

Introduction



Dr Rivka Kfir
Chief Executive Officer
Water Research Commission

During the year under review the WRC effectively functioned 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 organisation's 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 has been 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.

Water quantity and quality are critical to South Africa's long-term sustainability. The WRC has further built on decades of research and development and science-based knowl-

edge 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.

Since 2005/06 marked the 5th 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 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. 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. Although the overall findings of the Review were very positive, the Review panel also indicated areas that can be improved further. The recommendations of the Review informed the WRC future core strategy and business plan.

During 2006/07 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.

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. The WRC has also supported DWAF's 2025 Initiative and has undertaken a study assessing needs and mechanisms to support capacity building for water services in local government. Other national initiatives led by DWAF have also been supported by the WRC. Examples are the Women in Water, Sanitation and Forestry Awards initiative and the SA Youth Water Prize.

Another ongoing challenge is the appropriate state-of-the-art dissemination and application of WRC-created knowledge. During the course of the year 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 organisa-

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tion undertook many knowledge transfer workshops and exhibited and participated in many scientific, technical and professional fora.

Building the water-centred 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 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 fruits.

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
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

Organisation	Number of disadvantaged students	Total number of students
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

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One of the important areas requiring the building of competence is that of local government. The WRC serves as the implementing agent for DWAF 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.

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 the South African 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.

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 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) 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 2006/07 shows a 6.5% decrease in the number of projects, i.e. 314 projects vs. 336 projects in 2005/06. This is a slight reduction compared to the 26% reduction reported during the previous year (number of projects was reduced from 454 (during 2004/05) to 336 (during 2005/06). This indicates that the drive for improvement of project management has 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 very complex and require larger projects of a multidisciplinary nature. As indicated by the number of active projects the trend in reduction of overall project numbers 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 than one per cent deviation (i.e. two projects, 245 in the previous year and 243 projects during the year under review). However, there is an increase in 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.

Utilisation of funds by the various KSAs

The percentage utilisation of research project funds (based on amounts actually paid out) by the KSAs during 2006/07 indicates 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.

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).

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 continues 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 licensing 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 of life for all. In this 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 licensed IP. A new IP manager has 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.

This publication is an abridged version of the WRC 2006/07 Knowledge Review. The complete text is available on the CD which is attached.