Water RDI and Technology Demonstration

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WRC RDI Symposium and Water-Tech Summit 2015

Johannesburg, RSA

16 September 2015

science & technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

Department of Science and Technology - RSA

- Vision
  - Increased well-being and prosperity through science, technology and innovation.
- Mission
  - To provide leadership, an enabling environment, and resources for science, technology and innovation in support of South Africa's development.

Policy Space

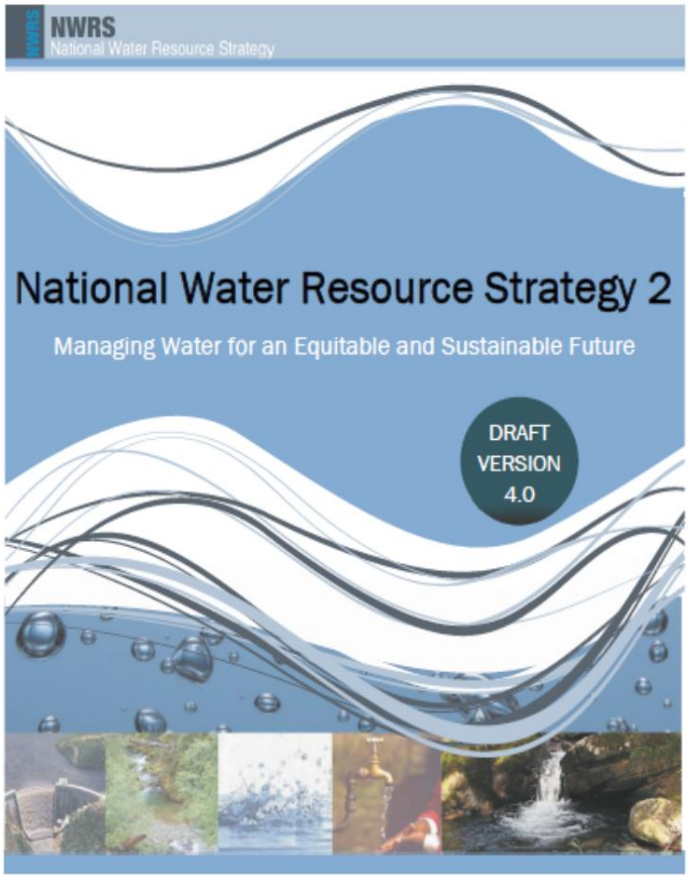
Government Strategic Plans

Water Factors to realise Vision 2030:

- **Requires sufficient water resources**
- **Water must provide for growth and development**
- **Water scarcity threatens energy production, food security, economic growth & quality of life**

Water is central to achieving Vision 2030

Government Strategic Plans



water affairs
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Water Affairs
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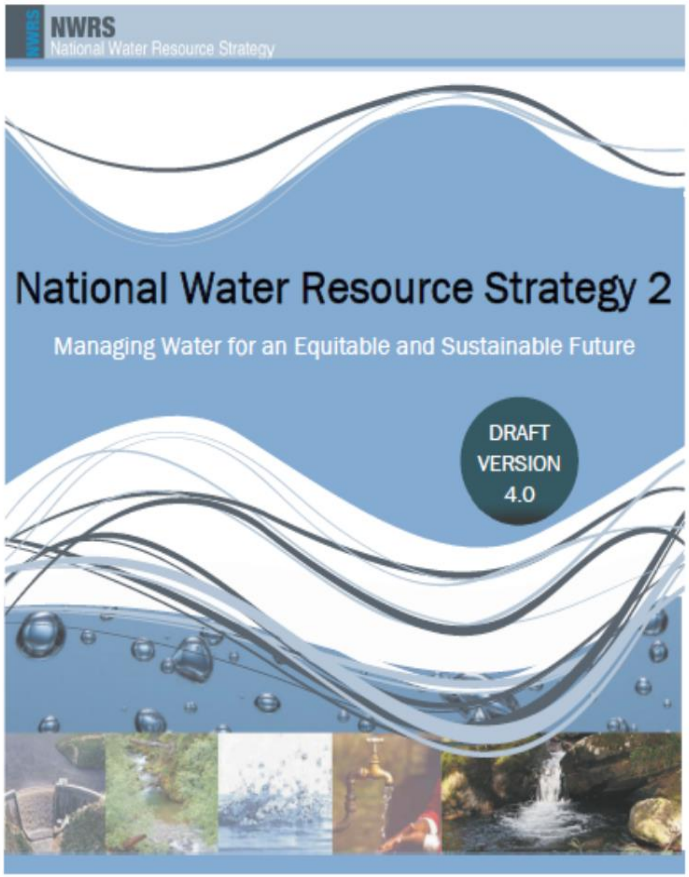
Research and innovation has been a major contributor to being able to meet the ever increasing demands for water in South Africa.

The development of skills in the water sector and high-level knowledge about water is still a priority for rapid progress to be made in ensuring that all citizens of the country have safe and secure access to water of good quality.

…to ensure that the latter's (WRC) research needs are known, and between the WRC and the Department of Science and Technology (DST) and the National Research Foundation (NRF), to ensure that approaches to water research are consistent with South Africa's broad policy on science and innovation.

Government Strategic Plans



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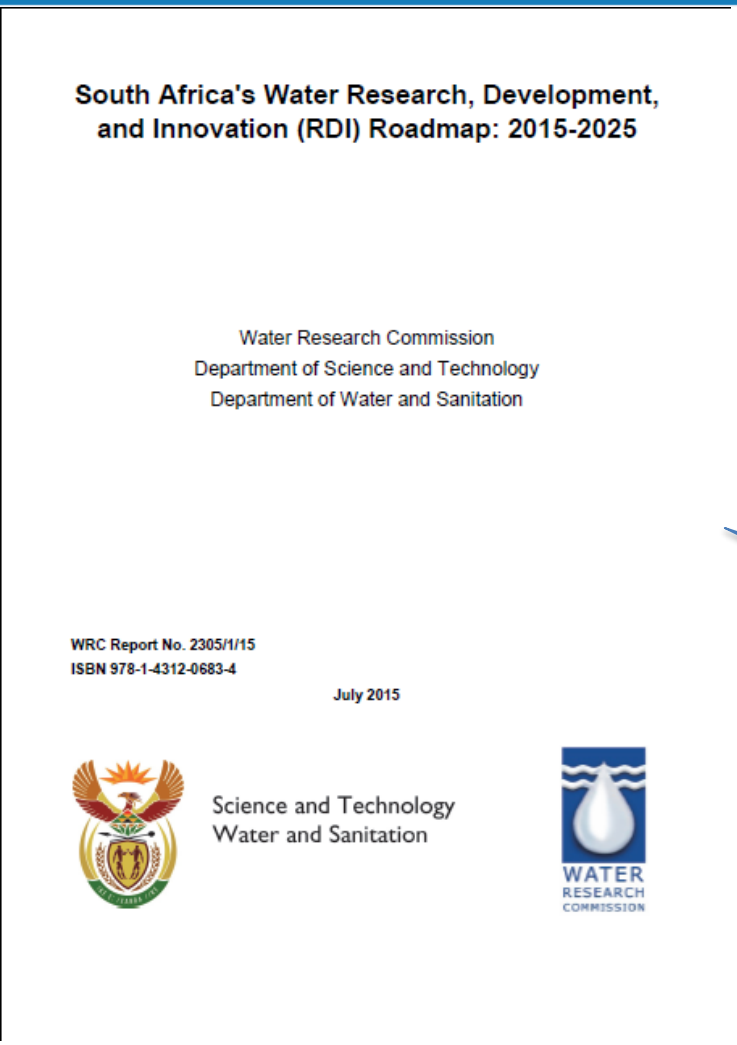
High Level Strategic Actions

1. Develop a National Plan that covers the entire innovation value chain. Plan should be for the next 5-10 years.
2. Improve utilisation of outputs. Develop mechanisms to ensure that water information and water research outputs are protected, accessible and beneficially applied in improved water management and for effectively dealing with other challenges facing the water sector.

Supporting Actions:

1. Promote innovation in the private and public sector for pilot projects, support of knowledge sharing and for rewarding outstanding achievements in innovation through awareness creation of existing national innovation support structures.
2. Strengthen links between the DWS and DST to facilitate the integration of water-sector research and innovation into the National Research and Development strategy and into the National System of Innovation.

Government Strategic Plans


South Africa's Water Research, Development, and Innovation (RDI) Roadmap: 2015-2025

Water Research Commission
Department of Science and Technology
Department of Water and Sanitation

WRC Report No. 2305/1/15
ISBN 978-1-4312-0683-4

July 2015

Science and Technology
Water and Sanitation

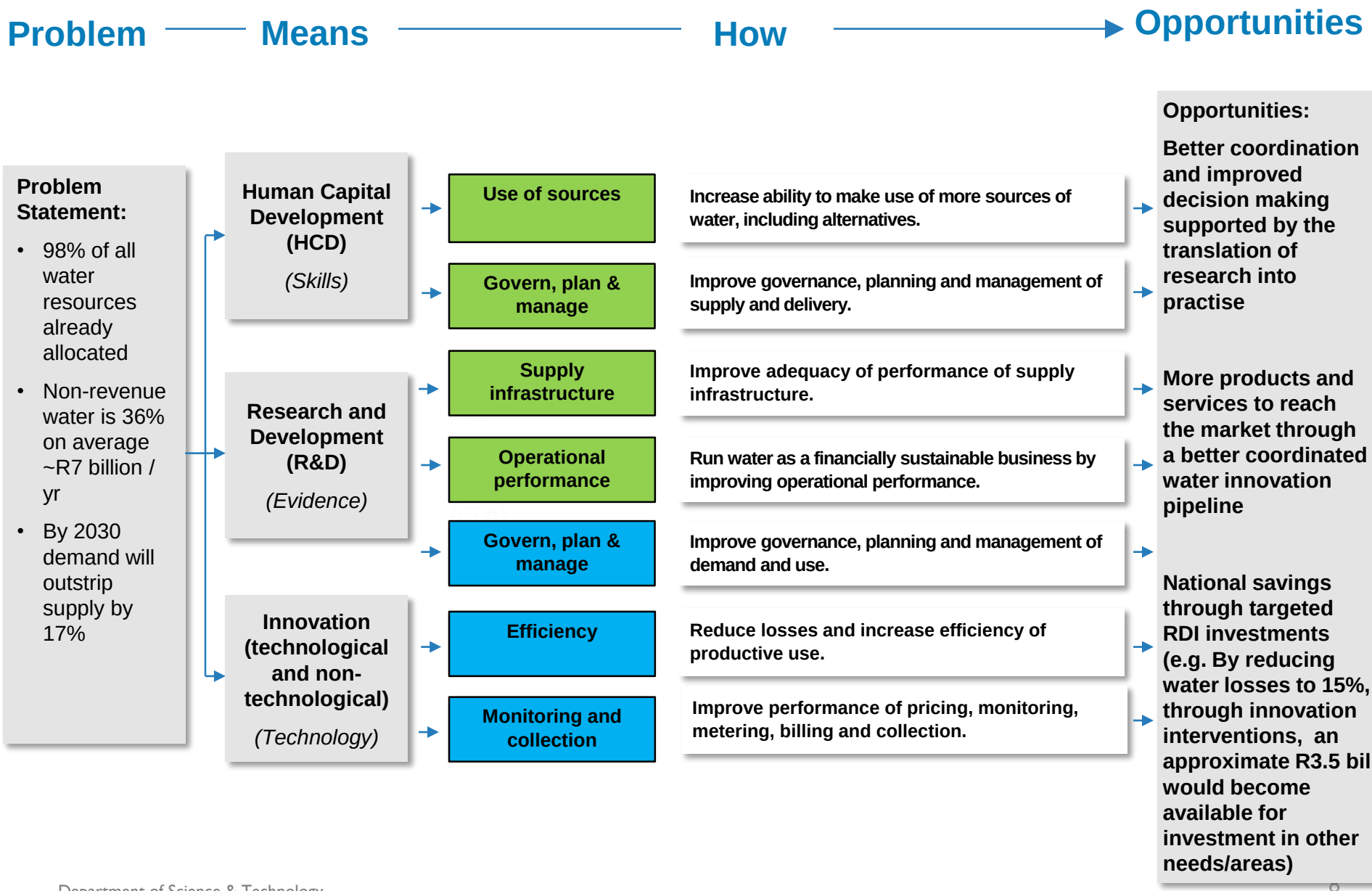
WATER RESEARCH COMMISSION

- World Economic Forum has recognised water as one of the top 3 economic risks globally over the past 4 years
- In 2015 it was recognised as THE biggest societal and economic risk for the coming decade!

- WHO states that there are still 700 million globally without proper access to water

- By 2030 the water demand will exceed supply by 17% based on
  - Population growth
  - Economic growth projections
  - Scarcity of resource
  - Current use and efficiency levels

Strategically directing water RDI in support of impact



The Innovation Space and Demonstration

Time to first pilot

www.dreamstime.com

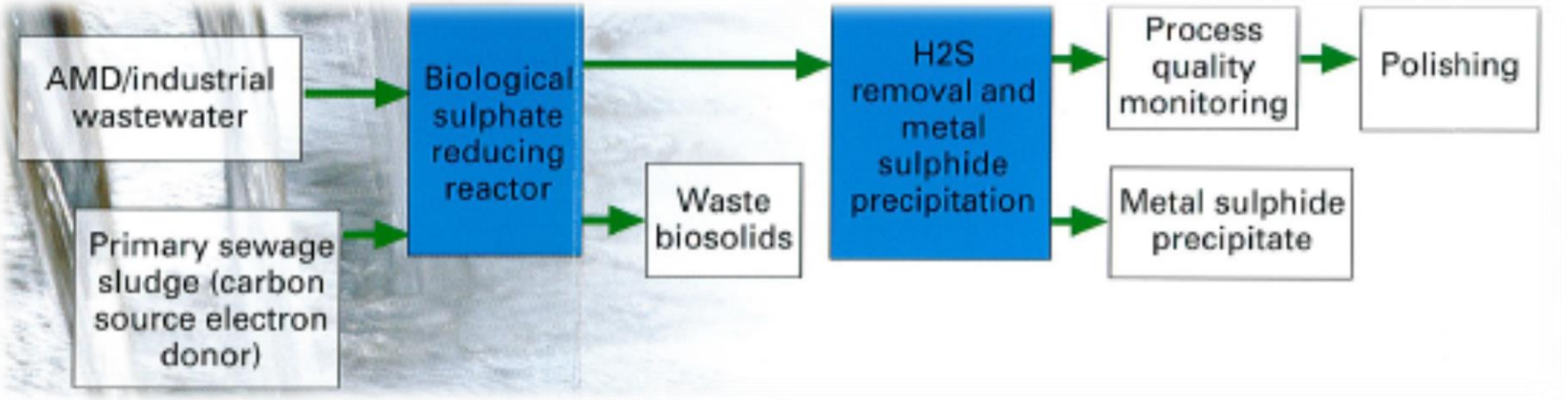
Concept developed in early 1990's

- In the late 1990's a 40m^3/day pilot plant was built at Grootvlei Mine Shaft no 3 in Springs, Ekurhuleni
- Primary Sewage Sludge was provided by Ancor works of ERWAT
- Operated for 18 months
- Time taken from concept to pilot ± 8 years

3 Partners involved

- Academia – Rhodes University / UCT / UKZN
- MoE – ERWAT (shareholders are municipalities)
- Private sector – Grootvlei Mine

Second Pilot



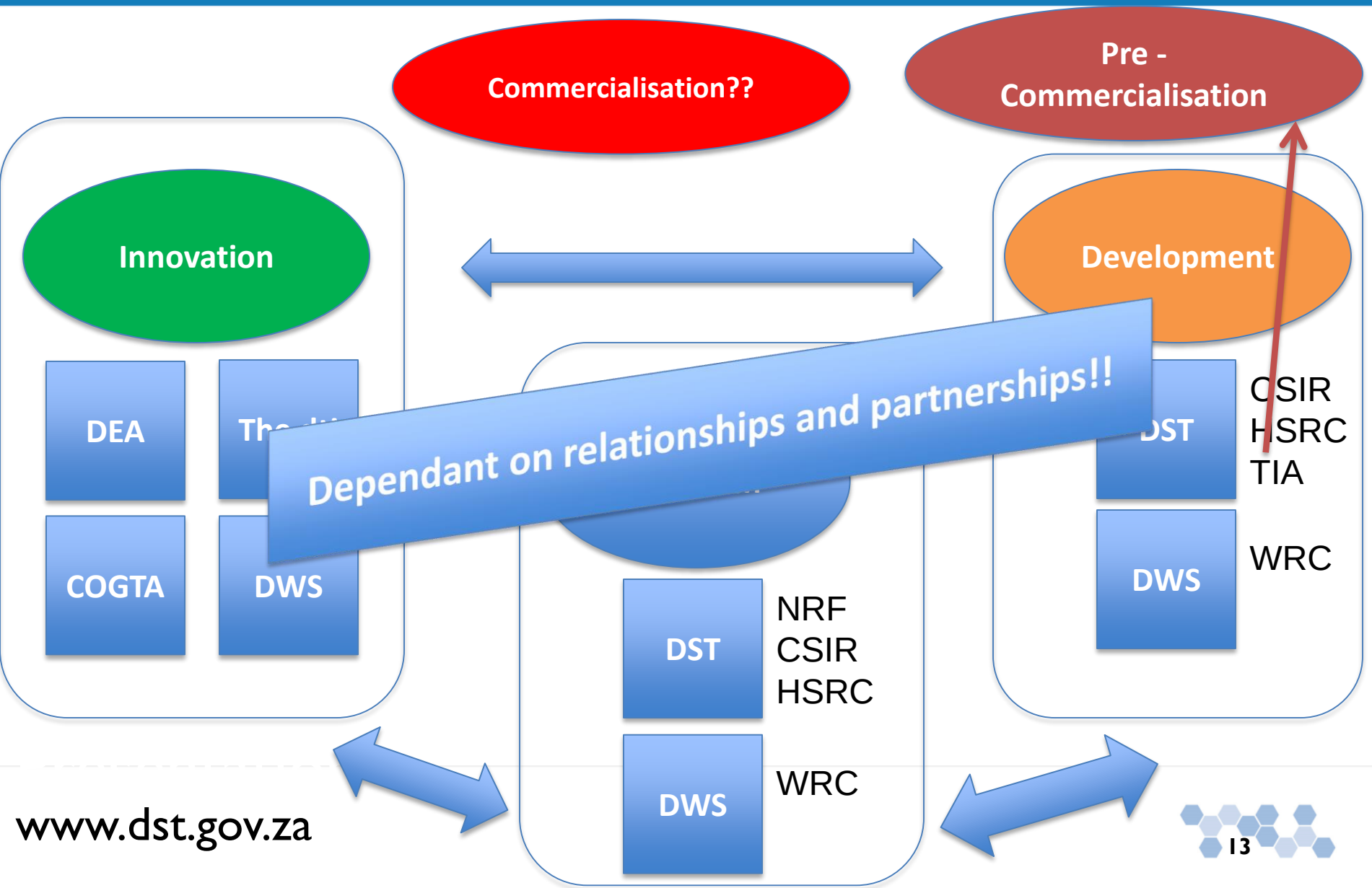
- In 2005 a 10Ml / day plant constructed at Ancor Works – ERWAT
- AMD was sourced from Grootvlei Mine – 2.5 km underground pipeline
- Time from concept to second pilot ± 13 years

3 Partners involved

- **Academia – Rhodes University**
- **MoE – ERWAT (shareholders are municipalities)**
- **Private sector – Grootvlei Mine**

Driving technological innovation

Innovation in the water sector



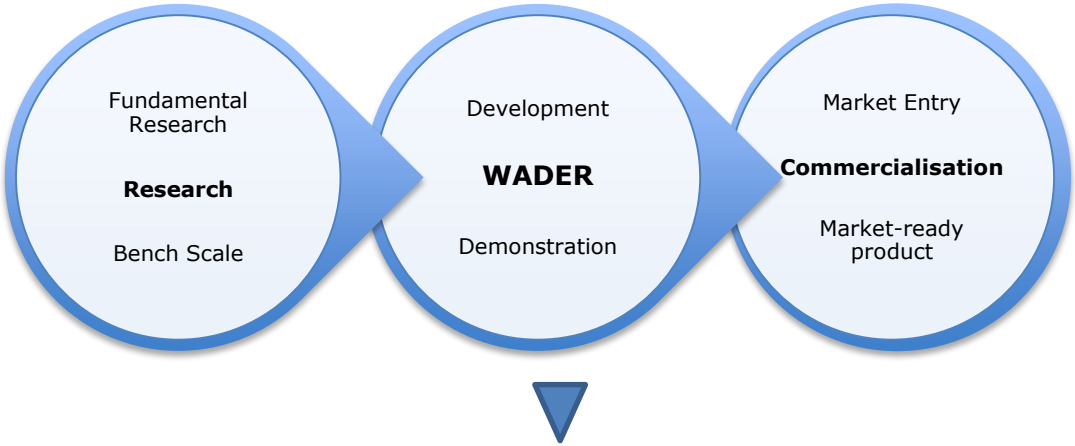
Water Technologies Demonstration Programme (WADER)

- Partnership between the DST and the WRC

- Vision
  - To bridge the gap between water research and the market to achieve a connected water innovation system that delivers socio-economic benefits for South Africa.

Innovation broker

- Pull together the research and commercialisation stages of the water innovation continuum.
- **Demonstrate water technologies in operational environments (piloted at scale).**
- **Assess the performance, validity, impact (social, environmental, etc.) and suitability of the technology.**
- Build multi-sectoral and cross-disciplinary partnerships in support of technology demonstrators.
- Disseminate information widely to promote technology adoption, investment, and user-confidence as well as communicate gaps in research, etc.
- Promote and support water entrepreneurship and relevant skills development in the water technologies space.



Taking technologies out of the laboratory and proving them in real-world test situations

Concluding remarks

- Water innovation is a long-term investment of time, resources and money
- The fundamental science has to be understood – no quick fix
- Development is risky – many iterations before success
- Rewards are great – water is central to economic development

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