Sustainable Cities Initiative

Location: Indore and Pune
Type: Water and energy efficiency
Size: Varies with pumping station
Funding: Total: US$393,000
Private: US$15,000
Public: US$378,000
Objective: To reduce energy use and improve efficiencies of water utilities.
Duration: 1997–2005
Scale: Urban

Summary

Sixty people were trained to identify and implement energy-efficiency opportunities in municipal water systems. A municipal energy management team established by the mayor of Indore identified energy-efficiency savings measures that resulted in savings of more than US$100,000. In Pune, a similar team identified energy-efficiency measures that saved the city more than 300,000 kWh.

In-Country Principles That Attracted Nondonor Financing

- Capacity building and informed decision making
- Public participation in, and support of, sustainable development
- Institution building and access to justice and enforcement of laws

Capacity-building principles that helped attract private funding included a governmental structure that allowed utilities to operate under standard commercial practices, which included improving cost recovery and setting up metering systems. Training local water utility staff to better manage energy and water within their utilities was also important.

Other factors that helped attract private financing were the existence of a legal and regulatory framework that covered tariffs; increased public knowledge of, and participation in, energy decision making; an emphasis on decision making and assignment of authority at the lowest possible level; a commitment to creating and strengthening human and organizational capacity for sustainable and integrated water management; and consideration of water as an economic, social, and environmental good, including acknowledgment of the full costs of water management and water services.

Financing

Total project investment to date has been US$393,000. Private-sector sources made in-kind contributions of US$15,000, which provided necessary technical expertise on specific technology areas. The Indore Municipal Corporation contributed US$80,000 (US$30,000 in cash and US$50,000 in-kind). The United States Agency for International Development (USAID) provided US$200,000, and the US-Asia Environmental Partnership (US-AEP) provided US$98,000.

A proposal is being considered that would use private money, through an energy-service contract, to retrofit all the street lighting in Indore using the energy savings to pay back the investment and profit; this would provide additional private-sector investment of about US$800,000.

The Project

As water needs grow and supplies become scarce, water-service-related energy use and associated costs become more expensive. Energy efficiency provides a way for municipalities to reduce costs for water services while simultaneously improving the capacity and reliability of the delivery system.

Energy management teams were established in municipalities and trained to identify and implement opportunities to make energy and water use more efficient. Reduced energy and water use costs allow municipalities to redirect limited resources to other areas of need and result in improved customer service.

Industrial, commercial, and residential sectors are benefiting through improved health, nutrition, education, drinking water, sewage, and irrigation. The utility sector benefits through expanded service areas, increased number of connections, improved operating efficiency, and reduced energy demand.

The project has sought not only results that can be achieved elsewhere in India and globally, but also to institutionalize energy- and water-efficiency concepts to ensure that savings continue well beyond the end of the project.

Technical Data

Technologies used to increase efficiency included variable speed motors, high-efficiency pumps, leak-detection systems, and low-friction pipes.

Performance Data

Sixty people have received energy management training to date.

The Indore energy management team identified more than US$100,000 worth of energy savings opportunities. The city has commissioned a municipality-wide energy monitoring protocol and developed a budgetary system to evaluate and implement energy-efficiency projects.

Energy-efficiency activities in Pune have saved a total of 4,230 MWh with an average payback of 16 months. In addition, 4,319 tons of carbon dioxide (CO_2) are avoided in Pune per year.

Participants and Roles

The municipalities of Pune and Indore provided the regulatory structure and financial support with cash or in-kind services. The W. Alton Jones Foundation and the Honeywell Foundation contributed funding to provide technical assistance and conduct seminars. USAID and US-AEP provided additional funding.

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