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The WRC operates in terms of the Water Research Act (Act 34 of 1971) and its mandate is to support water research and development as well as the building of a sustainable water research capacity in South Africa.

TECHNICAL BRIEF

Wastewater treatment

New basic guide to wastewater treatment technologies

A joint project by the Water Research Commission (WRC) and the South African Local Government Association (SALGA) has led to the development of a new wastewater treatment technologies guide and decision-making tool.

Background

The National Water Act (Act 36 of 1998) (NWA) states that sustainability and equity are central guiding principles in the protection, use, development, conservation, management and control of water resources. In essence, the use of water and development aspects need to be managed or controlled in such a manner to protect and conserve water resources.

Wastewater treatment works (WWTW) are just one of the many uses of water that are required when development takes place. In order to ensure that the development takes place in a manner that will be sustainable the WWTW chosen needs to be a technology type that will be suitable for a particular development and not necessarily the best available technology.

Purpose of the guideline

Several WRC reports have been compiled on wastewater treatment. The need for a basic guide to serve as a quick reference document has been highlighted.

The purpose of this guide is to graphically illustrate the journey of sewage from collection, conveyance, treatment, and discharge to the environment. The guide includes both the liquid and sludge components.

In this way its purpose is to enable those in decision-making positions, who do not necessarily have a technical background, young engineers and inexperienced scientists

who have just entered the field of wastewater treatment, to have a better understanding of the overall processes, terminology, and reasons for wastewater treatment.

In addition, the tips in the guide around energy, legislative requirements and safety will help the reader ask relevant questions and make more informed decisions.

Decision-making tool

The most commonly used wastewater treatment technologies in South Africa are activated sludge, bio/trickling filters, rotating biological reactors, wastewater ponds and septic tanks. There are various aspects to consider in selecting the appropriate wastewater treatment technology, including effluent quality standards, operation and maintenance aspects and financial considerations, to name a few.

The process of technology selection should be guided by the particular circumstances including design, operations and maintenance as well as institutions resources. The new WRC-SALGA decision support tool for wastewater technology selection is designed to guide water services institutions in selecting an appropriate wastewater treatment technology for both new developments and upgrades.

Further reading:
To order the report, *Wastewater treatment technologies – A basic guide* (**Report No. TT 651/15**), contact Publications at Tel: (012) 330-0340, Email: orders@wrc.org.za or Visit: www.wrc.org.za to download a free copy.