



## Sri Lanka Watergy – Water and Energy Management

Activity:	Promoting Energy Efficiency In The Developing World Through Policy Development And Project Implementation
Program Area:	Urban Energy
Implementer:	Alliance to Save Energy
Geographic Focus:	Asia & Near East
Countries:	Sri Lanka
Duration:	September 2000 – September 2005



The National Water Supply and Drainage Board of Sri Lanka undertook an energy audit of the main water pumping station (above) which supplies water to the capital city Colombo's 2 million residents.

### Project Background

Sri Lanka faces the challenge of developing reliable, environmentally sustainable energy resources. Currently the country relies heavily upon hydro sources for the majority of its electricity generation needs while a small portion of that comes from thermal plants. While hydro sources continue to present opportunities primarily through improved exploitation of existing systems, many expect future energy demand will come from an increasing reliance upon imported

fossil fuels. Over the past years demand for electricity has risen at an average rate of 10 percent, while energy costs in the country remain some of the highest in South Asia. As the country works to develop a response to increasing demand, and the demand for improved municipal services grows as the country returns to normalcy following years of conflict, energy efficiency is seen as an important opportunity for responding to these challenges.

### Development Objective

Based upon a methodology developed through its municipal energy efficiency work in India, USAID and the Alliance to Save Energy, a US based NGO, are seeking to develop the capacity and expertise of Sri Lankan institutions focused upon energy and water management as well as the provision of urban services to apply energy efficient management concepts to existing activities focused upon these areas. The areas proving particularly challenging to Sri Lankan municipalities include water supply and treatment and street lighting.



## Approach

In mid-2002 USAID and the Alliance sought out the input of Sri Lankan stakeholders with the purpose of developing a municipal energy efficiency initiative that could serve as a model for other municipalities throughout the country. Many groups offered input as to how USAID and the Alliance should best approach promoting a municipal energy efficiency effort. Based upon these discussions USAID and the Alliance have developed a municipal energy efficiency initiative with particular emphasis upon opportunities within the water and wastewater sectors and street lighting areas. This effort is centered around a partnership comprised of the City of Colombo (CMC), the National Water Supply and Drainage Board (NWSDB), and the Sri Lanka Energy Managers Association (SLEMA). Through this work audits have been undertaken focused upon identifying efficiency opportunities in these three areas. Based upon these findings USAID and the Alliance have committed to working with CMC, NWSDB and SLEMA to implement these measures, creating working efficiency models.

Sri Lanka requires locally developed models that can be used to increase understanding about how to effectively manage energy used for pumping, treating and distributing water. Presently the country's water management body incurs significant electricity costs combined with an approximately 45 percent rate of unaccounted for water. Some of the energy challenges faced by the National Water Supply and Drainage Board

(NWSDB), overseeing water distribution to Colombo, include monthly energy consumption of 5.2 million kWh and a corresponding monthly bill of 466,000 USD.

Until recently there has been no comprehensive effort to address street lighting in a systematic fashion. Some streetlights are manually operated while others are automated. The city's street lighting infrastructure consists of approximately 15,000 conventional lamps using sodium vapor bulbs. Little data on the system's total energy consumption is available, leaving the city with few options for addressing ways to improve system efficiency. This work seeks to raise understanding relating to the efficiency opportunities available to CMC for improving energy use in these systems.

## Project Partners

This effort is centered on a partnership comprised of the City of Colombo (CMC), the National Water Supply and Drainage Board (NWSDB), and the Sri Lanka Energy Managers Association (SLEMA).

## Project Activities

To respond to the specific challenges posed by the provision of water services, wastewater management and street lighting, SLEMA, with Alliance and USAID support, undertook a series of audits focused upon this municipal infrastructure in the City of Colombo. Three audits cover:

- Water supply system at Ambathale largest water pumping operation within the country



- Six sewage pumping stations handling the majority of Colombo's collected wastewater
- Development of a street lighting pilot study in the Kirulapone area of the city.

### Project Results

The SLEMA audits have identified efficiency opportunities amounting to over 200,000 USD annually. Based upon these findings a capacity building and dissemination effort is being undertaken. Initial efforts took the form of a high level seminar held in August 2003, which presented audit findings to relevant decision makers, including the Minister of Power and the Mayor of Colombo. Other surrounding municipalities were also invited to participate to seek ways to apply efficiency within their operations. Other national and local organizations key to advancing the efficiency dialogue also participated, as well as Indian participants present to share lessons learned from work in Karnataka. During this meeting a discussion was initiated to determine the proper path for implementation of efficiency measures, focusing initially upon low and no cost options as well as selected recommendations requiring additional funds.

Based upon the work of SLEMA, a training video was developed focused upon the three areas of audit work. This video will

be used to share CMC efficiency efforts with other municipalities across the country as well as throughout South Asia. This video highlights the important role that efficiency can play in improving municipal services, as well as the role that residents can have in conserving water and energy resources. Additionally, the video outlines steps that municipalities can take to improve operations and maintenance practices in street lighting and water services.

### Development Impact

The impacts of this work will assist Sri Lankan municipalities in providing high quality, affordable water service to residents. As these models are developed and applied by Sri Lankan municipalities, residents will reap the benefits of improved municipal services, while reducing their impacts upon local water and air quality.

### Lessons Learned

SLEMA, through its extensive relationship with local institutions active in the water and energy sectors, established a very effective team consisting of the relevant stakeholders, including key personnel from the NWSDB and the CMC. The involvement of these individuals proved invaluable to the undertaking of audits and will prove even more useful as implementation of efficiency recommendations is now pursued.



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