

A WASTE RESEARCH, DEVELOPMENT AND INNOVATION (RDI) ROADMAP FOR SOUTH AFRICA (2015-2025)

TOWARDS A SECONDARY RESOURCES ECONOMY



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science
& technology

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Background and approach

- Two years ago, the DST embarked on a process to develop a **strategic approach** to RDI in the waste sector
- To support South Africa's move away from landfilling towards alternative options through innovation
- While SA has embraced the principles of the **waste hierarchy** in legislation
- Still landfill ~90% of all waste generated
- Significant **opportunity** for RDI to fast-track a move away from landfilling towards alternatives



The Waste RDI Roadmap

- The **vision** of the Waste RDI Roadmap is to stimulate –



- Through the **investment in science and technology**



Anticipated Impact

- Reduce environmental and social impacts of waste disposal
- Reduce the generation of waste
- Increase the recovery of valuable resources in the face of resource scarcity
- Drive towards a circular economy
- Stimulate a regional secondary resources economy with potential for new jobs and business

Anticipated benefits

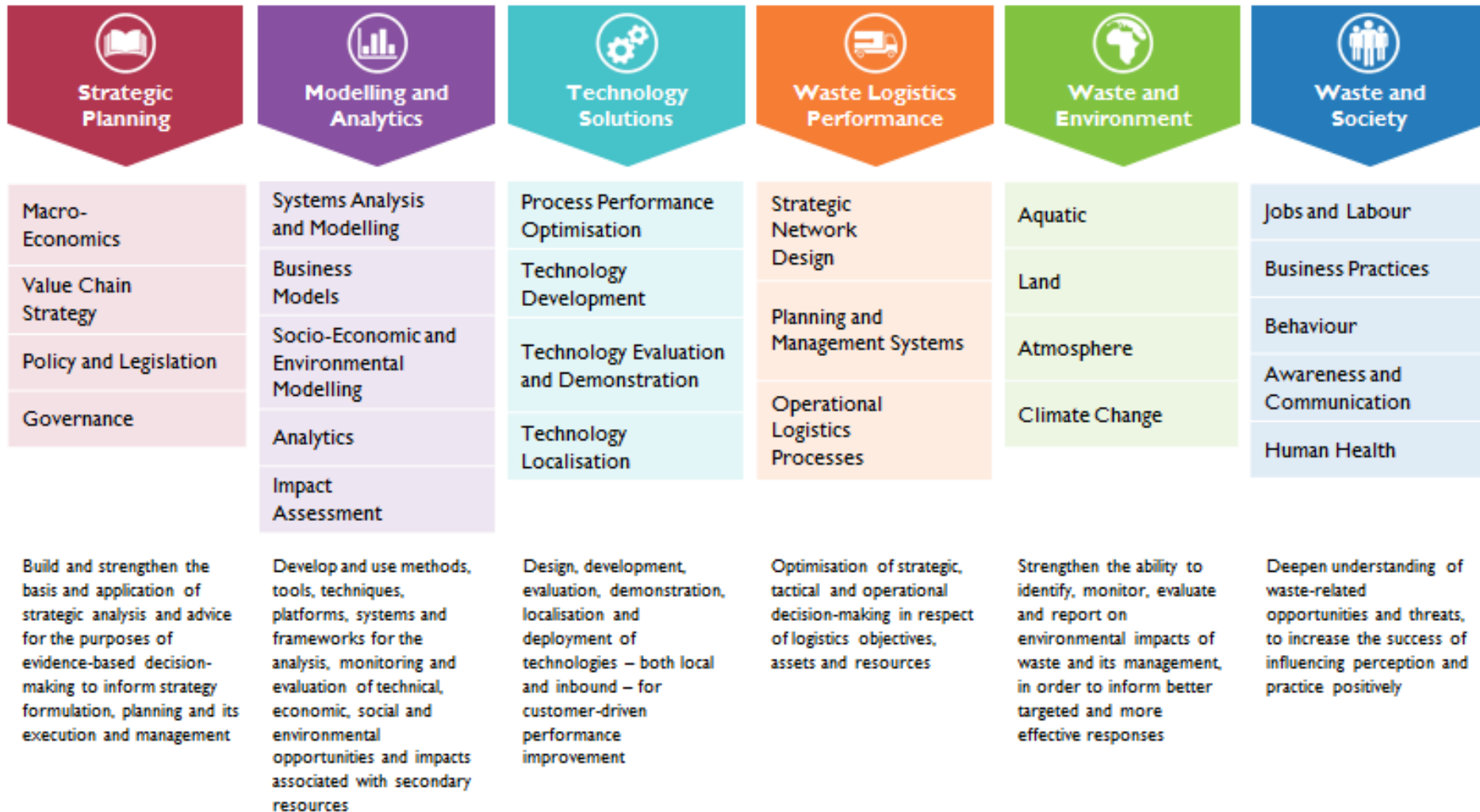
Waste Management	20% reduction (by weight) in industrial waste and a 60% reduction (by weight) in domestic waste to landfill (by 2025)*
Environmental Benefit	<ul style="list-style-type: none"> ▶ Reduced environmental impacts associated with (often poor) landfilling (including e.g. greenhouse gas emissions, leachate, litter)
Economic Value	<ul style="list-style-type: none"> ▶ Potential resource value (<i>minimum</i>):** R17.4 bn per annum (R8.2bn pa recovered) ▶ Avoided financial costs of landfilling: R4.7 bn per annum ▶ Avoided externalities of landfilling: R5.2 bn per annum ▶ Avoided financial costs and externalities associated with virgin material production (not yet quantified)
Socio-economic Benefit (not yet fully quantified)	<ul style="list-style-type: none"> ▶ Contribution of a secondary resources economy to downstream manufacturing ▶ Potential for enterprise development and creation of sustainable jobs (direct, indirect and induced) ▶ Reduced operational costs or improved competitiveness through process performance improvements ▶ 'Multiplier' (knock-on) effects on the macro-economy (<i>potentially a 1-3x multiplier</i>)

* DST Goal – Evaluated as Scenario 3 in the analysis of waste stream value performed as part of this project

** As at 2012 values

Towards an Implementation Framework

RDI Clusters defined



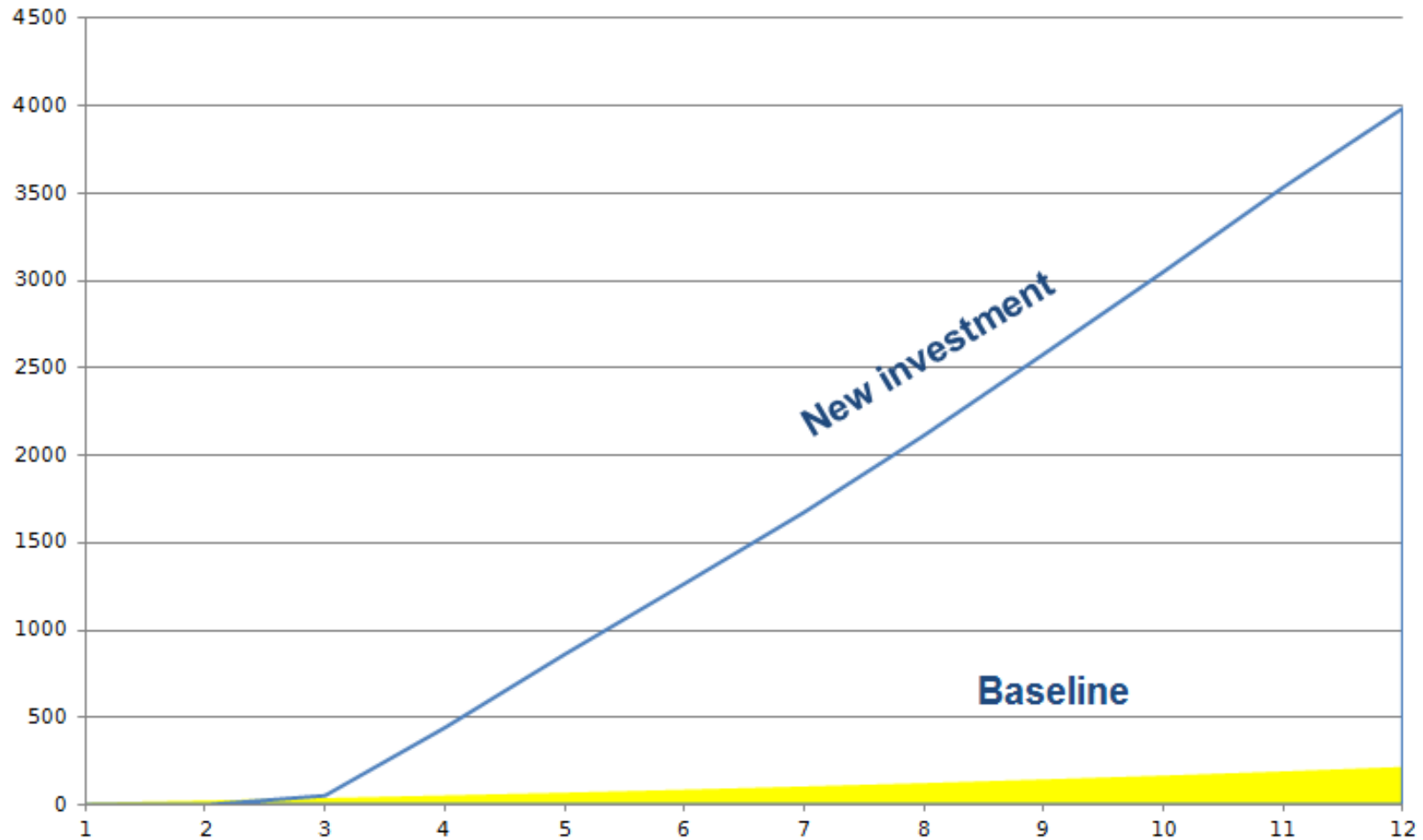


Waste RDI Outcomes

- Vision** *Development and deployment of performance improvements in waste management has delivered a significant contribution to the strengthening of a sustainable regional secondary resources economy in South Africa.*
- Mission** This has been achieved by means of a **National Waste RDI Programme** that supports maximisation of diversion of waste from landfill towards value-adding opportunities, including prevention of waste and the optimised extraction of value from reuse, recycling and recovery, in order to create significant economic, social and environmental benefit.
- Means** The underpinning contribution of RDI to strengthening South Africa's secondary resources economy is focused on four key Enablers:
1. More effective decision-making
 2. Faster insertion of context-appropriate Technology
 3. Export of Know-How and Technology
 4. Strengthened RDI capability and capacity

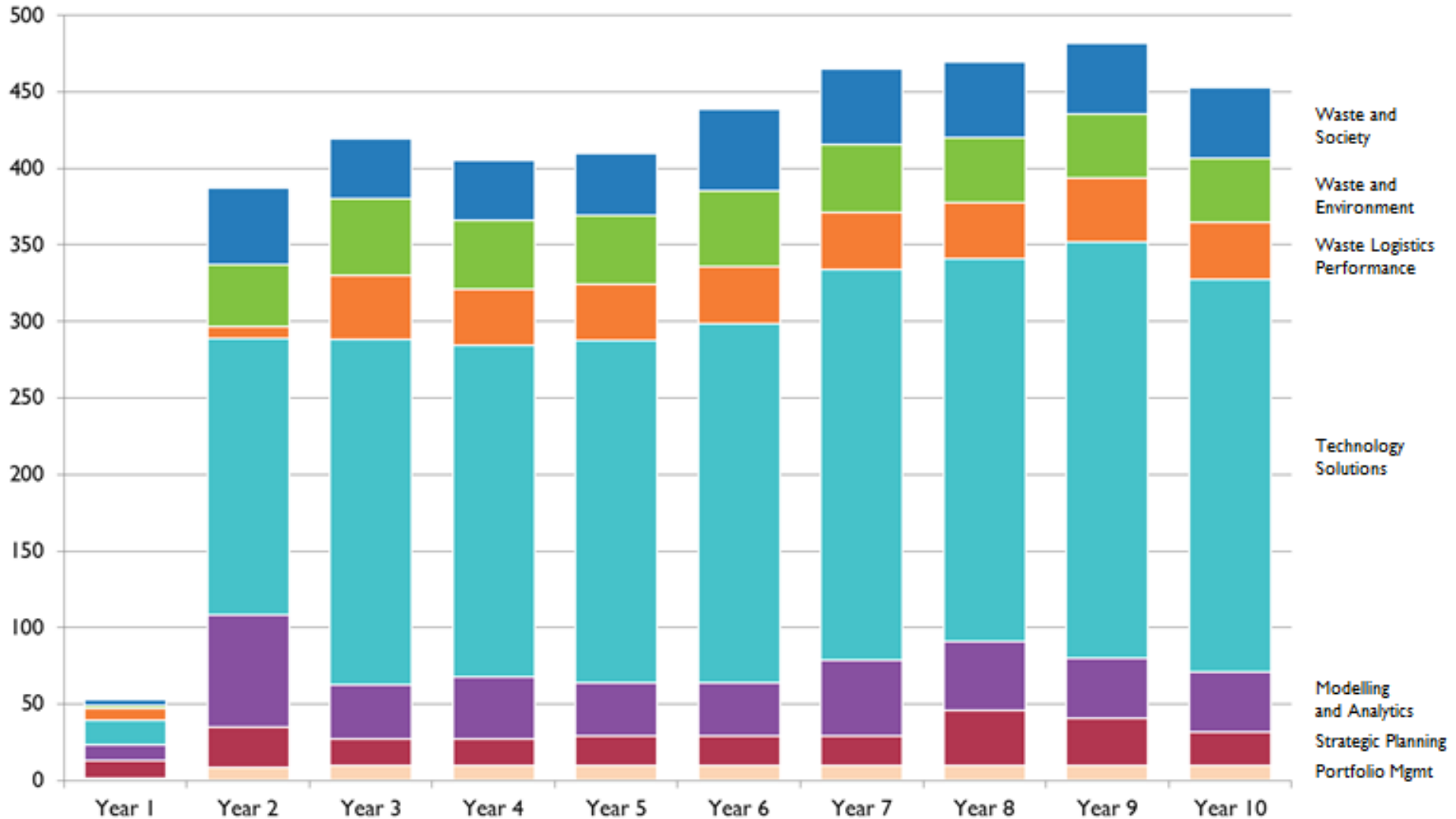
Ramping up RDI investment

10-Year Investment – Cumulative, in ZARm



Investment in Waste RDI

Per cluster, per year, in ZARm



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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