Solid Waste Management Dept Integrated Waste Management and Service Delivery Sector Plan

Solid Waste Management Sector: City of Cape Town

The City of Cape Town Council’s Solid Waste Management (SWM) Department is the Dept delegated by Council to ensure that such municipal services are provided as required per the SA Constitution, Schedule 5B. The SWM Dept is thus the regulator of waste management activities at a municipal level in Cape Town, and is one of the providers of waste management services in the metropolitan municipal area of approx 2 400 km² and approx 3.2 million people (2006 estimate).

The Dept’s services and those of external service providers have to be aligned and transformed in accordance with the statutory reforms related to the aims of the National Environmental Management: Waste Management Bill, No 39 of 2007, and the current National Waste Management Strategy based on integrated waste management (IWM). This requires additional services over and above the present Constitutional obligations of municipalities to ensure cleaning/cleansing, collection and waste disposal services.

Integrated waste management in Cape Town is guided by the Council’s IWM policy and executed via a statutory, detailed IWM Plan that is part of the Council’s Integrated Development Plan (IDP). Principles and information about the management of waste, service standards and levels, and services provided by the Council are also contained in the IWM policy. The overarching policy objectives are aimed at minimizing waste being produced that is currently disposed at landfill sites or is illegally dumped, to conserve resources and the environment, to ensure basic waste management services, as well as reduce human and environmental health, and socio-economic impacts. Tariff information for the Council’s waste management services is contained in the Council’s Tariff Schedule that is amended annually or by special Council resolution.

Waste minimisation should be measured by the quantity of waste actually landfilled versus the quantity that is successfully diverted from landfills (i.e. the saving on landfill airspace). The challenge is to continually improve residents’ equitable access to basic waste collection services despite the challenges of a growing city and a constrained budget. This is measured by the number of residents with access to these services. City cleanliness is highly visual, and is monitored by a photometric index that measures littering qualitatively, and which could be augmented by the quantum of illegal dumping.

The waste management and minimisation objectives and outcomes have to be achieved concurrently, and should be integrated through various joint initiatives with residents, commerce and industry. To give effect to sustainable integrated waste management services, and to regulate such activities, the Council’s Service Authority role must be enabled via a new Council by-law that is likely to be promulgated in 2008. This will conclude Cape Town’s municipal law reform for waste management that was needed as a consequence of the municipal restructuring in 2000.
To ensure ongoing, effective waste management, the most important tasks at hand relate to replacing almost-redundant infrastructure (full landfills) by creating new infrastructure that will accommodate expected population and economic growth, and to improve access to basic services in informal areas. This includes a new landfill and a system of transfer stations. To ensure waste minimisation, the key tasks are to create waste minimisation and capital infrastructure partnerships that will lead to initiatives for reducing the amount of waste and the Council’s long-term capital expenditure requirements. The waste minimisation strategy is based on various initiatives that are dependent on partnerships with external entities involved in manufacturing, production, alternate technologies to landfill and recycling. Many of the initiatives have good potential for the creation of a sustainable recycling industry that will lead to further job creation in support of local economic growth targets.

**Vision for Waste Management in Cape Town**

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

- to improve access to basic services for residents to as close as possible to 100% as constrained by 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 improve the income generated by the Council’s waste services;
- to optimise the utilisation of the Council’s resources and capital; and
- to generate other sources of funding for integrated waste management through Public-Private Partnerships within the Cape Town municipal area.

**National/Provincial Legislative Requirements**

The SA Constitution, Schedule 5B requires municipalities to provide cleaning/cleansing, waste collection and disposal services and infrastructure. The National Waste Management Strategy, 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 documents that define how to achieve an integrated waste management approach, focusing on waste minimisation and service delivery. Final public comment on the *National Environmental Management: Waste Management Bill, No 39 of 2007* was accepted in Parliament in November 2007. The Bill is likely to become the framework legislation for the regulation of waste management activities in South Africa during 2008.

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 *Waste Management Bill*, a municipality must formulate an IWM Plan as a means of minimizing waste disposal, providing services, preserving and extending the use of landfill sites and protecting the health and the environment.
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);
6. National Waste Management Strategy (DEAT, 1999);
7. The National Water Act (Act 36 of 1998);
8. The Hazardous Substances Act (Act 15 of 1973) & Regulations;
9. The National Health Act (Act 63 of 1977);
10. The Occupational Health and Safety Act (Act 85 of 1993) and Regulations;
11. The Road Traffic Act (Act 29 of 1989);
12. The Local Government Municipal Systems Act (Act 32 of 2000);
13. The Local Government Municipal Structures Act (Act 117 of 1998);
14. The Local Government Municipal Finance Management Act (Act 56 of 2003);
15. Local Agenda 21 (Sustainable Development principles at a local government level – SA is a signatory to the UN’s Agenda 21).

Current Status

Council’s IWM Policy, which underpins the IWM Plan with the overarching aim of striving towards the 2001 Polokwane Declaration’s “zero waste to landfill” goal by 2022, was adopted by Mayco in 2006/2007 (MC08/05/06). A statutory Sector Plan and amended IWM Plan that was adopted as part of the IDP in 2007/08, is now being reviewed and updated. This Sector Plan is aimed at complying with statutory requirements for local government and environmental management, and achieving targets that are set in the Council’s IWM Policy. It aligns waste management activities in Cape Town with national, provincial and Council priorities.

Council’s IWM by-law for the regulation of waste management activities within the City’s jurisdiction is currently being drafted as part of the required institutional framework for waste management, as defined by the Waste Management Bill. A public participation process for the draft by-law will be undertaken in 2008. Ideally, the new by-law should be promulgated after the Bill has been promulgated. It is also anticipated that further alignment in the private waste management sector will be required once the Act has been promulgated. Breach of contract for refuse collection in certain residential areas experienced by the SWM Dept in 2007 is symptomatic of further changes and turbulence that can be expected.
Major Achievements of a Strategic Nature (Dec 2000 to Jan 2007)

- **Tariffs, revenue:**
  - Revenue collection: Increased during 2007 to 100.95%;
  - Bin audit project: Pilot phase in 2007 has already ensured significant correction of billing problems and addition of sites not on billing system that will have 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 in 2007:**
  - Key input on Stellenbosch University 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);
  - Finalisation of Compact Fluorescent Light disposal project in partnership with Eskom, the lighting industry and other role players, including proposed implementation model and adjudication of tender for appointment of a consultant to implement a sustainable solution for CFL Disposal;
  - Held second workshop on alternate technologies to landfill;
  - Hosted the Cape Town Waste Minimisation Summit involving key industry sectors aimed at instituting recycling and minimisation partnerships;
  - Established partnerships with major retailers for waste minimisation;
  - Implementation of the “Think Twice” dual bag collection pilot project in five areas across the City for the diversion of recyclable waste – varying success and lessons learnt for future roll-outs;
  - Free-of-charge disposal at landfills of builder’s rubble (approx 109 500 tonnes);
  - Successful diversion from landfill and chipping and composting of most of the City’s garden waste (current est. airspace saving approx 483 000 m$^3$ per annum);
  - Commencement of two pilot projects for the diversion, crushing and recycling/reuse of demolition waste;
  - Continued successes with the Waste Wise campaign - Festive Season campaign commended by the public media and political leadership;
  - Establishment of a Waste Exchange Website, currently being upgraded, and an Information Centre at the Civic Centre in the Cape Town CBD.

- **Standardisation of services across Metro by e.g.**
  - Once a week refuse collection throughout the year implemented for all areas, and basic levels of service maintained at 99% during 2007;
  - 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;
  - Continued roll-out of containerisation plan for all formal households, with ongoing repairs and replacement implemented in 2006/07.
- Equitable garden refuse collection options and twenty community drop off sites successfully implemented across the City, each with an average captive area with a 7 km radius;
- Agreed standard compactor vehicle crew size: Driver plus 4 workers.

**Capital and Infrastructure Management:**
- Record of Decision (ROD) received in 2007 from the MEC for DEA&DP for a landfill site to be established between Atlantis and Duinefontein;
- 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 Oostenberg Refuse Transfer Station and Tygerberg Refuse Transfer Station;
- Completion of Swartklip Transfer Station at the landfill, strategically located close to high-density communities.
- Continuation of rehabilitation of the full Brackenfell and Faure landfills.

**Policy, legal and institutional Development:**
- The City was awarded the Cleanest Town (metropolitan municipality category) award in 2007, also having won in 2003 and coming second in 2005 in the biennial SA National competition organised by DEAT;
- Council approval for the establishment of an Internal Business Unit;
- Successful implementation of a top management structure for SWM that finalises the transformation from seven Administrations’ management structures as one;
- 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.

**Key Strategic Issues and Challenges**

- The continued reduction of Basic Service backlogs (residential waste collection) and application of available funds are impacted by unplanned population growth;
- A solution is needed to service “backyards” on a sustainable basis.
- Service provision during the FIFA 2010 event that will ensure minimal impact on normal services.
- Upsets in the private waste management sector that will put service delivery at risk;
- Waste management infrastructure creation and funding are inadequate for expanding services to prevent health and environmental degradation, due to the projected growth in the city,
- Integration of multiple activities where clustered waste management infrastructure is being developed, such as at new transfer stations;
- Capital required for upgrade and replacement of compactor fleet to improve condition, availability and age (more than eight years average age).
- The future replacement or the establishment of additional infrastructure will be hampered by the inadequate income generated from tariff or rates provisions.
- Mitigation of landfill gas to reduce environmental impacts;
External funding is required for the onerous financial implications needed to implement various waste minimisation initiatives per the IWM Plan.

The development of strategic partnerships, both financial and non-financial, with business, industry and other sectors of society.

Attention to detail regarding Conditions of Service for new tenders, and timeous, successful completion and adjudication of tenders;

Remodelling of tariffs that will make allowances for future recycling incentives.

The finalisation of an organisational structure and the appointment of key staff at all levels is needed to reduce skills and capacity shortages, especially at supervisory level to instill the required discipline to improve service delivery and income levels.

Streamlining of HR policies for shift work is needed to allow utilisation of staff and infrastructure where service and private sector needs require this.

The implementation of the IWM Plan will require cooperation from all persons and businesses, to increase waste minimisation efforts and reduce associated impacts that are not a municipal function per se.

Completion of the Municipal Systems Act S.78 investigation and decisions regarding 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.

**Critical Success Factors**

a. Adequate capacity for service delivery in terms of staffing, resource allocation, expenditure and procurement approvals;

b. Realistic adjustment to tariffs for services provided to ensure that capital and operating requirements can be funded sustainably;

c. Accurate and complete billing;

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. Legislation that can be used to enforce waste minimisation initiatives needed to meet policy and national targets.

**Synopsis of situation analysis of waste management in City of Cape Town**

**Population Growth and Development profiles: City of Cape Town**

The SWM Dept provides services to residential and public areas, as well to parts of commerce, whilst the private sector services the industrial sector and sectors with special (hazardous) waste needs. The Council derives income by billing for services per its Tariff schedule. The city's population size is approx 3.2 million people (909 391 households, 2006 estimate). Almost one-third of the population lives in approx. 222 informal settlements, which is where growth and demand for services occurs on an unplanned basis.
Current population growth averages approx 2% p.a. Tourism to the area is a key economic development success factor. Projected figures almost double the current visitor numbers to Cape Town to 3 million per annum by 2010. The property development sector in Cape Town is another strong economic activity that contributes to waste generation. Without minimisation, the projected growth rate for waste is approx 7% p.a., which is higher than the expected net population growth. Waste minimisation and partnerships that will provide alternate technologies to landfill become key strategic focuses in the medium to long-term, otherwise the city will experience rapid environmental and health degradation and waste management services will become unstable.

Tourism growth is planned to increase from approx 1,7-million to 3-million by 2010 according to the tourism authorities. Along with this, waste generation is expected to increase, but planning for the FIFA 2010 event is aimed at leveraging the event to implement several initiatives for the event and beyond aimed at mitigating waste and stimulating the recycling economy.

A number of key industries and business sectors present in or near Cape Town should feature prominently in terms of a city-wide recycling and waste reduction strategy that could link with and support provincial and national initiatives. One of two major glass factories in SA is situated in the city. The plastics industry has a scattered presence, and despite the lack of processing capacity for recycled materials, there are apparently plans by some companies in the plastics sector to establish a factory.

The paper/cardboard industry has very limited pulping capacity in Cape Town, but the major companies have infrastructure in place for the sorting and baling of different types of paper that is still shipped away for treatment and final processing.

The metal industry is well represented by many small scrap metal dealers and some large processors. As such, the unlawful recovery of especially copper and aluminium cable and steel street furniture creates negative knock-on effects in the general economy.

High-grade composting activities in the city are small scale in relation to the need. The SWM Dept decommissioned its mixed waste composting plant (Radnor) due to unsustainable operating conditions. This presents an opportunity in future.

Building and construction rubble recovery, for processing and reuse is fairly successful. A number of demolition companies operate mobile crushing/processing plants, and the City also has tenders running for these activities.

There is currently a lack of local capacity to deal with problem wastes such as tyres, household chemicals, e-waste (electronic, computer and white goods), etc.

**Quantities and waste type in the City of Cape Town**
In 2006/07, approx 2.7 million tonnes of general waste was landfilled in landfills in the municipal area. Cape Town currently reduces waste to landfill by approx 14% through various mechanisms that include the composting of garden greens, the crushing and reuse of builder’s rubble, and diverting glass, some plastics and cans from landfill. The target for 2011/12 is set at 16.5%, taking into account the complexities added through population growth and economic development that has resulted in major property development, as well as tourism growth.

A study was commissioned in 2007 to update the data obtained from the input on the draft IWM Plan in 2003/04. This entails evaluating what type of waste is generated per pre-defined area. The latest figures are not available at the time of the report.

**Waste Management Services**

A twenty-year infrastructure replacement and development master plan has been compiled by the Dept in support of projected growth and development in Cape Town. Currently the Council’s waste management services and infrastructure include refuse collection with a dedicated compactor fleet of 169 vehicles, area cleaning and cleansing, two transfer stations, a material recovery facility and three landfills for general and low hazardous waste disposal, and twenty community drop-off facilities used for the recovery of recyclable materials including garden greens.

The private sector also provides services to business and industry, the latter being serviced exclusively by the private sector, especially concerning hazardous waste. The only Class H:H (high hazard) landfill site is privately owned and operated.

Changes in the waste management sector are highly dependent on the introduction of new mechanisms that will make recycling and waste minimisation a sustainable reality. Success will further depend on a combination of regulatory instruments, financial incentives and disincentives, and the active participation and education of consumers, producers and waste management service providers.

The establishment of a sustainable recycling sector presents a viable economic opportunity that will create additional jobs. The creation of partnerships with the private sector and other role players is a key strategy, since recycling occurs during manufacturing and production. Basic premises are that agreements between spheres of government and the private sector will be concluded soon, and that legislation will be promulgated to support and drive waste minimisation.

**Persons not receiving Waste Management Services**

It is estimated that 99% of the 909 931 households in the city receive a weekly refuse collection service with occasional area cleaning as the basic service level per the available budget, resources and the IWM Policy. The outstanding 1% is due to unplanned growth of informal settlements, where an emergency service is temporarily instituted until the basic services can be extended.
City of Cape Town’s Solid Waste Management Dept’s Strategy for Integrated Waste Management and Service Delivery

Compared with experiences in countries like New Zealand (a pioneer in waste minimisation since 1995), it is likely to take ten years and longer to establish sustainable recycling as an integral part of the Cape Town, the regional and the national economy. Much national support and development is necessary, as waste minimisation and recycling activities are not localized. It needs 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 SWM Dept’s overarching long-term integrated waste management strategy and support strategies are contained in detail in the IWM Plan activity schedule. This is the implementation vehicle for the Council’s IWM Policy. The key aim is to turn the traditional waste management and service delivery approach around to increase waste minimisation and reduce the socio-economic and environmental impacts. The strategies/ plans that make up the overarching IWM Strategy are summarised 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) **Intergovernmental Strategy**: Clarify roles and responsibilities and lobby for increased funding for integrated waste management.

3) **Municipal Area Waste Regulator Strategy**: Institute measures that will enable the Council’s waste management regulatory roles and responsibilities.

4) **Labour Utilisation Strategy**: Create an acceptable, flexible staffing arrangement at strategic infrastructure that will improve asset utilisation and reduce illegal dumping.

5) **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 an integrated collection and area cleaning service for all informal settlements.

6) **Recycling and Waste Minimisation 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 green house gasses (GHG’s).

7) **Lobbying Strategy**: Lobby the relevant legislators for the necessary changes that must enable EPR, CP&SC, materials recovery and recycling.

8) **Stakeholder Communication, Education and Awareness Strategy**: Improve stakeholder attitudes and participation as a base for recycling, and educate people regarding best practical options.

9) **Service Growth Strategy**: Institute community-based service provision to stimulate job growth, and generate private sector contracts in growth areas that are not possible to service via with the Council’s current resources.
10) **Law Enforcement Strategy**: Generate an 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.

12) **Funding Strategy**: Procure non-government 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**: 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 capital procurement and by a repair and maintenance programme, or more likely, augment through a full-maintenance leasing (FML) programme.

15) **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.

16) **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.

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**Strategic Programmes Goals & Objectives with Key Deliverables/ Outcomes**

The summary of strategic programmes, projects and initiatives for waste minimisation and service delivery in the short to medium term is set out below. The activity details contained in the IWM Plan are being updated accordingly for the period starting 2007/08. The aim of the SWM Dept is to ensure the long-term sustainability regarding effective, efficient and economical waste management service delivery for the city’s residents, and to regulate waste management activities across the waste spectrum in the City of Cape Town.

- a. Minimise waste to landfill, improve access to basic waste management services, complete an IWM By-law for promulgation and implementation, and implement a Waste Information System.

- b. Key projects and initiatives:
  1. Construct and commission a new Northern region landfill site to provide landfill airspace for closed landfills by 2011/12;
  2. Establish 3 new transfer stations:
     1. Oostenberg project starts 2007/08 (three years till commissioning);
     2. Tygerberg, commences 2008/09 (three years till commissioning);
     3. Helderberg commences 2009/10 (three years till commissioning).
  3. Roll-out of mini-MRF’s (material recovery facilities).
  4. Establish an alternative-technology disposal facility by 2008/09.
  5. Implement contract services via community-based organisations for integrated area cleaning and waste collection in informal areas by 2007/08.
vi. Implement sandy areas clean-up programmes contracts in disadvantaged communities via community-based organisations by 2008/09.

vii. Establish a split-bag collection system, roll-out to start 2007/08.

viii. Roll-out education and awareness programmes regarding waste management and waste minimisation (continuation).

ix. Institute aggressive waste management, minimisation and re-use of builders’ rubble by facilitating the establishment of rubble crushing plants, and implementing by-law enforcement and tariffs.

x. 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.

xi. Rehabilitate landfill sites (ongoing).

xii. Establish a preventative asset maintenance programme for SWM fixed and movable assets, plant, equipment, infrastructure and superstructure.

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Resources to be used to achieve planned Outcomes (next MTREF period)

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Key Performance Indicators, with benchmarks

The KPI’s are contained in the SDBIP’s for the next three-year MTREF period and 5-year term-of-office IDP starting 2007/08. The achievement and measuring of targets are in line with Service Delivery Business Implementation Plans (SDBIP’s), and are reflected at the high level as follows:

1. Demand Management plan (waste minimisation): Improve landfill airspace savings from 14% to 16.5% by 2011/12;

2. Increase/maintain basic service access to 99% (impacted by city economic, planned and unplanned population growth);

3. Area cleanliness (as measured per a photometric index) to be increased to 67 on the photometric index (as benchmarked in the IWM Policy).

4. Implement capital projects per the approved schedule for three-year MTREF period starting 2008/09;

5. Promulgate a new City of Cape Town IWM By-law by June 2008 to align waste management law enforcement with national imperatives and repeal all previous by-laws (SWM Dept’s contribution to the Council’s law reform and assuming that the Waste Management Bill has been enacted);

¹ Financial figures per 2007/08 draft budget estimates (unapproved, not finalised) at 5.1% parameter growth, which may change due to future Council resolutions.

² Figure reflects actual staff complement as at February 2007, and do not include critical vacancies or scarce skills shortages needed for service delivery.
6. Implement a Waste Information System by end-2007 (dependent on finalisation of the Western Cape Province DEA&DP and the national Dept of Environment and Tourism’s system roll-out).