

Circularity, industrial symbiosis and carbon reduction will drive waste management in 2022

 By [Brian Kusel](#)

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The South African waste management sector in 2021 saw interesting regulatory developments being discussed, like the Extended-Producer Responsibility (EPR) regulations and the upcoming Western Cape organic waste 50% landfill ban.



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To ensure the successful implementation of these regulatory mechanisms, the waste sector will need to adopt tech-enabled and data-rich systems to monitor material flows (including solid and organic waste streams) to ensure that businesses are compliant and promote a circular economy.

Promoting a circular economy will continue to be the talk of the new year. Here are some trends that we need to keep an eye on in 2022:

Enforcing the 50% reduction of organic waste to landfill

The discussion around the 50% reduction of organic waste to landfill in 2022 and a complete ban in 2027 seemed to receive more attention. We have already seen AWT technology like on-site composting units being used more frequently. Every business that produces large volumes of organic waste should keep a waste inventory to track the volumes produced and treated.

Over the next few years, on-site AWT technology will become the preferred treatment method for organic waste, especially as we move towards a complete organic waste landfill ban. Using on-site AWT makes it easier to monitor the volumes of waste produced and treated.



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Integrated waste management to 'industrial symbiosis'

Landfill will face increased pressure in terms of available airspace and compliance. As a result, many municipalities have started exploring the feasibility of integrated waste management (IWM) systems. An IWM system uses various methods and technologies to prevent, treat, repurpose and dispose of waste streams.

A typical IWM system may have source reduction measures, composting systems, a solid waste recyclable facility, digestion plants, a material recovery facility (MRF) and possibly a thermal treatment plant. While IWM is not a new concept to the waste sector, the development of IWM models has been slow at a municipal level.

However, there seems to be a more promising progression with IWM within industrial parks and environments. This leads us to the concept of 'industrial symbiosis,' which implies that businesses and industries should work together to use by-products or unused resources as secondary resources.

These secondary resources could come in the form of waste materials, energy, captured emissions or water. Industrial symbiosis has gained a lot of traction in South Africa over the past five years, with four major industrial symbiosis programmes (ISPs) running in the country currently. With the opportunity to save resources costs, collaborate with other businesses and reduce waste going to landfill, industries across South Africa are joining ISPs.

As industrial symbiosis develops in the country, material supply chains and waste treatment will look at technology that creates secondary resource opportunities. According to the most recent data, since 2015, 215,000 tonnes of waste has been diverted from landfill through South Africa's current ISPs.



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Data-driven circular economy

To fully understand the efficiency around material flows and supply chains, waste management service providers need to emphasize collecting more and better-quality data on waste streams. For the most part, collecting data on waste generation and treatment has been fairly manual, leaving room for human error and oversight. Using technology to collect high-quality, accurate data can strengthen the economic value of a waste stream by positioning it as a secondary resource.

If we specifically look at how this would apply to organic waste, fully knowing the volumes of feedstock (food waste, for example) that would go into a composting unit will give us a good idea of output product volumes (compost). This degree of

understanding allows one to create an accurate business case for a secondary resource produced at a specific site.

More focus on carbon and emissions management

Following COP26, South Africa has been put in the spotlight with our carbon-intensive economy. With carbon and emission production, the waste sector has a role to play. Disposal of the organic waste stream at landfill is still responsible for a large portion of South Africa's carbon and methane emissions. This makes organic waste diversion a priority in 2022 and in further years to come.

Sources: *National Cleaner Production Centre South Africa: 2020 Impact report*

ABOUT BRIAN KUSEL

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