Annual Report

2006/07

Water Research Commission

Contents

Water Research Commissio

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Vision

To be a globally recognised leader in providing innovative solutions for sustainable water management to meet the changing needs of society and of the environment.

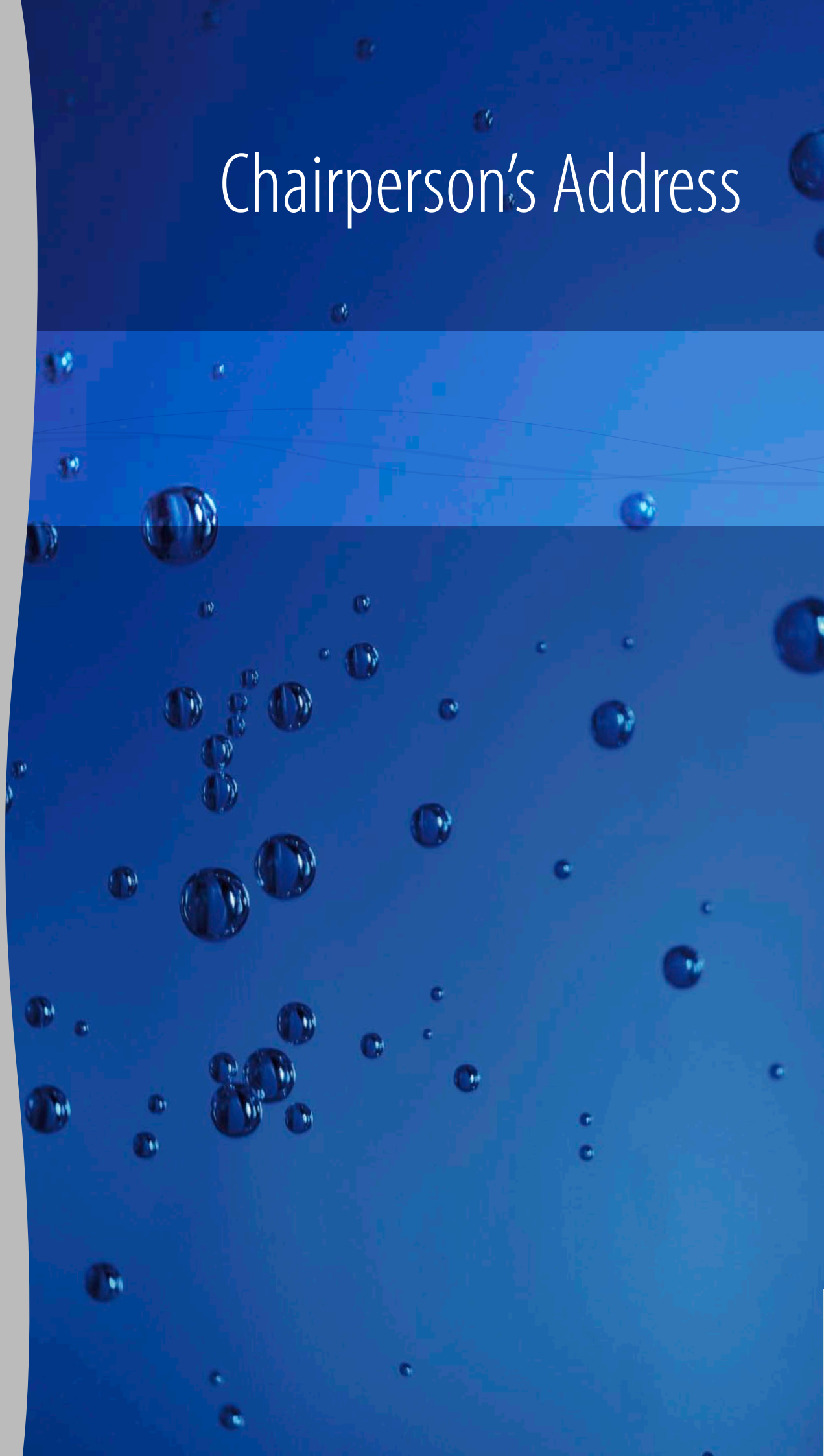
Mission

The WRC is a dynamic hub for water-centred knowledge, innovation and intellectual capital.

We provide leadership for research and development through the support of knowledge creation, transfer and application.

We engage stakeholders and partners in solving water-related problems which are critical to South Africa's sustainable development and economic growth, and are committed to promoting a better quality of life for all.

Chairperson's Address



It gives me great pleasure to compliment the Water Research Commission (WRC) in pushing forward in its quest to remain South Africa's dynamic hub for water-centred knowledge. During my association with the WRC, firstly as a Board member for four years and now in my second year as Chairperson, I have witnessed phenomenal growth.

The WRC is acknowledged as a sector leader and a credible role-player by many: nationally, continentally and globally. The advent of new potential threats to South Africa's water resources, such as climate change, has underlined the need for such an organisation. The knowledge generated through WRC research support has proved to be invaluable to our water-stressed country, providing the necessary input to sustain our water resources and prevent any undesirable future scenarios.

The WRC's support of 314 research projects during the year under review is indicative of its commitment to providing the water sector with vital knowledge to manage water resources optimally. The many citations that the WRC has amassed attest to its achievements and its innovative vision.

Building partnerships

A networking organisation, the WRC maintained its national, regional and global profile while forging new partnerships. It has worked synergistically with government departments, especially the Department of Water

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Chairperson's address *(continued)*

Affairs & Forestry (DWAF). Good relationships have also been built with various Parliamentary Committees as well as the Ministry of Water Affairs & Forestry. In Africa, in particular, it has been a significant partner in progressing towards building networks of Centres of Excellence for water research in Africa. Among others, the WRC supported the NEPAD office by developing a business plan while coordinating related events pertaining to this ground-breaking venture.

Information dissemination

The WRC has successfully developed many communication and information dissemination channels. It boasts an interactive website, informative scientific and popular science publications (including magazines, newletters and reports), with regular media exposure and publicity. Open Days held throughout the year complement the organisation's research outputs. The WRC has also received strategic exposure at various water-related exhibitions, symposia and other workshops and undertakes key sponsorship initiatives.

Capacity building

Capacity building remains a priority for the WRC. The organisation contributes proactively to skills development in the water sector by supporting post-graduate students through its research projects, with special emphasis on historically-disadvantaged individuals. At the lower tier, high school learners are introduced to career opportunities within the water sector through the WRC's ever popular Water@Work: A Career Guide which has seen several print reruns. About 60 000 copies have been distributed at science festivals and other school-related events.

The WRC continues to support initiatives which highlight the essential role of women and the youth in water research. These include the Woman in Research categories of the Women in Water, Sanitation & Forestry Awards as well as the South African Youth Water Prize, both annual events coordinated by DWAF.

Intellectual property

In order to gain a competitive edge and to leverage income, the WRC's new Intellectual Property (IP) portfolio is developing into a sound commercial venture. Patents and licences are growing in number and have attracted global attention. It is encouraging to see that the WRC has entered the global arena: its technologies and knowledge base can compete on an international level. In its dialogue with international partners, the WRC is gradually eroding barriers and expanding its knowledge base.

WIN-SA

WIN-SA, supported by the WRC, has grown exponentially and has been instrumental in facilitating various initiatives aimed at capacitating and enhancing the sector. Their programme, appropriately titled 'Bringing in the Harvest', continues

to reach out to key local government stakeholders in an effort to facilitate the documentation and dissemination of good practice for the benefit of the entire sector.

Institutional review

The WRC sought to evaluate its effectiveness and efficacy via an external institutional review. The outcomes of the review were encouraging: the WRC has improved consistently while proving its dynamism by responding appropriately to national transformation initiatives. A further boon was the satisfaction expressed by key WRC stakeholders, who unequivocally referred to the WRC as an honest broker and consensus builder in South Africa's vibrant water sector.

Fund management

The newly-introduced Fund Management System (FMS) is now fully functional and works synergistically with the processes of calls for proposals, review of proposals, and the funding process. The management of project deliverables and project finalisation has been made more efficient as the system includes routine reminders and procedures which support administrative functions. This is aligned with an efficient financial system and sound management and governance practices.

Appreciation

I wish to thank the Minister of Water Affairs & Forestry, Ms Lindiwe Hendricks, for her support to both the WRC and the South African water sector. We look forward to her continued strategic guidance as we grapple with fresh challenges. Appreciation is also expressed towards the WRC's valued partners in the water sector, our researchers and practitioners, with whom the organisation hopes to continue building strong alliances for the good of the sector and the country as a whole.

I wish to thank the members of the Board for their inputs and support. Congratulations are also due to the WRC Executive and staff members for their diligence and effort as well as their commitment to the organisational mission and vision.

Dr Sj Khoza
Chairperson

Highlights

The rise in urbanisation and population, coupled with government's drive towards long-term social and economic growth, are all placing increased pressure on South Africa's scarce water resources. These, as well as upcoming challenges such as the potential effects of climate change, are all focusing efforts towards the integrated management of the country's water resources for the good of both people and the environment.

The WRC remains at the forefront of new strategies and technologies to manage, protect and conserve South Africa's fresh water as is illustrated by the highlights represented below. This is done mainly by funding water research within South Africa, and working closely with partners across Africa and globally to grow sector research capacity, leverage expertise and apply innovation across a wide spectrum of needs: meeting the Millennium Development Goals, reconciling growth with environmental sustainability, and growing the knowledge base needed to address the complex challenges of the 21st Century.

Communicating the main messages from research projects is key. The WRC is moving rapidly to strengthen its information sharing capabilities through new media, sector networking and new forums for knowledge exchange to ensure that research findings are known and their application understood across a wide range of stakeholders.

Empowering Communities

Making flush toilets more affordable

Developing innovative technological solutions is a crucial step in the sustainable provision of sanitation services to previously unserved communities. The WRC funded research into the potential of using anaerobic baffled reactors (ABRs) to treat domestic wastewater in low-income communities. An ABR is a super septic-tank. It has been designed so that there is much better contact between the microorganisms and the wastewater compared to conventional septic tanks. The WRC-funded study led to the successful testing of a pilot ABR at wastewater treatment plants at Umbilo and Kingsburgh, in KwaZulu-Natal. This system suited the environment and was preferable to the septic tank system which had considerably higher installation, operation and maintenance costs. The ABR system requires no energy for operation, is compact and can be mass produced. Furthermore,

it affords communities the option of upgrading from dry sanitation to waterborne sanitation at comparatively low cost. The idea is that this option will service small sub-groups within an area who will eventually connect to a sewer system.

Looking at land tenure

The last decade has witnessed significant land and water reforms in South Africa, including land tenure and local governance on water to ensure sustainable development and management of the country's natural resources. This is fundamental to creating an enabling environment for rural communities to lift themselves out of poverty. The WRC commissioned a study to review the land tenure systems and support structures in South Africa, and their implications for smallholder irrigation schemes. This is believed to be the first investigation into how land tenure influences smallholder irrigation in improved food production efficiency. The study identified constraints and opportunities relating to land tenure and support structures. Investigations revealed that tenure security is a major factor affecting the long-term viability of smallholder irrigation schemes. The study also investigated issues around the financing, marketing and management support system for smallholder irrigation schemes. This led to the development of a framework for sustainable settlement on small-scale irrigation schemes.

Groundwater – without taste!

For years the only way learners of the Madibogo Bathlaping Primary School, situated in the Ditsobotla district of the former Bophuthatswana, could quench their thirst was by accessing a nearby borehole delivering bad-tasting, brackish water. Groundwater in the area contains high levels of salts and nitrate, which can cause health-related problems such as 'blue-baby syndrome'. Unfortunately for the community of Madibogo, this is the only source of drinking water available. A WRC-funded study, which investigated the applicability of membrane technology (specifically nanofiltration and reverse osmosis) for the treatment of groundwater with high nitrate and salt levels led to the establishment of a 10 000 ℓ/day test unit at Madibogo Bathlaping Primary School. The water brought levels down successfully from over 20 ppm to less than 10 ppm. The water treatment unit also removed other pollutants, making the water safe to drink, while significantly improving the taste. People from the local community have been trained in the monitoring, operation and maintenance of the plant, thus contributing to job creation. The project proved the merits and applicability of using membranes in, especially, rural settings in

highlights *(continued)*

South Africa. It is believed that this technology can make a valuable contribution towards ensuring that all the country's citizens have access to safe, potable water.

Improving drinking water quality

Chemical dosing remains a challenge at many small and rural water treatment plants due mainly to human and financial capacity constraints. This can potentially affect drinking water quality. Conventional mechanised and electronic chemical dosing systems are not generally recommended due to stringent operation and maintenance demands which are often difficult to meet in these plants. The WRC funded the successful development and testing of a simple, effective and reliable chemical dosing system for small plant application. The system uses gravity and, thus, does not require electricity. It can be applied for chemicals dosed in soluble forms, such as aluminium sulphate and chlorine solutions. The project also developed guidelines for the design, construction and application of the chemical dosing system.

Supporting people with HIV/AIDS

Water services are often limited in settlements where there is a high prevalence of HIV/AIDS, especially in rural areas. Among others, HIV/AIDS patients need clean drinking water to avoid being exposed to a range of disease-causing microorganisms to which they are particularly susceptible. The WRC funded a microbiological study, conducted in Limpopo and the Eastern Cape Provinces, to attempt to relate waterborne pathogens in water, which cause diarrhoea, to mortality rates among HIV-positive patients. The linkages, scope, frequencies and antibiotic resistance of bacterial enteric pathogens from HIV-positive and HIV-negative individuals with and without diarrhoea and their household drinking water were unravelled. It was found that the presence of enteric bacterial pathogens and the high rates of multiple antibiotic resistance of isolates from stool and water samples could be a potential public health threat. The study also revealed the usefulness of some antibiotics in the management of certain diarrhoeal cases.

Protecting the Environment

Oil from troubled waters

Wastewater that contains oil residues is a problem that faces many industries. The WRC funded a project aimed at determining whether locally developed ultrafiltration membranes could be used to separate oil from these waste streams. Initial laboratory tests conducted on various oily industrial effluents gave very promising results. Subsequently, a pilot plant test rig was constructed, and the process was evaluated on oily wastewater at three local industries. Generally, a major problem with membrane systems is fouling or the deposition of solid substances on the surface of the membranes. However, during these trials, fouling was found to be quite low, and did not pose a

major problem. In overview, it was found that the membrane system removed oil more effectively than alternative oil-water systems that are currently used in industry. Since the membranes were developed locally, it is expected that the cost would be lower than imported systems. Hence, the project showed that local ultrafiltration membranes could be an attractive option for treating oily waste streams.

Waste not, want clubs

Waste minimisation clubs (or WasteMin clubs) have been found to be a good way of improving local industries' environmental performance by promoting cleaner production. Previous WRC-sponsored research led to the establishment of two WasteMin clubs – one in the metal finishing sector in the greater Durban Metropolitan area, and the second one, a cross-sectoral club in the Hammersdale region, both in KwaZulu-Natal. These clubs proved to be a success, with open sharing of information and ideas among club members, financial benefits to the companies and a reduction in their environmental impact. During the past financial year, the WRC sponsored a follow-up project to develop a methodology for the establishing, managing and sustaining of further WasteMin clubs. Two manuals have been developed as part of this process. The Facilitator's Manual addresses aspects such as how to form a club, call meetings, determine the level of contributions from companies, identify some of the problems that can occur, and explains the various roles of the people involved. In turn, the Training Manual provides the basic material required to train club members in waste minimisation.

Re-using greywater wisely

Increased demand on South Africa's scarce water resources is prompting authorities to investigate the reuse of greywater, i.e. household wastewater from the kitchen, bathroom and laundry (excluding water from toilets), for activities such as irrigation. Annual greywater production is estimated at 858 Mm^3 a year. A WRC-funded study investigated the potential and negative impacts of greywater irrigation and policy implications at regional, municipal and household levels. Significant quality differences were found between the different types of greywater and between different locations in the Cape peninsula. The highest quality greywater came from the bathroom, the second highest from laundry, and the poorest quality from dishwashing activities. Faecal bacterial concentrations in kitchen greywater were significantly higher than in greywater from the laundry or the bathroom. The presence of faecal bacteria in dishwater may be attributed to factors such as contaminated foodstuff, contact with house pets, flies, dirty hands and dishes and utensils left unwashed during the night. Greywater was evaluated against the South African Water Quality Guidelines. It was found that greywater from the bathroom and laundry was

only suitable for restricted crop irrigation. It is recommended that greywater from the kitchen not be used for irrigation as fats, oils and grease as well as the sodium adsorption ratio may be detrimental to the soil and plants.

Greening with mine water

The use of gypsum-rich (i.e. water high in calcium and sulphate) mine water for irrigation of agricultural crops presents an opportunity to utilise excess mine drainage that would otherwise need to be treated at great expense. Research over the last decade has shown that gypsiferous mine water can indeed be used to successfully irrigate a range of crops. The low solubility of gypsum results in it being precipitated in the soil when crops concentrate the soil solution, as plants extract far more water than salt from soil. In this way, huge quantities of salt can be largely immobilised in the soil and, to a large extent, excluded from the water system we are trying to manage and protect. The projected mine decant has the potential to support in excess of 6 000 ha of irrigation in the Olifants River Catchment. Crops like sugarbeans, wheat, maize, potatoes and pastures were successfully produced, and no symptoms of foliar injury, due to wetting of the leaves, were observed on any of the crops. However, site selection, land preparation and fertilisation management were found to be critical for successful crop production, especially on rehabilitated soil. Only minimal impact on groundwater was found after eight years, while computer simulations to predict the long-term effect of the practice on groundwater resources indicated that it should be feasible and sustainable when careful attention is paid to the specificity of each situation.

Irrigated land lost to salt

It is estimated that 20% of the 1.3 million ha of irrigated land in South Africa is affected by salt accumulation in the root zone. Many of these salt-affected soils also have shallow water tables. Previous research has shown that crops can satisfy a significant portion of their water needs by extracting water from these shallow water tables. An increase in root zone salinity,

highlights *(continued)*

however, leads to poor water uptake that reduces crop growth and, in severe cases, leads to crop failure. In-field lysimeter experiments indicated that crop evapotranspiration decreased with increasing irrigation water and shallow water table salinity. This decline in evapotranspiration followed the same order as the crop's tolerance to water salinity. The findings of this project led to the development of a stepwise procedure that could be followed to formulate the best management practices for controlling root zone salinity under different conditions. Use of this procedure will enhance optimal use of irrigation water of variable salinity on salt-affected soils with shallow water tables for sustainable crop production. The procedure is, however, still in need of testing, verification and modification at field scale, before it can be extended to establish guidelines for managing the salt load associated with irrigation water at farm and irrigation scheme levels.

Managing wetlands for sustainability

Wetlands provide a valuable suite of goods and services: flood attenuation, improved water quality and agricultural potential, to name a few. Yet these qualities are not readily appreciated. In 1996 it was estimated that 50% of South Africa's wetlands had already been lost as a result of human activities. Like most wetlands, the largest part of Limpopo Province's Nylsvley floodplain is privately owned and, therefore, subject to the whims of the land owners. Only a small portion, residing within the Nylsvley Nature Reserve (a Ramsar site), is protected. A WRC-funded project found that the sewerage works of Modimolle were the main source of organic pollution throughout Nylsvley. Pesticide pollution was also measured and the sediment quality was tested. Plants, macroinvertebrates, amphibians and fish were examined as potential sources of biotic indices, and a method for assessing wetland health has been developed based on these indices. Subsequently, a framework for a management plan has been developed for the wetland. It is recommended that a larger floodplain conservancy be formed including all landowners.

Sludge – Deal with it!

Proper management of sludge – the solid material left over following wastewater treatment – is critical to safeguard the health of our communities and the environment. The sludge either needs to be disposed of safely or be reused responsibly. Previous sludge guidelines needed to be updated owing to changes in the South African regulatory environment during the last decade. The new guidelines are aligned with updated South African laws and regulations pertaining to the environment, waste and water. These guidelines also support the principle of sustainable use of resources and are in line with international trends and best practices. Each sludge management option is being developed as a separate guideline document. This simplifies the guideline for users, as each guideline focuses on the management,

technical and legislative aspects associated with a particular option. Two volumes in the series have been completed to date. **Vol 1** deals with the selection of an appropriate management option based on the characteristics and classification of the sludge generated by a specific wastewater treatment plant. Once a suitable option has been selected, the user is referred to the relevant volume that deals with the selected management option. **Vol 2** describes the requirements and restrictions related to the safe use of sludge for the production of crops. The volume should be used when stabilised sludge is used as a nutrient source and/or soil conditioner. The volume may also be used to manage compost containing sludge that is not distributed to the general public for use.

Packaging knowledge about sewage treatment plants

Localised prefabricated small-scale sewage treatment plants, or package plants (usually privately owned and under 2 Mℓ/day, are used widely as an alternative to conventional centralised wastewater treatment plants. But can they treat domestic wastewater effectively and reliably? Smaller plants are more prone to failure due to the lack of capacity to attenuate variations in load and flow. Yet, these package plants are often promoted as the best means of dealing with increasing water pollution problems, and are, on occasion, legally required alternatives to septic tanks where the impact of such tanks has been questioned. The WRC commissioned a study to gain an understanding of sewage package plant technologies and to test the performance of the selected technologies under controlled conditions. The study identified two major shortcomings: the inability to nitrify to remove ammonia and disinfect the final effluent. Being a global problem, failure can generally be attributed to poor design and construction, lack of maintenance and mechanical breakdowns. The project team concluded that addressing the issues of the legislative framework and technology development may assist in managing the problems related to dispersed sewage treatment in South Africa. The application of such plants is a contentious issue and the WRC added value to the study outcomes by facilitating dialogue among the manufacturers, practitioners and municipalities via a series of workshops and seminars.

The Economics of Water

Breathing new life into irrigation schemes

Standing on one of the hundreds of underutilised smallholder schemes in the former homelands, one has a tangible sense of unused opportunity which is starkly amplified by the surrounding poverty. Many of these schemes continue to draw substantial funding from

highlights *(continued)*

Government, often with limited success. Simplistic interventions, such as infrastructure investment or mechanisation alone, are not enough. For this reason the WRC has published a set of guidelines to inform smallholder irrigation planning nationally in the hope that these schemes will be revitalised for the social and economic upliftment of the communities concerned. The guidelines are based on extensive case-study research, multi-stakeholder workshops and reviews of major South African and East African smallholder irrigation programmes. Development principles, specific fieldwork approaches, planning tools and inspiring case studies are presented. Exciting new ways of addressing the challenge are put forward, for example, the categorisation of four farming styles that allow interventions to respond to the fundamentally different needs of distinct groups on any one scheme. The four typical groups reflect the reality of different plot sizes, livelihood strategies, investment capability, skills levels, risk appetite, cropping, interest, and marketing interests.

The Rand and cents of salinisation

Salinisation of various irrigation schemes has become a problem in South Africa. This has potentially detrimental effects on the country's food production, ranging from reduced crop yields and increased production costs, to the complete withdrawal of irrigation land. One area that experiences salinisation problems is the Lower Vaal and Lower Riet irrigation areas, upstream from where these rivers converge and flow into the Orange River. From a total irrigation area of 12 556 ha in the Orange-Vaal Water User Association (WUA), 23% of soils are either slightly or severely affected by salinity problems. A WRC-funded study on the long-term economic impact of soil salinity on the area found that from various management options, improving drainage and leaching of soils is a better option financially, environmentally and socially than changing to salt tolerant crops. It could even see the addition of jobs in the irrigation and linked industries in the long term. If no action is taken, however, salinisation could cost the area as much as R955-million over the next 15 years. This finding, it is believed, is a good basis to facilitate assistance to farmers to implement additional drainage in the interest of the area's long-term socio-economic welfare.

Quantifying 'lost' water

As demand for South Africa's scarce water resources rises due to continued social and economic development, it becomes critical that the country adopts all available measures to use water as effectively and efficiently as possible. One way of conserving water is by reducing water wastage in cities and towns through leaks, bursts and commercial losses. This has proven a difficult task in the past, especially due to the absence of reliable data in many municipalities as well as confusion regarding how wastage should be estimated. The WRC, in close collaboration with

DWAF, completed a study for the first time using the water balance methodology, developed during another WRC-funded project, to estimate the magnitude of wastage from water reticulation systems throughout South Africa. The results from this study provide the first plausible estimate of the municipal water wastage occurring in South Africa. The losses (real and apparent) for the 62 systems analysed was estimated to be 623 million m^3/annum or about 29% of the total water supplied. The study also highlighted the root causes, nature and extent of estimated water losses in the various water-use categories. For example, it found that, in low-income areas, the greatest challenge to reducing non-revenue water was unbilled authorised consumption. Furthermore, in medium- to high-income areas the greatest contribution to non-revenue water was real losses (i.e. physical leakage).

Optimising desalination through ultrasound

Desalination through the use of membranes is increasingly gaining ground as a viable alternative to conventional water treatment technologies. However, along with higher energy costs, permanent fouling of membranes is a major contributor to the cost of using membranes for water and effluent treatment. Not only does the layer of fouling on the membranes have to be monitored constantly, the membranes also need to be cleaned periodically. The WRC funded a study by the University of Stellenbosch, in collaboration with organisations in Germany and Norway, relating to the use of ultrasound as a non-invasive way of measuring the extent of fouling on membranes. The project also looked at ways to clean (de-foul) membranes in a more efficient way without the use of potentially expensive chemicals. The project succeeded in developing a fouling indicator, which is able to measure fouling layer thickness in real time (using non-invasive ultrasound methods), as well as an infrasound (low frequency) membrane cleaning system which managed to clean fouled membranes successfully during pilot studies.

Guiding the way

Worth its salt?

The WRC funded the development of a user-friendly guide on desalination to enable local authorities to include desalination as an alternative water resource option for planning purposes without any need to appoint external service providers to do such an assessment for them. The guide provides comprehensive information regarding popular desalination technologies. In addition, direction is provided for planning purposes on the selection of appropriate desalination technology, based on the most likely available water source available at the proposed site of use. The guide also assists with decisions regarding the pre-treatment processes; operating and maintenance aspects; environmental and socio-economic implications and capital and operating cost estimates. Comparative figures are provided with conventional treatment processes, with the aim of contextualising the value of desalination against other water treatment options. Of particular importance to the South African application was to identify the level of skills required for daily operation, technical back-up and advice and to identify and advise on the competencies, training needs and capacity building required at operator and management levels. Finally, the relevant local environmental legislation governing desalination was also identified.

Water – legally speaking

As South African Law is founded on Roman-Dutch law and Roman law, the question arises whether, by adapting the Roman water law principles, one can

highlights *(continued)*

frame a superior set of rules to regulate the use of water in all its forms in South Africa. For the first time, ever, thanks to the WRC, the principles of Roman water law have become known to the world and students are impressed by its excellence in comparison with other water law systems like the riparian doctrine and the prior appropriation system. There now exists the unique opportunity to study the feasibility of incorporating in the national water law the principles of the Roman interdicts, suitably adapted, so as to enable people, who have only a vague general right but no specific right to divert, use or appropriate water, to do so.

Linking ecosystem and human health

The health risks to humans when consuming contaminated fish are seldom addressed. In South Africa the pollution of freshwater aquatic systems can be linked to point source discharges and diffuse surface run-off. Consequently, people and life forms may be exposed to harmful contaminants. Of importance is the contamination of freshwater fish, especially to recreational and subsistence fishermen. In order to address this limitation, a generic protocol has been developed that would give guidance in undertaking fish contaminant surveys. These surveys are aimed at providing information regarding the possible health risk if the fish are consumed. The fundamentals of the protocol are rooted in a plethora of information as well as a ten-step methodology guideline. Two documents were published: An Overview Guide, which was written with a wide range of potential users in mind and A Reference Guide, which is aimed at practitioners.

The WRC under the microscope

The WRC was subjected to an external institutional review during July. This was initiated to provide the organisation with an external, independent assessment of its current operations. This review was considered to be timely as approximately six years has

elapsed since the last external review of the WRC. Among others, the Panel found that *"The WRC is a world-class and unique knowledge generating and research promoting organisation that plays a key role in South Africa's water sector through a relevant, sound and broad research portfolio. The WRC is key to the research community by funding projects related to societal, economic, environmental and health issues. Close and productive relationships with stakeholders contribute to the effectiveness of the WRC in respect of capacity building in the water sector at large and specifically in research institutions."* Such input will be incorporated into future planning scenarios.

Networking with Government

Presenting knowledge

On 13 June the WRC was one of the presenters to the Portfolio Committee on Science and Technology. The WRC, through its representatives, CEO, Dr Rivka Kfir, and Director, Dr Kevin Pietersen, outlined its role as well as projects that reflected water-related technology.

The Portfolio Committee on Water Affairs & Forestry held public hearings on water quality on 20-21 June 2006. The WRC delivered a presentation at this forum on 20 June. The Chairperson of the Committee, Ms Connie September, commended the informative nature of the WRC presentation in a television broadcast. The WRC was represented by Dr Gerhard Offringa and Dr Innocent Msibi.

Minister Hendricks at the WRC

The Minister of Water Affairs and Forestry, Ms Lindiwe Hendricks, visited the WRC on 5 December 2006. Minister Hendricks was warmly welcomed by the WRC Executive and Board and she attended the WRC Board meeting. The Minister addressed the Board meeting, outlining the challenges that face her Department and the water sector, and how the WRC can play a role in supporting Government to address these challenges.

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Disseminating information openly

The WRC held its Open Day at the University of the Western Cape (UWC) on 3 July 2006. The event showcased WRC-funded projects in the Western Cape. Some noteworthy projects included: groundwater, endocrine disrupting compounds (EDCs), environmental flows, membrane technology, estuary-related research, leak management and waste minimisation. Following a WRC Board meeting on 4 July, a technical tour was conducted at the Berg River dam project in Franschhoek. Board members were introduced to the project and were taken on a site visit.

SHAREing Knowledge

SHARE is one of the European Space Agency's DUE Tiger projects, which focuses on the use of space technology for water resource management in Africa. SHARE aims at enabling an operational soil moisture monitoring service for the region of the Southern African Development Community (SADC). With this service, SHARE will provide reliable soil moisture information on a dynamic basis at a frequency of a week and less. The long-term vision of SHARE is to supply soil moisture information for the entire African continent, at a resolution of 1 km, posted on the web and made freely accessible to all. The WRC funds the project: Soil Moisture For Satellites: Daily Maps Over RSA. This project exploits a geostationary satellite (METEOSAT-8) to determine early morning surface temperature changes on each 1 km square pixel on the African continent south of the equator every day. From this information one can determine the soil wetness of each pixel. This information is useful for real-time hydrological modelling (for example flood forecasting) and crop demand for water (an agricultural application). The University of KwaZulu-Natal (UKZN), the South African partner in SHARE, has brought this WRC project to the table to collaborate meaningfully with partners at the Vienna University of Technology. The WRC hosted students from Vienna University of Technology and other role players during November 2006.

Launch of the Knowledge Review and handover of the Annual Report

The WRC's Knowledge Forum took place at The CSIR Convention Centre on 10 October. The event commenced with a presentation by the WRC CEO,

Dr Rivka Kfir, outlining the WRC ***Annual Report*** and ***Knowledge Review***. These reports were then officially handed over to Ms Barbara Schreiner, who accepted the documents on behalf of Mr Jabu Sindane, the Director-General of the Department of Water Affairs and Forestry.

Thereafter, a comprehensive panel discussion on ***Current realities and challenges in sanitation improvement- Future perspectives and needs*** was held. The final summing up was conducted by Ms Connie September: Chairperson: Portfolio Committee on Water Affairs & Forestry.

This event also included a demonstration of the winning project by the national winners of the SA Youth Water Prize: Nompilo Mahlobo and twin sisters Thobile and Thokozani Mbanjwa from Imbali, Pietermaritzburg.

Media matters

The WRC hosted the National Press Club on 31 August 2006 at the WRC offices. Guests included journalists, editors and communication practitioners. The function also showcased some WRC research projects such as wetting front detectors, climate change and water quality. This took the form of displays and demonstrations. Research Managers and Directors were on hand to answer questions and to be a part of the stimulating discussion that emanated from a presentation by Dr Kevin Pietersen. WRC-funded projects also featured in the media on a regular basis.

The most significant feature in the environmental programme, ***50/50***, was the project on fish ladders. Impassable fabricated barriers to migration, including weirs, dams, levees and embankments, have been cited as one of the main reasons for the decline in the number of red data species of aquatic organisms in southern Africa. Other factors include pollution and the introduction of alien species. To mitigate the situation, several fishways have been constructed in South Africa since the 1950s. The project was outlined in this programme

highlights *(continued)*

Stander Evening

The WRC was one of the sponsors at the Biennial Stander Evening which was held on 24 October at the CSIR Conference Centre. The event commemorates the contributions of the late Dr Gert Johannes Stander, who was the first Director of the National Water Research Institute at the CSIR and first Executive Director of the WRC. The keynote speaker at the function was Professor Peter Rose, Director of Environmental Biotechnology at Rhodes University. His talk was titled ***From Grootvlei to Witbank: A Decade of Global Leadership in the Remediation and Treatment of Mine Drainage Wastewaters.*** It is traditional practice for young innovative researchers to share the stage with eminent researchers such as Professor Rose. This year three researchers joined Prof Rose: Dr Jonathan Taylor, Ms Jennifer Molwantwa and Mr Scott Sinclair.

Exhibitions

The WRC @ the WISA Conference

The Water Institute of Southern Africa (WISA) Biennial Conference 2006 was held at the ICC, Durban on 22-25 May. WRC personnel attended the conference and also presented papers and conducted workshop sessions. In addition, the WRC Knowledge Café was open for business: disseminating information (WRC publications- CDs and hard copies), taking orders for WRC reports and answering queries and questions relating to WRC research projects. WRC project leaders, Research Managers and Directors were involved in no less than 70 presentations and workshops for the duration of the conference. The WRC was a key role-player and sponsor at this major event.

The WRC on show

The WRC exhibited at the Johannesburg Water ***Festival of Water*** on 21-26 April 2006 in Newtown, Johannesburg. The focus group was high school learners and the WRC distributed material such as ***Water @ Work: A Career Guide***, ***Water Wheel***, and ***A Little Gift and Other Short Stories***.

The WRC was one of the exhibitors at the National Water Summit at Gallagher Estate on 4-5 May 2006. WRC reports and other publications were in great demand. The WRC interacted with other key role-players in the South African water sector.

Building capacity in the water sector

WIN – Bringing in the Harvest

Since its establishment in 2002, the WRC has served as the host and contract administrator of the Water Information Network or WIN-SA, a network of organisations focusing on improving knowledge sharing in the water and sanitation sector, targeting local government and other decision makers.

During the past financial year much focus was placed on capacity building. Two training programmes were facilitated, the one being on brokering collaboration, a much needed skill in any environment that requires inter-governmental coordination and collaboration. Huge strides have also been made in terms of coordinating the WIN Network, and bringing the activities of WIN-SA partners to the attention of the broader water sector, mainly through the WIN Newsletter.

Empowering school learners

The WRC was again one of the sponsors of the SA Youth Water Prize, with Public Understanding of Science Officer, Lani van Vuuren, being one of the judges. The national winners were Nompilo Mahlobo and twin sisters Thobile and Thokozani Mbanjwa for their 'plant tea' concept, which uses an infusion of organic household waste from the kitchen and greywater to grow food gardens. The prize-giving function was held on 11 August 2006 in Imbali, Pietermaritzburg.

WRC Career Guide going places

The WRC printed copies of its career guide, ***Water@ Work: A Career Guide*** which was distributed at the SABC Career Faire. This initiative was a joint venture between the WRC and the Department of Water Affairs and Forestry (DWAF). The Guide was also a popular publication at the Johannesburg Water Festival, Ekurhuleni Metro Career and Open Day and various WISA events.

The rationale of the guide is to provide guidelines to learners about career opportunities in the water sector. A further objective was to attract high-calibre

professionals to the sector. This ever-popular guide is in great demand and the reader-friendly format and graphics has catapulted the popularity of the publication: The WRC has had to effect several print runs and has also duplicated the guide in a CD format.

The WRC immersed in Africa

Workshop for Africa

As part of the InterAcademy Panel (IAP) Global Water Programme, the WRC, on behalf of the Academy of Science of South Africa (ASSAf), organised a three-day workshop on 16-18 August 2006. The objective of the workshop was to bring together water researchers and high-level water managers to discuss possible solutions to major problems. This included discussions around issues such as water research and water resource management in Africa. The final session, the "Knowledge Café workshops" focused on burning issues in Africa such as capacity building; research issues including recommendations to address climate change, environmental impacts stemming from human activity, water use efficiency, etc.; modalities of cooperation and implementing an African S&T plan. Judging from the positive feedback that the WRC received, it appears that the workshop was a huge success.

Building Centres of Excellence

The Inter-Ministerial Dialogue on Building an African Network of Centres of Excellence in Water Sciences and Technology was held jointly by the Bureaus of the African Ministerial Council on Science and Technology (AMCOST) and the African Ministerial Council on Water (AMCOW) on 22 November 2006, in Cairo, Egypt. The dialogue was attended by Ministers from Lesotho, Senegal, South Africa and Zimbabwe, senior representatives from Algeria, Egypt, Ethiopia, and South Africa, and representatives from the Office of Science and Technology of the New Partnership for Africa's Development (NEPAD) and the African Union (AU) Commission. Delegates were engaged in issues relating to criteria and guidelines, financial mechanisms and governance for the network of centres of excellence in water science and technology before agreeing to the establishment of the Network.

The WRC supported the NEPAD office to develop a business plan; to convene meetings of the NEPAD Task Team on water sciences and technology (which took place in November 2006); to convene the inter-ministerial dialogue on water sciences and technology so as to develop guidelines for establishing the network of centres of excellence and to assist the NEPAD Office of Science & Technology to handle the necessary administrative and technical matters. The Dialogue brings the initiative closer to the shared goal of establishing centres of excellence.

Beyond Africa's borders

Drinking water in Switzerland

Ten South African developments on emerging and innovative drinking water supply technologies were presented at the biennial Emerging Technologies Forum which was held in Switzerland in April 2006. South Africa is a leader in terms of leading technologies. All ten innovations are wholly or partly funded by the WRC. Examples of innovation include training material, pipeline management and leakage control, drinking water treatment and the use of nanotechnology in water purification.

Accolades

Accolade for WRC researcher

The developer of a unique South African water administration system, which has increased the productivity of water use in irrigation agriculture, has won a prestigious international accolade. Dr Nico Benadé was recently awarded the International Commission on Irrigation and Drainage's (ICID's) Innovative Water Management Award for the Water Administration System (WAS) at a ceremony held in Kuala Lumpur, Malaysia in September 2006. This is the first time that a professional represented by the South African National Committee on Irrigation and Drainage (SANCID) has received an award in this category. The WAS was developed with funding from the WRC to provide irrigation schemes with decision support for efficient water management. The WAS is a decision-support program designed for use by water user associations (WUAs) on irrigation schemes to enable them to manage their water accounts and their water supply to clients through rivers, canal networks and pipelines.

Executive Report

This report was compiled in accordance with the requirements of the Public Finance Management Act (PFMA) and forms part of the audited financial statements of the Water Research Commission (WRC) for the period 01 April 2006 to 31 March 2007.

The report addresses corporate governance practices and structure, the mandate and core business of the WRC, the WRC's achievements and progress made during the year under review with regard to key performance areas and relevant short- and long-term strategic objectives. The members of the Executive of the WRC submit this report, as approved by the WRC Board, to the South African Parliament through the Minister of Water Affairs and Forestry.

During the year under review the WRC functioned effectively according to its mandate as reflected by its mission which, as in previous years, provided the framework for its strategic and operational initiatives, and in accordance with the organisational core strategy and business plan as approved by the Minister of Water Affairs and Forestry. The WRC has fulfilled the role of a 'hub' for water-centred knowledge, reporting to and supporting its shareholder, the Government of South Africa through the Minister of Water Affairs and Forestry, the Department of Water Affairs and Forestry (DWAF), other Government Departments (national, provincial and local), and all other related players within the water sector and related sectors. Throughout the year, the WRC was strongly attuned to the needs of the end-users who benefit from the water-centred knowledge that emanates from their support. The WRC continued to function as a networking organisation, linking the nation and working through partnerships. The WRC employed innovative strategies to develop novel (and practical) ways of packaging and transferring knowledge which includes, for example, policy briefs and other technology-based products aimed at serving decision makers, the water sector and the community at large.

Since 2005/06 marked the fifth year of operation of the WRC as a dynamic water-centred knowledge hub, the organisation's Board and Management decided that it was an opportune time for an external review. During July 2006 the WRC underwent an Institutional Review. The review, which was carried out by a group of local and international experts, addressed the organisation's relevance, effectiveness and efficacy. The aim was to provide the WRC Board and Management with feedback on strategy and operations for the period 2001/02 to 2005/06. The Institutional Review found the WRC to be a relevant organisation with a sound and broad research portfolio. It also indicated that the performance of the WRC has continuously improved and that the WRC has an adaptive management responding to national transformation imperatives. The WRC was found

Building capacity in researchers continued to be an important function of research and, in many areas of research supported by the WRC, it is evident that students who had participated in earlier WRC projects are currently leading WRC-funded research projects and are serving as members of reference groups/steering committees as well as reviewers of new proposals.

to be aligned to sustainable development and poverty eradication; its governance arrangements were found to be good and its capacity-building initiatives for research were found to be effective.

During the year under review the WRC continued in strengthening its support to South Africa by creating and disseminating water-centred knowledge, building capacity through research and establishing new research competencies, and further identifying medium- to long-term future research needs that will allow sustainability of the resource and related services. The WRC also continued to strengthen its role in Africa in support of South Africa's Government initiatives and NEPAD and further linking the South African water sector and the research community to global knowledge and initiatives. The WRC strengthened its national, regional and global profile, building strong water-centred knowledge links and both initiated and undertook key roles in a number of national, African and global initiatives, with many staff members serving in key leadership positions.

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Another ongoing challenge is the appropriate state-of-the-art dissemination and application of WRC-created knowledge. During 2005/06 the WRC created a new mechanism for knowledge dissemination through policy and technical briefs. In an effort to share knowledge effectively with national policy and decision makers, a set of briefing notes was generated. The organisation undertook many knowledge transfer workshops and exhibited and participated in many scientific, technical and professional fora. The WRC continued to improve on the uptake process of knowledge created via its research activities and maintained its initiatives with regard to public understanding of water science with regular publications such as *Amanzi*, the *Knowledge Review* and *The Water Wheel*, which are regarded as highly informative publications. Other successful knowledge dissemination initiatives included Open Days as well as WRC presentations at water-related conferences and symposia. The WRC also undertook to lead the Water Information Network – South Africa (WIN-SA) which supports knowledge sharing and capacity building for local government.

Mandate

The WRC is listed as a national public entity in schedule 3A of the PFMA.

The mandate of the WRC (Water Research Act, Act No 34 of 1971) highlights the following functions to be carried out by the organisation:

- Promoting co-ordination, co-operation and communication in the area of water research and development
- Establishing water research needs and priorities
- Stimulating and funding water research according to priority
- Promoting effective transfer of information and technology
- Enhancing knowledge and capacity building within the water sector

Water quantity and quality are critical to South Africa's long-term sustainability. During the year under review the WRC has further built on decades of research and development and science-based knowledge that have collectively provided the basis for the development of policies and strategies that allow for the sustainability of South Africa's water resources. This emphasises not only the important role that water-centred knowledge has played in the past, but its increasing importance in providing the country with knowledge which will allow it to deal successfully with the many emerging challenges that will affect our limited water resources in future years. The WRC plays a crucial role in this regard. During 2006/07, the WRC continued to provide leadership and coordinated research which, in turn, created the knowledge that allowed South Africa to manage water quantity and quality judiciously and, in so doing, to continue to achieve sustainability. As in the past, the broad spectrum (natural and social sciences) of research supported by the WRC during this financial year has created knowledge and supported its transfer to ensure that South Africa avoids any undesirable future scenarios. The WRC continued to provide the country with a knowledge framework that ensures that the country has safe drinking water and sanitation for all; sufficient quantity of water for various allocated uses, promoting a healthy environment and economic growth; sustainable infrastructure for water and sanitation services; effective water management policies and systems; and adaptive and mitigating strategies to face the challenges of climate change.

Functioning as a 'hub' for water-centred knowledge, the WRC links various players within the water sector by working through local and global partnerships. The WRC provides novel (whilst practical) ways of packaging knowledge and transforming knowledge into knowledge-based products which form the basis for new water resource and water service management practices for the water sector and the community at large, both locally and globally. The WRC is continuously expanding its role as a global leader in water-centred knowledge, a position toward which it has made great progress, playing increasingly key roles in the SADC region, the African continent and within a number of global networks and initiatives.

Functioning as a 'hub' for water-centred knowledge, the WRC links various players within the water sector by working through local and global partnerships.

Governance

Governance framework

During the year under review the organisation functioned under a clear governance framework and adhered strongly to sound management and control practices. The Board and its various committees provided effective structures for guiding the WRC throughout the year.

The WRC, under the competent leadership of its shareholder, the Minister of Water Affairs and Forestry and strategic direction set by its Board, continued to manage its strategic and operational affairs within a sound corporate governance framework. The WRC complied strictly with both the Water Research Act and the Public Finance Management Act (PFMA), Treasury Regulations as well as all other relevant legislation. The corporate governance framework provided the organisation and its leadership with integrity, accountability and transparency.

Risk management, audit and fraud prevention-related policies

The WRC has further developed its risk management framework. Risk management is integrated and linked to the WRC's short- and long-term strategic plans as well as its day-to-day operations. During the year under review the risk management framework and the relevant strategic and operational interventions developed by the WRC addressed key strategic and operational issues relating to the WRC's macro- and micro- environment. The risk framework that was developed involved the re-assessment of previously identified risks as well as the identification of new risk areas. The revision of risk-severity ratings, taking into consideration the internal and external environment in which the WRC operates, was undertaken. This framework informed many of the objectives set for the organisation and the WRC developed and implemented its strategic and operational plan based on the risk areas identified. The plan that had been approved by the Board of the WRC was used as a basis for a number of key strategic objectives as well as the basis for the internal audit of the organisation.

During the year under review the WRC revised in Fraud Prevention Policy and Framework. Staff members of the WRC took part in an awareness session aimed at improving knowledge and understanding of all issues pertaining to this matter.

As in previous years, the WRC appointed an audit firm to undertake an internal audit of the organisation in terms of an audit plan that had been reviewed and recommended for approval by the Audit and Finance Committee of the Board, and thereafter approved by the Board of the WRC. The audit addressed financial and other strategic risk areas. The outcomes of the audit indicated significant improvements in many of the WRC's financial practices. One of the key performance objectives of the WRC included feedback on the level to which management had addressed the previous year's issues identified by the internal audit. The audit results and the WRC management's response, as well as the level of successful and planned actions intended to bring about further improvements, were reviewed and approved by the Audit and Finance Committee and the Board.

Board Members (from left to right)

Prof F Otieno (WRC Vice-Chairperson), Dr R Kfir, Prof EM Stack, Ms VGN Mkaza, Mrs MM Matsabu, Prof JA Adams, Dr DJ Merrey, Mr M Sirenya, Mr MG Rall, Dr SJ Khoza (Chairperson), Mr DP Naidoo, Mr JI Sindane

Governance *(continued)*

The WRC's operational policies were further improved by the WRC during the course of the year, supporting its ability to manage risks and enhance corporate governance. The WRC has renewed and updated its fraud prevention policy and plan and its code of ethics was re-visited. The Board of the WRC has developed a clear Board charter including a Board code of ethics. During the year under review, the WRC adhered to its corporate values and integrated these values into all its undertakings, both internal and external.

Governance structures

During the year under review the WRC operated under the leadership of its Board. During the period the Board was composed of a number of Board members appointed by the Minister on 1June 2005 for a period of three years, ending on 31 May 2008. Board members were as follows:

Dr SJ Khoza (Chairperson)
Prof F Otieno (Vice-Chairperson)
Prof JB Adams
Ms MM Matsabu
Dr DJ Merrey
Ms VGN Mkaza
Mr D Naidoo
Mr MG Rall (resigned March 2007)
Mr J Sindane (DWAF, Director-General, ex officio)
Mr M Sirenya
Prof EM Stack
Dr R Kfir (CEO, ex officio)

Mr Sindane, Director-General of the Department of Water Affairs and Forestry and Dr Kfir, Chief Executive Officer of the WRC, are ex officio members. Ms Scholtz served as Board and Board Committee Secretary during the period under review.

Board meetings held during 2006/07

5 July 2006	Board Meeting
5 September 2006	Board Meeting
5 December 2006	Board Strategic meeting
21 February 2007	Strategic Meeting between WRC Board, WRC Executive and DWAF
20 March 2007	Board Meeting

Values

- *Service orientation*
- *Care for people, society and the environment*
- *Fairness to all*
- *Dedication to quality*
- *Integrity and ethical behaviour*
- *Respect for human and individual rights*
- *Innovation and learning*

Audit and Finance Committee of the Board

Members
Prof EM Stack (Chairperson)
Mr JN Campbell (co-opted)
Ms MM Matsabu
Mr D Naidoo
Prof F Otieno
Mr M Sirenya
Dr R Kfir (CEO)

WRC (in attendance)
Mr A Rampershad (Chief Financial Officer, until end August 2006)
Mr N Patel (Chief Financial Officer as from 1 November 2006)
Ms Z Scholtz (Com. Secretary)
Ms U Wium (Com. Secretary for the meeting of 29 May 2006)

Office of the Auditor-General
Mr J Grobbelaar, Ms U Baartman, Ms C Simpson, Mr G Goche, Ms A Muller, Ms B Davis

PriceWaterhouse Coopers
Mr G de Jager, Mrs G de Risi, Mr A van Tonder, Mr P Prinsloo

Meetings
29 May 2006 (joint meeting with ExCo)
20 June 2006
22 August 2006
20 February 2007

Terms of Reference

- Ensure compliance with the PFMA and advise on applications for exemption deemed necessary in the interests of enhancing the WRC's performance
- Monitor and advise on the collection of revenue due to the WRC
- Evaluate short-, medium- and long-term plans and budgets
- Assess requests by management for adjustments in water research rates and charges (levies) and make recommendations to the Board
- Review the external audit process at key stages of planning and execution, in terms of addressing (i) critical risk areas (ii) scope and (iii) effectiveness
- Review external audit results, and make recommendations to the Board on acceptability of financial statements and on addressing significant differences between management and the external auditors
- Review, from time to time, the WRC's financial policies and accounting procedures and controls, inter alia in the light of external audit results
- Advise on labour dispute strategies
- Monitor the scope and effectiveness of the internal audit function from the financial perspective
- Monitor the ethical conduct of the WRC, its management and senior officials, from a financial perspective
- Report to the Board on an ongoing basis

Governance *(continued)*

Human Resources Committee of the Board (HR Committee) (no meetings of this committee were held under the leadership of the previous Board)

Members	**Terms of Reference**
Mr MG Rall (Chairperson) Ms VGN Mkaza Prof F Otieno Prof EM Stack Dr R Kfir (CEO) Mr A Rampershad (Chief Financial Officer, until end August 2006) Ms R Lutchman (Director HR and Administration, from 20 November 2006) Ms Z Scholtz (Com. Secretary) Ms U Wium (Com. Secretary for the meeting of 20 November 2006)	• Draft the CEO's performance agreement and assess performance on an annual basis • Advise on the structure and composition of the Executive • Review transformation and employment equity plans and assess progress with respect to milestones and targets • Review career-pathing and personnel development strategies and monitor implementation of skills development programmes • Review and advise on job level assessment policy and procedures • Advise on amendments to the conditions of employment and remuneration structure • Review and monitor the effectiveness of the WRC's performance management system • Advise on labour dispute strategies • Monitor the scope and effectiveness of the internal audit function from the human resource perspective • Report to the Board on an ongoing basis
Meetings 20 June 2006 20 November 2006 20 February 2007	

Remuneration Committee of the Board

Members	**Terms of Reference**
Prof SJ Khoza (Chairperson) Ms MM Matsabu Mr MG Rall Prof EM Stack Ms Z Scholtz (Com. Secretary)	• Establish a tool for the evaluation of the performance of the organisation and the CEO • Assess the performance of the organisation and the CEO using the above-mentioned tool • Determine performance bonuses for the CEO and the organisation based on the outcome of the performance assessment and other criteria
Meetings 4 July 2006	

Research Policy and Strategy Committee of the Board (RPS Committee)
(no meetings of this committee were held under the leadership of the previous Board)

Members	**Terms of Reference**
Ms MM Matsabu (Chairperson) Prof JA Adams Dr DJ Merrey Mr D Naidoo Mr MG Rall Mr M Sirenya Dr R Kfir (CEO) Ms Z Scholtz (Com. Secretary) Ms U Wium (Com. Secretary for the meeting of 20 November 2006)	• Review and advise on the alignment of research goals and plans with national policy and priorities and the mission of the WRC • Assess and advise on the balance and appropriateness of research strategies (short-, medium- and long-term) in meeting such goals • Ensure that research plans and strategies are aligned with the WRC's policy for capacity-building and are appropriately designed to meet capacity-building objectives • Advise on the partitioning of research funds among primary application areas • Review and make recommendations regarding the acceptability of proposed research programmes • Monitor progress at the level of research programmes and primary application areas and evaluate outcomes with regard to stated goals, including those concerned with capacity-building, technology transfer and knowledge management • Review policies and procedures for ensuring beneficial exploitation of research products • Monitor the scope and effectiveness of the internal audit function from the research perspective • Report to the Board on an ongoing basis
Meetings 21 June 2006 20 November 2006 21 February 2007	

Executive Committee of the Board (ExCo)

Members	**Terms of Reference**
Dr SJ Khoza (Chairperson) Prof F Otieno Mr D Naidoo Dr R Kfir (CEO) Ms Z Scholtz (Com. Secretary)	The main function of the ExCo is to perform specific tasks, at the request of the Board, which need to be addressed as matters of urgency
Meetings 29 May 2006 (joint meeting with the Audit and Finance Committee)	

Business Address	*Postal Address*
Marumati Building 491 18th Avenue Rietfontein Pretoria 0084	Private Bag X03 Gezina 0031

Achievements

During 2006/07 the WRC has enhanced and strengthened its role as a water-centred knowledge hub through provision of leadership, strategic direction, investment in the creation of new knowledge and the sharing, application and dissemination of water-centred knowledge.

Leading water-centred knowledge

During the year under review, the WRC continued to strengthen its standing locally, in Africa and globally with the aim of excelling in leading water-centred knowledge in South Africa. Providing leadership requires the WRC and its staff to undertake strategic initiatives and to play proactive leadership roles locally, in Africa and globally. The WRC and its staff strategically initiate or support initiatives that are critical to South Africa, and such initiatives are essential for the further development of the hub, and are contributing substantially towards the enhancement of water research. During 2006/07, the WRC's significant involvement in such strategic initiatives and leadership positions strengthened the relevance of the organisation. This involvement also allowed the organisation to improve its ability to identify research needs as well as the channels required for better dissemination of research results. Certain global initiatives have aimed at improving the standing of South Africa's water research and formed a strong basis for partnerships between South African and international researchers. During the past few years the WRC has both initiated and undertaken key roles in a number of national, African and global initiatives and many staff members have served and are serving in key leadership positions. As a result, the WRC has built a number of strong links globally and in Africa.

In South Africa, staff members continue to undertake various leadership positions (many positions are ongoing or set for a term of a number of years). These positions include positions such as Chairperson of the South African National Commission for Irrigation and Drainage (SANCID), a member of the Board of the ARC, Co-Chairperson FETWater, member of the executive and immediate past President of the Water Institute of Southern Africa (WISA), Chairperson of the National Water Advisory Council, Chairperson of the National Community

Water and Sanitation Institute (NCWSI) (University of the North), Board member of the Institute for Environmental and Coastal Management (Nelson Mandela Metropolitan University) and the Institute of Water Research (IWR) (Rhodes University), treasurer of SANCID, member of South Africa Committee for the International Association of Hydrological Sciences, member of the National Water Resources Planning Systems User Forum, member of the technical Steering Committee of the Working for Water Hydrology Review Panel, member of the Committee of the South African Environmental Observation Network (SAEON), member of the Executive of the International Water Association (South Africa) (IWA-SA), appointed member of the technical committee of the Council for Geosciences, member of WISA's Mine Water Group Management Committee, a member the Environmental Committee of Coaltech 2020, Chairperson of the WISA Portfolio Committee on Education, Training and Youth Development, and a board member of Ecolink (an NGO). During the year, a staff member was inducted as President of the Geological Society of South Africa (GSSA) and another was appointed by the Minister to the Advisory Committee of the Groot Marico Catchment Agency. The purpose of the Committee was to set up the governance structure of the CMA and to oversee the appointment of the Board.

The WRC is a patron member of WISA, a member of the Water Sector Leadership Group, member of the National Science and Technology Forum (NSTF) (one WRC staff member serves on the executive of the NSTF as the representative of all Science Councils), and the Committee of Heads of Organizations of Research and Technology (COHORT) and IWA-SA

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During the year under review the WRC was involved in a number of key strategic national initiatives.

- The WRC was part of the Water Summit Organizing Committee together with SALGA, DPLG and civil society caucus group. Minister Sonjica acknowledged the efforts of the organizing committee, and the WRC specifically, in a letter of appreciation for a very successful summit.
- The WRC was invited by the Portfolio Committee on Science and Technology (June 2006) to present its objectives and activities. The WRC outlined the role of the WRC as well as WRC projects that reflected water-related technology. The WRC's presentation was well received and was followed by a dynamic question- and- answer session. The committee requested the WRC to keep active contact and re-visit the committee.

Achievements *(continued)*

- The Portfolio Committee on Water Affairs and Forestry held public hearings on water quality on 20-21 June. The WRC delivered a presentation at this forum on 20 June 2006. The presentation was well received, and Ms Connie September, the Chairperson of the Committee, mentioned the WRC presentation in a television broadcast. Her comments alluded to the informative nature of the WRC presentation.
- At the invitation of the Portfolio Committee on Water Affairs and Forestry, a presentation was made in Parliament on the WRC's contribution to socio-economic growth and service delivery to support rural development (September 2006).
- The WRC prepared and presented a water issues awareness course/seminar to the Portfolio Committee on Water Affairs and Forestry during February 2007.

The WRC continued its involvement in a number of existing national initiatives and has spearheaded new initiatives where the WRC plays key roles. In addition, staff members have occupied several key national leadership positions

The WRC continued its involvement in a number of existing national initiatives and has spearheaded new initiatives where the WRC plays key roles. In addition, staff members have occupied several key national leadership positions (often by invitation or through an election process). The WRC continues to lead WIN-SA (on behalf of the water sector). In addition, the WRC continued its capacity-building initiative and the result of Phase I (capacity building for local government) have been shared with DWAF and other sector partners. The WRC is a key partner in a DWAF Initiative on Capacity Building 2025. The capacity-building project initiated by the WRC is serving the team which is led by DWAF. The team includes representatives of a number of government departments as well as NGOs and other organisations such as SALGA and WISA. Furthermore, the WRC continues to co-lead the activities of the Framework for Education and Training in Water (FETWater), a joint UNESCO, Belgian and South African programme aimed at building more capacity in integrated water resource management. In its efforts to support gender issues, the WRC supported the Women in Water Award. This award (now including Women in Sanitation and Forestry) was jointly established by DWAF, WISA and the WRC. A staff member was a member of the award adjudication committee. This year the WRC produced a booklet *Amakhosazana Emvula* (meaning Princesses of Rain) celebrating South Africa's Women who have made a significant contribution to the water sector. The foreword of this book was written by the newly-appointed Minister of Water Affairs and Forestry, Ms Lindiwe Hendricks.

Staff members of the WRC play key strategic roles in various national gatherings and governmental-led steering committees and other initiatives as follows;

- The SANCID annual general meeting and general meeting of members were chaired by a WRC staff member on 20 April 2006. The most important local activity for the next year was to organise the 2nd Irrigation Symposium in Mpumalanga Province in November 2006.
- A WRC staff member was officially appointed as a member of the National Advisory Committee on Water Resource Modelling.

- A WRC staff member is a member of Working for Wetlands Steering Committee.
- A staff member is part of the DWAF technical advisory group on water systems analysis (DWAF TAG).
- The WRC participated by invitation in a DWAF Workshop on Compliance and Enforcement during which the need for research on the role of a regulator was suggested. This will be taken up during follow-on research.
- The Network on Irrigation Research and Extension for Small-Scale Agriculture (NIRESA) held its annual national workshop at the Dzindi Irrigation Scheme in Limpopo province between 19 and 20 July 2006. The workshop was organized and chaired by the WRC and involved 15 participants from the national and provincial departments of agriculture, science councils, universities and private companies. The themes for the workshop were: Land tenure on smallholder irrigation schemes; collective action in relation to markets; water allocation in canal schemes and the role of extension on canal schemes. A second workshop has been conducted during this financial year.
- The WRC participated in the discussions/ meeting aimed at establishing a centre for 'Climate Change Research' in South Africa held at the ARC-ISCW.
- A staff member serves on the project's National Municipal Waste Water Task Force.
- A staff member participated in the meeting of CAPE (Cape Action Plan for the Environment) to assess and select the best submission for the development of a generic estuary management plan for the CAPE area.
- The WRC, in collaboration with DWAF/DST, was involved in the establishment of the National Sanitation Technical Advisory Group. The idea was developed and conceptualised by the WRC. It aims to support national policy with O&M challenges of basic sanitation provision.
- A WRC representative participated (by invitation) in the launch of the Human Development Report hosted by the Minister of Foreign Affairs and graced by President Mbeki and the Prince of Orange. The main points of the report were that water should be a basic human right, that water quality is increasing in importance and that the problem with water and meeting the MDGs is one of governance.

In Africa, the WRC has played an active part in capacity building, coordination of research and development initiatives and participated and organised scientific and technical gatherings. These various activities all aimed at building water-centred knowledge in Africa. During 2006/07, key initiatives included:

- Networks of Centres of Excellence in Africa – The WRC continues with its involvement in NEPAD activities regarding the development of the Centres of Excellence for Water Research in Africa. The Inter-Ministerial Dialogue on Building an African Network of Centres of Excellence in Water Sciences and Technology was held jointly by the Bureaux of the African Ministerial Council on Science and Technology (AMCOST) and the African Ministerial Council on Water (AMCOW) on 22 November 2006, in Cairo, Egypt. The dialogue was attended by ministers from Lesotho, Senegal, South Africa and Zimbabwe, senior representatives from Algeria, Egypt, Ethiopia, and South Africa,

Achievements *(continued)*

and representatives from the Office of Science and Technology of the New Partnership for Africa's Development (NEPAD) and the African Union (AU) Commission. Delegates were engaged in issues relating to criteria and guidelines, financial mechanisms and governance for the network of centres of excellence in water science and technology (the network), before agreeing to its establishment. The WRC's role at this event was to support the NEPAD office to develop a business plan; to convene meetings of the NEPAD Task Team on Water Sciences and Technology; to convene the inter-ministerial dialogue on water sciences and technology so as to develop guidelines for establishing the network of centres of excellence and to assist the NEPAD Office of Science & Technology to handle the necessary administrative and technical matters. The dialogue was a huge success and brings the initiative closer to the shared goal of establishing centres of excellence.

- The Water Research Fund of Southern Africa (WARFSA) - The WRC has been actively involved with WARFSA for a number of years. Currently one staff member serves as a Board Member of WARFSA. WARFSA was established with the purpose of building research capacity among regional institutions and individuals as well as promoting the utilisation of research results in the planning and management of water resources in the sub-region.
- NEPAD – in addition to the WRC involvement in the Centres of Excellence (see above), a WRC staff member continues to serve on the NEPAD Gender Task Group.
- The Challenge Programme for Water for Food - A WRC staff member is serving as an Executive Member of the Limpopo Challenge Programme (WaterNet).
- R&D Scenarios for Africa - Two WRC staff members attended a Workshop on The Development of Future R&D Scenarios for Africa. The workshop was arranged and facilitated by the Global Research Alliance (GRA) and sponsored (together with other institutions) by the WRC. The workshop which was held in Windhoek, Namibia and was attended by representatives from many African countries as well as from Australia, Asia, Europe and America, was also partially sponsored by the WRC.
- Capacity Building for Water Resource Management in Africa - The WRC facilitated a three-day Regional Workshop on Capacity Building for Water Resource Management in Africa, on behalf of the South African Academy of Science (ASSAf) and as part of the global Inter Academy Programme (IAP) for Water. The delegates included representatives of African countries such as Cameroon, Senegal, Kenya, Uganda, Tanzania and Zambia. The workshop resulted in the development of clear action plans for future co-operation. A number of WRC staff members participated and presented papers during the workshop.
- Assessment of the Vulnerability of Water Resources to Environmental Change in Africa, Asia and Latin America - The WRC participated in a Workshop on a Comprehensive/Detailed Assessment of the Vulnerability of Water Resources to Environmental Change in Africa, Asia and Latin America Using the River Basin Approach held at UNEP Headquarters - Nairobi

from 3 – 5 May 2006. The workshop provided an opportunity to review ongoing assessment in Africa (and to share these lessons with Asia Pacific and Latin America), exchange views on approaches and guidelines and establish links for assessment of water resources using the river basin approach, including integrated water resource management (IWRM).

- African delegations – the WRC hosted a delegation from Zambia during June 2006. In addition, a delegation from Mali was hosted by the WRC on the 29th June.
- African Water (European Union) - The first letter of the African Water (EU initiative) was launched on 12th June 2006. The letter mentioned the WRC as a key partner to the EU. African Water is an EU project aimed at enhancing the participation of African Researchers in the EU Framework programmes, especially the upcoming FP 7. The WRC has been contracted as part of the consortium for implementing the project. Other members of the consortium were: The National Environmental Research Centre of the UK, Loughbourgh University and Hydropil (an Austrian web design company).
- A presentation on the WRC and the role of water research was delivered at the First All Africa Technology Diffusion Conference of the Department of Science and Technology.
- Rural finance of water and sanitation - The WRC hosted a course on rural finance of water and sanitation which was organised by Streams of Knowledge. Most participants were from African countries.
- Human Security and Water in Africa A staff member was invited to participate in a seminar on Human Security and Water in Africa organised by Japan International Co-operation Agency (JICA). The WRC representative presented a series of papers on groundwater management.
- Agricultural Water Management for Eastern and Southern Africa - A staff member represented the WRC in the 2nd Workshop on Agricultural Water Management for Eastern and Southern Africa from 18-22 September 2006, which was initiated by the International Fund for Agricultural Development (IFAD) together with the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and ICRISAT (an institute of CGIAR) under a programme known as 'Improved Management of Agricultural Water in Eastern and Southern Africa' (IMAWESA). The purpose of the workshop was to facilitate the sharing of knowledge and experiences between those who conduct research, implement, manage and plan programmes in agricultural water management (AWM) for smallholders, and the policy and investment decision-makers at national, regional and global levels. A key Africa initiative of the KSA: Water Utilisation in Agriculture has been its involvement in the Southern African Regional Association (SARIA). A WRC Domain Head is the chairperson of SARIA and he was largely responsible for

Globally, the WRC participated in various global initiatives during 2006/07, with staff members continuing to serve as chairpersons and board members of key international organisations and networks including the Water Supply and Sanitation Collaborative Council

Achievements *(continued)*

organizing a successful three-day workshop during the year under review. Attending the workshop in Mozambique afforded him the opportunity to discuss follow-up arrangements with SARIA members and to further negotiate co-operative projects between Kenya, Tanzania and South Africa.

- Environmental Flows in the Mzingwane catchment, southern Zimbabwe - A staff member facilitated an IUCN workshop on Environmental Flows in the Mzingwane catchment, southern Zimbabwe. The workshop was held in Bulawayo during September 2006.

Globally, the WRC participated in various global initiatives during 2006/07, with staff members continuing to serve as chairpersons and board members of key international organisations and networks including the Water Supply and Sanitation Collaborative Council (WSSCC) (member of the steering committee), the Global Water Research Coalition (GWRC) (board member), Streams of Knowledge Global Coalition of Resource Centres (chairperson), RAMSAR scientific and review panel (member) and the International Water Management Institute (IWMI) (board member, chair of the programme committee), Comprehensive Assessment CGIAR, (member of steering committee), the International Water Association (member of Governing Board). The WRC is a member of the WHO international group for small community water supply management, the GWRC, corporate member of IWA. The WRC is represented on the South African National Committee for the International Association of Hydrological Sciences (SANCIAHS).

Other initiatives include:

- The WRC continues to represent the South African Academy of Sciences in discussions addressing the development of capacity for managing water resources by the Inter Academy Programme for Water (IAP) (see above). A staff member of the WRC attended the workshop, addressing the Americas (including North and South America) during July 2006 and it is hoped that this will support co-operation between South Africa and Brazil (based on an existing bi-lateral agreement) as well as other countries, including the USA.
- A staff member of the WRC was invited to serve as a member of the Advisory Committee for the Water Environment Development Centre, UK (WEDC) International Conference for the next two years. WEDC co-organises an annual conference, alternately in Asia and Africa, bringing together about 450 policy makers, practitioners and researchers. Such a gathering will facilitate the exchange of knowledge and perspectives on a wide range of issues as well as provide a rare opportunity for the documentation and discussion at international level of field experiences. During the previous financial year the WRC signed a memorandum of understanding (MoU) with WEDC.
- The WRC coordinated the launch of SAFe Water on 9 May 2006 at the Sheraton Hotel, Pretoria in the presence of high-ranking French officials as well as the Director-General of the Department of Science and Technology. The WRC is a key role player of the SAFe Water project and will manage this programme, which aims to strengthen scientific co-operation between South African and French water scientists.
- The WRC took part in ETXII, a biennial workshop aimed at sharing latest emerging technologies. The WRC presented a number of state-of-the-art technologies developed by various South African research groups.

During 2006/07, the WRC continued to contribute towards capacity building and strengthening the water-centred knowledge base in South Africa. The issues of building the knowledge base (capacity building) and the dissemination, application, transfer and sharing of water-centred knowledge are interlinked and are of great importance to the relevance of the organisation. The challenge of building capacity and improving knowledge dissemination and application is crucial to the WRC.

- The WRC continues its involvement in the Global Water Research Coalition (GWRC). The WRC presented the outcome of the Namibian GRA workshop on future scenarios for water research in Africa as well as its own scenario during a recent GWRC meeting in Switzerland. The WRC is involved in a number of programmes/ projects of the GWRC including asset management, endocrine disruptive chemicals (EDCs), algal toxins and pathogenic organisms.
- The WRC is active in an EU project entitled TECHNEAU (Technology Enabled Universal Access to Safe Water). This EU project aims to understand trends and build future research agendas and adaptive strategies for drinking water. The international research strategy emanating from this process will guide and coordinate partner research activities and funding opportunities.
- The WRC supports WISA in preparing the SA bid to host the 8th International Conference for Acid Rock Drainage (ICARD) in 2009.
- A staff member was invited by SALGA (as part of the South African National Benchmarking Initiative of which WRC is the founder and key partner) to represent SA and participate in the Canadian benchmarking meeting.
- The WRC was invited to become a member of the International Network for Acid Prevention (INAP). A MoU was signed to formalise this process.
- The WRC (University of Johannesburg), in partnership with a number of other international academic centres, initiated a WHO study on cost benefit analyses of water and sanitation.
- The WRC, together with DWAF and WISA, is preparing to host a HELP Symposium during 2007. This is a major UNESCO Conference to be held in South Africa. The Hydrology for the Environment, Life and Policy (HELP) Southern Symposium 2007 is entitled 'Local Solutions to Global Water Problems – Lessons from the South'.
- A staff member attended the 8th Water Information Summit in Brasilia, Brazil (by invitation) from 5 to 7 June together with 50 other delegates from various international and national organizations such as UNEP, GEMS, UNESCO, Inter American Water Resources Network, Water Web Consortium, National and Federal Brazilian Water Agencies, etc. and representing various continents. The presentation made by the WRC on 'The Role of the WRC in Knowledge Management' was well received and raised many interesting issues on synergies and areas of potential South-South collaboration on ICT and broader issues of governance, floods and research impacts.
- A staff member participated and presented a paper at the triennial conference of the International Association of Agricultural Economists (IAAE) from 12 to 18 August 2006 in the Gold Coast, Queensland, Australia. The staff member also participated in the council meetings of IAAE as country representative of South Africa.
- Three staff members attended the IWA Congress in Beijing, China, (September 2006) and presented papers in a number of sessions.
- A staff member presented a paper at the World Congress of Soil Science in Philadelphia, USA (July, 2006).

Achievements *(continued)*

- A staff member of the WRC (who is serving on the steering committee of the CGIAR study addressing the Comprehensive Assessment of Water Management in Agriculture (CA)) was invited to participate in the Stockholm Water Week (August, 2006) to take part in the presentation and discussions regarding the completed comprehensive assessment.
- A staff member serves on the International Steering Committee (ISC) of the XIII World Water Congress of the International Water Resources Association (IWRA) to be held in Montpellier, France, 25-28 August 2008.
- The WRC is leading the water management area of co-operation between Spain and South Africa as part of Spanish-South Africa bilateral co-operation on science and technology. The focus areas, under water management, are groundwater and hydrology. This was highlighted during the bilateral meeting held in South Africa in October 2006 where a high powered delegation from Spain visited South Africa.
- A staff member was elected to the Governing Board of IWA.
- A staff member served on the Policy and Practice Panel for the Challenge Programme for Water and Food (CGIAR) during its International Forum, November 2006.

Building the water-centered knowledge base – capacity building

During 2006/07, the WRC continued to contribute towards capacity building and strengthening the water-centred knowledge base in South Africa. The issues of building the knowledge base (capacity building) and the dissemination, application, transfer and sharing of water-centred knowledge are interlinked and are of great importance to the relevance of the organisation. The challenge of building capacity and improving knowledge dissemination and application is crucial to the WRC.

During the year under review, building capacity in researchers continued to be an important function of research. In many areas of research supported by the WRC, it is evident that students who participated in earlier WRC projects are currently leading WRC-funded research projects and are serving as members of steering committees as well as reviewers of new proposals.

During the current year (2006/07) the WRC has maintained its support to students, with special emphasis on historically disadvantaged students. Currently about 580 students are supported by WRC projects, of whom about 66% are from historically disadvantaged backgrounds. This clearly indicates that the WRC strategy to improve capacity building through its research projects continues to bear fruit.

Science councils continue in their support by building capacity and the number of students supported by consultancy firms via WRC projects is also significant. The increase in the number of students in non-academic institutions may be a result of the WRC strategy of building research networks and research consortia.

Organisation	Number of disadvantaged students	Total number of students
African Water Institute (AWI)	2	2
Anchor Consultancy (linked to UCT)	2	12
ARC	3	5
Arcus Gibb (Pty) Ltd	2	2
Cape Peninsula University of Technology	2	2
Chris Swartz Water Utilization Engineers	10	10
Coaltech 2020	2	2
Conningarth Economists	3	3
Council for Geoscience	2	3
CPH Water	1	1
CSIR	25	31
DH Environmental Consultants	0	1
Digby Wells and Associates	2	4
Durban University of Technology	2	2
Emanti Management (Pty) Ltd	2	3
Environmental Business Strategies cc	1	1
GEOSS	1	1
Golder Associates Africa (Pty) Ltd	5	8
Industrial and Urban Infrastructure (Pty) Ltd	2	2
Maluti Water	2	2
Mvula Trust	2	2
National Museum, Bloemfontein	0	1
Nelson Mandela Metropolitan University	2	4
Nepid Consultants	1	1
Ninham Shand	3	5
NMMU	0	1
Partners in Development cc	2	2

Achievements *(continued)*

Organisation	Number of disadvantaged students	Total number of students
Pegram and Associates	0	1
PICWAT	2	2
Pulles, Howard and de Lange (now with Golder)	3	5
Rand Water	10	16
Rhodes University	21	29
Rural Integrated Eng	7	8
SA Institute for Aquatic Biodiversity	8	15
SASRI	3	3
SAWS	3	4
Sigma Beta	1	4
Siyaphambili Development Consulting	2	2
Source Strategic Focus	3	3
Southern Waters Ecological Research and Consulting	2	7
SRK	6	8
Sustainable Environmental Technologies	1	1
TBR Project	1	1
Tshwane University of Technology	23	24
Umgeni Water	8	10
Umhlaba Consulting	1	3
University of Cape Town	20	50
University of Fort Hare	14	14
University of Johannesburg	5	11
University of KwaZulu-Natal	43	69
University of Limpopo	2	2
University of Pretoria	21	37
University of Stellenbosch	21	31

University of the Free State	14	26
University of the North West	3	14
University of the Western Cape	32	42
University of the Witwatersrand	13	17
University of Venda	4	4
William Harding	0	1
Zakhe Training College	2	2
Zitholele Consulting (Pty) Ltd	1	1
Total	**381**	**580**

One of the important areas requiring the building of competence is that of local government. The WRC serves as the implementing agent for the Department of Water Affairs and Forestry with regard to the Water Information Network (WIN-SA). The WIN-SA sector initiative is growing in strength. WIN-SA is aimed at knowledge sharing and capacity building for local government.

Other initiatives related to capacity building included:

The WRC and the SA Youth Water Prize - The WRC participated in the SA Youth Water Prize prize-giving function on 11 August in Imbali, Pietermaritzburg. The national winners were Nompilo Mahlobo and twin sisters Thobile and Thokozani Mbanjwa. A staff member was one of the judges. The WRC sponsored the main prize: computers were handed over to all the finalists.

The WRC and women in water, sanitation and forestry awards - The WRC supported the Women in Water Award. This award (now including Women in Sanitation and Forestry) was jointly established by DWAF, WISA and the WRC. A staff member was a member of the award adjudication committee. This year the WRC produced a booklet *Amakhosazana Emvula* (meaning Princesses of Rain), celebrating South Africa's women who made significant contributions to the water sector. The foreword in this book is written by the Minister of Water Affairs and Forestry, Ms Lindiwe Hendricks.

Capacity building for local government- The WRC completed a study on assessing capacity needs and recommending appropriate mechanisms for building capacity in local government to facilitate effective water and sanitation services. The study informed the DWAF 2025 capacity building initiative (see above under customer/stakeholder relationships, local initiatives).

Africa and global capacity building

The WRC's capacity-building activities continue to address both support for Africa and participation in global initiatives aimed at building capacity: examples being the continuous involvement of the WRC in building a network of centres of excellence for water research in Africa (a NEPAD initiative) and the role

Achievements *(continued)*

the organisation plays in WARFSA and FETWater (see above). Another example is the WRC's role in Streams of Knowledge, a network of capacity-building organisations, focused on water and sanitation, with most members being from various parts of Africa, including three institutions from South Africa (Mvula Trust , NSCWSTI and WIN-SA).

Enhancing knowledge dissemination, sharing and public understanding of water-centred knowledge

With regard to knowledge dissemination, the WRC continues to search for different mechanisms to improve knowledge sharing, dissemination and transfer. During 2006/07 the WRC finalised 72 research projects and published 105 research reports which were distributed widely within the water sector. In addition to publishing research reports, regular publications such as *Amanzi*, the *Knowledge Review* and *The Water Wheel* and a number of policy briefs, the WRC undertook two Open Days and many technical workshops aimed at sharing knowledge. The first Open Day took place during July 2006 at the University of the Western Cape. The event showcased WRC-funded projects in the Western Cape Province. Some noteworthy projects included projects addressing research on groundwater, endocrine disrupting compounds (EDCs), environmental flows, membrane technology, estuary-related research, leak management and waste minimisation.

The second Open Day took the form of a knowledge forum. The WRC's Knowledge Forum took place at The CSIR Convention Centre during October 2006. The event commenced with a presentation by the CEO, outlining the 2005/06 WRC Annual Report and Knowledge Review. These documents were then officially handed over to Ms Barbara Schreiner who accepted the documents on behalf of Mr J Sindane, the Director-General of the Department of Water Affairs and Forestry. This was followed by a comprehensive panel discussion on: **Current Realities and Challenges in Sanitation Improvement- Future Perspectives and Needs**. Panellists included well-known authorities on the subject of sanitation. The discussion closed with a summary led by Ms Connie September, Chairperson: Portfolio Committee on Water Affairs and Forestry.

The WRC and the University of Venda - The WRC also organised the Science Exhibition at the University of Venda. The School of Agriculture, Rural Development and Forestry: University of Venda (UNIVEN) held an Open Day on 11 August. The WRC was one of the exhibitors at this event. WRC publications (WRC reports, magazines and career guides) were distributed. Students at the university found the WRC career guide, Water @ Work, very helpful.

Transferring knowledge through a debate - A technical debate organized and sponsored by the WRC in association with WISA was held on 5 October 2006 at the CSIR. The technical debate theme was: **Is Urine-Diversion Feasible in the Urban Areas Served by Water- Borne Sewage Systems?** The debate was informed by the work done by Dr Jac Wilsenach (CSIR, Stellenbosch) on the treatment of source-separated urine and its effects on wastewater systems. Approximately 50 people attended this successful debate.

The WIN-SA sector initiative is growing in strength. WIN-SA is aimed at knowledge sharing and capacity building for local government. WIN-SA's Water Services Councillor Induction (Instructional DVD) has 'got the whole country talking': It is a very useful and concise tool aimed at capacitating local government: it captures essential issues, enables councillors to see the real picture and to hear from other councillors. The growth of the WIN-SA Lessons Series is highly appreciated by local government and other stakeholders. Nine lessons have been learnt covering various themes which focus on improved service delivery by local government. The WIN-SA Fieldnote Series was launched this year. This series captures discrete experiences by local government in a two-page document that is easily accessible. The new look WIN-SA website has recently been launched. It seeks to provide easier navigation and access to information. WIN-SA recently conducted a learning journey for 12 officials from the North West and the Northern Cape Provinces, to learn more on operations and maintenance of infrastructure. This initiative was highly appreciated by local government in both provinces.

The WRC and the WISA Conference- The WISA Biennial Conference 2006 was held at the ICC, Durban on 22-25 May. The WRC was a key role-player and sponsor at this major event. WRC personnel attended the conference and also presented papers and conducted workshop sessions. In addition, the WRC Knowledge Café was open for business: disseminating knowledge (WRC publications, CDs and hard copies), taking orders for WRC reports and answering queries and questions relating to WRC research projects. WRC project leaders, research managers and directors were involved in no fewer than 70 presentations and workshops for the duration of the conference. The WRC launched the Handbook for the Operation of Water Treatment Plants (WRC Report No TT 265/06) during the conference. The booklet was in great demand and is gaining popularity in the South African water sector.

Water summit - At the request of the Minister of Water Affairs and Forestry, the WRC coordinated the attendance and keynote address of Prof Duncan Mara (School of Civil Engeneering, University of Leeds, UK) at the Water Summit which was held on 3- 4 May. This was followed by a special meeting with the Minister, WRC, DWAF and Prof Mara. Based on the above discussion, the WRC was requested by the Minister to facilitate sending a delegation to Brazil to learn about low-cost sanitation options and experiences and to coordinate another round of sanitation training courses. Other issues discussed were possible co-operation between DWAF and the WRC on an accelerated pilot project to demonstrate low-cost sewerage technology, and a possible visiting professorship for Prof Mara.

Water SA - The WRC changed the distribution channel of Water SA, from paper-based to electronic. This change in distributing the publication has been received favourably by its readers.

Biennial Stander Evening - The WRC was one of the sponsors at the Biennial Stander Evening which was held on 24 October 2006 at the CSIR Conference Centre. During this evening the contribution made by young scientists is celebrated. Three young scientists were recognised and each gave a presentation as follows:

- Dr Jonathan Taylor, North West University (Potchefstroom Campus), presentation – The Application of Diatoms for Biomonitoring of South African Rivers and Streams

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Achievements *(continued)*

- Ms Jennifer Molwantwa, Rhodes University, presentation – Sulphide Oxidation: The Missing Link in Sulphate Reduction
- Mr Scott Sinclair, University of KwaZulu-Natal, presentation – Flood Forecasting using Remote Sensing Data

The keynote speaker at the function was Professor Peter Rose, Director of Environmental Biotechnology at Rhodes University. His talk was titled **From Grootvlei to Witbank:A Decade of Global Leadership in the Remediation and Treatment of Mine Drainage Wastewaters**.

Exhibitions

The WRC, in its quest to strengthen partnerships with professionals and other stakeholders in the water sector and to build new alliances, uses various channels to engage with stakeholders, nationally, regionally and on international platforms. One such channel is exhibiting at water-related exhibitions, conferences, symposia and workshops. At some conferences where delegates from African countries and overseas countries are present, the WRC strives to forge new partnerships and alliances so as to refine its knowledge resources and update its knowledge archive, making it a truly dynamic water knowledge hub. During the various exhibitions the WRC disseminates knowledge in the form of reports and other publications. Some exhibitions include:

- Johannesburg Water Festival, Johannesburg (21-26 April 2006)
- National Water Summit, Midrand (4-5 May 2006)
- WISA Biennial Conference, Durban (22-25 May 2006)
- SABC Career & Training Faire, Pretoria (29 May 2006)
- University of Venda Open Day, Venda (11 August 2006)
- SANCID Biennial Symposium, Mpumalanga (15-17 November 2006)
- SARIA Training Workshop, Pretoria (6-7 February 2007)
- IWA Workshop, Pretoria (19 March 2007)
- National Water Conservation and Water Demand Indaba, Midrand (22-23 March 2007)

Technical workshops

A number of technical workshops were held by the various KSAs. Some of the workshops aimed at knowledge sharing, and transfer (training) while other workshops were aimed at developing terms of references for future solicited projects.

- Diatoms for monitoring water quality (training workshop)
- Secondary effects of climate change on aquatic biota
- EDC workshop with an international specialist on veterinary compounds and their impact on water
- Water use of fruit tree orchards
- Water use of drought-tolerant food crops
- Quantitative investigation into the link between irrigation water quality and food safety
- Development of a comprehensive learning package for education on the application of water harvesting and conservation (WH&C)
- Rainwater harvesting and conservation (RWH&C) for range land and crop land productivity in communal areas in selected provinces in the semi-arid areas of South Africa.
- Assessment of the economically beneficial contribution of water use to value chains in agriculture

- Awareness creation, implementation plans and guidelines for management of sustainable on-farm and on-scheme water measurement
- Situation analysis of problems for water quality management in the Lower Orange River region with special reference to the contribution of the foothills to salinisation
- Two workshops with international experts on EDC veterinary compounds were organised and facilitated by the WRC, including a workshop with Dr. Bruno Le Bizec from Laberca, Veterinary School in France on the introduction of methods for detecting such compounds and a workshop with Prof. Heinrich H.D. Meyer from the Technical University of Munich, Germany on health aspects regarding these compounds.
- A workshop was held to examine the requirements for the consistent valuation of goods and services from aquatic ecosystems for the resource directed measures (RDM) process
- A wetland specialist workshop was held to define the process for the determination of the Ecological Reserve for wetlands
- A socio-ecological systems workshop focusing on aquatic ecosystem services and human well-being in the Sand River sub-catchment of the Sabie River.
- A workshop on new standards for Chemicals used in Potable Water Treatment.
- Workshop on challenges with small package treatment plants (in co-operation with WISA).
- Two information days were held in the Northern Cape Province in cooperation with the provincial Department of Agriculture and Land Reform. The purpose was knowledge dissemination of the findings of the WRC project on "Situation analysis of problems for water quality management in the Lower Orange River region with special reference to the contribution of the foothills to salinisation" (WRC Report no 1358/1/05). Preparations were made by project staff from the Agricultural Research Council and the University of Stellenbosch and demonstrations took place in the field. Each day was attended by at least 30 farmers and agricultural advisors from local cooperatives.
- A workshop on "Decision support models for irrigation water management" was held as part of a WRC project from 6-7 November 2006, where representatives of seven Water User Associations (WUAs) who participated in the project, were invited.
- A workshop on the occurrence of the cyanobacterial neutoroxin beta-methyl amino alanine (BMAA) in raw potable and drinking water supplies in South Africa
- Nine workshops related to ongoing and completed projects were conducted by the WRC at the WISA Conference, Durban 2006.

WRC in the media

In its inaugural issue, *Water and Sanitation*, a new publication aimed at WISA members, featured an exclusive interview with a WRC project leader who developed the guidelines for IWRM planning for local government. The guidelines are being rolled out nationally in a series of workshops. A pilot implementation in a small municipality has been commissioned in 2006 for Makhana Municipality in the Eastern Cape.

Achievements *(continued)*

On 15 July, a staff member had a one-hour 702 & East Coast Radio talk show with Lee Benny on bottled water and home water treatment devices.

The WRC hosted the National Press Club on 31 August at the WRC offices. Guests included journalists, editors and communication practitioners. The function also showcased some WRC research projects such as wetting front detectors, climate change and water quality.

The WRC was featured on two television and radio broadcasts. The October 2006 WRC Knowledge Forum and Panel Discussion was featured on Morninglive and SABC Africa. The SA Youth Water Prize winners, who formed part of the WRC Open Day, were featured on Kids TV on SABC. An interview with Dr Mhita, a well-known meteorologist (WMO) who was visiting the WRC, was broadcast on SABC Africa. Print media articles also included an interview with Dr Mhita in Water and Sanitation.

Dr Nico Benadé, the recipient of the Innovative Water Management Award for his Water Administartion System (WAS) computerised program was featured in *SA Irrigation*.

During February 2007 SABC2 featured a documentary on fish ladders on 50/50. The programme acknowledged the WRC's contribution to research in this critical area. The entire documentary was shot in the Kruger National Park and various fishway designs and dynamics were discussed. During the same month, a clip on water scarcity and the WRC's role was broadcast in the News on SABC 3.

Publications authored by WRC staff members

Gerhard R Backeberg and Andrew J Sanewe published an article in the international journal *Irrigation and Drainage* (Vol. 55, June 2006) with the title **'The research and development strategy for water utilization in agriculture-responding to diverse needs of farmers in South Africa'**. This article is based on the paper presented at the Special Session on 'Driving research for change in irrigation and drainage practices', 19th Congress of the International Commission on Irrigation and Drainage (ICID), Beijing, China, 12 September 2005.

Stanley Liphadzi wrote a chapter in a book entitled:

- Physiological Effects of Heavy Metals on Plant Growth and Function. In: Bingru Huang (ed.) *Plant-Environment Interactions* (3rd edn.). Rutgers University, New Brunswick, CRC Press, New Jersey, USA. pp 243-269.

In addition, the same staff member also published two journal articles entitled:

- Heavy metal displacement in EDTA-assisted phytoremediation of biosolids soil. *Water Science and Technology* 54.
- Availability of heavy metals in soil with injected sludge and composted-sludge soil. *Advances in GeoEcology* 38: 203-214.

Stanley Liphadzi also co-authored 3 journal papers with Prof. M.B. Kirkham of Kansas State University in the USA:

- Auxin-enhanced root growth for phytoremediation of sewage sludge amended soil. *Environmental Technology* 27: 695-704.
- Chelate-assisted heavy metal removal by sunflower to improve soil with sludge. *Journal of Crop Improvement* 16: 151-170.

- Availability and plant uptake of heavy metals in EDTA-assisted phytoremediation of soil and composted biosolids. *South African Journal of Botany* 72: 391-397.

Other publications

Water Science & Technology (Volume 54 Number 5, 2006) edited by Heidi Snyman contains selected papers from the international conference entitled: Sustainable Management of Residues from Water and Wastewater Treatment held in 2005 and was published in September 2006. This edition contains several papers from South African researchers supported by the WRC. WRC supported research papers include:

- 'Development of the South African wastewater sludge guidelines' by H.G. Snyman, A.M. van Niekerk, E. Herselman and J.W. Wilken (p 9-16)
- 'The effects of hydraulic retention time and feed COD concentration on the rate of hydrolysis of primary sewage sludge under methanogenic conditions' by N.E. Ristow, S.W. Sötemann, M.C. Wentzel, R.E. Loewenthal and G.A. Ekama (p 91-100)
- 'Integrated chemical, physical and biological processes modelling of anaerobic digestion of sewage sludge' by S.W. Sötemann, P. van Rensburg, N.E. Ristow, M.C. Wentzel, R.E. Loewenthal and G.A. Ekama (p 109-117)
- 'Dedicated land disposal of wastewater sludge in South Africa: Leaching of trace elements and nutrients' by J.E. Herselman, C.E. Steyn and H.G. Snyman (p 139-146)
- 'Heavy metal displacement in EDTA-assisted phytoremediation of biosolids soil' by M.S. Liphadzi and M.B. Kirkham (p 147-153)
- 'The survival of pathogens in soil treated with wastewater sludge and in potatoes grown in such soil' by J.R.B. Chale-Matsau and H.G. Snyman (p 163-168)
- 'Using Ecosan sludge for crop production' by B. Jimenez, A. Austin, E. Cloete and C. Phasha (p 169-177)
- 'The effects of water treatment residues on soil respiration and microbial community structure' by S. Pecku, C.H. Hunter and J.C. Hughes (p 215-225)
- 'The effects of a polyacrylamide-derived water treatment residue on the hydraulic conductivity, water retention and evaporation of four contrasting South African soils and implications for land disposal' by M. Moodley and J.C. Hughes (p 227-234).

Making knowledge application a reality – commercialisation

During the year under review, knowledge application i.e. transferring of various technologies, processes and/or products developed with the support of the WRC continue to be a challenge. It required the understanding of issues of intellectual property (IP) and commercialisation. The WRC is continuing in its drive to provide the country with applied knowledge and water-related innovation. In addition, the WRC is supporting water-related innovation and its commercialisation where applicable. Often, these technologies, processes and products require commercial involvement in order to make them available for use. With creative licencing strategies, the WRC can assist in fostering sustainable development, which, in the WRC's view, will allow transfer of technology with the aim of promoting a better quality life for all. In this

Achievements *(continued)*

connection, a high percentage of the patent portfolio is licensed out. During 2006/07, the WRC continued in its effort to license and earn income from its licenced IP. A new IP manager commenced duty during July. The WRC also aims to build awareness and improve IP management internally and at academic institutions. The WRC is currently developing guidelines to deal with the procedure for disclosure and commercialisation of its IP portfolio.

During the year the WRC has seen growth in its IP portfolio. In this connection, the WRC has filed six provisional patent applications, a clear indication of the commitment on the WRC to continue to provide South Africa and the world at large with applied knowledge and water-related innovation. The six provisional patents filed include:

- Biosensor
- Method of detecting the presence of micro-organisms in a solution
- Olive wastewater treatment
- Passive sampler
- Application for fly ash and its derivatives and
- Synthesis of zeolites

During 2006/07, licence agreements with reputable South African and international companies were maintained and signed. These include:

- The BioSURE™, a cluster of 36 patents which is licensed to ERWAT. Products arising from this cluster have gone through the development and piloting phases and further developments are scheduled for the next financial year.
- The Petro™ process, a cluster of 8 patents, was licensed to Presario.
- The secondary metabolites, a cluster of 13 patents, are currently licensed to Synexa-Bio and a first royalty payment was received in July 2006.
- Filtration Membrane Technology (CUF), a cluster of 5 patents, is in the final stages of licensing negotiations with Hydrophil. The licence agreement is expected to be signed early in the next financial year.
- The acid mine drainage process is currently licensed to environmental technology agencies and royalties have not yet been received as the product is still under development.
- Detection of fouling membrane patent is currently licensed to a German company and the product is still under development.

In addition to formal IP processes, the WRC has also supported a number of initiatives linked to the transfer of technology. Some of these examples are:

Launch of the effluent treatment plant at Gelvenor Textiles

The effluent treatment plant at Gelvenor Textiles held its official commissioning on 19 June 2006 at Hammarsdale, KwaZulu-Natal. This is a role model for co-operation between Government and the textile industry in sustainable development. The project is an example of a win-win relationship between industry and the environment. This process has been made possible with assistance on best practice by the Governments of the Kingdom of Norway, Denmark and the European Union, including local partners such as the WRC, the Department of Environmental Affairs and Tourism and DWAF. This project involves

collaboration between the University of KwaZulu-Natal's Pollution Research Group (PRG), which has extensive experience and expertise spanning a period of 36 years, and eThweni Municipality. The PRG focuses on promoting cleaner production, reducing water pollution from industry and the cost of water treatment processes.

A unique and beneficial partnership in an urban water management project between the University of KwaZulu-Natal (UKZN) and the eThekwini Municipality was formalized at an event which took place on 13 April 2006. The occasion saw the official handover of a cheque for R1m. to UKZN as the first payment of a R5m. commitment by the Municipality for the facilitation of the project. The WRC, one of the PRG's funders, has been involved with the PRG since 1990, funding projects to the tune of R17m.

Models @ work – tools for water user associations

A workshop on 'Decision Support Models for Irrigation Water Management' was held as part of a WRC project from 6 – 7 November 2006 in which representatives of seven Water User Associations (WUAs) who participate in the project, were invited. This project saw a geographic information system (GIS) being developed in co-operation with the WUAs, and data are collected for implementation of the following models in response to end-user needs:

- SAPWAT for estimation of crop water requirements
- Soil water balance (SWB) for real-time irrigation scheduling
- RiskMan for simulation of cumulative probability functions associated with irrigation farming
- Water administration systems (WAS) for irrigation canal management
- ACRU for simulation of hydrology in sub-catchments

Based on feedback received during the workshop, it is clear that the biggest requirement for WUAs is to manage the irrigation scheme, with a related demand for effective implementation of the WAS. The SAPWAT, SWB, RiskMan and ACRU models are more likely to be implemented by advisors or consultants on irrigation schemes. The possibility of WUAs establishing helpdesks was discussed; this would facilitate an effective support service in order to promote implementation of the models for efficient water use from field to farm to scheme to catchment level.

An international award for innovation

The Water Administration System (WAS) for the ICID WatSave received the Innovative Water Management Award in 2006. The WAS is a comprehensive computerised program which is used to manage water releases in irrigation canals, with the main aim of reducing water loss. It was developed and implemented by Dr. Nico Benadé (NB Systems cc) over the past 20 years with WRC investment in four consecutive research and technology transfer projects.

Performance

Feedback from Institutional Review

The current financial year (2006/07) has marked the 5th year of operation of the WRC as a dynamic water-centred knowledge hub. It was agreed by The Board and Management of the WRC that this period was sufficient in allowing the WRC to consolidate its strategy and to provide for adequate implementation time.

Achievements *(continued)*

It was therefore decided that it was an opportune time for reviewing the organisation's relevance, effectiveness and efficacy. An in-depth strategic evaluation in the format of an Institutional Review was decided upon. The review, which is common practice in the science and technology communities, both locally and globally, was carried out during July 2006 by a group of local and international experts. The aim was to provide the WRC Board and Management with feedback on the WRC strategy and operations for the period 2001/02 to 2005/06. The Institutional Review found the WRC to be a relevant organisation with a sound and broad research portfolio. It also indicated that the performance of the WRC has improved consistently and that the WRC has an adaptive management responding to national transformation imperatives. The WRC was found to be aligned to sustainable development and poverty eradication; its governance arrangements were found to be good and its capacity-building initiatives for research were found to be effective. Although the overall findings of the review were very positive, the review panel also indicated areas that can be improved further.

The Institutional Review reported an overwhelmingly positive view from stakeholders with regard to their relationships with the WRC. The WRC is viewed as responsive and receptive to new and innovative ideas as well as being an honest broker in the sector and a consensus builder. It is also viewed as a reliable, objective, transparent and impartial organisation with good alignment with different stakeholder groups. The review supported the WRC initiative in Africa and its support to NEPAD.

This feedback from the review supported the development of a 5-year core strategy for the period of 2007/08 to 2011/12. The recommendations of the review are integrated into the core strategy and are addressed in great detail by the various key performance areas of the organisation for the financial year(s).

Citations

Feedback is an important instrument in gauging the level of satisfaction of stakeholders. The WRC is constantly re-inventing itself in order to meet the needs of its various stakeholders. Collecting citations referring to the WRC and its activities is one feedback mechanism that the WRC relies upon. Citations indicate public appreciation as well as valuable suggestions to guide future actions and development. The following citations indicate stakeholders' impressions of the WRC:

Citation reflecting on the relevance of the WRC

"In our response to the call by the President on the need to contribute to the building of the capacity of the State, our department has instructed the Water Research Commission to conduct a study of all capacity-building initiatives currently taking place within the Water Sector. The results of this study will inform our 2025 Vision on Capacity Building."

"There are disturbing indications of resource degradations in several parts of the country. The state of affairs at a number of sewage treatment works throughout the country was recently investigated in a research study commissioned by the Water Research Commission."

Minister Buyelwa Sonjica:
Budget Speech 23 May 2006

Citations reflecting level of service provided by the WRC with regard to knowledge dissemination

"I want to make the organisation aware of the excellent services being rendered by your library personnel. Without fail they have responded to requests for publications quickly, in a friendly manner and very effectively. You are fortunate in having staff such as these within your company".

2 May 2006 - Adri Venter,
Manager: Environmental Resource Management,
City of Tshwane

"I found your Water Wheel journal /Amanzi to be the most interesting, educational and well managed. It is relevant in water technology and environmental aspects and very informative. It is also adhering to modern world standards and with future vision of water co-ordination of both rural and urban centres, highlighting and creating awareness on water-borne diseases. Since I started receiving the journals I am meeting with stakeholders in our small town in Kenya called Nanyuki. Keep up Keep up. I would like to continue receiving your journal and conference invitations."

John Sikote,
Water Technologist 28 October 2006

Citations reflecting the WRC contribution to Capacity Building

"This is OUR Environment....
Let's Develop it and Let it Grow"
It is in order to recognise the role that women have played and continue to play in water, sanitation and forestry management in South Africa that the Department of Water Affairs and Forestry, the Water Research Commission and the Water Institute of South Africa have jointly developed the Women in Water Awards, now called the Women in Water, Sanitation and Forestry Awards."

DWAF Website 11 August 2006

"In conclusion, I would like to express my gratitude to the adjudicating team for their sterling work. We appreciate your dedication and commitment to youth development. And to the University of KwaZulu-Natal, the Cape Peninsula University of Technology, the Water Research Commission, Umgeni Water, and Mhlathuze Water for sponsoring this project. Isandla sihlamba esinye. Yenzani njalo ukuxhasa amalinge esizwe sethu."

Ms Lindiwe Hendricks,
Minister Of Water Affairs & Forestry
National Youth Water Prize,
Pietermaritzburg, 11 August 2006

I am writing to let you know about the benefits of the 'Water @ Work' CD, as per your request.

The CD was given to approximately 80 to 100 teachers (Mpumalanga, Eastern Cape and North West) and they were grateful to gain the information – particularly in the CD format (exposure to this medium was well received). The CD provides valuable, diverse career data across the board and isn't just limited to the science and engineering fields. It provides information about the necessary qualifications, skill requirements and employment opportunities in the various careers which aids in informing teachers and students with regards to the process of applying and embarking on these specific careers. It also mentions careers that students and teachers may not have heard of before and this lets them know

Achievements *(continued)*

that there are many options and alternatives to popular careers. The CD and booklet are easy to use and written in a manner that is understandable to all. The colours, pictures and layout are particularly appealing and add to the ease with which the material can be navigated.

Thank you very much for providing us with the material – another pleasant surprise was the ease with which the material was obtainable and the willingness of the staff to provide it to us."

Venise Germanos , Counselling Psychologist,
BHP Billiton Career Centre
Sci-Bono Discovery Centre, 9 October 2006

"In appreciation with the WRC to support capacity building in Water Research in Africa

Well, initially let me thank the excellent job done by the WRC in the organization of the IAP Water Workshop. Indeed it was an extremely fruitful meeting and I'm sure that it has played a crucial role in the launching of the programme in Africa. As you said at the end of the meeting, the outcomes of the meeting exceeded by much my preliminary expectations. Besides the excellent meeting, let me thank you and your team for the warm hospitality provided to us….congratulations for the most successful workshop!!!

Marcos Cortesão Barnsley Scheuenstuhl
Academia Brasileira de Ciências ,Iter Academies
Programme for Water, 21 August 2006

I am humbly sending my appreciation for organizing such a wonderful workshop there in RSA. To me that has been of great importance and I have to thank you all for extending the invitation to me. I sincerely believe that what I learned from other members and the wonderful performance of the WRC has made an unprecedented impact and, in fact, changed my vision on water issues.

Clavery, T. Faculty of Science Sokoine University of Agriculture TANZANIA, 29 August 2006

The Water Research Commission has recently completed a study of 62 municipalities looking at water losses; and the study estimates that if what is taking place in these municipalities were applied across the board; the losses for domestic water use through physical water losses, inaccurate meters, and unbilled and unauthorised consumption could be as high as 29% of the total domestic water supplied in South Africa (which excludes irrigation and bulk users). This highlights a serious challenge, and I am told that the situation is equally challenging internationally. Over the past few years, the Water Research Commission, in partnership with my Department, has invested in developing advanced and pragmatic tools and methodologies to quantify and assess water losses. These developments assist us in working towards more credible and accurate estimates in a cost efficient manner. A recent research output undertook an extensive nation-wide study for the assessment of, and causes of non-revenue water in South Africa, with a particular focus on municipal water supply systems. The study highlights the root causes, nature and extent of estimated water losses in the various water use categories. This will assist us to design relevant interventions to improve the situation.

Minister Lindiwe Hendricks, National Water
Conservation and Water Demand Indaba,
22 March 2007

Investing in the creation of water-centred knowledge

Investing in the creation and sharing of knowledge

Water is fundamental to life: water quantity and quality are keys for quality of life, the health and well-being of both human beings and the environment and the country's economic and social sustainability. Having sufficient water of good quality is a continuous challenge facing South Africa. Since South Africa is located in a semi-arid geographical zone, the country views its water as a scarce commodity. Thus, South Africa is characterised by a continual quest for innovative ways of using water optimally. Wise/effective ways of managing water will result in 'having more for less'. Effective management necessitates having the right knowledge and information at one's disposal. During 2006/07 the WRC continued to serve South Africa's government and, more specifically, the Minister of Water Affairs and Forestry, its shareholder, DWAF, and supported the water sector and all relevant institutions and partners by providing them with high-quality and appropriately packaged knowledge to inform the decision-making processes and the application of technology which relates to water resource management and the provision of water and sanitation services. The WRC supported policy development and implementation through the provision of the required knowledge.

The WRC continued to address the issue of climate change. Climate change and the linked phenomena of extreme events require both understanding and adaptability. This is again a key challenge facing South Africa as espoused by the Minister. The WRC supports South Africa in its endeavours to develop adaptive strategies to ensure the sustainability of the country's water resources and services in the face of continuous changes in climatic conditions and potential extreme events, which may severely affect existing infrastructure or further diminish our scarce water resources.

The research portfolio of the WRC for 2006/07 was developed based on a needs analysis including medium- to short-term as well as explicit and implicit needs. South Africa's water problems/issues are reflected in this portfolio with the aim to scientifically build the required solution and, where possible, the capacity for its use. The process of setting the research portfolio was a result of many interactions at various levels with both the local and the global water sectors. The portfolio was also informed by scientific developments which can be applied to water research so as to provide beneficial solutions.

The WRC continued to invest in the creation of knowledge via its four main key strategic areas (KSAs). These areas include **Water Resource Management**, **Water-Linked Ecosystems**, **Water Use and Waste Management**, and **Water Utilisation in Agriculture**. In general, the portfolio as planned for the year under review was well received by the various stakeholders. The Institutional Review also supported the research portfolio and the KSA-based structure, with its four water-centred KSAs (as mentioned above), supported by the knowledge-centred KSA. This structure continued to form the core operating framework for WRC-funded R&D and was further consolidated during the year and became accepted generally.

During the year under review , the WRC supported 314 research projects, of which about 77% (243 projects) were active projects (ongoing and new)

Achievements *(continued)*

and about 23% (71 projects) were finalised. The active projects comprised 187 ongoing projects and 56 newly initiated projects that commenced during 2006/07. The various mechanisms of funding included both non-solicited projects, accommodating projects within the broad research strategy of each KSA, and solicited projects, where research projects are developed in accordance with clear terms of reference, aimed at solving specific problems. The WRC supported 67 solicited projects, which translates to about 28% of active projects.

In comparison with the previous year, the year under review shows a 6.5% decrease in the number of projects, i.e. 314 projects in 2006/07 vs. 336 projects in the previous year. This is a slight reduction In comparison to the 26% reported in the previous year (project number was reduced from has dropped from 454 (during 2004/05) to 336 (during 2005/06). This indicates that the drive for improvement of project management have resulted in achieving a reasonable number of projects. In addition, this trend reflects a strategic drive to address the needs of the South African water sector where research problems are often of a complex nature which requires larger projects of a multidisciplinary nature. As indicated by the number of active projects the trend in the reduction of overall projects is not affecting the number of current ongoing projects. The number of active projects is similar to that of previous years with a difference of less that one percent deviation (i.e. two projects, 245 in the previous year and 243 projects during the year under review). However, there is an increase of the proportion of ongoing projects as a percentage of total active projects, while the number of newly initiated projects has been slightly reduced. During the year under review 56 new projects have commenced while the previous year indicated 70 new projects. The reduction of the number of new projects is directly related to the number of ongoing active projects.

Number of projects and their distribution (finalised, ongoing and new)

Financial year	2006/07	2005/06	2004/05
Total No. of projects	314	336	454
No. of active projects	243	245	356
No. of new projects	56	70	82
No. of finalised projects	71	91	98
No. of active solicited projects	67	74	41

Utilisation of funds by the various KSAs

The percentage utilisation of research project funds (based on amounts actually paid out) by the KSAs during 2006/07indicates that about 49% in comparison to about 46% (2005/06) was invested in projects that focused on water resources (including water-linked ecosystems) and about 51% (compared to 54% (2005/06)) in projects that focused on water utilisation (including effluent treatment and management, as well as agriculture). This is based on the actual amount paid out to projects during the current financial year. The allocation of about 50% of the fund to issues related to resource management and 50% to water utilisation is ongoing and was supported by the recommendations from the institutional review. .

The actual utilisation (as a percentage of total funds) of funds by the KSAs almost fully agrees with the planned allocation, and the deviations do not exceed 5%.

Based on cash paid out, the overall investment in research projects (knowledge creation) was about R60m. This amount (paid out for research projects) reflects a 6% deviation from last year (R63.9m. during 2005/06).

Investment in the total support of knowledge creation, sharing and dissemination amounted to R85.5m. (including about R4.8m. for WIN-SA and other income leveraged for research projects during the year under review). Both the investments in research projects and in research support, expressed as a percentage of total expenditure, were close to the set budgeted ratios (a maximum of 3%). The ratio addressing funding of the creation of new knowledge (research projects only) is the same as in the previous year. The ratio for research support is also similar to that of the previous year with only 2% difference).

Distribution of research project funds among KSAs - planned vs. utilised (cash paid out) funds (2005/6 data in brackets)

KSA	Planned % allocation of funds	% of fund utilised for research projects
Water Resource Management	33 (33)	34 (32)
Water-Linked Ecosystems	14 (13)	15 (14)
Water Use and Waste Management	30 (31)	25 (30)
Water Utilisation in Agriculture	23 (23)	26 (24)

Achievements *(continued)*

Business efficiency indicators (budgeted and cash paid out)

	06/07 (budgeted*)	06/07 (cash paid out)	05/06 (cash paid out)
Research project funding as % of total expenditure**	66%	64%	63%
Research support (research projects and support and technology transfer) as % of total expenditure	78%	75%	77%

* Not including transfer of unutilised research funds; ** Expenditure does not include provisions for bad debts and leave, bad debt write-offs, pension payouts and non-cash amounts

Leveraging income for the creation, sharing and dissemination of water-centred knowledge

During the year under review the WRC continued to leverage levy income by striving to obtain funds from other sources to support water research. During 2006/07, this drive has been highly successful. The WRC income originating from sources other than the levy for 2006/07, has increased to R14.7m. from about R10m. in 2005/06. This is an increase of almost R5m. or approximately 50% over the previous year. Leveraged income included funds allocated to a number of KSAs for direct support to research projects and funds provided for knowledge sharing and dissemination (e.g. the Water Information Network, WIN-SA). Leveraged income was obtained from both local and international sources, where the main source of income was due to support by various government departments for specific research and other knowledge-sharing projects. Other sources of income amount to about 16% of the total income (3% higher than the previous year).

Income indicators

Indicator	Budget	06/07 Year-end (actual received)
Levies as percentage of total income	85%	83%
Other sources of income as percentage of total income	15%	16%
Leveraged income as a percentage of other income *	75%	80%

* Leveraged income includes all other income with the exception of interest received

Organisational goals and objectives
(key performance areas)

The WRC developed and revised its key performance indicators (KPIs) and set measures and targets by which to assess levels of organisational performance as either excellent, very good or good. In certain areas where a strategic need existed for development and growth, the WRC set specific indicators and targets, or enhanced the targets in relation to the year's objectives and indicators.

In other areas where either slow or gradual improvement was required, or where performance-level objectives set were to be maintained, the indicators established for the previous financial year (2005/06) were retained. For developing and setting KPIs for 2006/07, the organisation went through an extensive process of revisiting and building descriptions/definitions for each indicator, its measures and performance targets. The organisation applied quantitative KPIs to all its staff members.

Customer/stakeholder relationships

This KPA addressed the WRC leadership and positioning activities and provides feedback regarding relevance.

The objective of this KPA was to enhance the standing of the WRC locally, in Africa and globally, and to receive feedback with regard to the WRC's position with special reference to its relevance and effectiveness.

This overarching goal has been translated into a number of indicators as follows:

- Internal affairs (activities of the WRC focused on South Africa).

  These affairs include:
  - Local initiatives (initiatives of key importance to the water, S&T and other related national sectors where the WRC plays a significant role)
  - Public appreciation (this includes feedback regarding the role and relevance of the WRC)

- External affairs (activities of the WRC focused outside South Africa). These affairs include:
  - African leadership (key strategic activities in Africa where the WRC is playing a significant role)
  - International player (activities such as global partnerships, participation in global projects, etc.)

Organisational goals and objectives *(continued)*

The Table below provides an overview on performance against set objectives. Details regarding various initiatives can be found under the section addressing 'Leading Water Centred Knowledge' (see above)

Goal/objectives	Indicators	Excellence Target	Performance
Leadership in local affairs • National initiatives • Public appreciation	National initiatives of key importance to the water, S&T and other related national sectors where the WRC plays a significant role Strategic positioning initiatives aimed at positioning the WRC for future sustainability and growth	Eight national initiatives (50% ongoing/50% new) Two strategic positioning initiatives	A performance target of 'excellent' which required 8 such key initiatives was achieved and exceeded. The ratio set for 50% ongoing to 50%. Six new leadership positions were also achieved. Details are given above A performance target of 'excellent' was achieved with more than two such major initiatives undertaken during 2006/07. Emphasis was placed on interaction with the parliamentary portfolio committee for water affairs and forestry
	Feedback regarding the relevance of the WRC to South Africa. This included positive outcomes of an international review and impact studies (at project and KSA levels) and positive citations	Positive outcomes intuitional review and impact studies Five citations	The outcomes of the Institutional Review were highly positive indicating the WRC as being a relevant and highly professional organisation. The analysis of the impact tool met with regard to Institutional review. Excellence target was also met with regard to Impact studies. The performance target of 'excellent' set as feedback in the format of 5 citations indicating public application of the WRC was achieved
Leadership in external affairs • Regional (Africa) • Global	African leadership (key strategic activities in Africa where the WRC plays a significant role)	Five African initiatives (75% ongoing/25% new)	The target for excellent performance in 2006/07 was achieved and exceeded. Overall 14 initiatives, some of a once-off nature were undertaken. Due to the increase in the number of initiatives 40% of the initiatives were new. For details see section above entitled 'Leading water-centred knowledge'.
	International player (activities such as global partnerships, participation in global projects, etc.)	Eight global initiatives (50% ongoing/50% new)	The target for 'excellent performance' The 'excellent' target was achieved. For details see section above entitled 'Leading water-centred knowledge'. The ratio of 50% ongoing and 50% new initiative was achieved.

Financial perspectives

The objective of this KPA is to improve the financial practices, management and performance of the WRC. This is translated into a number of quantitative indicators addressing growth and sustainability and effective management of funds as presented overleaf.

The Table below provides an overview on performance against set objectives. Details regarding various initiatives can be found under the section addressing the challenge of 'Investing in the Creation of Water Centred Knowledge' (see above)

The Table below provides an overview on performance against set objectives. Details regarding various initiatives can be found under the sections addressing the challenge of 'Building the Water-Centred Knowledge Base - Capacity Building', Making Knowledge Application a Reality - Commercialisation'

Goals objectives	Indicators	Excellence target	Performance
Improved financial performance	Income growth (income growth is measured as meeting the budgetary target of R9.1m.	Meet budget target in full	Target met and exceeded. In total R14.7m. was received in cash. Both original and revised budget targets were exceeded.
	Research ratio (measured as research funding and support as percentage of total income)	75% (revised budget)	Target met.
	Cashflow management (measured against availability of cash for effective operation).	R30m.	Target achieved at the beginning and year-end. However, due to delayed payment of levy during the year, cashflow was lower than the set target.
Effective financial management	High quality budget planning and reporting (measured as the percentage deviation between actual and budget at year-end)	10%	Fully met.
	Audit results (measured as a percentage of previous year's internal audit queries fully addressed and a clean vs. qualified audit)	70%	Met. The WRC addressed 75% of the previous year's internal audit queries.
	Efficiency of recoveries (measured as the percentage of projects older than 3 years fully finalised)	100%	Not met. Only 64% of the projects were fully finalised.
	Roll-over of research funds (measured as the deviation from the budgetary figure for roll-over of research project funds)	20%	Target was not met.

Organisational goals and objectives *(continued)*

The two main sub-objectives are the improvement of financial performance and the enhancement of financial management. These overarching objectives have been translated into a number of indicators as follows:

- ***Financial performance***
  - *Income growth (income growth is measured as meeting the budgetary target.)*
  - *Research ratio (measured as research funding and support as percentage of total income)*
  - *Cashflow management (measured against availability of cash for effective operation).*
- ***Financial management***
  - *High quality budget planning and reporting (measured as the percentage deviation between actual and budget at year-end)*
  - *Audit results (measured as a percentage of previous year's internal audit queries fully addressed and a clean vs. qualified audit)*
  - *Efficiency of recoveries (measured as the percentage of projects older than 3 years fully finalised)*
  - *Roll-over of research funds (measured as the deviation from the budgetary figure for roll-over of research project funds).*

Learning and innovation

This KPA aimed to further improve commercialisation of IP, enhance the WRC's contribution towards the building and right-shaping of the water-centred knowledge base in South Africa (emphasising capacity building), and build the position and profile of the WRC as a water-centred knowledge hub through various knowledge-sharing activities. The issues of building the knowledge base (capacity building) and the application, transfer, sharing and dissemination of water-centred knowledge continued to be of great importance to the relevance of the WRC.

During 2005/06, these aims were translated into three indicators with set targets for various levels of performance. All indicators and measures were similar to those set for the previous financial year, while the new performance targets reflect a continuous drive towards improvement, where applicable.

The Table overleaf provides an overview on performance against set objectives. Details regarding various initiatives can be found under the sections addressing the challenge of 'Building the Water-Centred Knowledge Base - Capacity Building', Making Knowledge Application a Reality - Commercialisation' and the section addressing 'Enhancing Knowledge Dissemination, Sharing and Public Understanding of Water-Centred Knowledge' (see above)

Goals/objectives	Indicators	Excellence target	Performance
Improved commercialisation of IP	The number of licensed patents earning income	Three licensed patents	Not met. Only one licensed patent has earned income
Improved contribution towards capacity building (knowledge base)	Number of students supported by the WRC research portfolio as well as the percentage of the total made up of historically disadvantaged students	400 students, 60% of whom are historically disadvantaged (HD)	The WRC supported 580 students, of whom 66% were from historically disadvantaged backgrounds. The WRC also undertook a number of initiatives which were linked to this KPI.
Knowledge sharing and scientific leadership	The number of Open Days and workshops organised by the WRC).	Two Open Days and 20 workshops	The 'excellent' target was met. The two Open Days were highly successful and the workshops addressed a variety of topics which were of key importance to the dissemination of research findings as well as identifying future research needs (see above).

Internal processes

During 2006/07 the objectives of this KPA were to further enhance and strengthen the WRC's internal competence and its ability to improve its functional operation, management practices and performance management to a level of excellence. Improving internal processes requires continuous effort. While the overarching objective remained the same as for the previous year, specific performance measures and targets were introduced to allow the organisation to reach higher-level goals, with the aim of further improving the efficiency and effectiveness of the organisation and its core business process of research funding.

The following KPIs and targets were set during the year under review:

The objective of this KPA was to improve and strengthen the WRC with regard to:

- *Functional excellence*
- *Management excellence*
- *Performance management*

The WRC places strong emphasis on improving its internal processes in order to improve the efficiency and effectiveness of the organisation and its core business process of research funding.

The above objectives were translated into the following key indicators and measures:

- *Functional excellence includes the improvement of the fund management process with regard to its time-frame (measured for the current year as the time gap between receiving a final report to the time of its publication) and the development of an appropriate fund management system (measured against the level of completion of the development of the system). Other indicators address:*
  - *The ability of the organisation to assess its impact (at project level), which is tied to the development and utilisation of an impact tool (performance is measured against level of application of the tool)*
  - *The improvement of internal communication and administrative support via an Intranet (this is measured against stages of development and usage)*

Organisational goals and objectives *(continued)*

- *Management excellence addresses improved organisational management tools (measured against the implementation of a 'business excellence' drive) as well as the level of the organisation's compliance with governing legislation (measured against the number of new and revised policies and the extent of compliance as reported by internal and external audits)*
- *Performance management was tied to improving the application of performance management practices in the organisation (this was measured against the level of application of quantitative KPAs/KPIs to all senior staff members)*

The Table below provides an overview on performance against set objectives

Goals/objectives	Indicators	Excellence target	Performance
Functional excellence	Improvement of the fund management process (time-frame) – minimising the time gap between receiving a final report to the time of its publication	100% of projects finalised within 3 months	Excellence target was not met. Only 62% of the projects were finalised within 3 months.
	An appropriate fund management system - level of completion of the development/application of the system	System fully in use (all functionalities)	The system was fully utilised for the research cycle commencing during the year under review.
	The development and utilisation of an impact tool - level of application of the tool	Applied to 100% of the projects to be finalised	The 100% target was fully met.
Management excellence	Implementation of a business excellence drive	Fully implemented	Planned activities were met. The Business Excellence concept and model has been introduced to staff. Meetings were held with the individual KSA's and employees were asked to complete the Business Excellence questionnaire. This questionnaire has been tailored to the business processes and activities of the WRC and its purpose is to determine the areas for improvement. It will also provide a benchmark for future progress against this objective
	Organisation's compliance - extent of compliance as reported by internal and external audits	80% compliance (100% compliance to PFMA)	The target set for excellent performance was fully met as indicated by the internal audit.
Performance management.	Development and use of KPIs	100% of staff evaluated against quantitative KPIs	The target set for excellent performance, i.e. to have 100% of staff evaluated against new quantitative KPIs, was fully met.

The objectives of this KPA included:

- *The enhancement of effective leadership and culture*
- *Improved levels of staff competence*
- *Accelerated equity and redress*

These objectives translated into a number of measures:

- *The enhancement of effective leadership and culture was measured against the percentage deviation or the gap between current reality and the vision, as assessed by the organisational effectiveness and cultural survey (OECS)*
- *Improved levels of staff competence measured as the level of implementation of the skills development plan*
- *Accelerated equity and redress – indicators relate to the meeting of the organisation's employment equity plan and level of procurement from Black economic empowerment (BEE) suppliers*

The review panel regarded the WRC's internal processes and systems as being highly efficient and effective as reflected by the statement 'Good management systems in place – evident from unqualified audit report in recent years'. The project selection process was well accepted and regarded as fair, transparent and objective. The review also stated that management of the WRC was 'highly regarded by the scientific community – very professional' and that 'the 'advancement in transformation is apparent for both gender and race'. The panel also observed the current organisational structure as flat, effective and appropriate, focused, with appropriate delegations of authority and that it facilitates performance and accountability

Organisational transformation

This KPA focused on organisational transformation and was focused on the enhancement of effective leadership and culture, the improved level of staff competence and accelerated equity and redress.

These objectives were measured against the following targets for excellent performance:

Goals/objectives	Indicators	Excellence target	Performance
Effective leadership and culture	The gap between vision and current reality (culture survey)	20% deviation	Target met.
Improved competence levels	Implementation of skills development plan	Fully meeting target set in current plan and developing a new plan for 2007	Partially met. New plan was developed and 84% of plan has been achieved.
Accelerated equity and redress	Meeting targets of EE plan measured against percentage of new appointments	90% of new appointments meet EE requirements	Fully achieved
	Improved ratio of BEE suppliers	80% of supplier BEE (as per expenses)	Target met. Ratio is 82%.

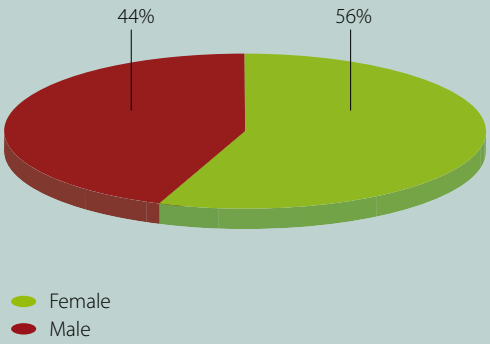
Human Resources

In the 2006/07, the WRC's organisational structure (see organogram) underwent a few significant changes. The resignation of the Director: Water Centred Knowledge resulted in the merging of two key strategic areas.

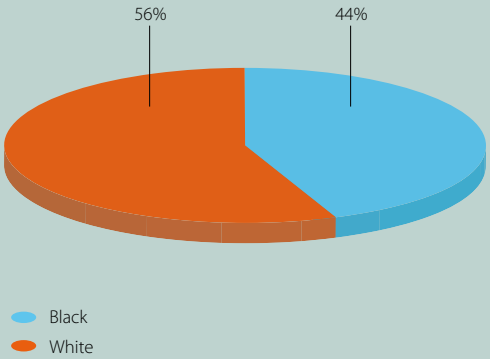
The key strategic area, Finance and Administration, saw some changes with Human Resources and Administration being separated from this component. Human Resources and Administration is now a separate key strategic area.

The current structure, in making allowance for core and direct support functions, provides for 48 permanent staff. In terms of composition by race, there was little change in the number of Black staff during the year under review. Female staff members still represent the majority, with staff comprising 56% females and 44 % male employees.

Staff composition by gender



Staff composition by race



Improved levels of staff competence

While each staff member has a target for their individual development as part of their KPIs, the WRC implemented a skills development plan and the 2006/07 year saw a significant increase in training as compared to the previous years. The plan is continuously being monitored to determine the gaps between the plan and the actual training taking place.

Accelerated equity and redress

Meeting employment equity plan targets

The report measuring progress against the employment equity plan indicates that the WRC has met (or even exceeded) the set employment equity targets for the previous years. In September 2006 a new employment equity plan was developed. During 2006/07 the WRC appointed a number of new employees, all of whom had been found to be highly

appropriate for assuming duty against the relevant vacancies. The vacancies resulted from resignations of staff as well as staff movement within the organisational structure. Two new research managers were appointed together with the appointment of the Director: Human Resources and Administration and a Chief Financial Officer. One of the WRC cleaners has been promoted to the position of Administrative Support Officer.

WRC support for staff education and training

Investment in excellence and effective leadership culture

The commitment to performance excellence continued into 2006/07 with almost all new employees attending the Investment in Excellence Training courses. Refresher courses were held for employees who attended the Investment in Excellence course in 2004.

The Pacific Institute conducted another survey in March 2007 to determine the gap between current reality and the vision of the organisation. The result indicated that the gap between the vision and current reality was kept at about 20% (as for the previous year). There was a slight increase in the constructive cultural elements, especially with regard to the culture of achievement and self-actualisation.

Training courses

Participation in courses on financial management, Information Technology, Project Management, Secretarial and Life Skills, was also supported. In addition, 5 staff members continued to be engaged in studies, supported by the WRC, for a variety of degrees and diplomas.

Formal studies	No of Individuals	Status
B. Tech. Public Relations	1	Ongoing
Diploma Administration	1	Ongoing
B Tech Administration	1	Ongoing
Diploma Public Relations	1	Ongoing
Ph.D. (R&D management)	1	Ongoing

Looking ahead

Water quantity and quality are critical to South Africa's long-term sustainability. Many decades of research and development have provided the basis for the development of policies and strategies that allow for the sustainability of our water resources. This emphasises not only the important role that water-centred knowledge has played in the past, but its growing importance in providing the country with knowledge which will allow it to successfully deal with the many emerging challenges that face our limited water resources in future years . The WRC, which has proven to be a credible and reputable knowledge broker, plays a crucial role in this regard. The WRC leads and coordinates research which, in turn, creates the knowledge that allows us to manage water quantity and quality judiciously and, in so doing, to achieve sustainability. As in the past, the broad spectrum (natural and social sciences) of research planned by the WRC for the next five years should create knowledge which, if well utilised, will ensure that South Africa's limited water resources are not compromised in any way. The WRC will continue to provide the country with a knowledge framework that will ensure that the country has safe drinking water and sanitation for all; sufficient quantity of water for various allocated uses, promoting a healthy environment and economic growth; sustainable infrastructure for water and sanitation services; effective water management policies; and systems and adaptive and mitigating strategies to face the challenges of climate change.

The year under review marked the 5th and final year served by the current core strategy. During 2006/07 the WRC underwent an external institutional review. The needs and views of the WRC's shareholder and other stakeholders as well as the feedback from the institutional review provided the strategic framework for the period 2007/08 - 2011/12. The year 2007/08 marks the first year of this new 5-year core strategy of the WRC. During the next year the WRC will continue its investment in the creation of water-centred knowledge and will further improve the mechanisms for dissemination and uptake of water centred-knowledge, especially with regard to policy development and implementation. The WRC strives to support the South African Government with special reference to water issues and provides the required knowledge to the water sector and other related sectors. During the next financial year the WRC will focus on building strong formal relationships with DWAF and other Government Departments within all spheres of Government. The WRC will continue in its quest to serve South Africa and support Africa as an effective and dynamic water-centred knowledge hub.

Board approval

The Annual financial statements of the WRC and wholly-owned company for the year ended 31 March 2007, which appear on pages 73 to 91 of this report, were approved by the WRC Board at its meeting held on 24 May 2007. The Board is of the opinion that the WRC is financially sound and operates as a going concern.

These statements are signed on behalf of the WRC by:

Dr S J Khoza
WRC Board Chairperson

Dr Rivka Kfir
WRC Chief Executive Officer

Consolidated Financial Statements of the Water Research Commission

for the year ended 31 March 2007

Contents

Report of the Auditor General

Report of the Auditor-General to parliament on the Group Financial Statements and Performance Information of the Water Research Commission for the year ended 31 March 2007

Introduction

1. I have audited the accompanying group financial statements of the Water Research Commission which comprise the consolidated and separate statement of financial position as at 31 March 2007, consolidated and separate statement of financial performance, consolidated and separate statement of changes in net assets and consolidated and separate cash flow statement for the year then ended, and a summary of significant accounting policies and other explanatory notes, as set out on pages 73 to 91.

Responsibility of the accounting officer for the financial statements

2. The accounting officer is responsible for the preparation and fair presentation of these financial statements in accordance with the South African Statements of Generally Accepted Accounting Practice and in the manner required by the Public Finance Management Act, 1999 (Act No. 1 of 1999) (PFMA) and Auditor-General Audit Circular 1 of 2005. This responsibility includes:
   - designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error
   - selecting and applying appropriate accounting policies
   - making accounting estimates that are reasonable in the circumstances.

Responsibility of the Auditor-General

3. As required by section 188 of the Constitution of the Republic of South Africa, 1996, read with section 4 of the Public Audit Act, 2004 (Act No. 25 of 2004) and the Water Research Act, 1971 (Act No. 34 of 1971), my responsibility is to express an opinion on these financial statements based on my audit.
4. I conducted my audit in accordance with the International Standards on Auditing and General Notice 647 of 2007, issued in Government Gazette No. 29919 of 25 May 2007. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.
5. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.
6. An audit also includes evaluating the:
   - appropriateness of accounting policies used
   - reasonableness of accounting estimates made by management
   - overall presentation of the financial statements.
7. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Basis of accounting

8. The entity's policy is to prepare financial statements on the basis of accounting determined by the National Treasury, as set out in note 1.1 to the financial statements.

Opinion

9. In my opinion the financial statements present fairly, in all material respects, the financial position of the Water Research Commission and group as at 31 March 2007 and its financial performance and cash flows for the year then ended, in accordance with South African Statements of Generally Accepted Accounting Practice and have been prepared, in all material respects, in accordance with the basis of accounting as described in note 1.1 and in the manner required by the PFMA.

Emphasis of matters

I draw attention to the following matter:

10. Project debtors

During the year under review and prior years, amounts paid to researchers were initially recognised as advances/debtors and these payments were only expensed when audited statements were received. At year-end, payments for which audited statements had not been received were also expensed. For these payments made without audited statements, the debtor was raised again in the next year by reducing expenditure. As a result of the accounting policy adopted by the Water Research Commission, expenditure was understated and debtors overstated in the current and prior years. The prior year financial statements have been adjusted retrospectively, as indicated in note 22.4 to the annual financial statements, by restating comparatives.

Other reporting responsibilities

Reporting on performance information

11. I have audited the performance information as set out on pages 61 to 67.

Responsibility of the accounting officer

12. The accounting authority has additional responsibilities as required by section 55(2)(a) of the PFMA to ensure that the annual report and audited financial statements fairly present the performance against predetermined objectives of the public entity.

Responsibility of the Auditor-General

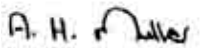
13. I conducted my engagement in accordance with section 13 of the Public Audit Act, 2004 (Act No. 25 of 2004) read with General Notice 646 of 2007, issued in Government Gazette No. 29919 of 25 May 2007.
14. In terms of the foregoing my engagement included performing procedures of an audit nature to obtain sufficient appropriate audit evidence about the performance information and related systems, processes and procedures. The procedures selected depend on the auditor's judgement.
15. I believe that the evidence I have obtained is sufficient and appropriate to provide a basis for the audit findings.

Audit findings

16. I have not observed any matter that requires inclusion in my report.

Appreciation

17. The assistance rendered by the staff of the Water Research Commission during the audit is sincerely appreciated.



A H Muller for Auditor-General
Pretoria
31 July 2007

AUDITOR-GENERAL

Statement of Financial Position

Water Research Commission and Wholly Owned Company Statement of Financial Position as at 31 March 2007

	Notes	Water Research Commission		Consolidated	
		2007 R	2006 R	2007 R	2006 R
Assets					
Non-current assets		52,101,065	43,858,360	53,679,546	45,280,879
Property, plant and equipment	2	2,064,743	2,852,756	10,756,265	11,544,278
Intangible asset	3	1,088,804	891,450	1,088,804	891,450
Interest in subsidiary	4	755,939	755,939	–	–
Other investments	5	41,834,476	32,845,150	41,834,476	32,845,150
Loans receivable	6	6,357,103	6,513,065	–	-
Current assets		76,431,330	53,258,535	76,956,329	53,856,066
Trade and other receivables	7	29,971,270	12,632,249	29,760,570	12,711,025
Cash and cash equivalents	19	46,460,060	40,626,286	47,195,759	41,145,041
Total assets		128,532,395	97,116,895	130,635,874	99,136,944
Net Assets And Liabilities					
Capital and reserves		72,980,404	53,305,104	75,027,877	55,121,555
Accumulated surplus		58,349,007	47,899,677	60,396,480	49,716,128
Other reserves		14,631,397	5,405,427	14,631,397	5,405,427
Non-current liabilities		24,121,400	23,508,977	24,121,400	23,508,977
Provisions	8	2,093,685	2,236,004	2,093,685	2,236,004
Benefit plans	9	21,538,407	20,221,905	21,538,407	20,221,905
Capitalised lease payments	10	489,308	1,051,068	489,308	1,051,068
Current liabilities					
Trade and other payables	11	31,430,592	20,302,815	31,486,598	20,506,413
Total net assets and liabilities		128,532,395	97,116,895	130,635,874	99,136,944

Statement of Financial Performance

Water Research Commission and Wholly Owned Company Statement of Financial Performance for the year ended 31 March 2007

	Notes	Water Research Commission 2007 R	Water Research Commission 2006 R	Consolidated 2007 R	Consolidated 2006 R
Income		129,735,139	103,168,514	128,897,965	102,213,102
Water research levies		108,019,915	86,475,566	108,019,915	86,475,566
Income on investment	12	2,027,184	2,895,953	1,163,146	2,143,429
Leverage income		12,433,278	8,587,695	12,433,278	8,587,695
Other interest		5,485,907	3,732,158	5,487,087	3,732,481
Other income		659,745	1,361,062	473,223	950,198
Rent received		–	–	212,206	267,653
Surplus/(Deficit) on sale of fixed assets		(20,754)	20,990	(20,754)	20,990
Provision for project creditors		1,129,863	35,091	1,129,863	35,091
Reduction in loan impairment		–	60,000	–	–
Expenditure		119,285,809	129,472,741	118,217,615	128,496,029
Administrative services		4,584,742	5,430,249	4,627,992	5,456,165
Audit fees - external		342,269	174,286	358,749	180,905
Audit fees - internal		403,265	319,186	403,265	319,186
Depreciation of property, plant & equipment		961,463	611,839	961,463	611,839
Directors' emoluments	13	5,628,894	5,042,572	5,628,894	5,042,572
Finance charges - finance leases		220,790	200,180	220,790	200,180
Finance charges - discounting		1,130,806	843,201	1,130,806	843,201
Municipal services and security		–	–	309,031	243,180
Professional services		–	–	1,800	11,840
Impairment of trade receivables		334,845	3,155,695	334,845	3,160,227
Rental and maintenance		2,152,911	2,702,826	693,881	1,430,118
Research projects and support	1.3, 7, 14	82,025,598	82,228,531	82,025,598	82,228,531
Staff expenditure	15	16,055,945	23,579,796	16,070,143	23,579,978
Sundry expenses		–	–	6,078	3,727
Technology transfer	16	5,444,281	5,184,380	5,444,281	5,184,380
Surplus/(deficit) for the year before taxation		10,449,330	(26,304,225)	10,680,349	(26,282,925)
Taxation (Overprovision)	17	–	–	–	26,390
Surplus/(deficit) for the year		10,449,330	(26,304,225)	10,680,349	(26,256,535)

Statement of Changes in Net Assets

Water Research Commission and Wholly Owned Company Statement of Changes in Net Assets for the year ended 31 March 2007

	Water Research Commission		Consolidated	
	Other reserves	Accumulated Fund Surplus R	Other reserves	Accumulated Fund Surplus R
Balance at 31 March 2005	1,068,257	74,203,903	1,068,257	75,972,667
As previously reported	–	100,322,876	–	102,567,581
Prior year adjustment	–	(26,118,973)	–	(26,594,914)
Surplus/deficit	–	(26,304,973)	–	(26,256,535)
As previously reported	–	(14,591,249)	–	(14,263,560)
Prior year adjustment	–	(11,712,976)	–	(11,992,975)
Fair value of available-for-sale financial assets	4,337,169	–	4,337,169	–
Balance at 31 March 2006	5,405,427	47,899,677	5,405,427	49,716,131
Surplus/(deficit) for the year	–	10,449,330	–	10,680,349
Fair value of available-for-sale financial assets	9,225,971	–	9,225,971	–
Balance at 31 March 2007	14,631,397	58,349,007	14,631,397	60,396,481

Cash Flow Statement

Water Research Commission and Wholly Owned Company Cash Flow Statement for the year ended 31 March 2007

	Notes	Water Research Commission		Consolidated	
		2007 R	2006 R	2007 R	2006 R
Net cash flow from operating activities		6,422,277	(22,066,161)	6,795,183	(21,870,399)
Cash receipts		104,903,780	97,084,767	105,218,941	102,213,103
Cash payments		(104,642,998)	(124,735,658)	(103,722,395)	(128,916,302)
Net cash generated by/(outflow from) operating activities	18	260,782	(27,650,891)	1,496,546	(26,702,928)
Interest received		7,513,091	6,628,111	6,650,233	5,875,910
Interest paid		(1,351,596)	(1,043,380)	(1,351,596)	(1,043,380)
Net cash (outflow)/inflow from investing activities		1,051	(4,275,535)	(154,912)	(4,169,483)
Purchase of plant and equipment		(207,191)	(1,352,885)	(207,191)	(3,502,604)
Purchase of intangible assets		(197,353)	(687,870)	(197,353)	(687,870)
Proceeds from sale of fixed assets		12,988	20,991	12,988	20,991
Proceeds on other investments		236,645	–	236,645	–
Decrease/(Increase) in loan to subsidiary		155,962	(2,255,771)	–	–
Net cash outflow from financing activities		(589,554)	832,229	(589,554)	832,229
(Decrease)/increase in finance lease		(589,554)	832,229	(589,554)	832,229
Net increase/(decrease) in cash and cash equivalents		5,833,773	(25,509,466)	6,050,718	(25,207,652)
Cash and cash equivalents at the beginning of the year		40,626,286	66,135,752	41,145,041	66,352,693
Cash and cash equivalents at the end of the year	19	46,460,059	40,626,286	47,195,758	41,145,041

Notes

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

1 Accounting policies

1.1 Basis of preparation

The consolidated annual financial statements are prepared in South African rand (R) and are rounded off to the nearest rand. The consolidated annual financial statements are prepared on the historical cost basis except for financial instruments classified as held for sale, stated at fair value. The financial statements have been prepared on a going concern basis.

The financial statements have been prepared in accordance with the South African Statements of Generally Accepted Accounting Practices (GAAP) including any interpretations of such Statements issued by the Accounting Practices Board, with the prescribed Standards of Generally Recognised Accounting Practices (GRAP) issued by the Accounting Standards Board replacing the equivalent GAAP Statement as follows:

Standard of GRAP	Replaced Statement of GAAP
GRAP 1: Presentation of financial statements	AC101: Presentation of financial statements
GRAP 2: Cash flow statements	AC118: Cash flow statements
GRAP 3: Accounting policies, changes in accounting estimates and errors	AC103: Accounting policies, changes in accounting estimates and errors

The recognition and measurement principles in the above GRAP and GAAP Statements do not differ or result in material differences in items presented and disclosed in the financial statements. The implementation of GRAP 1, 2 & 3 has resulted in the following significant changes in the presentation of the financial statements:

a. Terminology differences:

Standard of GRAP	Replaced Statement of GAAP
Statement of financial performance	Income statement
Statement of financial position	Balance sheet
Statement of changes in net assets	Statement of changes in equity
Net assets	Equity
Surplus/deficit for the period	Profit/loss for the period
Accumulated surplus/deficit	Retained earnings
Contributions from owners	Share capital
Distributions to owners	Dividends
Reporting date	Balance sheet date

b. The cash flow statement can only be prepared in accordance with the direct method.

c. Specific information such as:
(i) receivables from non-exchange transactions, including taxes and transfers;
(ii) taxes and transfers payable;
(iii) trade and other payables from non-exchange transactions;
must be presented separately on the statement of financial position

d. The amount and nature of any restrictions on cash balances is required to be disclosed.

Paragraph 11 - 15 of GRAP 1 has not been implemented as the budget reporting standard is in the process of being developed by the international and local standard setters. Although the inclusion of budget information would enhance the usefulness of the financial statements, non-disclosure will not affect fair presentation.

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

1.2 Property, plant and equipment

Property, plant and equipment is carried at historical cost less accumulated depreciation and accumulated impairment losses.The cost of property, plant and equipment includes all costs incurred in getting the item to the location and condition as intended by management for its use.

Where applicable, significant components of property, plant and equipment are accounted for separately as individual assets and depreciated separately.

Each item or significant component of property, plant and equipment is depreciated on a straight line basis over its expected useful life to its estimated residual value. Where the residual value exceeds the carrying amount of the asset, depreciation ceases.

Depreciation commences when the asset is ready for its intended use and does not cease when the asset is idle or temporarily removed from active use.

The estimated useful lives are as follows:
Office equipment – 20%
Office furniture – 10%
Computer equipment – 33.33%

Motor vehicles are depreciated on a pro rata basis calculated on the basis of kilometers travelled annually as a proportion of the expected useful life of the vehicle.

The depreciation charge is zero when the residual value is estimated to be higher than the carrying amount.

The residual values, useful lives and depreciation methods are reviewed annually, and when they differ from previous estimates, the effect on depreciation is accounted for prospectively.

1.3 Research projects and research support services

It is the policy of the Water Research Commission that its management may allow overspending on a project budget in a given year, only if acceptable reasons are given, provided the total contract amount is not exceeded.

1.4 Investments

1.4.1 Investments in subsidiaries are recognised at cost less accumulated impairment losses.

1.4.2 The Water Research Commission classifies its investments in equity securities into the category of available-for-sale. The classification is dependent on the purpose for which the investments were acquired.

Purchases and sales of investments are recognised on the trade date, which is the date that the Water Research Commission commits to purchase or sell the asset. Cost of purchase includes transaction costs. Available-for-sale investments are initially and subsequently carried at fair value.

Changes in the fair value of the investment are accounted for in the statement of changes in net assets. When the investment is disposed of, all cumulative gains and losses related to the investment are released to the statement of financial performance.

1.5 Intangible assets

No value is attributed to internally developed patents. Costs incurred on patents, whether purchased or created by the Water Research Commission, are charged to the statement of financial performance during the period in which they are incurred. Computer software that is in the process of being developed is carried at capitalised cost. Depreciation of developed computer software commences when the software is ready for intended use.

1.6 Consolidation principles

The consolidated financial statements incorporate the financial statements of the Water Research Commission and its wholly owned subsidiary. The results of the subsidiary are included from the effective date of acquisition.

1.7 Post employment pension benefit costs

The Water Research Commission makes provision for post-employment benefits for eligible employees and retirees. The Water Research Commission operates two defined contribution plans, the assets of which are held in separate trustee-administered funds. The pension and provident funds are funded by payments from employees and the Water Research Commission, taking into account the recommendations of independent qualified actuaries. For the active members this does not represent a liability for the employer. For the retirees, the plans are defined benefit plans, because although no contributions are payable by these members or the employer, adverse market conditions could result in a liability for the employer. For the defined benefit plans, the plan obligation, plan assets and past service costs are determined using the projected unit credit method. Actuarial valuations are preformed on an annual basis by registered actuaries. Any actuarial gain or loss which arises is recognised immediately (refer to note 9)

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

1.8 Post employment medical aid benefit costs

The Water Research Commission operates a defined medical aid benefit plan. No plan assets are held to fund the benefit plan. For defined benefit plans the defined benefit obligation, the related current service cost, and where applicable, past service cost are determined by using the projected unit credit method. Vested service costs and actuarial gains or losses are recognized immediately in the statement of financial performance.

1.9 Impairment

An impairment test is performed when there is an indication that an asset is impaired. An impairment loss is recognised when the carrying amount of an asset exceeds the recoverable amount. The recoverable amount is the greater of an assets fair value less costs to sell and its value in use. The amount of the impairment is the excess of the carrying amount over recoverable amount.

1.10 Revenue

The Department of Water Affairs and Forestry, Rand Water and Umgeni Water Boards collect levy income. The rate of the levy is approved by the Minister of Water Affairs and Forestry on an annual basis. Revenue recognition of levy income represents amounts received and receivable from the Department of Water Affairs and Forestry, Rand Water and Umgeni Water Boards. Provision is made for estimated uncollectible levies by way of an impairment charge.

1.11 Leverage income

The WRC receives leverage income from various sources which is provided for research. This revenue is recognised in the accounting period in which the research expenditure is incurred.

1.12 Financial instruments

Financial instruments carried on the statement of financial position include cash and bank balances, investments, receivables, payables, loans and liabilities. Cash and bank balances are held at estimated fair values. Investments in equity instruments are classified as available for sale and are carried at fair value, with fair value adjustments being accounted for directly in the statement of changes in net assets. To the extent that such fair value adjustments are realised, they are recognised in the statement of financial performance.

Loans and receivables are initially measured at fair value and subsequently at amortised cost using the effective interest-rate method. Loans are tested annually at year end for impairment. If there are indications of impairment, the impairment loss is recognised in the statement of financial performance

1.13 Cash flows

For the purpose of the cash flow statement, cash includes cash on hand, deposits held on call with Corporation for Public Deposits and bank balances.

1.14 Foreign Currencies

Transactions in currencies other than South African rands are recorded at the rates of exchange prevailing on the dates of the transactions. At each reporting date, monetary assets and liabilities that are denominated in foreign currencies are translated at the rates prevailing on the reporting date. Income and expense items are translated at spot rate. Exchange differences arising on monetary assets and monetary liabilities, are set off against each other.

1.15 Leasing

Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

	Water Research Commission		Consolidated	
	2007 R	2006 R	2007 R	2006 R
2 Property, plant and equipment				
2.1 Fixed property				
Carrying value: Beginning of year	–	–	8,691,520	6,541,801
- Cost	–	–	615,855	615,855
- Improvements	–	–	8,075,665	5,925,946
- Accumulated depreciation	–	–	–	–
Movements during year	–	–	–	2,149,719
- Improvements	–	–	–	2,149,719
Carrying value: End of year	–	–	8,691,520	8,691,520
- Cost	–	–	615,855	615,855
- Improvements	–	–	8,075,665	8,075,665
- Accumulated depreciation	–	–	–	–

Fixed property consists of Erf 706 Rietfontein, Pretoria, Gauteng. The property has been valued at R15m by Reinertsen International Valuation services, an independent valuer, on 13 April 2007.

2.2 Motor vehicles				
Carrying value: Beginning of year	30,531	33,649	30,531	33,649
- Cost	68,975	68,975	68,975	68,975
- Accumulated depreciation	(38,444)	(35,326)	(38,444)	(35,326)
Movements during year	(2,446)	(3,118)	(2,446)	(3,118)
- Disposals	–	–	–	–
- Depreciation	(2,446)	(3,118)	(2,446)	(3,118)
Carrying value: End of year	28,085	30,531	28,085	30,531
- Cost	68,975	68,975	68,975	68,975
- Accumulated depreciation	(40,890)	(38,444)	(40,890)	(38,444)

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

	Water Research Commission		Consolidated	
	2007 R	2006 R	2007 R	2006 R
2.3 Office furniture				
Carrying value: Beginning of year	752,825	789,461	752,825	789,461
- Cost	1,262,290	1,198,371	1,262,290	1,198,371
- Accumulated depreciation	(509,465)	(408,910)	(509,465)	(408,910)
Movements during year	(50,431)	(36,636)	(50,431)	(36,636)
- Acquisitions	63,927	76,846	63,927	76,846
- Disposals and write offs	(2,568)	(12,927)	(2,568)	(12,927)
- Accumulated depreciation on write offs	1,703	–	1,703	–
- Depreciation	(113,493)	(100,555)	(113,493)	(100,555)
Carrying value: End of year	702,394	752,825	702,394	752,825
- Cost	1,323,649	1,262,290	1,323,649	1,262,290
- Accumulated depreciation	(621,255)	(509,465)	(621,255)	(509,465)
2.4 Office equipment				
Carrying value: Beginning of year	389,816	428,526	389,816	428,526
- Cost	742,520	1,282,244	742,520	1,282,244
- Accumulated depreciation	(352,704)	(853,718)	(352,704)	(853,718)
Movements during year	(95,696)	(38,710)	(95,696)	(38,710)
- Acquisitions	17,050	101,597	17,050	101,597
- Disposals and write offs	(1,980)	(641,321)	(1,980)	(641,321)
- Accumulated depreciation on write offs	1,980	595,000	1,980	595,000
- Depreciation	(112,746)	(93,986)	(112,746)	(93,986)
Carrying value: End of year	294,121	389,816	294,121	389,816
- Cost	757,590	742,520	757,590	742,520
- Accumulated depreciation	(463,470)	(352,704)	(463,470)	(352,704)
2.5 Computers				
Carrying value: Beginning of year	1,679,585	919,015	1,679,585	919,015
- Cost	2,602,885	1,498,208	2,602,885	1,498,208
- Accumulated depreciation	(923,300)	(579,193)	(923,300)	(579,193)
Movements during year	(639,441)	760,570	(639,441)	760,570
- Acquisitions	126,214	1,174,749	126,214	1,174,749
- Disposals and write offs	(418,368)	(70,072)	(418,368)	(70,072)
- Accumulated depreciation on write offs	385,491	70,072	385,491	70,072
- Depreciation	(732,778)	(414,179)	(732,778)	(414,179)
Carrying value: End of year	1,040,144	1,679,585	1,040,144	1,679,585
- Cost	2,310,731	2,602,885	2,310,731	2,602,885
- Accumulated depreciation	(1,270,587)	(923,300)	(1,270,587)	(923,300)
Total property, plant and equipment	2,064,743	2,852,756	10,756,264	11,544,277

The carrying amount of computers includes an amount of R 1,927,178 (2006 – R 1,571,212) in respect of assets held under finance leases by the Water Research Commission.

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

	Water Research Commission		Consolidated	
	2007 R	2006 R	2007 R	2006 R
3 Intangible asset				
3.1 Computer Software				
Carrying value: Beginning of year	891,450	203,580	891,450	203,580
- Cost	891,450	203,580	891,450	203,580
- Accumulated depreciation	–	–	–	–
Movements during year	197,353	687,870	197,353	687,870
- Acquisitions	197,353	687,870	197,353	687,870
- Disposals	–	–	–	–
- Depreciation	–	–	–	–
Carrying value: End of year	1,088,804	891,450	1,088,804	891,450
- Cost	1,088,804	891,450	1,088,804	891,450
- Accumulated depreciation	–	–	–	–
Total intangible asset	1,088,804	891,450	1,088,804	891,450
4 Interest in subsidiary				
4.1 Shares at cost	755,939	755,939	–	–
	755,939	755,939	–	–

4.2 The following information relates to the Water Research Commission's interest in its subsidiary:
Erf 706 Rietfontein (Proprietary) Limited is incorporated in South Africa. The total issued ordinary share capital of the company is held by the Water Research Commission and amounts to R1.

5 Other investments				
Old Mutual	36,957,945	29,023,466	36,957,945	29,023,466
Momentum Wealth	4,876,531	3,821,684	4,876,531	3,821,684
	41,834,476	32,845,150	41,834,476	32,845,150

National Treasury has granted exemption from the requirement to invest surplus cash with the Corporation for Public Deposits in terms of Treasury regulation 31.3.3. National Treasury has also confirmed that the above investments are in compliance with Treasury regulation 31.3.5.

6 Loans receivable				
Loan to subsidiary	10,505,324	10,661,286	–	–
Less: Impairment	(4,148,221)	(4,148,221)	–	–
	6,357,103	6,513,065	–	–
7 Trade and other receivables				
Water research levies	47,909,020	30,702,819	47,909,020	30,702,819
Personal computer loans	14,652	24,876	14,652	24,876
Other	706,855	228,966	496,155	307,742
	48,630,527	30,956,660	48,419,827	31,035,436
Impairment of trade receivables	(18,659,257)	(18,324,411)	(18,659,257)	(18,324,411)
Levies	(18,659,257)	(18,324,411)	(18,659,257)	(18,324,411)
	29,971,271	12,632,249	29,760,570	12,711,025

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

7 Trade and other receivables (cont)

Project debtors have been reviewed by management, and those which are not considered to be recoverable have been impaired. Receivables are held at amortised cost using the effective interest rate method. The impact of discounting receivables on this basis was a decrease of receivables of R885 141 (2006:R620 679). The WRC has reviewed arrear levies, and has considered that on the basis of all available information, that the arrear levies are unlikely to be recovered. They have therefore been impaired in full.

8 Provisions

8.1 Provisions were made for the following:

	Water Research Commission			Consolidated		
	Balance at beginning of year	New provisions	Balance at end of year	Balance at beginning of year	New provisions	Balance at end of year
2007 Leave pay	2,236,004	(142,319)	2,093,685	2,236,004	(142,319)	2,093,685
	2,236,004	(142,319)	2,093,685	2,236,004	(142,319)	2,093,685
2006 Leave pay	2,084,286	151,718	2,236,004	2,084,286	151,718	2,236,004
	2,084,286	151,718	2,236,004	2,084,286	151,718	2,236,004

The leave pay provision represents the potential liability in respect of leave outstanding.

9 Benefit plans

Pension and provident schemes

The Water Research Commission has pension and provident schemes covering all employees. Until 31 March 2005 all eligible employees were members of the defined benefit funds administered by ABSA Consultants & Actuaries. As at 1 April 2005 both the pension fund and provident fund converted from a defined benefit fund to a defined contribution fund, for current employees. The effect of this is that the Water Research Commission has no liability other than the defined contributions payable to the fund on a monthly basis. No liability can arise due to adverse market conditions. However, all pensioners remain entitled to their benefits in terms of the old dispensation. (Refer to note 1.7)

The assets of these funds are held in administered trust funds separately from the Water Research Commission's assets. Fund assets primarily consist of investments in Momentum Group Life Limited. The funds are governed by the Pension Funds Act of 1956.

The funds are actuarially valued for financial reporting purposes at annual intervals to determine the liability for the Water Research Commission. The funds were last actuarially valued on 31 March 2007. At that time all funds were certified by the reporting actuary as being in a sound financial position, subject to the continuation of their current contribution rates. In arriving at his conclusion, the actuary took into account the following assumptions at balance sheet date (expressed as weighted averages):

	2007 Pension fund	2007 Provident fund	2006 Pension fund	2006 Provident fund
General inflation rate	5.0%	5.0%	4.6%	4.6%
Discount rate	7.7%	7.7%	7.4%	7.4%
Expected investment return	9.0%	9.0%	8.4%	8.4%
Salary inflation	6.0%	6.0%	5.6%	5.6%

9 Benefit plans (continued)

Medical aid scheme

The Water Research Commission has made provision for a medical aid benefit scheme covering both active and retired employees. All eligible employees are members of the defined benefit scheme. The funds are governed by the Medical Schemes Act, 1998 (Act No. 131 of 1998).

The defined benefit schemes administered are valued actuarially at an interval of not more than three years using the projected unit credit method. No plan assets are held by the Water Research Commission to fund the obligation. The scheme was last actuarially valued on 31 March 2007. At that time the reporting actuary certified that the vested liability for continuation members will fluctuate depending on the mortality rate of current continuation members and the rate of new retirements over the next few years. The active member liability will be affected by whether the actual withdrawals match those expected and the rate of medical aid inflation. In arriving at his conclusion, the actuary took into account the following assumptions at balance sheet date (expressed as weighted averages):

	2007	2006	2005
Investment returns	8.0%	7.5%	9.5%
Medical aid inflation rate	7.0%	6.5%	7.5%
Withdrawal rates	Medium	Medium	Medium
Percentage married on retirement	90.0%	75.0%	90.0%
Retirement age	65	65	65
Early retirement age	55	55	55

	Water Research Commission		Consolidated	
	2007 R	2006 R	2007 R	2006 R
Pension fund benefit plan				
Present value of plan obligation	4,573,000	4,587,000	4,573,000	4,587,000
Fair value placed on assets	(4,062,000)	(4,152,000)	(4,062,000)	(4,152,000)
	511,000	435,000	511,000	435,000
Reconciliation of plan obligation				
Obligation at beginning of year	4,587,000	24,678,000	4,587,000	24,678,000
Benefits paid	(468,000)	(418,000)	(468,000)	(418,000)
Expensed in staff costs	454,000	(19,673,000)	454,000	(19,673,000)
Interest cost	322,000	345,000	322,000	345,000
Acturial losses	132,000	298,000	132,000	298,000
Curtailment gain	–	(20,316,000)	–	(20,316,000)
Obligation at end of year	4,573,000	4,587,000	4,573,000	4,587,000
Reconciliation of plan assets				
Plan assets at beginning of year	(4,152,000)	(24,250,000)	(4,152,000)	(24,250,000)
Benefits paid	468,000	418,000	468,000	418,000
Expensed in staff costs	(378,000)	19,680,000	(378,000)	19,680,000
Expected return on plan assets	(328,000)	(316,000)	(328,000)	(316,000)
Actuarial (gains)/ losses	(50,000)	108,000	(50,000)	108,000
Curtailment loss	–	19,888,000	–	19,888,000
Plan assets at end of year	(4,062,000)	(4,152,000)	(4,062,000)	(4,152,000)

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

	Water Research Commission		Consolidated	
	2007 R	2006 R	2007 R	2006 R
Provident fund benefit plan				
Present value of plan obligation	2,272,000	2,279,000	2,272,000	2,279,000
Fair value placed on assets	(2,008,000)	(2,058,000)	(2,008,000)	(2,058,000)
	264,000	221,000	264,000	221,000
Reconciliation of plan obligation				
Obligation at beginning of year	2,279,000	5,941,000	2,279,000	5,941,000
Benefits paid	(236,000)	(219,000)	(236,000)	(219,000)
Expensed in staff costs	229,000	(3,443,000)	229,000	(3,443,000)
Interest cost	160,000	172,000	160,000	172,000
Acturial losses	69,000	152,000	69,000	152,000
Curtailment gain	–	(3,767,000)	–	(3,767,000)
Obligation at end of year	2,272,000	2,279,000	2,272,000	2,279,000
Reconciliation of plan assets				
Plan assets at beginning of year	(2,058,000)	(5,941,000)	(2,058,000)	(5,941,000)
Benefits paid	236,000	219,000	236,000	219,000
Expensed in staff costs	(186,000)	3,664,000	(186,000)	3,664,000
Expected return on plan assets	(162,000)	(157,000)	(162,000)	(157,000)
Actuarial (gains)/ losses	(24,000)	54,000	(24,000)	54,000
Curtailment loss	–	3,767,000	–	3,767,000
Plan assets at end of year	(2,008,000)	(2,058,000)	(2,008,000)	(2,058,000)
Medical aid scheme				
Present value of plan obligation	20,763,407	19,565,905	20,763,407	19,565,905
	20,763,407	19,565,905	20,763,407	19,565,905
Obligation at beginning of year	19,565,905	14,907,990	19,565,905	14,907,990
Expensed in staff costs	1,197,503	4,657,915	1,197,503	4,657,915
Benefits paid	(810,194)	(710,100)	(810,194)	(710,100)
Current service cost	652,657	501,942	652,657	501,942
Interest cost	1,467,444	1,416,259	1,467,444	1,416,259
Actuarial (gains)/ losses	(112,404)	3,449,814	(112,404)	3,449,814
Obligation at end of year	20,763,408	19,565,905	20,763,408	19,565,905
Benefit plans				
Pension fund benefit plan	511,000	435,000	511,000	435,000
Provident fund benefit plan	264,000	221,000	264,000	221,000
Medical aid scheme	20,763,407	19,565,905	20,763,407	19,565,905
	21,538,407	20,221,905	21,538,407	20,221,905

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

	Water Research Commission		Consolidated	
	2007 R	2006 R	2007 R	2006 R
10 Capitalised lease payments				
Total amount outstanding	1,090,602	1,680,156	1,090,602	1,680,156
Less: Payable within one year	(601,295)	(629,088)	(601,295)	(629,088)
	489,308	1,051,068	489,308	1,051,068
Minimum lease payment	1,285,967	2,087,041	1,285,967	2,087,041
Not later than 1 year	731,211	879,356	731,211	879,356
Later than 1 and not later than 5 years	554,757	1,207,685	554,757	1,207,685
Later than 5 years	–	–	–	–
Future finance charges	(195,365)	(406,885)	(195,365)	(406,885)
Present value of minimum lease payments	1,090,602	1,680,156	1,090,602	1,680,156
Not later than 1 year	601,295	629,088	601,295	629,088
Later than 1 and not later than 5 years	489,308	1,051,068	489,308	1,051,068
Later than 5 years	–	–	–	–
11 Trade and other payables				
Amounts due to Research Contractors	7,246,319	7,672,530	7,246,319	7,672,530
Research Contractors and Other Accruals	23,569,017	11,948,280	23,625,022	12,151,878
Outstanding cheques	13,962	52,917	13,962	52,917
Capitalised lease payments due within one year	601,295	629,088	601,295	629,088
	31,430,592	20,302,815	31,486,598	20,506,413
12 Income on investments				
Interest on loan to subsidiary	864,038	752,524	–	–
Interest on other investments	232,186	178,246	232,186	178,246
Interest on deposits and cash investments	930,959	1,965,183	930,959	1,965,183
	2,027,184	2,895,953	1,163,145	2,143,429
13 Disclosure of emoluments of all Board Members (Directors) in terms of section 28 of Treasury Regulations				
13.1 Total Director Emoluments				
Fees for services as Director	333,205	235,966	333,205	235,966
Basic salary	4,361,937	3,902,689	4,361,937	3,902,689
Bonuses and performance payments	345,948	323,713	345,948	323,713
Travel allowances	587,804	580,204	587,804	580,204
	5,628,894	5,042,572	5,628,894	5,042,572
13.2 Executive directors				
Dr R Kfir – Chief Executive Officer	966,192	770,503	966,192	770,503
Salary	816,327	623,711	816,327	623,711
Bonuses and performance payments	69,861	66,788	69,861	66,788
Travel allowances	80,004	80,004	80,004	80,004

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

	Water Research Commission		Consolidated	
	2007 R	2006 R	2007 R	2006 R
Mr NB Patel – Chief Financial Officer (Appointed 11/2006)	267,886	–	267,886	–
Salary	231,886	–	231,886	–
Bonuses and performance payments	–	–	–	–
Travel allowances	36,000	–	36,000	–
Dr GR Backeberg	635,402	592,316	635,402	592,316
Salary	524,587	491,400	524,587	491,400
Bonuses and performance payments	46,014	36,116	46,014	36,116
Travel allowances	64,800	64,800	64,800	64,800
Mr JN Bhagwan	635,402	592,325	635,402	592,325
Salary	499,387	466,209	499,387	466,209
Bonuses and performance payments	46,014	36,116	46,014	36,116
Travel allowances	90,000	90,000	90,000	90,000
Dr CG Green (Retired 30 November 2005)	–	436,721	–	436,721
Salary	–	367,426	–	367,426
Bonuses and performance payments	–	41,295	–	41,295
Travel allowances	–	28,000	–	28,000
Ms E Karar	565,704	46,525	565,704	46,525
Salary	493,704	40,525	493,704	40,525
Bonuses and performance payments	–	–	–	–
Travel allowances	72,000	6,000	72,000	6,000
Dr SA Mitchell	635,402	592,316	635,402	592,316
Salary	520,987	491,400	520,987	491,400
Bonuses and performance payments	46,014	36,116	46,014	36,116
Travel allowances	68,400	64,800	68,400	64,800
Dr IM Msibi (Resigned 10/2006)	384,413	592,316	384,413	592,316
Salary	294,298	480,600	294,298	480,600
Bonuses and performance payments	46,014	36,116	46,014	36,116
Travel allowances	44,100	75,600	44,100	75,600
Dr KC Pietersen (Resigned 03/2007)	635,402	591,792	635,402	591,792
Salary	499,387	466,209	499,387	466,209
Bonuses and performance payments	46,014	35,583	46,014	35,583
Travel allowances	90,000	90,000	90,000	90,000
Ms R Lutchman (Appointed 09/2006)	282,775	–	282,775	–
Salary	267,775	–	267,775	–
Bonuses and performance payments		–	–	–
Travel allowances	15,000	–	15,000	–
Mr A Rampershad – Previous Chief Financial Officer (Resigned 08/2006)	287,111	591,792	287,111	591,792
Salary	213,597	475,209	213,597	475,209
Bonuses and performance payments	46,014	35,583	46,014	35,583
Travel allowances	27,500	81,000	27,500	81,000

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

	Water Research Commission		Consolidated	
	2007 R	2006 R	2007 R	2006 R
13.3 Non - Executive directors	333,205	235,966	333,205	235,966
Prof HC Kasan - Chairperson (Resigned 31 May 2005)				
Salary	–	25,122	–	25,122
Mr RJC Nay (Resigned 31 May 2005)				
Fees for services	–	3,000	–	3,000
Ms. MM Matsabu				
Fees for services	26,000	10,000	26,000	10,000
Dr SJ Khoza – Chairperson				
Fees for services	194,205	127,344	194,205	127,344
Prof F Oteino – Vice-chairperson				
Fees for services	24,000	8,000	24,000	8,000
Ms VGM Mkaza				
Fees for services	17,000	15,500	17,000	15,500
Prof EM Stack				
Fees for services	20,000	11,000	20,000	11,000
Mr M Sireny				
Fees for services	26,000	17,000	26,000	17,000
Mr JN Campbell				
Fees for services	6,000	5,500	6,000	5,500
Prof JA Adams				
Fees for services	16,000	13,500	16,000	13,500
DJ Merrey				
- Fees for services	4,000	–	4,000	–
14 Research projects and support				
Subsistence and travel	2,707,672	2,435,703	2,707,672	2,435,703
Research projects (note 1.3 and 7)	72,118,885	72,372,802	72,118,885	72,372,802
Research consultancies	7,199,041	7,420,026	7,199,041	7,420,026
	82,025,598	82,228,531	82,025,598	82,228,531
15 Staff expenditure				
Human resources	14,881,760	14,242,164	14,895,958	14,242,346
Leave pay provision	(142,318)	151,718	(142,318)	151,718
	14,739,442	14,393,882	14,753,640	14,394,064
Pension fund conversion	–	4,300,000	–	4,300,000
Pension benefit costs valuation	76,000	7,000	76,000	7,000
Provident benefit costs valuation	43,000	221,000	43,000	221,000
Medical benefit costs valuation	1,197,503	4,657,914	1,197,503	4,657,914
	16,055,945	23,579,796	16,070,143	23,579,978

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

	Water Research Commission		Consolidated	
	2007 R	2006 R	2007 R	2006 R
16 Technology transfer				
Publications	4,062,821	3,901,878	4,062,821	3,901,878
Conferences	1,134,304	1,091,972	1,134,304	1,091,972
Maintenance of patents	247,156	190,531	247,156	190,531
	5,444,281	5,184,380	5,444,281	5,184,380
17 Taxation				
No provision was made for normal tax as the Water Research Commission is exempted from income tax in terms of Section 10(1)(cA)(i) of the Income Tax Act.	–	–	–	26,390
18 Reconciliation of net income with cash generated from operating activities				
Net deficit	10,449,330	(26,304,225)	10,680,349	(26,256,535)
Adjustments for:				
Deficit/(surplus) on sale of fixed assets	20,754	(20,990)	20,754	(20,990)
Depreciation	961,463	611,839	961,463	611,839
Provisions	(142,319)	151,718	(142,319)	151,718
Benefit plans	1,316,502	4,885,915	1,316,502	4,885,915
Other non cash items	–	–	–	280,000
Interest received	(7,513,091)	(6,628,111)	(6,650,233)	(5,875,910)
Interest paid	1,351,596	1,043,380	1,351,596	1,043,380
Net income before changes in working capital	6,444,235	(26,260,474)	7,538,112	(25,180,583)
Changes in working capital	(6,183,453)	(1,390,417)	(6,041,565)	(1,522,345)
(Increase)/decrease in debtors	(17,339,022)	565,352	(17,049,545)	631,253
Increase/(decrease) in creditors	11,155,569	(1,955,770)	11,007,980	(2,153,599)
Net cash generated/(utilised) by activities	260,782	(27,650,891)	1,496,546	(26,702,928)
19 Cash and cash equivalents				
Cash and bank balances	46,460,060	40,626,286	47,195,759	41,145,041
	46,460,060	40,626,286	47,195,759	41,145,041

20 Financial instruments

20.1 Credit risk

Accounts receivable

Accounts and other receivables are presented net of an allowance for impairment, which are estimated based on prior experience and the current environment. The credit risk with respect to accounts receivable in respect of water levies is limited due to their dispersion across different geographical areas in South Africa. Amounts reflected as advances to research organisations represent payments in respect of research in progress and constitute a very low level of risk.

Cash and bank

The credit risk in respect of cash resources is limited as the counter party is a high quality credit institution with a sound reputation.

20.2 Fair values

The carrying amounts of cash and short-term deposits and accounts payable and short-term liabilities approximates their fair values due to the short-term maturities of these assets and liabilities. However, where the impact of the time value of money is material, it is taken into account in determining the fair value of accounts payable and short-term liabilities

20.3 Investment risk management

Old Mutual and Momentum Wealth manage the investments of the Commission and have a sound reputation. The investment strategy is to increase long-term capital growth and return on the investment portfolio while maintaining a low level of risk within the portfolio.

20.4 Price risk

Due to the nature and extent of the Commission's investments, the Commission is not unduly exposed to price risks as investments are in unit trusts, cash and deposits which are classified in the category of available-for-sale.

20.5 Interest rate risk

Due to the nature and extent of the Commission's investments, the Commission is not unduly exposed to interest rate risks as at least 80% of the investments are held in unit trusts.

20.6 Other risks

Cash flow and liquidity risks of the Commission are minimal as the investments in units trusts are available within 3 working days. The Commission does not have any foreign accounts receivables, foreign accounts payable or derivative market instruments.

21 Related party transaction

21.1 Controlled entity

Erf 706 Rietfontein (Pty) Ltd is wholly owned by the Water Research Commission.

Transaction type	2007 R	2006 R
Interest received by WRC	(864,038)	(752,524)
Rent paid by WRC	1,619,541	1,353,536
Municipal expenses paid by WRC	246,750	180,066
Administration fees received by WRC	(210,220)	(187,235)

Related party transactions are eliminated on consolidation.

21.2 Directors

No transactions other than directors emoluments disclosed in note 13 were entered into with directors during the year.

22 Restatement of comparative figures

During 2007 the Water Research Commission restated certain items from the 2006 financial statements in order to ensure adherence to new IFRS statements.

22.1 Discounting of accounts receivable and accounts payable

During the year under review, the South African Institute of Chartered Accountants issued a Circular, namely Circular 9/2006 "Transactions giving rise to adjustments to revenue/purchases". In this Circular they clarify that the time value of money needs to be considered for all revenue and purchase transactions, and where the impact is material, accounted for as interest. The discounting principle was applied by Water Research Commission from the prior year, but was only considered for year end balances on receiveables and payables, when material.

The Circular emphasises a pre-existing requirement and is therefore retrospectively applicable. Prior year financial statements have been restated to account for the impact of discounting. The impact of applying the circular is as follows on current and prior year financial statements:

	Water Research Commission 2006 R	Consolidated 2006 R
Decrease in water research levies	(1,932,238)	(1,932,238)
Increase in other interest	1,932,238	1,932,238
Increase in finance charges	(843,201)	(843,201)
Decrease in research projects and support expenditure	901,112	901,112
Increase in surplus	57,911	57,911
Decrease in trade and other payables	57,911	57,911

Notes *(continued)*

Water Research Commission and Wholly Owned Company – Notes to the financial statements for the year ended 31 March 2007

22.2 Consolidation adjustments

The consolidation was incorrectly accounted for in the prior year. The main reason for the error was because the loan impairment in the Water Research Commission was not reversed for consolidation purposes. The prior year financial statements were restated to correct the error and the impact of the restatement on prior year is as follows:

	Water Research Commission 2006 R	Consolidated 2006 R
Increase in income on investment	–	752,524
Decrease in other interest	–	(752,523)
Increase in rent received	–	267,653
Decrease in other income	–	(547,653)
Decrease in administrative expenses	–	23,629
Decrease in municipal services and security	–	180,067
Increase in professional services	–	(11,840)
Increase in rental and maintenance	–	(206,178)
Decrease in staff expenditure	–	18,050
Increase in sundry expenses	–	(3,729)
Increase in deficit	–	(280,000)
Increase in trade and other payables	–	(18,171)
Increase in trade and other receivables	–	18,171
Decrease in property, plant and equipment	–	(755,939)
Increase in accumulated deficit at 31 March 2005	–	475,939
	–	(280,000)

22.3 Reclassifications

Certain items were reclassified to improve the presentation of financial statements. Comparative information was restated.

The impact of the restatement on prior year is as follows:

Decrease in trade and other receivables	(56,592)	(56,592)
Decrease in trade and other payables	56,592	56,592
Decrease in property, plant and equipment	(891,450)	(891,450)
Increase in intangible asset	891,450	891,450
	–	–

22.4 Error - project debtors

During the current year it was identified that amounts paid to researchers was recognised as debtors when audited statements were not recieved from the researcher. These amounts should have been expensed when the payment was made. The prior year financial statements have been adjusted retrospectively by restating comparative figures.

The impact of the restatement on prior years is as follows:

Decrease in trade and other receivables	(39,724,087)	(39,724,087)
Decrease in impairment of trade and other receivables	1,834,227	1,834,227
Increase in impairment expense	747,341	747,341
Increase in research projects and support	11,023,546	11,023,546
Decrease in accumulated surplus at 31 March 2005	26,118,973	26,118,973
	–	–

Consolidated Financial Statements of Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd

for the year ended 31 March 2007

Contents

Report of the Auditor General

Report of the Auditor-General to parliament on the financial Statements of the Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd for the year ended 31 March 2007

Introduction

1. I have audited the financial statements of Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd which comprise the statement of financial position as at 31 March 2007, statement of financial performance, statement of changes in net assets and cash flow statement for the year then ended, and a summary of significant accounting policies and other explanatory notes, as set out on pages 95 to 102.

Responsibility of the accounting officer for the financial statements

2. The accounting officer is responsible for the preparation and fair presentation of these financial statements in accordance with the South African Statements of Generally Accepted Accounting Practice and in the manner required by the Public Finance Management Act, 1999 (Act No. 1 of 1999) (PFMA), Auditor-General Audit Circular 1 of 2005 and the Companies Act of South Africa. This responsibility includes:
   - designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error
   - selecting and applying appropriate accounting policies
   - making accounting estimates that are reasonable in the circumstances.

Responsibility of the Auditor-General

3. As required by section 188 of the Constitution of the Republic of South Africa, 1996, read with section 4 of the Public Audit Act, 2004 (Act No. 25 of 2004) and section 40(2) of the Public Finance Management Act, Act 1 of 1999 (as amended by Act 29 of 1999), my responsibility is to express an opinion on these financial statements based on my audit.
4. I conducted my audit in accordance with the International Standards on Auditing and General Notice 647 of 2007, issued in Government Gazette No. 29919 of 25 May 2007. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.
5. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.
6. An audit also includes evaluating the:
   - appropriateness of accounting policies used
   - reasonableness of accounting estimates made by management
   - overall presentation of the financial statements.
7. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Basis of accounting

8. The entity's policy is to prepare financial statements on the basis of accounting determined by the National Treasury, as set out in note 1.1 to the financial statements.

Opinion

9. In my opinion the financial statements present fairly, in all material respects, the financial position of Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd as at 31 March 2007 and its financial performance and cash flows for the year then ended, in accordance with the South African Statements of Generally Accepted Accounting Practice and have been prepared, in all material respects, in accordance with the basis of accounting as described in note 1.1 and in the manner required by the PFMA and Companies Act of South Africa.

Other reporting responsibilities

Reporting on performance information

10. I have audited the performance information as set out on pages 61 to 67.

Responsibilities of the accounting authority

11. The accounting authority has additional responsibilities as required by section 55(2)(a) of the PFMA to ensure that the annual report and audited financial statements fairly present the performance against predetermined objectives of the public entity.

Responsibility of the Auditor-General

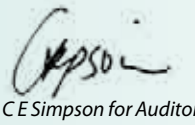
12. I conducted my engagement in accordance with section 13 of the Public Audit Act, 2004 (Act No. 25 of 2004) read with General Notice 646 of 2007, issued in Government Gazette No. 29919 of 25 May 2007.
13. In terms of the foregoing my engagement included performing procedures of an audit nature to obtain sufficient appropriate audit evidence about the performance information and related systems, processes and procedures. The procedures selected depend on the auditor's judgement.
14. I believe that the evidence I have obtained is sufficient and appropriate to provide a basis for the audit findings.

Audit findings

15. No separate performance targets were set for Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd, as it is a wholly owned subsidiary of the Water Research Commission, created for administering and maintaining the building, Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd.

Appreciation

1. The assistance rendered by the staff of Water Research Commission during the audit is sincerely appreciated.



C E Simpson for Auditor-General
Pretoria
31 July 2007

AUDITOR-GENERAL

Financial Statements

Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd

Approval of financial statements

The Directors' Report and Financial Statements set out on pages 103 to 111 were approved by the Board of Directors and were signed on its behalf by:

Dr R Kfir
WRC Chief executive

General information

Directors:
Dr R Kfir
Dr SJ Khoza

Registered office:
301 Watko Building
491, 18th Avenue
Rietfontein
Pretoria

Registration number:
1984/003566/07

Main business and purpose:
The main business of the company is to own the immovable property known as Erf 706 Rietfontein and in addition and supplementary to the aim of the Water Research Commission (WRC), to place the property at the disposal of the WRC as their main place of business.

Director's Report

General review

(a) To review the business and operations of the company for the above accounting period in general, the directors draw attention to the balance sheet, income statement, equity and cash flow statement attached, where the business of the company, the results and state of affairs are clearly reflected.
(b) The Fourth Schedule to the Companies Act, 1973, requires the Directors to report on any material facts or circumstances which occurred between the accounting date and the date of their report. No such material facts or circumstances occurred.

Specific matters

(a) The main aim of the company is that of owning the immovable property known as Erf 706 Rietfontein, including all permanent improvements, and to use the property for the purpose of promoting the operations of the Water Research Commission.
(b) No shares were allotted or issued by the company for the year ending 31 March 2007.
(c) Improvements to the fixed property totaling R Nil (2006: R2 149 719) were made in this financial year and capitalized.
(d) No dividends were paid or declared during the accounting period and we have no recommendation to make in respect of dividends (2006 – RNil).
(e) The Directors and certain members of staff of the Water Research Commission, for whom an administration fee is paid to the Water Research Commission, managed the business of the company. No third person was involved in managing the company.
(f) The names of Directors are shown below. No changes have taken place in the appointments during the accounting period. The company's secretary is Mr D de Lange.

Dr R Kfir
Dr SJ Khoza

The company is wholly owned by the Water Research Commission.

Balance sheet

Erf Sew-Nul-Ses Rietfontein (Pty) Ltd – Balance Sheet as at 31 March 2007

	Notes	2007 R	2006 R
Assets			
Non-current assets		8,691,522	8,691,522
Investment property	3	8,691,522	8,691,522
Current assets		765,270	597,531
Trade and other receivables	4	29,571	78,776
Cash and cash equivalents	5	735,699	518,755
Total assets		9,456,792	9,289,054
Equity and liabilities			
Capital and reserves		(3,747,086)	(3,030,543)
Share capital	2	1	1
Accumulated losses		(3,747,087)	(3,030,544)
Non-current liabilities			
Interest-bearing borrowings	6	12,907,602	12,115,999
Current liabilities		296,277	203,597
Trade and other payables	7	296,277	203,597
Total equity and liabilities		9,456,792	9,289,054

Income statement

Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd – Income Statement for the year ended 31 March 2007

	Note	2007 R	2006 R
Revenue	8	2,102,196	1,857,625
Interest received		1,180	323
Operating expenses		(1,008,317)	(744,128)
Profit from operations	10	1,095,059	1,113,821
Finance costs		(1,811,602)	(1,586,698)
Loss before taxation		(716,544)	(472,877)
Taxation	9	–	26,390
Net loss for the year		(716,544)	(446,488)

Statement of changes in equity

Erf Sew-Nul-Ses Rietfontein (Pty) Ltd – Statement of changes in equity for the year ended 31 March 2007

	Share Capital	Accumulated Losses	Total
	R	R	R
Balance at 31 March 2005	1	(2,584,056)	(2,584,055)
Net loss for the year	–	(446,488)	(446,488)
Balance at 31 March 2006	1	(3,030,544)	(3,030,543)
Net loss for the year	–	(716,544)	(716,544)
Balance at 31 March 2007	1	(3,747,087)	(3,747,086)

Cash Flow Statement

Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd – Cash Flow Statement for the year ended 31 March 2007

	Note	2007 R	2006 R
Cash outflow from operating activities:		(574,658)	(578,412)
Cash receipts		2,151,401	1,923,540
Cash payments		(915,637)	(915,577)
Cash generated by operating activities	13.1	1,235,764	1,007,963
Interest received		1,180	323
Finance costs		(1,811,602)	(1,586,698)
Cash in/(out)flow from investing activities:		–	(2,149,719)
Disposals of property and equipment		–	–
Improvements to investment property		–	(2,149,719)
Proceeds from investment		–	–
Cash flow from financing activities:			
(Decrease)/Increase in long-term borrowings		791,602	3,029,944
Net (decrease)/increase in cash and cash equivalents		216,944	301,813
Cash and cash equivalents at beginning of year		518,755	216,941
Cash and cash equivalents at end of year	13.2	735,699	518,755

Detailed Income Statement

Erf Sew-Nul-Ses Rietfontein (Pty) Ltd – Detailed Income Statement for the year ended 31 March 2007

	2007 R	2006 R
Income	2,103,376	1,857,949
Rent received	1,831,747	1,621,189
Municipal expense recoveries	269,859	236,437
Interest received	1,180	323
Sundry income	590	–
Expenses	2,819,919	2,330,826
Administration and management fee	217,715	205,285
Auditor's remuneration	16,480	6,619
Bad debts	–	4,532
Bank charges	5,137	5,367
Insurance	30,052	24,890
Interest paid	1,811,602	1,586,698
Municipal services and levies	383,609	281,766
Professional fees	1,800	11,840
Regional services council	565	2,500
Rent – meter readings	2,138	1,223
Repairs and maintenance	158,374	54,715
Security	172,171	141,480
Staff expenditure	14,198	182
Sundry expenses	2,164	–
Telephone	3,915	3,730
Loss before taxation	(716,544)	(472,877)
Taxation	–	26,390
Loss after taxation	(716,544)	(446,488)

Notes

Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd – Notes to the Financial Statements for the year ended 31 March 2007

1. Accounting policies

1.1 The financial statements have been prepared on the historical cost basis. The following are the principal accounting policies of the Company which are consistent in all material respects with those applied in the previous year, except as otherwise indicated.

The annual financial statements are presented in South African rand (ZAR) and are rounded off to the nearest rand.

The annual financial statements have been prepared on a going concern basis

1.2 Investment Property
Investment property, which is property held to earn rentals and for capital appreciation, is held as a long-term investment and is therefore carried at initial cost. All improvement costs are capitalized against the investment property. Investment property is not currently depreciated as the residual value is estimated to be higher than the carrying value.

1.3 Revenue
Revenue consists primarily of rental income excluding value added tax.

1.4 Financial instruments
Financial instruments carried on the balance sheet include cash and bank balances, receivables, creditors and liabilities. These instruments are carried at their estimated fair values. The particular recognition methods adopted are disclosed in the individual policy statements associated with each item.

1.5 Cash flows
For the purposes of the cash flow statement, cash includes a bank balance.

	2007 R	2006 R
2. Share capital		
Authorised		
4 000 Ordinary shares of R1 each	4,000	4,000
Issued		
1 Ordinary share of R1 each	1	1
3. Investment property		
Carrying Value: Beginning of year	8,691,522	6,541,803
- Cost	615,855	615,855
- Improvements	8,075,667	5,925,948
- Accumulated depreciation	–	–
Movements during year	–	2,149,719
- Improvements	–	2,149,719
Carrying value: End of year	8,691,522	8,691,522
- Cost	615,855	615,855
- Improvements	8,075,667	8,075,667
- Accumulated depreciation	–	–

Fixed property consists of Erf 706 Rietfontein, Pretoria, Gauteng.
The property has been valued at R15m by Reinertsen International Valuation Services, an independent valuer, on 13 April 2007.

The directors' value of the investment property at - 31 March	15,000,000	11,000,000
4. Trade and other receivables		
Trade and other receivables	29,571	78,776
- Trade debtors	–	42,340
- Deposits	18,262	18,262
- SA Revenue Services: VAT refund due	11,309	18,173
5. Cash and cash equivalents		
Bank balance	735,699	518,755

Notes *(continued)*

Erf Sew-Nul-Ses Rietfontein (Pty) Ltd – Notes to the Financial Statements for the year ended 31 March 2007

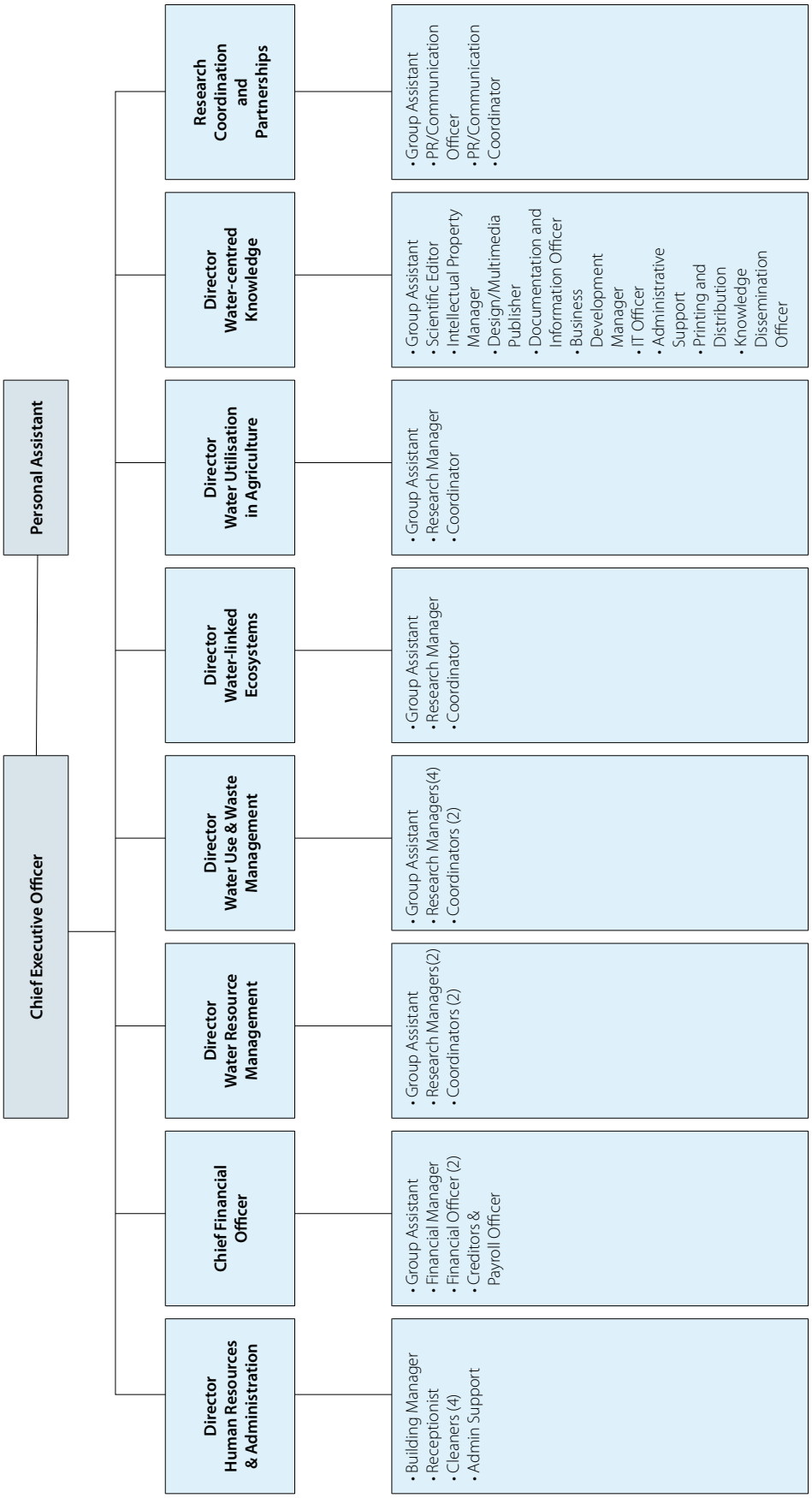
	2007 R	2006 R
6. Interest-bearing borrowings		
Water Research Commission		
Total borrowings	12,907,602	12,115,999
Loan No. 1	10,498,941	9,715,999
The loan is unsecured and repayable over 12 years. Interest was charged at 15% on the monthly balance.		
Loan No. 2	2,408,661	2,400,000
The loan is unsecured, and has no fixed terms of repayment and interest is charged at prime plus 2% on the monthly balance.		
7. Trade and other payables	296,276	203,597
- Expenses payable	269,849	189,743
- Rental deposits	26,427	13,854
8. Revenue	2,102,196	1,857,626
- Rent received	1,831,747	1,621,189
- Municipal expense recoveries	269,859	236,437
- Sundry income	590	–
9. Income tax		
The company applied for, but was not granted tax exemption. The South African Revenue Services then issued tax assessments for previous years. An overprovision for taxation for previous years has been written back. No provision has been made for taxation in the current year as the company sustained a loss for the year.	–	(26,390)
10. Profit from operations		
Profit from operations has been arrived at after charging (crediting):		
- Interest received	(1,180)	(323)
- Auditors' remuneration	16,480	6,619
- Interest paid	1,811,602	1,586,698
11. Financial instruments		
11.1 Credit risk		
Financial assets which potentially subject the company to concentrations of credit risk consist principally of cash and trade receivables. The company's cash equivalents are placed with high credit quality financial institutions.		
11.2 Fair values		
The carrying amounts of cash, accounts receivables, accounts payable and short-term liabilities approximated their fair values due to the short-term maturities of these assets and liabilities.		
11.3 Cash and cash equivalents		
Refer to note 13 for cash and cash equivalents	735,699	518,755

Notes *(continued)*

Erf Sewe-Nul-Ses Rietfontein (Pty) Ltd – Notes to the Financial Statements for the year ended 31 March 2007

	2007 R	2006 R
12. Related party information		
12.1 Controlling entity		
The company is wholly owned by the Water Research Commission.		
12.2 Directors		
The directors whose names appear in the attached directors' report each held office as a director of the company during the year ended 31 March 2007.		
12.3 Related party transaction		
Transaction between the company and the Water Research Commission, which are related parties, are disclosed below		
Interest paid	(1,811,602)	(1,586,698)
Rent received	1,619,541	1,353,536
Municipal expenses	246,750	180,066
Administration fees	(210,220)	(187,235)
13. Notes to the Cash Flow Statement		
13.1 Cash generated by operating activities		
Net loss for the year before tax	(716,544)	(472,877)
Adjustment for:		
Investment income	(1,180)	(323)
Finance charges	1,811,602	1,586,698
Net loss before working capital changes	1,093,879	1,113,497
Working capital changes	141,885	(105,534)
Decrease/(Increase) in debtors	49,205	65,915
(Decrease)/Increase in creditors	92,680	(171,449)
Cash generated by operating activities	1,235,764	1,007,963
13.2. Cash and cash equivalents		
Bank balance	735,699	518,755

Organisational structure



Water Research Commission