

10-YEAR WASTE RDI ROADMAP FOR SOUTH AFRICA (2015-2025)

Opportunities for biomass- and organic- waste valorisation



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science
& technology

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REPUBLIC OF SOUTH AFRICA

CSIR
our future through science

65% of municipal organic waste and nearly 100% of industrial biomass (agricultural & food processing) in SA still disposed to land (DEA, 2011)



On average, 57% of MSW generated in Africa is organic waste, the bulk of which is currently dumped, but which could provide significant socio-economic opportunities for countries (UNEP 2018)



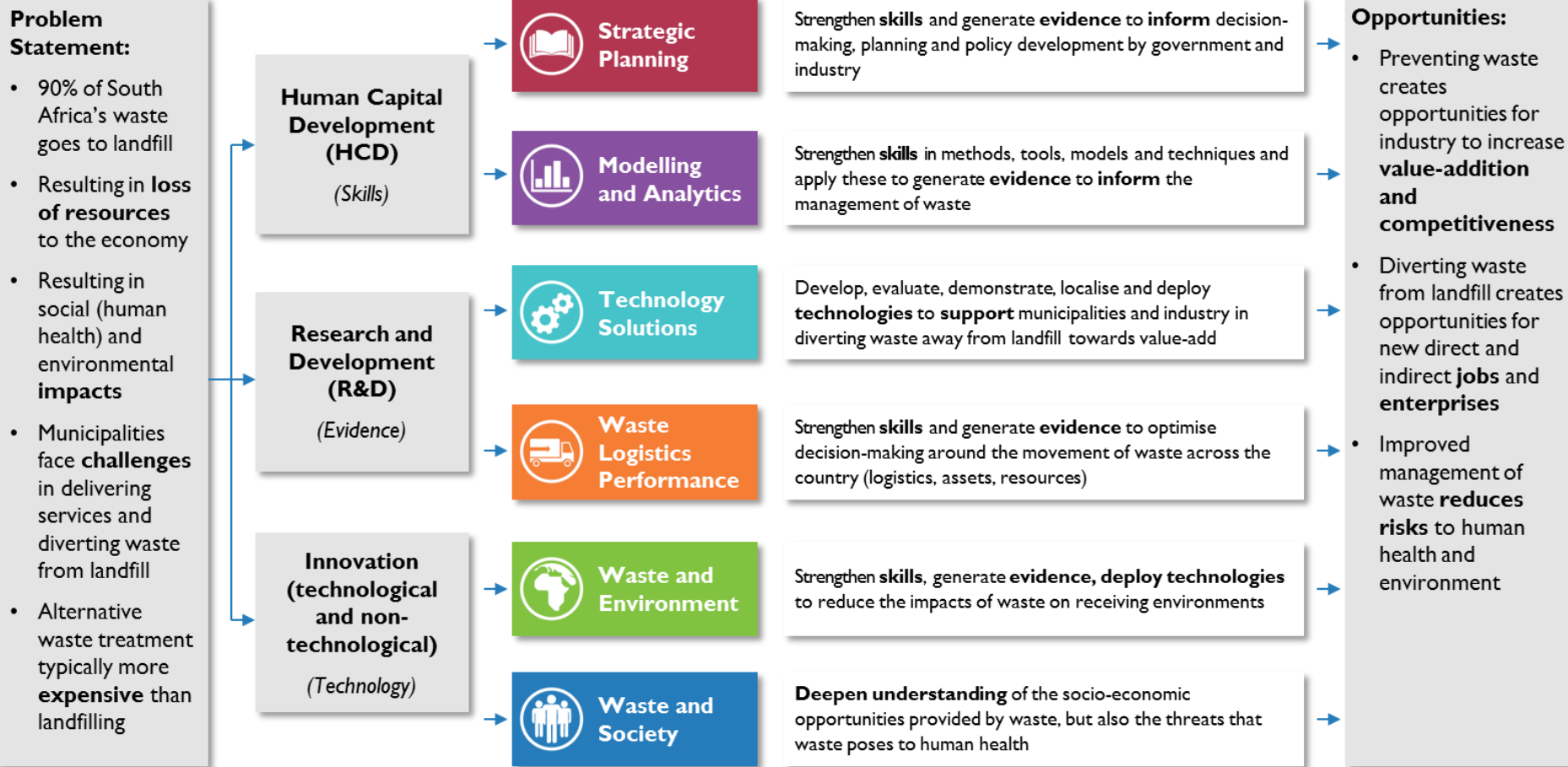


10-Year Waste RDI Roadmap

- In 2012 the DST embarked on a process to develop a **strategic approach** to research, development and innovation (RDI) in the South African waste sector
- That would support –
 - South Africa's move away from landfilling **towards alternative** options that provide **value-adding** opportunities
 - More effective **decision-making**, faster insertion of **context-appropriate technology**, **export** of know-how and technology, and strengthen RDI **capability and capacity**

10-Year Waste RDI Roadmap

Problem — Means — How — Opportunities



Grant funded research projects



Beneficiation of **forestry biomass** waste streams
[Prof B Sithole, CSIR NRE, Durban]



Valorisation of **waste chicken feathers**
[Prof B Sithole, CSIR NRE, Durban]



Sustainable utilization and conversion of post-harvest **agricultural waste** residues into value added materials
[Dr M John, CSIR MSM, Port Elizabeth]



Value recovery from **solid confectionary waste**
[Prof S Harrison, UCT, Cape Town]

Grant funded research projects



Reactor design for industrial furfural production from **sugar cane** agricultural residues [Prof J Görgens, SUN, Stellenbosch]



Biogas and volatile fatty acids biorefinery by co-digestion of **fruit juice wastes** with lignocellulosic biomass [Prof J Görgens, SUN, Stellenbosch]

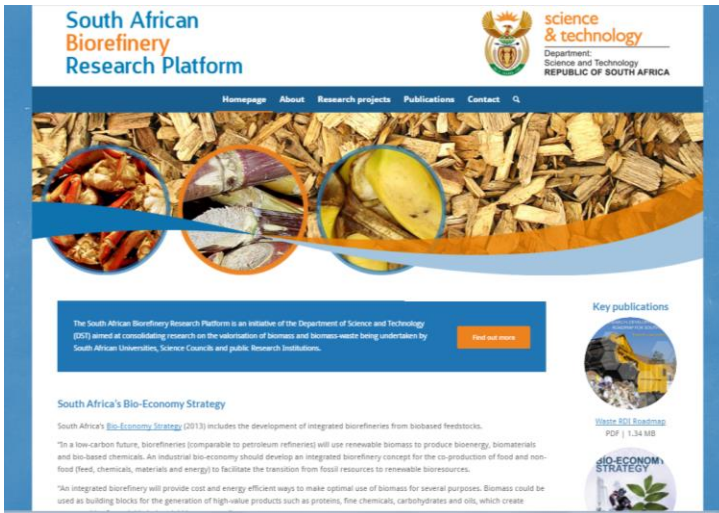


Production of novel cellulose nanocomposites from **organic waste** [Dr A Chimphango, SUN, Stellenbosch]

Implementation instruments



- **South African Bioplastics Forum** an initiative of Plastics|SA in partnership with the DST and CSIR-hosted Waste RDI Roadmap Implementation Unit



- **South African Biorefinery Research Platform** an initiative of the DST in support of the Waste RDI Roadmap and Bio-Economy Strategy

www.wasteroadmap.co.za/biorefinery

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Waste RDI Roadmap

Outlines the proposed interventions, progression paths and the related instruments, and the required RDI investment over time



Trends

Describes the local and global trends in waste management and approach adopted in arriving at the priority waste streams for the Roadmap



Capabilities

Maps the nature, availability and maturity of waste RDI capability and capacity in South Africa



Opportunities

Provides an overview of the Market Opportunities we see, how attractive they are and what is required to realise them