

From waste management to resource efficiency

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COMMENT



In the feature article for Environmental Management in this issue, EnviroServ's Ryan van Heerden highlighted some of the more complex aspects of modern-day waste management. "Along with the whole world, we are now looking at the circular economy, with the goal of trying to keep resources in circulation for as long as possible," he says.

Some waste streams can be taken directly into another industry as a resource, he notes, citing as an example the use of tailings from mines as feedstock for brickmaking. It is not simple, though. Numerous problems need to be resolved, and a value chain must be put in place for every separate opportunity, he notes.

An online article by The Compliance People – a UK-based consultancy that helps organisations manage environmental, health & safety and quality-related compliance – describes resource efficiency in relatively simple terms: 'Using the Earth's limited resources in a sustainable manner, whilst minimising impacts on the environment'.

Van Heerden points out, however, that people often fail to see the complexities involved in managing waste resources, because most of us see it through the lens of domestic recycling and the three Rs: reduce, reuse and recycle.

On the industrial scale, he argues for segregating waste at-source, so it can then be categorised and properly measured to "give producers a far better understanding of where, why, and how much is being produced". This, he says: "immediately encourages companies to optimise their processes towards generating less waste in the first place."

The segregation of waste by material or type is also essential for maximising the value of the waste resources being produced, says Ryan van Heerden, to identify the low hanging fruit in terms of recycling and "for maximising the value of the remaining waste resources".

As well as being good for the environment, The Compliance People's article points out that resource efficiency is good for business. Wasted resources not only cost money by reducing profits, but also represent lost time, effort, work and missed opportunities. Defra, the UK's Department for Environment, Food & Rural Affairs, has predicted that UK businesses could save £6.40-billion per year by improving the way they use resources, while also helping to create and protect jobs.

Disposing of waste, they say, rather than any other management option, has the greatest impact on the environment. It is also the least cost-effective management solution. To make savings, a systematic review of an organisation's waste production is needed to help cut costs and allow the business to

become more competitive.

For one of EnviroServ's key customers in South Africa, Van Heerden is very proud to have "delivered a zero-waste-to-landfill solution" and this industrial client has maintained 100% diversion from landfill for over five years.

Now part of the multinational SUEZ Group, EnviroServ's local service offering has expanded to include water, wastewater, waste-to-energy and chemical recycling, along with a host of cutting-edge environmental processing technologies.

Recycling and/or reusing wastewater has already become the norm. More and more additional value is being extracted from mine wastewater streams, such as the chromite fines from Minprotech managed plants, for example. Tailings dumps can be used for sea barriers, drilling mud and concrete.

The sludge from domestic wastewater can be processed through biogas plants, used to make composts and fertilisers, and for brick production. In addition, the treated water from these processes can be purified to any level of quality required, with more and more mining and processing plants treating their wastewater for reuse rather than discharging it and facing fines.

Waste-to-energy is also emerging in South Africa, as outlined by AES' Dennis Williams: not a silver bullet but an option worth investigating as part of a phased approach.

As well as the direct waste management drive, IIoT and AI technologies embedded in asset management software packages such as Schneider Electric's EcoStruxure can help to modernise industrial infrastructure to "support sustainability efforts by enhancing energy efficiency, reducing waste and optimising resource usage," suggests Etienne du Plessis in our Maintenance and Asset Management feature. "By embracing modernisation, businesses can lower their carbon footprints, comply with environmental regulations and contribute to global sustainability goals," he says.

Good resource efficiency practices, concludes The Compliance People's article, are based around continual improvement, with the aim of saving money and reducing environmental impact. For those who are ready to identify and develop opportunities within their business to become more resource efficient, the environment will thank you!

Through efficiency savings and value-stream optimisation from everything produced, product and waste, companies adopting waste management and resource efficiency principles are likely to end up more profitable, competitive and sustainable, with the potential for plant equipment life also benefitting.



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