# SWARTLAND MUNICIPALITY

## WATER SERVICES AUDIT FOR 2010/2011

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<td>BDS</td>
<td>Blue Drop System</td>
</tr>
<tr>
<td>BWP</td>
<td>Bulk Water Pipeline</td>
</tr>
<tr>
<td>CAFES</td>
<td>Conserving, Adequate, Fair, Enforceable, Simple</td>
</tr>
<tr>
<td>CES</td>
<td>Community Engineering Services</td>
</tr>
<tr>
<td>CPP</td>
<td>CAFES Cost and Pricing Strategy</td>
</tr>
<tr>
<td>CRC</td>
<td>Current Replacement Cost</td>
</tr>
<tr>
<td>Dia</td>
<td>Diameter</td>
</tr>
<tr>
<td>DLG&amp;H</td>
<td>Department of Local Government and Housing</td>
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<tr>
<td>DRC</td>
<td>Depreciated Replacement Cost</td>
</tr>
<tr>
<td>DWA</td>
<td>Department of Water Affairs</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>GDS</td>
<td>Green Drop System</td>
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<tr>
<td>IDP</td>
<td>Integrated Development Plan</td>
</tr>
<tr>
<td>ILI</td>
<td>Infrastructure Leakage Index</td>
</tr>
<tr>
<td>JTC</td>
<td>Junior Town Council</td>
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<td>KPI</td>
<td>Key Performance Indicator</td>
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<tr>
<td>l/s</td>
<td>Litres per Second</td>
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<td>LED</td>
<td>Local Economic Development</td>
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<tr>
<td>LMP</td>
<td>Leakage Management Programme</td>
</tr>
<tr>
<td>MAP</td>
<td>Mean Annual Precipitation</td>
</tr>
<tr>
<td>MIG</td>
<td>Municipal Infrastructure Grant</td>
</tr>
<tr>
<td>MI</td>
<td>Mega litre</td>
</tr>
<tr>
<td>MI/a</td>
<td>Mega litre per year</td>
</tr>
<tr>
<td>MI/d</td>
<td>Mega litre per day</td>
</tr>
<tr>
<td>Mm³/a</td>
<td>Million Cubic Meters per Year</td>
</tr>
<tr>
<td>PRV</td>
<td>Pressure Reducing Valve</td>
</tr>
<tr>
<td>RDP</td>
<td>Reconstruction and Development Programme</td>
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<tr>
<td>RM</td>
<td>Rand Million</td>
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<tr>
<td>RPMS</td>
<td>Regulatory Performance Management System</td>
</tr>
<tr>
<td>RSA</td>
<td>Republic of South Africa</td>
</tr>
<tr>
<td>RUL</td>
<td>Remaining Useful Life</td>
</tr>
<tr>
<td>RWWW</td>
<td>Re-use of Waste Water</td>
</tr>
<tr>
<td>SANS</td>
<td>South African National Standard</td>
</tr>
<tr>
<td>SDBIP</td>
<td>Service Delivery Budget Implementation Plan</td>
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<tr>
<td>SPP</td>
<td>Socio - Political Programme</td>
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<tr>
<td>TMG</td>
<td>Table Mountain Group</td>
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<tr>
<td>VIP</td>
<td>Ventilated Improved Pit</td>
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<td>WCP</td>
<td>Water Conservation Products</td>
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<td>WC/WDM</td>
<td>Water Conservation Water Demand Management</td>
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<td>WDM</td>
<td>Water Demand Management</td>
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<td>WSA</td>
<td>Water Services Authority</td>
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<td>WSDP</td>
<td>Water Services Development Plan</td>
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<td>WSP</td>
<td>Water Services Providers</td>
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<td>WSI</td>
<td>Water Services Institution</td>
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<td>WTW</td>
<td>Water Treatment Works</td>
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<td>WWTW</td>
<td>Waste Water Treatment Works</td>
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<tr>
<td><strong>TERM</strong></td>
<td><strong>INTERPRETATION</strong></td>
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<td>Current replacement cost (CRC)</td>
<td>The cost of replacing the service potential of an existing asset, by reference to some measure of capacity, with an appropriate modern equivalent asset. GAMAP defines CRC as the cost the entity would incur to acquire the asset on the reporting date.</td>
</tr>
<tr>
<td>Depreciated Replacement Cost (DRC)</td>
<td>The replacement cost of an existing asset after deducting an allowance for wear or consumption to reflect the remaining economic life of the existing asset.</td>
</tr>
<tr>
<td>MIG</td>
<td>A conditional grant from national government to support investment in basic municipal infrastructure.</td>
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<tr>
<td>Remaining useful life (RUL)</td>
<td>The time remaining over which an asset is expected to be used.</td>
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<td>Strategic Framework for Water Services</td>
<td>The Strategic Framework provides a comprehensive summary of policy with respect to the water services sector in South Africa and sets out a strategic framework for its implementation over the next ten years.</td>
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<tr>
<td>Water Services Authority (WSA)</td>
<td>A water services authority is any municipality that has the executive authority to provide water services within its area of jurisdiction in terms of the Municipal Structures Act 118 of 1998 or the ministerial authorisations made in terms of this Act. There can only be one water services authority in any specific area. Water services authority area boundaries cannot overlap. Water services authorities are metropolitan municipalities, district municipalities and authorised local municipalities.</td>
</tr>
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<td>Water Services Development Plan (WSDP)</td>
<td>A plan for water and sanitation services in terms of the Water Services Act.</td>
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<td>Water Conservation</td>
<td>The minimisation of loss or waste, the care and protection of water resources and the efficient and effective use of water.</td>
</tr>
<tr>
<td>Water Demand Management</td>
<td>The adaptation and implementation of a strategy by a water institution or consumer to influence the water demand and usage of water in order to meet any of the following objectives: economic efficiency, social development, social equity, environmental protection, sustainability of water supply and services, and political acceptability.</td>
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<td>Unaccounted for Water (UAW)</td>
<td>UAW is the difference between the measured volume of water put into the water distribution system and the total volume of water measured to authorised consumers whose fixed property address appears on the official list of the WSA.</td>
</tr>
<tr>
<td>SABS 0306 definition</td>
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<td>Water Balance</td>
<td>The water balance is the difference between the measured volume of potable water put into a water distribution system and the total volume of potable water measured at any intermediate point in the water distribution system. This is a statement setting out the amount of water flowing in and flowing out on an area-by-area basis.</td>
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SWARTLAND MUNICIPALITY
WATER SERVICES AUDIT FOR 2010/2011

EXECUTIVE SUMMARY

Section 62 of the Water Services Act requires the Minister to monitor every WSI in order to ensure compliance with the prescribed national standards. This regulation requires a WSA to complete and submit a water services audit every year.

The water services audit is designed to monitor the compliance of the WSA and other WSIs with these regulations. It allows the water services audit to be used as a tool to compare actual performance of the WSA against the targets and indicators set in their WSDP. It also assists local communities and DWA to assess how well WSAs are performing relative to their stated intentions and their capacity.

The Water Services Audit Report will give an overview of the implementation of the previous years' WSDP of Swartland Municipality and can be seen as an annexure to Swartland Municipality's Annual Report. The Annual Report is compiled as required by the Local Government: Municipal Systems Act, Act no 32 of 2000 (Section 46) and the Local Government: Municipal Finance Management Act, Act no 56 of 2003 (Section 121).

Methodology followed: The Service Delivery Budget Implementation Plan (SDBIP) of Swartland Municipality for 2010/2011 was used to report on the KPIs for water and sewerage services. The 2008/2009 WSDP was further used as basis to compile the report. The latest water usage figures and WWTWs flows up to June 2011 were obtained from Swartland Municipality, analysed and included under the various sections of the Water Services Audit Report.

Availability of the Water Services Audit Report: The Water Services Audit Report is a public document and must be made available within four months after the end of each financial year and must be available for inspection at the offices of the WSA. It is also recommended that the document be placed on the Municipality's website and that copies of the document be placed at the public libraries. The document was also made available to DWA as required by legislation.

The Water Services Audit Report contains the following detail information:

- The KPIs performance for 2010/2011, for water and sewerage services, as included in the SDBIP of Swartland Municipality.

- Swartland Municipality’s performance with regard to the KPIs as included in the Strategic Framework for Water Services and DWA’s Water Services Regulation Strategy (DWA’s Regulatory Performance Management System).

- Swartland Municipality’s Performance with regard to DWA’s Blue and Green Drop Assessments. Blue drop status is awarded to those towns that comply with 95% criteria on drinking water quality management. Green drop status is awarded to those WWTWs that comply with 90% criteria on key selected indicators on waste water quality management.

- DWA’s Scorecard for assessing the potential for WC/WDM efforts in Swartland Municipality.

- Information to be included in a Water Services Audit as stipulated in regulations under section 9 of the Water Services Act, “Guidelines for Compulsory National Standards”.

- Information on the implementation of the various WSDP activities, as included under the thirteen WSDP Business Elements in the DWA’s new WSDP guidelines (October 2010).
Swartland Municipality got a comprehensive Performance Management System in place. The SDBIP is the process plan and performance indicator / evaluation for the execution of the budget. The SDBIP is being used as a management, implementation and monitoring tool that assists and guide the Executive Mayor, Councillors, Municipal Manager, Senior Managers and the community. The plan serves as an input to the performance agreements of the Municipal Manager and Directors. It also forms the basis for the monthly, quarterly, mid-year and the annual assessment report and performance assessments of the Municipal Manager and Directors.

The following water and sanitation related investigations were successfully completed during the last financial year.

- Bulk Master Plans were completed for Swartland Municipality with funding support from the DLG&H. The project for the Region was managed by the West Coast District Municipality.

- The water and sewer Master Plans for Riebeek Kasteel, Riebeek West and Malmesbury were updated.

- The non revenue water balance models were updated up to the end of June 2011 for each of the distribution systems as part of the Water Services Audit Report process.

- The current Asset Registers for all the water and sanitation infrastructure are kept up to date. Asset Management Plans still need to be drafted.

- The Municipality continues with the active monitoring of the industrial consumers and the effluent they discharge into the Municipality’s sewerage system and their compliance. Electronic samplers were installed at Roelcor and Darling Romery.

- Applications for the upgrading of the Riebeek Kasteel and Riebeek West WWTWs were submitted to the DWA. The Municipality is currently busy with the EIA process for this new WWTW.

- The capacities of the bulk sewer pipelines were investigated.

- Swartland Municipality continue with the implementation of their Drinking Water Quality and Effluent Quality Sampling Programmes (Operational and Compliance Monitoring).

The following awards / acknowledgements were also received by the Municipality:

- Swartland Municipality is performing very well with regard to drinking water quality management, even though the Municipality were not awarded Blue Drop Status, by the DWA, for any of their distribution systems during the 2011 assessment. The overall Blue Drop Score received from the DWA was 92.89%.

- Swartland Municipality was commended for their overall improvement in performance with regard to wastewater quality management, even though the Municipality were not awarded Green Drop Status, by the DWA, for any of their drainage systems during the 2011 assessment. The overall Green Drop Score received from the DWA was 72.7%.

- 100% MIG expenditure in the previous financial year from the DLG&H.

Demographics and Socio-Economic

Youth: Various youth initiatives were supported by Swartland Municipality during the last financial year, which include Swartland Junior Town Council and the Youth Advisory Centre.

Housing: Swartland Municipality’s most critical service needs with regard to housing are sustainable integrated human settlements, normalisation of communities and economically viable developments. The challenges with regard hereto are availability of suitable land, acceptance of the draft by developers, adequate funding, collective planning between departments, financial impact and influx of people.
Economics: A LED Strategy is in place of which the purpose is to develop the local economy and to meet the national objectives of halving poverty and unemployment by 2014. The LED Strategy focuses on growing key sectors of the economy and this is linked to strategies for education, skills development and training, business development and support, spatial planning and township development as well as poverty reduction.

Service Levels

The current residential water and sanitation service levels in Swartland Municipality’s Management Area are as follows (Households):

<table>
<thead>
<tr>
<th>Area</th>
<th>Malmesbury</th>
<th>Abbotsdale, Riverlands, Katlalaal</th>
<th>Riebeek Kasteel</th>
<th>Riebeek Wes</th>
<th>Darling</th>
<th>Moerensburg</th>
<th>Koringberg</th>
<th>Yzerfontein</th>
<th>Farms</th>
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<td>WATER SERVICE LEVELS</td>
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<td>Basic Need (RDP)</td>
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<td>1 535</td>
<td>674</td>
<td>2 411</td>
<td>2 741</td>
<td>376</td>
<td>1 118</td>
<td>5 944</td>
<td>22 571</td>
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<td>SANITATION SERVICE LEVELS</td>
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<td>674</td>
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</tbody>
</table>

All the households in the urban areas of Swartland Municipality’s Management Area are provided with water connections inside the houses. Informal areas are supplied with shared services as an intermediary measure. There is however currently no informal areas with shared services in Swartland Municipality’s Management Area. Swartland Municipality is committed to ensure that at least basic water and sanitation services are provided to those households in the rural areas with existing services below RDP standard.

Infrastructure

The current replacement cost of the water infrastructure is summarised in the table below (June 2010):

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>CRC</th>
<th>DRC</th>
<th>% CRC / DRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Infrastructure</td>
<td>R275 825 092</td>
<td>R156 333 525</td>
<td>57%</td>
</tr>
<tr>
<td>Sanitation Infrastructure</td>
<td>R117 899 186</td>
<td>R67 637 451</td>
<td>57%</td>
</tr>
</tbody>
</table>

Remaining useful life and the age distribution by facility type

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>0 – 5 yrs</th>
<th>5 – 10 yrs</th>
<th>10 – 15 yrs</th>
<th>15 – 20 yrs</th>
<th>&gt; 20 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Infrastructure</td>
<td>R12 480 591</td>
<td>R32 060 552</td>
<td>R28 235 654</td>
<td>R24 780 183</td>
<td>R178 268 111</td>
</tr>
<tr>
<td>Sanitation Infrastructure</td>
<td>R742 900</td>
<td>R3 232 970</td>
<td>R1 137 000</td>
<td>R38 800 959</td>
<td>R73 985 357</td>
</tr>
</tbody>
</table>

Age Distribution by Facility Type

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>0 – 5 yrs</th>
<th>5 – 10 yrs</th>
<th>10 – 15 yrs</th>
<th>15 – 20 yrs</th>
<th>&gt; 20 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Infrastructure</td>
<td>R21 770 148</td>
<td>R20 996 517</td>
<td>R83 863 809</td>
<td>R7 704 428</td>
<td>R141 490 189</td>
</tr>
<tr>
<td>Sanitation Infrastructure</td>
<td>R9 968 115</td>
<td>R245 000</td>
<td>R5 807 119</td>
<td>R4 045 151</td>
<td>R97 833 801</td>
</tr>
</tbody>
</table>

Condition grading per water facility type

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Very Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Infrastructure</td>
<td>R62 649 319</td>
<td>R97 869 859</td>
<td>R68 312 767</td>
<td>R40 158 126</td>
<td>R6 835 021</td>
</tr>
<tr>
<td>Sanitation Infrastructure</td>
<td>R15 866 303</td>
<td>R61 067 665</td>
<td>R40 420 318</td>
<td>R562 900</td>
<td>R0</td>
</tr>
</tbody>
</table>

The above implies that about 43% of the value of the water and sanitation networks has been consumed. In order to determine better assessments of the remaining useful life of hidden assets, the municipality will need to improve its monitoring of asset performance in the future.
The average water asset renewal needs over the next 10 years is R4.5M per year and the reinvestment required is R12.5M in the first 5 years and R32M in the second 5 year period. The asset renewal needs for sanitation assets over the next 10 years is R0.4M per year. The reinvestment required is R0.74M in the first 5 years and R3.2M in the second 5 year period. Most of the water and sanitation assets value has age greater than 20 years.

About 17% (R47M) of the water supply network is in poor and very poor condition. There are no borehole components that are in the poor and very poor state. The bulk of the poor assets are the reticulation pipelines with a value of approximately R30M. About 0.5% of the sanitation supply network is in poor condition. The assets in poor condition are mainly pump station assets with an approximate value of R0.6M.

One of the key challenges of Swartland Municipality is to identify adequate funds for the rehabilitation and maintenance of the existing infrastructure, which is critical to ensure the sustainability of the services that are provided by the Municipality.

**Operation and Maintenance**

A Compliance Water Quality and Wastewater Quality Monitoring Programme that meets the requirements of DWA as stipulated in the Blue and Green Drop criteria was drawn up by Swartland Municipality and is implemented by the Municipality.

The DWA launched the blue and green drop certification, with regard to drinking water quality and the quality of treated effluent discharged from WWTWs, at the Municipal Indaba during September 2008. Blue drop status is awarded to those towns that comply with 95% criteria on drinking water quality management. The Blue Drop Certification programme is in its third year of existence and promises to be the catalyst for sustainable improvement of South African drinking water quality management in its entirety. Swartland Municipality’s overall Blue Drop Score for the 2011 Assessment was 92.89%.

The DWA also completed their Second Order Assessment of Municipal Waste Water Treatment Plants, DWA’s Green Drop Report for 2011, which provides a scientific and verifiable status of municipal waste water treatment. Green drop status is awarded to those WSAs that comply with 90% criteria on key selected indicators on waste water quality management. Swartland Municipality’s overall Green Drop Score for the 2011 Assessment was 72.7%.

**Associated Services**

All the schools and medical facilities in Swartland Municipality’s Management Area are supplied with adequate water and sanitation services.

**Conservation and Demand Management**

The implementation of a Water Demand Management Strategy by Swartland Municipality has been extremely successful and has reduced the water demand of the towns significantly. The overall percentage of non-revenue water was 16.26% for 2010/2011.
The graph below gives a summary of the total bulk water supply and non revenue water for the various distribution systems in Swartland Municipality’s Management Area.

The table below gives a summary of the non revenue water for the various distribution systems in Swartland Municipality’s Management Area.

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>10/11</th>
<th>Record : Prior (Ml/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>09/10</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>22.28%</td>
<td>46.87%</td>
</tr>
<tr>
<td></td>
<td>ILI</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>36.43%</td>
<td>35.70%</td>
</tr>
<tr>
<td></td>
<td>ILI</td>
<td>3.38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>24.48%</td>
<td>20.80%</td>
</tr>
<tr>
<td></td>
<td>ILI</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>8.96%</td>
<td>2.53%</td>
</tr>
<tr>
<td></td>
<td>ILI</td>
<td>0.65</td>
<td>0.15</td>
</tr>
<tr>
<td>Yzerfontein</td>
<td>Volume</td>
<td>50.227</td>
<td>40.776</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>15.68%</td>
<td>13.44%</td>
</tr>
<tr>
<td></td>
<td>ILI</td>
<td>1.44</td>
<td>1.16</td>
</tr>
<tr>
<td>Darling</td>
<td>Volume</td>
<td>47.637</td>
<td>55.715</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>6.81%</td>
<td>8.96%</td>
</tr>
<tr>
<td></td>
<td>ILI</td>
<td>0.82</td>
<td>0.96</td>
</tr>
<tr>
<td>Moorreesburg</td>
<td>Volume</td>
<td>93.032</td>
<td>131.529</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>12.21%</td>
<td>16.49%</td>
</tr>
<tr>
<td></td>
<td>ILI</td>
<td>1.18</td>
<td>1.67</td>
</tr>
<tr>
<td>Malmesbury</td>
<td>Volume</td>
<td>595.113</td>
<td>359.994</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>18.92%</td>
<td>12.45%</td>
</tr>
<tr>
<td></td>
<td>ILI</td>
<td>3.35</td>
<td>2.01</td>
</tr>
<tr>
<td>TOTAL</td>
<td>Volume</td>
<td>898.877</td>
<td>694.931</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>16.26%</td>
<td>13.44%</td>
</tr>
</tbody>
</table>

Note: Infrastructure Leakage Index (ILI) = 1 – Excellent, 2 – Good and > 3 - Poor
Water Resources

Bulk potable water is supplied to most of the towns in Swartland Municipality’s Management Area by the West Coast District Municipality through their two bulk distribution systems. The construction of a desalination plant at Saldanha was identified by the West Coast District Municipality as the most feasible scheme for implementation, in order to meet the growing demand of the West Coast Region. Consultants are currently busy to identify the most suitable site for the construction of the plant. The final treatment capacity of the plant will be 25.5 Ml/d, but the treatment capacity for the first phase will be 8.5 Ml/d. The capacity of the bulk infrastructure connected to the desalination plant will be 25.5 Ml/d, which will be implemented as part of the first phase.

Water Quality: Swartland Municipality monitors the water quality in the distribution networks of all the towns within their Municipal Management Area. Compliance samples are taken on a monthly basis by a Lab Service Provider and no serious water quality problems were experienced during the last year.

Swartland Municipality actively implement their Drinking Water Quality Sampling Programme in order to promptly identify water quality failures and to react accordingly. The water quality results are loaded onto DWA’s Blue Drop System (BDS) via the internet. Once entered the data is automatically compared to SANS241. This real-time system allows for immediate intervention to rectify any problems.

Up to present it was not necessary to take any steps to inform the consumers of any health risk regarding the potable water supplied by Swartland Municipality. The Municipality however got specific Safety Management Procedures in place, to inform its consumers about any potential health risks regarding the water quality, should it become necessary.

Financial

Swartland Municipality’s Tariff Structures for water and sanitation services are summarised under Section 11 of the Report. The table below gives a summary of the operational budget for water and sanitation services for the last four years.

<table>
<thead>
<tr>
<th>Service</th>
<th>Expenditure / Income</th>
<th>Actual 10/11</th>
<th>Audited 09/10</th>
<th>Audited 08/09</th>
<th>Audited 07/08</th>
<th>Audited 06/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Expenditure</td>
<td>R28 128 643</td>
<td>R23 694 891</td>
<td>R20 472 590</td>
<td>R18 610 155</td>
<td>R15 807 739</td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>-R27 231 393</td>
<td>-R24 820 317</td>
<td>-R21 240 912</td>
<td>-R16 596 859</td>
<td>-R12 163 076</td>
</tr>
<tr>
<td></td>
<td>Surplus / (Deficit)</td>
<td>R897 250</td>
<td>-R1 125 426</td>
<td>-R768 322</td>
<td>R2 013 296</td>
<td>R3 644 663</td>
</tr>
<tr>
<td>Sanitation</td>
<td>Expenditure</td>
<td>R9 708 230</td>
<td>R12 771 542</td>
<td>R14 233 945</td>
<td>R12 252 463</td>
<td>R10 053 486</td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>-R21 796 567</td>
<td>-R22 047 507</td>
<td>-R15 896 551</td>
<td>-R14 622 508</td>
<td>-R17 479 660</td>
</tr>
<tr>
<td></td>
<td>Surplus / (Deficit)</td>
<td>-R12 088 337</td>
<td>-R9 275 965</td>
<td>-R1 662 606</td>
<td>-R2 370 045</td>
<td>-R7 426 174</td>
</tr>
</tbody>
</table>

Water Services Institutional Arrangements

Swartland Municipality is the WSA for the entire Municipal Management Area. A Service Level Agreement with the West Coast District Municipality is also in place for the provision of bulk water to most of the towns in Swartland Municipality’s Management Area.

The WSDP was updated for the 2008/2009 financial year and was approved by the Council on the 11th of June 2008. The Water Services Audit Report is compiled annually and taken to Council with the Annual Report. The Municipality is currently busy with the finalisation of their draft set of Water Services By-laws, which will be promulgated once finalised.

The Municipal staff is continuously exposed to training opportunities, skills development and capacity building at a technical, operations and management level in an effort to create a more efficient overall service to the users. A Workplace Skills Plan is compiled annually and the specific training needs of the personnel, with regard to water and wastewater management are determined annually.
Swartland Municipality is currently effectively managing its water and sanitation services. Urgent attention is however required to address the backlog in sanitation services, as well as the backlog in infrastructure replacement, and forward planning of other services should be guided by the Water and Sewer Master Plans.

Social and Customer Service Requirements

A comprehensive Customer Services and Complaints system is in place at Swartland Municipality and the Municipality has maintained a high and a very consistent level of service to its urban water consumers. After hour emergency requests are being dealt with by the control room on a twenty four hour basis. All water and sanitation related complaints are logged through the system in order to ensure quick response to complaints.

Access to safe drinking water is essential to health and is human right. Safe drinking water that complies with the SANS:241 Drinking Water specifications does not pose a significant risk to health over a lifetime of consumption, including different sensitivities that may occur between life stages. Swartland Municipality is therefore committed to ensure that their water quality always complies with national safety standards.

Barriers implemented by Swartland Municipality against contamination and deteriorating water quality include the following:

- Service Delivery Agreement between the West Coast District Municipality and Swartland Municipality.
- Protection at points of abstraction such as Paardeberg Dam and the boreholes (Abstraction Management).
- Protection and maintenance of the distribution systems. This includes ensuring an adequate disinfectant residual at all times, rapid response to pipe bursts and other leaks, regular cleaning of reservoirs, keeping all delivery points tidy and clean, etc.

Three other important barriers implemented by Swartland Municipality against poor quality drinking water that are a prerequisite to those listed above are as follows:

- A well informed Council and municipal managers that understand the extreme importance of and are committed to providing adequate resources for continuous professional operation and maintenance of the water supply system.
- Competent managers and supervisors in the technical department who are responsible for water supply services lead by example and are passionate about monitoring and safeguarding drinking water quality.
- Well informed community members and other consumers of water supply services that know how to protect the water from becoming contaminated once it has been delivered, that have respect for water as a precious resource and that adhere to safe hygiene and sanitation practices.

Projects completed

The list of water and sewerage capital projects completed during the 2010/2011 financial year is included under Section 14 of the Report.
SWARTLAND MUNICIPALITY
WATER SERVICES AUDIT FOR 2010/2011

1. BACKGROUND

1.1 Appointment

WorleyParsons RSA was appointed by Swartland Municipality to assist them with the putting together of their Water Services Audit Report, which form part of their annual report for the 2010/2011 financial year. The purpose of the Water Services Audit Report is to report on the implementation of Swartland Municipality’s previous WSDP.

1.2 Purpose

Section 62 of the Water Services Act requires the Minister to monitor every WSI in order to ensure compliance with the prescribed national standards. This regulation requires a WSA to complete and submit a water services audit every year. The audit is designed to monitor the compliance of the WSA and other WSIs with these regulations. It allows the audit to be used as a tool to compare actual performance of the WSA against the targets and indicators set in their WSDP. The purpose of the water services audit is as follows:

- To monitor compliance with the Act and these regulations;
- To compare actual performance against targets contained in the WSDPs.
- To identify possibilities for improving water conservation and water demand management.

The Water Services Audit Report will give an overview of the implementation of the previous years’ WSDP of Swartland Municipality and can be seen as an annexure to Swartland Municipality’s Annual Report. The Annual Report is compiled as required by the Local Government: Municipal Systems Act, Act no 32 of 2000 (Section 46) and the Local Government: Municipal Finance Management Act, Act no 56 of 2003 (Section 121). The Water Services Audit Report contains the following detail information:

- The KPIs performance for 2010/2011, for water and sewerage services, as included in the SDBIP of Swartland Municipality.
- Swartland Municipality’s performance with regard to the KPIs as included in the Strategic Framework for Water Services and DWA’s Water Services Regulation Strategy (DWA’s Regulatory Performance Management System).
- Swartland Municipality’s Performance with regard to DWA’s Blue and Green Drop Assessments. Blue Drop status is awarded to those towns that comply with 95% criteria on drinking water quality management. Green Drop status is awarded to those WWTWs that comply with 90% criteria on key selected indicators on waste water quality management.
- DWA’s Scorecard for assessing the potential for WC/WDM efforts in Swartland Municipality.
- Information to be included in a Water Services Audit as stipulated in regulations under section 9 of the Water Services Act, “Guidelines for Compulsory National Standards”.
- Information on the implementation of the various WSDP activities, as included under the thirteen WSDP Business Elements in the DWA’s new WSDP guidelines (October 2010).
1.3 Methodology followed

The SDBIP of Swartland Municipality for 2010/2011 was used to report on the KPIs for water and sewerage services.

The latest water usage figures and WWTWs flows up to June 2011 were obtained from Swartland Municipality, analysed and included under the various sections of the Audit Report.


<table>
<thead>
<tr>
<th>Table 1.3.1: Water Services Audit Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Financial Year</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Previous Financial Year (2nd)</td>
</tr>
</tbody>
</table>

1.4 WSA’s area of jurisdiction

The WSA is the Swartland Municipality and the Municipality falls within the West Coast Region of the Western Cape Province, in which the following Local Municipalities are also located:

- Matzikama;
- Cederberg;
- Bergrivier; and
- Saldanha Bay

Swartland Municipality consists of 10 individual wards, and is the only WSA within the Swartland Municipality’s Management Area. It is also the Water Services Provider (WSP). Potable bulk water is however provided to Swartland Municipality by the West Coast District Municipality through their Swartland and Withoogte bulk water distribution systems. Swartland Municipality’s responsibility as WSA also extends to the rural areas within its Municipal boundary, which prior to July 2003 had fallen under the jurisdiction of the West Coast District Municipality. Swartland Municipality’s Management Area includes the following areas:

- The large towns of Malmesbury and Moorreesburg
- The small towns of Yzerfontein, Darling, Koringberg, Riebeek Kasteel, Riebeek Wes
- The rural hamlets of Abbotsdale, Riverlands, Chatsworth, Kalbaskraal
- The rural farm areas.

1.5 Availability of the Water Services Audit Report

The Water Services Audit Report is a public document and must be made available within four months after the end of each financial year and must be available for inspection at the offices of the Municipality. It is also recommended that the document be placed on the Municipality’s website and that copies of the document be placed at the public libraries. The document was also made available to DWA as required by legislation.
2. **LEGISLATION**

*Water Services Act:*

Section 18 of the Water Services Act stipulates the following with regard to the water services audit on the implementation of the WSDP.

(1) A water services authority must report on the implementation of its development plan during each financial year;

(2) The report-
   a) must be made available within four months after the end of each financial year; and
   b) must be given to the Minister, the Minister for Provincial and Local Government, the Member of the Executive Council responsible for local government in the relevant province and all the organisations representing municipalities having jurisdiction in the area of the water services authority.

(3) The water services authority must publicise a summary of its report.

(4) A copy of the report and of its summary must be-
   a) Available for inspection at the offices of the water services authority; and
   b) Obtainable against payment of a nominal fee.

Regulations under Section 9 of the Water Services Act, which include the water services audit as Section 10 of the Guidelines for Compulsory National Standards stipulates the following:

(10) (2) A water services audit must contain details for the previous financial year and, if available, comparative figures for the preceding two financial years of-

(a) the quantity of water services provided, including at least –
   (i) the quantity of water used by each sector;
   (ii) the quantity of water provided to the water services institution by another water services institution;
   (iii) the quantity of effluent received at sewage treatment plants; and
   (iv) the quantity of effluent not discharged to sewage treatment plants and approved for use by the water services institution;

(b) the levels of services rendered, including at least –
   (i) the number of user connections in each user sector;
   (ii) the number of households provided with water through communal water services works;
   (iii) the number of consumers connected to a water reticulation system where pressures rise above 900 kPa at the consumer connection;
   (iv) the number of households provided with sanitation services through consumer installations connected to the sewerage system;
   (v) the number of households with access to basic sanitation services;
   (vi) the number of new water supply connections made; and
   (vii) the number of new sanitation connections made;

(c) the numbers provided in compliance with paragraph (b) expressed as a percentage of the total number of connections or households;
(d) cost recovery, including at least –
   (i) the tariff structures for each user sector;
   (ii) the income collected expressed as a percentage of total costs for water services provided; and
   (iii) un-recovered charges expressed as a percentage of total costs for water services provided;

(e) meter installation and meter testing, including at least –
   (i) the number of new meters installed at consumer installations; and
   (ii) the number of meters tested and the number of meters replaced expressed as a percentage of the total number of meters installed at consumer connections;

(f) the water quality sampling programme contemplated in regulation 5(1), the results of the comparison set out in regulation 5(3) and any occurrence reported in compliance with regulation 5(4);

Guidelines for Compulsory National Standards and Norms and Standards for Water Services Tariffs: Sections 5(1), 5(3) and 5(4) stipulates the following:

5 (1) Within two years of the promulgation of these Regulations, a WSA must include a suitable programme for sampling the quality of potable water provided by it to consumers in its WSDP.

5(2) The water quality sampling programme contemplated in subregulation (1) must specify the points at which potable water provided to consumers will be sampled, the frequency of sampling and for which substances and determinants the water will be tested.

5 (3) A water services institution must compare the results obtained from the testing of the samples with SABS241: Specifications for Drinking Water, or the South African Water Quality Guidelines published by the Department of Water Affairs and Forestry.

5 (4) Should the comparison of the results as contemplated in subregulation (3) indicate that the water supplied poses a health risk, the water services institution must inform the Director-General of the Department of Water Affairs and Forestry and the head of the relevant Provincial Department of Health and it must take steps to inform its consumers-
   (a) that the quality of the water that is supplies poses a health risk;
   (b) of the reasons for the health risk;
   (c) of any precautions to be taken by the consumers; and
   (d) of the time frame, if any, within which it may be expected that water of a safe quality will be provided.

(g) water conservation and demand management, including at least –
   (i) the results of the water balance as set out in regulation 11;
   (ii) the total quantity of water unaccounted for;
   (iii) the demand management activities undertaken; and
   (iv) the progress made in the installation of water efficient devices.
Guidelines for Compulsory National Standards and Norms and Standards for Water Services Tariffs: Section 11 stipulates the following:

11 (1) Within two years of the promulgation of these Regulations, a water services institution must every month-

   (a) Measure the quantity of water provided to each supply zone within its supply area;

   (b) Determine the quantity of unaccounted for water by comparing the measured quantity of water provided to each supply zone with the total measured quantity of water provided to all user connections within that supply zone;

   (c) Measure the quantity of effluent received at each sewage treatment plant; and

   (d) Determine the quantity of water supplied but not discharged to sewage treatment plants by comparing the measured quantity of effluent received at all sewage treatment plants with the total measured quantity of water provided to all user connections.

11 (2) A water services institution must-

   (a) Take steps to reduce the quantity of water unaccounted for; and

   (b) Keep record of the quantities of water measured and of the calculations made.

Strategic Framework for Water Services (September 2003):

“A WSA must report annually and in a public way on progress in implementing the plan.” The requirement that WSAs regularly update their plans and report annually on progress against their plans will assist local communities and DWA to assess how well WSAs are performing relative to their stated intentions and their capacity.

3. ANNUAL REPORT

3.1 Performance Management System

Swartland Municipality got a comprehensive Performance Management System in place. The SDBIP is the process plan and performance indicator / evaluation for the execution of the budget. The SDBIP is being used as a management, implementation and monitoring tool that assists and guide the Executive Mayor, Councillors, Municipal Manager, Senior Managers and the community. The plan serves as an input to the performance agreements of the Municipal Manager and Directors. It also forms the basis for the monthly, quarterly, mid-year and the annual assessment report and performance assessments of the Municipal Manager and Directors.

The performance evaluation of the water and sanitation indicators / targets, as included in the SDBIP and completed for the end of June 2011, is as follows:

<table>
<thead>
<tr>
<th>Performance Objective</th>
<th>Key Performance Indicator</th>
<th>Quarterly Target (%)</th>
<th>Actual (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure that all households have access to water within 200m in the area (general KPI)</td>
<td>% of urban households with access within 200 meters</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Ensure continuous and available water supply</td>
<td>% of new water connections completed within 10 working days</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Performance Objective</td>
<td>Key Performance Indicator</td>
<td>Quarterly Target (%)</td>
<td>Actual (%)</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------</td>
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<td>------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100% 4 pm max</td>
<td>100% 1 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100% 4 pm max</td>
<td>100% 1 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100% 4 pm max</td>
<td>100% 1 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100% 4 pm max</td>
<td>100% 0</td>
</tr>
<tr>
<td></td>
<td>Number of interruptions in continuous service to consumers, where interruptions for a single incident was greater than 3 hrs.</td>
<td>100% 0 max</td>
<td>100% 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100% 0 max</td>
<td>100% 0</td>
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<td></td>
<td></td>
<td>100% 0 max</td>
<td>100% 0</td>
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<td></td>
<td></td>
<td>100% 0 max</td>
<td>100% 0</td>
</tr>
<tr>
<td></td>
<td>Number of interruptions in continuous service to consumers, where interruptions for a single incident was greater than 48 hrs (KPI 17 – DWA).</td>
<td>100% 0 max</td>
<td>100% 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100% 0 max</td>
<td>100% 0</td>
</tr>
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<td></td>
<td></td>
<td>100% 0 max</td>
<td>100% 0</td>
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<td></td>
<td></td>
<td>100% 0 max</td>
<td>100% 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100% 0 max</td>
<td>100% 0</td>
</tr>
<tr>
<td></td>
<td>% of samples compliant with the microbiological requirements of the SANS 248.</td>
<td>95.0%</td>
<td>98.3% average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>95.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>95.0%</td>
<td>100.0%</td>
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<tr>
<td></td>
<td></td>
<td>95.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>Storage capacity of reservoirs (hours)</td>
<td>100.0% 36 hrs</td>
<td>100.0% 36 hrs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0% 36 hrs</td>
<td>100.0% 36 hrs</td>
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<tr>
<td></td>
<td></td>
<td>100.0% 36 hrs</td>
<td>100.0% 36 hrs</td>
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<tr>
<td></td>
<td></td>
<td>100.0% 36 hrs</td>
<td>100.0% 36 hrs</td>
</tr>
<tr>
<td></td>
<td>% of unaccounted for water</td>
<td>100.0% 18% max</td>
<td>100.0% 14%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0% 18% max</td>
<td>100.0% 14%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0% 18% max</td>
<td>100.0% 14%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0% 18% max</td>
<td>100.0% 17%</td>
</tr>
<tr>
<td></td>
<td>Number of legitimate written complaints received</td>
<td>100.0% 4 pm max</td>
<td>100.0% 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0% 4 pm max</td>
<td>100.0% 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0% 4 pm max</td>
<td>100.0% 0.3 average</td>
</tr>
<tr>
<td></td>
<td>% of written correspondence attended to within 10 working days.</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
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<td>100.0%</td>
<td>100.0%</td>
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<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Performance Objective</td>
<td>Key Performance Indicator</td>
<td>Quarterly Target (%)</td>
<td>Actual (%)</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Sewer Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure that all urban households have access to sanitation services within 200m (General KPI)</td>
<td>% of urban households with access to sanitation.</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
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<tr>
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<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Ensure continuous and available sewerage service</td>
<td>Number of interruptions in continuous service to consumers where the interruptions for a single incident was greater than 3 hours.</td>
<td>100.0%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>% of new sewer connections completed within 10 working days.</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
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<td></td>
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<td>100.0%</td>
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<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% of tank pumping service requests completed within 24 hours.</td>
<td>95.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>95.0%</td>
<td>100.0%</td>
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<td></td>
<td></td>
<td>95.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>95.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Ensure effective operation and maintenance of wastewater treatment works</td>
<td>% compliance with DWA general limits for the discharge of treated wastewater.</td>
<td>80.0%</td>
<td>83.0% average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80.0%</td>
<td>80.3% average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80.0%</td>
<td>81.2% average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80.0%</td>
<td>82.0% average</td>
</tr>
<tr>
<td></td>
<td>Number of legitimate written complaints received.</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
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<td>100.0%</td>
<td>100.0%</td>
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<tr>
<td></td>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% of written correspondence attended to within 10 working days.</td>
<td>100.0%</td>
<td>100.0%</td>
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<td></td>
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<td>100.0%</td>
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<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
3.2. Performance highlights

The following water and sanitation related investigations were successfully completed during the last financial year.

- Bulk Master Plans were completed for Swartland Municipality with funding support from the DLG&H. The project for the Region was managed by the West Coast District Municipality.

- The water and sewer Master Plans for Riebeek Kasteel, Riebeek West and Malmesbury were updated.

- The non revenue water balance models were updated up to the end of June 2011 for each of the distribution systems as part of the Water Services Audit Report process.

- The current Asset Registers for all the water and sanitation infrastructure are kept up to date. Asset Management Plans still need to be drafted.

- The Municipality continues with the active monitoring of the industrial consumers and the effluent they discharge into the Municipality's sewerage system and their compliance. Electronic samplers were installed at Roelcor and Darling Romery.

- Applications for the upgrading of the Riebeek Kasteel and Riebeek West WWTWs were submitted to the DWA. The Municipality is currently busy with the EIA process for this new WWTW.

- The capacities of the bulk sewer pipelines were investigated.

- Swartland Municipality continue with the implementation of their Drinking Water Quality and Effluent Quality Sampling Programmes (Operational and Compliance Monitoring).

The following awards / acknowledgements were also received by the Municipality:

- Swartland Municipality is performing very well with regard to drinking water quality management, even though the Municipality were not awarded Blue Drop Status, by the DWA, for any of their distribution systems during the 2011 assessment. The overall Blue Drop Score received from the DWA was 92.89%.

- Swartland Municipality was commended for their overall improvement in performance with regard to wastewater quality management, even though the Municipality were not awarded Green Drop Status, by the DWA, for any of their drainage systems during the 2011 assessment. The overall Green Drop Score received from the DWA was 72.7%.

- 100% MIG expenditure in the previous financial year from the DLG&H.

The successes of Swartland Municipality, as included in the 2011/2012 IDP, are as follows:

- Four consecutive unqualified audits.

- A performance management system for councillors that is in operation since June 2010.

- Section 53 role clarification that has been finalised and approved by all parties.

- Excellent discipline in the organisation

- Personnel empowerment

- Accessing of outside funding
• The Client Service Charter that was launched in March 2010

• An up to date Asset Register

• Extensive use of electronic systems to streamline processes and increase customer satisfaction

• Income generating projects

• A good record of completing projects

• Housing delivery (Irrespective of the problem with unfunded mandates)

• Communication – Client services model.

3.3 National Water Services Regulation Strategy

The KPIs on which Swartland Municipality needs to report annually to the DWA, in terms of the Strategic Framework for Water Services and DWA’s National Water Services Regulation Strategy, are included in Annexure E (DWA’s Regulatory Performance Management System).

The RPMS is a DWA initiative which is currently being rolled-out nationally. The system measures WSAs on eleven KPIs derived from the Strategic Framework for Water Services and from the National Water Services Regulatory Strategy. Swartland Municipality’s Strategic Overview, as included in DWA’s Municipal Water Services Compliance Assessment 2009-2010 Report, is as follows:

“The Municipality is currently complying on 7 out of the 8 measured KPIs. The remaining KPI is access to sanitation, which was complying in the previous assessment. The Municipality should verify their backlog data submitted to DWA to ensure the correct figures are being utilised. With such exemplary scores, the Municipality is now encouraged to move beyond compliance to best practice, finding ways to continually improve their water services business.

4. DEMOGRAPHICS AND SOCIO-ECONOMIC

The 2001 Census recorded the population in the Swartland Municipality’s Management Area at 72 109 (18 675 Households) and the 2007 Community Survey recorded the 2007 population at 77 520 (19 939 Households).

Social:

Some of the Youth Development initiatives with which Swartland Municipality is busy is summarised below:

The Swartland Junior Town Council (JTC) completed its third term of office in March 2010. The JTC’s “Mad about Me!” campaign against teenage abuse was successfully run for the second consecutive year. Other projects included an outreach campaign to Huis van Heerde in Moorreesburg, a Youth Symposium, their “Week of Giving” and “Learning Rocket”, “Going Green” and “Healing Bonds” projects.

The Youth Advisory Centre was established in 2006 and has been delivering services to youth to enable them to access the economy. Many youths have been placed in informal and formal education. Life skills training and career guidance were offered. 17 Youths were placed in learnerships, 25 were placed in informal work related training, 8 were assisted to go to technikons / colleges and 3 were assisted to go to universities since July 2010 to March 2011.

The 7th Sondeza Afri-Youth Camp was held at the Ganzekraal holiday resort from 3 to 12 December 2010 under the theme “Leaping into the future”. Eighty learners from schools stretching from Malmsbury to as far as Nuwerus, including eleven representatives from Germany and ten from England attended the camp. Swartland Municipality presented the camp in conjunction with ABSA Bank, the West Coast District Municipality, the Western Cape Government and the Sondeza Initiative. The program was based on
leadership skills and topics discussed were emotional intelligence, global warming, democracy and cultural differences.

Housing:

Swartland Municipality’s **most critical service** needs with regard to housing are sustainable integrated human settlements, normalisation of communities and economically viable developments. The **challenges** with regard hereto are availability of suitable land, acceptance of the draft by developers, adequate funding, collective planning between departments, financial impact and influx of people.

Economic:

A LED Strategy is in place of which the purpose is to develop the local economy and to meet the national objectives of halving poverty and unemployment by 2014. The LED Strategy focuses on growing key sectors of the economy and this is linked to strategies for education, skills development and training, business development and support, spatial planning and township development as well as poverty reduction.

The West Coast Regional Economic Development Strategy (REDS) is also in place, which has the following four main aims:

- Get the basics right and retain existing jobs.
- Grow competitive businesses
- Attract new investments and funding
- Share the benefits of growth

The following specific objectives have been identified:

- To reduce by 48% the number of households living below the poverty line by 2014.
- To achieve an economic growth to an annual average of 4.5% - 6 % per annum by 2014.
- For 40% of all visitors to the Western Cape to visit the West Coast by 2014.

5. **SERVICE LEVELS**

Every WSA has a duty to ensure that at least a basic water supply and sanitation service is provided to every household within its area of jurisdiction. The definition of basic water supply and sanitation services are summarised in the table below:

<table>
<thead>
<tr>
<th><strong>Table 5.1: Definitions of water supply and sanitation services</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic water supply facility</strong></td>
</tr>
<tr>
<td><strong>Basic water supply service</strong></td>
</tr>
<tr>
<td><strong>Basic sanitation facility</strong></td>
</tr>
<tr>
<td><strong>Basic sanitation service</strong></td>
</tr>
</tbody>
</table>
The number of user connections in each user sector, for the consumers provided with water services by Swartland Municipality, is as follows (June 2011):

Table 5.2: Number of user connections in each user sector

<table>
<thead>
<tr>
<th>Description</th>
<th>10/11</th>
<th>09/10</th>
<th>08/09</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Res</td>
<td>Bus</td>
<td>Other</td>
</tr>
<tr>
<td>Koringberg</td>
<td>376</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>PPC</td>
<td>78</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Riebeek Wes</td>
<td>674</td>
<td>64</td>
<td>8</td>
</tr>
<tr>
<td>Riebeek Kasteel</td>
<td>1 535</td>
<td>42</td>
<td>46</td>
</tr>
<tr>
<td>Yzerfontein</td>
<td>1 118</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>Darling</td>
<td>2 411</td>
<td>119</td>
<td>30</td>
</tr>
<tr>
<td>Moorreesburg</td>
<td>2 741</td>
<td>228</td>
<td>39</td>
</tr>
<tr>
<td>Malmesbury</td>
<td>6 041</td>
<td>452</td>
<td>69</td>
</tr>
<tr>
<td>Abbotsdale</td>
<td>582</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Kalbaskraal</td>
<td>441</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Riverlands</td>
<td>312</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Chatsworth</td>
<td>396</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>TOTALS</td>
<td>16 705</td>
<td>979</td>
<td>268</td>
</tr>
</tbody>
</table>

Number of households provided with water through communal water services:

All the households in the urban areas are supplied with water connections inside the houses. Informal areas are supplied with shared services as an intermediary measure. There is however currently no informal areas with shared services in Swartland Municipality’s Management Area. The only areas where communal water services are currently in use is on some of the farms in the rural areas.

Number of households connected to water system and number of households with access to basic water services:

The West Coast District Municipality completed a detailed survey of the existing service levels on the farms in the rural areas of Swartland Municipality’s Management Area, which was completed during November 2008. All the farms, smallholdings and rural settlements were visited to verify the existing service levels. The table below gives a summary of the water and sanitation services levels in the eight Wards.

Table 5.3: Service levels on the farms in the rural areas

<table>
<thead>
<tr>
<th>Service</th>
<th>Type of Service</th>
<th>Number of Households</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet inside or outside house</td>
<td>Inside House</td>
<td>2 080</td>
<td>80.3%</td>
</tr>
<tr>
<td></td>
<td>Outside House</td>
<td>509</td>
<td>19.7%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2 589</td>
<td>100%</td>
</tr>
<tr>
<td>Type of toilet facility</td>
<td>Flush</td>
<td>2 317</td>
<td>84.3%</td>
</tr>
<tr>
<td></td>
<td>VIPs (Pit)</td>
<td>379</td>
<td>13.8%</td>
</tr>
<tr>
<td></td>
<td>Bucket</td>
<td>11</td>
<td>0.4%</td>
</tr>
<tr>
<td></td>
<td>None / Other</td>
<td>41</td>
<td>1.5%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2 748</td>
<td>100%</td>
</tr>
<tr>
<td>Water supply</td>
<td>Inside House</td>
<td>2 177</td>
<td>82.7%</td>
</tr>
<tr>
<td></td>
<td>Outside House</td>
<td>436</td>
<td>16.6%</td>
</tr>
<tr>
<td></td>
<td>Further than 200m</td>
<td>18</td>
<td>0.7%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2 631</td>
<td>100.0%</td>
</tr>
<tr>
<td>Type of water supply</td>
<td>Borehole</td>
<td>1 113</td>
<td>44.8%</td>
</tr>
<tr>
<td></td>
<td>Dam</td>
<td>67</td>
<td>2.7%</td>
</tr>
<tr>
<td></td>
<td>River / stream</td>
<td>167</td>
<td>6.7%</td>
</tr>
<tr>
<td></td>
<td>Scheme water</td>
<td>1 026</td>
<td>41.3%</td>
</tr>
<tr>
<td></td>
<td>Canal</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>None/Other</td>
<td>110</td>
<td>4.4%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2 483</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
The existing residential water service levels in Swartland Municipality’s Management Area are estimated as follows (Average Residential CU’s for the period July 2010 to June 2011):

Table 5.4: Residential water service levels (Consumers)

<table>
<thead>
<tr>
<th>Service Level</th>
<th>Malmesbury</th>
<th>Abbotsdale</th>
<th>Riverlands</th>
<th>Chatsworth</th>
<th>Kalbas-Kraal</th>
<th>Riebeek Kasteel</th>
<th>Riebeek Wes</th>
<th>Darling</th>
<th>Moorreesburg</th>
<th>Koringberg</th>
<th>Yzerfontein</th>
<th>Farms</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Water Services</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>344</td>
<td>344</td>
</tr>
<tr>
<td>Inadequate RDP Infrastructure Need: Extension</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Inadequate RDP Infrastructure Need: Upgrade</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Inadequate RDP Resource Need</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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</tr>
<tr>
<td>Inadequate RDP Management Need: O&amp;M</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Inadequate RDP Management Need: Refurbishment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
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<tr>
<td>Total Basic Need (RDP)</td>
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<td>0</td>
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<td>344</td>
<td>344</td>
</tr>
<tr>
<td>Inadequate Housing Interim</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Inadequate Housing Permanent</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Total Housing Need</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
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</tr>
<tr>
<td>House Connections</td>
<td>6,041</td>
<td>582</td>
<td>312</td>
<td>396</td>
<td>441</td>
<td>1,535</td>
<td>674</td>
<td>2,411</td>
<td>2,741</td>
<td>376</td>
<td>1,118</td>
<td>3,982</td>
<td>20,609</td>
</tr>
<tr>
<td>Total Adequate</td>
<td>6,041</td>
<td>582</td>
<td>312</td>
<td>396</td>
<td>441</td>
<td>1,535</td>
<td>674</td>
<td>2,411</td>
<td>2,741</td>
<td>376</td>
<td>1,118</td>
<td>5,944</td>
<td>22,571</td>
</tr>
</tbody>
</table>
Number of households connected to sewerage system and number of households with access to basic sanitation services:

The existing sanitation service levels in Swartland Municipality’s Management Area are estimated as follows (Average Residential CUs for the period July 2010 to June 2011):

<table>
<thead>
<tr>
<th>Service Levels</th>
<th>Malmsbury</th>
<th>Abbotsdale</th>
<th>Riverlands</th>
<th>Chatsworth</th>
<th>Kalbaskraal</th>
<th>Riebeek Kasteel</th>
<th>Riebeek Wes</th>
<th>Darling</th>
<th>Moorreesburg</th>
<th>Koringberg</th>
<th>Yzerfontein</th>
<th>Farms</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Sanitation Services</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>104</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>41</td>
<td>150</td>
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<tr>
<td>Inadequate Infrastructure Need: Upgrade to RDP level; Bucket Programme Extension</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Inadequate Infrastructure Need: Upgrade</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>379</td>
<td>379</td>
</tr>
<tr>
<td>Inadequate Management Need: O&amp;M</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Inadequate Basic Management Need: Refurbishment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Basic Need (RDP)</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>104</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>431</td>
<td>540</td>
</tr>
<tr>
<td>Inadequate Housing Interim</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Inadequate Housing Permanent</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Housing Need</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>None Waterborne</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>453</td>
<td>453</td>
</tr>
<tr>
<td>Waterborne Low Flush</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Septic Tanks / Conservancy</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>119</td>
<td>135</td>
<td>30</td>
<td>122</td>
<td>0</td>
<td>0</td>
<td>77</td>
<td>1118</td>
<td>5404</td>
<td>7005</td>
</tr>
<tr>
<td>Waterborne WWTWs</td>
<td>6 041</td>
<td>582</td>
<td>307</td>
<td>173</td>
<td>306</td>
<td>1 505</td>
<td>552</td>
<td>2 411</td>
<td>2 741</td>
<td>299</td>
<td>0</td>
<td>1 118</td>
<td>5 857</td>
</tr>
<tr>
<td>Total Adequate</td>
<td>6 041</td>
<td>582</td>
<td>307</td>
<td>292</td>
<td>441</td>
<td>1 535</td>
<td>674</td>
<td>2 411</td>
<td>2 741</td>
<td>376</td>
<td>1 118</td>
<td>5 857</td>
<td>22 375</td>
</tr>
</tbody>
</table>
Number of new water and sanitation connections made:

91 New water connections (1 – 80mm dia., 1 – 50mm dia., 1 – 40mm dia, 1 – 25mm dia., 50 – 22mm dia. And 37 – 15mm dia) and 23 new sewer connections (3 – 150mm dia. And 20 – 100mm dia) were provided during the 2010/2011 financial year.

All the households in the urban areas of Swartland Municipality’s Management Area are provided with water connections inside the houses. Informal areas are supplied with shared services as an intermediary measure. Swartland Municipality is committed to ensure that at least basic water and sanitation services are provided to those households in the rural areas with existing services below RDP standard.

6. INFRASTRUCTURE

Swartland Municipality is responsible for the operation and maintenance of all the water and sewer infrastructure summarised in the table below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Description of the main functional tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boreholes (7)</td>
<td>Bulk supply</td>
</tr>
<tr>
<td>Water Reticulation (465 km)</td>
<td>Distribution</td>
</tr>
<tr>
<td>Water Pump Stations (6)</td>
<td>Ensure adequate pressure and supply to certain areas</td>
</tr>
<tr>
<td>Reservoir (26)</td>
<td>Balancing peak demands and providing some emergency storage.</td>
</tr>
<tr>
<td>Sewer Reticulation (230 km)</td>
<td>Collecting sewerage</td>
</tr>
<tr>
<td>Sewer Pump Stations (7)</td>
<td>Pumping sewerage to WWTWs</td>
</tr>
<tr>
<td>Waste Water Treatment Works (9)</td>
<td>WWTWs (Activated Sludge) and WWTWs (Oxidation dams).</td>
</tr>
</tbody>
</table>

The current and depreciated replacement costs of the water and sanitation assets are as follows (June 2010):

<table>
<thead>
<tr>
<th>Water / Sanitation</th>
<th>Assets</th>
<th>CRC</th>
<th>DRC</th>
<th>% DRC / CRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Borehole</td>
<td>R2 186 024</td>
<td>R1 526 065</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>Pump Station</td>
<td>R4 852 869</td>
<td>R3 005 819</td>
<td>62%</td>
</tr>
<tr>
<td></td>
<td>Reservoir</td>
<td>R106 467 983</td>
<td>R66 390 229</td>
<td>62%</td>
</tr>
<tr>
<td></td>
<td>Reticulation Pipeline</td>
<td>R162 318 215</td>
<td>R85 411 412</td>
<td>53%</td>
</tr>
<tr>
<td></td>
<td>Totals</td>
<td>R275 825 092</td>
<td>R156 333 525</td>
<td>57%</td>
</tr>
<tr>
<td>Sanitation</td>
<td>Pump Station</td>
<td>R2 804 050</td>
<td>R1 893 133</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>Sewage Treatment Works</td>
<td>R6 978 418</td>
<td>R3 763 196</td>
<td>54%</td>
</tr>
<tr>
<td></td>
<td>Sewer Reticulation Pipeline</td>
<td>R108 116 718</td>
<td>R61 981 122</td>
<td>57%</td>
</tr>
<tr>
<td></td>
<td>Totals</td>
<td>R117 899 186</td>
<td>R67 637 451</td>
<td>57%</td>
</tr>
</tbody>
</table>

The above implies that about 43% of the value of the water and sanitation networks has been consumed. In order to determine better assessments of the remaining useful life of hidden assets, the municipality will need to improve its monitoring of asset performance in the future.
The RUL and asset age per facility for water and sanitation assets are as follows (June 2010):

### Table 6.3: RUL and asset age per facility for water and sanitation assets (CRC)

<table>
<thead>
<tr>
<th>RUL / Asset Age</th>
<th>Asset</th>
<th>0 – 5 yrs</th>
<th>6 – 10 yrs</th>
<th>11 – 15 yrs</th>
<th>16 – 20 yrs</th>
<th>&gt; 20 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUL per facility for Water</td>
<td>Borehole</td>
<td>R0</td>
<td>R876 224</td>
<td>R1 031 240</td>
<td>R100 000</td>
<td>R178 560</td>
</tr>
<tr>
<td></td>
<td>Pump Station</td>
<td>R933 442</td>
<td>R1 039 861</td>
<td>R02 083 066</td>
<td>R96 000</td>
<td>R700 500</td>
</tr>
<tr>
<td></td>
<td>Reservoir</td>
<td>R8 847 856</td>
<td>R3 206 509</td>
<td>R19 229 485</td>
<td>R6 668 001</td>
<td>R68 516 132</td>
</tr>
<tr>
<td></td>
<td>Reticulation Pipeline</td>
<td>R2 699 293</td>
<td>R26 937 958</td>
<td>R5 891 863</td>
<td>R17 916 182</td>
<td>R108 872 919</td>
</tr>
<tr>
<td>TOTALS</td>
<td>R12 480 591</td>
<td>R32 060 552</td>
<td>R28 235 654</td>
<td>R24 780 183</td>
<td>R178 268 111</td>
<td></td>
</tr>
<tr>
<td>RUL per facility for Sanitation</td>
<td>Pump Station</td>
<td>R562 900</td>
<td>R733 150</td>
<td>R920 000</td>
<td>R0</td>
<td>R588 000</td>
</tr>
<tr>
<td></td>
<td>Sewage Treatment Works</td>
<td>R180 000</td>
<td>R2 499 820</td>
<td>R217 000</td>
<td>R8 361</td>
<td>R4 073 237</td>
</tr>
<tr>
<td></td>
<td>Sewer Reticulation Pipeline</td>
<td>R0</td>
<td>R0</td>
<td>R0</td>
<td>R38 792 598</td>
<td>R69 324 120</td>
</tr>
<tr>
<td>TOTALS</td>
<td>R742 900</td>
<td>R3 232 970</td>
<td>R1 137 000</td>
<td>R38 800 959</td>
<td>R73 985 357</td>
<td></td>
</tr>
<tr>
<td>Asset Age per facility for Water</td>
<td>Borehole</td>
<td>R3 000</td>
<td>R751 740</td>
<td>R472 620</td>
<td>R654 044</td>
<td>R304 620</td>
</tr>
<tr>
<td></td>
<td>Pump Station</td>
<td>R1 533 200</td>
<td>R1 390 294</td>
<td>R962 822</td>
<td>R156 000</td>
<td>R810 553</td>
</tr>
<tr>
<td></td>
<td>Reservoir</td>
<td>R15 902 997</td>
<td>R8 871 165</td>
<td>R14 593 865</td>
<td>R4 068 228</td>
<td>R63 031 728</td>
</tr>
<tr>
<td></td>
<td>Reticulation Pipeline</td>
<td>R4 330 951</td>
<td>R9 983 318</td>
<td>R67 834 501</td>
<td>R2 826 156</td>
<td>R77 343 288</td>
</tr>
<tr>
<td>TOTALS</td>
<td>R21 770 148</td>
<td>R20 996 517</td>
<td>R83 863 809</td>
<td>R7 704 428</td>
<td>R141 490 189</td>
<td></td>
</tr>
<tr>
<td>Asset Age per facility for Sanitation</td>
<td>Borehole</td>
<td>R1 647 900</td>
<td>R0</td>
<td>R916 900</td>
<td>R0</td>
<td>R239 250</td>
</tr>
<tr>
<td></td>
<td>Pump Station</td>
<td>R10 500</td>
<td>R245 000</td>
<td>R1 136 820</td>
<td>R699 500</td>
<td>R4 886 598</td>
</tr>
<tr>
<td></td>
<td>Reservoir</td>
<td>R8 309 715</td>
<td>R0</td>
<td>R3 735 399</td>
<td>R3 345 651</td>
<td>R92 707 953</td>
</tr>
<tr>
<td>TOTALS</td>
<td>R9 968 115</td>
<td>R245 000</td>
<td>R5 807 119</td>
<td>R4 045 151</td>
<td>R97 833 801</td>
<td></td>
</tr>
</tbody>
</table>

The average water asset renewal needs over the next 10 years is R4.5M per year and the reinvestment required is R12.5M in the first 5 years and R32M in the second 5 year period. The asset renewal needs for sanitation assets over the next 10 years is R0.4M per year. The reinvestment required is R0.74M in the first 5 years and R3.2M in the second 5 year period. Most of the water and sanitation assets value has age greater than 20 years.

The condition grading per water and sanitation facility is summarized in the table below (June 2010):

### Table 6.4: Condition grading per water and sanitation facility (CRC)

<table>
<thead>
<tr>
<th>Water / Sanitation</th>
<th>Asset</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Very Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Borehole</td>
<td>R21 000</td>
<td>R1 567 980</td>
<td>R597 044</td>
<td>R0</td>
<td>R0</td>
</tr>
<tr>
<td></td>
<td>Pump Station</td>
<td>R2 256 366</td>
<td>R2 517 061</td>
<td>R774 822</td>
<td>R304 620</td>
<td>R0</td>
</tr>
<tr>
<td></td>
<td>Reservoir</td>
<td>R44 025 878</td>
<td>R26 724 684</td>
<td>R21 977 731</td>
<td>R9 603 962</td>
<td>R4 135 728</td>
</tr>
<tr>
<td></td>
<td>Reticulation Pipeline</td>
<td>R17 346 075</td>
<td>R67 060 134</td>
<td>R44 963 169</td>
<td>R30 249 544</td>
<td>R269 993</td>
</tr>
<tr>
<td>TOTALS</td>
<td>R62 649 319</td>
<td>R97 869 859</td>
<td>R68 312 767</td>
<td>R40 158 126</td>
<td>R6 835 021</td>
<td></td>
</tr>
<tr>
<td>Sanitation</td>
<td>Pump Station</td>
<td>R1 444 250</td>
<td>R796 900</td>
<td>R0</td>
<td>R562 900</td>
<td>R0</td>
</tr>
<tr>
<td></td>
<td>Sewage Treatment Works</td>
<td>R1 372 951</td>
<td>R5 426 745</td>
<td>R176 722</td>
<td>R0</td>
<td>R0</td>
</tr>
<tr>
<td></td>
<td>Sewer Reticulation Pipeline</td>
<td>R13 049 102</td>
<td>R54 842 020</td>
<td>R40 225 596</td>
<td>R0</td>
<td>R0</td>
</tr>
<tr>
<td>TOTALS</td>
<td>R15 866 303</td>
<td>R61 067 665</td>
<td>R40 402 318</td>
<td>R562 900</td>
<td>R0</td>
<td></td>
</tr>
</tbody>
</table>

About 17% (R47M) of the water supply network is in poor and very poor condition. There are no borehole components that are in the poor and very poor state. The bulk of the poor assets are the reticulation pipelines with a value of approximately R30M. About 0.5% of the sanitation supply network is in poor condition. The assets in poor condition are mainly pump station assets with an approximate value of R0.6M.
The following key capital projects were completed of started during the 2010/2011 financial year:

- Continued with the upgrading of the Malmesbury WWTW (Three Phases). The treatment capacity will be upgraded to 10 Ml/d utilising membrane technologies. The new WWTW was designed to handle a peak flow of 30 Ml/d over a short period of time.

- The Municipality is busy with the EIA process for a single new Activated Sludge WWTW at Riebeek Kasteel with biological nutrient removal. The new WWTW will replace the existing Riebeek Wes, Riebeek Kasteel and Ongegund WWTW, which will be decommissioned.

- The Municipality plans to upgrade the oxidation dams so that it complies with DWA’s new standards. Most of the capital work for the upgrading is planned for 2012/2013, but the first planning was started during the 2010/2011 financial year. The quantity of treated effluent expected from the Koringberg treatment works is so little that it does not justify constructing an activated sludge works. It was recommended that the wastewater be treated in a pond system and the effluent be irrigated.

- Additional sewer drainage networks were installed in Malmesbury (Waterborne).

- Additional sampling equipment for the monitoring of the industrial effluent discharged into the Municipality’s sewer system was purchased.

- The water pump station in Moorreesburg was upgraded.

- A new bulk water supply pipeline was constructed from Malmesbury to Kalbaskraal (R10.3M).

- Various sections of the water distribution network in Malmesbury were upgraded.

One of the key challenges of Swartland Municipality is to identify adequate funds for the rehabilitation and maintenance of the existing infrastructure, which is critical to ensure the sustainability of the services that are provided by the Municipality.

7. OPERATION AND MAINTENANCE

A Compliance Water Quality and Wastewater Quality Monitoring Programme that meets the requirements of DWA as stipulated in the Blue and Green Drop criteria was drawn up by Swartland Municipality and is implemented by the Municipality.

The Maintenance Team mainly performs their own repair and preventative maintenance work to the equipment and infrastructure of the Municipality, except when specialised repair work is required, in which case the work is sub-contracted to approved sub-contractors on the municipal database.

Swartland Municipality still needs to draft a Water Safety Plan for their water distribution systems. A qualified, dedicated team needs to be established by Swartland Municipality to compile and update the Water Safety Plan. A detailed risk assessment needs to be executed and the existing control measures implemented by Swartland Municipality needs to be summarised. An improvement / upgrade plan also needs to be developed with relevant Water and Safety Management Procedures.

All aspects of the Water Safety Plan needs to be reviewed regularly in order to ensure that they are still accurate. In addition to the regular three year review, the Water Safety Plan also needs to be reviewed when, for example, a new water source is developed, major treatment improvements are planned and brought into use, or after a major water quality incident.
The DWA launched the blue and green drop certification, with regard to drinking water quality and the quality of treated effluent discharged from WWTWs, at the Municipal Indaba during September 2008. Blue drop status is awarded to those towns that comply with 95% criteria on drinking water quality management. The Blue Drop Certification programme is in its third year of existence and promises to be the catalyst for sustainable improvement of South African drinking water quality management in its entirety.

The blue drop performance of Swartland Municipality is summarised as follows in the DWA’s 2011 Blue Drop Report (May 2011):

**Table 7.1: Blue Drop Performance of the Municipality (DWA’s 2011 Blue Drop Report)**

<table>
<thead>
<tr>
<th>Performance Area</th>
<th>Malmesbury</th>
<th>Moorreesburg / Koringberg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Safety Planning Process and Incident Response Management</td>
<td>76</td>
<td>64</td>
</tr>
<tr>
<td>Process Control, Maintenance and Management Skills</td>
<td>89</td>
<td>89</td>
</tr>
<tr>
<td>Monitoring Programme</td>
<td>94</td>
<td>94</td>
</tr>
<tr>
<td>Credibility of Sample Analyses</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>Submission of results</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Drinking Water Quality Compliance</td>
<td>85</td>
<td>93</td>
</tr>
<tr>
<td>Performance Publication</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Asset Management</td>
<td>100</td>
<td>97</td>
</tr>
<tr>
<td>Bonus Scores</td>
<td>3.1</td>
<td>3.0</td>
</tr>
<tr>
<td>Penalties</td>
<td>3.1</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Blue Drop Score (2011)</strong></td>
<td><strong>92.88%</strong></td>
<td><strong>92.90%</strong></td>
</tr>
<tr>
<td>Blue Drop Score (2010)</td>
<td>71.94%</td>
<td>71.94%</td>
</tr>
<tr>
<td>System Design Supply Capacity (Ml/d)</td>
<td>72</td>
<td>72</td>
</tr>
<tr>
<td>System Operational Capacity</td>
<td>72%</td>
<td>72%</td>
</tr>
<tr>
<td>Population served by System</td>
<td>23 650</td>
<td>4 950</td>
</tr>
<tr>
<td>Average daily consumption per capita (l)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Microbiological Compliance (12 months)</td>
<td>100.00%; WSP: 97.78%</td>
<td>100.00% (11 months); WSP: 97.78%</td>
</tr>
<tr>
<td>Chemical Compliance (12 months)</td>
<td>98.21%</td>
<td>97.21%</td>
</tr>
</tbody>
</table>

Swartland Municipality also implements an incident response protocol for their WWTWs, in which certain reactive procedures are followed when an incident occurs (normally when a malfunction of the treatment processes occur due to power failures, faulty equipment, adverse weather conditions or human error).
There are two levels of incident management, firstly when final effluent is discharged that does not meet the requirements of the Water Act, and secondly when an event takes place causing a major pollution event for which emergency response is required. For serious incidents or emergency situations the West Coast District Municipality’s Disaster Management Plan is implemented, which include additional actions and notifications as required, including notification of DWA and the media / public.

Swartland Municipality is committed to improve their Green Drop score and put various processes in place over the last two years, which include the following key aspects:

- **Process Control, Maintenance and Management Skills**: All the WWTWs were classified with the DWA. The Process Controllers and Supervisors for the various WWTWs were also registered and classified. The Municipality is currently busy compiling Wastewater Risk Abatement Plans for all the WWTWs.

- **Waste Water Quality Monitoring Programme**: The Municipality does operational and compliance control of their WWTWs according to a comprehensive operational and compliance monitoring program, which meets the minimum requirement of DWA as stipulated in the Green Drop certification criteria.

- **Waste Water Sample Analysis**: The Compliance Sampling of the final effluent at the various WWTWs is done by an Accredited Laboratory. Operational Alert Levels were also proposed as part of the new Operation and Maintenance Manuals that are being developed, which will assist in taking early action when the measured control parameters exceeds the alert levels and thereby preventing further downstream effects on the wastewater quality, and in particular, compliance of the final effluent.

- **Submission of Waste Water Quality Results**: Results of chemical and microbiological analysis of the final effluent samples are loaded onto the GDS, which indicate the compliance performance for the month for each of the WWTWs, with specific indication of samples that does not comply.

- **Waste Water Quality Results and Waste Water Quality Compliance**: The compliance results are also summarised in Annexure C for each of the WWTWs.

- **Waste Water Failures Response Management**: An incident response protocol is implemented, in which certain reactive procedures are followed when an incident occurs. A set of Compliance Alert Levels, corresponding to the requirements of the General Standard (at present) has been drawn up as part of the new Operation and Maintenance Manuals and the Wastewater Risk Abatement Plans. For continuously improving the performance of the various WWTWs, a set of operational alert levels has also been drawn up and followed by the operating personnel.

- **Stormwater and Water Demand Management**: Stormwater Master Plans are in place for some of the towns in Swartland Municipality's Management Area. Various WC/WDM initiatives were also implemented by Swartland Municipality during the last financial year in order to keep the percentage of non revenue water of the Municipality as low as possible.

- **By-laws**: A comprehensive set of water services by-laws is currently being drafted for Swartland Municipality. The By-laws cover the provision of services for water supply, sanitation and industrial effluent.
• **Waste Water Treatment Works Capacity:** The upgrading of the WWTWs is summarised in the table below:

<table>
<thead>
<tr>
<th>WWTWs</th>
<th>Upgradings required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malmesbury</td>
<td>The Municipality is in the process of upgrading the WWTW in three phases. The treatment capacity will be upgraded to 10 Ml/d utilising membrane technologies. The works was designed to handle a peak flow of 30 Ml/d over a short period of time.</td>
</tr>
<tr>
<td>Darling</td>
<td>The current works was upgraded in 2008, but further upgrading is planned for 2013/2014. Most of the capital work to address the current high organic load of the WWTW is planned for 2014/2015.</td>
</tr>
<tr>
<td>Moorreesburg</td>
<td>No upgrading is planned at present</td>
</tr>
<tr>
<td>Riebeek Kasteel</td>
<td>The Municipality is busy with the EIA process for a single new Activated Sludge WWTW with biological nutrient removal. The new WWTW will replace the existing Riebeek Wes, Riebeek Kasteel and Ongegund WWTW, which will be decommissioned.</td>
</tr>
<tr>
<td>Koringberg</td>
<td>The Municipality plans to upgrade the oxidation dams so that it complies with DWA’s new standards. Most of the capital work for the upgrading is planned for 2012/2013. The quantity of treated effluent expected from the Koringberg treatment works is so little that it does not justify constructing an activated sludge works. It was recommended that the wastewater be treated in a pond system and the effluent be irrigated.</td>
</tr>
<tr>
<td>Kalbaskraal</td>
<td>No upgrading is planned at present</td>
</tr>
<tr>
<td>Chatsworth</td>
<td>The Municipality will start in 2011/2012 with the upgrading of the Chatsworth oxidation dams. Most of the capital work will be done during 2012/2013.</td>
</tr>
</tbody>
</table>

• **Publication of Waste Water Quality Performance:** Wastewater management and wastewater quality results are included in Swartland Municipality’s Water Services Audit Report and regular publications with regard to wastewater management are also sent out by the Municipality.

• **Waste Water Asset Management:** An updated Asset Register is in place for all the water and sanitation infrastructure.

The DWA also follows a risk-based regulatory approach that provides early warning signs of WWTWs that contain a certain measure of risk, and in directing the type of intervention required to manage and mitigate the identified risk and move to a more favourable position of compliance and ultimately, excellence. Swartland Municipality previously compiled a Risk Reduction Action Plan for each of their WWTWs, in order to reduce the risks for the various WWTWs even further. This process was taken further in the Wastewater Risk Abatement Plan process with which the Municipality is currently busy.

The DWA also completed their Second Order Assessment of Municipal Waste Water Treatment Plants, DWA’s Green Drop Report for 2011, which provides a scientific and verifiable status of municipal waste water treatment. Green drop status is awarded to those WSAs that comply with 90% criteria on key selected indicators on waste water quality management.
The green drop performance of Swartland Municipality is summarised as follows in the DWA’s 2011 Green Drop Report:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Malmesbury</th>
<th>Darling</th>
<th>Moorreesburg</th>
<th>Ongegund</th>
<th>Koringberg</th>
<th>Riebeek Wes</th>
<th>Riebeek Kasteel</th>
<th>Kalbaskraal</th>
<th>Chatsworth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Control, Maintenance and Management Skill</td>
<td>72.5</td>
<td>67.5</td>
<td>52.5</td>
<td>37.5</td>
<td>37.5</td>
<td>37.5</td>
<td>52.5</td>
<td>52.5</td>
<td>52.5</td>
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<tr>
<td>Monitoring Programme</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>30</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Credibility of Sample Analysis</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Submission of results</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wastewater Quality Compliance</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>48</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>48</td>
<td>20</td>
</tr>
<tr>
<td>Failure Response Management</td>
<td>88.75</td>
<td>88.5</td>
<td>88.75</td>
<td>88.75</td>
<td>88.75</td>
<td>88.75</td>
<td>88.75</td>
<td>88.75</td>
<td>88.75</td>
</tr>
<tr>
<td>Bylaws</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Treatment and Collector Capacity</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Asset Management</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Bonus Scores</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Penalties</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Green Drop Score (2011)</td>
<td>73.9%</td>
<td>72.9%</td>
<td>71.4%</td>
<td>78.3%</td>
<td>66.4%</td>
<td>64.4%</td>
<td>65.9%</td>
<td>68.8%</td>
<td>61.9%</td>
</tr>
<tr>
<td>Green Drop Score (2009)</td>
<td>77%</td>
<td>75%</td>
<td>73%</td>
<td>NA-0%</td>
<td>NA-0%</td>
<td>NA-0%</td>
<td>NA-0%</td>
<td>NA-0%</td>
<td>NA-0%</td>
</tr>
<tr>
<td>Treatment Capacity (Ml/d)</td>
<td>5.5</td>
<td>1.5</td>
<td>1.5</td>
<td>0.15</td>
<td>0.03</td>
<td>0.3</td>
<td>0.2</td>
<td>0.157</td>
<td>0.12</td>
</tr>
<tr>
<td>Operational % i.t.o. Capacity</td>
<td>90.9%</td>
<td>83.3%</td>
<td>83.3%</td>
<td>100%</td>
<td>243%</td>
<td>120%</td>
<td>206%</td>
<td>89.1%</td>
<td>65%</td>
</tr>
<tr>
<td>Cumulative Risk Rating (CRR)</td>
<td>15</td>
<td>14</td>
<td>11</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>% i.t.o. Maximum Risk Rating</td>
<td>83.3%</td>
<td>77.8%</td>
<td>61.1%</td>
<td>44.4%</td>
<td>55.6%</td>
<td>66.7%</td>
<td>72.2%</td>
<td>72.2%</td>
<td>72.2%</td>
</tr>
</tbody>
</table>

Regulatory Impression: Even though the performance of Malmesbury, Darling and Moorreesburg remained more or less the same, the overall performance of the Swartland Municipality portrayed a huge improvement. There still remains much to do to improve the compliance of the majority of wastewater systems but great encouragement can be taken out of the performance of the Ongegund and Moorreesburg works where compliance levels came close to the Green Drop expectations.

Swartland Municipality is also participating in the pioneering Berg River Wastewater Risk Reduction project where great advance is evident to meet with the targets set and the pre-directive” that was issued by the Western Cape Regional Office. The municipal team’s dedication is much appreciated since that is the fundamental requirement for sustainable improvement.

Green Drop Findings:
1. There is reasonable concern over the high loading rates all of the works are subjected to. Riebeek Kasteel and Koringberg wastewater treatment works are being operated at double that of its design capacity. The planning of upgrades is under way with commissioning expected by 2013. In the Interim, special attention must be given to the process control.
8. ASSOCIATED SERVICES

The existing water and sanitation service levels for all the schools in the Swartland Municipality Management Area is summarised in the table below.

<table>
<thead>
<tr>
<th>Associated Services Facility</th>
<th>Number of Facilities</th>
<th>Water</th>
<th>Sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Facilities with Adequate Services</td>
<td>Facilities with inadequate Services</td>
</tr>
<tr>
<td>Schools</td>
<td>48</td>
<td>48</td>
<td>0</td>
</tr>
</tbody>
</table>

The existing water and sanitation service levels for all the Medical Facilities in Swartland Municipality's Management Area are summarised in the table below.

<table>
<thead>
<tr>
<th>Associated Services Facility</th>
<th>Number of Facilities</th>
<th>Water</th>
<th>Sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Facilities with Adequate Services</td>
<td>Facilities with inadequate Services</td>
</tr>
<tr>
<td>Hospitals</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Health Centres</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Clinics</td>
<td>12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Mobile Clinics</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

9. WATER CONSERVATION AND DEMAND MANAGEMENT

The implementation of a Water Demand Management Strategy by Swartland Municipality has been extremely successful and has reduced the water demand of the towns significantly. The overall percentage of non revenue water was 16.26% for 2010/2011.

The graph below gives a summary of the total bulk water supply and non revenue water for the various distribution systems in Swartland Municipality's Management Area.
Quantity of water unaccounted for (Ml/Year):

The table below gives a summary of the non revenue water for the various distribution systems in Swartland Municipality’s Management Area.

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>10/11</th>
<th>Record : Prior (Ml/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>09/10</td>
<td>08/09</td>
</tr>
<tr>
<td>Koringberg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td>22.28%</td>
<td>46.87%</td>
<td>12.29%</td>
</tr>
<tr>
<td>ILI</td>
<td>1.24</td>
<td>3.74</td>
<td>-</td>
</tr>
<tr>
<td>PPC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td>36.43%</td>
<td>35.70%</td>
<td>34.90%</td>
</tr>
<tr>
<td>Riebeek Wes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>52.437</td>
<td>38.774</td>
<td>19.055</td>
</tr>
<tr>
<td>Percentage</td>
<td>24.48%</td>
<td>20.80%</td>
<td>11.43%</td>
</tr>
<tr>
<td>ILI</td>
<td>3.38</td>
<td>2.50</td>
<td>-</td>
</tr>
<tr>
<td>Riebeek Kasteel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>23.597</td>
<td>5.624</td>
<td>29.497</td>
</tr>
<tr>
<td>Percentage</td>
<td>8.96%</td>
<td>2.53%</td>
<td>11.45%</td>
</tr>
<tr>
<td>ILI</td>
<td>0.65</td>
<td>0.15</td>
<td>-</td>
</tr>
<tr>
<td>Yzerfontein</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>50.277</td>
<td>40.776</td>
<td>53.048</td>
</tr>
<tr>
<td>Percentage</td>
<td>15.68%</td>
<td>13.44%</td>
<td>17.59%</td>
</tr>
<tr>
<td>ILI</td>
<td>1.44</td>
<td>1.16</td>
<td>-</td>
</tr>
<tr>
<td>Darling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>47.637</td>
<td>55.715</td>
<td>108.917</td>
</tr>
<tr>
<td>Percentage</td>
<td>6.81%</td>
<td>8.96%</td>
<td>20.41%</td>
</tr>
<tr>
<td>ILI</td>
<td>0.82</td>
<td>0.96</td>
<td>-</td>
</tr>
<tr>
<td>Moorreesburg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>93.032</td>
<td>131.529</td>
<td>109.572</td>
</tr>
<tr>
<td>Percentage</td>
<td>12.21%</td>
<td>16.49%</td>
<td>13.63%</td>
</tr>
<tr>
<td>ILI</td>
<td>1.18</td>
<td>1.67</td>
<td>-</td>
</tr>
<tr>
<td>Malmesbury</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>595.113</td>
<td>359.994</td>
<td>449.909</td>
</tr>
<tr>
<td>Percentage</td>
<td>18.92%</td>
<td>12.45%</td>
<td>14.48%</td>
</tr>
<tr>
<td>ILI</td>
<td>3.35</td>
<td>2.01</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>898.877</td>
<td>694.931</td>
<td>797.850</td>
</tr>
<tr>
<td>Percentage</td>
<td>16.26%</td>
<td>13.44%</td>
<td>15.08%</td>
</tr>
<tr>
<td>ILI</td>
<td>2.56</td>
<td>1.82</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Infrastructure Leakage Index (ILI) = 1 – Excellent, 2 – Good and > 3 - Poor

The Infrastructure Leakage Index (ILI) is also included in the above table, which is the most recent and preferred performance indicator for comparing leakage from one system to another. It is a non-dimensional index representing the ratio of the current real leakage and the “Unavoidable Annual Real Losses”. A high ILI value indicates a poor performance with large potential for improvement while a small ILI value indicates a well-managed system with less scope for improvement. The parameters used to calculate the ILIs for the various distribution systems are included in the Models in Annexure B. Attaining and ILI = 1 is a theoretical limit which is the minimum water loss in an operational water reticulation system.
Number of consumers connected to a water reticulation system where pressures rise above 900 kPa at the consumer connection are as follows:

The table below indicates the potential savings on bulk water supply for each town within the Swartland Management Area through the implementation of pressure management. Towns within the Swartland Municipality’s Management Area that should consider pressure management as a measure of water demand management (where the % potential saving > 3% of the total water demand), as identified in the Swartland Municipality WDM Strategy developed by CES.

<table>
<thead>
<tr>
<th>Distribution System</th>
<th>Saving Potential</th>
<th>Pressure Management Priority (WDM Strategy)</th>
<th>Number of consumer connections where pressure rise above 900 kPa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Static Pressure</td>
</tr>
<tr>
<td>Koringberg</td>
<td>13%</td>
<td>High</td>
<td>No areas where pressures exceed 90m.</td>
</tr>
<tr>
<td>PPC</td>
<td>-</td>
<td>Medium</td>
<td>In the 24m to 90m range under peak hour demand conditions</td>
</tr>
<tr>
<td>Riebeek Wes</td>
<td>6%</td>
<td>Medium</td>
<td>No areas where pressures exceed 90m.</td>
</tr>
<tr>
<td>Riebeek Kasteel</td>
<td>6%</td>
<td>Medium</td>
<td>In the 24m to 90m range under peak hour demand conditions</td>
</tr>
<tr>
<td>Yzerfontein</td>
<td>11%</td>
<td>High</td>
<td>No areas where pressures exceed 90m.</td>
</tr>
<tr>
<td>Darling</td>
<td>7%</td>
<td>Medium</td>
<td>In the 24m to 90m range under peak hour demand conditions</td>
</tr>
<tr>
<td>Moorreesburg</td>
<td>7%</td>
<td>Medium</td>
<td>No areas where pressures exceed 90m.</td>
</tr>
<tr>
<td>Malmesbury</td>
<td>-</td>
<td>Medium</td>
<td>The following areas could experience low residual pressures</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Higher lying areas in Wesbank which is currently fed from</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the Wesbank reservoirs and not the tower.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Small area in the central part of Malmesbury, which is fed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the Kleindam reservoir.</td>
</tr>
<tr>
<td>Abbotsdale, Chatsworth, Kalbaskraal and Riverlands</td>
<td>9%</td>
<td>Medium</td>
<td>No areas where pressures exceed 90m. Four PRVs in the system (3 in Chatsworth and 1 in Riverlands)</td>
</tr>
</tbody>
</table>

The updated Water Master Plans will be consulted in conjunction with the WDM Strategy to identify further areas where pressure reduction can be implemented.
Demand management activities undertaken:

The main water demand management interventions undertaken by Swartland Municipality over the last few years are as follows:

- Water Master Plans are updated on an ongoing basis.
- Block Tariff Structure. The Municipality’s tariff structure discourages excessive use of water.
- Pipe replacement and maintenance programme for the priority areas with old reticulation networks and frequent pipe failures.
- Customer services and complaints system (Burst pipes, etc).
- Standby teams for immediate repairs of burst pipes. The average repair time for the 93 pipe bursts from October 2010 to June 2011 was 3 hours 18 minutes.
- Pressure Management.
- Promote the use of water efficient fittings (Building regulations)
- Bulk metering and telemetry system, which act as an early warning system for e.g. pipe failures and reservoir overflows.
- Accurate records of water use and water losses. Water balance models for each of the distribution systems are kept up to date.
- Water restrictions (5%, 10%, 15%, 20%, 25%, 30% and 35% increase).
- Strict municipal services standards for the installation of new water reticulation for own and private developments
- Reticulation material and quality standards – Facilitate maintenance

A WDM Strategy was also drafted for Swartland Municipality in January 2008. The purpose of the Strategy is to further conserve and protect available resources and to ensure the effective utilization of the available water resources. The WDM Strategy includes the following main components:

- Leakage management programme
- CAFES-pricing policy programme
- Socio-political programme
- Water conservation products
- Re-use of wastewater
The table below gives an overview of the WDM Strategy

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CHRONOLOGICAL STEPWISE APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAFES cost and pricing strategy (CPP)</td>
<td>1) Clean billing data, update SWIFT, verify / address metering and non-payment</td>
</tr>
<tr>
<td></td>
<td>2) Introduce IBR structure to all residential consumers, but limit price change</td>
</tr>
<tr>
<td></td>
<td>3) Set IBR structure = 6 blocks, min / max steps for 6 kl / month / 100 kl / month</td>
</tr>
<tr>
<td></td>
<td>4) Set price of water in max block (above 100 kl/month) to at least R15 / kl</td>
</tr>
<tr>
<td></td>
<td>5) Introduce informative billing</td>
</tr>
<tr>
<td>Leakage management programme (LMP)</td>
<td>1) Measure water volume that is lost</td>
</tr>
<tr>
<td></td>
<td>1a) Raw water supply and treatment</td>
</tr>
<tr>
<td></td>
<td>1b) Distribution system</td>
</tr>
<tr>
<td></td>
<td>1c) End user meter problems</td>
</tr>
<tr>
<td></td>
<td>2) Identify and quantify losses</td>
</tr>
<tr>
<td></td>
<td>2a) Raw water supply and treatment</td>
</tr>
<tr>
<td></td>
<td>2b) Distribution system</td>
</tr>
<tr>
<td></td>
<td>2c) End user meter problems</td>
</tr>
<tr>
<td></td>
<td>3) Conduct operational and network audit</td>
</tr>
<tr>
<td></td>
<td>3a) Raw water supply and treatment</td>
</tr>
<tr>
<td></td>
<td>3b) Distribution system</td>
</tr>
<tr>
<td></td>
<td>3c) End user meter problems</td>
</tr>
<tr>
<td></td>
<td>4) Improve performance: upgrade network, design action plans</td>
</tr>
<tr>
<td></td>
<td>5) Sustain performance with good staffing / organisation structures</td>
</tr>
<tr>
<td>Socio-political programme (SPP)</td>
<td>1) Schools WDM programme</td>
</tr>
<tr>
<td></td>
<td>2) Public awareness programme</td>
</tr>
<tr>
<td></td>
<td>3) Non-payment issues</td>
</tr>
<tr>
<td></td>
<td>4) Encourage users to implement WCP at their own expense</td>
</tr>
<tr>
<td>Water conservation products (WCP)</td>
<td>1) Repair on-site (plumbing) leaks</td>
</tr>
<tr>
<td></td>
<td>2) Reduced toilet flush volume</td>
</tr>
<tr>
<td></td>
<td>3) Xeriscaping garden areas (water wise gardening)</td>
</tr>
<tr>
<td></td>
<td>4) Other methods to reduce consumption by changing human habits</td>
</tr>
<tr>
<td>Reuse of waste water (RWW)</td>
<td>1) Identify large water consumers</td>
</tr>
<tr>
<td></td>
<td>2) Communicate advantages / incentives of reuse practice to large consumers</td>
</tr>
<tr>
<td></td>
<td>3) Information gathering on current status of reuse measures</td>
</tr>
<tr>
<td></td>
<td>4) Installation of reuse practice</td>
</tr>
<tr>
<td></td>
<td>5) Monitor future water consumption</td>
</tr>
</tbody>
</table>

The following implementation procedure for WC/WDM measures was proposed. The list is based on the lowest unit cost of each WC/WDM measure obtained in previous studies, but with consideration to the time and effort required for implementation:

1. Address water use and waste at municipal properties and record savings achieved.
2. Initiate a WC/WDM communication campaign.
3. Conduct a detail financial analysis and implement proposed tariffs
4. Design and implement a water loss management programme.
5. Focus on relations with large water users to encourage re-use of wastewater practices.
6. Residential water users could be encouraged to implement water saving techniques by setting an example at Municipal properties (e.g. gardens and ablution facilities that are visible to the public or used by the public) and by focusing on the following WC/WDM measures in a communication campaign:
   a. Xeriscape gardens (water wise gardening techniques).
   b. Dual flush and/or low flow toilets.

The following implementation phases of the WDM Strategy were recommended:

| Table 9.4: Implementation phases of the proposed CES WDM Strategy |
|----------------|----------------|----------------|----------------|
| IN PLACE   | FIRST PHASE  | SECOND PHASE  | LATER         |
| LMP1, LMP2 | LMP3         | LMP4, LMP5    |               |
| CPP1, CPP2 | CPP3         | CPP4          | CPP5          |
| -          | SPP1         | SPP2          | SPP3-4        |
| -          |              | WCP1          | WCP2-4        |
| RWW1       | RWW2, RWW3   | RWW4          | RWW5          |

Progress made with the installation of water efficient devices:

All municipal buildings are provided with water efficient devices. Budget and personnel constraints limit the Municipality's capacity to roll-out the installations of water efficient devices to other areas for example schools. Schools often form the groundwork of WDM programmes and should therefore receive high priority.

Quantity of water used by each user sector for the last five years:

Graphs of the water usage per sector for the various distribution systems within Swartland Municipality's Management Area are included as part of the water balance models in Annexure A. The table below gives a summary of the information.

| Table 9.5: Quantity of water used by each user sector (ML) |
|--------------|----------------|----------------|----------------|----------------|--------------|
| Town         | Year  | Residential | Business & Industrial | Other | Farms | Total |
| Koringberg   | 06/07 | 37.115      | 3.995               | 0.127 | 0     | 41.237 |
|              | 07/08 | 38.500      | 3.519               | 0.235 | 0     | 42.254 |
|              | 08/09 | 50.193      | 4.588               | 0.306 | 0     | 55.087 |
|              | 09/10 | 41.517      | 3.795               | 0.253 | 0     | 45.565 |
|              | 10/11 | 42.454      | 3.880               | 0.259 | 0     | 46.594 |
| PPC          | 06/07 | 28.073      | 3.167               | 1.143 | 0     | 32.383 |
|              | 07/08 | 28.133      | 2.294               | 4.332 | 0     | 34.759 |
|              | 08/09 | 30.389      | 2.478               | 4.679 | 0     | 37.546 |
|              | 09/10 | 32.532      | 2.653               | 5.009 | 0     | 40.194 |
|              | 10/11 | 33.154      | 2.703               | 5.105 | 0     | 40.963 |
| Riebeek Wes  | 06/07 | 98.936      | 28.481              | 1.238 | 0     | 128.655 |
|              | 07/08 | 107.030     | 39.476              | 0.970 | 0     | 147.476 |
|              | 08/09 | 107.185     | 39.533              | 0.971 | 0     | 147.690 |
|              | 09/10 | 107.127     | 39.512              | 0.971 | 0     | 147.610 |
|              | 10/11 | 117.410     | 43.305              | 1.064 | 0     | 161.779 |
| Riebeek Kasteel | 06/07 | 139.781     | 36.735              | 0.895 | 1.704 | 179.115 |
|              | 07/08 | 163.059     | 47.706              | 0.627 | 1.392 | 212.784 |
|              | 08/09 | 174.824     | 51.148              | 0.672 | 1.492 | 228.137 |
|              | 09/10 | 165.851     | 48.523              | 0.638 | 1.416 | 216.428 |
|              | 10/11 | 183.815     | 53.779              | 0.707 | 1.569 | 239.870 |
| Yzerfontein  | 06/07 | 209.995     | 10.308              | 11.634 | 0     | 231.937 |
|              | 07/08 | 209.912     | 14.760              | 16.380 | 0     | 241.052 |
Table 9.5: Quantity of water used by each user sector (Ml)

<table>
<thead>
<tr>
<th>Town</th>
<th>Year</th>
<th>Residential</th>
<th>Business &amp; Industrial</th>
<th>Other</th>
<th>Farms</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>08/09</td>
<td>216.461</td>
<td>15.221</td>
<td>16.891</td>
<td>0</td>
<td>248.573</td>
</tr>
<tr>
<td></td>
<td>09/10</td>
<td>228.769</td>
<td>16.086</td>
<td>17.851</td>
<td>0</td>
<td>262.706</td>
</tr>
<tr>
<td></td>
<td>10/11</td>
<td>235.259</td>
<td>16.542</td>
<td>18.358</td>
<td>0</td>
<td>270.159</td>
</tr>
<tr>
<td></td>
<td>06/07</td>
<td>259.037</td>
<td>122.406</td>
<td>5.377</td>
<td>0</td>
<td>386.820</td>
</tr>
<tr>
<td></td>
<td>07/08</td>
<td>274.477</td>
<td>148.743</td>
<td>4.852</td>
<td>0</td>
<td>428.072</td>
</tr>
<tr>
<td></td>
<td>08/09</td>
<td>272.375</td>
<td>147.604</td>
<td>4.815</td>
<td>0</td>
<td>424.793</td>
</tr>
<tr>
<td></td>
<td>09/10</td>
<td>362.765</td>
<td>196.587</td>
<td>6.413</td>
<td>0</td>
<td>565.765</td>
</tr>
<tr>
<td></td>
<td>10/11</td>
<td>417.677</td>
<td>226.345</td>
<td>7.383</td>
<td>0</td>
<td>651.406</td>
</tr>
<tr>
<td></td>
<td>06/07</td>
<td>479.782</td>
<td>172.231</td>
<td>30.534</td>
<td>10.004</td>
<td>692.551</td>
</tr>
<tr>
<td></td>
<td>07/08</td>
<td>450.861</td>
<td>191.329</td>
<td>31.558</td>
<td>10.583</td>
<td>684.331</td>
</tr>
<tr>
<td></td>
<td>08/09</td>
<td>457.302</td>
<td>194.063</td>
<td>32.009</td>
<td>10.734</td>
<td>694.108</td>
</tr>
<tr>
<td></td>
<td>09/10</td>
<td>438.732</td>
<td>186.182</td>
<td>30.709</td>
<td>10.298</td>
<td>665.921</td>
</tr>
<tr>
<td></td>
<td>06/07</td>
<td>1 461.498</td>
<td>723.120</td>
<td>73.931</td>
<td>79.341</td>
<td>2 337.350</td>
</tr>
<tr>
<td></td>
<td>07/08</td>
<td>1 522.793</td>
<td>757.856</td>
<td>117.220</td>
<td>63.953</td>
<td>2 461.823</td>
</tr>
<tr>
<td></td>
<td>08/09</td>
<td>1 644.012</td>
<td>818.184</td>
<td>126.551</td>
<td>69.044</td>
<td>2 657.791</td>
</tr>
<tr>
<td></td>
<td>09/10</td>
<td>1 566.270</td>
<td>779.494</td>
<td>120.567</td>
<td>65.779</td>
<td>2 532.109</td>
</tr>
<tr>
<td></td>
<td>10/11</td>
<td>1 577.950</td>
<td>785.307</td>
<td>121.466</td>
<td>66.269</td>
<td>2 550.992</td>
</tr>
<tr>
<td></td>
<td>06/07</td>
<td>2 714.217</td>
<td>1 100.443</td>
<td>124.339</td>
<td>91.049</td>
<td>4 030.048</td>
</tr>
<tr>
<td></td>
<td>07/08</td>
<td>2 794.765</td>
<td>1 205.683</td>
<td>176.174</td>
<td>75.928</td>
<td>4 252.551</td>
</tr>
<tr>
<td></td>
<td>08/09</td>
<td>2 952.741</td>
<td>1 272.819</td>
<td>186.894</td>
<td>81.270</td>
<td>4 493.725</td>
</tr>
<tr>
<td></td>
<td>09/10</td>
<td>2 943.563</td>
<td>1 272.832</td>
<td>182.411</td>
<td>77.493</td>
<td>4 476.298</td>
</tr>
<tr>
<td></td>
<td>10/11</td>
<td>3 048.474</td>
<td>1 318.902</td>
<td>185.193</td>
<td>78.184</td>
<td>4630.755</td>
</tr>
</tbody>
</table>

Quantity of effluent received at WWTWs (Ml/a):

A five year history of the total influent received at the Malmesbury-, Moorreesburg- and Darling WWTW is available, but it is not available for the other WWTWs. The influent received at the other WWTWs is not metered and was therefore calculated as a percentage of the water sales data. The monthly flows and rainfall at the various WWTWs are also summarised in Annexure A.

Table 9.6: Quantity of effluent received at the various WWTWs

<table>
<thead>
<tr>
<th>WWTWs</th>
<th>% of Historic Water Demands</th>
<th>10/11</th>
<th>09/10</th>
<th>08/09</th>
<th>07/08</th>
<th>06/07</th>
<th>05/06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malmesbury</td>
<td>N/A (Metered)</td>
<td>1 613.910</td>
<td>1 575.871</td>
<td>1 665.596</td>
<td>1 556.877</td>
<td>1 428.997</td>
<td>1 323.050</td>
</tr>
<tr>
<td>Moorreesburg</td>
<td>N/A (Metered)</td>
<td>358.339</td>
<td>317.050</td>
<td>322.443</td>
<td>292.230</td>
<td>258.350</td>
<td>242.503</td>
</tr>
<tr>
<td>Darling</td>
<td>66%</td>
<td>417.091</td>
<td>373.405</td>
<td>280.364</td>
<td>282.527</td>
<td>255.301</td>
<td>222.552</td>
</tr>
<tr>
<td>Riebeek Wes</td>
<td>69%</td>
<td>111.304</td>
<td>101.556</td>
<td>101.611</td>
<td>101.463</td>
<td>88.514</td>
<td>85.751</td>
</tr>
<tr>
<td>Riebeek Kasteel</td>
<td>48%</td>
<td>114.418</td>
<td>103.236</td>
<td>108.821</td>
<td>101.498</td>
<td>85.438</td>
<td>76.316</td>
</tr>
<tr>
<td>Koringberg</td>
<td>70%</td>
<td>32.616</td>
<td>31.896</td>
<td>38.561</td>
<td>29.578</td>
<td>28.866</td>
<td>26.668</td>
</tr>
<tr>
<td>Kalbaskraal</td>
<td>40%</td>
<td>21.791</td>
<td>25.344</td>
<td>25.913</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chatsworth / Riverlands</td>
<td>40%</td>
<td>35.696</td>
<td>34.141</td>
<td>31.687</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Quantity of effluent not discharged to WWTWs and approved for use by the WSI:

The quantity of effluent treated by industrial consumers on their own premises and re-used by them is not known at this stage.

All effluent discharged into the Municipal sewer system is however treated at the existing WWTWs and the current effluent re-used practices are as follows:

<table>
<thead>
<tr>
<th>WWTWs</th>
<th>Current effluent re-used practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malmesbury</td>
<td>Rooiheuwels Irrigation Scheme, Irrigation of rugby and cricket fields at schools and golf course. Treated effluent not re-used is returned to the Diep River. In excess of 80% of the treated effluent is re-used.</td>
</tr>
<tr>
<td>Moorreesburg</td>
<td>Irrigation of rugby and cricket fields and golf course. During the summer months all treated effluent is re-used. Treated effluent not re-used is returned to the Nogo River.</td>
</tr>
<tr>
<td>Darling</td>
<td>Irrigation of rugby fields and golf course. During the summer months all treated effluent is re-used. Treated effluent not re-used is returned to the Groen River.</td>
</tr>
<tr>
<td>Riebeek Wes</td>
<td>WWTWs discharges into a farm dam next to the works from where the treated effluent is re-used for irrigation purposes.</td>
</tr>
<tr>
<td>Riebeek Kasteel</td>
<td>No re-use practices. Treated effluent returned into a local stream (Krom River)</td>
</tr>
<tr>
<td>Koringberg</td>
<td>No re-use practices. Treated effluent returned into a local stream (Brak River)</td>
</tr>
<tr>
<td>PPC</td>
<td>No re-use practices. Evaporate and discharges into a local stream</td>
</tr>
<tr>
<td>Kalbaskraal</td>
<td>No re-use practices. Evaporate</td>
</tr>
<tr>
<td>Chatsworth / Riverlands</td>
<td>No re-use practices.</td>
</tr>
</tbody>
</table>

10. WATER RESOURCES

Treated water is supplied to Malmesbury, Moorreesburg, Yzerfontein, Darling, Riebeek Kasteel, Riebeek Wes, Koringberg and PPC by the West Coast District Municipality, from their Withoogte and Voëlvlei WTWs, through the District Municipality's two bulk water distribution systems. A Service Level Agreement between the West Coast District Municipality and Swartland Municipality is in place for the provision of bulk potable water to the various towns.

The supply from Paardeberg Dam is to supplement the supply to Malmesbury, Abbotsdale, Kalbaskraal, Riverlands and Chatsworth from the Municipality's own local sources. A borehole at Kalbaskraal and three boreholes at Riverlands are also used as supplementary sources. Supply to Abbotsdale, Kalbaskraal, Riverlands and Chatsworth is via the Kleindam reservoir and supply from the Paardeberg Dam is through the Klipkop reservoir.

Water balance models were developed for each of the towns within Swartland Municipality's Management Area and are included in Annexure A. Graphs of the total water demand (bulk water supply and water sold), peak month factors, annual non revenue water per town and water usage per sector are included in Annexure A.

The construction of a desalination plant at Saldanha was identified by the West Coast District Municipality as the most feasible scheme for implementation, in order to meet the growing demand of the West Coast Region. Consultants are currently busy to identify the most suitable site for the construction of the plant. The final treatment capacity of the plant will be 25.5 Ml/d, but the treatment capacity for the first phase will be 8.5 Ml/d. The capacity of the bulk infrastructure connected to the desalination plant will be 25.5 Ml/d, which will be implemented as part of the first phase.
The DWA also completed their Reconciliation Strategy during 2010/2011 and the table below gives an overview of the recommended potential future water resources as included in the Strategies:

<table>
<thead>
<tr>
<th>Distribution System</th>
<th>Option</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Koringberg</strong></td>
<td>Re-use of water</td>
<td>• Re-use of treated effluent is not a feasible option for Koringberg, as the current treatment process at the Koringberg WWTW is not considered adequate to deliver treated effluent of an acceptable quality.</td>
</tr>
<tr>
<td></td>
<td>Groundwater</td>
<td>• The viability of groundwater abstraction in the Malmesbury Group of the direct surrounding area to Koringberg is very low.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Groundwater potential for the quaternary catchment G10K is highest for the TMG that is present in the Piketberg Mountains to the north. The fractured sandstone rocks of the Peninsula Formation in many cases have shown to be a successful option for groundwater abstraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Another option is the area of faulting of the Malmesbury Group about 4 km south of the town. Faults intersecting the usually little permeable Malmesbury rocks are likely to cause increased fracturing giving space for enhanced groundwater occurrence. Prior to any groundwater development further hydrogeological investigation is required.</td>
</tr>
<tr>
<td></td>
<td>Surface Water</td>
<td>• There is no surface water resources located in close proximity to Koringberg. The most likely potential sources are augmented supply from the Misverstand Dam and groundwater development.</td>
</tr>
<tr>
<td></td>
<td>Other Sources</td>
<td>• Rainwater harvesting is not a feasible alternative for Koringberg considering the low Mean Annual Precipitation.</td>
</tr>
<tr>
<td></td>
<td><strong>Summary</strong></td>
<td>The current water sources do not have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• WC/WDM measures to reduce water losses.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increase the allocation from the Withoogte Regional Scheme.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Groundwater development</td>
</tr>
<tr>
<td><strong>Riebeek West</strong></td>
<td>Re-use of water</td>
<td>• The re-use of treated effluent is not a feasible option for Riebeek West, as the current treatment process at the Riebeek West WWTW is not considered to be adequate to deliver effluent of an acceptable quality for re-use.</td>
</tr>
<tr>
<td></td>
<td>Groundwater</td>
<td>• Groundwater potential is the highest for the TMG. Groundwater development along the outcrop of the Peninsula sandstone, favourable along the fault, might be a future option, though the recharge area in the Kasteelberg Mountains is very limited. This unit in general presents a good aquifer system with typical yields of 10 l/s – 20 l/s and a good water quality.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Another viable option is the intergranular deposits. In general there is very little hydrogeological information available and further exploration is recommended.</td>
</tr>
<tr>
<td></td>
<td>Surface Water</td>
<td>• There is no surface water resources located in close proximity to Riebeek West. The most likely potential sources are thus an augmented supply from the Voëlvlei Dam and groundwater development.</td>
</tr>
<tr>
<td></td>
<td>Other Sources</td>
<td>• Rainwater harvesting is not a feasible option for Riebeek West considering the big storage needed to carry over winter rain to summer use.</td>
</tr>
<tr>
<td></td>
<td><strong>Summary</strong></td>
<td>The current water sources do not have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• WC/WDM measures to reduce water losses.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increase the allocation from the Swartland Regional Water Supply Scheme.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Groundwater development</td>
</tr>
<tr>
<td><strong>Riebeek Kasteel</strong></td>
<td>Re-use of water</td>
<td>• The re-use of treated effluent is not a feasible option for Riebeek Kasteel, as the current treatment process at the Riebeek Kasteel WWTW is not considered adequate to deliver treated effluent of an acceptable quality for re-use.</td>
</tr>
<tr>
<td></td>
<td>Groundwater</td>
<td>• Groundwater potential is the highest for the TMG. Groundwater development along the outcrop of the Peninsula sandstone might be a future option although the recharge area in the Kasteelberg Mountains is very limited. This unit, in general, presents a good aquifer system with typical yields of 10 l/s – 20 l/s and a good water quality. A drilling exploration along the western foot of the Kasteelberg is recommended to find the best access.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Another viable option in the near surrounding is the intergranular deposits. In general there is very little hydrogeological information available and further exploration is recommended.</td>
</tr>
<tr>
<td></td>
<td>Surface Water</td>
<td>• There is no surface water resources located in close proximity to Riebeek Kasteel. The</td>
</tr>
</tbody>
</table>
### Table 10.1: Potential future water resources for the various towns (DWA’s Reconciliation Strategy)

<table>
<thead>
<tr>
<th>Distribution System</th>
<th>Option</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>most likely potential sources are thus an augmented supply from the Voëlvlei Dam and groundwater development.</td>
</tr>
<tr>
<td>Other Sources</td>
<td></td>
<td>• Rainwater harvesting is not a feasible alternative for Riebeek Kasteel considering the low MAP which occurs mainly in winter.</td>
</tr>
<tr>
<td>Summary</td>
<td></td>
<td>The current water sources do not have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Augment inflow to Voëlvlei Dam and increase allocation to Riebeek Kasteel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Groundwater development</td>
</tr>
<tr>
<td>Re-use of water</td>
<td></td>
<td>The re-use of treated effluent is not a feasible option for Yzerfontein as there is currently no waterborne sanitation system in place.</td>
</tr>
<tr>
<td>Groundwater</td>
<td>Yzerfontein</td>
<td>Yzerfontein is situated on quaternary limestone, calcrite and sand of the Bredasdorp Group, which presents the only target option. These units are part of the Grootwater Aquifer System with available yields of 2 – 5 l/s, but sensitive to abstraction and periods of low rainfall and susceptible to contamination. The advantages of use of this system are ease of access and development. Due to the danger of saltwater intrusion a 2.5 km “buffer zone” was declared along the coastline where no abstraction of groundwater is permitted, in order to protect the water quality of the aquifer further inland.</td>
</tr>
<tr>
<td>Other Sources</td>
<td></td>
<td>• Rainwater harvesting is not a feasible alternative for Yzerfontein considering the low Mean Annual Precipitation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Yzerfontein is situated on the coast and therefore desalination may be a potential source of water. This option should be investigated further. Due to the integrated nature of the water supply operated by the WCDM, it is possible to build a single desalination plant at Saldanha, which will result in more water becoming available in Voëlvlei Dam for increasing the supply to Yzerfontein.</td>
</tr>
<tr>
<td>Summary</td>
<td></td>
<td>The current water sources do not have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• WC/WDM measures to reduce water losses.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Augment the inflow to the Voëlvlei Dam.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Desalination for Saldanha and environs to make more water available for Yzerfontein from Voëlvlei Dam.</td>
</tr>
<tr>
<td>Re-use of water</td>
<td>Darling</td>
<td>The re-use of treated effluent is a feasible option for Darling, considering that re-use of treated effluent for irrigation is currently taking place. The Municipality must be able to provide 95% assurance of supply in terms of quality requirements. If such an assurance of supply in terms of quality can be supplied, various re-use options could be considered in addition to those already in use. These include the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Dual reticulation systems for new developments, where re-use of water could be considered for irrigation purposes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The direct use for non-potable consumption, namely for irrigation and industrial end-users specifically.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The option of indirect use.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The option of direct use (potable consumption) should be seen as a long-term intervention.</td>
</tr>
<tr>
<td>Groundwater</td>
<td></td>
<td>The first target option is zones of fracturing and faulting of the granite. Although these units are usually classified as minor aquifer systems with typical yields of 0.5 – 2 l/s and a moderate water quality, in contacts to other fractured zones they can present better aquifers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The second target option is the quaternary units. This primary aquifer has available yields of 2 – 5 l/s, but is sensitive to abstraction and periods of low rainfall and susceptible to contamination. The advantages of use of this system are ease of access and development.</td>
</tr>
<tr>
<td>Surface Water</td>
<td></td>
<td>There is no surface water resources located in close proximity to Darling.</td>
</tr>
<tr>
<td>Other Sources</td>
<td></td>
<td>• Rainwater harvesting is not a feasible alternative for Darling considering the low rain which mainly falls during winter.</td>
</tr>
<tr>
<td>Summary</td>
<td></td>
<td>The current water sources do not have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increased allocation form the Swartland Regional Water Supply Scheme.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Consider re-use of water.</td>
</tr>
</tbody>
</table>
### Table 10.1: Potential future water resources for the various towns (DWA’s Reconciliation Strategy)

<table>
<thead>
<tr>
<th>Distribution System</th>
<th>Option</th>
<th>Potential</th>
</tr>
</thead>
</table>
| Moorreesburg        | Re-use of water         | - The existing WWTW is currently utilising 0.042 Mm³/a of treated effluent for irrigation which has an 82.2% compliance with the general requirements. Further re-use of water from the WWTW can only be allowed if the existing works can provide a 95% assurance of supply in terms of quality requirements. Some of the following interventions can be considered.  
  - The direct use for non-potable consumption, namely for irrigation end-users specifically.  
  - Dual reticulation systems for new developments, where re-use of water could be considered for irrigation purposes.  
  - The option of indirect use.  
  - The option of direct use (potable consumption) should be seen as a long-term intervention. |
|                     | Groundwater             | - Moorreesburg is located in surface water catchment G10J, but near the boundary to G10L. The potential for the quaternary aquifers in both catchments. The quaternary in this area on average shows yields of 2 – 5 l/s, but is sensitive to abstraction and periods of low rainfall and susceptible to contamination. The advantages of using this source are ease of access and development. However, near Moorreesburg the presence of this Berg River Formation is limited and further hydrogeological exploration is recommended to assess the viability of groundwater development for municipal supply from this source.  
  - Another potential option might be the area of faulting in the Malmesbury rocks. Faulting of sedimentary rocks frequently supports groundwater occurrence but there is no detailed information on the fault system in the area so far. Although these units are usually classified as minor aquifer systems with typical yields of 0.5 – 2 l/s and a moderate water quality, in contacts or other fractured zones they can present better aquifers. |
|                     | Surface Water           | - Future supply will come from Misverstand Dam, when the West District Municipality augment their bulk water resources. |
|                     | Other Sources           | - Rainwater harvesting is not a feasible alternative for Moorreesburg considering the low Mean Annual Precipitation which occur in winter. |
|                     | Summary                 | The current water sources do not have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply:  
  - WC/WDM measures to reduce water losses.  
  - An increased allocation from the Western Cape Water Supply Scheme.  
  - Groundwater development. |
| Malmesbury and Abbotsdale | Re-use of water       | - The existing WWTW is currently supplying 1.229 Mm³/a of treated effluent for irrigation, which has a 48.4% compliance with the general requirements. Further re-use of water from the WWTW can be considered as the works is being upgraded to a Membrane Biological Plant, which can provide a 95% assurance of supply in terms of quality requirements. The following interventions can be considered:  
  - The direct use for non-potable consumption, namely for irrigation end-users specifically.  
  - Dual reticulation systems for new developments, where re-use of water could be considered for irrigation purposes.  
  - The option of indirect use.  
  - Recharging of the aquifers.  
  - The option of direct use (potable consumption) should be seen as a long-term intervention. |
|                     | Groundwater             | - The first target option is the contact between the Malmesbury Group and the Cape Granite Suite or other fractured zones. Although these units usually are classified as minor aquifer systems with typical yields of 0.5 – 2 l/s and a moderate water quality, in contacts to other fractured zones they can present better aquifers.  
  - The second target option is the Alluvium. Boreholes in this primary aquifer can yield 2 – 5 l/s, but is sensitive to abstraction and periods of low rainfall and susceptible to contamination. The advantages of use of this system are ease of access and development.  
  - The chance of high yielding boreholes in the Malmesbury shale and Cape Suite Granite seems to be low. The quaternary deposits exhibit an even higher groundwater potential and high yielding boreholes in the intergranular aquifer are a lot more likely. This source is however much further away and groundwater is most likely already being used to a high degree by farmers in the area. |
|                     | Surface Water           | - There are no surface water resources located in close proximity to Malmesbury and Abbotsdale. |
|                     | Other Sources           | - Rainwater harvesting is not a feasible alternative for Malmesbury considering the low MAP occurring mainly in winter. |
### Table 10.1: Potential future water resources for the various towns (DWA’s Reconciliation Strategy)

<table>
<thead>
<tr>
<th>Distribution System</th>
<th>Option</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Summary</strong></td>
<td><strong>Overview</strong></td>
</tr>
<tr>
<td></td>
<td>The current water sources do not have adequate supply to cater for the medium and longer term future water requirements. The following sources are identified as potential sources to augment the water supply:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Augment the inflow into the Voëlvlei Dam and increase the allocation to WCDM.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Water re-use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Groundwater development for smaller communities.</td>
<td></td>
</tr>
</tbody>
</table>

The graph and table below gives a summary of the total bulk water supply to the various towns within Swartland Municipality’s Management Area (Ml/Year).

### BULK WATER SUPPLY TO THE VARIOUS AREAS (Ml/a)

**Table 10.2: Bulk water supply to the various towns**

<table>
<thead>
<tr>
<th>Distribution System</th>
<th>Source</th>
<th>10/11</th>
<th>09/10</th>
<th>08/09</th>
<th>07/08</th>
<th>06/07</th>
<th>05/06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koringberg Misverstand Scheme</td>
<td>59.952</td>
<td>85.766</td>
<td>62.809</td>
<td>57.829</td>
<td>58.136</td>
<td>47.543</td>
<td></td>
</tr>
<tr>
<td>PPC Voëlvlei Scheme</td>
<td>64.439</td>
<td>62.512</td>
<td>57.676</td>
<td>54.875</td>
<td>43.555</td>
<td>43.225</td>
<td></td>
</tr>
<tr>
<td>Riebeek West Voëlvlei Scheme</td>
<td>214.216</td>
<td>186.384</td>
<td>166.745</td>
<td>157.435</td>
<td>167.235</td>
<td>155.286</td>
<td></td>
</tr>
<tr>
<td>Riebeek Kasteel Voëlvlei Scheme</td>
<td>263.467</td>
<td>222.052</td>
<td>257.634</td>
<td>241.840</td>
<td>226.158</td>
<td>218.651</td>
<td></td>
</tr>
<tr>
<td>Yzerfontein Voëlvlei Scheme</td>
<td>320.386</td>
<td>303.482</td>
<td>301.621</td>
<td>275.702</td>
<td>251.914</td>
<td>203.959</td>
<td></td>
</tr>
<tr>
<td>Darling Voëlvlei Scheme</td>
<td>699.043</td>
<td>621.480</td>
<td>533.710</td>
<td>421.210</td>
<td>442.554</td>
<td>437.922</td>
<td></td>
</tr>
<tr>
<td>Moorreesburg Misverstand Scheme</td>
<td>762.024</td>
<td>797.450</td>
<td>803.680</td>
<td>822.940</td>
<td>840.580</td>
<td>755.340</td>
<td></td>
</tr>
<tr>
<td>Malmesbury Voëlvlei Scheme, Paardeberg dam, Boreholes</td>
<td>3146.105</td>
<td>2 892.103</td>
<td>3 107.700</td>
<td>2 996.580</td>
<td>2 756.470</td>
<td>2 631.087</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5 529.632</strong></td>
<td><strong>5 171.229</strong></td>
<td><strong>5 291.575</strong></td>
<td><strong>5 028.411</strong></td>
<td><strong>4 786.602</strong></td>
<td><strong>4 493.013</strong></td>
<td></td>
</tr>
</tbody>
</table>
Water Quality: Swartland Municipality monitors the water quality in the distribution networks of all the towns within their Municipal Management Area. Compliance samples are taken on a monthly basis by a Lab Service Provider and no serious water quality problems were experienced during the last year.

Swartland Municipality actively implement their Drinking Water Quality Sampling Programme in order to promptly identify water quality failures and to react accordingly. The water quality results are loaded onto DWA’s Blue Drop System (BDS) via the internet. Once entered the data is automatically compared to SANS241. This real-time system allows for immediate intervention to rectify any problems.

Up to present it was not necessary to take any steps to inform the consumers of any health risk regarding the potable water supplied by Swartland Municipality. The Municipality however got specific Safety Management Procedures in place, to inform its consumers about any potential health risks regarding the water quality, should it become necessary.

11. FINANCIAL

Tariff structures for each user sector:

The water tariff structures for Swartland Municipality for the 2010/2011 financial year and the previous three financial years are summarised in the table below (Subject to 14% VAT):

<table>
<thead>
<tr>
<th>Table 11.1: Water tariffs</th>
<th>Category</th>
<th>10/11</th>
<th>09/10</th>
<th>08/09</th>
<th>07/08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Consumers</td>
<td>Free Water 0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td>No fix minimum (Basic)</td>
<td>7 – 30 Kl</td>
<td>R6-56</td>
<td>R6-92</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R9-03</td>
<td>R8-15</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>61 kl and more</td>
<td>R13-97</td>
<td>R12-61</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td>Indigent Households</td>
<td>Free Water 10 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td>No fix minimum (Basic)</td>
<td>11 – 30 Kl</td>
<td>R6-56</td>
<td>R5-92</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R9-03</td>
<td>R8-15</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>61 kl and more</td>
<td>R13-97</td>
<td>R12-61</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td>Any other Institution</td>
<td>From 1 kl and more</td>
<td>R7-87</td>
<td>R7-10</td>
<td>R6-45</td>
<td>R5-87</td>
</tr>
<tr>
<td>No fix minimum (Basic)</td>
<td>Yzerfontein (None permanent residents)</td>
<td>Fix minimum fees for 0 to 6 Kl</td>
<td>N/A</td>
<td>R35-52</td>
<td>R32-30</td>
</tr>
<tr>
<td></td>
<td>Yzerfontein (Permanent Residents)</td>
<td>Free Water 0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td></td>
<td>7 – 30 Kl</td>
<td>R6-56</td>
<td>R5-92</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R9-03</td>
<td>R8-15</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>61 kl and more</td>
<td>R13-97</td>
<td>R12-61</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td>Farms (Residential)</td>
<td>Free Water 0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td>No fix minimum (Basic)</td>
<td>7 – 30 Kl</td>
<td>R6-56</td>
<td>R5-92</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R9-03</td>
<td>R8-15</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>61 kl and more</td>
<td>R13-97</td>
<td>R12-61</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td>Farms (Businesses)</td>
<td>From first Kl</td>
<td>R7-87</td>
<td>R7-10</td>
<td>R6-45</td>
<td>R5-87</td>
</tr>
<tr>
<td>Municipality (Departmental)</td>
<td>Per Kl</td>
<td>R6-56</td>
<td>R5-92</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td>Agricultural Water</td>
<td>Per Kl</td>
<td>R7-87</td>
<td>R7-10</td>
<td>R6-45</td>
<td>R5-87</td>
</tr>
<tr>
<td>Sport Clubs</td>
<td>Per Kl</td>
<td>R7-87</td>
<td>R7-10</td>
<td>R6-45</td>
<td>R5-87</td>
</tr>
<tr>
<td>Prepaid Water Meters</td>
<td>0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td></td>
<td>7 – 30 Kl</td>
<td>R6-56</td>
<td>R5-92</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R9-03</td>
<td>R8-15</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>61 kl and more</td>
<td>R13-97</td>
<td>R12-61</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td>Spice Route</td>
<td>From first Kl</td>
<td>R7-87</td>
<td>R7-10</td>
<td>R6-45</td>
<td>R5-87</td>
</tr>
</tbody>
</table>
### Table 11.1: Water tariffs

<table>
<thead>
<tr>
<th>Consumer/Description</th>
<th>Category</th>
<th>10/11</th>
<th>09/10</th>
<th>08/09</th>
<th>07/08</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5% Increase in Tariffs Residential</strong></td>
<td>0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td></td>
<td>7 – 30 Kl</td>
<td>R6-89</td>
<td>R6-22</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R9-48</td>
<td>R8-56</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>Above 60 Kl</td>
<td>R14-67</td>
<td>R13-24</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td><strong>10% Increase in Tariffs Residential</strong></td>
<td>0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td></td>
<td>7 – 30 Kl</td>
<td>R7-22</td>
<td>R6-51</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R9-93</td>
<td>R8-97</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>Above 60 Kl</td>
<td>R15-37</td>
<td>R13-87</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td><strong>15% Increase in Tariffs Residential</strong></td>
<td>0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td></td>
<td>7 – 30 Kl</td>
<td>R7-54</td>
<td>R6-81</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R10-38</td>
<td>R9-37</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>Above 60 Kl</td>
<td>R16-07</td>
<td>R14-50</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td><strong>20% Increase in Tariffs Residential</strong></td>
<td>0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td></td>
<td>7 – 30 Kl</td>
<td>R7-87</td>
<td>R7-10</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R10-84</td>
<td>R9-78</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>Above 60 Kl</td>
<td>R16-76</td>
<td>R15-13</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td><strong>25% Increase in Tariffs Residential</strong></td>
<td>0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
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<tr>
<td></td>
<td>7 – 30 Kl</td>
<td>R8-20</td>
<td>R7-40</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R11-29</td>
<td>R10-19</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>Above 60 Kl</td>
<td>R17-46</td>
<td>R15-76</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td><strong>30% Increase in Tariffs Residential</strong></td>
<td>0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td></td>
<td>7 – 30 Kl</td>
<td>R8-53</td>
<td>R7-70</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R11-74</td>
<td>R10-60</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>Above 60 Kl</td>
<td>R18-16</td>
<td>R16-39</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
<tr>
<td><strong>35% Increase in Tariffs Residential</strong></td>
<td>0 – 6 Kl</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
<td>R0-00</td>
</tr>
<tr>
<td></td>
<td>7 – 30 Kl</td>
<td>R8-86</td>
<td>R7-99</td>
<td>R5-38</td>
<td>R4-90</td>
</tr>
<tr>
<td></td>
<td>31 – 60 Kl</td>
<td>R12-19</td>
<td>R11-00</td>
<td>R7-41</td>
<td>R6-75</td>
</tr>
<tr>
<td></td>
<td>Above 60 Kl</td>
<td>R18-86</td>
<td>R17-02</td>
<td>R11-46</td>
<td>R10-43</td>
</tr>
</tbody>
</table>

### Additional Services

<table>
<thead>
<tr>
<th>Service Description</th>
<th>Category</th>
<th>10/11</th>
<th>09/10</th>
<th>08/09</th>
<th>07/08</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connection Low Cost</strong></td>
<td>Contract</td>
<td>Contract</td>
<td>Contract</td>
<td>Contract</td>
<td>Contract</td>
</tr>
<tr>
<td><strong>Connection (15mm) Low Cost</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Connection (15mm)</strong></td>
<td>R3 520-00</td>
<td>R2 665-00</td>
<td>R2 202-00</td>
<td>R1 630-00</td>
<td></td>
</tr>
<tr>
<td><strong>Connection (22mm)</strong></td>
<td>R3 832-00</td>
<td>R2 950-00</td>
<td>R2 435-00</td>
<td>R2 320-00</td>
<td></td>
</tr>
<tr>
<td><strong>Connection (Prepaid Low Cost)</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>R1 980-00</td>
<td></td>
</tr>
<tr>
<td><strong>Connection (Prepaid)</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>R2 300-00</td>
<td></td>
</tr>
<tr>
<td><strong>Connection 22mm Private Developments</strong></td>
<td>R2 446-00</td>
<td>R2 034-00</td>
<td>R1 692-00</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Deposit Payable: Renting of Municipal Standpipe</strong></td>
<td>R3 000-00</td>
<td>R2 750-00</td>
<td>R2 500-00</td>
<td>R2 000-00</td>
<td></td>
</tr>
<tr>
<td><strong>Test of water meter</strong></td>
<td>R250-00</td>
<td>R225-00</td>
<td>R200-00</td>
<td>R180-00</td>
<td></td>
</tr>
</tbody>
</table>
The sewerage tariff structures for Swartland Municipality for the 2010/2011 financial year and the previous three financial years are summarised in the table below (Subject to 14% VAT):

### Table 11.2: Sewerage tariffs

<table>
<thead>
<tr>
<th>Consumer/Description</th>
<th>Category</th>
<th>10/11</th>
<th>09/10</th>
<th>08/09</th>
<th>07/08</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Availability (Per Year)</td>
<td></td>
<td>R1150-20</td>
<td>R1000-56</td>
<td>R870-48</td>
<td>R806-04</td>
</tr>
<tr>
<td>Every additional provision Businesses (Per Year)</td>
<td></td>
<td>R172-56</td>
<td>R150-12</td>
<td>R130-56</td>
<td>R120-84</td>
</tr>
<tr>
<td>Sewer connections 100mm</td>
<td></td>
<td>R3420-00</td>
<td>R2720-00</td>
<td>R2145-00</td>
<td>R1730-00</td>
</tr>
<tr>
<td>Sewer connections 150mm</td>
<td></td>
<td>R3890-00</td>
<td>R3148-00</td>
<td>R2405-00</td>
<td>R2070-00</td>
</tr>
<tr>
<td>Sewer blockages Office hours</td>
<td></td>
<td>R424-00</td>
<td>R280-00</td>
<td>R240-00</td>
<td>R175-00</td>
</tr>
<tr>
<td>Sewer blockages After hours</td>
<td></td>
<td>R603-00</td>
<td>R380-00</td>
<td>R340-00</td>
<td>R330-00</td>
</tr>
<tr>
<td>Emptying of tanks For two times per month</td>
<td></td>
<td>R108-27</td>
<td>R95-05</td>
<td>R83-00</td>
<td>R0-00 Pan Fee</td>
</tr>
<tr>
<td>Emptying of tanks Every additional emptying</td>
<td></td>
<td>R594-00</td>
<td>R477-00</td>
<td>R380-00</td>
<td>R0-00 Pan Fee</td>
</tr>
<tr>
<td>Emptying of tanks (Riebeek Kasteel and Abbotsdale)</td>
<td></td>
<td>R594-00</td>
<td>R50-00</td>
<td>R50-00</td>
<td>R50-00</td>
</tr>
<tr>
<td>Ad-hoc emptying of tanks After hours</td>
<td></td>
<td>R717-00</td>
<td>R530-00</td>
<td>R449-00</td>
<td>R380-00</td>
</tr>
<tr>
<td>Treated effluent Per Kl</td>
<td></td>
<td>R11-11</td>
<td>R0-78</td>
<td>R0-60</td>
<td>R0-60</td>
</tr>
<tr>
<td>Partially connection (Emptying)</td>
<td></td>
<td>R54-64</td>
<td>R47-55</td>
<td>R41-50</td>
<td>R0-00 Pan Fee</td>
</tr>
<tr>
<td>Industrial discharge per Kl (COD)</td>
<td></td>
<td>R5-89</td>
<td>R45-47</td>
<td>R5-02</td>
<td>R3-91</td>
</tr>
<tr>
<td>Grotto Baai, Jakkelsfontein status quo</td>
<td></td>
<td>R1187-00</td>
<td>R870-00</td>
<td>R758-00</td>
<td>R650-00</td>
</tr>
<tr>
<td>Farms = Outside areas status quo</td>
<td></td>
<td>R1187-00</td>
<td>R870-00</td>
<td>R758-00</td>
<td>R650-00</td>
</tr>
</tbody>
</table>

Swartland Municipality’s Operational Budget for water services for the last five years are summarised in the table below. A more detail breakdown of the water operational budgets for the 2009/2010 and 2010/2011 financial years are also included in Annexure F.

### Table 11.3: Operational budget for water services

<table>
<thead>
<tr>
<th>Description</th>
<th>Actual 10/11</th>
<th>Audit 09/10</th>
<th>Audit 08/09</th>
<th>Audit 07/08</th>
<th>Audit 06/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPENDITURE</td>
<td></td>
<td>Audit : Prior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages and Salaries</td>
<td>R5 869 480</td>
<td>R4 688 529</td>
<td>R3 979 790</td>
<td>R3 571 760</td>
<td>R3 076 460</td>
</tr>
<tr>
<td>Social Contributions</td>
<td>R939 834</td>
<td>R818 402</td>
<td>R720 460</td>
<td>R667 210</td>
<td>R644 972</td>
</tr>
<tr>
<td>Depreciation: Property, plant and equipment</td>
<td></td>
<td>R0</td>
<td>R1 102 442</td>
<td>R1 751 930</td>
<td>R1 534 151</td>
</tr>
<tr>
<td>Repairs and Maintenance</td>
<td>R922 783</td>
<td>R700 958</td>
<td>R459 022</td>
<td>R424 392</td>
<td>R356 381</td>
</tr>
<tr>
<td>Interest Expense: External Borrowings</td>
<td>R278 089</td>
<td>R282 534</td>
<td>R328 003</td>
<td>R236 873</td>
<td>R258 765</td>
</tr>
<tr>
<td>General Expenses: Bulk Purchases</td>
<td>R17 760 693</td>
<td>R14 648 798</td>
<td>R11 542 345</td>
<td>R9 637 940</td>
<td>R8 250 000</td>
</tr>
<tr>
<td>General Expenses: Departmental</td>
<td>R1 077 490</td>
<td>R1 383 157</td>
<td>R1 313 218</td>
<td>R1 106 588</td>
<td>R1 046 212</td>
</tr>
<tr>
<td>General Expenses: Other</td>
<td>R1 280 275</td>
<td>R1 172 513</td>
<td>R1 209 310</td>
<td>R1 213 462</td>
<td>R640 798</td>
</tr>
<tr>
<td>Expenditure Total</td>
<td>R28 128 643</td>
<td>R23 694 891</td>
<td>R20 472 590</td>
<td>R18 610 155</td>
<td>R15 807 739</td>
</tr>
</tbody>
</table>

| INCOME                           |              |             |             |             |             |
| Other Revenue                    | -R1 484 837  | -R1 000 100 | -R884 090   | -R1 229 098 | -R405 979   |
| Less Revenue Foregone            | R2 172 191   | R0-00       | R0-00       | R0-00       | R0-00       |
| Income Total                     | -R27 231 393 | -R24 820 317 | -R21 240 912 | -R16 596 859 | -R12 163 076 |
| Nett (Surplus) / Deficit         | R897 250     | -R1 125 426 | -R768 322   | R2 013 296  | R3 644 663  |
Swartland Municipality’s Operational Budget for sanitation services for the last five years are summarised in the table below. A more detail breakdown of the sanitation operational budgets for the 2009/2010 and 2010/2011 financial years are also included in Annexure F.

<table>
<thead>
<tr>
<th>Description</th>
<th>Actual 10/11</th>
<th>Record : Prior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Audit 09/10</td>
<td>Audit 08/09</td>
</tr>
<tr>
<td><strong>EXPENDITURE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages and Salaries</td>
<td>R3 524 577</td>
<td>R3 352 582</td>
</tr>
<tr>
<td>Social Contributions</td>
<td>R524 708</td>
<td>R525 112</td>
</tr>
<tr>
<td>Depreciation: Property, plant and equipment</td>
<td>R0</td>
<td>R0</td>
</tr>
<tr>
<td>Repairs and Maintenance</td>
<td>R1 459 466</td>
<td>R1 391 369</td>
</tr>
<tr>
<td>Interest Expense: External Borrowings</td>
<td>R1 273 666</td>
<td>R2 785 266</td>
</tr>
<tr>
<td>General Expenses: Bulk Purchases Electricity</td>
<td>R115 690</td>
<td>R0-00</td>
</tr>
<tr>
<td>General Expenses: Departmental</td>
<td>R512 930</td>
<td>R2 803 449</td>
</tr>
<tr>
<td>General Expenses: Other</td>
<td>R2 297 193</td>
<td>R1 913 764</td>
</tr>
<tr>
<td><strong>Nett Expenditure</strong></td>
<td>R9 708 230</td>
<td>R12 771 542</td>
</tr>
<tr>
<td><strong>INCOME</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service Charges</td>
<td>-R21 914 976</td>
<td>-R18 579 846</td>
</tr>
<tr>
<td>Other Revenue</td>
<td>-R5 003 694</td>
<td>-R3 467 661</td>
</tr>
<tr>
<td>Less Revenue Foregone</td>
<td>R5 122 102</td>
<td>R0-00</td>
</tr>
<tr>
<td><strong>Income Total</strong></td>
<td>-R21 796 567</td>
<td>-R22 047 507</td>
</tr>
<tr>
<td><strong>Nett (Surplus) / Deficit</strong></td>
<td>-R12 088 337</td>
<td>-R9 275 965</td>
</tr>
</tbody>
</table>

Income collected for water and sanitation services expressed as a % of total costs for water and sanitation services are as follows (Water and Sanitation Operational Budgets):

<table>
<thead>
<tr>
<th>Service</th>
<th>Actual 10/11</th>
<th>Audit 09/10</th>
<th>Audit 08/09</th>
<th>Audit 07/08</th>
<th>Audit 06/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>96.81%</td>
<td>104.75%</td>
<td>103.75%</td>
<td>89.18%</td>
<td>76.94%</td>
</tr>
<tr>
<td>Sanitation</td>
<td>224.52%</td>
<td>172.63%</td>
<td>111.68%</td>
<td>119.34%</td>
<td>173.87%</td>
</tr>
</tbody>
</table>

Un-recovered charges expressed as a % of total costs for water services provided:

Information on the consumer debtors age in days on the 30th of June 2011 was not made available in order to include it in the Water Services Audit Report. The following is however a summary of the financial viability of Swartland Municipality as included in their 2011/2012 IDP of 5 May 2011.

The financial viability assessment results for 2008, 2009 and 2010 are reflected in the table below:

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Standard</th>
<th>Results % 2010</th>
<th>Results % 2009</th>
<th>Results % 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash available for operating purposes</td>
<td>&gt; 100%</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Short term debt</td>
<td>&lt; 16%</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Debtor’s movement</td>
<td>&lt; 7.5%</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Debtor’s turnover</td>
<td>&lt; 45 days</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Creditor’s turnover</td>
<td>&lt; 30 days</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Capital costs</td>
<td>&lt; 15%</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>&lt; 40%</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Staff costs</td>
<td>&lt; 30%</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Cash funded</td>
<td>&gt; 100%</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Maintenance</td>
<td>&gt; 10%</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Grant dependency</td>
<td>&lt; 25%</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Funding options employed</td>
<td>&gt; 100%</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
The areas of concern are as follows:

- **Debtor’s turnover:** Outstanding debtors are still increasing. The trend over the last three years was 46 days for 2007, 55 days for 2008 and 57 days for 2009. During 2009 and 2010 debtors increased by R6.1M and R5.2M respectively, which is indicative of the economic decline and inability to pay for rates and service charges. Although the collection period remained the same, outstanding debtors contain uncollectible amounts that should be written off.

- **Staff costs:** Staff cost has never been an issue for the Swartland Municipality. The introduction of TASK and the creation of new post have distorted costs. Staff cost still requires the biggest portion of income and needs to be managed conservatively.

- **Maintenance as a percentage of expenditure:** Maintenance as a percentage of expenditure has increased from 5.8% to 5.9% during 2008/2009 but has decreased to 3.7% during 2009/2010. It appears that it was one of the areas where the municipality effected saving. Although it only reflects the material cost, Head of Departments must indicate whether it is sufficient and in line with the Municipality’s maintenance plan.

- **Capital cost as a percentage of revenue:** The Municipality has exceeded the norm of 15% for the first time in 2009/2010. The anticipated borrowing of R105M to finance the sewerage works is going to result in further deterioration in the ratio. It is anticipated that for 2010/2011 the Municipality is also going to default in the ratio, long-term debt as a percentage of revenue. This means that the Municipality will not be able to borrow further and be limited to internal funds. Not making any contribution to the capital replacement fund other that the odd land sales are going to limit the Municipality’s ability to finance infrastructure.

The following conclusions can be made:

- The overall cash situation has deteriorated by R9.4M.

- The retirement benefits and non-current provisions so not need to be cash funded.

- The cash available for operating purposes has deteriorated by R22.6M from R52.1M to 29.5M. The current cash holding for operating purposes is equal to twice the monthly salary bill and bulk purchases account. This is the maximum standard.

All the statutory requirements for cash holding are met by the Municipality. Unfortunately the Municipality will have to rely on its Internal Finance Reserve, donations and grants for future capital funding. Further borrowing is not possible. An annual contribution to the capital replacement reserve from revenue is essential to replace assets. If this is not going to happen service delivery will deteriorate.

The cash balance of the capital replacement reserve amounts to R111.9M, which is sufficient to cover the anticipated spending to 2013. The Municipality will have to made annual contribution from revenue to strengthen the reserve. The odd land sales will not be enough to ensure future infrastructural spending. Contribution from the accumulated surplus is no longer possible. The cash holding for operating purposes are at its minimum standard.

In summary it can be stated that:

- The Municipality has exhausted its borrowing capacity.

- Regular contribution from the revenue to the capital replacement reserve is essential.

- The operating reserve (cash available in the accumulated surplus) is at the minimum level.

- Savings can only be affected by scaling down on non-core functions.
Number of new meters installed at consumer installations:

91 New water meters were installed during the last financial year at the new water connections that were provided.

Number of meters tested and the number of meters replaced expressed as a percentage of the total number of meters installed at consumer connections:

- Number of meters tested: 0, 0% of total number of meters installed at consumer connections.
- Number of meters replaced: .........., ..........% of total number of meters installed at consumer connections (.......... / 17 952 x 100).

12. WATER SERVICES INSTITUTIONAL ARRANGEMENTS

Swartland Municipality is the WSA for the entire Municipal Management Area. A Service Level Agreement with the West Coast District Municipality is also in place for the provision of bulk water to most of the towns in Swartland Municipality's Management Area.

The WSDP was updated for the 2008/2009 financial year and was approved by the Council on the 11th of June 2008. The Water Services Audit Report is compiled annually and taken to Council with the Annual Report. The Municipality is currently busy with the finalisation of their draft set of Water Services By-laws, which will be promulgated once finalised.

The education of users where sanitation facilities are upgraded to waterborne systems is ongoing. This is primarily focussed at informing users of the appropriate use of and routine maintenance of such facilities.

The Municipal staff is continuously exposed to training opportunities, skills development and capacity building at a technical, operations and management level in an effort to create a more efficient overall service to the users. A Workplace Skills Plan is compiled annually and the specific training needs of the personnel, with regard to water and wastewater management are determined annually.

Some of the Process Controllers at the WWTWs received accreditation from the DWA during the last financial year. The Municipality will re-apply for higher classifications once the current training is completed. Messrs DF Malan and B Sedres are classified as Class V operators. The current personnel busy with the water pollution control course, or who have already completed the course, are as follows:

- RG Leng, IF Groepies and W Barendse: Already completed the course and work at the Malmesbury WWTW.
- R Jenneke and J Heynse: Busy with course and will write exams in April 2012. They also work on the Malmesbury WWTW.
- JEM van Schalkwyk: Busy with course and will write exams in April 2012. He works at Moorreesburg and Ongegund WWTW.

At least the above six persons will be classified between Class I and III Process Controllers once they've completed their training. All the WWTWs in Swartland Municipality's Management Area were also registered with the DWA.

Swartland Municipality's Organogram, which include water and sanitation services, is included in Annexure E.

Swartland Municipality is currently effectively managing its water and sanitation services. Urgent attention is however required to address the backlog in sanitation services, as well as the backlog in infrastructure replacement, and forward planning of other services should be guided by the Water and Sewer Master Plans.
13. CUSTOMER SERVICES

A comprehensive Customer Services and Complaints system is in place at Swartland Municipality and the Municipality has maintained a high and a very consistent level of service to its urban water consumers. After hour emergency requests are being dealt with by the control room on a twenty four hour basis. All water and sanitation related complaints are logged through the system in order to ensure quick response to complaints. The Object ref, Date time reported, Reported by, Contact telephone, Location description, Incident type, Capture by, Allocated to, Date and time attended and Status is recorded. The table below gives a summary of some the information recorded through the system.

<table>
<thead>
<tr>
<th>Table 13.1: Water and sanitation indicators monitored by Swartland Municipality with regard to customer services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incidents Normal Hours</strong></td>
</tr>
<tr>
<td><strong>Water</strong></td>
</tr>
<tr>
<td>Burst Pipes</td>
</tr>
<tr>
<td>Leaks</td>
</tr>
<tr>
<td>Meter Related</td>
</tr>
<tr>
<td>Reservoir and Pumps</td>
</tr>
<tr>
<td>House without water</td>
</tr>
<tr>
<td>Pointing out stop valve</td>
</tr>
<tr>
<td><strong>Incidents After Hours</strong></td>
</tr>
<tr>
<td><strong>Water</strong></td>
</tr>
<tr>
<td>Burst Pipes and Leakage Related</td>
</tr>
<tr>
<td>Meter Related</td>
</tr>
<tr>
<td>Reservoirs and Pump Stations</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The average repair time for the 93 water pipeline bursts from October 2010 to June 2011 was 3 hours 18 minutes.

Access to safe drinking water is essential to health and is human right. Safe drinking water that complies with the SANS:241 Drinking Water specification does not pose a significant risk to health over a lifetime of consumption, including different sensitivities that may occur between life stages. Swartland Municipality is therefore committed to ensure that their water quality always complies with national safety standards.

Barriers implemented by Swartland Municipality against contamination and deteriorating water quality include the following:

- **Service Delivery Agreement** between the West Coast District Municipality and Swartland Municipality. A Monitoring Committee with the following powers and functions are in place:
  - To co-ordinate integrated development planning in respect of the services;
  - To monitor the performance of the District Municipality in respect of service levels;
  - To monitor the implementation of this agreement;
  - To provide a forum for the local municipalities to interact with the District Municipality;
➢ To accept delivery, on behalf of the Local Municipalities, of reports which the District Municipality is required to produce in terms of this agreement;

➢ To consider and make recommendations to the District Municipality on the District Municipality’s high level budget and key performance indicators and targets;

➢ In consultation with the District Municipality, to handle, manage and make recommendations to the parties in respect of any matter related to the services which is not dealt with by this agreement;

➢ To ensure that the expenses incurred by the District Municipality in respect of the services do not exceed the amount allocated therefore in the District Municipality’s annual budget;

➢ To formulate a written document that records the rules and procedures, which will be binding on itself, regulating the manner and legislative obligations, powers and functions to the Monitoring Committee.

• Protection at points of abstraction such as Paardeberg Dam and the boreholes (Abstraction Management).

• Protection and maintenance of the distribution systems. This includes ensuring an adequate disinfectant residual at all times, rapid response to pipe bursts and other leaks, regular cleaning of reservoirs, keeping all delivery points tidy and clean, etc.

Three other important barriers implemented by Swartland Municipality against poor quality drinking water that are a prerequisite to those listed above are as follows:

• A well informed Council and municipal managers that understand the extreme importance of and are committed to providing adequate resources for continuous professional operation and maintenance of the water supply system.

• Competent managers and supervisors in the technical department who are responsible for water supply services lead by example and are passionate about monitoring and safeguarding drinking water quality.

• Well informed community members and other consumers of water supply services that know how to protect the water from becoming contaminated once it has been delivered, that have respect for water as a precious resource and that adhere to safe hygiene and sanitation practices.

14. PROJECTS COMPLETED

Swartland Municipality completed the following water and sewerage capital projects during the 2010/2011 financial year.

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Budget</th>
<th>Actual Expenditure</th>
<th>% Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malmesbury – Kalbaskraal Water Pipeline</td>
<td>R9 686 939-00</td>
<td>R10 307 251-88</td>
<td>106.40</td>
</tr>
<tr>
<td>Malmesbury – Kalbaskraal Water Pipeline</td>
<td>R1 412 280-00</td>
<td>R1 443 015-24</td>
<td>102.18</td>
</tr>
<tr>
<td>Water: Replace water pipe Loedolf street</td>
<td>R150 000-00</td>
<td>R108 296-59</td>
<td>72.20</td>
</tr>
<tr>
<td>Water: Replace water pipe Werdmuller Street</td>
<td>R150 000-00</td>
<td>R120 733-84</td>
<td>80.49</td>
</tr>
<tr>
<td>Water pump station Moorreesburg*</td>
<td>R1 200 000-00</td>
<td>R825 753-32</td>
<td>68.81</td>
</tr>
<tr>
<td><strong>Total for Water</strong></td>
<td><strong>R12 599 219-00</strong></td>
<td><strong>R12 805 050-67</strong></td>
<td><strong>101.63</strong></td>
</tr>
</tbody>
</table>
Table 14.1: Water and sewerage capital projects completed during the 2010/2011 financial year

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Budget</th>
<th>Actual Expenditure</th>
<th>% Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemetry: New installations</td>
<td>R60 500-00</td>
<td>R42 983-46</td>
<td>71.05</td>
</tr>
<tr>
<td>Sewerage: Apparatus for taking samples</td>
<td>R250 000-00</td>
<td>R192 082-74</td>
<td>76.83</td>
</tr>
<tr>
<td>Koringberg WWTW</td>
<td>R218 750-00</td>
<td>R62 936-17</td>
<td>28.77</td>
</tr>
<tr>
<td>Riebeek WWTW</td>
<td>R218 750-00</td>
<td>R154 288-56</td>
<td>70.53</td>
</tr>
<tr>
<td>Equipment: Replace Sewer Pump</td>
<td>R50 000-00</td>
<td>R42 859-00</td>
<td>85.72</td>
</tr>
<tr>
<td>Malmesbury WWTW (MIG)</td>
<td>R9 955 000-00</td>
<td>R9 955 000-00</td>
<td>100.00</td>
</tr>
<tr>
<td>Malmesbury WWTW</td>
<td>R6 277 124-00</td>
<td>R7 379 549-51</td>
<td>117.56</td>
</tr>
<tr>
<td>Malmesbury WWTW (MIG)</td>
<td>R8 880 000-00</td>
<td>R8 880 000-00</td>
<td>100.00</td>
</tr>
<tr>
<td>Sewerage Malmesbury</td>
<td>R1 222 544-00</td>
<td>R1 393 700-00</td>
<td>114.00</td>
</tr>
<tr>
<td>Sewerage Malmesbury</td>
<td>R1 090 526-00</td>
<td>R1 234 200-00</td>
<td>113.17</td>
</tr>
<tr>
<td><strong>Total for Sewerage</strong></td>
<td><strong>R28 226 194-00</strong></td>
<td><strong>R29 337 599-44</strong></td>
<td><strong>103.95</strong></td>
</tr>
</tbody>
</table>
REFERENCES

- SA Census Data (2001), Community Profiles.
- Water Services Act, Act 108 of 1997. Regulations under Section 9 of the Water Services Act, which include the water services audit as Section 10 of the Guidelines for Compulsory National Standards.
- DWA’s Reconciliation Strategy Documents for each of the towns in Swartland Municipality’s Management Area, 2011.
- Draft Water Demand Management Strategy, Swartland Municipality, January 2008, CES.
- Swartland Municipality’s Operational Budgets and Tariffs.
- Swartland Municipality’s Annual Plan for 2011/2012, 5 May 2011, IDP
ANNEXURE A

WATER BALANCES FOR THE VARIOUS DISTRIBUTION SYSTEMS

RAINFALL AND WWTWs FLOWS AND CAPACITIES
ANNEXURE B

ILI FOR THE VARIOUS DISTRIBUTION SYSTEMS
ANNEXURE C

COMPLIANCE SAMPLE RESULTS OF FINAL EFFLUENT
ANNEXURE D

DWA’s SCORECARD FOR ASSESSING THE POTENTIAL FOR WC/WDM EFFORTS
ANNEXURE E

DWA’s REGULATORY PERFORMANCE MANAGEMENT SYSTEM (RPMS)
ANNEXURE F

WATER AND SANITATION OPERATIONAL BUDGET
ANNEXURE G

ORGANOGRAM (WATER AND WASTEWATER)