

Water Resources Planning and Conservation

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Technology

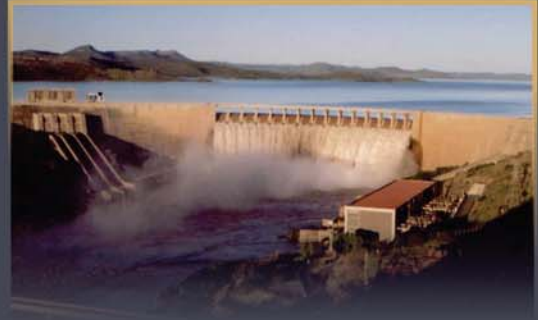


Serving the water industry since 1998

INTRODUCTION

WRP is a specialist engineering consultancy of international standing in the fields of water resources engineering, water conservation and water demand management, including NRW reduction. WRP provides quality professional services to ensure the sustainability of projects while maintaining the integrity of the environment.

Through the diverse talents of our committed staff, our dedicated leadership and international alliances, WRP focuses on the development of innovative and cost effective solutions in the water industry.



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OUR SERVICES

WRP offers a range of services that are essential for the efficient operation of water companies.

- Water Resources Engineering
- Water Conservation and Demand Management
- Municipal Water Infrastructure Planning and Design
- Water Conservation Community Awareness
- Software Development
- Training and Transfer of Technology

Water Resources Engineering

WRP offers one of the most experienced teams of water resource analysis specialists in the country. The company has always maintained a professional and cutting edge reputation and seeks a balance between providing excellence in Water Resources Management methodologies and the development of new techniques to constantly improve the water resources systems analyses sector.

WRP personnel have operated in the field of water resources systems analyses in South Africa since it first became a significant requirement as a result of drought in the 1980s. WRP's expertise covers virtually the whole of South Africa and neighbouring countries with particular emphasis on the Orange-Senqu River basin. The basin includes the Vaal River system, which supports the industrial hub of South Africa and is arguably the most complicated and integrated water resource system in the world. The following services are offered by WRP in the water resources field:

Surface Water Hydrological analyses:

- Data gathering
- Rainfall/runoff modelling
- Stochastic streamflow generation

Surface Water Systems analysis:

- Water resources yield modelling
- Development of integrated catchment management plans
- Development of operating rules

Other (in association with our partners):

- Reconciliation strategies
- Groundwater analyses
- Water quality analyses
- Classification of environmental reserves



Water Conservation and Demand Management

Water Conservation is becoming one of the most important issues facing the world and the provision of safe drinking water, taken for granted in most developed countries; is clearly a luxury in many parts of the developing world. The challenge of providing safe drinking water to everyone around the globe, is unlikely to be achieved in the near future, however, it is possible to maximise the benefit of the available water resources by ensuring that all water is used effectively and leakage from the distribution systems is reduced where possible.

Water Conservation is therefore one of the key focus areas worldwide and is one of the specialist services offered by WRP. WRP was the first company to introduce the concepts and application of Advanced Pressure Control to South Africa in the mid 1990's and designed, commissioned and operated three of the largest and most successful Advanced Pressure Control installations in the world.

In the water conservation and demand management fields, WRP offers the following services:

- Water audits and water balances using latest IWA methodology
- Leakage control through basic and advanced Pressure Management
- Determination of the optimal economic level of leakage
- Night flow analysis and interpretation of the Minimum Night Flows
- Management of Non-Revenue Water
- Development and implementation of water conservation plans
- Development and implementation of small scale Public Private Partnerships involving Leakage Reduction interventions.
- Training on all aspects of Water Demand Management
- Real time data acquisition and internet display using the new ZEDNET software developed by WRP
- Design and implementation of customised software to monitor and reduce leakage in Municipal Water Reticulation systems.



Municipal Water Infrastructure Planning and Design

WRP has extensive experience in the planning and design of municipal water related infrastructure. Services provided in this regard are:

Feasibility Investigations:

- Evaluation and identification of existing infrastructure
- Identification of shortcomings and development of appropriate solutions
- Preparation of infrastructure strategy plans
- Preparation of water services development plans

Infrastructure Design

- Confirmation of design standards
- Quantification and costing of infrastructure
- Assessment and development of tariff structures
- Optimisation and phasing of future infrastructure



Water Conservation Community Awareness

WRP Consulting Engineers has over the years been extensively involved with community awareness in South Africa. Community awareness and public participation has increasingly been recognised as an essential pillar of water conservation (WC) and water demand management (WDM) strategies particularly in ensuring sustainability of water resources and effective implementation of WC/WDM interventions within local authorities.

Our areas of expertise comprise the following:

- Planning, coordination and implementation of WC/WDM and Sanitation related community awareness campaigns
- Training and skills development for Community Liaison Officers and Municipal Customer Care departments
- Impact assessment of the WDM related interventions through simple surveys as well as interviews with stakeholders
- Development of WC/WDM and sanitation educational material
- Presentation of community and stakeholder workshops
- Management of stakeholder involvement
- Schools leakage reduction programmes including:
 - Coordination of support structures for continuous engagement with municipalities
 - Learner workshops
 - Educators workshops
 - Maintenance personnel workshops
 - Scorecard assessments



Software Development

Water Conservation and Water Demand Management

The Water Research Commission contracted WRP to develop various software packages which are now freely available to all Municipalities and water suppliers in South Africa and are designed to assist in reducing leakage from potable water distribution systems. The models currently available include SANFLOW, PRESMAC, AQUALITE, ECONOLEAK, BENCHLEAK and the Municipal WDM Scorecard which helps a Municipality to develop a first order WDM Strategy in a very short time at minimal cost. WRP's also developed ZEDNET which is a highly sophisticated internet based package designed to display and analyse real-time data captured on a variety of self-powered logging devices. Its main use is in the capture and display of flow and pressure logging information from potable water reticulation networks where it is an invaluable aid in monitoring and reducing leakage levels. It can also be used to monitor water levels in boreholes, reservoirs and flow gauging weirs and is already used to monitor more than half of the open channel flow gauging structures operated and maintained by Water Affairs throughout South Africa.

Water Resources Engineering

WRP personnel have been involved in the software development of the two key models used in the water resources systems analyses sector since their birth in the 1980s. They remain involved with the ongoing maintenance and continual improvements made to the models which help to ensure that they are abreast of the latest trends and developments in computer software.



Training and Transfer of Technology

Water Conservation and Water Demand Management (WC/WDM)

WRP is recognised throughout South Africa and in many parts of the world as a leader in Water Conservation and Water Demand Management. The company has provided specialist support and training to water suppliers in more than 20 countries including: Australia, Botswana, Brazil, Ethiopia, Ghana, India, Indonesia, Kosovo, Lesotho, Malawi, Malaysia, Namibia, New Zealand, Puerto Rico, Rwanda, Philippines, Thailand, USA, and Zambia.

The courses provided include:

- Master Classes in water demand management
- Logging of pressures and flows and analysis of logging results
- Sectorisation and the establishment of district metered areas (DMAs)
- Pressure management and the establishment of pressure management areas (PMAs)
- Leak detection
- Operation and maintenance of hydraulic pressure control valves

Water Resources

WRP has provided Water Resource Management training to many other South African consultants, universities and client bodies. In addition to undertaking the analyses, WRP also provides training in the use of the various water resource models developed and used in South Africa. Staff members have also presented training in neighbouring countries, such as Namibia, Botswana and Lesotho.

The areas of Water Resource Management training and capacity building include:

- Rainfall data manipulation (RAIN-IMS)
- Hydrological Analysis: Water Resource Simulation Model 2000 (WRSIM 2000) Configuration and Calibration
- Operation of the Water Resource Yield Model (WRYM) and Water Resource Planning Model (WRPM)
- Model verification
- Analyses of both Historical and Stochastic hydrological flow sequences



Engineering innovated Technology

“Let there be work, bread, water and salt for all”

Nelson Mandela

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