermal Power Corporation's Center for Power Efficiency and Environmental Protection (CENPEEP), which has become fully functional with a team of 26 engineers working full time in one corporate, and three regional, centers. The project has also promoted energy efficiency improvements in coal-fired power generation and established sugar cane cogeneration plants. In 2007 alone, 75,000 tones of greenhouse gases were reduced.

Finally, USAID partnered with the International Council on Local Environment Initiatives (ICLEI) to create GHG emission inventories for nine Indian cities, along with action plans for each city to mitigate those emissions. Half of the cities have already begun to implement those plans. USAID also helped to create three pilot programs for urban municipalities to reduce lighting and water pumping loads through energy services companies, and also developed a demand side management handbook.

For more information, visit:  
<http://www.usaid.gov/in/>