

New from the WRC



Report No: TT 350/09 and TT 351/09

Guidelines for the Utilisation and Disposal of Wastewater Sludge Vol 4 & 5 (JE Herselman; P Moodley)

The WRC, together with the Department of Water Affairs and other stakeholders developed a series of guidelines to

encourage the beneficial use of wastewater sludges. Each guideline volume deals with a specific management option. The last two volumes of the series are now available. Volume 4 deals with the requirements for the beneficial use of sludge at high loading rates, while Volume 5 deals with requirements for thermal sludge management practices and for commercial products containing sludge.

Report No: 1419/1/09

Groundwater Flow Conceptualisation and Storage Determination of the Table Mountain Group (TMG) Aquifers (Y Xu; L Lin and H Jia)

The TMG Aquifer constitutes a major regional aquifer system in South Africa. This project aimed to improve the understanding of the TMG aquifers at both regional and local scales through the classification of hydrogeological units, the analysis of their aquifer properties and the quantification of groundwater recharge, discharge and storage.

Report No: 1567/1/08

Refining Tools for Evaporation Monitoring in Support of Water Resource Management (C Jarmain; CS Everson; MJ Savage; MG Mengistu; AD Clulow; S Walker and MB Gush)

Most techniques for estimating evaporation have been around since the 1940s, but only in the last 20 years has technology enabled them to come into their own as reasonably affordable and practically applicable methodologies. Their full

potential has yet to be realised, especially in South African circumstances. Among other, this project looked at classifying and characterising land uses/units of water resource management applications for which evaporation measurement are needed and assessed the accuracy and precision requirements relating to evaporation measurement for various water resource management applications.

Report No: 1732/1/09

Energy from Wastewater – A Feasibility Study Technical Report (S Burton; B Cohen; S Harrison; S Pather-Elias; W Stafford; R van Hille; H von Blottnitz)

The current view of wastewaters is that they generally represent a burden and necessarily incur energy costs in processing before they can safely be released into the environment. The opportunity exists to improve the current wastewater treatment processes by applying new solutions and technologies that can also reduce energy inputs and/or generate energy for other processes. This study explored the various waste streams and the appropriate technologies that could be used to generate energy.

Report No: TT 405/09

A Simple Guide to the Chemistry, Selection and Use of Chemicals for Water and Wastewater Treatment (P Leopold and SD Freese)

Every year in South Africa an estimated R500-million is spent on chemicals used in the treatment of drinking and waste water. Most of this money is allocated on the basis of tenders issued and contracts awarded. These decisions – which chemicals to use, how much to use, how much should be paid, who is the most professional supplier – are important ones and ones that should be taken while in possession of the most factual and impartial information. This guide aims to provide decision-makers and other users of water treatment chemicals

with specific and useful information about water treatment chemicals. It is a chemistry text book aimed specifically at those people who have to make informed decisions but who have not had a formal education in chemistry or whose chemistry education has not been specific in detail relevant to water treatment chemicals.

Report No: 1599/1/09

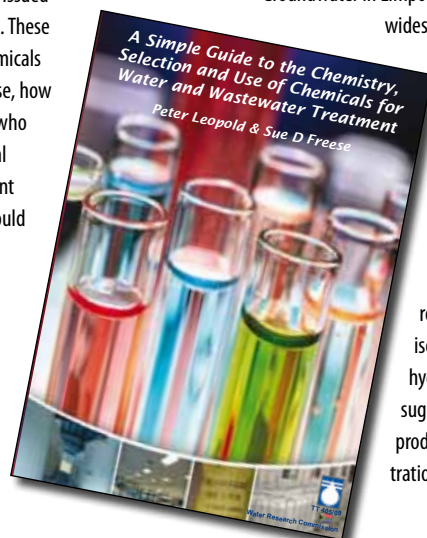
Guidelines and Training Aids for the Sustainable Operation and Maintenance of Small Water Treatment Plants (CD Swartz; G Mwiinga; M Marler; V Meyer; M Hlophe; R Rajagopaul; K Charles)

The selection and implementation of the correct water treatment system is only a first step in ensuring sustainable supply of potable water to small communities. Of even greater importance for sustainability of supply is the following of the correct operational and maintenance procedures. These guidelines aim to identify the various technical and management issues related to operation and maintenance on small water treatment plants impacting on the quantity and quality of water before distribution; and provide assistance to personnel for the sustainable operation and maintenance of these plants.

Report No: 1328/1/09

A Multi-Traces Study of the Origins, Systematics, and Hydrological Linkages of High Nitrate Concentrations in Groundwater in Bochum District, Limpopo Province (BTh Verhagen; MJ Butler; E van Wyk; S Mutheiwana)

Groundwater in Limpopo is characterised by the widespread occurrence of high nitrate concentrations which were generally accepted to be of anthropogenic origin. In a groundwater resource study in the Taai Bosch Karoo graben, part of an International Atomic Energy Agency regional study, environmental isotope, hydrochemical and hydrogeological investigations suggested a model for the natural production of high nitrate concentrations in a basalt aquifer. This was



To order any of these reports, contact Publications at Tel: (012) 330-0340; Fax (012) 331-2565; E-mail: orders@wrc.org.za or visit: www.wrc.org.za

investigated further during this WRC-funded study, which studied the area of Bochum, with numerous rural villages, underlain by metamorphic granite and sandstone. It is concluded from this study that although high nitrate concentrations at Bochum have an anthropogenic component, the natural tree-root driven process may also contribute.

and indirect costs accruing from the different levels associated with water services provision.

Report No: KV 218/08

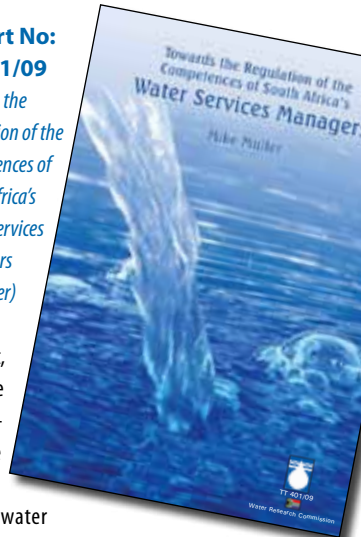
Application of the Department of Water Affairs and Forestry (DWAF) Wetland Delineation Method to Wetland Soils of the Western Cape (N Job)

Identification of wetland presence is important where there is a need to understand how an area functions and its environmental sensitivity, so as to make wise decisions on regulating land use. Accurate identification of the wetland edge is essential when deciding where to commence application of a recommended buffer area adjacent to the wetland, for example for a new building development. This project tested the usefulness and applicability of the DWAF delineation manual to the Western Cape.

Report No: TT 401/09

Towards the Regulation of the Competences of South Africa's Water Services Managers (M Muller)

The efficient, effective and sustainable provision of water supply and sanitation services, essential to public health and social well-being, economic activity and environmental sustainability, requires managers and staff with appropriate competences. South Africa faces a challenge in producing and deploying such competences. This study reviews the challenges and considers measures that could be taken to address them.



Report No: TT 383/09

Civil Society Dialogue in Water Resources Management: Lessons from Four Local-level Experiences of River Systems (E van Wyk; T Sherwill; CM Breen and AB Nkhata)

Civil society is increasingly expected to participate in and even lead processes that direct behaviours in relation to the sus-

tainable use of natural resources. Within this context, civil society groups and organisations are encouraged to enter into dialogue with others to expose issues constructively and to promote shared understanding and learning. This report proposes a framework that illustrates the role of dialogue in promoting legitimacy of local intent and action through enhanced appreciation of the consequences of actions for river resources and for those in society that depend on river resource services.

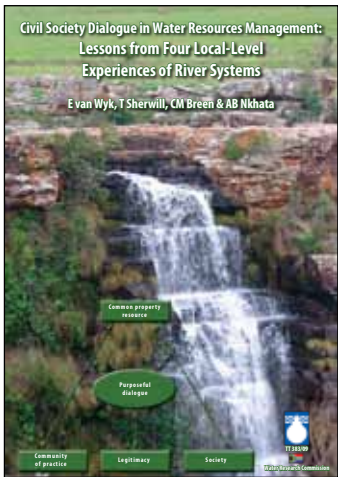
Report No: 1614/1/09

The Development of an Activity Based Costing Model to Quantify the Real Costs of Delivering Water Services in Rural Areas (W Matthews; J de Jager; K van Harmelen; I Wilson and R Duval)

A model has been developed to assist water services authorities to plan for financial sustainability by identifying costs based on activities, including direct

WATER BY NUMBERS

- ◆ **104** – The estimated number of mines operating without legal water licences, according to Minister of Water & Environmental Affairs Buyelwa Sonjica. In a written response to questions posed in Parliament, the minister said that the majority of these mines were operating in Limpopo and the North West.
- ◆ **2-4 £** – The daily drinking water requirement per person.
- ◆ **R2 493 million** – The revenue generated by TCTA through the sale of raw water in the past financial year.
- ◆ **400 million m³** – The projected capacity of the Dikgatlong Dam, which is currently under construction in Botswana. The multimillion Rand dam wall will be 48 m high.
- ◆ **6** – The number of people who were swept away by floods in South Korea created by an unexpected release of water from the Hwanggang Dam in North Korea. The incident has reportedly sparked a row between the two countries with South Korea accusing its northern neighbour of a 'water attack'.
- ◆ **R800-million** – The estimated value of the Komati Water Augmentation Project (KWSAP), set to start in February 2010. The project, situated in Mpumalanga, comprises the construction of a water transfer system and associated infrastructure, to pump additional water to reservoirs at two power stations in the province.
- ◆ **1,6-million** – The estimated number of people that do not yet have access to basic water services in Mpumalanga, according to Minister of Water & Environmental Affairs Buyelwa Sonjica. A further 2,6 million in the province still lack access to basic sanitation.
- ◆ **2 000 £** – The minimum volume of water required to produce one person's daily food, according to the Food and Agriculture Organisation of the United Nations.
- ◆ **145** – The number of nations worldwide who have territory within a transboundary basin.
- ◆ **1,4 billion** – The estimated number of people who live in river basins where the use of water exceeds minimum recharge levels, leading to the desiccation of rivers and depletion of groundwater.



WATER DIARY

**YOUNG WATER PROFESSIONALS
JANUARY 19-20**

The First Regional Conference of Southern African Young Water Professionals will be held at the CSIR International Convention Centre, in Pretoria. The event is being organised under the auspices of WISA and the IWA. Enquiries: Conference Secretariat; Tel: (012) 667-3681; E-mail: confplan@iafrica.com. Visit: www.wisa.org.za/ywp/YWP2010/

**WETLANDS
FEBRUARY 1-5**

An international symposium on Wetlands in a Flood Pulsing Environment will be held in Maun, Botswana. Hosted by the Univ. of Botswana, the symposium is themed 'Effects on Biodiversity, Ecosystem Function and Human Society'. Enquiries: Lore Mosimi, Conference Secretary, Tel: +267 681-7200; Fax: +267 686-1835; Visit: www.orc.ub.bw/floodpulse/