

Waste Management Business Models in South Africa

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Waste Management Business Models in South Africa

I have been researching the waste management sector in South Africa for a report that I am writing and wish to share some of the findings with you here today

- Cape Town
- Johannesburg
- Tshwane

Waste Management Business Models in South Africa (continued)

Main aim of the study is to answer the following questions

How does the South Africa define waste?

How does South Africa define waste management?

What are the current business models for managing waste in each city?

What are the current trends in waste management and where do future opportunities lie?

Availability of Recent Waste Data in South Africa

There is a notable lack of complete and reliable data on waste generation and management in South Africa at present, despite the publication of the National Waste Information regulation effective since January 2013. This legislation requires that all companies apply to the Department of Environmental Affairs to be registered on the South African Waste Information Centre for the purpose of reporting all waste management information as often as four times a year. Unfortunately, this requirement is not being strictly enforced, resulting in incomplete ad hoc information posted to the database. Various other authorities including the Council for Scientific and Industrial Research (CSIR) and most municipalities have been contacted in an attempt to update figures but were unable to provide enough information for an accurate estimate of waste generated and managed in the country. Most authorities indicated that they themselves await the new National Waste Information Baseline report.

According to the November 2012 Baseline report, a total of **59,353,910 tons** of waste was generated in South Africa in 2011. Of this only 10% was recycled resulting in over 53 million tons ending in landfills.

Pikitup was not forthcoming to share information on activities and unable to contact Tshwane municipality to date.



Source: National Waste Information Baseline Report 2012); Frost & Sullivan

Defined Wastes in South Africa

Hazardous

According to the Amendment Act this is any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment and includes hazardous substances, materials or objects within business waste, residue deposits and residue stockpiles. **There are various degrees of hazardous waste ranging from H1 (extreme hazard) to H5 (low hazard).**

WASTE

General

According to the Amendment Act this is any waste that does not pose an immediate hazard or threat to health or to the environment, and includes:

- Domestic waste
- Building and demolition waste
- Business waste
- Inert waste
- Any waste classified as non-hazardous waste in terms of the regulations made under Section 69.

Source: NEMWA (26 of 2014); Frost & Sullivan

General Waste

Inert Waste

Waste that:

- Does not undergo any significant physical, chemical, or biological transformation after disposal
- Does not burn, react physically or chemically biodegrade or otherwise adversely affect any other matter or environment with which it may come into contact
- Does not impact negatively on the environment, because of its pollutant content and because the toxicity of its leachate is insignificant

Business Waste

Waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment or government administration purposes

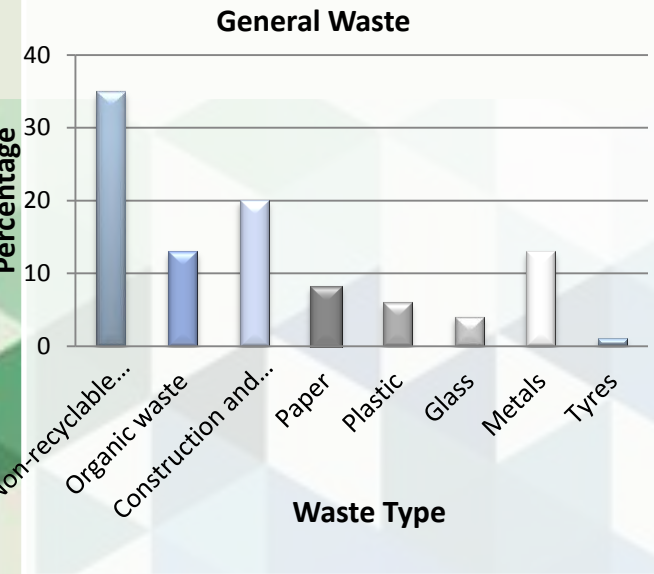
Building and Demolition Waste

Waste, excluding hazardous waste, produced during the construction, alteration, repair or demolition of any structure, and includes rubble, earth, rock and wood displaced during that construction, alteration, repair or demolition

General Waste

Domestic Waste

Waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes



Hazardous Waste

Residue Stockpile

Any debris, discard, tailings, slimes, screening, slurry, waste rock, foundry sand, mineral processing plant waste, ash, or any other product derived from or incidental to a mining operation and which is stockpile, stored or accumulated within the mining area for potential re-use, or which is disposed of, by the holder of a mining right, mining permit or, production right or an old order right, including historic mines and dumps created before the implementation of the Act

Business Waste

Waste that emanates from premises that are used wholly or mainly for commercial, retails, wholesale, entertainment or government admisitration purpose that is hazardous

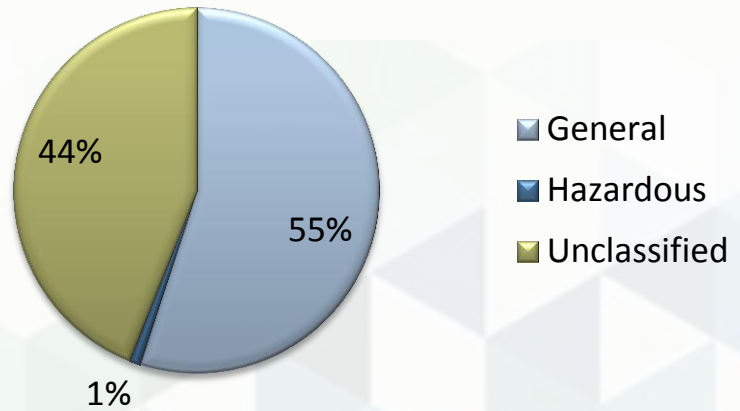


Residue Deposits

Any residue stockpile remaining at the termination, cancellation or expiry of a processing right, mining right, mining permit, exploration right or production right

According to the November 2012 Baseline report, **1,319,096 tons** of hazardous waste was generated in 2011. Of this approximately 6% was recycled and 4% treated, resulting in 90% going to landfills.

Waste Composition as Percentage of Total Waste Generated in South Africa, 2011



Source: National Waste Information Baseline Report 2012); NEMWA 2014; Frost & Sullivan

Image source: : National Waste Information Baseline Report, 2012 ; Frost & Sullivan

The Role of Private Participants in South Africa

According to the Municipal Systems Act the City can either be a supplier or a procurer of the services defined by national legislation. Section 78(1) specifically defines what activities the municipality should do themselves and what should be outsourced. According to the Municipal Finance Management Act 56 of 2003, the municipality may not sign any contract with private providers for longer than three years at a time without initiating a long legal process involving public participation and motivation. In the case of the City of Johannesburg, the city has entered into contracts with a wholly-owned private company called Pikitup, while the City of Cape Town has entered into contracts with various independent private participants based on the tender process.



Source: City of Cape Town; City of Joburg; Frost & Sullivan

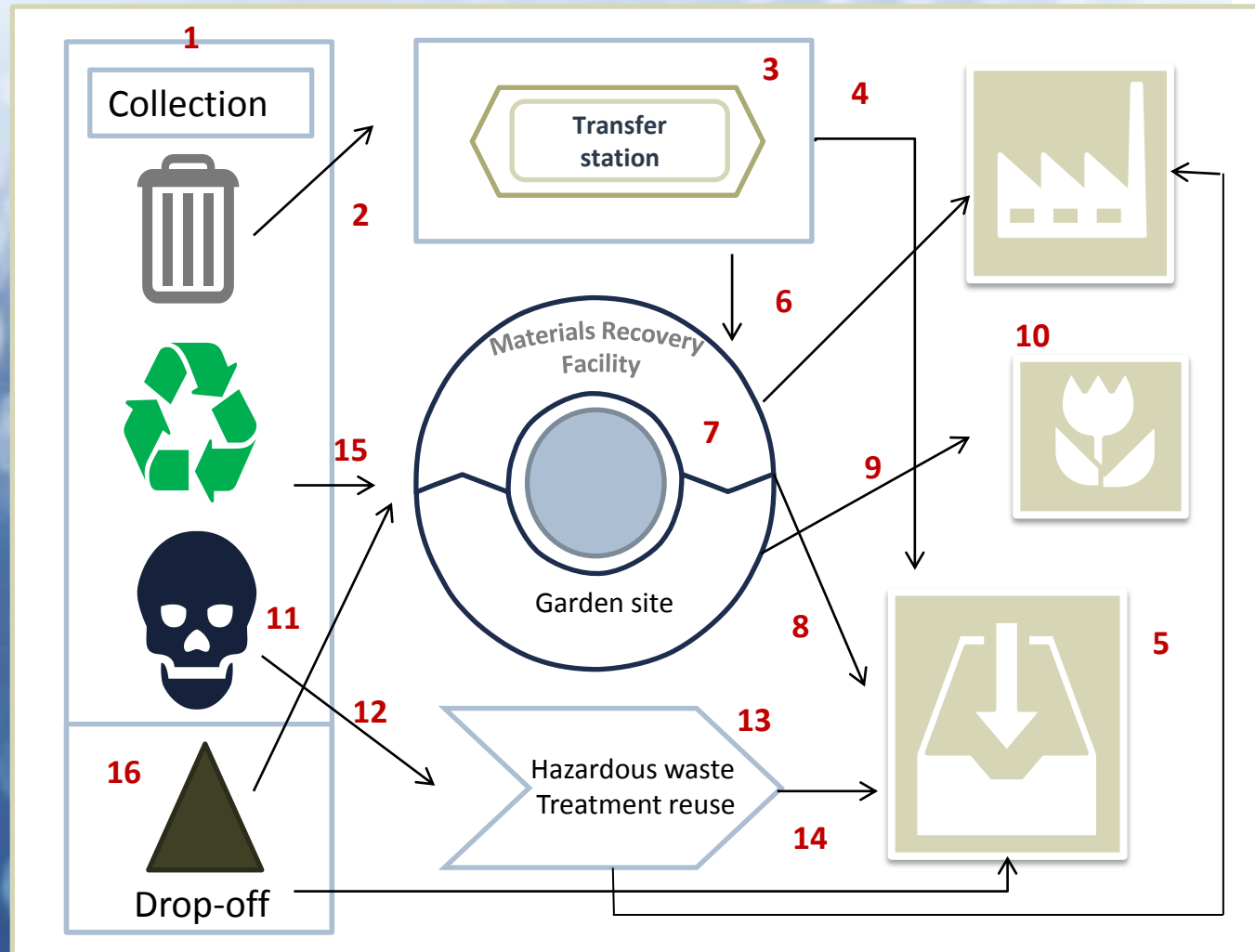
Private versus Municipality Collection and Disposal Services

The following diagram summarises the sources of waste collected by the City of Cape Town versus the waste collected by private participants. The COCT focus collection activities to domestic, natural, and commercial waste although only on a contractual basis. Private participants, however, collect natural, commercial, industrial, and medical waste.

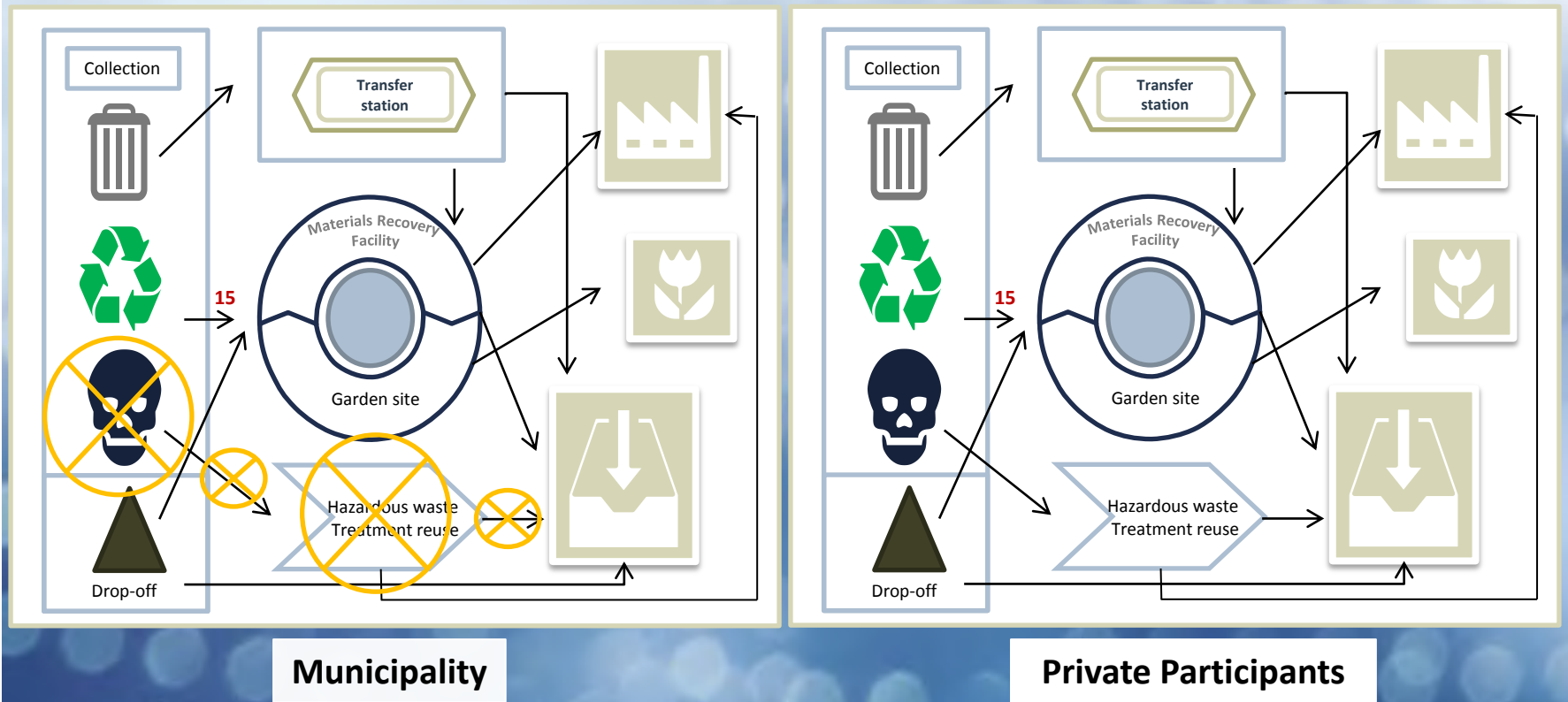


The Ideal Process

1. Sorting waste on site
2. Collecting and transporting general waste
3. Managing the transfer station
4. Transporting waste to landfill
5. Landfill management
6. Transport recycling
7. Sorting, treating and finally selling recycled material
8. Transport to landfill
9. Transport to compost facility
10. Compost waste
11. The onsite treatment of hazardous waste
12. Transporting hazardous material
13. Neutralise or encase hazardous waste
14. Transport to landfill
15. Collect and transport pre-sorted recycling
16. Waste is disposed of at drop-off sites

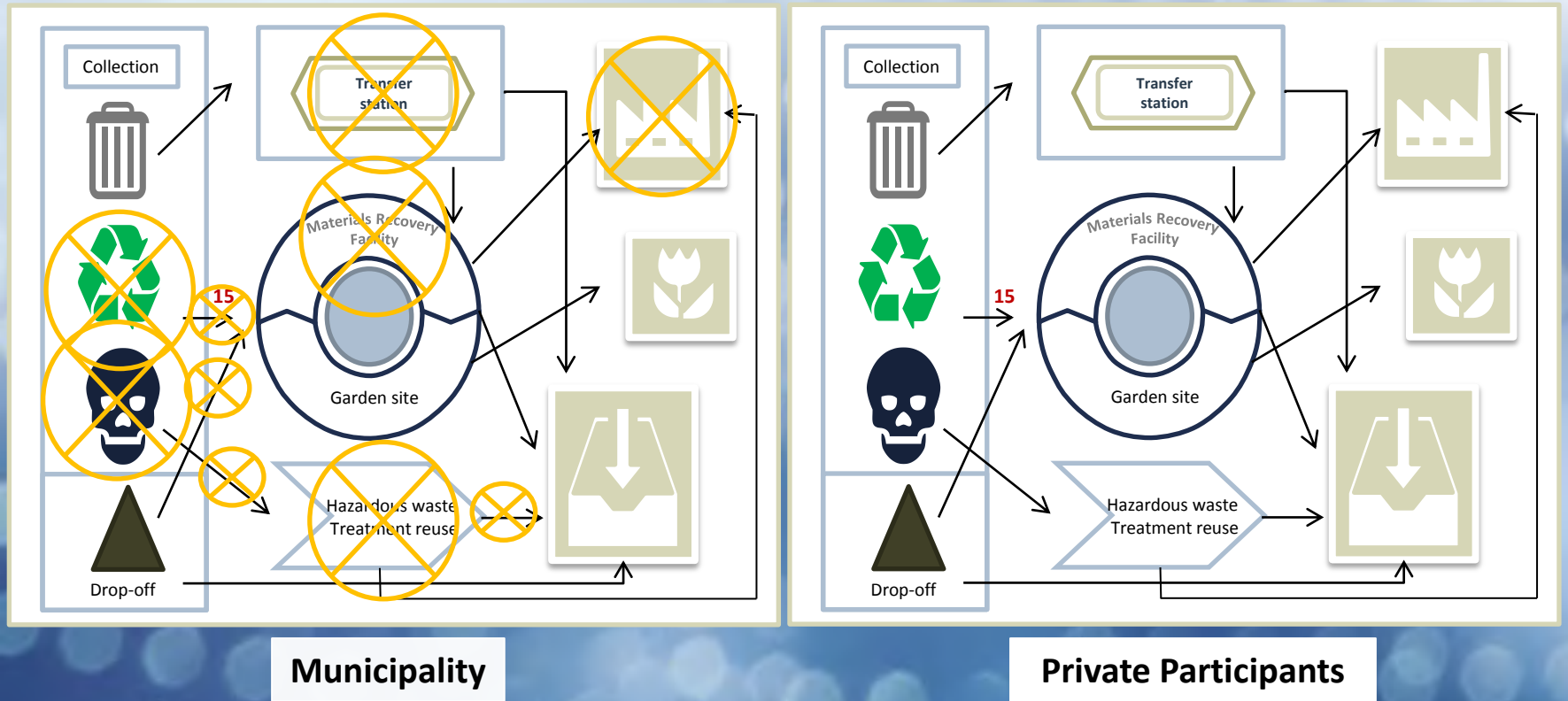


Waste Management in Cape Town



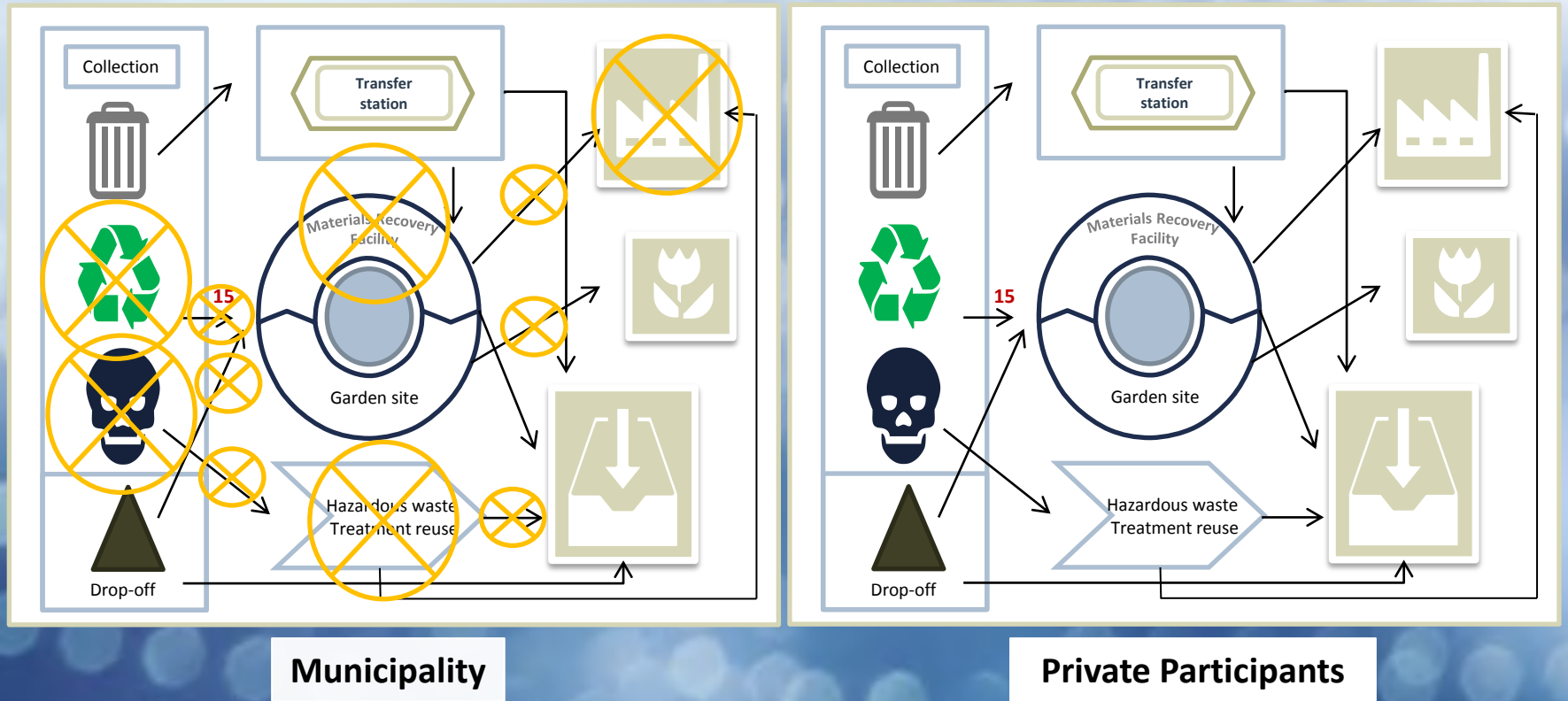
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Waste Management in Johannesburg



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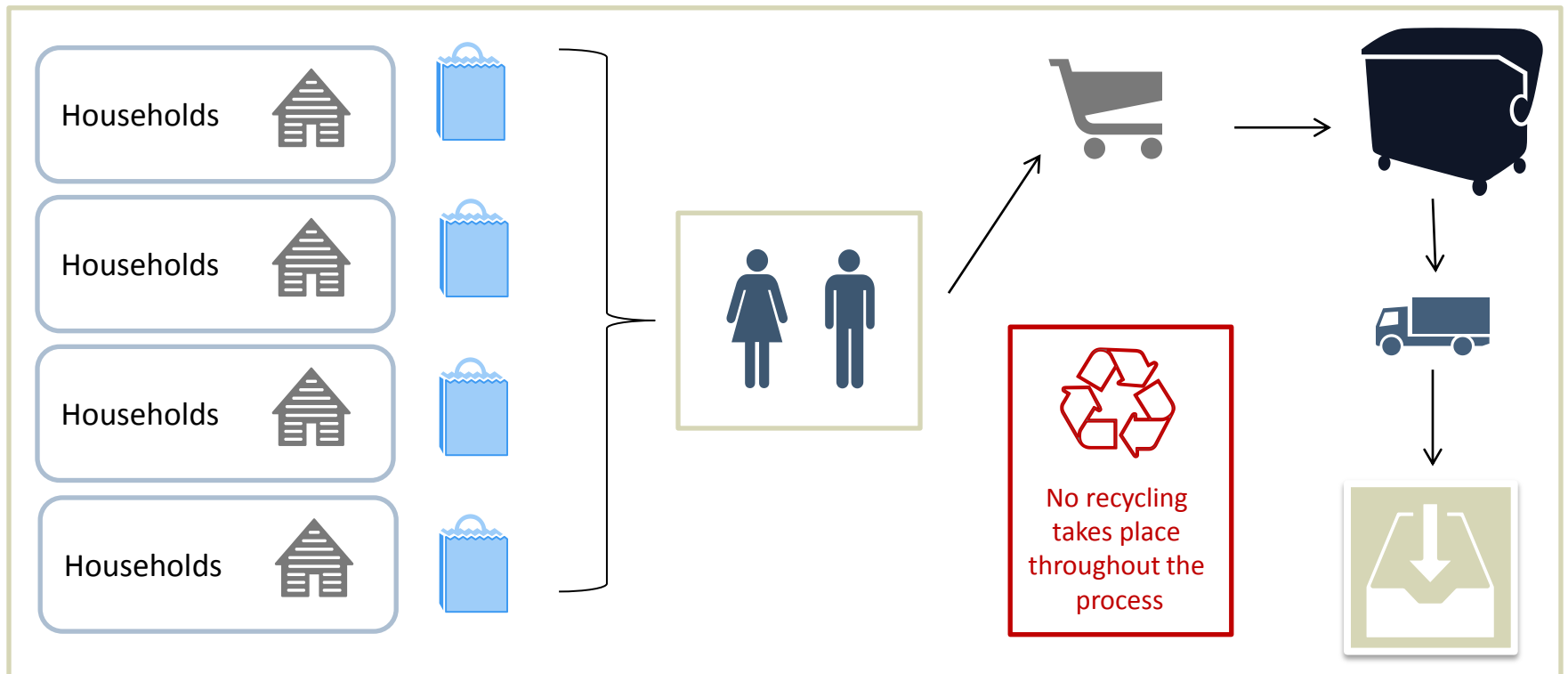
Waste Management in Tshwane



1. Sorting waste on site
2. Collecting and transporting general waste
3. Managing the transfer station
4. Transporting waste to landfill
5. Landfill management
6. Transport recycling
7. Sorting, treating and finally selling recycled material
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9. The onsite treatment of hazardous waste
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13. Transport recycling

Waste Collection in the Informal Settlement

The COCT supplies free blue rubbish bags to every household. The full bags are collected and replaced with empty ones once a week by individuals contracted with the city. These individuals make use of wheel barrows to transport the waste to sealed shipping containers. The shipping containers are then emptied and the waste taken to landfill by a second contractor. None of this waste is separated for recycling.



Source: COCT 2015 ; Frost & Sullivan

Noteworthy Initiatives Implemented by Big Business in South Africa

Several South African businesses have identified the importance of sustainable business practices and as such have gone over and beyond what is expected of them in terms of legislation. The following slides will profile the efforts of a few such businesses.

Woolworths

Woolworths has introduced various initiatives in its stores to reduce waste. It recycles all in-store signage and carry baskets, and all upgraded shelving is made from recycled materials. It also recycles all plastic hangers through its Hangerman hanger-recycling project.

Woolworths has replaced cardboard boxes with reusable plastic solutions and the majority of its packaging is made from recycled materials including recycled polyethylene terephthalate (rPET) and Recycled High Density Polyethylene (rHDPE). Moreover, packaging is ethically sourced when recycled materials are not used.

The company has set up recycling drop-off sites at Engen Garages and at selected food stores and provides drop-off sites for certain types of eWaste (waste consisting of electronic devices) within their stores.

South African Breweries (SAB)

SAB has made a commitment to use input resources efficiently and to limit the amount of waste generated by operations, that is sent to landfill.

Approximately 67% of the waste generated by SAB is classified as organic material including waste yeast and tub and spent grains. The organic waste is either sold to health food manufacturers, farmers, pet food manufacturers and cement and compost manufacturers. The Ibhayi brewery in the Eastern Cape donates spent grains to local black farmers and a means of investing in the greater community.

All broken glass bottles are recycled and used as an input into the manufacture of new glass bottles, while fertiliser and energy are generated from wastewater.

SAB has also reduced the weight of its packaging saving on raw materials and reducing the volume of waste going to landfill. Up to 80% of the beer bottles used by SAB are returnable and the company has invested in education programmes and recycling through recycling organisations including The Glass Recycling Association and Collect-a-Can.

Cape Town International Convention Centre (CTICC)

The CTICC generates approximately 497,000 tons of waste per annum and only 74,500 tons thereof was collected by COCT and sent to landfill. Roughly, less than 20% of the amount of waste recycled or composted is sent to landfill.

The CTICC separate recycling at source where possible by offering a three-bin system on site, after which a waste contractor further separates waste and only the remainder is sent to landfill. The facility has also implemented an organic waste system to divert the the fair amount of organic waste generated through its catering services to composting facilities.

All waste streams generated on site are barcoded per conference room and kitchen allowing for granular traceability.

Hotel Verde

This South African hotel has been named the greenest in the world after receiving its second Leadership in Energy and Environmental Design Platinum Green Building Certification by the United States Green Building Council, partly for its world class waste management solutions. It is one of six hotels in the world to receive this certification and the only one in Africa. The hotel has introduced a unique incentive scheme to encourage its customers to dispose of waste responsibly. It has created a currency called Verdino which is earned when sustainable actions are taken, such as separating waste from recyclables in the hotel rooms and other areas on site. These coins are valued at R5.00 each and can be redeemed for any service offered by the hotel.

Future Trends In Waste Management Business Models

Municipalities will remain to focus their waste management efforts on general waste generated by residents. There is a great need for municipalities to invest in additional skills, service offerings, and infrastructure in the form of transfer stations, material recovery facilities, and recycling collection services.

There is a growing need for on site waste management services, as businesses are held accountable for their waste generation and participation in recycling activities.

The private participants in the waste sector offer comprehensive and efficient solutions to commercial and industrial waste generators. There are several competitors in this market, but most of them still prioritise sending waste to landfill as it remains the cheapest option. Consumers are increasingly putting pressure on these private participants to minimise waste to landfill, forcing them to find affordable innovative solutions which may entail vertical merges or acquisitions with recyclers.

The National Waste Management Strategy set optimistic targets of establishing 2,600 new small and medium businesses in the waste sector as well as 69,000 new waste related jobs by 2016.

On site waste management has begun to include waste data management services as compliance to providing waste information is being increasingly enforced.

Municipalities are moving away from providing waste management services themselves in favour of contracting or partnering with private participants who specialised in such services.

Private participants have changed their focus over the last five years from merely collecting and transporting waste to a far wider service offering including treatment and recycling of waste. This is mainly due to the ever increasing cost of transport. This is likely to continue into the future.

Opportunities in Waste Management

There is a need for additional composting facilities to which garden refuse can be sent. The resulting product can then be sold on to local nurseries.

A recycling separation at source system could be set up in the informal settlements.

There is a noteworthy opportunity in the diversion of waste to landfill. This includes recycling, repurposing or recovering waste, and reintroducing it into the market. The profile of the type of business most likely to be successful in this space is small, flexible, and has access to innovative project funding models. The key to success lies in the demand for recycled material, and independent recyclers can be very successful if they identify and secure a buyer for the recycled material and a private supplier, as this market is driven by buyers.

The various cooperatives who collect recycling from residents could become more formalised and organised.

There is need for more transfer stations across the country as well as the continued maintenance and upgrading of current infrastructure.

Waste collected from the informal settlements stands to be intercepted and recyclables sorted and sold to recycling buy-back centres.

There is an increasing need for specialised on site waste management services in all three cities investigated.

More garden refuse sites are needed across the country.

