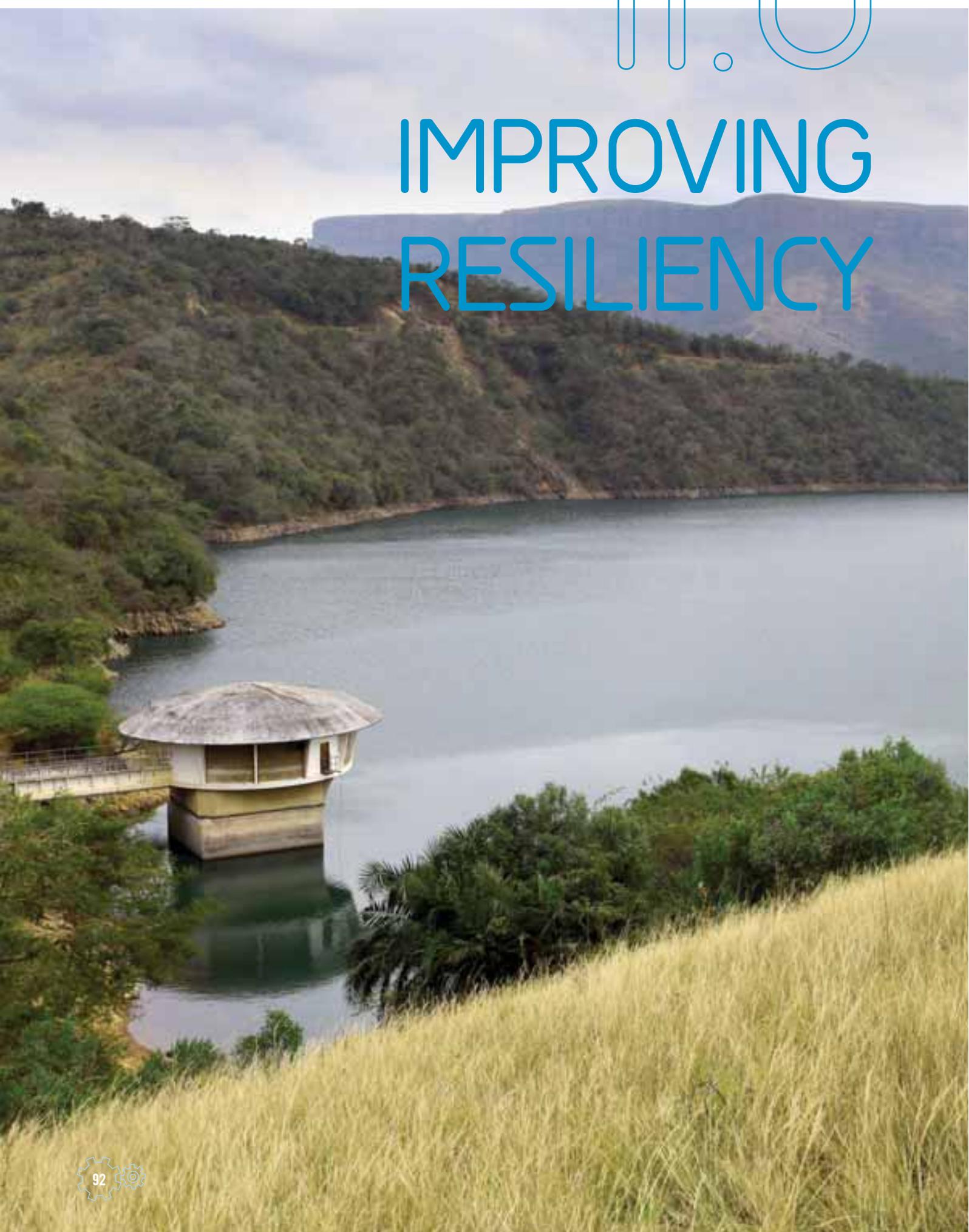




11.0

IMPROVING RESILIENCY



11.1 OPERATIONAL OPTIMISATION

ISO 17025 ACCREDITED LABORATORY SERVICES ASSURING WATER QUALITY

Umgeni Water's Laboratory Services is a dynamic centre of excellence comprising three modern ISO/IEC 17025 accredited laboratories in Chemistry, Microbiology, and Hydrobiology with a long established reputation of meeting international standards. Modern analytical techniques used by a team of fifty-seven highly skilled and dedicated scientists and technicians, enables Umgeni Water's facility to provide a world-class service 365 days a year. In the latest recertification audit of April 2013, the laboratory was commended for continued accreditation status.

The key objectives of the laboratory in support of Umgeni Water's primary business:

- Providing assurance that the organisation produces potable water that complies with drinking water standards, assuring that treated effluent complies with wastewater and effluent discharge limits, thereby assuring public health protection from water-borne diseases and water related health impacts,
- Undertaking research and development, generation of scientific data for new infrastructure development, and supporting/auditing water treatment for process selection and optimisation, and
- In addition, catchment and river health monitoring is undertaken to assess the status of water resources and raw water supply.

The laboratories form a powerful hub for the analysis of water, in relation to both, water treatment and the associated environment. Water samples from rivers, dams, water treatment and wastewater treatment works are collected by a team of dedicated sampling officers on a daily basis throughout Umgeni Water's operational area and is assessed in terms of its physical, chemical and microbiological characteristics.

The analytical results are produced within specified times that forms part of a Service Level Agreements with end users. Supported by its Laboratory Information Management System (LIMS), water quality results are captured, validated, stored and reported. In addition, direct access is provided to external users via the Electronic Water Quality Management System (eWQMS), the Blue Drop System (BDS) and the Green Drop System (GDS).

Early warnings and alerts are provided to stakeholders immediately after a breach of quality standards is detected. An incident management protocol is followed, to contain and remedy the breach. The laboratory generates up to 20 000 analyses per month.

ASSURANCE THROUGH ROBUST INFORMATION AND COMMUNICATIONS TECHNOLOGY SYSTEMS

Umgeni Water has an organisation-wide and holistic ICT management approach in place that aligns information and communication technology systems to its business strategies and thereby supports information requirements and decision-making capabilities of the organisation.

Umgeni Water uses the Government-Wide Enterprise Architecture (GWEA) framework, adopted and customised for South Africa by the national Government Information Technology Officers' Council (GITOC) for its enterprise architecture.

In the year under review progress was made with implementation Umgeni Water's Information Communication Technology systems capital investment programme which has ensured that Umgeni Water has resilient systems in place to deliver on its mandate.

Programmes completed include:

- Full implementation of a Redundant Wireless Network in Umgeni Water's operational areas, which has ensured a stable communication platform,
- The creation of an updated/secondary computer room for business continuity in the Pinetown Regional Office, which has enhanced Umgeni Water's sustainability,
- The introduction of an Enterprise Project Management solution, which will assist Umgeni Water in further improving implementation of its bulk water capital expenditure programme. The business process of this new system will complement the EPCM (Engineering, Procurement, and Construction Management) process which will be implemented during 2013/2014,
- The upgrade of the Planned Maintenance and Asset Management System (Maximo), which has improved the integrated reporting functionality with the organisation's financial systems. The establishment of a fully functional ICT Helpdesk inclusive of ICT asset discovery using Maximo was also achieved during this period,
- The completion of the Laboratory Management System project which has full integration and automation thus enhancing scalability will support the business by adapting to the new trends and legislation, and
- The assessment and approval of Umgeni Water's ICT Governance framework, which aligns with the performance and sustainability objectives of the organisation, has ensured the Board's full compliance of the relevant ICT responsibilities as recommended in King III.

Umgeni Water's ICT plans for 2013/2014 include:

- Investigation of an Enterprise Resource Planning (ERP) System,
- Business Process re-engineering,
- Implementation of a Treasury Management System,
- Sourcing and Implementation of an Information and Content Management System,
- Deployment of the Unified Communications Plan,
- Integrated business reporting from key Business Systems,
- Response to governance requirements in line with Board directives, and
- Implementation of an electronic system to improve capturing and validation of organisational and divisional performance information.

RESEARCH AND INNOVATION

In the year Umgeni Water approved its Innovation Policy, the purpose of which is to provide a favourable corporate environment for innovative suggestions to emerge. Umgeni Water will benefit from this through its employees working differently and more creatively serve the organisation and sector's needs.

The utilisation of new technology and processes to improve efficiencies and increase effectiveness within Umgeni Water's operations is considered a key component of moving the organisation forward in its growth phase. A large portion of the knowledge gained in new technology and processes that will be applicable to the organisation is through the Innovation, Research and Development (IRD) projects that are undertaken by the organisation itself and by the University of KwaZulu-Natal (UKZN) for the organisation through the UW/UKZN Chair of Water Resource Management which is now operational.

Umgeni Water plans and implements several projects for which work completed is shown in

Table 11.1

Table 11.1 Umgeni Water's major research projects and progress made in 2012/2013.

Research Project	Objectives	Progress 2012/2013
1. Nano-structured Titanium oxide Nitrogen Doped Photo-Catalytic Membranes for Water Treatment (NATIOMEM)	To test the disinfection efficiency of a membrane pilot plant that uses sunlight for disinfection without any chemical addition. The intention is to use the technology to provide safe drinking water for a rural household.	All planned pilot trials were successfully completed and a ceramic membrane successfully coated with nitrogen doped titanium dioxide to enable chemical-less disinfection.
2. Monitoring of Endocrine Disrupting Compounds (EDC) Levels in Darvill WWTW	To determine and optimise an analytical technique for the detection and quantification of endocrine disruptor compounds in Darvill wastewater.	The method development and validation is in progress.
3. Evaluation of High-rate Clarifiers (HRC).	Investigate and demonstrate the use of high-rate clarifiers at Umgeni Water WTW sites. Prepare design guidelines for the optimisation of high-rate clarifier design and construction.	All experimental work on the HRC, at alternate site, Mvoti WTW, is complete (in the prior year the data collected assisted in the selection and design of an appropriate clarifier unit for the Hazelmere WTW upgrade). The technology is suitable for potable water treatment and a site is being sought for the full scale application of the technology.
4. Evaluation of Direct Up-flow Filters (DUF) for Potable Water.	Test the applicability of the Direct Up-flow Filter technology for use at Umgeni Water WTW. Compare cost-effectiveness of the technology from an operations and maintenance perspective.	Plant trials testing the applicability of technology are complete and Umgeni Water is planning to relocate the plant to a suitable rural area.

In addition, Umgeni Water has kept current with the latest development in analytical techniques. Current research focus areas are:

- Radioactive screening: Tests for uranium, and alpha-beta radioactivity, was undertaken on fifty (50) raw and drinking water monitoring sites. The tested catchments showed no radiation contamination,
- Endocrine Disrupting Compounds: The levels of Endocrine Disrupting Compounds (EDCs) at Darvill Wastewater Treatment Works was studied to establish removal efficiencies from conventional treatment and compared to MBR treatment. Enzyme-Linked Immunosorbent Assay (ELISA) and GC MS analysis methods are being developed for EDCs,
- Polymers for water treatment: A test method using gold nanoparticles was developed in collaboration with UKZN to measure polymer residues in water,
- Soil testing: New methods for thirty-six (36) different analyses are being developed and validated for the analysis of soils as required by the new Sludge Guidelines. A fully fledged soil testing laboratory is being designed for this purpose, and
- Other areas include real time Polymerase Chain Reaction (PCR) research and research on enteric viruses.

11.2 RISK MANAGEMENT

Umgeni Water defines risk as any exposure to the consequences of uncertainty that could affect the organisation's ability to meet its strategic objectives. Risk management is guided by an Integrated Risk Management Framework which is aligned to strategy, thereby ensuring a focused and directed process of risk management in the organisation. The Board of Umgeni Water approves the organisation's risk appetite and tolerance framework on an annual basis.

The organisation's strategic risks are shown in **Table 11.2** and show the link to strategic perspectives, objectives and outcomes and how these have been treated/mitigated. Of a total of nine strategic risks, 89% have been treated to a level equal to or above 50% (reasonable) overall control strength and 56% of risks to a level equal or above 70% (good) overall control strength. All strategic risks are within the organisation's risk tolerance level.

Table 11.2 Umgeni Water Strategic Risks as at June 2013

Risk #	Risk Name, Score and Status	Cause, Context and Treatment	Main Strategic, Perspective, Objectives and Outcomes Impacted
1.	<p>Infrastructure investment to meet service delivery mandate and growth plans.</p> <p>Score</p> <p>Moderate-Low</p> <p>Risk Appetite and Tolerance</p> <ul style="list-style-type: none"> • Outside Appetite • Within Tolerance 	<p>Cause & Context: Alignment and prioritisation of the infrastructure plan to increase capacity to meet demand, improve service levels and for growth.</p> <p><i>Treatment Approach: Critical supply infrastructure is annually identified, aligned, prioritised, funded and implemented as part of the organisation's capital infrastructure programme linked to strategy.</i></p>	<p><u>Customer and Stakeholder Perspective:</u> SO1: Increase services and customers. SO2: Increase customer and stakeholder value.</p> <p><u>Organisational Capacity Perspective:</u> SO7: Improve and increase infrastructure assets.</p> <p>Outcomes Infrastructure Stability Product Quality Customer Satisfaction Stakeholder Understanding and Support Community Sustainability</p>
2.	<p>Performance of bulk wastewater infrastructure assets.</p> <p>Score</p> <p>Moderate-Low</p> <p>Risk Appetite and Tolerance</p> <ul style="list-style-type: none"> • Outside Appetite • Within Tolerance 	<p>Cause & Context: Process failures, capacity and technology constraints, resulting in non-compliance with effluent discharge requirements.</p> <p><i>Treatment Approach: Initiatives planned and implemented at each WWTW and critical refurbishment and upgrades of major works included and implemented as part of capital programme.</i></p>	<p><u>Customer and Stakeholder Perspective:</u> SO1: Increase services and customers. SO2: Increase customer and stakeholder value.</p> <p><u>Organisational Capacity Perspective:</u> SO7: Improve and increase infrastructure assets.</p> <p>Outcomes Infrastructure Stability Product Quality Customer Satisfaction Stakeholder Understanding and Support Community Sustainability</p>
3.	<p>Skill availability, attraction and retention.</p> <p>Score</p> <p>Minor-High</p> <p>Risk Appetite and Tolerance</p> <ul style="list-style-type: none"> • Outside Appetite • Within Tolerance 	<p>Cause & Context: Scarcity of critical and core skills and competitive external jobs environment. Extent of implementation of succession plan in relation to critical and core skills.</p> <p><i>Treatment Approach: Implementation of succession plans and approved workforce plans. Programmes to build leadership, management and functional competence and to develop technical skills for the organisation are included in current strategy plan.</i></p>	<p><u>Organisational Capacity Perspective:</u> SO9: Increase skills and competency.</p> <p>Outcomes Leadership and Employee Development</p>

Risk #	Risk Name, Score and Status	Cause, Context and Treatment	Main Strategic, Perspective, Objectives and Outcomes Impacted
4.	<p>Ability to deliver projects on time and within budget.</p> <p>Score</p> <p>Minor-High</p> <p>Risk Appetite and Tolerance</p> <ul style="list-style-type: none"> • Outside Appetite • Within Tolerance 	<p>Cause & Context: Actual cost and delivery time of projects may significantly differ from approved plans.</p> <p><i>Treatment Approach: Review and implement effective Engineering, Procurement and Construction Management (EPCM) process. Benchmark procurement system for engineering and construction to improve turnaround time.</i></p>	<p><u>Customer and Stakeholder Perspective:</u> SO1: Increase services and customers. SO2: Increase customer and stakeholder value.</p> <p><u>Organisational Capacity Perspective:</u> SO7: Improve and increase infrastructure assets.</p> <p>Outcomes Infrastructure Stability Product Quality Customer Satisfaction Stakeholder Understanding and Support Community Sustainability</p>
5.	<p>Protection and safeguarding of assets.</p> <p>Score</p> <p>Minor-Low</p> <p>Risk Appetite and Tolerance</p> <ul style="list-style-type: none"> • Outside Appetite • Within Tolerance 	<p>Cause & Context: Illegal settlements and unauthorised construction on properties and servitudes. Umgeni Water's right of access limited.</p> <p><i>Treatment Approach: Implementation of servitude management procedure. Safety and security measures to protect staff, assets and public. Properties and servitudes maintained and monitored. Disposal of property no longer in use.</i></p>	<p><u>Customer and Stakeholder Perspective:</u> SO2: Increase customer and stakeholder value</p> <p><u>Organisational Capacity Perspective:</u> SO7: Improve and increase infrastructure assets</p> <p>Outcomes Infrastructure Stability Stakeholder Understanding and Support Community Sustainability</p>
6.	<p>Ability to secure funding to meet developmental goals.</p> <p>Score</p> <p>Minor-Low</p> <p>Risk Appetite and Tolerance</p> <ul style="list-style-type: none"> • Outside Appetite • Within Tolerance 	<p>Cause & Context: Inability to secure required project grant funding. Delayed receipt of funding resulting in projects not being delivered on time.</p> <p><i>Treatment Approach: Enhanced stakeholder engagement to secure grant funding for developmental projects. On-going optimisation of funding mix from tariff, grants and borrowing.</i></p>	<p><u>Customer and Stakeholder Perspective:</u> SO1: Increase services and customers SO2: Increase customer and stakeholder value</p> <p><u>Financial Perspective:</u> SO3: Increase mobilisation of funds</p> <p><u>Organisational Capacity Perspective:</u> SO7: Improve and increase infrastructure assets</p> <p>Outcomes Infrastructure Stability Customer Satisfaction Stakeholder Understanding and Support Community Sustainability Financial Viability</p>

Risk #	Risk Name, Score and Status	Cause, Context and Treatment	Main Strategic, Perspective, Objectives and Outcomes Impacted
7.	<p>Sustainable Tariff</p> <p>Score</p> <p>Minor-Low</p> <p>Risk Appetite and Tolerance</p> <ul style="list-style-type: none"> • Outside Appetite • Within Tolerance 	<p>Cause & Context: Constraints on ability to charge a tariff that will ensure financial viability and protection of operating cash flows against operating risk including low volume growth, above inflation input costs, significant capital investments with low returns and high impairment costs.</p> <p><i>Treatment Approach: Tariff policy ensures transparency and formal tariff process. Scenario analysis on the impact of operational risk factors on financial viability. On-going optimisation of funding mix from tariff, grants and borrowing for capital programme. Enhanced stakeholder engagement to secure grant funding for developmental projects.</i></p>	<p><u>Customer and Stakeholder Perspective:</u> SO1: Increase services and customers SO2: Increase customer and stakeholder value</p> <p><u>Organisational Capacity Perspective:</u> SO7: Improve and increase infrastructure assets</p> <p><u>Financial Perspective:</u> SO4: Increase financial sustainability</p> <p>Outcomes: Financial Viability Infrastructure Stability Customer Satisfaction Stakeholder Understanding and Support Community Sustainability</p>
8.	<p>Water resources availability</p> <p>Score</p> <p>Minor-Low</p> <p>Risk Appetite and Tolerance</p> <ul style="list-style-type: none"> • Outside Appetite • Within Tolerance 	<p>Cause & Context: Assurance of supply <98%. Planning horizons and prioritisation to match supply and demand.</p> <p><i>Treatment Approach: Integrated planning and implementation for short, medium and long-term augmentation of systems with stakeholders. Water conservation and demand management initiatives. Review of water resources mix including reuse and desalination. Climate change modelling.</i></p>	<p><u>Customer and Stakeholder Perspective:</u> SO1: Increase services and customers</p> <p><u>Organisational Capacity Perspective:</u> SO8: Increase water resources sustainability</p> <p>Outcomes: Water Resources Adequacy Customer Satisfaction</p>
9.	<p>Performance of bulk potable water infrastructure assets</p> <p>Score</p> <p>Minor-Low</p> <p>Risk Appetite and Tolerance</p> <ul style="list-style-type: none"> • Outside Appetite • Within Tolerance 	<p>Cause & Context: Process failures, capacity and technology constraints at water treatment plants resulting in final water non-compliance with potable water standard.</p> <p><i>Treatment Approach: Initiatives planned and implemented at each WTW and critical refurbishment and upgrades of works included and implemented as part of asset programme.</i></p>	<p><u>Customer and Stakeholder Perspective:</u> SO2: Increase customer and stakeholder value</p> <p>Outcomes: Product Quality Customer Satisfaction Stakeholder Understanding and Support Community Sustainability</p>

Financial risks are detailed in the annual financial statement section of this annual report.

MITIGATED RISKS

Mitigated risks refer to risks that have been treated to an acceptable level with continual monitoring by Internal Audit to ensure the controls in place are still effective and efficient. The following risks were treated to an acceptable level during this financial year:

- Business Continuity Management: the organisation has strengthened its business continuity capability and there is a Business Continuity Policy and Strategy and Overarching and Operational Business Continuity plans,
- Governance of ICT: there is an ICT Governance framework and Road Map, implementation of which is monitored quarterly,
- Liquidity risk: existing controls are sufficient to mitigate this risk. There is an approved short-medium-long term funding strategy in place which meets the on-going cash requirements of the business in line with the five-year financial business plan. In addition Umgeni Water has a liquidity buffer of R200m and is currently operating within the borrowing limits approved by National Treasury, and
- Fraud risks: controls are in place to mitigate this risk and there is constant monitoring by the Ethics and Audit committees.

Stakeholder relations - statutory, contracted and non-contracted: the reputation and branding marketing plan as well as the stakeholder management strategy have been improved.

EMERGING RISKS

In line with regular revisions of the strategy and as required by the governance structures the organisation regularly reviews the internal and external landscapes that affect Umgeni Water's risk profile with a view to identifying emerging risks.

The emerging risks as at June 2013 are:

- Anti-competitive behaviour in the construction industry impacting on implementation of Umgeni Water's capital infrastructure programme,
- Climate change, and
- Appropriate timing of alternate water resources to freshwater (desalination, reclamation / reuse).

KEY INTERNAL AUDIT ISSUES

Refer to Corporate Governance Chapter.

