A 10-year Waste RDI Roadmap for South Africa

Executive Summary

The Waste Research Development and Innovation (RDI) Roadmap presents a structured national approach to waste RDI over the next 10 years, as a means of supporting the implementation of national policy, strategy and planning on waste and secondary resources management in South Africa.

The vision of the Roadmap is that the 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. 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 social, economic, and environmental benefit.

Driven by the potential to create local and regional benefit, the Roadmap presents a sound case for increased public and private investment in Waste RDI.

Developed through a structured process which included extensive participation and valuable input from key stakeholders in industry, government and organisations within the National System of Innovation, the Roadmap provides strategic direction, a set of action-plans and an implementation framework to guide, plan, coordinate and manage South Africa's portfolio investment for the next 10 years in six identified clusters of research, development and innovation activity.

Developing, strengthening and embedding South Africa's waste RDI capability and capacity within and between research institutions, academic institutions, industry and government, will enable the sector to make more effective decisions, insert context-appropriate technologies and create opportunities for the export of know-how and technology into the African continent and beyond.

The strategic clusters which frame the Waste RDI Roadmap (2015-2025), and which will guide RDI and investment, are –

- **Strategic Planning**
  Build and strengthen the basis and application of strategic analysis and advice for the purposes of evidence-based decision-making to inform strategy formulation, planning and its execution and management

- **Modelling and Analytics**
  Develop and use methods, tools, techniques, platforms, systems and frameworks for the analysis, monitoring and evaluation of technical, economic, social and environmental opportunities and impacts associated with secondary resources

- **Technology Solutions**
  Design, development, evaluation, demonstration, localisation and deployment of technologies – both local and inbound - for customer-driven performance improvement

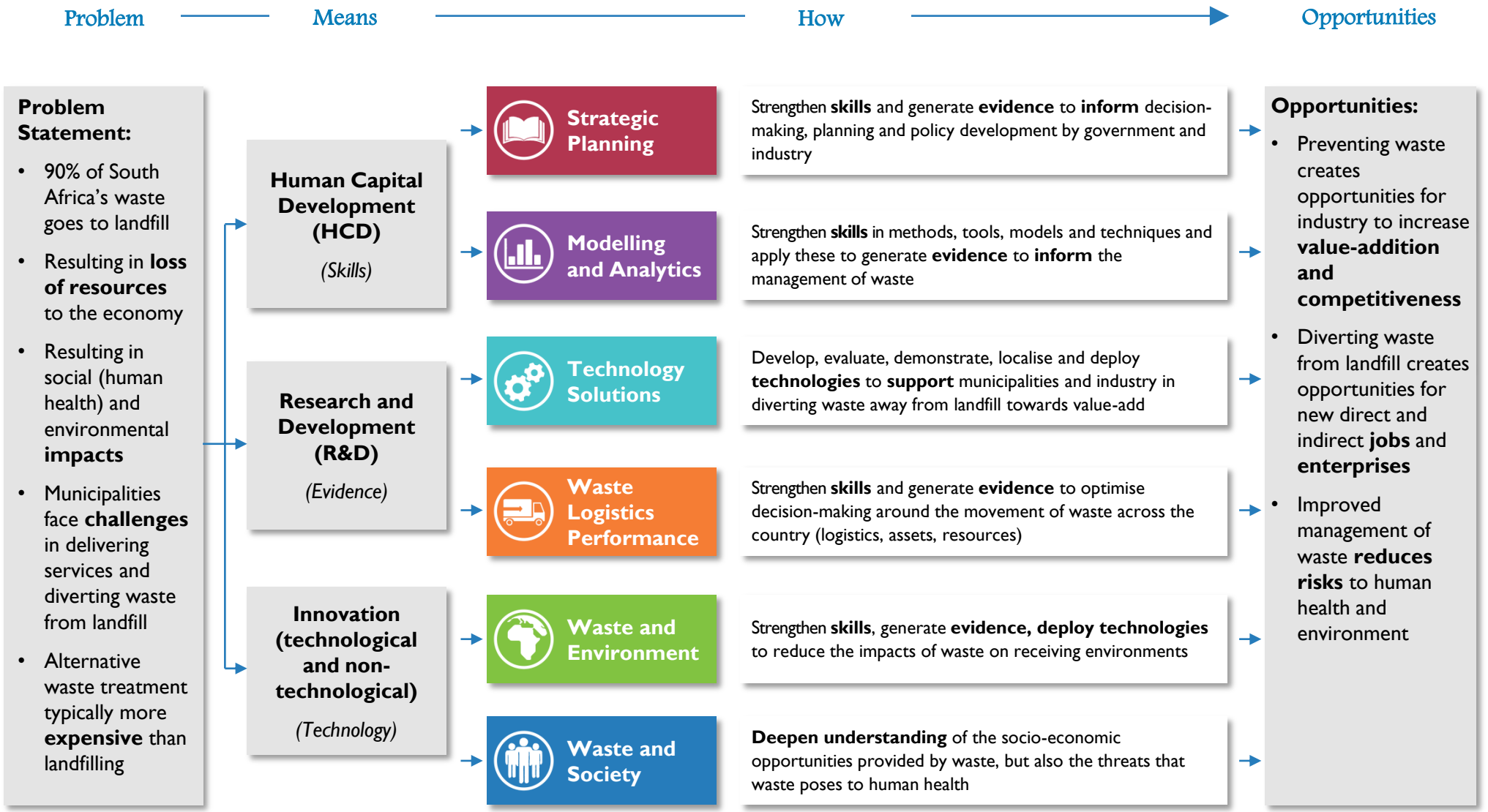
- **Waste Logistics Performance**
  Optimisation of strategic, tactical and operational decision-making in respect of logistics objectives, assets and resources

- **Waste and Environment**
  Strengthen the ability to identify, monitor, evaluate and report on environmental impacts of waste and its management, in order to inform better targeted and more effective responses

- **Waste and Society**
  Deepen understanding of waste-related opportunities and threats, to increase the success of influencing perception and practice positively

science & technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

Strategically directing waste RDI in support of impact



Realising Waste Stream Opportunities via 6 RDI Clusters

RDI Clusters defined

Strategic Planning

- Macro-Economics
- Value Chain Strategy
- Policy and Legislation
- Governance

Build and strengthen the basis and application of strategic analysis and advice for the purposes of evidence-based decision-making to inform strategy formulation, planning and its execution and management

Modelling and Analytics

- Systems Analysis and Modelling
- Business Models
- Socio-Economic and Environmental Modelling
- Analytics
- Impact Assessment

Develop and use methods, tools, techniques, platforms, systems and frameworks for the analysis, monitoring and evaluation of technical, economic, social and environmental opportunities and impacts associated with secondary resources

Technology Solutions

- Process Performance Optimisation
- Technology Development
- Technology Evaluation and Demonstration
- Technology Localisation

Design, development, evaluation, demonstration, localisation and deployment of technologies – both local and inbound – for customer-driven performance improvement

Waste Logistics Performance

- Strategic Network Design
- Planning and Management Systems
- Operational Logistics Processes

Optimisation of strategic, tactical and operational decision-making in respect of logistics objectives, assets and resources

Waste and Environment

- Aquatic
- Land
- Atmosphere
- Climate Change

Strengthen the ability to identify, monitor, evaluate and report on environmental impacts of waste and its management, in order to inform better targeted and more effective responses

Waste and Society

- Jobs and Labour
- Business Practices
- Behaviour
- Awareness and Communication
- Human Health

Deepen understanding of waste-related opportunities and threats, to increase the success of influencing perception and practice positively