Alliance to Save Energy
WATERGY CASE STUDY
Karnataka, India

CHALLENGES

Municipalities in India are facing acute water shortages and increasing power tariffs. Only about two-thirds of urban dwellers have direct access to clean, affordable and reliable drinking water. Energy costs can consume 60% of an Indian municipal budget. This financial constraint, coupled with inadequate or antiquated infrastructure and the lack of adequate managerial and technical capacities, greatly limits the ability of municipalities to improve water services.

The south Indian state of Karnataka has an urban population of 18 million that is increasing every year. The average per capita water supply in urban areas is only 108 liters per day, compared to the National Building Code of India daily minimum recommendation of 200 liters. Household water supply lasts for an average of only 6 hours daily.

Karnataka's municipalities are overwhelmed by the pressures of increasing demand for reliable water services and rising state power tariffs because of competing electricity demands. Moreover, individual municipalities have had no incentive, until recently, to document their energy use since their monthly bills are paid directly by the State Urban Development Department to the electricity utility. Most municipalities are unaware of the benefits available through water and energy efficiency in water supply and treatment operations, and lack the technical capacity to optimize their operating systems.

OBJECTIVES

The main objectives of the Karnataka Municipal Watergy Efficiency Outreach program are to:

- Raise awareness among the relevant state-level agencies and municipalities of the tremendous cost savings arising from simple water and energy efficiency measures in municipalities.
- Put state-level policies in place that promote municipal energy efficiency.

Key Results

- Two Government Orders issued by the State of Karnataka to promote municipal energy and water efficiency.
- Energy Management Cells to assist municipalities are operational in both the Karnataka Urban Infrastructure Development Finance Corporation and the Karnataka Urban Water Supply and Drainage Board.
- Municipal infrastructure projects funded by the Asian Development Bank and World Bank altered to incorporate Watergy improvements.

APPROACH

The Alliance to Save Energy is developing sustainable solutions to Indian urban water and energy challenges. The primary solution is based on the concept of 'Watergy', a term coined by the Alliance to describe the critical nexus between water and energy use. By taking advantage of untapped energy and water efficiency opportunities in their water systems, municipalities can optimize energy use and reduce water wastage, reduce costs and ultimately improve water services.

In May 2002, the Alliance launched its statewide municipal water and energy efficiency outreach program to disseminate the concept of Watergy in the south Indian state of Karnataka. The Alliance entered into a strategic partnership with the Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC). As part of a sustained capacity building process, the Alliance helped establish an Energy Management Cell (EMC) at KUIDFC and trained its engineers in energy efficiency best practices. The EMC now serves as a resource center on energy issues for over 200

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municipalities statewide. For wider outreach and stakeholder participation, the Alliance has also partnered with Karnataka Urban Water Supply and Drainage Board (KUWSDB) and the Directorate of Municipal Administration (DMA).

In its initial stage of capacity building, the Alliance identified four municipalities of varying sizes and located in different revenue divisions as pilot cities. These cities were Hubli-Dharwad, Mysore, Bellary City and Tiptur-Arasikere. The Alliance, in partnership with The Energy Resources Institute (TERI), facilitated energy audits of bulk water supply systems and efficiency assessments of street lighting systems in these municipalities. The resulting audit reports indicated a tremendous potential for energy and water savings, 8.2 million kilowatt hours annually, with limited financial investments and rapid payback periods.

The no-cost/low-cost measures have a pay back period of less than a year and involve measures such as surrendering excess contracted electric demand, maintaining a good power factor for electrical equipment, improving water flow distribution, rescheduling pump operations and improving pumping efficiencies. These simple measures account for about 15-20% of the energy and financial savings. Measures requiring large capital include replacing pipelines and impellers, installing energy efficient motors, and replacing old inefficient pumps with energy efficient pumps that are better integrated to the system.

RESULTS

The Alliance played an instrumental role in persuading the Karnataka State Government to release two landmark policy directives during 2006. One Government Order (GO) mandates six urban local bodies (ULBs) to undertake energy efficiency projects that will generate carbon financing from the World Bank under their Community Development Carbon Fund. Five of the six towns—Hubli-Dharward, Mysore, Bellary, Belgaum, Gulbarga and Mangalore—are Alliance Watergy demonstration towns.

KUIDFC has been appointed to serve as the nodal agency and will consolidate the carbon finance revenues and transfer them to the ULBs. The second GO—UDD 14 SFC 2006, Bangalore—was issued in April 2006 to promote the implementation of energy efficiency programs in fourteen ULBs by segregating their energy bills from others in the state to allow these ULBs to collect the energy savings resulting from their efficiency measures.

These policies serve as a major shift in responsibility from the state to the individual ULBs on maintenance of energy systems and payment for energy services. The GOs are an essential step in allowing and motivating Indian municipalities to become more efficient because in India it is the state agencies that exercise most control over municipal budgets.

Other progress on the state level, is that Energy Management Cells are operational in both KUIDFC and the Karnataka Urban Water Supply and Drainage Board. Also, the Karnataka Urban Water Supply and Drainage Board is establishing a state-level Training College for all of their engineers (numbering over 500) that will eventually train engineers from all over the country.

As a result of the Watergy potential demonstrated in Karnataka, the Asian Development Bank and World Bank have funded the implementation in a number of municipalities in the state.

For More Information:

Pradeep Kumar
pkumar@ase.org
Bangalore, India

Alexander Filippov
afilippov@ase.org
Washington, D.C.

www.watergy.org

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WATERGY - Helping cities manage water and wastewater efficiently, saving energy, water and money