

CHALLENGES

Indian municipalities are facing the challenges of growing population, urban expansion, increasing power tariffs and acute water shortage. At present only a fraction of the urban population has direct access to clean, affordable and reliable drinking water services. At the same time, municipal water utilities in India spend upwards of 60 percent of their budgets on energy used for water pumping. The Confederation of Indian Industry (CII) estimates that the typical Indian municipal water utility has the potential to improve water pumping system efficiency by 25 percent. Municipal officials are often aware of the opportunities for making bulk water supply and street lighting systems more efficient, however for the most part they simply lack the means to take advantage of these opportunities.

BACKGROUND

The Andhra Pradesh Urban Services for the Poor (APUSP) program is a partnership between the government of Andhra Pradesh, a state in South India, and the UK Department for International Development (DFID), that aims to achieve a sustained reduction in the vulnerability and poverty of the state's urban poor. The APUSP program began in April 1999 with financial commitment from DFID for a period of 7 years. It covers 32 Class I towns (towns with a population exceeding 100,000).

The Alliance entered into a partnership with APUSP to disseminate the concept of Watergy to municipalities under the purview of APUSP, and to leverage DFID funding for municipal projects, thus gradually disseminating Watergy concepts to all municipalities in Andhra Pradesh.

The Alliance and APUSP selected 2 pilot towns – Vizianagaram Municipal Council and Karimnagar Municipal Council – to demonstrate the benefits of Watergy methodologies. As part

Key Indicators

• Scale	Municipal - Urban
• Focus	Water and Energy Use Optimization
• Energy Savings	920 kVA +101 MWh/yr
• Cost Savings	\$63,700/year
Established Energy Management Cell at the Andhra Pradesh Urban Services for Poor	

of this exercise, the Alliance coordinated water and energy audits of the municipal bulk water supply systems in these two towns. APUSP committed to fund the implementation of capital intensive measures through its C2 Municipal Reforms - Environmental Infrastructure Improvement program that aims to improve the sustainable provision and delivery of basic urban services to the poor. This includes improvements to water supply, sanitation, solid waste management and drainage infrastructure, roads, footpaths and street lighting equipment.

OBJECTIVES

The main objectives of the partnership with APUSP are:

- Disseminate the Watergy concept to all 32 towns covered by APUSP and extend it to all municipalities in the state of Andhra Pradesh
- Set up an Energy Management Cell at APUSP and build its technical and managerial capacity to act as a state resource center for assisting municipalities in undertaking water and energy audits and implementing energy savings measures
- Demonstrate the benefits of Watergy projects to APUSP by carrying out two municipal water and energy audits, identifying energy and cost savings opportunities and assisting APUSP in the implementation of proposed energy savings measures



Alliance to Save Energy WATERGY CASE STUDY Vizianagaram, India



APPROACH

In response to the urban water and energy challenges faced by municipalities in developing countries, the Alliance has developed sustainable 'Watergy' solutions, which emphasize the important nexus between municipal 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 2003, the Alliance undertook a scoping mission to Vizianagaram city, which has a population of nearly 200,000. In follow up to the scoping mission, in August 2003 the Alliance coordinated energy audits of Vizianagaram Municipal Council's (VMC) bulk water supply and street lighting systems and proposed low/no cost and high cost energy savings measures. The implemented measures would yield the municipality an annual cost savings of US\$ 1 million at an initial investment of US\$ 43,500.

RESULTS

VMC initiated the implementation of suggested energy efficiency measures soon after the Alliance submitted to it the final audit report. VMC also petitioned APUSP for granting funds under the C2 component for commissioning the implementation of capital intensive measures. As of date, VMC has implemented 8 of the 10 suggested measures in the audit report and implementation of the remaining 2 measures is underway. Through the implementations of these low/no cost and capital intensive measures, VMC is already accruing an annual energy savings of about 920 KVA + 101 MWh and an annual cost savings of about US\$ 63,700. The energy savings have reduced VMC's annual energy bill for water pumping by 18 percent, and will result in a reduction of 600 metric tons of CO₂ emissions annually. The simultaneous

reductions in municipal water waste, through more effective supply and distribution, will allow the municipality to deliver water to more homes. Approximately 51,500 people can be served with water by the energy saved. Alternatively, the energy saved can be supplied to 2,400 homes.

With Alliance's technical advice VMC has also passed a Municipal Order for inventory control for the procurement of energy efficient street lighting equipment.

Based on Watergy concepts, APUSP has published a handbook titled 'Energy Efficiency Action Plan' and has distributed it to all 118 municipalities in the state. APUSP's guidebook projects a state wide annual cost savings potential of US\$ 7.7 million, with an investment of US\$ 4.8 million, by the implementation of no/low cost energy savings measures alone. The payback for these measures is only 7.3 months.

For More Information

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