

4 059



participants in total were reached through 136 classes held at water treatment and wastewater treatment works

NAGLE DAM

8.0 PG 57-63
PERFORMANCE AGAINST
2016/2017 SHAREHOLDER
COMPACT

9.0 PG 65-81
CREATING
VALUE

10.0 PG 83-93
CONSERVING
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10.0

Conserving our Natural Resources

10.1 Environmental Sustainability, including Water Resources Adequacy

Management Approach

Adequate supplies of raw water resources are paramount to Umgeni Water, which, together with reliable sources of energy, chemicals for water treatment and other resources are crucial for sustainability of the water business. The entity therefore is steadfast in protecting, conserving and efficiently using and sustaining these resources.

Environmental management programmes and plans are embedded in all components of the water business life-cycle, namely, during planning, construction, operation and decommissioning. Umgeni Water has classified its environmental management programmes as Corporate, Operational or Integrated Environmental Management:

- › Corporate Environmental Management focuses on aligning the business activities to environmental sustainability and promoting a shift towards the state of a green economy.
- › Operational Environmental Management focuses on ensuring compliance with applicable environmental legislation and regulations and ensuring the entity avoids and or minimises environmental impacts from business activities.
- › Integrated Environmental Management focuses on identification, mitigation and implementation of management plans for potential environmental impacts associated with infrastructure developments.

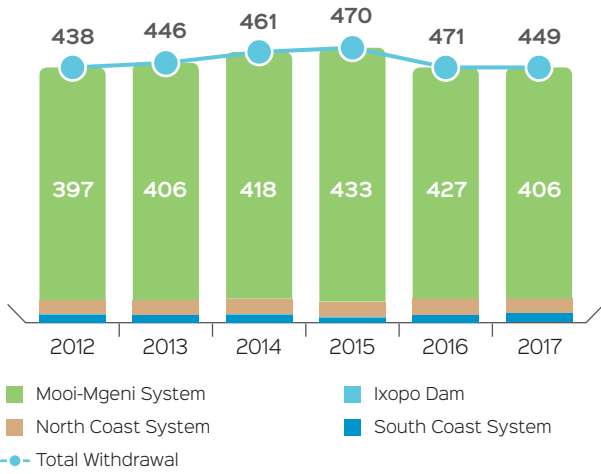
Umgeni Water, as a public water services entity in South Africa, complies with all mandatory environmental disclosure requirements. Notwithstanding this, the entity continues to improve alignment of environmental indicators with other national and internationally accepted indicator disclosure requirements, including the Global Reporting Initiative (GRI) and King III Report on Corporate Governance, in terms of materiality and relevance. Relevant aspects include: materials, including chemicals and water resources, energy efficiency, greenhouse gas emissions, carbon footprint mapping, biodiversity and waste management, amongst others.

Water Resources Adequacy

Umgeni Waters' core business function is to treat and supply bulk potable water – a business that is highly dependent on the availability of sustainable water resources. The reconciliation between water resource availability and water demand is therefore of primary importance to the entity and forms an integral part of the infrastructure planning process. Understanding what water resources are available to the entity, both current and future resources and what factors affect the assurance level of these resources, is crucial to balancing supply with customer demand and maintaining supply sustainability into the future.

Umgeni Water sources water primarily from fourteen (14) impoundments (includes weir/run of river abstractions) on three (3) major water resource systems, namely, the Mgeni System (Mooi and Mgeni rivers), the North Coast System (uMdloti, iMvutshane, uThukela and uMvoti rivers) and the South Coast System (Nungwane, Mzimayi, uMuziwezinto and Mhlabatshane rivers). Total water withdrawal by source is shown in **Figure 10.1**.

Figure 10.1: Water Withdrawal by Source (million m³)



In the year, progress was made with the following water resource infrastructure developments:

- › iMvutshane Dam (UW) was commissioned and reached full supply capacity in April 2017.
- › uMkhomazi Water Project (DWS and UW) feasibility study is complete.
- › Hazelmere Dam raising (DWS) construction is in progress.
- › Construction of the Mshwathi Bulk Water Supply Scheme is under way and the first phase of the project should be commissioned in 2017/2018.
- › Lower Thukela Bulk Water Supply Scheme (UW) construction was completed in 2016 and commissioning of the plant took place in 2017. Supply to customers is planned to commence in 2017/2018.
- › Lower uMkhomazi Bulk Water Supply Scheme (UW) feasibility study is complete. Detailed design to commence in 2017/2018.
- › East Coast Desalination Plant detailed feasibility study (completed in 2015).

Climate Change and Water Resources

The natural climate is the principal driver of water availability whether surface or groundwater. The impacts of potential climate change are therefore crucial to the business of Umgeni Water and need to inform infrastructure planning and design, particularly given the significant costs and long planning period required for major infrastructure investments such as dams, pipelines, structures, buildings and transport infrastructure.

In alignment with the National Climate Change Response Strategy, the main response to climate change is coherent planning of water resources, as well as developing water resilience. Umgeni Water has largely been proactive in considering the potential impacts of climate change on water resources and has incorporated projections into its planning processes.

The results of recent studies indicate that the majority of the climate models project an increase in runoff in the catchments along the east coast of South Africa. Most models show very high impacts, likely to be accompanied by significant increases in flooding risk, whilst a few models project an increase in dry conditions, likely to be accompanied by drought risk. Umgeni Water is planning to update the above study in 2017/2018 by investigating potential impacts of climate change on future water supply using outputs from recent Global Circulation Models (GCMs) as inputs to appropriate hydrological models. The project will use climate scenarios from the most recent IPCC (International Panel on Climate Change) accredited GCMS, including the World Climate Research Programme sponsored Coordinated Regional Climate Downscaling Experiment (CORDEX).

“Umgeni Water is piloting a reuse plant at its Darvill Wastewater Treatment Works. The 2 ML/d direct reuse demonstration plant consists of a conventional water treatment works to provide high pressure wash water followed by an advanced treatment process plant.”

Umgeni Water has recently upgraded its Water Resources Decision Support System with improved functionality in terms of the data capture system, calculation and validation scripts as well as the dashboard manager. The project was completed in February 2017 and is the precursor to the development of a flood forecasting and early warning system which will be a partnership between Umgeni Water, the South African National Biodiversity Institute (SANBI) and uMgungundlovu District Municipality. The project is aimed at developing an adaptation strategy to reduce the vulnerability and minimise the impacts of future flood events on the infrastructure and communities residing in close proximity to river systems within the municipality. The output, expected in 2019, will provide a real-time flood forecasting and early warning system to alert communities of impending flood events.

Wastewater Reuse

Umgeni Water is piloting a reuse plant at its Darvill Wastewater Treatment Works. The 2 ML/d direct reuse demonstration plant consists of a conventional water treatment works to provide high pressure wash water followed by an advanced treatment process plant. Construction of the works was completed during the reporting period and is scheduled for commissioning early in 2018.

8.0 PG 57-63 PERFORMANCE AGAINST 2016/2017 SHAREHOLDER COMPACT	9.0 PG 65-81 CREATING VALUE	10.0 PG 83-93 CONSERVING OUR NATURAL RESOURCES	11.0 PG 95-103 ENABLING OUR PEOPLE	12.0 PG 105-111 IMPROVING RESILIENCY	13.0 PG 113-197 FINANCIAL SUSTAINABILITY	14.0 PG 199-204 GRI CONTENT INDEX
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Raw Water Quality

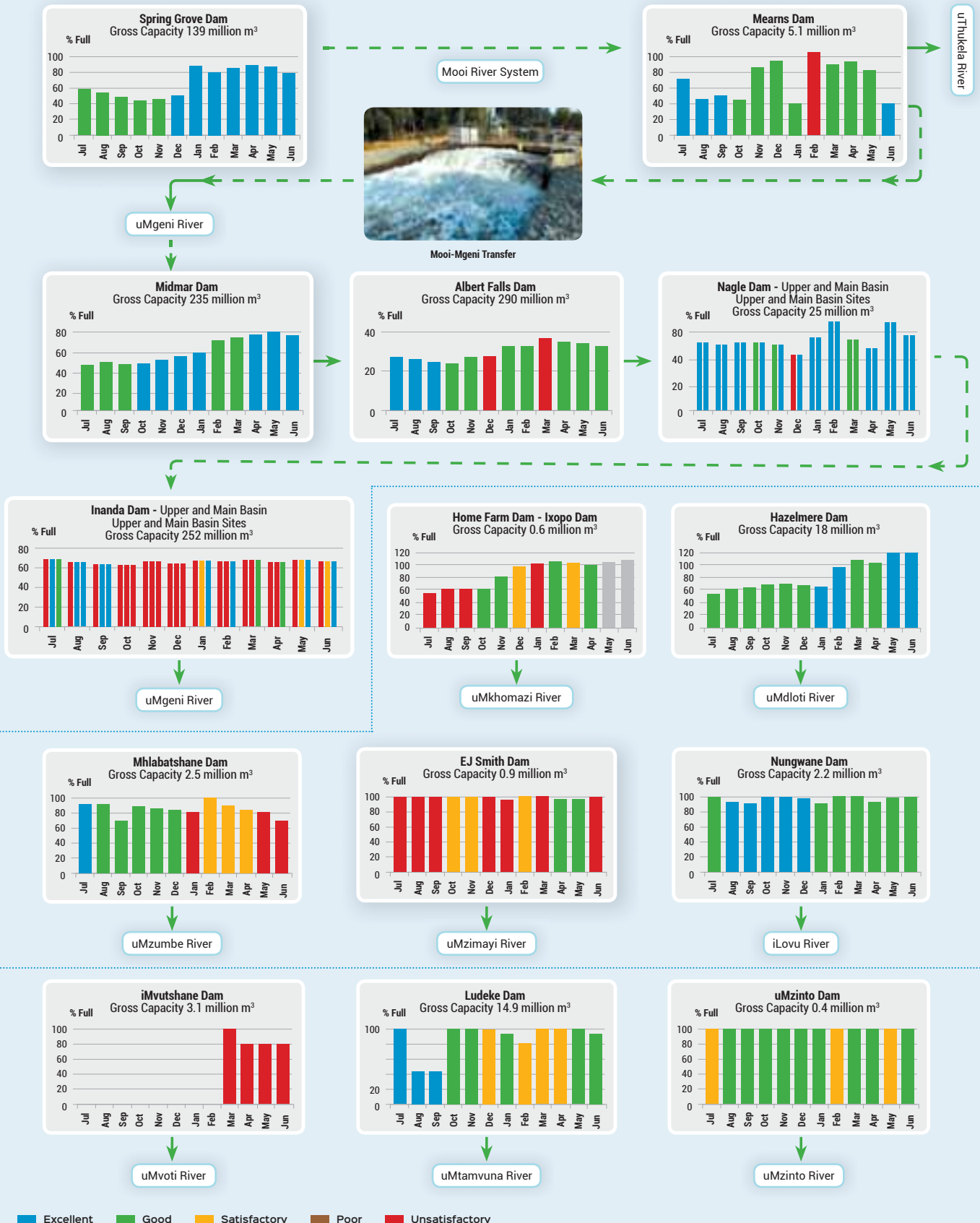
The status of raw water quality per supply source/catchment is shown in **Table 10.1** and **Figure 10.2**. Water quality risks associated with these supply resources arise from the presence of feedlots in some catchment areas, the presence of wastewater treatment works upstream of some impoundments, sewer reticulation problems in some towns and seasonal changes, (including rainfall/storm events and impoundment stratification). Water quality variables associated with these include: algal blooms and aquatic weed problems associated with eutrophication, chemical contamination (including high concentrations of iron and manganese), elevated turbidity and suspended solids levels, faecal contamination, with concomitant pathogen risk and other erosion runoff contamination. Umgeni Water has set resource quality objectives for water treatment abstraction purposes and will continue to use these as the basis for setting alert level triggers to safeguard public health and optimise water treatment costs.

Table 10.1: Resource Water Quality

SYSTEM	CATCHMENT	IMPOUNDMENT	ABSTRACTION WATER QUALITY STATUS AND TRENDS					POOR RAW WATER QUALITY
			2013	2014	2015	2016	2017	
Mooi-Mgeni	Mooi, uMgeni	Spring Grove	-	-	Filling	Excellent	Excellent	-
		Mearns weir	Good	Good	Good	Good	Good	
		Midmar	Good	Good	Good	Excellent	Excellent	-
		Albert Falls	Good	Good	Good	Good	Good	-
		Nagle	Moderate	Moderate	Good	Good	Excellent	-
		Inanda	Moderate	Moderate	Moderate	Moderate	Moderate	Elevated nutrient and total organic carbon concentrations, as well as elevated algal counts.
North Coast	uMdloti	Hazelmere	Good	Excellent	Moderate	Poor	Good	Occasional nutrient inputs from the catchment that resulted in elevated algal counts in this impoundment.
		uMvoti	Moderate	Good	Good	Moderate	Good	Occasional nutrient inputs from the catchment.
		iMvutshane uMvoti	-	Good	Good	Moderate	Unsatisfactory	Occasional elevated turbidity and ammonia concentration arising from organic degradation during the initial filling of the dam.
		uThukela	-	Poor	Poor	Moderate	Poor	High turbidity and total organic carbon inputs from the catchment arising from poor agricultural practices.
South Coast	iNungwane, iLovu	Nungwane Dam	Moderate	Moderate	Good	Good	Good	Occasional nutrient inputs from the catchment that resulted in elevated algal counts in this impoundment.
		uMzimayi	Poor	Poor	Poor	Moderate	Poor	Elevated <i>E. coli</i> , iron, total organic carbon and turbidity associated with several major rainfall events and sewer problems.
		uMhlabatshane	-	-	-	-	Satisfactory	
		uMzinto	Moderate	Moderate	Moderate	Good	Good	Occasional elevated <i>E. coli</i> counts due to several major rainfall events in the catchment.
		uMtamvuna	-	--	-	-	Good	Occasional nutrient and turbidity inputs from the catchment.
		uMthwalume	Moderate	Moderate	Moderate	Good	Good	Occasional elevated turbidity arising from rain events in the catchment.
		iXobho	Poor	Poor	Poor	Poor	Poor	Eutrophication due to sewer inputs from Ixopo Town and catchment.

Note: The water quality in most impoundments has been influenced by the severe drought conditions experienced in this geographical region. This has resulted in limited runoff, very low river levels (proportionally more rivers affected by sewer problems or treated effluent discharges) and also reduced dam volumes. Lower dam volumes have resulted in a decrease in the dilution factor and reduced assimilative capacity. In some cases, management and selection of some dam abstractions have been affected, resulting in poorer quality water being abstracted at some water treatment works.

Figure 10.2: Water quality status of water resources per supply source/catchment



* River and dam water quality is based on the revised Umgeni Water Quality Index. This Index is calculated using the following determinands: *E. coli*, Iron, Manganese, Turbidity, Conductivity, Nitrate, Total Phosphorus (TP), Soluble Reactive Phosphorus (SRP), Total Organic Carbon (TOC), Biotic Index scores, algal numbers, Chlorophyll *a*, Taste and Odour and Algal Toxins.

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Water quality management plans include:

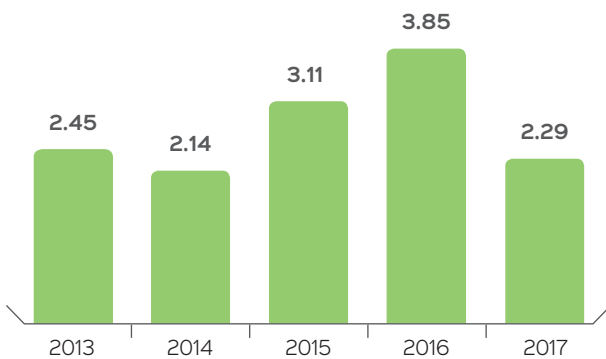
- > Monitoring the quality of raw water resources to assess quality for potable water treatment;
- > Assessing risks associated with negative trends in eutrophication, chemical contamination, pathogens and suspended solids and progress toward achieving raw water quality objectives;
- > Engaging in catchment management activities to influence resource quality and quantity objectives that will balance environmental objectives and safeguarding consumer health; and
- > Improving the quality of waste discharges from operational sites.

The Department of Water and Sanitation (DWS) is kept continuously apprised of the quality, trends and potential risks associated with raw water supply resources. DWS, as the custodian of South Africa's water resources will continue to ensure there is long-term sustainability of water resources.

Water Loss Management

Umgeni Water strives to use the water abstracted from resources assiduously. Water balancing and water loss management measures are in place per treatment system. The total water loss level is low, at 2.29% and has been maintained below the entity's target level of 5% over the years. (Figure 10.3).

Figure 10.3: Water Loss (%)



Materials Usage and Efficiency

Water is the most significant input materials for Umgeni Water, as described in the previous section, followed by energy, which is discussed below. In addition, Umgeni Water has a high reliance on water treatment chemical resources and is therefore committed to improving the usage efficiency thereof.

Chemicals Usage and Efficiency

The chemical usage trend is shown in Figure 10.4.

Umgeni Water has implemented various initiatives to optimise the use of water treatment chemicals. These include:

- > Chemical selection process. Technical testing of chemical effectiveness for each treatment plant is conducted based on the regulatory requirements. This process prevents excessive chemical use which leads to increased operational costs and unsustainable use of natural resources;
- > Water treatment process evaluation audits, which identifies areas of improvement in terms of process and operational efficiency;
- > Monitoring and reviewing seasonal variation of the water column / dam levels, to optimise raw water quality;
- > Participating in catchment management activities and forums, and contributing to the information base, including water quality. This influences decisions for sustainable catchment land use activities and development; and
- > Monthly chemical optimisation audits to ensure that optimal use of treatment chemicals is maintained and to facilitate a prompt response should a problem be identified through the monthly sampling.

Figure 10.4: Chemical Usage and Efficiency Trends

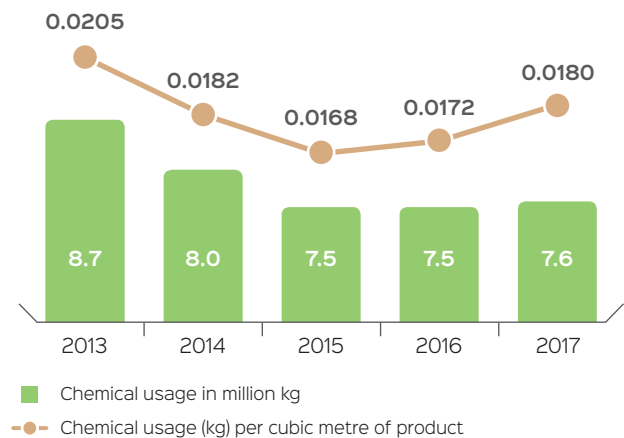
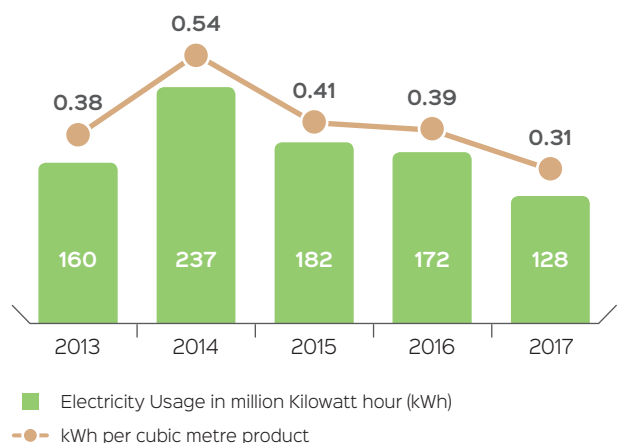


Figure 10.5: Electricity Usage and Efficiency Trends



Energy Usage, Carbon Footprint and Emissions Reduction Initiatives

Total electricity usage for the reporting year was 128 million KWh. Electricity usage and efficiency trends are shown in **Figure 10.5**.

This decrease is associated with reduction in raw and potable water pumping in the year.

Umgeni Water's direct CO₂ emissions contributions emanate from vehicles, boats, generators and other fuels. Indirect CO₂ emissions are largely due to electricity usage and to a lesser extent, flights and waste generation. The entity's carbon footprint is predominantly due to electricity consumption

(approximately 99%), which is one of the main inputs to water and wastewater treatment processes.

The carbon footprint trend over the years is shown in **Figure 10.6** and **Table 10.2**.

Figure 10.6: CO₂ Equivalents (Tonnes)

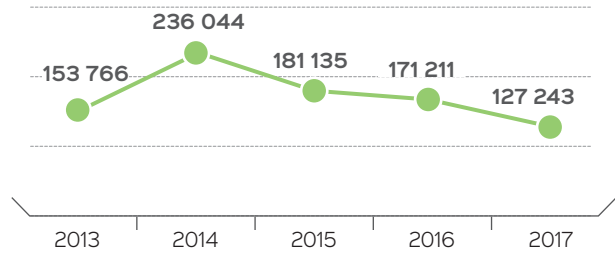


Table 10.2: CO₂ Equivalents (tonnes)

CO ₂ EQUIVALENTS (TONNES) PER ACTIVITY	2010	2011	2012	2013	2014	2015	2016	2017
Electricity	131 851	163 392	208 071	153 280	234 575	180 117	170 287	126 326
Travel: Car	1 407	1 334	2 086	137	1 035	204	177	94
Travel: Air	143	143	81	71	87	91	99	66
Waste	989	299	262	196	305	684	620	720
Other fuel	40	40	98	82	42	39	29	37
TOTAL	134 430	165 208	210 598	153 766	236 044	181 135	171 211	127 243

Energy management, including carbon off-setting initiatives include:

- › Continuing work on a strategy for energy conservation and demand management for new infrastructure - pipelines, pump stations and reservoirs.
 - A draft energy and demand management strategy for new infrastructure focusing on new pipelines and pump stations was prepared during the reporting period. It is intended to finalise the strategy in 2017/2018.

- › Continuing work on the entity's Green Building Initiative.
 - Further elaboration is provided under the next heading.
- › Implementing the Darvill Wastewater Treatment Works wetland construction project.
- › Implementing the Darvill Wastewater Treatment Works Co-generation project.
- › On-going replacement of old light fittings with more energy efficient ones.
- › On-going tree planting initiatives.



Green Building Initiative

Green building or green construction takes place when there is mindful and deliberate inclusion of resource-efficiency processes into the building or construction life-cycle, i.e. from planning to design, construction, operation, maintenance, renovation to final decommissioning. The need for green building has risen in importance in South Africa as the country increasingly faces shortages in energy and water amongst other key resources.

Umgeni Water’s approach to the Green Building includes:

- › Carrying out a Green Building Assessment using the Green Buildings Council of SA (GBCSA) ‘Existing Building Performance’ tool as a framework for a selection of Umgeni Water sites;
- › Developing Green Building strategies that can be integrated into the Existing Building Energy Water Performance (EWP) benchmark tool;
- › Assessing energy efficiency, water efficiency, materials efficiency, waste and toxicity reduction, indoor Environmental Quality (IEQ), operations and maintenance optimisation, and emissions; and

- › Developing, selecting, funding and financing value-adding initiatives/interventions.

During the reporting period, one (1) of the buildings assessed against the GBCSA ‘Existing Building Performance Tool Version 1’ obtained a “One Star” status, on the journey to a better, greener building.

Biodiversity Management

uMngeni Ecological Infrastructure Partnership (UEIP)

The UEIP is a joint partnership committed to the management and harnessing of the potential eco-system resources in the Mgeni River catchment. Umgeni Water, as a signatory of this partnership, has been involved in various projects which the UEIP has implemented, supplying valuable experience, information and analytical water quality data. This information has been utilised to create awareness on the issues relating to land use, community based water supply and water quality monitoring. Progress with this initiative is shown below and will continue into 2018.

2015/2016	2016/2017
<ul style="list-style-type: none"> › <i>Role of the Lions River Wetland, highlighting soil conditions, vegetation and water quality.</i> › <i>Green Fund Ecological Infrastructure Investment Project, which focuses on the Upper uMngeni, Mpendle, Lions and Karkloof catchments, which look at long-term, cost effective ecological service delivery, human settlements and commercial agriculture.</i> 	<ul style="list-style-type: none"> › <i>Midmar-Mpophomeni working-group, raising funds to rehabilitate and restore the Mpophomeni wetland.</i> › <i>Successful Enviro-Champs Project.</i> › <i>Solid waste collection and private sector engagement.</i> › <i>The Green Fund Ecological Infrastructure Investment Project continued.</i>

Biodiversity Offsets

During the reporting period, Umgeni Water researched the possibility of the implementing biodiversity offsets. Biodiversity offsets are interventions specifically implemented to counterbalance the adverse environmental impacts of land-use change, resource use, discharge, emission or other activity at one location that is implemented at another location to deliver a net environmental benefit. Progress with this research is shown below. Work is on-going and research will continue into 2018.

2015/2016	2016/2017
<ul style="list-style-type: none"> › <i>Biodiversity assessment of Umgeni Water infrastructure was completed.</i> › <i>All sites were considered in terms of the Ezemvelo Wildlife (MinSet Plan and Biodiversity Sector Plans), which highlighted areas of concern that are considered threatened or endangered.</i> 	<ul style="list-style-type: none"> › <i>Biodiversity Offsets: Umgeni Water “as-built” infrastructure was assessed to determine if the infrastructure was within biomes considered threatened or endangered in terms of the Ezemvelo Wildlife (MinSet Plan and Biodiversity Sector Plans).</i> › <i>This highlighted areas that require the implementation of net environmental benefit at another location which is considered either threatened or endangered.</i>

1.0 PG 7 REPORT PROFILE	2.0 PG 9-17 ORGANISATIONAL PROFILE	3.0 PG 18-21 MINISTER'S FOREWORD	4.0 PG 22-25 ACCOUNTING AUTHORITY'S REPORT	5.0 PG 26-33 CHIEF EXECUTIVE'S REPORT	6.0 PG 35-48 CORPORATE GOVERNANCE	7.0 PG 51-54 STAKEHOLDER UNDERSTANDING AND SUPPORT
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Alien Aquatic Weed Management

Well managed and sustainable water resources are critical to Umgeni Water's core responsibility of supplying sustainable potable water supply. Alien aquatic weeds introduced into various water resources pose significant risk to water quality and quantity. The primary threats are posed by Water Hyacinth (*Eichhornia crassipes*), Water Lettuce (*Pistia stratiotes*) and Kariba Weed (*Salvinia molesta*). These free-floating aquatic plants are extremely difficult to control in eutrophic water bodies as these exponentially grow and invade the riverine environment. Progress with this initiative is shown below and will continue into 2018.

2015/2016	2016/2017
<ul style="list-style-type: none"> > Closer cooperation with a multi-stakeholder group, the Alien Weed Working-Group. > Release of bio-control in several river systems. > Monitoring and assessment of the weed status. > Improved response time. > A reduction of cost of control was achieved. 	<ul style="list-style-type: none"> > Maintain cooperation with a multi-stakeholder group, the Alien Weed Working-group. > Problems due to budget constraints and lack of trained staff meant limited control was achieved. > Monitoring and assessment of the weed status continued. > Release of bio-control in several river systems.

Msinsi Holdings Land and Sustainable Resource management

Msinsi Holdings SOC Ltd., a wholly-owned subsidiary of Umgeni Water is mandated to manage the land and biodiversity of the areas around the dams owned or managed by Umgeni Water in a manner that balances the divergent factors of local community development, provision of recreational facilities for the public and water resources/biodiversity protection.

These reserves are located at:

- > Spring Grove Dam;
- > Albert Falls Dam;
- > Nagle Dam;
- > Inanda Dam;
- > Hazelmere Dam; and
- > Shongweni Dam.

Detailed management plans for each of the reserves, in line with industry best practice, have been completed and form the basis for all operations in the reserves. In the past year, Msinsi has been successful in protecting the habitats and ensuring an ecologically sustainable and protected water environment through implementing its resource management plans, which focused on:

- > The management of the game and species according to the carrying capacity of each reserve;
- > Local community development;
- > Recreation for the public;
- > Grassland management;
- > Control of pollution inside the purchase areas; and
- > Removal of alien invasive plants, both terrestrial and aquatic.

The ecological balance was effectively managed during this period through the implementation of Reserve Management Plans. In particular, carrying capacity was managed to ensure sustainability of wildlife populations and measures to mitigate

poaching, which has been a significant threat to the reserve wildlife, were put in place.

Security patrols are conducted as per a patrol plan in order to identify and mitigate security risks to the reserves, including ensuring reserve fence lines are in good condition. Three (3) rhinoceroses were lost through poaching during the year under review. Mitigation measures include controlled rhino dehorning. In addition, collaboration with other stakeholders is being undertaken in order to strengthen security measures for the game reserves. A comprehensive game reserve security plan will be finalised during 2017/18.

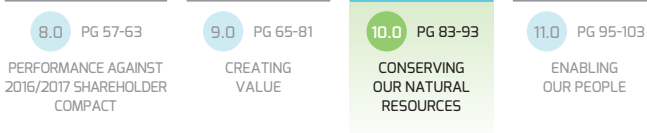
Msinsi Holdings continues to be seen as a significant player in the conservation and tourism sector in KwaZulu-Natal and the state-owned company will continue to ensure that ecosystem services provided by these water bodies and surrounding environments continue to be sustainably managed.

Stakeholder engagement successfully created value for Msinsi's operations and the communities at large during this reporting period. As a result, there was no interruption of Msinsi's operations as a result of community instability in the neighbouring areas.

Msinsi continued with the implementation of planned CSI initiatives targeting surrounding communities. Ten (10) initiatives were implemented which included sponsorships for a senior citizen's club, a career exhibition for local schools and a sports tournament.

Msinsi continued providing environmental education targeting surrounding communities. Twenty-nine (29) environmental education initiatives in areas of water conservation, environmental awareness and commemoration of environmental special days were implemented.

2 765 learners, forty-six (46) learning institutions and two (2) youth organisations were reached through this programme during the year under review.



Sourcing labour within the communities around Msinsi operations, created job opportunities for the communities with a total of 436 temporary jobs created during the reporting period.

A total of thirty-one (31) learners recruited from the communities were enrolled in the Learnership Programme of Accommodation Services, NQF Level 2.

Continuous engagement with the Amakhosi in the area of Shongweni has been crucial towards achieving the successful handover of Shongweni Dam and Game Reserve to the community following the transfer of that land from Umgeni Water to Zwelibomvu Community Trust. Msinsi will continue to implement programmes that benefit communities in the area.

Waste Management

Waste management studies in progress include:

- › Waste recycling;
- › Classification of Water Treatment Works Residues;
- › Classification of the Wastewater Treatment Works Sludge; and
- › Assessment of Management Options for Water and Wastewater Treatment Works Sludge.

During the reporting period, the entity focused on recycling. Three-in-one Recycling and War on Waste (WOW) bins were placed at the strategic locations to encourage waste separation at source and a recycling campaign was conducted to educate staff on the importance of recycling and correct procedures for waste separation.

The total waste produced during the reporting period is 1 706 kg per mil m³. 0.37% of this waste was recycled. Trends in waste management are shown in **Figures 10.7** and **10.8**.

Figure 10.7: Waste Produced

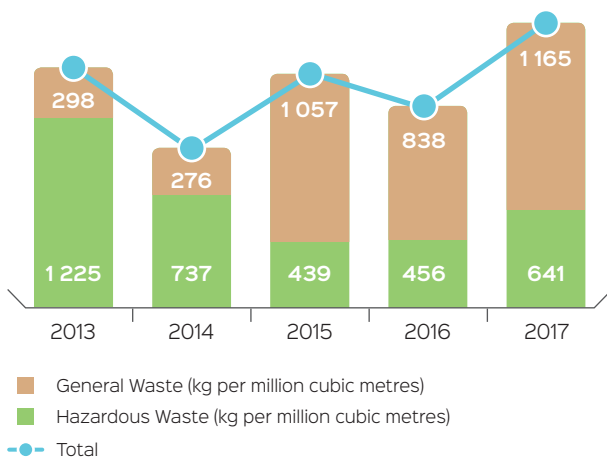
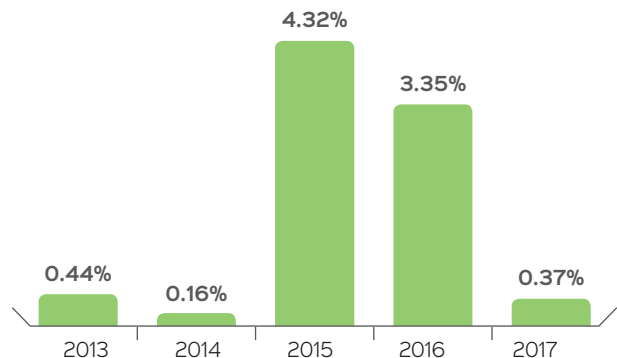


Figure 10.8: Per Cent Waste Recycled



Environmental performance of Operational sites

Annual environmental audits are undertaken at operational sites, the objectives of which are:

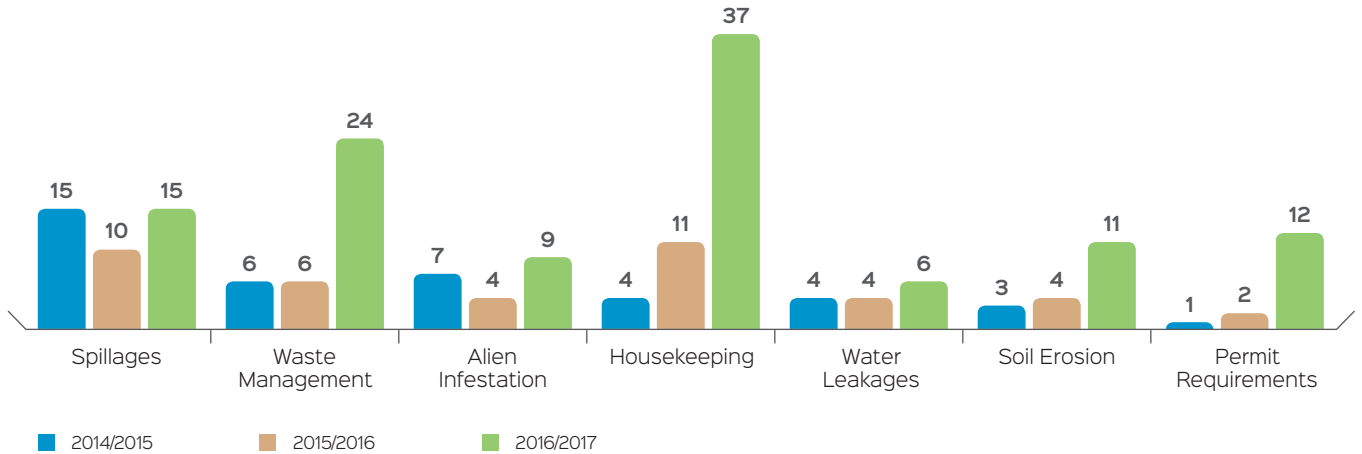
- › To assess whether the site is complying with all applicable environmental legislation and regulations;
- › To assess internal policy and procedural compliance in relational to environmental management;
- › To assess the status of energy consumption, waste management and biodiversity management at the site and alignment with corporate environmental sustainability initiatives; and
- › To recommend mitigation measures to address areas of non-conformance.

In the reporting period, environmental audits were undertaken at water treatment works, wastewater treatment works, dams, workshops and regional offices. The main findings (**Figure 10.9**) were:

- › Poor housekeeping;
- › Inadequate waste management in relation to waste separation, storage and implementation of waste recycling measures;
- › Contamination of the surrounding environment due to concrete and oil spillages that were not cleared;
- › Soil erosion;
- › Non-compliance with permit requirements; and
- › Wastage of non-renewable resource and water leakage.

Environmental performance was generally good. Most findings had risks ranging from minor to moderate. Mitigation measures will be implemented to ensure continuous improvement of environmental management at sites.

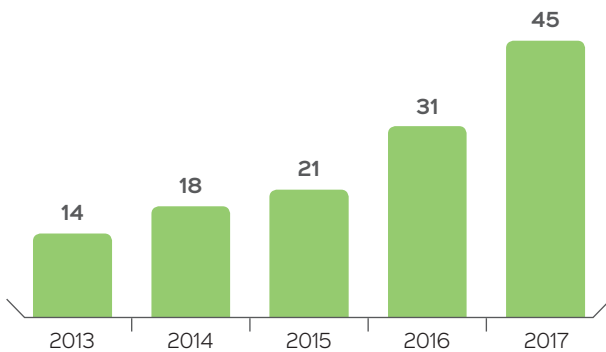
Figure 10.9: Environmental Management Findings from Audits



Environmental Incidents

There were forty-five (45) environmental incidents recorded for the 2016/2017 year, compared to thirty-one (31) in the prior year (Figure 10.10). Umgeni Water has, in the recent past, acquired additional water and wastewater treatment works for which, systems will progressively be put in place to improve performance.

Figure 10.10: Environmental Incidents



Integrated Environmental Management

The entity has sixteen (16) projects in planning and design phases that are being managed through the Integrated Environmental Management System. This is in accordance with the provisions of the Environmental Impact Assessment Regulations of the National Environmental Management Act (NEMA), which stipulates that projects that trigger listed activities as stipulated in the regulations are required to obtain an environmental authorisation (EA), prior to any construction activities occurring.

The process of obtaining an EA can be either through a basic assessment (BA) process or a scoping and full environmental impact assessment process (EIA). The status of some key Bulk Infrastructure projects is shown in Table 10.3.

Table 10.3: Environmental Authorisation Status for Key Bulk Infrastructure Projects.

PROJECT NAME	EA STATUS REQUIREMENTS
uMkhomazi Water Project Phase 1	EIA application in progress
Lower uMkhomazi BWSS	EIA application in progress
Elysium Desalination Project	EIA application in progress
uMshwathi BWSS Phase 4	EIA application in progress
Mhlabatshane Pipeline and Plant Upgrade	BA application in progress
South Coast Phase 2A	EA obtained
Nungwane Raw Water Pipeline: Pipe Supply	EA obtained

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Where project developments do not trigger listed activities as defined in the Act, environmental screening is undertaken and project specific Environmental Management Plans are developed. This ensures that all the potential environmental impacts emanating from project implementation are eliminated or minimised to acceptable levels.

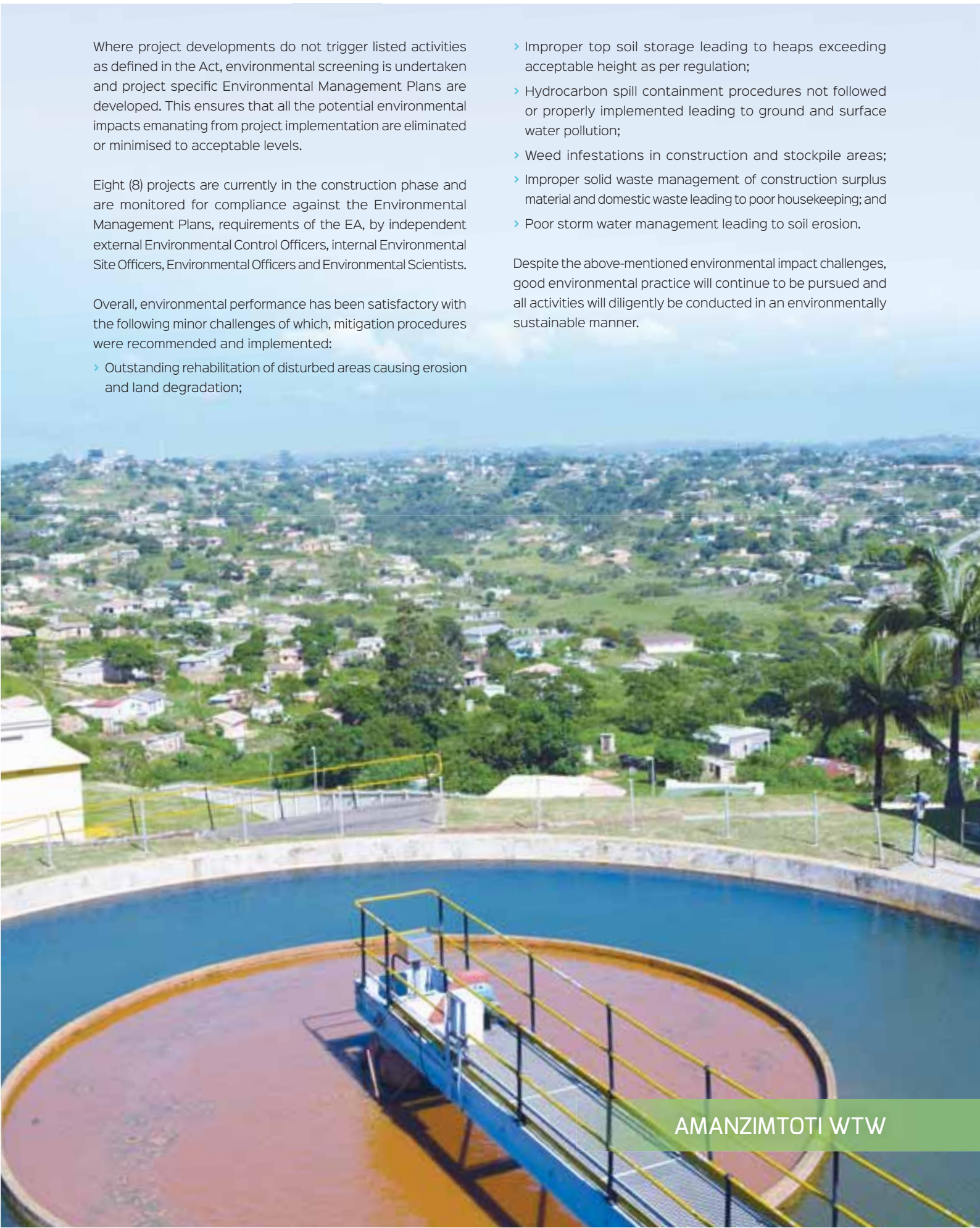
Eight (8) projects are currently in the construction phase and are monitored for compliance against the Environmental Management Plans, requirements of the EA, by independent external Environmental Control Officers, internal Environmental Site Officers, Environmental Officers and Environmental Scientists.

Overall, environmental performance has been satisfactory with the following minor challenges of which, mitigation procedures were recommended and implemented:

- › Outstanding rehabilitation of disturbed areas causing erosion and land degradation;

- › Improper top soil storage leading to heaps exceeding acceptable height as per regulation;
- › Hydrocarbon spill containment procedures not followed or properly implemented leading to ground and surface water pollution;
- › Weed infestations in construction and stockpile areas;
- › Improper solid waste management of construction surplus material and domestic waste leading to poor housekeeping; and
- › Poor storm water management leading to soil erosion.

Despite the above-mentioned environmental impact challenges, good environmental practice will continue to be pursued and all activities will diligently be conducted in an environmentally sustainable manner.



AMANZIMTOTI WTW