ANNEXURE A

ANNEXURE TO ITEM
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CITY OF CAPE TOWN | ISIXEKO SASEKAPA | STAD KAAPSTAD

WATER SERVICES DEVELOPMENT PLAN (WSDP)

FOR

CITY OF CAPE TOWN 2012/13 – 2016/15

EXECUTIVE SUMMARY

The guiding document for the service is the WSDP of which this is the Executive Summary and which is updated annually. It is a product of the current IDP and further public engagement process and constitutes the Water Sector Plan for 2012/2013.

Please note that this version is a major update which coincides with the the IDP 5-year term of office plan.

14 May 2012

1. INTRODUCTION

1.1. Introduction with focus on Basic Services

The Water and Sanitation Department has made significant progress in the provision of services since the formation of one administration for the City of Cape Town (COCT), but some critical challenges remain, as summarised below.

Institutional arrangements and strategies have been put in place to overcome the challenges and to meet key policy as well as legislative requirements. Progress on the objectives as set out in DWA's critical policy document, the National Strategic Framework for Water Services (September 2003), were measured at an January 2012 baseline in Table 1, to follow below.

However, following on a 2012 review of available data on the current (January 2012) number of informal settlements and the total household estimate in the City, the estimates for both these household figures have now been evaluated significantly higher. The better informal settlement count was obtained by door-to-door surveys found necessary by the Solid Waste Department, replacing the previous aerial photo count which failed to identify all the households residing under one visible roof. The conclusion is reached that previous household numbers were underestimated for the past couple of years, largely increasing the challenge for sanitation provision and to a much lesser extent for water provision.

The number of taps fitted to a single communal standpipe had to be reduced from two to one, to limit the associated problems of excessive grey-water ponding and health risks. This combined with a GPS-survey confirmation of the actual serviceable taps remaining has led to a large drop in the number of available taps, despite the number of standpipes being increased every year for several years.

The growing housing challenge in the COCT has given rise to increasing number of backyard dwellers in public rental stock, COCT has drafted a backyarder policy which will include the supply of basic services such as electricity, refuse removal, water and sanitation. For water and sanitation this will be an individual metered connection via a water management device and a sewer connection with a prefabricated toilet. The increased density reduces the cost of infrastructure but increases the water demand and sewer load considerably.

The re-adjustment in base information limits the usefulness of a year-on-year comparison as required by the DWA indicators, but is nevertheless given along with the latest known information to allow forward planning as per the backlog eradication programme

Table 1: Water and Sanitation Service Level Indicators (as at January 2012)

SANITATION			WATER	
No of toilets in informal settlements	33 677		No of taps in informal settlements	7 176
Avg Toilet servicing ratio, informal settlements	3.37		Servicing ratio applied	25
-	-		Potential Informal settlement HH serviced	179 400
HH serviced in informal settlements	113 587		Informal Settlement HH serviced	179 400
Avg HH per toilet, informal settlements	5.76		Avg HH per tap, informal settlements	27.03
Backlog in informal settlements	80 364		Backlog in informal settlements	14 551
Formal HH serviced	909 231		Formal HH serviced	909 231
Total HH serviced	1 022 818		Total HH serviced	1 088 631
Total backlog	80 364		Total backlog	14 551
% all HH serviced	93%		% all HH serviced	99%
% Informal settlement HH serviced	59%		% Informal settlement HH serviced	92%
% Poor HH serviced	87%		% Poor HH serviced	98%

To ensure and to measure the level of progress, internal service level targets for the City of Cape Town, over and above the national standards, are in use.

Table 2: National and City minimum basic service standards compared

Service	National Standard (*)	City Standard
Sanitation	Easy access to a safe, reliable, private toilet facility which is protected from the weather, ventilated, low smell, hygienic, minimises the risk of spreading diseases and enables safe treatment and/or removal of human waste and wastewater in an environmentally sound manner including communicating hygiene.	Ditto but with an added minimum specification of at least 1 toilet per 5 households. As recently identified, the backyarder policy will be piloted in selected areas of the city. This will consist of a metered water and sanitation HH connection to backyard dwellers. The connection will also have a demand management facility.
Water	A basic water supply facility within 200m of dwelling, delivering at least 25 l/ person/ day at a minimum flow of 10 l/min in the case of communal water points, or 6 000 litres of water per month in the case of yard or house connections.	Ditto but with an added minimum specification of at least 1 tap per 25 households.

(*) As defined in the Strategic Framework for Water Services, Sep-03

To address the backlogs indicated above, the Department of Water and Sanitation has developed a vision which seeks to position it as a leader in the provision of these essential services.

1.2. Vision and Mission of Water and Sanitation

The vision of Water and Sanitation Services in Cape Town is:

VISION STATEMENT
To be a beacon in Africa for the provision of Water and Sanitation services
MISSION STATEMENT
We pledge to achieve our vision by creating a centre of excellence in Water and Sanitation Department through: • Optimizing resources • Implementing environmentally-sustainable interventions • Continuous improvement and knowledge management • Good governance • Customer satisfaction and excellent stakeholder relationships Values • Integrity: We maintain the highest level of ethics and fairness in our interaction with each other, our customers and other stakeholders. • Respect: We respect each other's opinion, beliefs, position and contribution to the Department including those of our customers and other stakeholders. All employees are equal in their contributions. • Customer focus: We meet customers' needs by providing excellent service, optimal product performance and efficient support system. Our customers are the reason for our existence. The environment is our silent customer who shall receive an equal share of our services. • Trust: Our business model and relationship is based on trust. A "Yes" shall mean a Yes and a "No" shall mean a No. Our common purpose, integrity and honesty shall constrain us to have trust in each other. Trust shall be felt, experienced, lived and seen in our Departmental family. • Transparency: We operate safely, openly, honestly and with care for the environment and the community. Transparency shall be defined by the customers and stakeholders we serve. • Professional: We use the right skills or competencies to find appropriate solutions enriched with compassion, innovation, sustainability, cost-effectiveness, accountability and excellence.

1.3. Business Focus Area

The Water and Sanitation department has adopted the framework for the attributes of effective water and wastewater utility management developed by the American Water Works Association (AWWA) as a balanced scorecard for its business management. The framework covers all aspects of the Water and Sanitation business necessary to position the department to achieving and contributing effectively and efficiently to the achievement of the City vision. The following are the ten attributes that have been adopted:

a) **Product Quality:** looks at the ability of the department to meet the potable water quality standards licence conditions, the Department of Water Affairs general wastewater effluent standards, environmental management requirements and ecological needs.

b) **Customer Satisfaction:** looks at the ability of the department to provide basic services to all residents in the City, eradication of sanitation backlogs, provision of affordable service, meeting Service Charter standards, level of service and standard of service. The department seeks to provide services to backyarders on a direct basis in agreement with the landowners such as the Directorate of Human Settlements and private household owners.

c) **Employee and Leadership Development:** the department has a challenge to develop and retain its employees and ensure high levels of motivation among employees. This challenge demands that the department must ensure adequate staffing levels, skills retention, succession planning and individual development of employees so that their progression into management or a specialist function is supported adequately.

d) **Operational Optimisation:** this attribute forces the department to review its business processes to ensure timely on-going cost-effective, reliable and sustainable service provision in all its operations. The department is challenged to minimise resource utilisation, losses and take advantage of technological advancement to better its efficiency levels in providing water and sanitation services.

e) **Financial Viability:** the focus is for the department to improve its collection ratios and ensure that the tariffs, charges or any levies are total cost-recovering in nature. In addition there is a need to reduce high debt levels and improve the willingness to pay by its consumers. The investment into infrastructure must also be well-timed, synchronized with mutual projects and appropriate funding explored to ensure a good return on investment. The cost of capital must be minimised and the challenge is how to achieve this given the consolidated nature of the investment decisions in the City. The department must also ensure effective utilisation and timely maintenance of its assets to sustain revenue growth levels that is in sympathy to the consumer base growth.

f) **Infrastructure Stability:** this business attribute requires the department to understand when to create and dispose of an asset, the condition of its assets, lifecycle costs, the associated costs to be incurred in unlocking asset value, to sustain the business. The department must ensure timely maintenance, repair, rehabilitation, replacement and upgrading of existing infrastructure. The lifecycle costs of the assets must be well understood and asset management plans developed. The department is currently developing asset management plans to be integrated into the SAP system modules and this process is a huge challenge that requires time and resources to complete.

g) **Operational Resilience:** this business focus area requires the department to ensure adequate risk management for its water and wastewater business. To this end the department has developed the draft Wastewater Risk Abatement Plan and the draft Water Safety Plan and the Department of Water Affairs' requirements of these plans are increasingly becoming stringent. The establishment of operational tolerance levels that ensures adequate management of the legal, regulatory, financial, environmental, safety, and national disaster risks are still to be finalised. Servitude Encroachment is a risk to the department that affects the operational resilience of its service provision value chain.

h) **Community Sustainability:** this focus area ensures infrastructure investment led job creation for communities in the City of Cape Town. This will assist in improving the disposable income of households and enhance their ability to pay for water and sanitation services. The department must ensure that its operations, services output and by-products such as sludge and wastewater effluent do not harm the environment and compromise community health. Infrastructure Management and Operations must be managed to ensure efficient utilisation of water resources, energy and promote economic

vitality with minimum impact on the environment. Efforts should therefore be made to ensure investments are green and climate change impact is managed.

i) **Water Resource Adequacy:** As it is, this business attribute focuses on the ability of the department to ensure security of water supply. The department has a challenge to ensure that by 2017 a new source of water supply to the City will have been developed either directly by the department or through Department of Water Affairs. The department has to keep pace with future customer needs for basic services and economic expansion through long term resource planning, long term demand analysis and conservation of the existing resources.

j) **Stakeholder Management:** this attribute requires the department to identify the representatives of various stakeholders and ensure adequate engagement in issues that affect them. The political leadership and interest group representation in Informal Settlements is a challenge for the department in its quest to eradicate service backlogs. The department must also ensure adequate engagement with the Department of Water Affairs, the Provincial Government and other directorates in the City for the purpose of optimising investments into improvement programs and risk management.

1.4. Critical Challenges

Out of the business focus areas described above, the Water and Sanitation Department has identified the following as critical challenges that constitute the risks to the business and are clustered into four categories:

(a) Financial viability

- Collection ratio and willingness to pay for services
- Metering and billing
- Ensuring full cost recovery and acceptability of the tariffs by the consumers
- Reduction in unaccounted for water
- High financial requirements
- High cost of doing business
- High debt due to non-payment

(b) Customer satisfaction

- Meeting Service Charter standards
- Provision of basic services to Informal Settlements and Backyarders
- Availability of services for infrastructure expansion
- Appropriate service standards and level of service
- Eradication of sanitation backlogs
- Provision of affordable service

(c) Water Resource Academy

- Achieve water demand targets through intensified WDM strategy
- Development of additional water sources
- Treated effluent re-use and its acceptance
- Provision of adequate infrastructure to meet City development/growth needs

(d) Employee development (internal)

- Establish effective institutional arrangement
- Sufficient staff resourcing, skills retention and development
- Increasing productivity, efficiency and effectiveness in the operations of the business

(e) Operational Optimisation

- ISO 9000 certification
- ISO 17025 laboratory certification
- Processes re-engineering and right-sizing of the department

(f) Product quality

- Meeting the licence conditions for Wastewater Treatment Works
- Meeting the amended SANS 241 standards

(g) Operational Resilience

- Water Safety Plan development;
- Wastewater Risk Abatement Plan
- Servitude enhancement
- Developing and managing the Risk Register

- Asset Management

The strategies to face these challenges are dealt with under the appropriate section of the plan following.

Strategic Objectives

In order to implement the business plan, strategic objectives have been set as follows:

Strategic Objectives	Target
To implement ISO 9001 for all our services in the next five years	2015/16
To achieve Green Drop status for 60% of the waste water treatment plants (ie 18 plants)	2015/16
To achieve 95% waste water effluent quality	2015/16
To ensure the presence and dominance in Africa of the water-, wastewater- and air pollution-testing services	2015/16
To reduce unaccounted for water to 16% in the next five years	2015/16
To provide basic or emergency sanitation services to all residents of the city	2015/16
To provide basic water to all residents in the city	2015/16
To increase productivity levels by 15%	2015/16
To achieve 90% customer satisfaction levels in all our services	2015/16
To develop Asset Management Plans for the Department	2012/13
To be the reference City for water matters in the country	2015/16
To grow the training school and achieve SETA accreditation for the training modules(e.g. process controllers, artisans)	2012/13
To minimise river systems pollution by reducing sewage overflows by 20%	2015/16
To improve revenue collection to 96%	2015/16
To construct an office block for the department	2015/16
To be information efficient	2012/13
To increase security of supply for the bulk water supply system: percentage potable water production capacity of peak week demand to120%	2016/17
To increase the effluent re-use by 15% of potable demand	2015/16
To roll out automation and remote control pilots on treatments and pump stations	2014/15

1.5. Aligning the WSDP and IDP

The challenge of WSDP is to maintain an existing Water and Sanitation service for the city as well as being able to provide services for rapidly increasing number of households in a sustainable way. This has to be achieved in the context of providing basic needs, ensuring economic growth, maintaining an ageing infrastructure, limiting negative environmental impact, managing water resource scarcity and consolidating a transformed metro administrative infrastructure. The following matrix depicts how the IDP focus areas will be accommodated in the Strategic thrusts of the WSDP.

Table 3: IDP PRIORITY ISSUES RELATING TO WATER SERVICES

Strategic Focus Area	Objective	Outcome	Water Services Business Elements									
			1. Socio - Economic Profile	2. Service Level Profile	3. Water Resource Profile	4. Water Conservation / Demand	5. Water Services Infrastructure Profile	6. Water balance	7. Water Services institutional arrangements Profile	8. Customer Service Profile	9. Financial profile	10. List of Projects
			Page Numbers									
1.THE OPPORTUNITY CITY	Objective 1.1 - Creata an enabling environment to attract investment to generate economic growth and job creation	. P1.1(c) Identify and promote catalytic sectors, such as oil and gas	x									
	Objective1.2 - Provialon and maintenance of economic and social infrastructure to ensure infrastructure-led growth snd development	P1.2(c) Maintenance and investment in utilities infrastructure programmes										
		P1.2(d) Investing in Infrastructure Programme										
2. THE SAFE CITY		No direct Water Service's objectives.										
3. THE CARING CITY	Objective 3.2 Promote a sustainable envirenment through the afficient utilizatien of reseurces	P3.2(a) Sustainable utilisation of scarce resources such as water and energy			x	x					x	x
		P3.2(b) Water Conservation and Water Demand ManagementStrate gy			x	x		x			x	x
	Objective 3.3 Providing servicas to all the citizens of the city.	P3.3(a) Service Delivery Programme. Taps and toilets installed in informal settlements		x			x			x	x	x
	Objective 3.4 Ensure innovative human settlements for increased accass to those that need them.	P3.4 (a) – Innovative Housing Programme	x	x		x	x	x		x	x	x
	Objective 3.6 Provide for	P3.6(b) Backyarder Service Programme		x			x	x		x	x	x

Strategic Focus Area	Objective	Outcome	Water Services Business Elements									
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			Page Numbers									
	the needs through improved services in informal settlements and backyard residences											
	Objective 3.7 Provision of effective Environmental Health services.	P 3.7(a) Environmental Health Care Programme			x	x						x
4. THE INCLUSIVE CITY	Objective 4.2 Ensure responsiveness by creating an environment where citizens can communicated with and be responded to.	P4.2 (a) Managing service delivery through the service management process (C3 notification responsiveness)		x		x				x		
		4.2(d) Building strategic partnerships programme				x						x
	Objective 4.3 Provide facilities to make citizens feel at home	P4.3(e) Call centre Programme		x						x	x	x
5. THE WELL-RUN CITY	No direct link to Water Services objectives								x			

2. ESSENTIAL QUESTIONS

2.1. What is the backlog of water services?

The majority of Cape Town's population, both in formal and informal settlements, receives potable water service levels that generally meet the National minimum standards as required by the Water Services Act 108 (of 1997).

Based on previous informal settlement household estimates, the % households with access to sanitation as monitored on a quarterly basis along with other Key Performance Indicators for the Departmental Scorecard appeared to exceed 100% at June 2011.

However it is acknowledged that many of the toilet types cannot comfortably sustain use by more than 3 households while others work best for only 1 household. Taking these variable servicing ratios and the variation in density of service points from settlement to settlement into account, it is estimated that approximately 80 364 (as at January 2012) households still need a better service compared to 84 625 (as at October 2011).

Table 1 a shows the large number of toilets installed during the 2010/11 (up until January 2012) financial year but much work remains. The growing density in many informal settlements constrains Water and Sanitation's ability to adequately provide further sanitation services.

The revised household estimates combined with the necessitated policy change to only use 1 tap per standpipe also mean that the 100% score for households having access to potable water already attained several years ago, has been lost. At the maximum ratio of 25 informal households per tap (a standard set by the City of Cape Town), and with the number of serviceable taps in use confirmed by GPS survey, a backlog of approximately 14 551 is indicated at January 2012. The % of all households serviced is back at 98.7% while 19.73% of all households in the city are supplied from standpipes.

The maintenance of these temporary services often carry high maintenance cost due to frequent cleaning and frequent repair or replacement due to vandalism. It is not financially sustainable and requires a National initiative or at the very least an order of magnitude improvement in the level of funding from the Equitable Share grant. The cost of these services is to a large extent being subsidised by the formal sector.

2.2. What is the status of supply to higher levels of service?

Service levels to all formal developed areas are, as far as can be determined, at the highest level of service: a flush toilet and water connection in-house or yard. This constitutes 92.3% of the consumer households. The backyarder policy will increase the number of connections per Erven.

2.3. What is the Cost to eradicating backlogs?

To eradicate the sanitation service backlog and service the influx of people in informal settlements, the Water and Sanitation Department is implementing a service provision program that is integral to the 10-year Housing Plan.

The total capital requirement over the next 5 years from 2010/11 to 2015/16 to primarily cover sanitation backlog eradication is estimated at R152.5M including allowing for a 5% household growth. Part of the funding is also required for the replacement of black buckets as well as to cater for additional service demand growth in informal settlements due to the influx of people.

R11.0M is required to resolve the water backlog and provide for the anticipated growth in demand.

The proposed programme for eradicating the backlog according to the Strategic Objective target of 2015/16 is listed in the following Table 4.

Table 4: Proposed backlog eradication programme as at June 2011

SANITATION	Baseline Jun11	Gap	Step	2011/12	2012/13	2013/14	2014/15	2015/16	Total Cost (R / M)
% Informal settlement HH serviced	55.4%	44.6%	8.9%	67.1%	76.5%	85.0%	92.8%	100.0%	
Toilets needed (Backlog eradication)	30 931	26 390	5 278	36 209	41 487	46 765	52 043	57 321	
Aditional Toilets (Address Influx)				37 209	42 487	47 765	53 043	58 321	
Capital Requirement (R / M)	***@ R10 000 per unit avg***			**53**	**53**	**53**	**53**	**53**	**264**
Allocated Budget (R / M)	***Current 5 Year Plan***			**20.5**	**20.5**	**20.5**	**40.5**	**50.5**	**152.5**
Toilet Shortfall	***@ Allocated Budget***			3 228	3 228	3 228	1 228	228	
% Informal settlement HH serviced	***@ Allocated Budget***			**59.0%**	**61.1%**	**62.9%**	**69.0%**	**76.7%**	
% HH Basic Service Shortfall	***@ Allocated Budget***			8.1%	15.4%	22.1%	23.8%	23.3%	
WATER	**Baseline Jun11**	**Gap**	**Step**	**2011/12**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**Total Cost (R / M)**
% Informal settlement HH serviced	91.6%	8.4%	1.7%	95.2%	96.6%	97.8%	98.9%	100.0%	
Taps needed	7104	2470	494	7 598	8 092	8 586	9 080	9 574	
Additional Taps (Address Influx)				7 798	8 292	8 786	9 280	9 774	
Capital Requirement (R / M)	**@ R4 000 per tap**			**2**	**2**	**2**	**2**	**2**	**10**
Allocated Budget (R / M)	**Current 5 Year Plan**			**2.0**	**2.1**	**2.2**	**2.3**	**2.4**	**11.00**

The Backyarder policy will be focused on public rental stock backyarders and with the following estimated basic cost.

Item Description	Cost Estimate per Installation
Water connection, Sewer connection and top structure (including meter)	R13 255

The city has started the programme in Factreton which has 156 units with an estimated total cost of R2,067,780 for the water and sanitation connection.. The annual maintenance cost is an estimated R1 600/unit. Although W&S will have to plan and allow for the basic free and indigent component of the service, the programme will be driven by the Cities Housing Department.

USDG funding of R26m has been provided for the backyarder strategy and has been provided tothe Human Settlement Directorate.

The City's Housing programme is funded through National grants. Servicing of the informal settlements is funded by the Water and Sanitation department with partial recovery of cost from the national Equitable Share. Depending on the speed of implementing this programme, as for in-situ upgrading or the "decanting" of such settlements to developed formal areas, the informal settlement programme needs to adapt.

2.4. What is the strategy to eradicate backlogs?

Provision of Sanitation and water backlogs are predominantly in the Informal Settlements and backyarders. A policy for the provision of services to backyarders is still to be finalised. A draft policy position of providing backyarders with a metered water standpipe and sewer connection on a service ratio of 1 facility to 5 (five) households is being piloted on Council owned rental stock in Factreton, Langa and Hanover Park. The water is connected through a water management device and a tag is allocated to each household to dispense the water. This is intended to provide a number households with a high level of service.

Up to and including 2011, the strategy has been to provide a basic level of service such that at most 5 informal households on average share one toilet. Going forward it is the intention to achieve a more desirable minimum convenience ratio for each type of toilet. For example, some toilet types can only sustainably support 1 household each, while others can service more.

A revised and rationalised Informal Settlement Servicing Strategy is under development, made all the more challenging by the updated larger number of households having to be serviced.

The new backyarder policy which is intended to provide backyarders with a metered water and sewer connection will provide a number households with a high level of service although water supply will be via a demand management device.

The technology choice and level of service to be provided in informal settlements remains a challenge. In this strategy, the Department has divided all informal settlements into categories of appropriate service standard determined by the availability and status of land, existing infrastructure, and hydrology of area and economics of providing a sustainable service as summarised in the following table:

Table 5: Servicing Strategy Categories

Cat	Land type	Bulk Infrastructure	Distributed space available within settlement	Service Standard
A1	Govt owned land, occupation permitted	Available within economical distance	Adequate	1
			Inadequate	2
		Not available within economical distance	Adequate	3
			Inadequate	4
A2	Private land, occupation permitted	NA (No investment on private land allowed)	Adequate	3
			Inadequate	4
B	Adverse physical conditions, temporary occupation	NA	Adequate	3
			Inadequate	4
C	Occupation prohibited	NA	Adequate	3
			Inadequate	4

No	Service standard target
1	Waterborne sanitation 1:5, taps to 1:25
2	Managed all-in-one waterborne ablution facility with janitorial service, supplemented by porta-pottis on demand. Incorporates taps and basins to 1:25
3	Container or dry sanitation to technology-specific household ratio. Taps to 1:25
4	Managed all-in-one conservancy tank ablution facility with janitorial service, supplemented by porta-pottis on demand. Incorporates taps and basins to 1:25
Note	All service points to be within 100m walking distance of households served

Water and Sanitation Services are ideally opting for dehydration or flush toilets. A promising new prefabricated unit which can serve up to 17 households is being piloted, excellent for the managed ablution facility proposed. The use of pour-flush alternative technology is being discontinued due to operational problems. "Greenfields" housing projects are undertaken by the Housing Department to receive residents moved from land that cannot be developed.

The City subscribes to "the water ladder" concept (as proposed in DWA's "Strategic Framework for Water Services, September 2003"). Whereas the City's priority is to first provide an emergency level of service to households in all settlements, it is also extending the coverage and density of services in each settlement beyond the basic level as funds allow.

Table 6: Profile of all Domestic consumers, January 2012

TOILET TYPE	COUNT	HH SERVICED
Chemical	4 596	22 980
Container	5 506	27 530
Bucket	1 157	1 157
Portapotti	12 015	12 015
Pitliner	312	1 560
Dry Sanitation	187	935
Conservancy tanks	370	1 850
Dehydration (Enviroloo)	166	664
Dehydration (Afrisan)	450	450
Anaerobic	48	96
Flush	8 870	44 350
FORMAL	-	909 231
TOTAL	**33 677**	**1 022 818**

2.5. What is the status of all water and sanitation infrastructure?

The existing infrastructure condition is deteriorating due to continued under-funding for essential maintenance/ replacement of aging assets over an extended period. Major pipe collapses or bursts have occurred over the past years and such pipes are in urgent need of extensive repair or even replacement.

An estimated minimum of R60M/annum is required for each of Sewer pipe replacement and Water pipe replacement including Bulk lines respectively, in the case of water pipes to achieve an acceptable burst rate of less than 10 bursts/100m/ yr.

Key components of existing infrastructure in rapidly-developing regions of the City do operate at peak level during periods of high demand. Capacity improvements will be required to enable development. The Department has developed an Infrastructure Master Plan that shows the Water and Sewer upgrading requirements for all development areas.

The bulk water system in the northern areas of the City is under increasing stress during peak periods due to the rapid growth in that area and further development must be accompanied by infrastructure upgrade and extension. The northwest corridor also needs upgrading of the infrastructure. Seawater desalination is an alternative technology being evaluated to supply water to both these regions, in addition to the proposed Bulk Water Augmentation scheme, which will provide the infrastructure to route water to this area from the Berg River Dam via large diameter bulk pipelines, a 500 Megalitre per day water treatment plant and two 300 Megalitre bulk storage reservoirs. The feasibility study for a desalination scheme is in progress and 1/3 of the study has been completed. (SDBIP, September 2011).

- **Backyarder Programme**

The services as provided by Water Services (Reticulation) will be in the form of a concrete structure housing a water borne toilet on the inside, with a washing trough and tap fixed to the outside of the structure, being placed in the backyard where shack dwellings are in place .

The water through a tap on the outside will be regulated through a tagging system, where each backyard shack will be provided with a tagging device, and the supply to the toilet and basin will be regulated through a management device. The supply to this unit will be taken off the main house supply, and all of the free portions, together with the main dwelling's free portion will be deducted from the account rendered to the main dwelling.

The first phase of this Project has identified 3 Pilot Areas, being Factreton (Maitland), Hanover Park and Langa, and the service will be to Council owned, rented stock erven only.

Area Committees are in place in all three areas with surveys being carried out simultaneously. Factreton has been identified as the 1st Project within the Pilot and work will commence in October 2011.

Registered backyarders will be listed as indigent and therefore entitled to the free services that the City provides. This will put more users onto the billing system.

2.6. How will administrative management be improved?

The Department is committed to consistently and continually provide the highest quality water and sanitation services that meet and exceed the requirements and expectations of our consumers by ensuring the implementation of a Quality Management System that complies with ISO 9001:2008. To this end, both a Quality Statement and Customer Service Charter have been accepted for implementation. There is also a Department-wide ISO certification project being undertaken.

Together with the Risk Management programmes being implemented, these initiatives will ensure quality and minimise risks.

Scientific Services Branch has achieved ISO 17025 SANAS Accreditation in August 2011 for Chemistry and Hydrobiological methods. Microbiology Section envisage to accredit two methods in 2012.

The following business improvements initiatives are receiving focused attention:

- Quality objectives established, Quality Policy documented and signed by Director.
- ISO 9001:2008 Quality structure documented within Water & Sanitation.
- Branch Quality Representatives appointed.
- Internal assessment and internal assessment training planned.
- Use of ISO 9001:2008 consultant where evr possible.
- Business improvement for support service model in progress.
- Development and re-engineering of business processes andprocedures within the branches
- Internal communication suggestion boxes to be roll out throughout the branches.

The following efficiency enhancements are receiving focused attention;

- Integration of Information Management Systems through development of a Data Integration and Monitoring System.
- Integration and standardisation of Automation control and monitoring of plants via Scada-telemetry.
- GIS geodatabase development for effective management and planning of the infrastructure.
- Water quality management through the Laboratory Information Management System (LIMS).
- Maintenance and life-cycle of equipment.

- Capacity building and training of staff.
- Testing the viability of Automatic Metering Reading of consumer meters (AMR): the Pilot installation and testing on 1 900 consumer meters was finalised during 2010. Its further rollout in industrial/commercial areas is being planned.
- Adoption of Integrated Master Plan
- An Integrated Asset Management Plan is being developed on a coordinated basis across directorates in the City, based on establishing an accurate infrastructure asset register, geodatabase and master data.
- Integrated Risk Management.
- Development of the staffing strategy

3. WATER SERVICES BUSINESS ELEMENT SUMMARY

3.1. Socio-economic profile

3.1.1. Situation Assessment

In 2010 the total population of Cape Town was estimated to be approximately 3.82 million (City of Cape Town Stats. In terms of population trends, the population of Cape Town grew by 36.4% between October 1996 and March 2007 and by 20.9% between October 2001 and March 2007. In 2010 the estimated annual population growth was 3%.

HIV and Aids also influence population growth, and pre-2008 trends indicate a lower mortality rate than that originally predicted. The overall trend is that Cape Town's population will continue to grow each year although at a slower rate than previous years. The number of people living in informal settlements has been growing at an increasing rate and the current housing backlog is estimated at approximately 350 000 units.

Table 7: The Socio-Economic Status Index profile of Cape Town, by Health Department districts, 2008

City of Cape Town	% Adults (20+) with highest qualification < Grade 12	% Economically Active Unemployed	% Households with income below annual threshold	Annual Income threshold	% Labour force in unskilled occupations	SES Index
1996 Census	67.07	19.55	24.66	R12 000	22.85	33.53
2001 Census	62.03	29.38	39.00	19 300	21.46	37.97
2009	49.88	24.15	34.63	42 000	19.91	32.14

Source: Strategic Development Information and GIS Department

The Socio Economic Status (SES) index and Service Level index has been used as an indicator of poverty in Cape Town. The higher the index the greater the depth of poverty being experienced. These indexes have been regarded as an important measure of quality of life and are based on income, education, occupational status, type of dwelling and access to services.

The SES index for Cape Town rose from 33.53 in 1996 to 37.97 in 2001 and then declined to 32.14 in 2009 (see Table 7). This indicates that there may have been a decline in the general levels of poverty in Cape Town since 2001. The biggest contributor to the decline in the index is the percentage of adults with their highest qualification less than Grade 12 and the percentage of the labour force in unskilled occupations has also declined.

Unemployment rose sharply in 2001 but has shown some decline since. There has been an increase in the percentage of households earning below the income threshold since 1996.

3.2. Future trends, strategic gaps and implementation strategies

3.2.1. Strategic gaps:

There is a need for national guidelines on the provision of water and sanitation in the informal settlements but also to additional dwellings in backyards, for the want of which the City has developed its own.

Water and Sanitation Services aim to provide an affordable service to poor households. A free basic service is provided, in the form of the first 6 kℓ/month water supply and the first 4,2kℓ of sewerage conveyance and treatment free of charge to all consumers per month. The City is providing an indigent grant of R47/month to cover an additional water consumption of 4.5kl/month and the corresponding sewage treatment, taking the form of an account reduction to qualifying ratepayers. The number of indigent households qualifying for the Indigent grant either on a property value less than R300 000 are 211 879 as at end of December 2011, while another 1 456 (as at January 2012) qualify for the grant based on income level. The latter value fluctutates on a month to month basis and is dependent on number of applications received and number of applications which have expired.

The Water Demand Management Integrated Leaks Repair Projects, initiated at the end of 2005 and rolled out on a phased basis since then, is a major initiative to ensure that these household's plumbing leaks are minimized and that monthly bills for these services become affordable.

With the implementation of a policy to install Water Management Devices on a prioritised basis, households defined as indigent now have a mechanism to prevent water consumption reaching unaffordable levels and also prevents leaks causing high water losses. It is being installed across a range of household's income groups to the same end goal. A total of More than 53 994 water management devices have been installed as at the end of June 2011.
In order to improve and maintain the condition of the infrastructure, there will be pressure on tariffs to increase at or above inflation over the short- to medium-term. This coupled with the extraordinary burden of very high national electricity tariff increases, is making it extremely difficult for the City to address all needs.

The large number of communities that have embarked on service delivery protest throughout the country has emphasised the need for the City to be transparent in dealing with the challenge of addressing needs while keeping tariffs as low as possible.

4. SERVICE LEVEL PROFILE

4.1. Situation Assessment

With respect to Domestic consumers, the latest February 2011 City estimate of 1 103 182 households included 193 951 (as at July 2011) in informal settlements, while the remainder of 909 231 in the formal sector included at least 115 248 (as at February 2011) backyard dwellers.

Across all formal registered consumer categories the City's billing system (SAP) shows 622 360 consumers (refer to Table 8).

Table 8: No of Consumer Units within each Consumer category (as at 31-Dec2011)

COCT Consumer units	
Commercial	13 187
Government	352
Industrial	4 522
Miscellaneous (incl. Homeless Shelters)	6 179
School-Sportfields	1 388
Domestic Cluster	6 373
Domestic single residential	579 550
Departmental Cluster	2 686
Municipal Water	7 434
	621 671
External consumer units	
Bulk & Other	689
Total consumer units	622 360

Source of Consumer Unit breakdown: Billing system (SAP)

There is a backlog in both Sanitation and Water services as described earlier.

The formal households and other land use categories all have a metered water connection to the house or yard, with almost all households and other land use categories (excepting a few with septic tank facilities) having flush sanitation on site.

At this stage, the Backyarder policy as envisaged will only be on Council owned public rental stock and will be reviewed in years to come to include backyarders on private property in order that backyarders may have access to basic services and are not exploited by the main tenant. All registered backyarders in the programme will also be regarded as indigent. Formal domestic consumers receive the first 6 kiloliters of water per month free as well as the corresponding 4.2 kilolitres of sanitation service. Informal areas have communal standpipes and water is provided free, as is Sanitation. Both are at a lower-than desirable servicing ratio, with water much less of challenge to improve than sanitation.

The key challenge for sanitation when provided communally or even shared by 5 HH is maintaining and keeping it clean. A vandalized or unacceptably dirty toilet results in people using the open field which leads to safety risks particularly for women and children.

4.2. Future Trends and goals

4.2.1. Residential consumer units

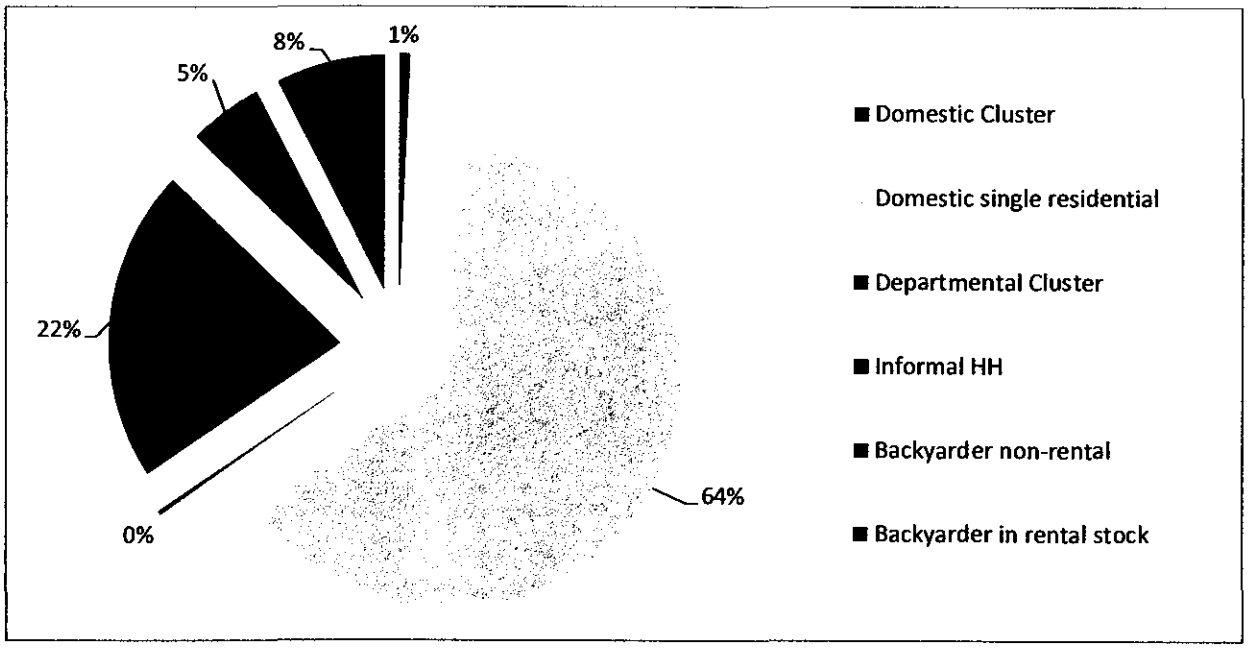


Figure 1: Breakdown of residential consumer units as at 31 December 2011

This break down in residential consumers emphasises the need to focus on improved water and sanitation services onto informal household consumers and backyarders. In total they make up 35% of residential customer base. The continued rapid increase in informality could lead to large number of City households being pushed into accepting lower levels of service.

4.2.2. Public institutions and 'dry' industries; wet industries; industrial consumer units

All have connections on-site.

4.2.3. Strategic gaps

- The backlog in acceptable service levels of sanitation in informal settlements needs to be bridged.
- At the moment the total number of backyard dwellers in public rental stock are 68 500. The pilot of 156 in Factreton will provide valuable lessons in dealing with the total need.
- With respect to the effluent discharged from Industrial sites, non-complying and polluting trade effluent occasionally impacts heavily on the wastewater treatment process serving the catchment. The size and efficiency of the inspectorate has been increased over the past few years, while Water, Sanitation and Effluent By-laws have been consolidated and rewritten for the City. Nevertheless the challenge to obtain cooperation from consumers remains high.

4.2.4. Implementation strategies

- Residential consumer units: Water & Sanitation's informal settlement programme aims to eradicate the sanitation backlogs and maintain a minimum level of service to poor households.
- Industrial consumer units: The inspectorate is using an engaging, cooperative approach with consumers, more comprehensive integrated by-laws as well as more frequent inspections and measurements to improve the quality of industrial effluent, prevent pollution in a pro-active manner and reduce water wastage.

5. WATER RESOURCE PROFILE

5.1. Situation Assessment

5.1.1. The Western Cape Water Supply System

The Western Cape Water Supply System (WCWSS), comprising raw water storage and conveyance infrastructure, supplies water to Cape Town, surrounding towns and urban areas and agriculture. The various components of the WCWSS are owned and operated by the COCT, DWA and Eskom.

The COCT and DWA operate the WCWSS in an integrated manner to ensure that the storage of water is maximized and spillage is minimized during current and future hydrological years.

The annual yield of the WCWSS, including the recently completed Berg River scheme, is 556 million kl per annum.

The major raw water supply schemes of the WCWSS are the Riviersonderend, Voelvlei and Berg River Schemes, owned and operated by the DWA, and the Wemmershoek and Steenbras Schemes, owned and operated by the City of Cape Town. The total storage capacity of the six major dams on November 2011 is 898 300 million kl, only 78.5% of total storage capacity is occupied.

A long-term 16 year record of the storage level of the WCWSS is shown below.

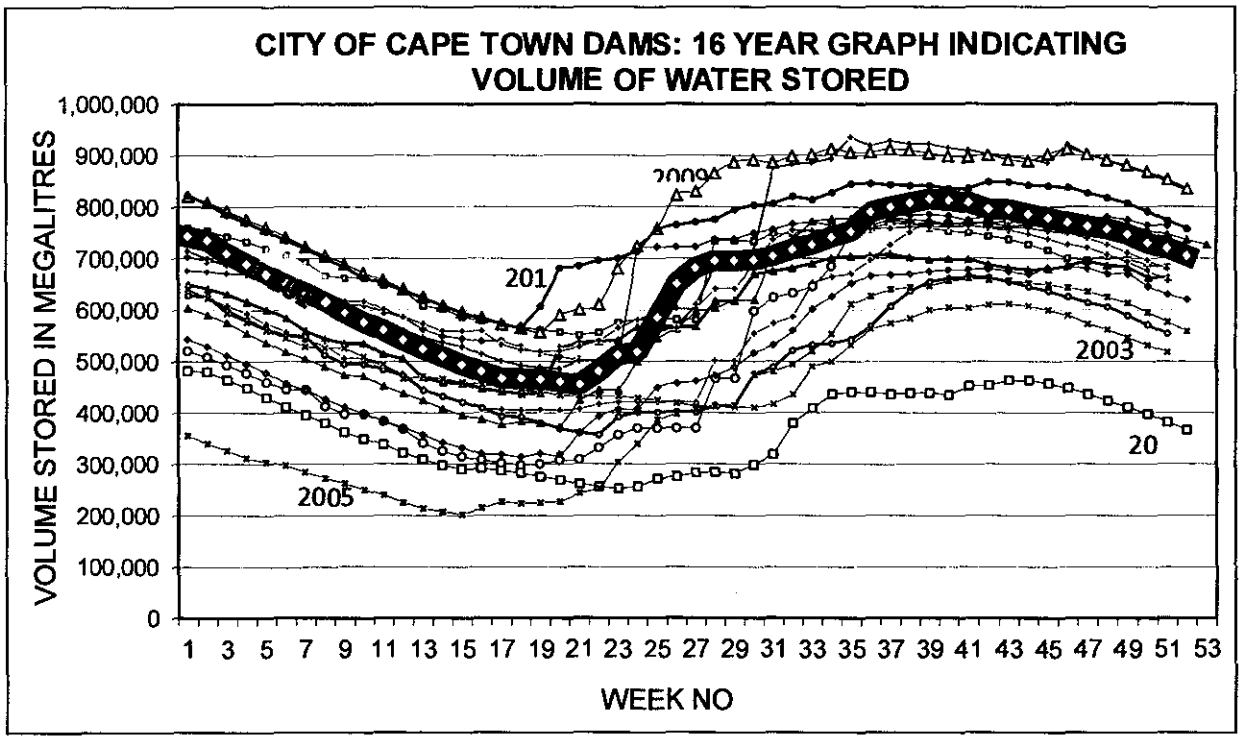


Figure 2: 16 year long term history of reservoir storage capacity

5.1.2. Water Resources Supplying Cape Town

The COCT's allocation of water from the WCWSS, with the additional yield of the Berg River scheme, is 398 million kl per annum. Including the Berg River scheme, the COCT obtains 74% of its allocated water from DWA owned sources, with the balance of 27% from COCT owned sources. The resources supplying the COCT and its allocation from these resources are shown in Table 9.

The COCT produced 336.64 million kl of potable water during the 2010/11 financial year.

5.1.3. Water returned to the resource

The COCT obtains most of its raw water from mountainous catchments outside of its municipal area, and therefore most of the COCT's treated wastewater effluent is not returned to the raw water resource. A percentage of the effluent produced at the Westfleur Treatment Works at Atlantis is used to artificially recharge the aquifer from which water was abstracted for potable supply as part of the Atlantis Water Supply Scheme.

Table 9: Cape Town's allocation from the WCWSS (as at December 2011)

	Million kl /annum	*% of Total*
DWA Owned Schemes		
Theewaterskloof	118	29.6%
Voëlvlei	70.4	17.7%
Palmiet	22.5	5.6%
Berg River	81	20.3%
Subtotal DWA Schemes	**291.9**	**73.2%**
CCT Owned Schemes		
Wemmershoek	54	13.5%
Steenbras	40	10.0%
Lewis Gay and Kleinplaats Dams	1.8	0.5%
Land en Zeezicht Dam	1	0.3%
Table Mountain Dams	3.5	0.9%
Albion Springs	1.5	0.4%
Atlantis Groundwater Scheme	5	1.3%
Subtotal CCT Schemes	**106.8**	**26.8%**
TOTAL ALLOCATION	**398.7**	

5.2. Quality of water

The quality of water produced at the COCT's water treatment plants is strictly monitored on a continual operational basis by the Bulk Water Branch to ensure compliance with the South African National Standard (SANS 241:2011) on drinking water quality. The Scientific Services Branch also conducts routine sampling and analysis of potable water produced at all water treatment plants, as well as inspection of treatment processes.

Efforts are at an advanced stage to acquire SANS 17025 certification for the laboratory quality testing. Expansion of the laboratory is a necessity for improving its capability to undertake a wide spectrum of tests.

The water quality report below indicates the analytical data and approximate distribution for Cape Town drinking water for June 2011. The SANS Specification is also stipulated on this report. Water Compliance has exceeded the target of 96% at 98% (SDBIP, December 2011).

Table 10: Class 1: Drinking Water Quality for December 2011 (SANS 241 requirements per population size; 1 sample: 20 000 population)

Item no	Water Supply Outlets	Sample Points Per Water Supply Outlet	Sample Points Sampled	Number of Samples Taken for August		% Compliance SANS 241:2011			
						August Month		12 Month Rolling Average	
				Chemical	Microbiological	Chemical	Microbiological	Chemical	Microbiological
1	Water Treatment Plant	10	9	30	30	99	100	98	100
2	Reservoir *	26	23	80	91	97	100	97	99
3	Distribution *	105	88	321	347	95	100	97	100
4	Informal Settlements *	43	37	61	63	100	99	98	96
5	Total	184	157	492	531	97.8	99.8	97.5	98.8

5.3. Future Trends and Goals

The Bulk Water, Reticulation and Scientific Services Branches of the Department will have to take note of any future water quality requirements and then, as a result, put the necessary steps in place to meet these requirements. The international and national specifications for drinking water are changing all the time with specifications becoming more stringent and with new ones being added e.g. possible future water analysis for radioactivity, viruses, EDC's, etc. The City of Cape Town will have to put measures in place to meet these future requirements, e.g. purchase of new specialized analytical equipment to perform these measurements, stricter process control at the water treatment plants, etc. With proper coordination within the Department, these future water quality requirements can be met.

5.3.1. Strategic gap analysis

The WCWSS Reconciliation Strategy included recommendations of interventions that needed to be implemented or studied further to ensure that potential schemes could be implemented in future when required. Table 11 summarizes these interventions being implemented or studied further.

Table 11: Interventions to be implemented or studied further

Intervention	Study Level Required	Responsibility
Existing Feasibility Studies in Progress		
Water Demand Management	Intervention to be implemented	COCT
TMG Aquifer Feasibility Study	Feasibility	COCT
Pilot Desalination Plant	Feasibility	COCT
TMG Regional Monitoring	Monitoring	DWA
Invasive alien plant clearance	Ongoing	DWA
Voelvlei Phase 1	Update feasibility	DWA
Mitchell's Pass Diversion	Pre-feasibility/feasibility	DWA
UpperWitRiver Diversion	Pre-feasibility	DWA
Raising Steenbras Lower Dam	Pre-feasibility	DWA
Upper Molenaars Diversion	Pre-feasibility	DWA
Water Re-use	Pre-feasibility	DWA/COCT
Future Studies Required		
Newlands Aquifer	Pre-feasibility	COCT
CapeFlats Aquifer	Feasibility	COCT
LourensRiver Diversion Scheme	Pre-feasibility	COCT

Although the above table provides a number of augmentation options, a decision on the preferred option of the augmentation scheme will be decided in March 2012.

5.4. Regulation

5.4.1.Situation assessment

The Water Pollution Control Inspectorate's function is the protection of municipal infrastructure and the environment against pollution. The unit comprises of 25 Inspectors, 90% of which are Peace officers, who regulate public institutions and the industrial/commercial sector.

About 300 dischargers are monitored on a monthly basis, and for the 2010/11 financial year, an average of 10% of these were non-compliant. The billed income for the 2010/11 year for industrial effluent was ~R16 442 339.33 and R 8 962 992.82 for treated effluent. Between October 2010 and June 2011, 108 fines were issued for illegal discharges to storm water.

The Wastewater & Industrial effluent by-law has been amended and is currently in the process of Council approval. Previously there no fines for the Treated Effluent and the Wastewater & Industrial effluent by-law, but recently spot fines have recently been approved by the Magistrate committee and effective immediately. This will enhance the enforcement arm of the unit.

5.5. Future Trends and Goals

5.5.1.Strategic gap

With respect to the effluent discharged from Industrial sites, non-complying and polluting trade industrial effluent occasionally impacts heavily on the wastewater treatment processes serving the catchmentand as a result, poor quality effluent ends up being discharged into our rivers. Parameters of concern for in the sewer system include fats, other foreign objects (sand, tools, tyres, rags, etc), toxic substances and , stormwater ingress. In the case of the stormwater system, the common offence is mainly polluted wash water containing oils ,silt and grease from vehicle washing.

5.5.2.Implementation strategies

Industrial consumer units: The inspectorate is using an engaging, cooperative approach with consumers, more comprehensive integrated by-laws as well as more frequent compliance

monitoring inspections. and measuremand enforcement in the form of fines and full legal processes where needed.ents This approach is crucial in achieving our goal to improve the quality of industrial effluent discharged into the sewer system. , prevent pollution in a pro-active manner and reduce water wastage.

A campaign on educating the communities (all sectors) around sewer blockage causes, consequences and prevention iss is continually rolled outcurrently underway in phases across the city, as a means to protect the infrastructure and the environment against pollution. In addition to the education and awareness program, in addition to there is an on-going infrastructure replacement /& refurbishment programs. Furthermore, the unit Inspectorate is also in the process of appointing consultants to install an in-line monitoring tool/system to assist inenhance the continuous quality monitoring of industrial effluent, in particular form from the metal finishersfinishing sector, in order to prevent or promptly respond to illegal discharges.

As far as the storm water ingress challenge, services of consultants have been sought to assist with detailed investigations on above and below ground sources responsible for the stormwater ingress to sewer so that plans to deal with such can be put in place

6. WATER CONSERVATION AND DEMAND MANAGEMENT

6.1. Situation assessment

6.1.1. Water Demand Management Interventions

The efficient use of scarce water resources for the City of Cape Town's growing needs and the aim to maximize on the use of existing infrastructure are critical factors that drive the Water Demand Management and Water Conservation Strategy.

The Department is applying the resources required to implement water demand management interventions, including: (a) reduction of non-revenue water, (b) reduction of high pressure, minimum night flow for residential consumers, (c) education programmes, (d) plumbing leak and meter repair programmes, (e) pipe replacement, effluent re-use, water restrictions and stepped tariffs.

6.2. Trends and goals

6.2.1. Water Demand Management Interventions

Water demand management is an essential core requirement for sustainability of water supply to the City. In circumstance where water consumption is controlled to the levels expected in the Water Conservation and Water Demand Management strategy, deferment of the next water resource scheme to approximately 2029 can be achieved.

In the 2010/11 financial year, a number of successful WC/WDM projects were implemented of which notable projects were:

- **Pressure Management** was successfully implemented in Crossroads/Plumstead /Retreat/Marina Da Gama/Lavender Hill. The **savings are estimated at 2.28 Ml/day;**
- 20 574 dysfunctional consumer water meters were replaced;
- 95 users were supplied with **Treated Effluent** which accounts for **30 Ml/day** of re-use (Potable Water replacement of **12.66Ml/day**);
- ± 100 Caretakers of schools were trained ;
- 60 **Schools** were visited and **leaks repaired ;**
- **Awareness and Education with** approximately **2 688** workshops;
- Approximately **200 households were** visited for the **Integrated Leaks Repair** project.

6.2.2. Strategic gaps and goals

Table 12: Strategic Gaps

Resources	Inadequate financial resources
	Inadequate human resources to implement WC/WDM strategy
	Water balance not developed to IWA standard.
Technical capacity and tools	Ineffective management information and monitoring systems
	Inadequate demand measurement systems and tools
	No detection programme in place to identify water leaks before they become bursts
	Water balance model not yet developed to level of all water supply zones

The levels of demand reduction planned for to a level of no more the 2.5% growth. This target has been far exceeded at 1.66% for 2010/11 financial year. If funding on WDM is not continually prioritised to enable the planned programmes, the factors of economic growth and consumer behaviour will outstrip the gains made.

6.2.3. Implementation Strategy

The Water Conservation and Water Demand Management Strategy are being followed in order to budget for and implement several initiatives in parallel.

Top priorities are the rollout of further Water Demand Management Devices on a prioritised suburb-by-suburb basis.

Further pressure reduction schemes are being designed for implementation.

The Automated Meter Reading Pilot installation on consumer meters has been finalised. Decisions on future roll-out options City-wide will follow and be considered for future budgets on a priority basis. Advantages indicated by preliminary evaluation include:

- synchronised simultaneous reading for an entire suburb
- more reliable readings with far fewer estimations
- Immediate loss detection at a consumer
- Immediate knowledge of a meter failure or tampering
- the ability to analyse water balance and losses by individual supply zones

The Strategy is currently being reviewed in terms of its level of success and updated accordingly.

7. WATER SERVICES INFRASTRUCTURE PROFILE

7.1. Situation assessment

The Financial "book" value of the water and sewer infrastructure stood at R2.78 billion at 30 June 2011. However, the Replacement Value is estimated considerably higher, escalated at CPIX rates from a 2003 Independent Auditing evaluation.

Table 13: Infrastructure of Water and Sanitation Services -Estimated Replacement cost

Description	Asset Count	Repl Value (R M)	Annual Maint Norm	Annual Maint req, Bulk Water seperate(R M)
Bulk Water (including water pump stations, water retic and reservoirs)				75.0
Dams and Catchments	11 No	1 438.8	0.50%	7.3
Water Treatment Works	12 No	1 576.4	1% Civil, 4% Mech/Elec	32.9
Waste Water Treatment Works incl Sea Outfalls	24 No	2 191.6	1% Civil, 4% Mech/Elec	45.5
Water Reticulation (incl Bulk Lines) (GIS 23-06-2011)	11 086	14 900.3	1%	63.7
Sewer Reticulation (GIS 23-06-2011)	8 541	6 843.8	1%	64.2
Depots	21 No	90.7	0.50%	0.5
Water Pump Stations	114 No	484.7	0.5% Civil, 4% Mech/Elec	7.7
Sewer Pump Stations	381 No	438.7	0.5% Civil, 4% Mech/Elec	11.4
Reservoirs	122 No	1 957.3	0.50%	4.0
		29 922.4		**312.2**

The Bulk Water Supply System comprises: 11 raw water dams owned and operated by the City of Cape Town; 12 water treatment works with a current approximate potable water production capacity of 1600Ml/day; 32 pumpstations; 24 bulk reservoirs with a total storage capacity of 2 825Ml; and 659km of raw and potable water pipelines, ranging from 300mm to 2 400mm in diameter.

7.2. Trends and goals

The water supply and wastewater reticulation networks jointly account for 72% of the total replacement value. The water distribution networks experienced 6 645 bursts to water mains in 2010/11 compared to 6 169 in 2009/10.

7.2.1. Strategic gaps

Historically, maintenance of infrastructure was mostly reactive. This is evidenced by the backlog of overdue maintenance and replacement projects.

Especially in the City's growth areas the water and sewer infrastructure are severely stressed:

- West Coast / Parklands development corridor
- De Grendel / N7 development node
- Northern development/Fisantekraal corridor
- Bottelary development corridor
- Fast-track housing projects (e.g. N2 Gateway)
- Maccassar / AECI development node

The strong growth trend in the City is making it difficult to maintain a balance between requirements and available resources.

7.2.2. Implementation strategies

The City has undertaken an accelerated programme to improve the replacement of water distribution network mains, especially in areas that experience a high incidence of bursts, such as the Tygerberg district. More importantly, Water and Sanitation Services is implementing an Asset Management Programme (AMP). This will ensure that:

- Assets are maintained proactively rather than reactively,
- The total asset lifecycle is managed to maximise life of asset,
- Maintenance work is effectively coordinated,
- Operational downtime is significantly reduced.

The strategies for ensuring that wastewater treatment capacity is maintained include:

- Integrate planning for new works and extensions with the other branches and ensure that additional wastewater treatment capacity is provided where needed at the right time,
- Provide sufficient funding (EFF and MIG funds) to address the backlog in WWTW capacity and provide for growth.

To ensure long term sustainability, Water and Sanitation Services has by 2010 developed an Integrated Master Plan. The objectives of the master planning process are:

- To balance demand and capacity, all water and sanitation branches will use the same base data, assumptions and design parameters to ensure consistency,
- Infrastructure plans within Water and Sanitation Services are fully aligned,
- Alignment with the City's Spatial planning and IDP strategies are achieved,
- To provide sound information on which capital budgets for future years can be improved, and
- The plan is kept up to date annually to ensure reliable planning based on it.

An automation, monitoring and technology programme is being driven in the department towards achieving maximum efficiency and optimum utilisation of staff resources in a "smart" way. To this end, cooperation has been pursued with leaders in the field such as the Norwegian Oslo Waterworks and the Danish Hydraulic Institute.

There is intention to offset the disadvantages of the existing sprawl of the CoCT with reference to infrastructure by concentrating development in identified densification zones / corridors.

In line with the IDP Focus Area of infrastructure led development and economic growth the WSDP will:

- Focus on maintaining and replacing aging existing infrastructure
- Improve delivery of services to informal areas, and
- Promote efforts to densify the city by reviewing and upgrading infrastructure to accommodate higher residential density.

The following framework plan indicates progress and future plans.

Table 14: Automation, monitoring and technology Framework plan

ACTION	PROGRESS	TIMEFRAME	IMPLEMENTATION COST
Plant SCADA upgrades. (Bulk, Wastewater, Pump stetions).	SCADA upgrades completed at Atlantis, Blackheath and Steenbras WTP. Visnet implemented Software and partial commissioning at Wildevoelvlei WWTW Additional license required and connection to corporate network. And Wemmershoek Dam WTW. Complete	5 years (2014)	R10M for current Reticulation system phase. Full system scope being developed.
Bulk & Zone meter automation	Further zones delineated (201) and zone meters installed.	All Water Zone meters logged by 2014.	
Customer meter automation	AMR pilot installation completed May 2010. Extensive eveluation undertaken in N2 Gateway, SunsetBeach and Epping Industria. Various technical, meter supply and process issuesaddressed. Prepayment meters to be investigated and piloted.	AMR Phased rollout planned in priority industrial or commercial areas over a multi-year timeframe (2020) for entire City. Prepayment pilot 2011.	R1.5M pilot phase. R50M excluding meter replacement.
Integrated Information System	DIMS development (Danish Hydraulic Institute) with major DWA grant completed. Integrates key major Water and Sanitation information systems in browser map-based dashboards.	Completed and handover October 2010	R7M (R5M DWA grant)
Integrated Master Planning	Integrated Master Planning project completed. Skills transfer and software rollout to all users as well as central server installation underway.	Handover completed New tender to be awarded 2012	R14.5M
Technical Dperating Centre process improvements	SAP-GIS Integration being implemented under control of SAP. Includes: GIS & SCADA integration in SAP, C3 Notifications, Tetra Radio comms and spatial tracking, Mobile Asset Management.	2012	R10M.
SCADA/Telemetry masterplan	Contract has been awarded to develop a new master station for all reservoirs and pump stations, including the supply of RTU's. Also included is the development of data from the new telemetry system to the database that DIMS will harvest. Master plan completed Tender in place for the procurement of RTUs Factory Acceptance Test complete snag list being resolved. Test RTU in field trials.	2011	
Automated Water Analysis	Process leb Units already installed at 9 Bulk Water Depots. Installation of 8 computers and Connectivity testing to be in March 2010.	Completion end March 2010.	R693 000
Air Quality Monitoring System(Service provider to Health Dept.)	Tender awarded April 2010.	Completed 2010	R1.3 Million

8. WATER BALANCE

8.1. Situation assessment

Using water and billing figures, the unaccounted-for water (UAW) for the overall supply system from Bulk Water Treated to end consumer billing is 19.8% (2010/11).

The Non-Revenue Water (NRW) is defined as the volume of water used by the municipality for which no income is received where revenue water includes Free Basic water which is billed at a zero rate (Wegelin *et al*). Below is the Non-revenue Water balance according to IWA standard.

Table 15: Non-revenue water demand, 2010/11 Financial Year

<table>
<tr><td rowspan="10">System Volume Input 922.31 Ml/d</td><td rowspan="4">Authorised Consumption 739.71 Ml/d</td><td rowspan="2">Billed Authorised Consumption 706.10 Ml/d</td><td>Billed metered consumption 706.10 Ml/d</td><td rowspan="2">Potential revenue Water 706.10 Ml/d</td><td>Free Basic Water 105.22Ml/d</td><td rowspan="2">Revenue Water 659.16 Ml/d</td></tr>
<tr><td>Billed unmetered consumption 0 Ml/d</td><td>Recovered revenue 553.94 Ml/d</td></tr>
<tr><td rowspan="2">Unbilled Authorised Consumption 33.61 Ml/d</td><td>Unbilled Metered Consumption 21.70 Ml/d</td><td>Non-payment 46.94 Ml/d</td><td rowspan="9">Total NRW 263.15</td></tr>
<tr><td>Unbilled Unmetered Consumption 11.91 Ml/d</td><td colspan="2" rowspan="8">Non Revenue Water (Excluding Non-payment) 216.21 Ml/d</td></tr>
<tr><td rowspan="6">Water Losses 182.6 Ml/d</td><td rowspan="2">Apparent Losses 64.93 Ml/d</td><td>Unauthorised Consumption 9.59 Ml/d</td></tr>
<tr><td>Customer Meter Inaccuracies 55.34 Ml/d</td></tr>
<tr><td rowspan="4">Real Losses 117.67 Ml/d</td><td>Leakage on Transmission and Distribution Mains 117.22 Ml/day</td></tr>
<tr><td>Leakage on Overflows at Storage Tanks 0.45 Ml/day</td></tr>
<tr><td>Leakage on Service Connections up to point of customer meter Negligible</td></tr>
</table>

8.2. Future trends and goals

The City has in principle adopted international best practice with respect to reporting on water balance and will stop reporting on UAW as soon as more accurate data is available.

8.2.1. Strategic gap analysis

The SABS 0306:1999 standard discourages the use of percentage losses to quantify water losses in the distribution network.

8.2.2. Implementation strategies

A very high priority is being given to a comprehensive Water loss reduction strategy with detail action plans being developed for each of Technical losses (Pipe bursts, Leakage, Treatment losses, System losses), Apparent losses (illegal connections, metering inefficiencies, unmetered authorised consumption, unauthorised consumption, Billing/accounting, meter reading).

Phased Installation of more zone- and bulk supply meters are being implemented as well as automated remote logging thereof to accurately measure input into water supply zones.

An added benefit of the Integrated Master Plan project is the creation of an accurate and up-to-date historic record of consumption by Ervin that can be used to derive water and sanitation demands. The first comprehensive and reliable dataset became available in January 2010. This data will be used together with zone meters and bulk meters to achieve a water balance based on smaller pressure zones. This will enable losses to be pinpointed and reduced or eliminated.

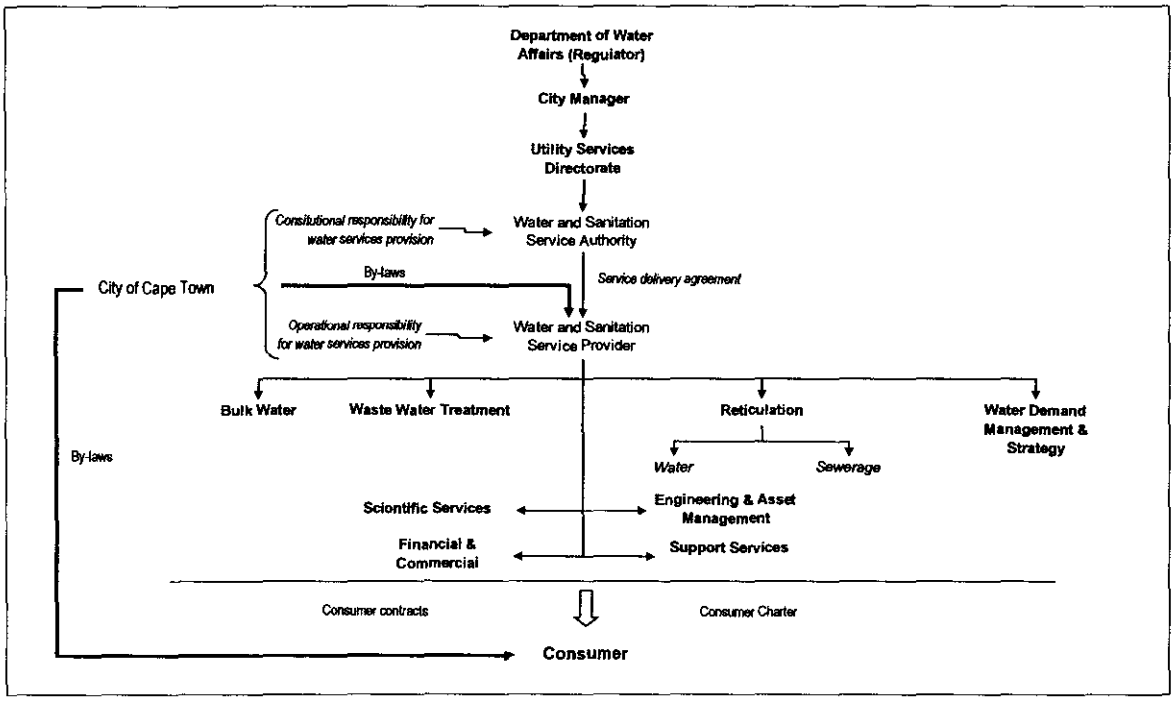
The DIMS project recently implemented has as a focus area the reporting of the latest Demand and Loss information to the IWA standard.

9. WATER SERVICES INSTITUTIONAL ARRANGEMENTS

9.1. Situation assessment

The new City of Cape Town and the Water and Sanitation Services entity was formed with the amalgamation of the Cape Metropolitan Council and the 6 metropolitan local councils in December 2000.

Table 16: Water Service Institutional Arrangements



Source: Water Demand Management Strategy

On 28 November 2001, Council authorized Water and Sanitation Services as it was called then to operate as fully-fledged and functional internal business unit in order to ensure maximum independence and minimum constraints. In practice this has not been implemented further.

Risk Management: Work has started on an Integrated Risk Management Programme with the appointment of a Risk Manager and the development of a strategy. attached Risk Register has been developed.

Safety: All procedures were reviewed and risks still need to be identified.

9.2. Future trends and goals

The appointment and retention of technical staff (engineers, scientists and IT personnel) remains a high priority.

9.2.1. Strategic gap analysis

The City of Cape Town is currently undertaking the constitutional responsibility for water service provision (as the Water Services Authority (WSA)) as well as the operational responsibility (as the Water Service Provider (WSP)). The City has not separated the service authority and service provision function to establish a municipal entity, preferring to operate the service as an internal ring-fenced department. At the moment, there is no service delivery agreement between WSA and WSP in place.

9.2.2. Implementation strategies

Institutional reform: The City's strategic intent, aligned with the national agenda and as stated in the IDP is:

- Sustainable use of scarce resources such as water
- achieving operational, financial and other efficiencies which will enhance equitable, affordable and effective service delivery and sustainable development;
- Increase service provision (taps and toilets in formal settlements)

Human resources: It is the City's strategic intent to develop and retain a skilled and motivated staff according to the Staffing Strategy and the Workplace Skills Plan. A strategy to hold onto staff is a talent management programme currently underway which intends to hold onto qualified and experience staff through a career development and succession plan. This effort will help to hold onto institutional knowledge.

10. CUSTOMER SERVICE PROFILE

10.1. Situation assessment

Although under stress in certain regions, necessary infrastructure is in place to ensure an adequate quality of service to formal households. All customers receive water that is fully treated. There are mechanisms in place to attend to customer complaints and queries.

A survey is undertaken on an annual basis to gauge the customer satisfaction in formal domestic, informal domestic and business sectors and to identify specific issues of concern. Recent stats will be available once the census has taken place in 2011.

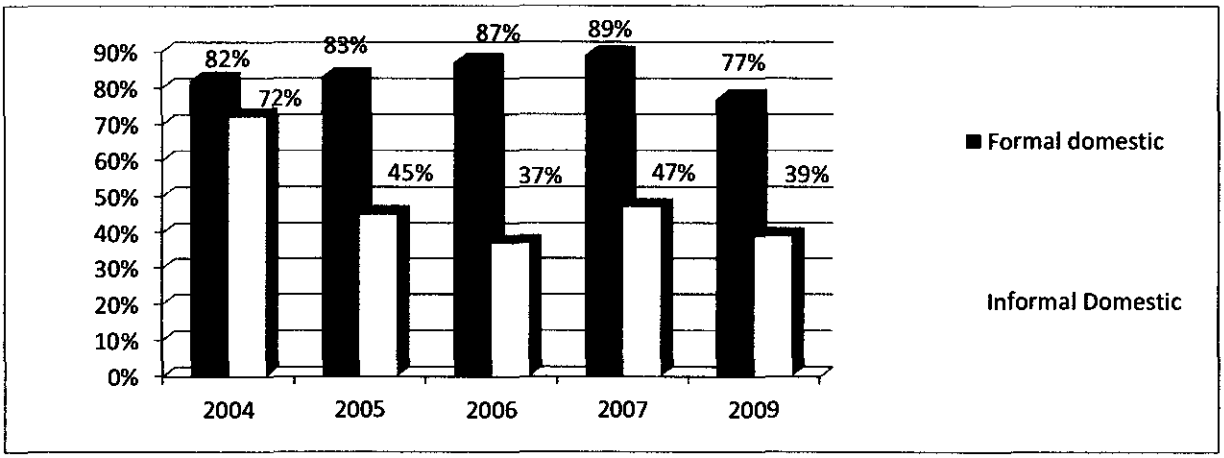


Figure 3: Customer satisfaction levels over time

The general conclusions are:

- The increasing satisfaction level for respondents living in formal residential areas has shown a downturn.
- Respondents living in informal residential areas are generally dissatisfied.
- 82% of business respondents are satisfied.

This could be an indication that residents do not understand the reasons for a basic level of service as opposed to a full level of service. An alternative argument could be that people whether in a formal or informal settlement will only be satisfied with a full level of service and that

the level of satisfaction in informal settlements will always remain low due problems related to communal toilets.

10.2. Future Trends and goals

The goal is to ensure that the percentage of customers satisfied with the service continues to increase and reaches 95% within the next 5 years.

10.2.1. Strategic gap analysis

There is no consolidated information on response times to complaints and queries and to repairing water and sewer mains. An integrated information system dealing with these matters is under development by the Technical Operating Centre.

10.2.2. Implementation strategies

- Ensuring water pressure standards are maintained to improve areas of extreme high or low pressures.
- The Education and Awareness Campaign will be extended to affect behaviour change in residential customers towards reducing water consumption, and that all customers have a better knowledge of water efficient fittings.
- Establishment of a system at the Technical Operating Centre to ensure that customer complaints are measured and followed up.
- The AMR project promises to bring improved customer satisfaction around metering and billing.
- Appointment of staff for critical vacancies.
- Have a public awareness on level of service and affordability
- The survey question in informal settlements should be structured differently

11. FINANCIAL PROFILE

11.1. Situation assessment

11.1.1. Capital expenditure and sources

Capital expenditure incurred during the year 2010/11 amounted to R390.9 million with an expenditure level reached against the current budget.

Table 17: Water and Sanitation capital expenditure 2010/11

Area (R'million)	2008/09	2009/10	2010/11
Bulk Water	35.3	25.2	19.2
Reticulation	290.5	219.6	149.6
Wastewater Treatment	253.4	235.5	121.5
Water Demand management	44.5	8.9	14.6
EAMS	20.3	26.2	36.9
Informal Settlements	18.0	24.8	21.1
Meter Replacement	7.1	9.90	14.6
Information Technology	7.8	8.90	7.3
Technical Operation Centre	1.0	5.90	1.1
Master planning	2.0	3.90	0.4
Other	4.4	2.2	4.6
TOTAL	**684.3**	**571.0**	**390.9**

Capital expenditure is financed from

(i) CRR (Capital Replacement Reserve) a fund replenished from surplus in previous financial year,

(ii) EFF (External Financing Funds) loans obtained by the City, attracting interest and depreciation charges and having a direct impact on the tariffs or

(iii) CGD (Capital Grants & Donations).

11.1.2. Operating Costs and income

In 2010/11 operating costs amounted to approximately R4.5 billion and a deficit of some R125m. The deficit can mainly be contributed to the lower than anticipated collection ratio on amounts billed.

11.1.3. Tariffs and Charges

Table 18: Water and Sanitation tariffs trends

WATER TARIFFS (Rands)	2006/07	2007/08	2008/09	2009/10	2010/11
0-6 kℓ	-	-	-	-	-
+6-12 kℓ	2.56	3.05	3.33	3.66	na
+6-10.5 kl	na	na	na	na	3.99
+12-20 kℓ	5.46	6.50	7.10	7.81	na
+10.5-20 kl	na	na	na	na	8.51
+20-40 kℓ	8.08	9.63	10.52	11.57	na
+20-35 kl	na	na	na	na	12.61
+40-50 kℓ	9.98	11.90	12.99	14.29	na
+35-50 kl	na	na	na	na	15.58
+50 kℓ	13.17	15.70	17.14	18.85	20.55
Domestic cluster	5.47	6.52	7.12	7.83	8.62
Commercial	5.83	6.95	7.59	8.35	9.18
Industrial	5.83	6.95	7.59	8.35	9.18
Schools/sport	5.15	6.14	6.70	7.37	8.11
Government	5.53	6.59	7.20	7.92	8.71
Municipality	5.15	6.14	6.70	7.37	8.11
Miscellaneous	5.53	6.59	7.20	7.92	8.71
Misc (external)	6.61	7.88	8.60	9.46	10.41
Bulk Tariff	2.21	2.37	2.59	2.59	2.85
SANITATION TARIFFS (Rands)					
0-4.2 kℓ	-	-	-	-	-
+4.2-8.4 kℓ	1.68	3.78	4.01	4.29	na
+4.2-7.35 kl	na	na	na	na	4.67
+8.4-14 kℓ	4.10	8.04	8.52	9.12	na
+7.35-14 kl	na	na	na	na	9.94
+14-28 kl	na	8.79	9.32	9.97	na
+14-24.5 kl	na	na	na	na	10.87
+28-35 kℓ	n/a	9.23	9.78	10.46	na
+24.5-35 kl	na	na	na	na	11.41
Industrial & Commercial	2.51	5.65	5.99	6.41	7.05
Departmental/Municipal	2.31	5.20	5.51	5.90	6.49
Domestic Cluster (>4.2 kℓ)	4.04	9.10	9.65	9.65	9.65
TARIFF ANALYSIS (Rands)					
Overall average	**4.82**	**6.60**	**7.18**	**8.12**	**8.85**
Year-on-year growth	2.3%	37.0%	8.8%	13.1%	9.0%
Water average	5.77	6.80	7.49	8.77	9.61
Year-on-year growth	-0.9%	17.9%	10.1%	17.1%	9.6%
Sanitation average	2.44	6.22	6.60	6.98	7.51

Tariff increases have been set higher than inflation during the last number of years due to the escalated focus on repairs and maintenance of current infrastructure as well as the growth in the capacity requirement in the capital infrastructure programme.

As we get closer to requiring an augmentation scheme, the tariffs will have to be reviewed in order to cover costs of augmentation. This awareness that we will constantly be faced with a decision of when, what method and cost of any scheme that will be implemented.

11.1.4. Free Basic water and sanitation

The first 6 kilolitres of water supplied to all residential dwellings in the municipal area and the first 4.2 kilolitres of sewage removed from all residential dwellings in the municipal area is free. Fixed charges do not apply to dwellings occupied by domestic households.

A R38 Indigent Grant is applicable to the water and sanitation tariff for qualifying households. The net result is that an Indigent household can consume an additional 4.5kl water per month and can discharge an additional 3.15 kilolitres wastewater per month (with sewerage disposal 70% of water consumption) without attracting any charges.

This subsidy would be ineffective without the ongoing Integrated Leaks Repair and Fixit Projects aimed at repairing leaks, reducing consumption, reducing monthly bills and eliminating arrears of properties occupied by Indigent households. (Refer to the Water Conservation and Demand Management Strategy.)

11.2. Trends

The Operating budget will increase in line with the City's Medium-Term Revenue and Expenditure Framework (MTREF). This reflects the need for increasing demands to repair and maintain current infrastructure and the requirement of resources to operate new infrastructure. Consequently, there is pressure on annual tariffs increases to exceed inflation.

The long-term Capital budget requirement is summarised Table 19.

Table 19: Long-term Capital requirement for 10 years from 2012/13

	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	TOTAL
Bulk Water	27 650 000	135 850 000	212 881 000	453 002 000	708 060 000	404 830 000	321 095 000	308 973 000	93 108 000	58 569 000	2 724 018 000
Reticulation	357 016 700	457 011 507	388 097 950	325 604 020	314 000 000	279 000 000	282 750 000	281 450 000	252 500 000	256 000 000	3 193 430 177
Waste Water Treatment	172 900 000	198 450 000	234 050 000	296 650 000	237 400 000	223 400 000	262 400 000	240 400 000	219 400 000	246 900 000	2 331 950 000
WDM & Strategy	20 015 000	13 000 000	22 250 000	2 500 000	2 500 000	64 850 000	64 850 000	69 600 000	100 000	100 000	259 765 000
EAM	68 374 000	44 288 493	22 452 050	27 095 980	37 318 578	58 728 943	76 763 038	70 898 042	79 202 266	88 615 265	573 736 655
Other Branches	11 500 000	10 400 000	10 400 000	15 000 000	20 781 422	22 195 005	25 115 937	25 858 000	26 338 760	27 035 000	194 624 124
Total	657 455 700	859 000 000	890 131 000	1 119 852 000	1 320 060 000	1 053 003 948	1 032 973 975	997 179 042	670 649 026	677 219 265	9 277 523 956
											TOTAL
New Infrastructure	362 353 700	510 300 000	496 831 000	776 752 000	963 841 422	630 480 000	577 869 000	530 223 000	295 908 000	312 819 000	5 457 377 122
Replacement Infrastructure	227 688 000	218 861 507	240 247 950	283 104 020	305 500 000	331 750 000	365 500 000	370 500 000	287 000 000	266 500 000	2 896 651 477
New Plant	40 828 000	44 962 493	32 982 050	35 135 980	45 830 578	64 740 943	68 534 038	75 388 042	84 172 266	94 065 265	586 639 655
Water Demand	19 860 000	12 900 000	22 250 000	2 500 000	2 500 000	22 750 000	17 750 000	17 500 000	0	0	118 010 000
Other	6 726 000	71 976 000	97 820 000	22 360 000	2 388 000	3 283 005	3 320 937	3 568 000	3 568 760	3 835 000	218 845 702
Total	657 455 700	859 000 000	890 131 000	1 119 852 000	1 320 060 000	1 053 003 948	1 032 973 975	997 179 042	670 649 026	677 219 265	9 277 523 956

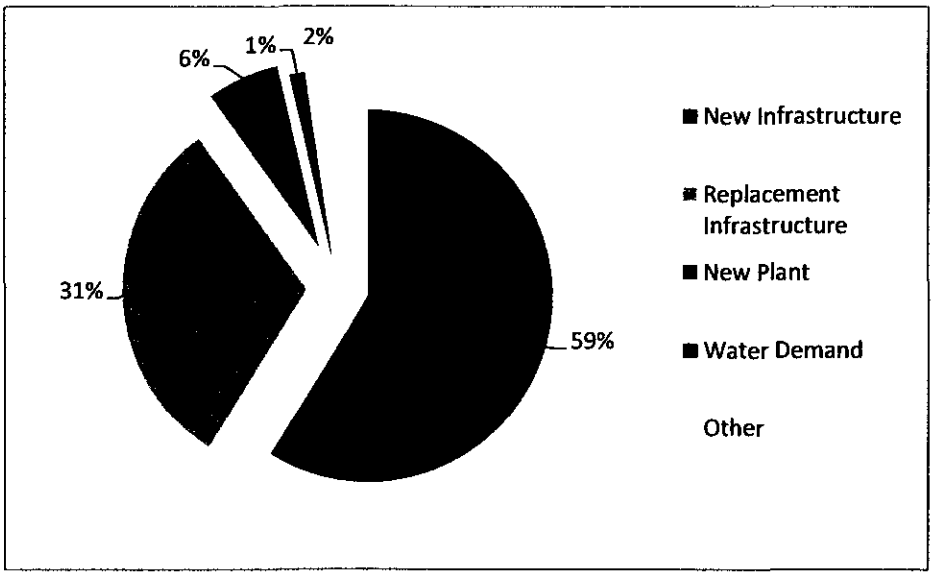


Figure 4: Long-term capital requirement by Investment Category

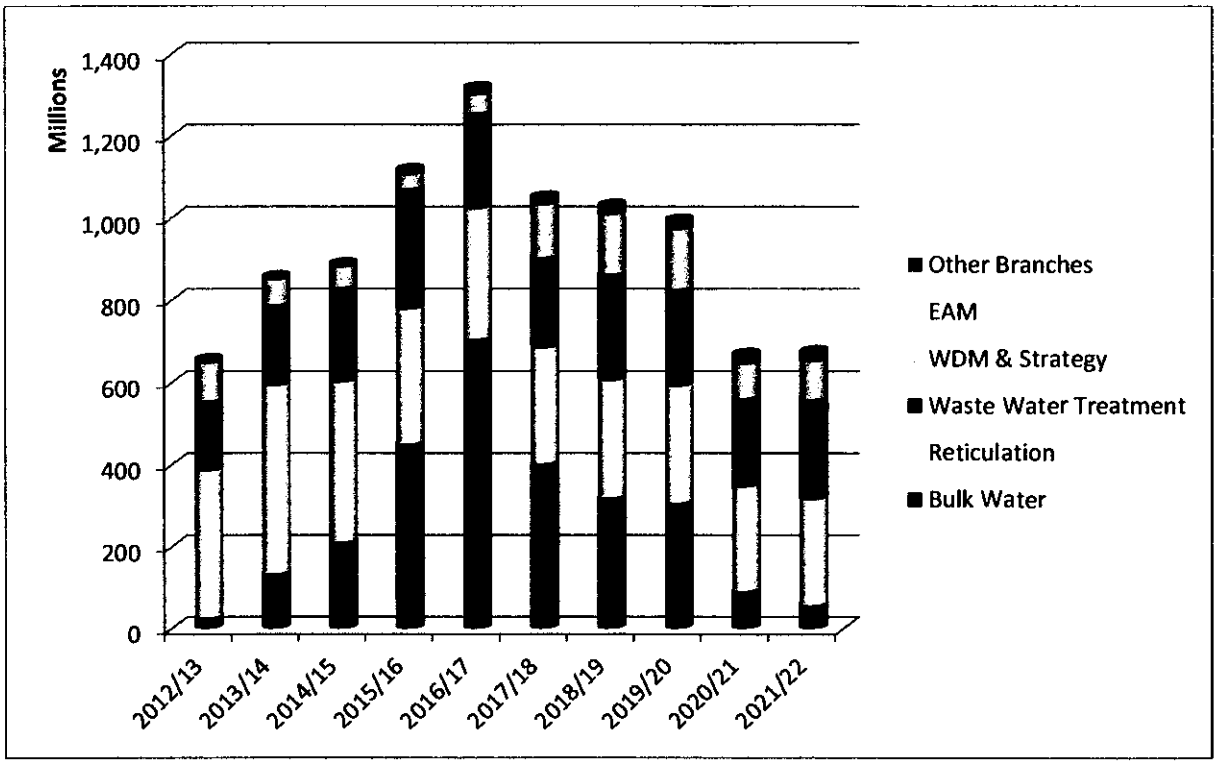


Figure 5: Long-term capital requirement by Branch

11.2.1. Strategic gaps

Capital budget: The high requirement for necessary infrastructure is driven largely by growth and economic development as well as the refurbishment of current infrastructure which places severe pressure on the City's Capital Budget.

Operating budget: It is difficult to reach optimum levels of staff, maintain acceptable levels of infrastructure maintenance and carry the impact of the capital programme within the financial constraints during difficult economic conditions.

11.2.2. Implementation strategies

To achieve the required Capital Budget, it is necessary to maximise the use of Grant funding and to make optimal use of the Capital Replacement Reserve (CRR) within the financial constraints.

The pressure on the operating budget needs to be addressed via above-inflation tariff increases and initiatives to ensure that money due to the City is collected. There is a benefit envisaged from the pilot Prepayment project, apart from metering efficiency gains and data purification project.

General strategies:

- Making adequate provision for the poor by maintaining a stepped tariff cross-subsidising the shortfall in the free basic service.
- Further relief to the poor via assistance to indigent customers.
- Investigation and debate into the use of Prepayment meters.
- Escalated focus on the collection of debt by increasing the capacity.
- Escalated focus on revenue protection and metering efficiency.
- Ensuring that adequate cash reserves are maintained to cover legislated funds.

APPROVED BY:	MANAGER: WATER DEMAND MANAGEMENT & STRATEGY		
Name & Surname:	Zollie Bashoio	Signature:	
Date:	14/05/2012	Comment:	Supported.
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APPROVED BY:	EXECUTIVE DIRECTOR		
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Date:	16/5/12		

Department: Solid Waste Management

Sector Plan 2012/13

2012/2013 SOLID WASTE MANAGEMENT SECTOR PLAN FOR CITY OF CAPE TOWN (INCORPORATING INTEGRATED WASTE MANAGEMENT PLAN)

Introduction

The Waste Management Sector Plan or Integrated Waste Management (IWM) Plan of the Solid Waste Management (SWM) Department of the City of Cape Town consists of operational and support strategies, and contains a schedule of projects and activities. The aim of the IWM Plan is to give effect to the strategies, to manage and minimise waste, to ensure sustainable and affordable services, as well as to comply and meet the objectives of the National Waste Management Strategy, per the National Waste Act.

The initial IWM Plan was preceded by a thorough status quo assessment of the City's' waste management. It was conducted by a team consisting of expert waste management consultants, Council staff and staff from the Western Cape Department of Environment and Development Planning (D:EA&DP). Public participation was conducted via an extensive series of public meetings in July and August 2004 as part of the statutory process to obtain public input and needs for the plan.

This is the six review and amendment of the plan since the original was adopted by the Executive Mayoral Committee together with the Council's IWM Policy in May 2006 (resolution MC 08/05/06). It is herewith presented for inclusion in the Council's reviewed IDP for 2012/13, per Section 5 of the Municipal Systems Act (MSA).

Principles, service levels and standards for waste management are contained in the City's IWM policy. The overarching policy objectives are to ensure basic waste management services to all residents, to reduce waste that is landfilled, to conserve resources and the environment, clear and clean waste that is illegally dumped and to reduce the impacts of waste on human and environmental health, and the economy. Tariff information is contained in the Council's Tariff Schedule, which is reviewed and adopted by Council at the same time as the Integrated Development Plan (IDP) and the IWM Plan.

Council's IWM By-law for the regulation of waste management activities is aligned with the national imperatives, and was adopted by Council (resolution C15/03/09), and was promulgated on 21 August 2009. This is the first comprehensive waste management by-law aligned to the objectives of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008). The by-law was amended to align with administrative legal and juristic requirements and was then promulgated on 4 June 2010 (PG 6756; LA 21902).

National/Provincial Legislative Requirements

The SA Constitution, Schedule 5B requires municipalities to provide cleaning and cleansing, waste collection and disposal services and related infrastructure. The National Waste Management Strategy (NWMS), and the White Paper on Integrated Pollution and Waste Management for South Africa (informed by the statutory principles affecting environmental management and conservation), are the national policy and regulatory instruments that define an integrated waste management approach, focusing on waste minimisation and service delivery.

The National Environmental Management: Waste Act (No 58 of 2009) (NEMWA) was promulgated on 10 March 2009 and with the exception of section 28(7) (a), Part 8, sections 35-41 and section 46, came into effect on 1 July 2009.

The Local Government Municipal Systems Act, S.11 requires a Council to formulate policies for which the Integrated Waste Management Policy was developed in 2006. In terms of S.12 of the NEMWA, a municipality must formulate an IWM Plan as a means of minimizing waste disposal, providing services, preserving natural resources and extending the use of landfill sites, and protecting the health and the environment.

The revised National Waste Management Strategy (NWMS) was published in November 2011 by the National Minister for the Department of Water and Environmental Affairs (WDEA). The National Waste Management Strategy (NWMS) is a legislative requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), the "Waste Act". The purpose of the NWMS is to achieve the objects of the Waste Act. Organs of state and affected persons are obliged to give effect to the NWMS. The Minister of Water and Environmental Affairs has also published the National Domestic Waste Collection Standards which came into effect on Tuesday, 1 February 2011. The National Domestic Waste Collection Standards published under the National Environmental Management: Waste Act (Act No. 59 of 2008) aims to provide a uniform framework within which domestic waste should be collected in South Africa. These changes to both the NWMS and the National Domestic Waste Collection Standards will have a direct bearing on future waste management strategies of the SWM Department.

DEA has also developed the National Policy for the Provision of Basic Refuse Removal Services to Indigent Households, which came into effect on 22 June 2011. The implementation of the BRR policy will require municipalities to provide a waste collection service to qualifying households fully rebated and provide a waste collection service to previously un-serviced households in order not to discriminate against indigents who cannot afford to pay for their areas of residence to be serviced. This policy is considered to be part of the roll-out plan of the national department to implement NEMWA. The SWM Department provided comment on the draft instrument, as there are financial consequences that will affect the sustainability of services in municipalities.

The most important legislative requirements for these objectives are contained in the following statutes and national policies:

1. The SA Constitution (S.24: Right to a safe and healthy environment);
2. The National Environmental Management Act (Act 107 of 1998) (NEMA);
3. The Environment Conservation Act (ECA) (Act 73 of 1989, amended – relevant sections not repealed yet);
4. National Environmental Management: Waste Management Act, Act 58 of 2009 (NEMWA) – overarching, integrated waste management legislation, to be read with any future policies and regulations promulgated by the minister;
5. White Paper on Integrated Poliution and Waste Management for South Africa (Govemment Gazette 20978, 17 March 2000) – DEA national waste management policy;
6. National Waste Management Strategy (DEA, 2011– came into effect November 2011);

7. Waste Tyre Regulations (per S.24B of ECA – came into effect 30 June 2009)
8. Consumer Protection Act (Act 68 of 2008, S.59 Recovery and safe disposal of designated products or components)
9. The National Water Act (Act 36 of 1998);
10. The Hazardous Substances Act (Act 15 of 1973) & Regulations;
11. The National Health Act (Act 63 of 1977);
12. The Occupational Health and Safety Act (Act 85 of 1993) and Regulations;
13. The Road Traffic Act (Act 29 of 1989);
14. The Local Government Municipal Systems Act (Act 32 of 2000);
15. The Local Government Municipal Structures Act (Act 117 of 1998);
16. The Local Government Municipal Finance Management Act (Act 56 of 2003);
17. Local Agenda 21 (Sustainable Development principles at a local government level – SA is a signatory to the United Nation's Agenda 21).

This Waste Management Sector Plan of Council, incorporating the IWM Plan and activity schedule, is aimed at complying with statutory requirements for local government waste and environmental management (in particular Chapter 3 of NEMA). It is also devised to maintain standards and achieve targets that are defined in the Council's IWM Policy and to achieve service delivery targets per the SWM Department's Service Delivery Business Implementation Plan (SDBIP). The policy aligns waste management activities in Cape Town with current national, provincial and Council priorities.

SOLID WASTE MANAGEMENT SECTOR: CITY OF CAPE TOWN

Vision for Waste Management in Cape Town

The long-term vision for the City of Cape Town's waste management services, is to integrate waste management services in such a way that they are able to not only provide basic services, but to augment economic activity and minimise the effects of waste on human and environmental health. Much national support and development is necessary, as waste minimisation and recycling activities are not limited to Cape Town and involve the processing and manufacturing sectors on a national scale.

It will require a country-wide approach in terms of planning, infrastructure, facilities, incentives and disincentives to drive out economies of scale that will make this sustainable and economically viable. The new legislation provides for the formulation of Industry Waste Management Plans, the declaration of "priority waste", the submission of waste information and regulations and policies within the powers of the Minister of DEA. It is apparent that this will not be an easy or a quick process. These are the key influences on achieving the long terms waste management vision and objectives set by the Department.

The long-term vision for the City of Cape Town waste management sector is -

- to improve access to basic services for all residents (formal, informal and backyarders) to as close to 100% as possible within the constraints of available funds and unplanned growth;
- to develop multiple integrated initiatives that will reduce waste and the associated impacts substantially as well as contribute to and support economic development;
- to generate other sources of funding for integrated waste management through Public-Private Partnerships within the Cape Town municipal area;
- to improve the income generated by the Council's waste services;
- to optimise the utilisation of the Council's resources and capital; and
- to regulate waste and the associated services that will ensure sustainability and prevent impact or harm to people and the environment

The MSA S.78(3) assessment of alternate service delivery mechanisms findings and recommendations as considered and adopted by Council in March 2011 gives effect to the long-term vision, as part of the integration strategy to achieve large volume waste diversion from landfills. This is driven by the need to comply with the provisions of NEMWA, which compels municipalities to consider waste minimisation in terms of ensuring service provision.

Synopsis of Situation Analysis of Waste Management in City of Cape Town

Population Growth and Development Profiles: City of Cape Town

The City of Cape Town's Solid Waste Management (SWM) Department is the service authority and regulator of waste management activities in Cape Town, per the system of delegations and the municipality's executive powers conferred on it in law. It is also one of the providers of services in the metropolitan municipal area of approximately 2 461 km^2 with approximately 3.7 million people. Waste management services are required by 1 103 182 households (includes growth estimate on 2006 Census), which are either provided directly by the Department or via a contracted-in service that includes community based contracts.

Almost one-third of the population lives in approximately 230 Informal settlements consisting of an estimated 193 951 households. The informal areas are where growth and demand for services occurs mostly on an unplanned basis. The current population growth stands at approximately 3% p.a.

Residential services are provided by the Council (SWM Dept) or via Council tenders, which include community based contracts in informal settlements. The Council derives income by billing for services per its annually revised Tariff schedule, unless a household is deemed "indigent". Indigence is based on a household's income threshold. Services to indigent households are deemed "free basic services", and are funded from government grants and cross-subsidised by a portion of the collected rates.

Commerce is serviced by either the SWM Dept or private sector companies, while the industrial sector, which also generates special and hazardous waste, is serviced exclusively by the private sector in terms of Council policy.

Economic Development and Waste Growth Profiles

Tourism to the greater Cape Town area is a key success factor for economic development even though the global economic downturn affected visitor numbers to Cape Town in 2009. Projected SA Tourism figures almost doubled from 2009 to 2010. The visitor's number is 3 million in 2011, and is estimated to be sustained in 2012.

The property development sector is another strong economic activity that contributes to waste generation. Building and demolition waste (rubble) makes up an estimated 22% by mass of the city's waste. Recovery for processing and reuse is an imperative that will continue to be explored. A number of demolition companies operate mobile crushing/ processing plants. The City also has a contract at three sites to increase the diversion of this type of waste from landfill. Many operational departments have committed themselves to use crushed construction waste in their future developments and contracts. The SWM Department is also driving the development of engineering specifications for building and demolition waste material, which could result in the acceptance of the aggregate in road building contracts.

Without minimization and other effects such as the global economic crisis, the projected current waste growth rate reduced from approximately 7% p.a. to approximately 2.5% p.a. Waste minimisation partnerships linked to alternate technology solutions that will improve environmental performance, is a strategic focus in the medium to long-term.

High-grade composting activities in the city are small-scale in relation to the need. The SWM Department decommissioned a mixed waste composting plant (Radnor) due to unsustainable operating conditions. The Radnor and Bellville South Compost plants were commissioned in the late 1960s to treat Municipal Solid Waste (MSW) and convert the organic component into compost. Since both the quality and sales of compost have declined over the last decade, Council decided to close the Radnor facility and undertake Section 78(1), (2) and (3) assessments in terms of the MSA. As part of this assessment the City has now decided to investigate Public-Private Partnerships (PPP) (Resolution dated 9 December 2010) for both the above facilities and this process is currently underway in the City and will also need to be aligned with the overall findings and recommendations in this report from a systems perspective.This presents a potential partnership opportunity as it is estimated that greens and organic waste make up approximately 36% by volume of the waste stream.

A number of key industries and business sectors related to the production, consumption and processing of packaging materials in or near Cape Town feature prominently in terms of a city-wide recycling and waste reduction strategy. This must, however, link with provincial and national initiatives for good effect. One of two major glass manufacturing factories in SA is located in the city. The plastics industry has a scattered presence, and despite the lack of major processing capacity for recycled materials, there are companies in the plastics sector with plans.

The metals industry is well represented by many small scrap metal dealers and some large processors. An unfortunate consequence of metals recovery is the unlawful recovery of especially copper and aluminium cable, and steel and cast iron street furniture that creates negative knock-on effects in the general economy and many times induces hazardous conditions.

The paper/cardboard industry has limited pulping capacity in Cape Town. The major companies have some processing infrastructure (mills). The sorting and baling of different types of paper still needs to be shipped to other centres for treatment and final processing. The previous strong demand for recovered paper and cardboard due to fires in the plantations that affected raw material supplies was dampened by the global recession, which also affected other commodity sectors. The net result is that the demand for recycled materials was affected world-wide.

Locally, there is a lack of capacity to deal with problem wastes such as tyres, household chemicals, e-waste (electronic, computer and white goods), etc. This often results in dumping practices with unnecessary cost and cleanup effort. The Environmental Conservation Act, 1989 (Act 73 of 1989) Waste Tyre Regulations came into effect on 30 June 2009 and the Industry Waste Management Plan was approved by the Minister. The waste tyre problem is expected to dissipate once mechanisms by the tyre industry have been implemented, but it will still need a lot of pressurizing by the City.

It is anticipated that further alignment in the private and public waste management sector will take place since the City's IWM By-law, the new NEMWA and the Consumer Protection Act were promulgated in 2009. Much depends on the changes arising from the contents of long-awaited new Industry Waste Management Plans. It is expected, however, that the continued downtum in the economy as seen in decreased volumes passing through drop-off sites and transfer stations, is likely to affect these plans and joint industry initiatives for waste minimisation in the city. Combined with budgetary constraints, the implementation of initiatives is likely to be delayed.

Quantities and waste type in the City of Cape Town

A waste categorisation study was commissioned in 2007 to update the data generated for the draft IWM Plan in 2003/04. This study was augmented in 2009 by a further study. This entailed evaluating the types of waste that are generated in clearly delineated areas to understand what infrastructure and systems are best suited. These reports and data will be used in years to come to plan further initiatives and schedule services as part of creating efficiencies and improve the effectiveness of the City's waste management system.

The split between waste from residential areas vs. industrial and commercial areas is approximately 46:54. Analyses are complex for a variety of reasons, and will become more complex in future due to densification strategies and the nature of land use in central business districts and adjacent industrial areas, which are being developed more and more with a residential component in mind.

It is estimated that households generate approximately 46%, industry (free and hazardous waste) approximately 27% and commerce (trade waste) approximately 26% of waste in the City.

Building and demolition waste (or builder's rubble) and garden waste (greens) together constitute approximately 30% of the total waste stream. Other significant fractions collectively make up what is referred to as "packaging waste" that represents between 6% and 8%, while the remainder consists of a variety of organic waste, hazardous materials, e-waste, tyres sand, etc.

Organic fractions tend to be higher in informal areas, whilst packaging waste volumes are quite high in formal areas, especially in high income areas.

In 2007/08, 2.1-million tons of general waste was landfilled in the three City owned landfill sites in the municipal area, whilst in 2008/09 1.7-million tonnes of waste was landfilled, and 1.6-million tons in 2009/10. The amount landfilled in 2010/2011 was 1 685 927million tons and which is still less than the projected growth estimates of 2006/07 when the IWM Policy was adopted.

The figure that constitutes an airspace saving due to waste being diverted for recovery to process, recycle and reuse, currently translates to approximately 8.67% of waste by mass not being landfilled for 20010/2011. This takes into account the complex dynamics of population growth and economic development (with major property development and tourism growth) over the past decade, which has slowed down waste generation due to the economic downturn of the past year.

Landfill airspace savings have been achieved despite a downturn in the economy, using various landfill diversion mechanisms that include the composting of garden greens, the crushing and reuse of builder's rubble, diverting glass, paper, cardboard, certain plastics and metal cans from landfill, as well as the pilot separation at source project ("Think Twice") that services 418 300 residential lifts (99 990 formal households) which has been operational for four years now.

Households receiving Waste Management Services

Currently, 100% of formal households in the City receive a weekly curbside refuse collection service, which is defined as the basic service level in the IWM Policy.

The servicing of individual backyarders is still a huge challenge, however the first phase of containerization and individual servicing recently commenced at Council housing stock in Facreton.

Of the known 230 informal settlements, 100% of the households receive a weekly integrated door-to-door refuse collection and area cleaning service. Newly encountered dwellings in existing informal settlements and/or new informal settlements do receive a temporary emergency service until the standard basic service can be implemented.

Key Strategic Issues and Challenges in Cape Town

The following issues and challenges face the City in the short term regarding waste management and the imperative to minimise waste:

- The existing bulk waste infrastructure is operating at near capacity and as a result is depleting the internationally accepted 15 year airspace reserve;
- Bulk Waste infrastructure creation is lagging behind due to land availability, funding constraints and long planning lead time.
- A solution is needed to service all "backyarders" on a sustainable basis;
- Upsets in the commercial waste management sector due to unfavorable economic conditions that invariably put residential service delivery contracts at risk, as well as affect the implementation of joint initiatives to increase the volumes of recycled materials that are diverted from City landfills;
  - Implementation of the recommendations of the Municipal Systems Act Section 78 investigation, specifically regarding the management of waste minimization through community partnerships and Public-Private Partnerships as alternate service mechanisms to aid job creation, local economic and SMME development, and to alleviate poverty, whilst improving general cleanliness conditions in the city.
  - External funding is required to reduce the onerous financial implications of implementing various waste minimisation initiatives per the IWM Plan, especially where there are private sector economic benefits;
  - The development of strategic partnerships, both financial and non-financial, with business, industry and other sectors of society to commission large scale waste minimization initiatives;
- Capital required for refurbishment and replacement of aging compactor fleet (more than eight years average age);
- Inadequate maintenance budget resulting in poor condition of compactor fleet;
- Capital for establishing integrated, multiple activities where clustered waste management infrastructure exists or is being planned, such as at new integrated waste management facilities: Tygerberg design 2011/12; Helderberg design 2015/16. (Completion of construction work estimated at 3 years after finalization of design).
- Delays experienced in the approval processes for the planning and establishment of the new regional landfill site;
- Finalizing an agreement with a competent service provider to mitigate landfill gas (methane) to reduce climate change and environmental impacts;
- Establishment of a Contract Office to ensure attention to detail of Conditions of Service for new tenders, and timeous, successful completion and adjudication of tenders, and the subsequent management of contracts;
- The impact that recycling initiatives would have on tariffs and the legacy challenge of full cost recovery;
- The finalisation of an organisational structure to appoint key strategic staff at all levels to reduce skills and capacity shortages, especially at supervisory level, to instill the required discipline for improved service delivery and revenue levels;
- Streamlining of Council HR policies for shift work is needed to allow utilisation of staff and infrastructure where service and private sector needs require this;

Solid Waste Management Department's Strategy for Integrated Waste Management and Service Delivery

The SWM Dept's overarching long-term strategy underpinned by several support strategies are detailed in the IWM Plan's activity schedule, which contains projects, key activities and timelines. Together with the Council's IWM Policy, the IWM Plan is the implementation vehicle for integrated waste management services. The key aim of the strategy is to turn the traditional waste management and service delivery approach around by increasing waste minimisation and reducing the natural resource, socio-economic and environmental impacts to comply with the objects of the Waste Act. The strategies/ plans that make up the overarching IWM Strategy are summarized below, and provide an overview of various goals and objectives.

1) **Service Authority Strategy**: Institute measures that will enable the Council's waste management Service Authority roles and responsibilities when engaging alternate service provision mechanisms.
2) **Municipal Area Waste Regulator Strategy**: Institute measures that will enable the Council's waste management regulatory roles and responsibilities. An approved IWM By-law now underpins and strengthens this role.
3) **Intergovernmental Strategy**: Clarify roles and responsibilities of different spheres, engage DEA and DEA&DP regarding waste minimisation focus areas that need specific support at a national level. Interact vigorously with all law enforcement agencies to combat illegal activities involving waste.
4) **Lobbying Strategy**: Lobby the relevant legislators for the necessary changes that must enable Extended Producer Responsibility (EPR), Cleaner Production, materials recovery and recycling. Lobby National Treasury for increased funding for integrated waste management at the municipal level.
5) **Labour Utilisation Strategy:** Create an acceptable, flexible staffing arrangement at strategic infrastructure facilities that will improve asset utilisation and reduce illegal dumping.
6) **Service Delivery Strategy:** Improve service levels to ensure equitable, effective and affordable services, focusing on containerisation (wheelie bins) in all formal residential areas where geography does not constrain this, and continue to provide an integrated, community-based collection and area cleaning service for all informal settlements (deemed national best practice).
7) **Recycling and Waste Minimization Strategy**: Develop strategic Public-Private Partnerships specifically aimed at developing sustainable materials recovery and recycling industries that will add value to the economic growth objectives of the city and the region as well as minimise greenhouse gasses.
8) **Stakeholder Communication, Education and Awareness Strategy**: Prepare appropriate campaigns and materials and continue to improve stakeholder attitudes and participation as a base for recycling, and educate people regarding best practical options.
9) **Service Growth Strategy**: Continue with community-based service provision to stimulate job growth, and generate service contracts where it is not possible to service new growth areas with the Council's current resources.
10) **Law Enforcement Strategy**: Implement the IWM by-law and ensure sufficient capacity is available to enforce the Council's waste management by-laws and national and provincial statutes applicable related to waste management.
11) **Revenue Strategy**: Implement contracts, monitoring and reporting measures, combined with billing and debt collection initiatives to improve cost recovery

and revenue completeness. Implement weighbridge and information systems at landfills to improve revenue generated by landfill disposal fees. Complete tariff remodeling to improve sustainability of services.

12) **Funding Strategy:** Procure non-govemment funds and earmark revenue generated through the Council's waste management activities to improve SWM sustainability and minimise future tariff increases.
13) **Fixed Asset Strategy for waste diversion:** Create the necessary bulk infrastructure (regional landfill site, transfer stations, community drop-offs) on a planned, informed basis to prevent a waste management crisis.
14) **Mobile Asset Strategy:** Improve the Council's fleet age either through a combination of capital replacement and refurbishment programme, augmented by a limited full-maintenance leasing (FML) programme.
15) **Infrastructure Asset Management Strategy:** Develop Infrastructure Asset Management Plans for Solid Waste Management Dept, and capacitate the Department to implement and manage plans, with a focus on Fleet Management, as part of a corporate risk-based strategy resolved by the Executive Management Team.
16) **Management Information Strategy:** Develop and implement systems, technology and procedures that will produce specific information on waste, resources and assets for improved decision-making, billing and revenue generation, integrated waste management planning and statutory reporting.
17) **Performance Management Strategy:** Implement systems and manage and improve the Council's personnel and waste management service delivery performance, as well as the waste management sector performance through regular monitoring and evaluation.

Strategic Programmes Goals & Objectives with Key Deliverables / Outcomes

Priorities and objectives are influenced by the strategic issues and challenges listed above. A summary of strategic programmes, projects and initiatives for waste minimisation and service delivery in the short to medium term is set out below. It includes capital and operational programmes adjusted according to the available budget. The activity details contained in the IWM Plan will be updated accordingly for the period starting 2011/12. The aim of the SWM Department is to ensure the long-term sustainability through effective, efficient, economical and affordable waste management service delivery to the city's residents, and to regulate waste management activities across the waste spectrum in the City of Cape Town.

1. Improve access to basic waste management services (cleaning, collection and disposal), minimise (reduce and divert) waste to landfill.
2. Continue with implementation programme of the IWM By-law: register and accredit waste management service providers.
3. Develop and implement a Waste Information System: Dependent on finalisation of National issues by DEA.
4. Implement the recommendations of the comprehensive MSA S. 78(3) assessment into alternate service delivery mechanisms, particularly focused on changes to the Council's waste management system to incorporate large scale waste minimisation.
5. Construct and commission a new Northern region landfill site to provide landfill airspace to replace decommissioned landfills by 2015/16;
6. Rehabilitate old landfill sites (ongoing permit and MFMA requirements).

7. Establish 2 new integrated waste management facilities (Tygerberg and Helderberg):
8. Tygerberg design commenced 2010/11 (construction to follow, three years untill completion);
9. Helderberg design to commence 2015/16;
10. Licensing of all drop-off facilities to comply with NEMA EIA Regulations;
11. Development of mini-MRF's (material recovery facilities) – to meet demand in all areas ;
12. Containerization and implementation of an equitable refuse collection service to backyarders;
13. Implementation of a Seta-accredited Apprenticeship programme
14. The creation of other internal (internship, learnership, in-service-training) and external (bursaries) training opportunities;
15. Continue with the maintenance and expansion of essential infrastructure;
16. Continue with contract services via community-based organisations for integrated area cleaning and waste collection in informal areas and increase the capacity of the Contract Management section to improve management of the contracts;
17. Implement an Expanded Public Works Programme (EPWP) service mechanism approach to ensure the creation of additional job opportunities;
18. Further implement contracts for sandy areas clean-up programmes in disadvantaged formal areas;
19. Continue to monitor and evaluate the efficiency of a residential split-bag waste collection (Think Twice) pilot project in 5 areas 418 300 residential lifts (99 990 formal households)that gives effect to the separation-at-source principle, already started in Aug 2007;
20. Continue with public education and awareness programmes regarding waste management and waste minimisation (part of WasteWise project).
21. Institute aggressive waste management, minimisation and re-use of demolition/ construction rubble through the establishment of rubble crushing plants – contract already awarded and implemented at three sites, with more being planned;
22. Appointment of Transactional advisors and establishment of PPP's regarding waste beneficiation and alternative-technology disposal facilities to give effect to Council's adoption of the MSA S.78 (3) recommendations;
23. Implement a landfill gas mitigation project;
24. Realign depots, staff and implement flexible working hours to achieve improved service efficiencies, to provide an equitable and predictable service, and to improve asset utilisation, access and use by the public;
25. Establish an integrated infrastructure asset management programme for SWM fixed and movable assets, plant, equipment, infrastructure and superstructure to optimise asset use and service delivery, focusing on waste management fleet as a priority;
26. Establish a financial waste information system to ring-fence cost and revenue for all services.

Critical Success Factors

a. Adequate capacity for service delivery in terms of staffing, resource allocation, expenditure and procurement approvals;
b. Realistic adjustment to tariffs and the introduction of new tariffs for services provided to ensure that increasing capital and operating requirements can be funded sustainably;
c. Accurate and complete billing with effective revenue management;
d. Management of all contracts to ensure performance and delivery;
e. Public private partnerships or alternate funding mechanisms for alternate technologies to landfill to provide for growing capital and operational waste management needs and develop capacity to minimize waste to landfills.
f. Implementation of the Integrated Waste Management By-law that can be used to enforce waste minimisation initiatives needed to meet policy and national targets.

Resources available to achieve planned Outcomes (next MTREF period)

Capex[1]	R261,805,510	R338,605,510	R175,005,510
Opex	R2,111,149,876	R2,165,828,671	R2,392,715,076
Staff[2]	3 234	n/a	n/a

Milestones, Targets and Key Performance Indicators, with benchmarks

The Key Performance Indicators for waste management are contained in the Service Delivery Business Implementation Plans (SDBIP's) approved by Council for the next three-year MTREF period in the 5-year term-of-office IDP that started in 2011/2012. The achievement and measuring of targets are in line with SDBIP's, and are reflected at the high level as follows:

1. Increase/maintain basic service access to 100% (impacted by city economic, population growth);
2. Demand Management plan (waste minimisation): Improve landfill airspace savings above 11.95% (mass based) by 2013;
3. 95% Target for implementation of capital projects per the approved schedule for three-year MTREF period starting 2012/2013;
4. Implement a Waste Information System by end-2013 (dependent on finalization of the National Department of Environmental Affairs' system roll-out).

PERFORMANCE AGAINST PLAN

[1] Financial figures per 2012/2013 draft budget estimates (unapproved, to be finalized) at 7%, 11.5%, 8% parameter increase respectively for Collections, Disposal and Area Cleaning, which may change due to future Council resolutions when adopting the final budget.
[2] Figure reflects actual staffing complement as at December 2011, with a marked increase due to the conversion of worker positions from non-permanent to permanent and do not include scares skills shortages needed for service delivery.

Per the milestones and targets set out above, the Solid Waste Management Department of the City of Cape Town has achieved the following during the past year:

1. Basic Services: 100% access to basic services target achieved and maintained.
2. Current airspace savings target of 8.67% (based on mass) achieved to date. Targets are progressively increasing..
3. Landfills surveyed and ground water monitoring completed as per permit conditions.
4. Construction and commissioning of the Kraaifontein Integrated Waste Management Facility (Oostenberg), concept design for Tygerberg Integrated Waste Management Facility is work in progress.
5. Rehabilitation of disused landfills continuing per prioritization schedule.
6. Landfill gas mitigation baseline and feasibility study completed by Central Energy Fund (CEF) and report with recommendations submitted for Council approval to continue with implementation. Successfully negotiated a contract, however CEF at the last minute declined to sign the contract due to changes in legislation. Council took a decision to continue in the lines of a PPP and proceeded with technical and financial feasibility studies.
7. Community-based contracts in informal settlements implemented and being monitored (ongoing).
8. Residential split bag pilot project (Think Twice): five pilot tenders are currently in operation. Four of the tenders focus on individual households and one focuses on flat complexes.
9. Council adoption of the recommendations of the MSA S. 78(3) assessment of alternate service delivery mechanisms in March 2011.
10. Continuing engagement with spheres of government and members of industry, especially the packaging industry, with the aim to increase infrastructure and provide job opportunities to improve the recovery of materials for recycling and reuse.
11. Successful completion of workshops with a variety of industrial and commercial sectors regarding waste minimisation.
12. Continued maintenance of IWEX website developed to provide a free exchange platform for recyclable materials.
13. Continued roll-out of dual weighbridge systems and improved billing at disposal sites.

Major Achievements of a Strategic Nature (Dec 2000 to Dec 2011)

Prior to and since the adoption of an IWM Plan in 2006, the SWM Department has successfully completed a number of notable initiatives and projects to meet the objective of more efficient, effective, sustainable and economically viable waste management services. .

- ***Tariffs, revenue:***
  - Revenue collection: Increased during 2007 to 100.95%;
  - Bin audit project: Has ensured significant correction of billing problems and addition of sites not on billing system that had a marked effect on income levels;

- Tariff convergence: Adopted new tariff structure in 2002/03, duly amended every year since then. The uniform tariff structure defines the cost of a fully tariff-funded collections service according to affordability criteria and service rebates. Further amendments will be aimed at discouraging the disposal of certain waste types as part of the waste minimisation strategy.

- ***Sustainability, Waste Minimisation and Recycling:***
  - Continued successes with the Waste Wise campaign - Festive Season campaign commended by the public media and political leadership;
  - Opening of the Resource Centre at the Athlone Refuse Transfer Station in February 2009 that is being used for community and schools education and visitor communication purposes.
  - Established and upgraded successful of a Waste Exchange Website.
  - Hosted the 1st Cape Town Waste Minimisation Summit in April 2007 involving key industry sectors aimed at instituting recycling and minimisation partnerships;
  - Hosted the 2nd Cape Town Waste Minimisation Summit in March 2009 involving key industry sectors and SMME's aimed at instituting new and building on existing recycling and minimisation partnerships;
  - Cost modeling of the provisions and implications of the Integrated Waste Management By-law was completed by the Stellenbosch University Sustainability Institute with DANIDA funding.
  - Key input on the Sustainability Institute's UNDP-funded report and modeling of waste management (Project title: Integrated Resources Management for Urban Development, UNF/UNFIP Project ID: UND-SAF-03-303);
  - Completion of Compact Fluorescent Light responsible disposal project in partnership with Eskom, the lighting industry and other role players, including a proposed implementation model and guidelines;
  - Held second workshop on alternate technologies to landfill in 2007;
  - Established partnerships with major retailers for waste minimisation;
  - Implementation of the "Think Twice" dual bag collection pilot project in six areas across the City for the diversion of recyclable waste in August 2007 – varying success and lessons learnt for future roll-outs; Successful diversion from landfill of 160 063 tons in 2010/2011.
  - Disposal of builder's rubble at landfills (approximately 286 366 tons in 2010/2011, which includes material set aside for capping purposes);
  - Successful diversion from landfill and chipping and composting of most of the City's garden waste (2010/2011 airspace saving of 142 186 tons, 2009/2010 airspace saving of 334 521m³, 2008/09 airspace saving of 400 197m³, 2007/8 airspace saving of 521 129m³);
  - Continuation of a project for the diversion, crushing and recycling/ reuse of demolition waste, at disposal sites (59 775 ton diverted in the 2008/9 financial year, 26 785 ton in the 2009/2010 financial year and 2 021 tons in the 2010/2011 financial year);

- ***Standardisation of Services across Metro:***

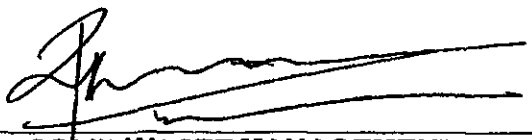
- Once a week refuse collection throughout the year implemented for all areas, and basic levels of service maintained at 100% access to basic refuse collection services during 2010/2011;
- Continued roll-out of containerisation plan implemented in 2006/07 for all formal households, with ongoing repairs and replacement.
- Agreed standard compactor vehicle crew size: Driver plus 4 workers.
- Full implementation of a community-based integrated area cleaning and refuse collection system in informal areas ;
- Ongoing phasing out of weekly skip services in informal areas - only provided as an emergency measure in newly-established settlements.
- Equitable garden refuse collection options and twenty four community drop off sites successfully implemented across the City, each with an average captive area with a 7 km radius;

Capital and Infrastructure Management:

- Record of Decision (RoD) received in 2009 from the MEC for D:EA&DP for the new replacement landfill site to be established near Kalbaskraal; Appeals were lodged against the RoD by members of the community, after which the MEC requested additional information and further investigations to be done by the City. These investigations have been submitted to the office of the MEC for D: EA&DP and are currently being finalized.
- Successful applications to Western Cape Dept of Environment & Development Planning with RoD's for extensions of Bellville South, Coastal Park and Vissershok landfill sites;
- RoD's issued by DEA&DP for Kraaifontein Integrated Waste Management Facility, Tygerberg Refuse Transfer Station, and Helderberg Refuse Transfer Station;
- Completion of Swartklip Transfer Station at the landfill, strategically located close to high-density communities.
- Continuation of rehabilitation of the now-full Brackenfell and Faure landfills.

- ***Policy, Legal and Institutional Development:***
  - FIFA™ 2010 Football World Cup planning completed and budget approved by Council for integrated waste management services.
  - Mayco adopted IWM Policy and Plan as part of 2006/07 IDP (MC08/05/06);
  - Provided comment and input on the NEMA: Waste Management Bill (Bill 39 of 2007) prior to submission to Parliament;
  - City of Cape Town Integrated Waste Management By-law adopted by Council (resolution C15/03/09) on 30 March 2009 (a first for any municipality after the promulgation of the national waste Act on 10 March), and promulgated on 21 August 2009;
  - Council resolution in terms of Municipal Systems Act S.78(2) recommending the appointment of a consultant to assess alternate service delivery mechanisms per S.78(3) (resolution MC23/04/08);
  - Successful implementation of a top management structure for SWM that finalises the transformation from seven Administrations' management structures as one;

- The City was awarded 1st Runner Up in the Cleanest Town (metropolitan municipality category) award in 2009, having won in 2003 and 2007, placed second in 2005, and achieving third place in the Cleanest Town award in 2008 in the SA National competition organised by DEA;
- Council approval for the establishment of an Internal Business Unit (2001).



DIRECTOR: SOLID WASTE MANAGEMENT
Mr. R.KERAAN

DATE 15/05/12

EXECUTIVE DIRECTOR:
UTILITY SERVICES
Mr. L DHLAMINI

DATE 16 May 2012