

## Rural water services

### Guidelines to select appropriate home water treatment systems

**The Water Research Commission (WRC) has completed a set of guidelines for the selection and use of appropriate home water treatment systems by rural households.**

#### Background

In South Africa, the provision of safe drinking water to communities is currently a top priority of the government. Responsibility for the safety of drinking water supplied to consumers is shared by both the Water Services Authorities (WSAs) and the Water Services Providers (WSPs).

It is expected that municipalities and private companies provide safe drinking water that complies with the South African National Standard (SANS) 241 for Drinking Water to all communities in the country.

#### Rural water supply conundrum

In contrast to metropolitan areas, the South African government still faces a number of challenges in delivering safe drinking water to rural communities, in spite of significant progress made in the provision of this basic service since 1994 through centralised systems, such as piped treated water. At least 5 million people in South Africa still have no access to treated potable water within reasonable distances from their dwellings, and many thousands are thus forced to use any water source which is available to them, often without treatment.

If the country continues to focus only on the implementation of centralised water-supply systems in rural communities that are widely dispersed and peri-urban informal communities that are constantly expanding, the Millennium Development Goals in terms of access to safe drinking water to all will be jeopardised in these areas. This is due to the fact that the implementation of centralised water-supply systems not only requires large financial inputs, generally beyond the financial means of rural villages, but also highly skilled

personnel for continuous maintenance and management. However, lack of technical skills in the water sector has been highlighted as one of the major challenges to sustaining quality water provision through small water-treatment plants in non-metropolitan areas of South Africa. Decentralised or point-of-use water collection and treatment systems may therefore be a cost-effective short- to medium-term solution, which can be rapidly implemented and bring about improvements in the quality of life of communities in scattered rural areas.

#### WRC guidebook

A project was commissioned by the WRC to source and investigate appropriate home water-treatment systems, to determine the efficiency of the selected devices in removing contaminants (as well as their potential for sustained use), and to provide guidance in the form of a guidebook on both the selection and use of devices for the production of safe drinking water by rural households under local conditions.

The present guidebook is a result of an extensive literature search, laboratory and field studies, workshop series and a social acceptance study aimed at determining the most important influencers of the social acceptance of home water-treatment technologies as perceived by rural households.

Five different types of home water-treatment methods are recommended in this guideline document:

- Filtration with granular media or a ceramic filter element
- Disinfection using solar radiation and/or heat
- Chemical disinfectants
- Flocculation combined with chemical disinfection
- Basic pre-treatment methods



- Membrane systems were not included, as they are expensive and usually require electricity which is not always available in rural communities.

It is envisaged that this handbook will contribute to a) a better understanding of how end-users perceive the attributes of selected home water-treatment devices or water technologies and how these in turn affect their social acceptance and sustainability; and b) provide vital information for establishing useful water-related policies and methods for the safe treatment and distribution of, and access to, clean water by rural and peri-urban communities.

The guidelines could be used by municipal officials and environmental health practitioners, civil society and governmental agencies and other roleplayers who are responsible for assisting local communities in selecting a particular water-purification system or unit that is appropriate to their situation.

#### Further reading:

To order the report, *Guidelines for the selection and use of appropriate home water treatment systems by rural households (Report No. TT 580/13)* contact Publications at Tel: (012) 330-0340, Email: [orders@wrc.org.za](mailto:orders@wrc.org.za) or Visit: [www.wrc.org.za](http://www.wrc.org.za) to download a free copy.