

# Focus on CSIR Research in Water Resources

CSIR Natural Resources  
and the  
Environment  
2007

## Water and human health research in CSIR

Water is the scarcest and most vulnerable natural resource in semiarid Southern Africa. This can limit future social and economic development in the subcontinent. Population growth and increased urbanisation are taking place concurrently, which in turn places pressure on the region's natural resources, particularly water. Effective management of water resources is essential to make the most efficient use of the limited resource. We need to understand the systems of water use in terms of human well being, ecosystem integrity and security of water supply for different uses in order to predict the various possible results.

In South Africa it is estimated that only 21% of households have access to piped indoor water. In the rural areas over 80% must fetch water on a daily basis. The lack of access to safe water and adequate sanitation continues to be a threat to human health. More than 50% of Africans suffer from water related diseases such as cholera and infant diarrhoea according to the UN Millennium

Project (2005), and in South Africa, for children under five years of age, diarrhoea is the third most important cause of death. Estimates of treatment of diarrhoea costs South Africans R3.5 billion every year. Improvements in wastewater disposal, protection of water sources and treatment of water supplies can reduce the incidence of water-related diseases in developing countries.

Achieving the Millennium Development Goals in terms of water supply and sanitation, would bring economic benefits ranging from R3.00 to R34.00 per every R1.00 invested. Additional improvement of water quality and improved access to water and sanitation would lead to a benefit of R5.00 to R60.00 per every R1.00 invested. The greatest proportion of the benefits expected would be accrued to the poorest regions.

The Water and Human Health team researches water related science to address the CSIR's mandate, national priorities and to improve quality of life for all. The overall aim of the research is to achieve a sustainable balance between the use of water to





meet society's needs and long-term protection of water resources.

The Water and Human Health team has recently participated in an EU research programme to assess policy issues relating to water quality and human health in rural areas. The aim was to assess whether water policy should be focused on point-of-use as opposed to point-of-supply. The study was a three country study looking at the effects of water quality between source and point-of-use, in Kenya, Zimbabwe and South Africa. Results show that the water quality of source water was more important than the water quality at point-of-use. A significant difference was found between type of water source and percentage diarrhoea recorded.

Research is also being conducted to assess the effects of water quality on individuals with compromised immune systems as a result of HIV/AIDS. A point-of-use water treatment intervention study will be used to assess the quality of the water used by rural households and to compare the diarrhoea rates before and after the intervention. By making use of a burden of disease approach, the additional burden of diarrhoeal disease due to HIV/AIDS will be assessed. The cost-effectiveness of the interventions, as well as the disability adjusted life years (DALYs) gained due to introduction of these interventions, will be calculated.

**Contact details:**

CSIR Natural Resources and the Environment

Ms Bettina Genthe  
Senior researcher

Tel: +27 21 888 2498  
Fax: +27 21 888 2683  
E-mail: [bgenthe@csir.co.za](mailto:bgenthe@csir.co.za)

[www.csir.co.za](http://www.csir.co.za)