A DST perspective on advancing hydrology research

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

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The Department of Science and Technology

Department of Science and Technology

- **Vision**
  - To create a prosperous society that derives enduring and equitable benefits from science and technology.
- **Mission**
  - To develop, coordinate and manage a National System of Innovation (NSI) that will bring about maximum human capital, sustainable economic growth and improved quality of life for all.

National System of Innovation

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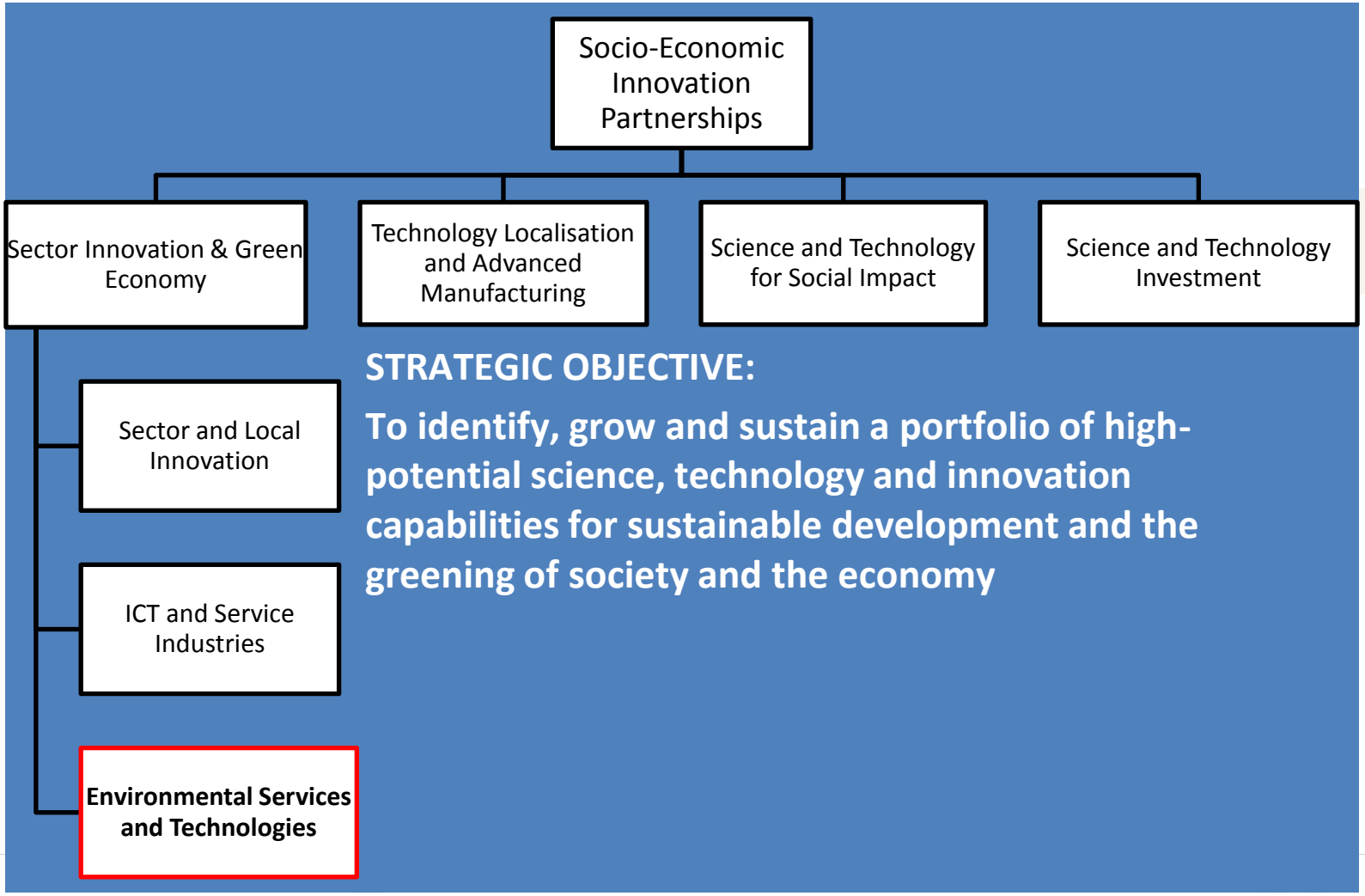
Basic Research idea → Technical / economic feasibility → Commercial production / diffusion

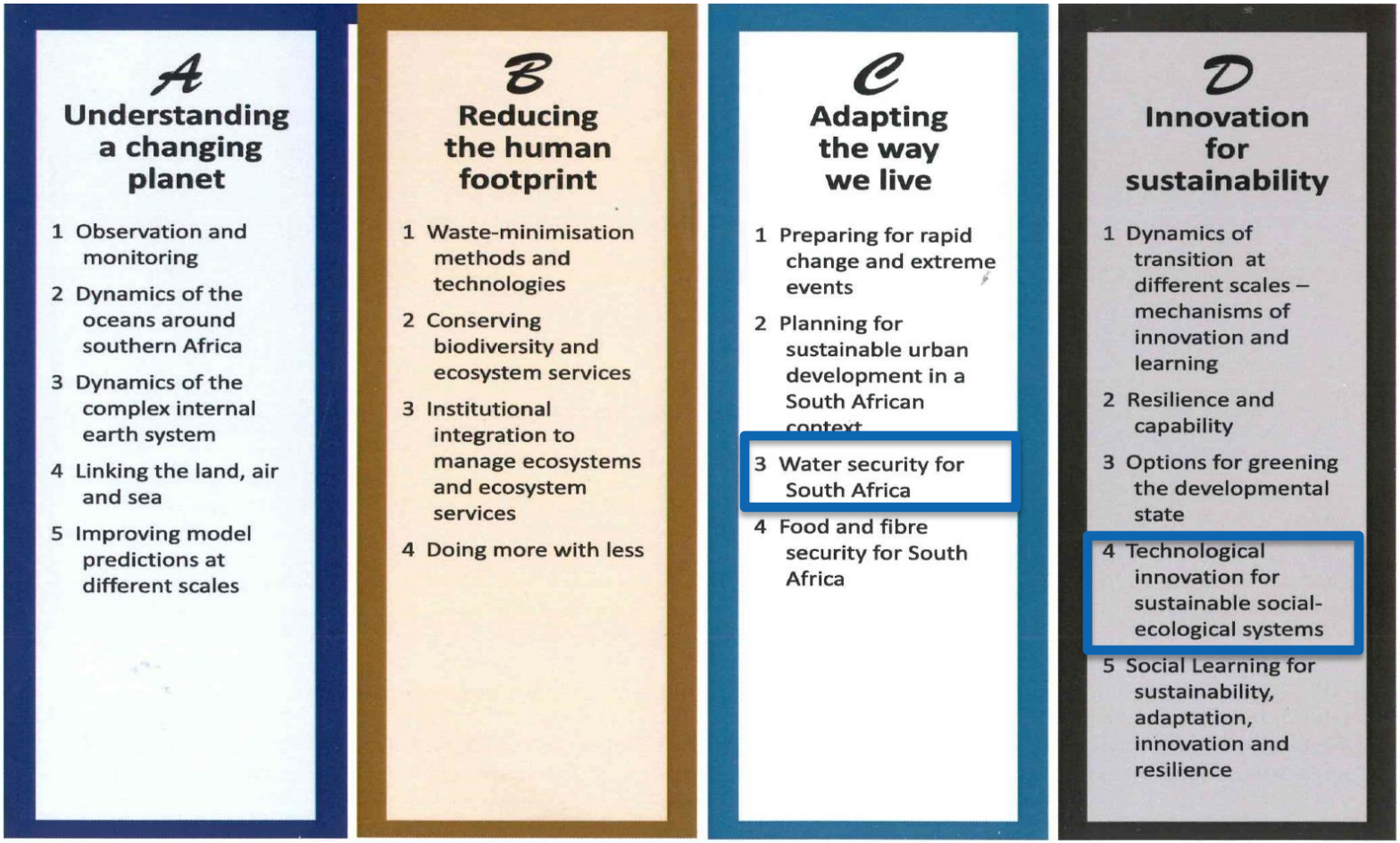
HEIs

Industry

Environmental Services & Technologies



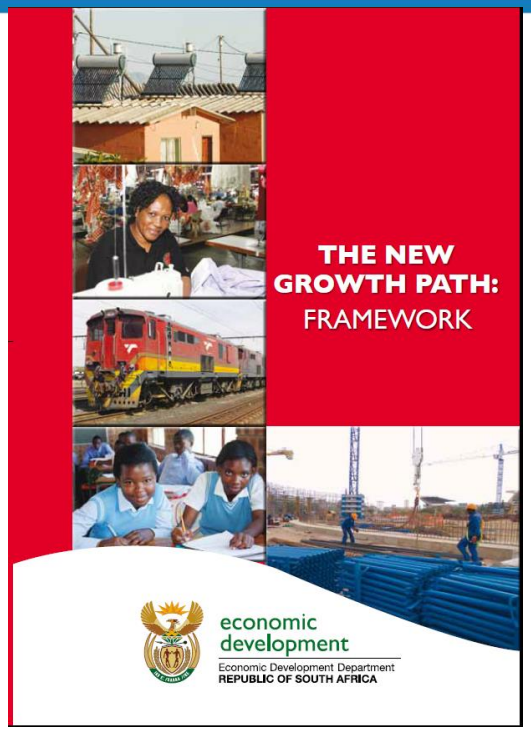
Global Change Research Plan

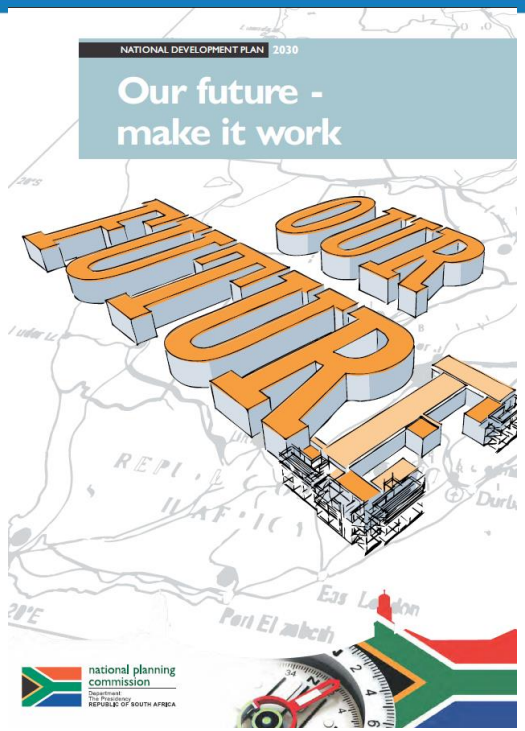


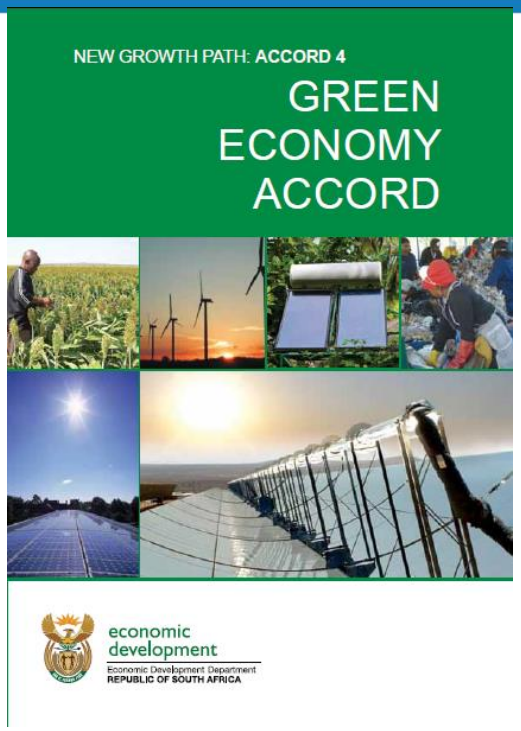
The Global Change Research Plan identifies four major cross-cutting knowledge challenges and 18 key research themes.

Environmental Services and Technologies

Green Economy







Green economy is one of 10 jobs drivers

By 2030, South Africa's transition to a low carbon, resilient economy and just society is well under way

Government, business and labour

DST response to the transition

- Established the Environmental Services and Technologies Unit in 2011
- Waste Research, Development and Innovation Roadmap
- Water Research, Development and Innovation Roadmap

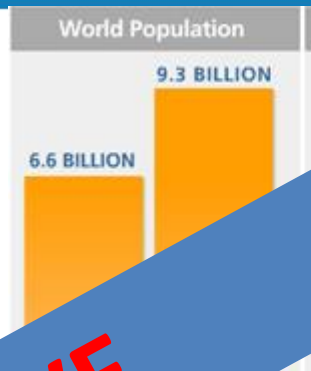
Waste RDI Roadmap

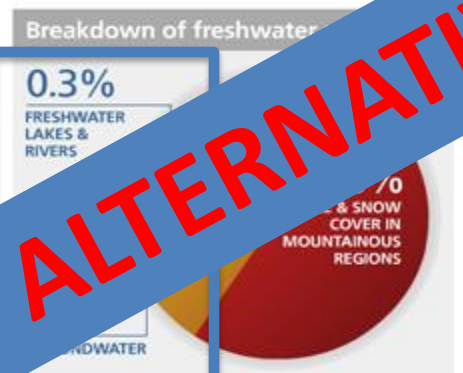
- South African Waste Research, Development and Innovation Roadmap
  - A 10 year plan to guide the investment in waste RDI in SA
- The Roadmap will focus on -
  - Product, process & organisational innovation
  - Funding requirements
  - Skills development
- www.wasteroadmap.co.za

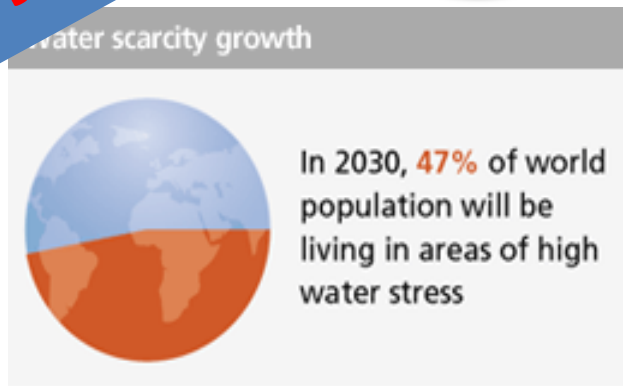
Science and Technology for water security

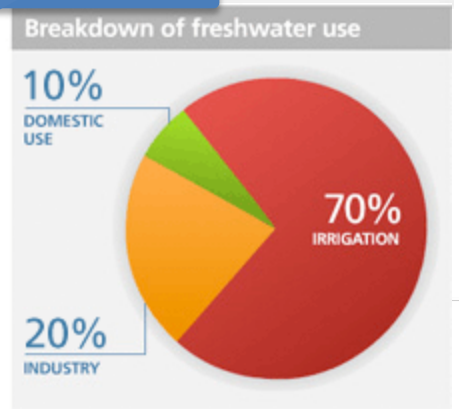
Global Water Statistics

The Blue



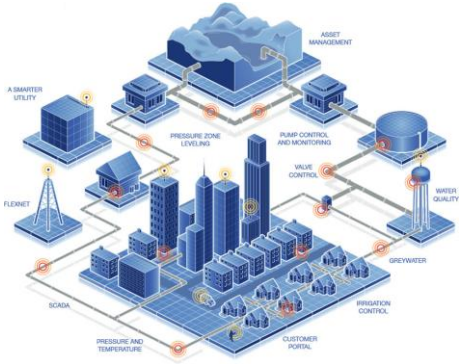


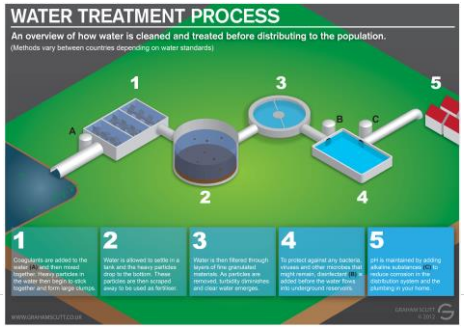




NO ALTERNATIVE

Hydrological Cycle





Water and Health

Deaths from unsafe water, sanitation and hygiene

http://www.who.int/heli/risks/water/water/en/

Opportunities

- More pressure on sewage treatment systems, water distribution networks and food security
- Increased pollution leading to water quality challenges
- Contributors to poor water quality
  - Mining: acidity and metals
  - Urban development: salinity, nutrients and microbiological
  - Industry: chemicals and toxins
  - Agriculture: sediment, nutrients, agro-chemicals, and salinity through irrigation return flows
- Inefficient use of water resources
  - Non-revenue water is 36.8% on average across the country (global average is 36.2%)
  - Water losses estimated to be 25%
  - Loss in revenue amounts to R7 billion per year

Water Research, Development and Innovation Roadmap

- Many technologies available ‘off the shelf’
  - Are they appropriate to the SA context?
- Technologies in development phase require demonstration
- Developing Decision Support Tools for Municipalities
- DST in collaboration with the Water Research Commission (WRC) will develop a Water Research, Development and Innovation Roadmap to align with the strategic objectives of the Department of Water Affairs (DWA)
  - Will include a component looking at skills development in the sector

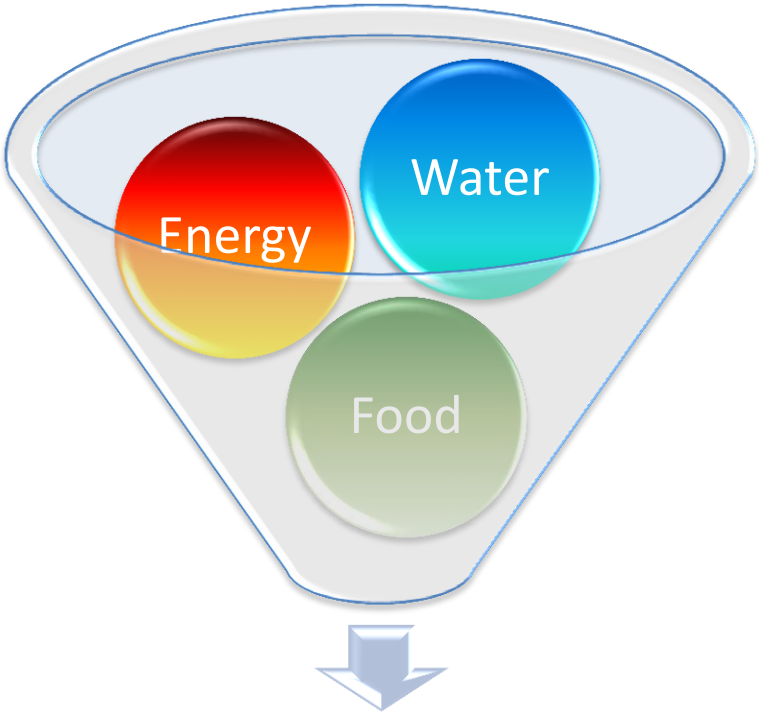
Water Technology Development

By 2025 South Africans will experience a more effective and responsive Water Sector due to a more streamlined water technology innovation cycle that is able to bridge the divide between research and research products reaching the market

Achieved by

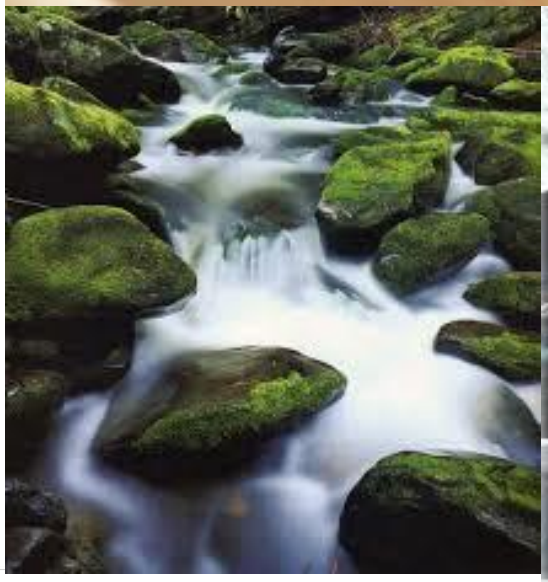
- **Encouraging multi-sectoral partnerships and interactions between a broad range of actors**
- **Performing water technology demonstrations to provide proof of concept to the market**
- **Playing an information brokering role by being informed of national and international developments as well as offering strategic advice around water technology issues**

Conclusion



Sustainable Development

Conclusion



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board.palungjit.com

- Smart Integrated water resource management = sustainable development

Dankie

Enkosi

Ha khensa

Re a leboga

Ro livhuwa

Siyabonga

Siyathokoza

Thank you

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