

Portfolio Committee on Water Affairs and  
Forestry



# Socio-economic growth and service delivery towards rural development

Annual Report

Water Research Commission



18 October 2006

# The Role of the WRC



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- 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 increasingly important role in providing the country with knowledge which will allow it to successfully deal with the many new challenges that are facing our limited water resources in future years

## 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.



# Annual Report 2005/06



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- Executive report
  - Mandate
  - Governance
  - Achievements
- Financial statements
  - Report of the Auditor-General

# Achievements



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- Leading water-centred knowledge
- Capacity building
- Investing in new knowledge
- Enhancing knowledge dissemination and public understanding of water-centred knowledge
- Making knowledge application a reality
- Sharing water-centred knowledge

# Building the Knowledge Base



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- During 2005/06 the WRC has further improved its support to students, with special emphasis on historically disadvantaged students
- About 581 students were supported by WRC projects, of whom about 69% are from historically disadvantaged backgrounds
- The increase is mainly due to an increase in the numbers of disadvantaged students which grew by 126 students (400 in comparison to 274 in previous year)
- This indicates that the WRC strategy to improve capacity building through its research projects is bearing fruit

# Knowledge Creation



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- The percentage utilisation of research project funds (based on amounts actually paid out) by the WRC during 2005/06 indicated that about 46% was invested in projects that focused on water resources (including water-linked ecosystems) and about 54% in projects that focused on water utilisation (including effluent treatment and management, as well as agriculture)
- This is based on actual amounts paid out to projects during the financial year
- The allocation of about 50% of the fund to issues related to resource management and 50% to water utilisation is ongoing

# Water KSAs



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## Water Use and Waste Management

- Water services
- Water supply & treatment technology
- Wastewater & effluent treatment & reuse technology
- Industrial & mine water management
- Sanitation, health and hygiene education

## Water Utilisation in Agriculture

- Food and fibre production
- Fuelwood and timber production
- Poverty reduction and wealth creation
- Resource protection and reclamation

## Water Resource Management

- Water resource assessment and development
- Impacts on Water Resources
- Water Resource Protection
- Policy and institutional arrangements

## Water -Linked Ecosystems

- Ecosystem processes
- Ecosystem management and utilization
- Ecosystem rehabilitation

# Highlights



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- Impact areas
  - Water and Health
  - Water and Society
  - Water and the Economy
  - Water and the Environment





## *...A toolbox for improving sanitation, health and hygiene*



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- The implementation of basic sanitation services is necessary for ensuring the health of the nation
- A community-based health and hygiene model including an implementation kit was developed
- This model provides
  - structured guidance and tools for all stages of health and hygiene programmes
  - clarifies roles and responsibilities for optimal utilisation of scarce human and financial resources
  - optimises socio-economic development through skills transfer and remuneration for work done by community members
- In addition, the study addressed gaps in present sanitation, health and hygiene programmes and provided possible solutions



*.....Turning blue water into gold coins for the people*



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- Research interventions has paved the way to a win-win situation - achieving environmental (water resource) protection and economic growth by building community-run ecotourism facilities
- To date interventions made by researchers on the Eastern Cape Estuaries Management Programme, which started several years ago with support from the WRC, resulted in the establishment of two community-run ecotourism businesses
- The Sandile community run facility was recently established on the Tyolomqa Estuary, near East London while the first, which centres on the concession for a catch-and-release fly fishery and includes canoe and pony trails, was established six years ago on the Mtentu Estuary and is run by the aMadiba Community



## *....Ecosan: From grey to green*



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- Impact of Urine Diversion (UD) (which is increasingly being implemented) was studied with regard to food production and health impact
- Food Production - research results indicated that solid UD waste applied to several types of soil prior to planting fruit and vegetables has a marked impact on soil quality, leading to better food production
- Health impact - the study indicated that microbial contaminants from the waste may move to the soil surface after burial and may pose a potential health hazard and may also impact on groundwater quality
- Further research is carried out to improve both UD technology and the methodologies for safe use of the waste with the aim to reduce potential health impacts



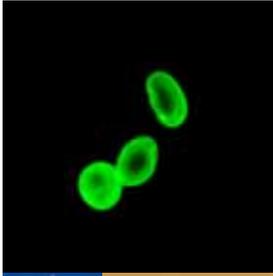
## *....Harvesting the blue*



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- Research project identified a new technique which combines the advantages of water harvesting, no-till, basin tillage and mulching on high drought-risk clay soils
- The practice reduces total runoff to zero and evaporation from the soil surface considerably, thus increasing crop production in the semi-arid areas with low potential clay soils
- On average, in-field rainwater harvesting technology increases crop yields by about a third when compared to the use of conventional tillage techniques
- The technology has been transferred to farmers in Thaba Nchu, in the Free State, as well as emerging farmers in the Eastern Cape and KwaZulu-Natal



## ...Mapping the pathogen highway



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- A recent study successfully assessed
  - the source of waterborne pathogens (e.g. *cryptosporidium*, *salmonella* and *vibrio cholerae*)
  - their route through and survival in the environment
- The findings form a basis for the development of appropriate catchment management and intervention strategies to reduce the health risk to water users



## *...Building tools in supporting the fight against climate change*



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- Most climate projection models suggest a decrease in rainfall over the western part of southern Africa
- In the Northern Cape, where water resources are already scarce, rural communities and small towns and subsistence farmers are thought to be most vulnerable
- Assistance to these small towns was provided by recent research findings
- Proactive strategies at local and national level to deal with the impacts of drought and climate change, with specific emphasis on demand side management were developed
- The implementation of dry sanitation systems; public information and school education programmes; as well as rising block tariffs and water restrictions are suggested
- It is also suggested that strict groundwater management systems be implemented as Groundwater is likely to be most severely affected (due to reduced recharge)



# Learning through cooperation in the water services sector



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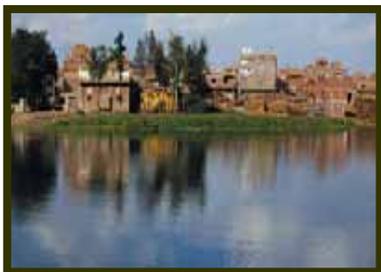
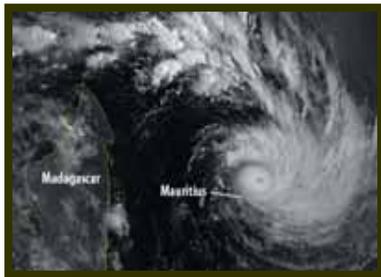


- FBS: cost recovery approaches
- Rural Water Supply
- Health and Hygiene promotion
- Institutional arrangements
- Transfer of water schemes
- Productive civil society relationships
- Sanitation: appropriate technologies and sustainable services

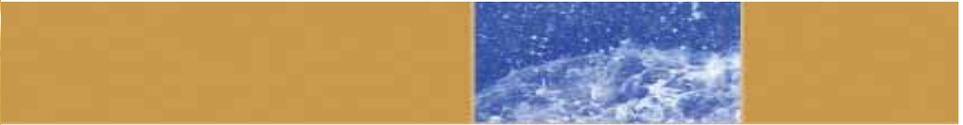
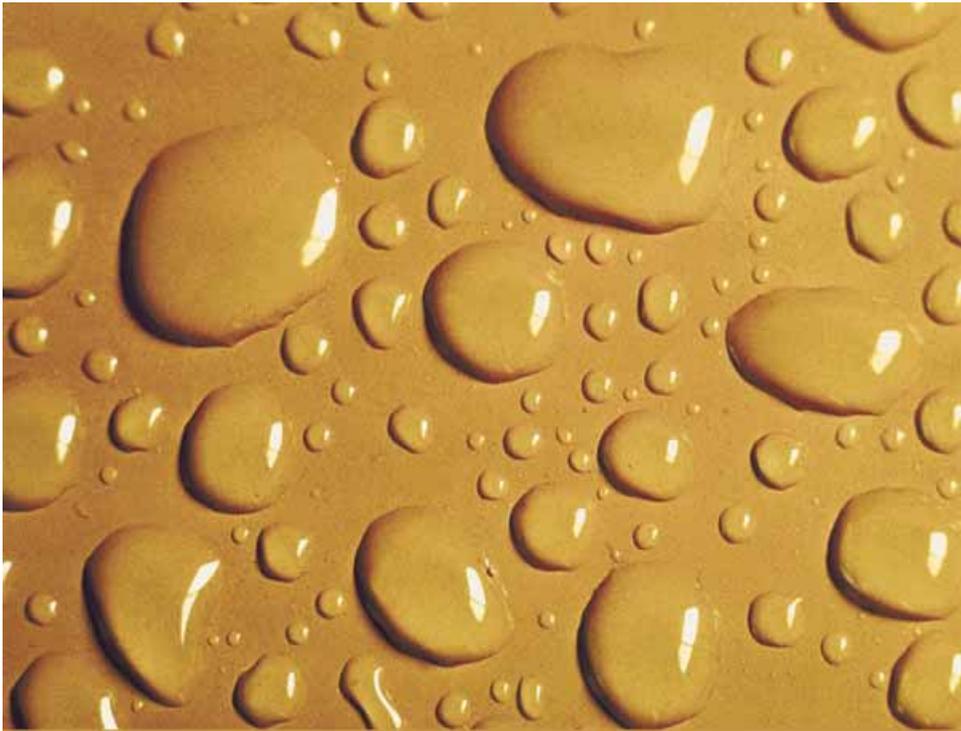
# DWAF – WRC Interaction



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- There is good cooperation between DWAF/WRC DWAF on a number of activities
- We strengthening modalities of interaction through
  - Setting up mechanisms for institutional interaction
  - Joint strategic planning
  - Repackaging research outcomes
  - Improved knowledge dissemination of WRC research outcomes



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**Thank you**

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