

Indicative quantities of recyclable materials disposed of at municipal landfills in 2011

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BACKGROUND

Only a few landfills in Gauteng, where about 45% of South Africa's municipal waste is managed (DEA, 2012), have more than a 10 year lifespan remaining (GDACE, 2008). The City of Cape Town, contributing 70% of the municipal waste in the Western Cape, is also running out of landfill airspace (DEADP, 2011). The best resolve for the increasing pressure on available landfill airspace is a reduction in waste through waste minimisation and recycling, especially of those waste streams consuming most airspace. Reducing waste disposal at landfill is well aligned with the objectives of the National Environmental Management: Waste Act of 2008 (RSA, 2009) and the National Waste Management Strategy (DEA, 2011).

Until recently, recycling has had limited community participation and government involvement in South Africa (Fiehn and Ball, 2005). Post-consumer recovery of recyclables has largely been supported by a large informal recycling sector (Oelofse and Strydom, 2010) playing a significant role in diverting recyclable materials away from landfill (Sembiring and Nitivattananon, 2010).

This research report attempts to estimate the mass of recyclables disposed of at municipal landfills in South Africa in 2011.

METHOD

A literature review of available integrated waste management plans and waste characterisation studies from South African municipalities was undertaken. The results of these findings were combined with the estimates of municipal waste generation in South Africa, 2011, as determined in the National Waste Information Baseline (DEA, 2012) to estimate the mass of recyclables disposed of at landfills.

RESULTS

Based on the information from the respective integrated waste management plans of Cape Town, Johannesburg, Tshwane and Mangaung, the sources of municipal waste in 2004 are illustrated in Figure 1.

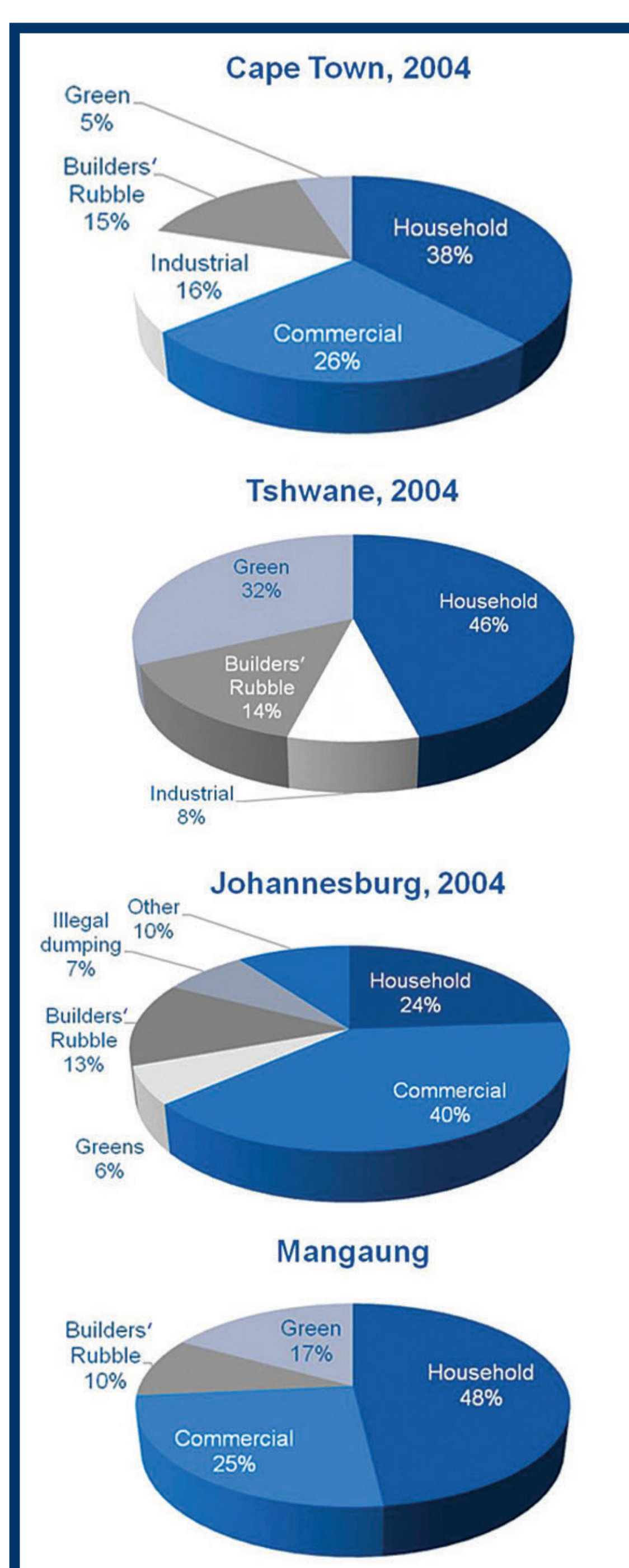


Figure 1: Municipal waste composition by source in 2004

About 25% of the estimated 19 million tonnes of municipal waste generated in South Africa in 2011, were mainline recyclables.



Figure 2: Large amounts of recyclables disposed of at a landfill in eMalaheni (Picture: Suzan Oelofse)

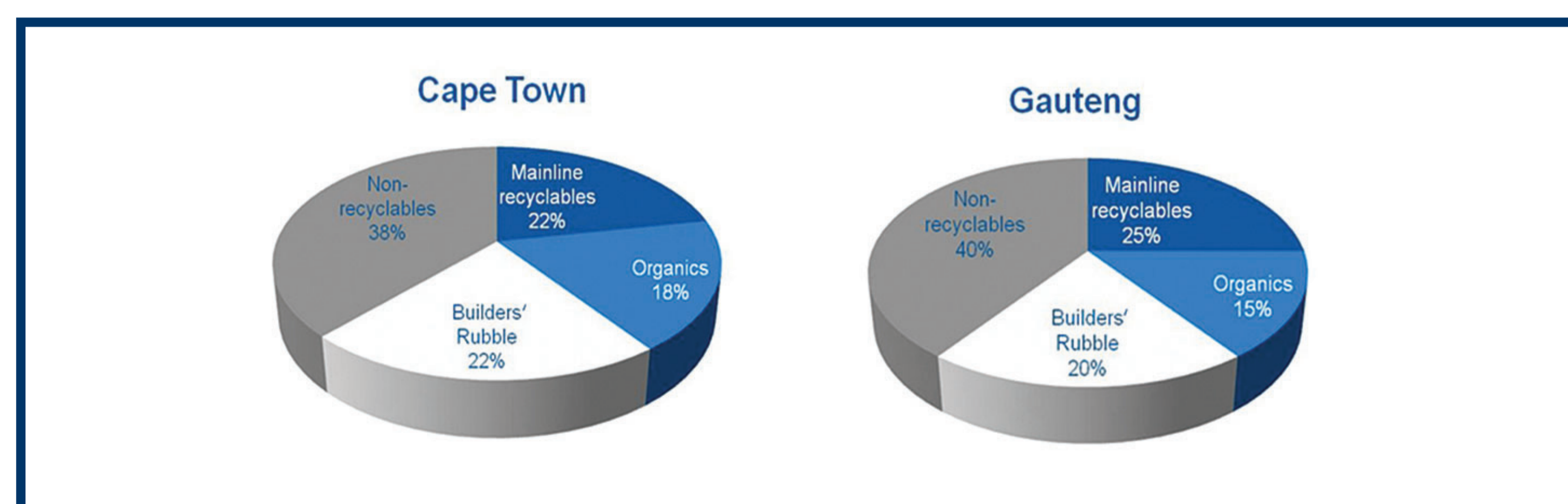


Figure 3: Municipal waste composition (percentages by mass) (source: GDACE, 2008; Wise et al., 2011)

Landfill-based waste characterisation information from Cape Town, Johannesburg and Durban indicates that landfill airspace is largely consumed by green waste, recyclables and builders' rubble (based on volume) (Wise et al., 2011). This is also the case at many other landfills in South Africa as illustrated in Figure 2. Mainline recyclables (including paper, plastics, glass, tins and tyres), from domestic, commercial and industrial sources, contribute 25% (by weight) of the municipal waste generated in Gauteng (GDACE, 2008) and 22% (by weight) in Cape Town (Gibb, 2008) (Figure 3).

It is estimated that in the order of 19 million tonnes of municipal waste was generated in South Africa in 2011 (DEA, 2012). If it is assumed that the Gauteng waste composition is a reflection of the South African municipal waste composition, then it can be concluded that 25% of the 19 million tonnes of municipal waste (i.e. 4.75 million tons), is mainline recyclables.

CONCLUSIONS

In the order of 4.75 million tonnes of mainline recyclables was recorded as part of the municipal waste stream in South Africa in 2011. The majority of the mainline recyclables was being disposed of at municipal landfills. Mainline recyclables consume the most available landfill airspace, after garden waste. Reducing mainline recyclables disposed of at municipal landfills will result in a significant saving of landfill airspace thereby extending the lifespan of landfills. In addition, recycling of these mainline recyclables will contribute towards saving our natural resources.

It is estimated that if 70% of all households can achieve a 70% recovery rate of recyclables, an overall recovery rate of 49% will be achieved.

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