

# Buried Emissions: How Landfills Are Quietly Fueling the Climate Crisis

On the outskirts of every South African city, beyond winding roads and city lights, lies vast mountains of waste we have used and discarded.

The silent evidence of our ever-increasing consumption. From a distance, they appear still and harmless, but beneath the surface are layers of food scraps, plastic, paper, and forgotten leftovers that quietly decompose, releasing gases that drift into the air — unseen, but powerful enough to warm the planet.

Each banana peel, plastic wrapper, or half-eaten meal plays its part. As organic waste breaks down in the oxygen-starved layers of a landfill, it releases methane (CH<sub>4</sub>) — a greenhouse gas over 80 times more effective at trapping heat than carbon dioxide (CO<sub>2</sub>). Although methane doesn't linger in the atmosphere as long as CO<sub>2</sub>, its short-term impact is fierce. It's a silent accelerant of climate change, born from the waste we create, bury, and forget.



Source: World Resources Institute



rest is dumped into landfills, many of which are non-compliant, outdated, or unlicensed; creating toxic hotspots that pollute the air, soil, and groundwater.

Recognising the urgency, government introduced the National Waste Management Strategy (NWMS) under the National Environmental Management: Waste Act (2008). Its mission is

simple in theory but complex in practice: to shift South Africa from a “throwaway” culture to a circular economy, where waste becomes a resource, not a burden. Yet implementation remains an issue. Many municipal systems are fragmented, infrastructure is aging, especially in rural and informal communities where collection services are limited and often resort to open dumping or burning, with devastating health and environmental consequences.

**A nine-year UKZN Study involving more than 30 000 participants offers a striking look into the impact of landfills on surrounding communities.**

The study found that people living close to landfills are more likely to suffer from several chronic clinical conditions and those that lived as close as 5km had a greater likelihood of being diagnosed with asthma, TB, diabetes, or depression. A stark reminder that poor waste management does not just harm the planet; it harms people, especially in vulnerable and underserved communities.

Yet, amidst these challenges, hope is emerging from unexpected places. Across South Africa, a vibrant informal waste sector has quietly been driving the recycling economy for decades.

Between 60,000 and 90,000 waste pickers, recover up to 90% of post-consumer paper and packaging, saving municipalities R300 million to R750 million annually in landfill costs.

Their work reduces emissions, creates livelihoods, and keeps valuable materials in circulation. Still, they remain under-recognised and without formal employment, representing one of the greatest untapped opportunities in South Africa's green transition.

In tandem, the private sector is beginning to lead by example. Various companies such as Shoprite Holdings, Mr Price Group, Sasol, and Sappi Limited are rethinking their waste footprints by setting goals to achieve zero organic waste to landfill, investing in recycling and bio-energy initiatives within their supply chain, and embracing the circular economy. Their efforts signal a shift: businesses are realising that good environmental stewardship is not just about compliance but about resilience, reputation, and responsibility.

South Africa's landfills tell a story of buried emissions, forgotten waste, and hidden opportunity. They remind us that the things we throw away never truly disappear. But they also reveal a path forward: through innovation, inclusion, and collaboration, the waste beneath our feet could fuel not destruction, but change.

As South Africa works toward its Net Zero 2050 goal and updates its Nationally Determined Contributions (NDCs) under the Paris Agreement, improving landfill governance and tackling methane emissions offers one of the most effective climate wins. By licensing and modernising waste facilities, investing in relevant technology, empowering informal waste collectors, and driving behavioural change in households, the country can cut emissions while creating jobs, increasing awareness and improving public health.

The challenge is obvious but so is the opportunity. What we choose to do without waste today will shape the air we breathe, water we drink and the world we leave behind for future generations.

