

WASTE CHARACTERIZATION METHODOLOGY

Helping South Africa put waste to work to improve sustainable low-emissions development.

Waste is valuable in a circular economy

SOUTH AFRICA'S "WASTE CRISIS"

South Africa has effectively run out of landfill space. In 2019, the government decided to divert all organic waste from landfills and signalled a shift in South African waste laws highlighting the need for effective management of waste by waste producers and the waste industry. Most cities and local municipalities across South Africa have very little space left and need to look to more innovative solutions in solving the waste problem than building more landfills.

DECISION SUPPORT

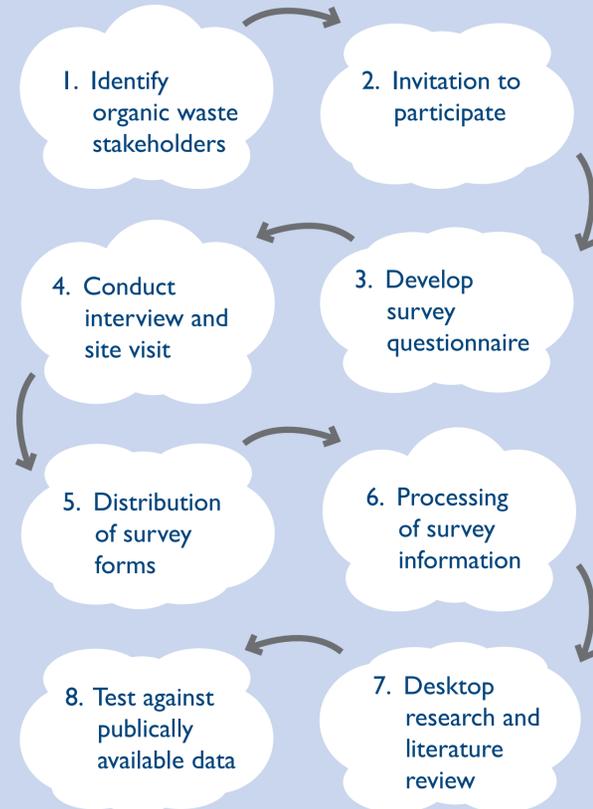
To help the Government of South Africa reduce its waste footprint in a sustainable way that aligns with its green economy strategy, SA-LED developed a data collection methodology to analyze and characterize waste that helps municipalities make more informed decisions about organic waste and alleviate pressure on existing landfills.

CASE STUDY: GARDEN ROUTE DISTRICT MUNICIPALITY (GRDM)

The Garden Route municipality is one of many districts in South Africa with an abundance of organic waste. However, the waste has been either illmanged or not managed at all, which creates disasterous health, safety, and environmental issues.

In the past, private developers have provided the district with proposals to take the valuable waste off of the district's hands and put it to more effective use, but the district did not have the data to be able to evaluate the proposals. SA-LED crated a waste-characterization methodology which helps the municipality to evaluate the proposals and make informed decisions about its organic waste.

Data Collection Methodology

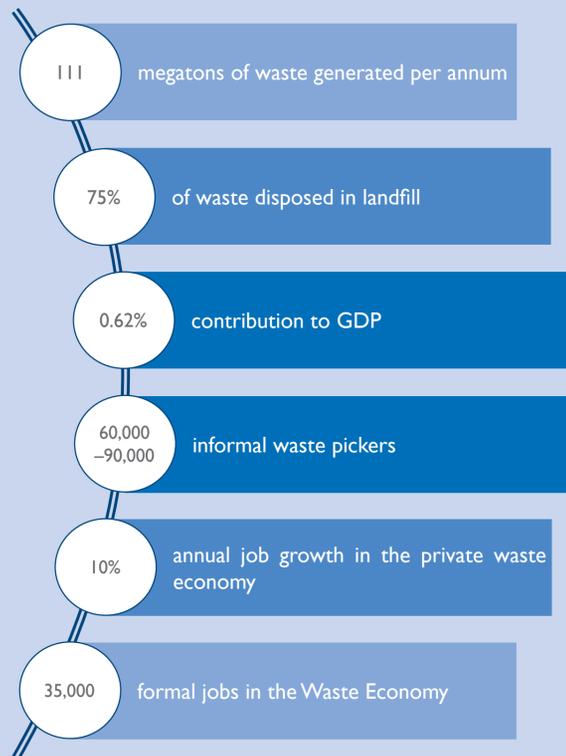


BROADER APPLICATION FOR SOUTH AFRICA

South Africa is moving towards viewing waste as a valuable input in development and municipal service delivery. Major drivers for alternative organic waste management solutions include:

- Diminishing access to landfills and rising cost of disposal. (Fees close to R500/ton in City of Cape Town)
- Legislation and national and local waste management strategies and policies favoring alternative solutions to landfill disposal. Western Cape Government Policy decision 2017: 50% diversion of organic waste by 2022 and landfill ban by 2027
- Environmental imperative: climate change – a move toward low emissions solutions.
- Economic: Waste Beneficiation (additional revenue). Availability of improved and proven alternative technology solutions and economies of scale.
- Job Creation

National Waste Data



Garden Route Project Scope

GRDM GEOGRAPHIC SCOPE	SIX WASTE STREAMS	CHARACTERISTICS	STAKEHOLDERS	SYSTEM & REGULATORY DRIVERS
<ul style="list-style-type: none"> • Bitou • George • Hessequa • Kannaland • Knysna • Mossel Bay • Oudtshoorn 	<ul style="list-style-type: none"> • Sawmills • Furniture manufacturing • Abattoirs • Wastewater treatment works • Green/Garden waste • Alien invasive vegetation 	<ul style="list-style-type: none"> • Types • Volumes • Locations • Fluctuations • Disposal methods, processes and technologies 	<ul style="list-style-type: none"> • Waste producers • Waste processors and handlers • Local Government • Academia and Economic development interest 	<ul style="list-style-type: none"> • Reduce, Reuse, Recycle: Technologies and Market dynamics • Local Municipal capacities • Landfills and logistics • IDP's and IWMP's • Laws, regulations, policies, political will

Six Organic Waste Streams – Data

SAWMILLS (TONNES PER ANNUM)		FURNITURE MANUFACTURING (M ³ PER ANNUM)		ABATTOIRS (TONNES PER ANNUM)	
STUDY	PROXY	STUDY	EST. (WWWG)	STUDY	PROXY
132,182	250,000	700	24,480	6,544	12,850
WWTW (SEWAGE SLUDGE) (TONNES PER ANNUM)		GREEN / GARDEN (TONNES PER ANNUM)		ALIEN INVASIVE VEGETATION (ARC)	
STUDY	PROXY	IWMP DATA	POPULATION BASED DATA	EXPLOITABLE	TOTAL
8,621	8,868	19,278	35,000	1.2 MT	7 MT



(Left) SA-LED Consultants with Municipality co-created the solution to the muni's waste problem. (Right) Typical scenario at a dump site in South Africa.

Photos: Jason Schäffler

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