

# The future of waste management in SA is innovation

By [Kate Stubbs](#)

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The South African waste management industry is constantly developing and can be counted as one that is most efficient within the African continent. However, current statistics highlight that South Africans generate 108 million tonnes of waste per annum, equating to about R25.2bn worth of waste dumped with 90% disposed to landfill sites - which are fast approaching full capacity.



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However, as the waste management industry tends to track GDP, this means that as the economy continues to be volatile and consumption grows, so too does the waste pile. Additionally, with too many valuable resources being lost to landfill sites, without any attempt of recovery of that value, it has now become essential for the industry to look to 2020 as a year where rapid growth, innovation and sustainable solutions are at the forefront of its decisions. It is this reason we are seeing 2020 bring about trends within the industry such as zero waste to landfill, exploring recycling streams and other avenues of revenue generation from waste through the circular economy model, legislation promulgations that need to be adhered to by the industry, as well as new technologies for waste treatment and recovery.

## Zero waste to landfill

Currently the country is recycling only 10% of its waste – making the zero waste to landfill goal by 2020 an ambitious goal. The goal here is to divert 90% of waste from landfills using a ‘whole system’ through recycling, reuse, recovery, beneficiation technologies, and towards value-adding opportunities which have the potential to create numerous environmental, social and economic opportunities for South Africa. As a result, the industry needs to shift its focus from landfilling to creating facilities that can deal with the

valuable waste in a more efficient manner – it is this innovative thinking that will lead the waste management sector into the future.

Additionally, with the economy under pressure and the unemployment rate on the rise, it is becoming essential to develop and invest in alternative waste solutions to create job opportunities in the country. Companies will need to ‘work smarter’, taking advantage of data analytics as well as seeking new approaches to increase efficiency and improve profitability. Smart technology will soon assist companies to keep up with the increasingly stringent contamination requirements and reduce needless pickups - ultimately making recycling easier and cutting costs.

## Waste management moving towards digitisation

The cost of waste management continues to increase, it seems that ‘up’ is the only direction it is expected to go in the foreseeable future. To meet this rising cost challenge, while still remaining competitive, the waste management industry will need to embrace innovation and technology which is currently driving change across all sectors globally. The digital space offers real opportunity to optimise efficiencies and automate processes – bringing with it more robotic mechanisms into waste management and the automation of waste treatment. To date, international case studies show that the robotic recycling revolution brings significant cost savings and improved revenue streams from high-purity recyclables, which are now more diverse, thanks to unique recognition capabilities made possible by artificial intelligence.

The digitisation of waste collection and recycling programmes provide important benefits where waste-to-energy facilities will benefit, given that they can now automate complex industrial processes. In fact, waste collection and source separation recycling programmes are already digitised in many cities – a direction that the South African industry is preparing to adopt as well going forward. Semi-driverless waste collection vehicles have already been tested with good results globally and this commercialisation will deliver substantial benefits in operational costs, as well endless optimisation opportunities – like increased safety and less occupational risks.

## **Legislation promulgation in full form**

In an effort to not only curb the potential looming waste crisis, but also to institute enforceable mechanisms to drive change in behaviour, the South African government has already released (and continues to release) changes to the National Environment Management: Waste Act of 2008. An examples of this is seen through the legislation promulgation by the Department of Environment, Forestry and Fisheries (DEFF) which placed a ban on all forms of liquid waste, as well as hazardous waste with a calorific value of >20MJ/kg from landfill disposal from 23 August 2019.

Additionally, the National Pricing Strategy for Waste Management, which aims to standardise and create the review of charges from time to time involved in waste management, has signalled a massive shift in South African waste legislation and places significant importance for waste management providers to start offering cost effective and zero-waste-to-landfill options going forward. As a result, those companies in this sector that embrace innovative solutions as well as alternative revenue generation strategies – are the ones that will remain competitive.

## **Circular economy offering a future solution**

These changes are also in line with global trends of zero waste to landfill and promoting 'circular economy' thinking – which aim to challenge the status quo and encourage a mind-set change around waste and waste management. A circular economy, for instance, is a reformative system in which resource input, waste, emission and energy leakage are minimised. This means eliminating unnecessary wastage and waste generation that would eventually be disposed of at a landfill site. This can only be achieved by optimising resource efficiency through sustainable product designs, recovery, re-use and recycling of products, or energy production through the systematic approach of the waste hierarchy.

So, we can see, that the waste sector goes far beyond traditional recycling. In fact, moving in 2020, the local waste sector will continue to grow at a rapid pace while ensuring it meets global standards – but it can only do so by understanding the above challenges and tackling them with a long-term view - one that will take South Africa's waste industry into a green and profitable future.

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