



Alliance to Save Energy SAVING WATER AND ENERGY Gugulethu, South Africa



IMPROVED MANAGEMENT OF WATER SUPPLY PRESSURES SAVES MILLIONS OF LITERS OF WATER

In South Africa potable water has traditionally been supplied unrestrained, on tap and at pressure to individual households in almost all urban communities, including disadvantaged communities. In world standards this represents a high level of potable water access and service, even in poor communities. However, this water provision comes at a price, not only relating to the cost of treatment and supply but also in terms of a lack of ownership of consumption, fixtures, and wastage by impoverished communities.

Because of Apartheid, many residents were barred from taking ownership of the houses in which they dwelt, which in turn meant they did not take responsibility for the maintenance of household plumbing fixtures or of household water usage. As a result, most houses in these communities have missing and broken (often irreparable) plumbing fixtures.

This situation, coupled with higher than necessary municipal supply pressures – contributing to the premature failure of plumbing fixtures – has resulted in potable water wastage and irresponsible use on a grand scale.

In addition, municipalities are unable to collect revenue and recover costs for service delivery from many of these residents because their socio-economic situation limits their ability to pay.

A viable cost-effective solution to these difficulties involves the installation of pressure management equipment on bulk supply lines to areas characterized by high Minimum Night Flows (MNF), an accurate measure of water wastage (since water use in residential areas in

Key Results

- Potable water savings of 1, 646, 150 kℓ per annum.
- Energy savings equivalent to 1,432 GWh per annum.

the middle of the night should be minimal and high flows are indicative of leaks and wastage).

As part of the Increasing Sustainable Local Government Services (ISLGS) program of USAID/South Africa, the Alliance to Save Energy has provided technical assistance to the City of Cape Town for the installation and commissioning of pressure management equipment aimed at alleviating excessive supply in areas such as Gugulethu, Khayalitsha, Atlantis, Delft, Fisantekraal, and Lwandle.



Typical internal view of a large Pressure Management Chamber.



Alliance to Save Energy SAVING WATER AND ENERGY Gugulethu, South Africa



GUGULETHU

Although a basic pressure-reducing valve had been installed in the main supply line to the area of Gugulethu a number of years ago, opportunity to substantially improve the efficiency of this valve in reducing night flows resulting in water wastage was identified by the Alliance in working with and providing technical assistance to the City of Cape Town.

The Alliance also identified the potential to install electronic controlling equipment on this valve, to further help reduce unneeded water supply—especially during the nights when demand is extremely low.

The Alliance worked with the City of Cape Town and a supplier of electronic controllers to 1) find the most appropriate setting of the valve under normal operating conditions, and 2) install a simple two-point controller that allows for a lower pressure setting at off-peak periods.

The first intervention reduced the minimum flow by almost 45 liters per second 24/7 (or 3870 kℓ per day); the second intervention reduced minimum night flows by almost 30 liters per second (or 640 kℓ per day) during the period 22h00 to 4h00.

These savings in supplied potable water translate to a staggering 1,646,150 kℓ per annum. Because of the water-energy nexus (i.e., the energy required to treat and supply water as well as treat discharged wastewater), the water savings can also be translated into energy savings equivalent to 1,432 GWh per annum.



Typical installed pressure management valve.

For More Information:

Mike Rabe

mike@re-solve.co.za

Gauteng, South Africa

Laura Van Wie McGrory

lvvanwie@ase.org

Washington, D.C.

Last Update: November 2008

This work is funded
by the U.S. Agency for
International Development

