How waste is impacting our air

Research from the World Health Organisation (WHO) indicates that seven million people die each year from air pollution, where nine out of ten people breathe in polluted air each day. "This is a staggering number and, this World Environment Day, we encourage all South Africans to strongly reflect on the role everyone has to play in this and, more importantly, what proactive steps can be taken to combat air pollution," says Jason McNeil, CEO at Interwaste.

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The WHO identifies the burning of fossil fuels as one of the top three contributors to carbon emissions and thereby causes for the increase in climate temperatures, as well as negative health impacts. Furthermore, recently, the UN Intergovernmental Panel on Climate Change indicated that if coal-fired electricity is not replaced by 2050, we would be likely to see a major climate crisis in a mere 20 years.

“The concern, however, lies in the fact that while there are many projects on the go, the cost of coal-fuelled electricity supply is a hindrance - resulting in very little being effectively implemented. In Africa, this reality is even less likely in the short-term,” says McNeil. “Simply put, this means that citizens – especially in areas where the leading cause of hospital admissions and respiratory illness is a result of coal-fired electricity – will continue to suffer.”

Taking aim at SA's air and water pollution challenges and leaving no one behind

Dr Nonhlanhla Kalebaila 5 Jun 2019

So, what can be done?

The waste industry is a core component in the fight against air pollution and it is this sector, along with corporate South Africa, that can really make a difference. In fact, the waste sector has a fundamental role to play in innovating to create opportunities to reduce such pollution and help big business find alternatives to the air pollution outputs they produce.

“At the end of the day, its about managing production output wastes as best as possible, while finding environment critical solutions for the fuels and inputs that companies need to use to continue offering their products and services more sustainably,” continues McNeil.

McNeil suggests three key innovations that can reduce the reliance on fossil fuels and consequently the impact on air quality – using waste as a key alternative.

Natural gases and anaerobic digestion

Natural gases, generated from biological, naturally occurring processes such as landfills and anaerobic digestion are produced as a by-product from bacteria eating and breaking down any organic matter. It is rich in methane and is therefore combustible.

This type of gas presents a key opportunity where, through sound waste innovations, waste management companies are able to flare this gas (destroy the methane) to ensure it is not hazardous to the environment, as it is an ozone-destroying gas. Furthermore, this type of gas flaring can also be financially beneficial as carbon credits can be claimed or traded. This type of saving is essential for business – especially now – as government institutes carbon tax.

Through anaerobic digestion, waste can form a fundamental part of the fuel value chain, reduce reliance on coal-powered electricity for smaller entities and ensure a more sustainable model for electricity supply.

For example, Interwaste supplies organic waste to a 4MW anaerobic digestion plant in Bronkhorstspruit, Gauteng, built by Bio2watt. The gas currently being generated from the anaerobic digestion plant in Bronkhorstspruit is being used to generate electricity which is then “wheeled” to BMW’s Rosslyn plant. As a result, Bio2watt supplies up to 30% of BMW’s Rosslyn plant energy requirement from renewable sources. Interwaste also has a license for, and intends on, building more of these plants in the near future.

“Natural gases and the waste that supports this play a fundamental role in driving down the use of fossil fuels and can present alternatives to fuel, an opportunity for municipalities to operate 100% off the grid,” says McNeil. “Additionally, if converted to compressed natural gas (CNG), this can be sold to market or be used as an alternative to vehicle fuel for converted or hybrid engines. Another potential avenue and to affect a positive influence on further reducing human exposure risk by both waste that would have otherwise gone to landfill and reducing reliance on fossil fuel by-products such as petroleum and diesel to power vehicles.”

Waste-derived fuel

Liquid waste and the disposal thereof, is also currently dominating the industry – driven by the ban of all forms of liquid waste from landfill sites. Such a move only challenges the waste management sector to become more forward-thinking in

how we can manage the disposal of this type of waste, to the benefit of the environment, as well as delivering value to clients that are generating such waste.

The blending platform at the Interwaste Germiston facility is a perfect example of this type of innovation. It is used to repurpose certain liquid wastes for alternative industrial means. The facility receives, stores and blends hazardous waste sludge (liquids and solids) with an inherent calorific value, to be used in the pre-calcining process, as a waste-derived fuel (WDF).

“By using the resulting product, we are able to replace fossil fuels destined for cement kilns, with waste derived fuels - setting a global standard where waste management practices are concerned and, critically important, further reduce harmful gas emissions,” says McNeil.

“As the effect of climate change becomes more prominent, there is growing market acceptance worldwide that sound environmental practices must become the new norm for business as usual. The technologies exist. What we need are leaders in all tiers of society with vision and the appetite to drive the agenda for positive change in markets across Africa - and especially as global markets move towards the circular economy ethos of doing “zero harm”. There is huge opportunity to drive the sustainable agenda in Africa, we just need to harness it!” concludes McNeil.