Waste VS resource management

Recent global waste statistics show that in the order of 70% of all municipal waste generated worldwide is disposed at landfill, 11% is treated in thermal and Waste-to-Energy (WtE) facilities and the rest 19% is recycled or treated by mechanical and biological treatment (MBT), including composting.

In SA, approximately 75% of all municipal waste generated still ends up at landfill, while legally, waste should be managed according to the waste management hierarchy and therefore landfilling should only be considered as the last resort.

Introduction of alternative technology solutions in SA are often hampered by the perceived higher cost of alternative technologies when compared to the cost of landfilling. This raises the question as to how one can drive waste management up the waste management hierarchy towards alternative technology solutions when these appear to be more 'expensive' than simply disposing of waste to landfill?

However, a global trend, and an issue that has now emerged in SA, is that of resource efficiency, and the value of waste as secondary resource. The recovery of waste and re-introduction of these resources back into the South African manufacturing sector provides significant opportunity for local economic growth.

The minimum estimated value of waste generated in SA is R25.3bn per annum (or 0.86% of SA's GDP), of which an estimated R17bn is lost to the economy through disposal to landfill.

With potential downstream multiplier effects into the manufacturing sector of 1.5 – 2.5 times, this value lost to the economy could be as high as R40 – R60bn per annum. Finding technology solutions that will unlock this value in waste, will not only benefit the economy but will also protect the environment from the negative impacts of waste disposal and the need to extract more virgin resources, potentially creating even more waste.

A number of key issues facing global recycling and recovery will have to be resolved in order to unlock the resource potential and realise the value of the material in a circular economy. These include:

- Increased efficiency in material recovery and recycling;
- Improved feedstock management, including increased access to recyclables (quantity) and to clean recyclables (quality); and
- Design for dismantling and recycling, in response to the increasing complexity of products and related wastes.

Decisions on technology options for waste, or rather secondary resources management, should be geared towards maximum value recovery within a circular economy. Evaluating the unit value of various waste streams shows, for example, that waste plastic provides a ten times greater value to the economy through materials recycling than through high temperature waste to energy.

Energy recovery being a once-off value extraction process should therefore only be considered for materials that cannot be economically recycled. The focus must be on getting the most energy out of residual waste, rather than getting the most waste into energy recovery. ■

By **Dr Suzan Oelofse**
President
The Institute of Waste Management of Southern Africa (IWMSA)
SOelofse@csir.co.za

@IWMSA