

Theme 2: Water Use

Objective

- To ensure sustainable water use across the water sensitive sectors



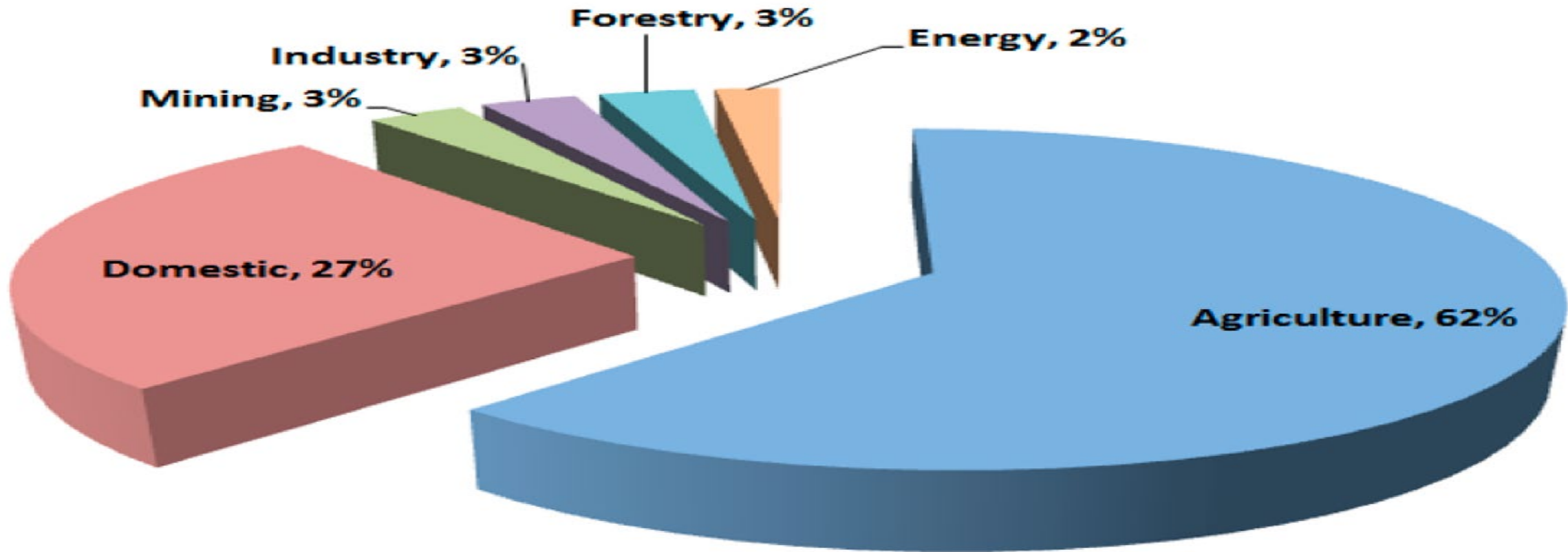
Scope of the Thematic Area

- Water Use is defined as the total amount of water withdrawn from its source for (socio-economic) use.
- Measures of water usage help evaluate the level of demand by users.
- The Water Use theme focuses on municipal water use (water supply, wastewater and sanitation services), agriculture water use, industrial water use and mine-water use.



South Africa's water use per economic sector

South Africa's water use per economic sector



A one water use concept

- **Water sensitive settlements: Focusing on water supply, use and security in settlements.**
- This may involve the use of:
 - Water sensitive planning offers greater opportunity diversifying towards a water mix for (re)designing settlements to adapt and be more resilience to the effects of climate change.
 - Smart Water services and institutional management ensures that relationships and partnerships between service providers, both external and internal, are important prerequisites to sustainable water service delivery covering innovative solutions to critical problems with the financing, behaviour, cost recovery, regulation and management of essential services such as water supply and sanitation.
 - Smart water supply networks and efficiency offer the prospects for systems to be resilient to the effects and consequences climate impacts, population growth and resource constraints.



TOPICS FOCUSING ON WATER SENSITIVE PLANNING

- A study to determine the impediments to the use of water sensitive urban design (WSUD) at a municipal level, identifying implementation drivers, community perceptions and systemic issues.
- Developing a planning approach for water and climate resilience through the use of water sensitive urban design.
- A compendium of best management practices in WSUD of relevance to South Africa.
- Developing an integrated investment decision support framework for WSUD projects.



Call for proposals: Focus area 1: Smart water services and institutional management

- A strategy to strengthen the position and roles of Water Boards in the water services delivery value chain.
- Developing a strategy and guidelines for the establishment of community-based water services providers or enterprises.
- A scoping study to determine the institutional modality of water services in managing a water mix scenario.
- Scoping study to determine the optimal model and requirements of a water services provider under a licensing regime.
- Forecasting the costs and requirements of an independent WSP regulator.
- An evaluation of the support (quality, quantity, appropriateness, and efficacy) provided to water service authorities and water service providers by National and Provincial Government.
- Mechanisms to improve municipal water services revenue collection rates. Municipal revenue collection is generally dismal and there is a need for proven solutions that have resulted in improvement. This must cover practical mechanisms for all municipal categories



Call for proposals: Focus area 2: Projects focusing on Smart water supply networks and efficiency related to technology developments.

- While sometimes pipes cannot be repaired repeatedly and may need replacement, improved repair techniques will be an enabler for future. The development of innovative repair techniques e.g. in-pipe or keyhole type repairs. If the techniques do not develop in time, this may result in a tipping point where find-and-fix becomes too expensive.
- Further research should be done on remote sensing using drones and/ or satellite imagery which have potential uses of vegetation indexing, ground movement or chlorine detection to identify leakage. Relatively new techniques and cost-benefits need to be fully assessed under a variety of different seasonal conditions and spatial variation could impact on benefits.
- Permanently deployed loggers and sensors often have constraints related to battery lifetime. The idea of self-powered loggers that run off the flow of the water is a novel area, requiring intensive further research to bring the idea to reality. Alternate energy sources to power such devices should also be further explored.



Call for proposals focus area 3: Projects related to policy and frameworks

- Overarching risk management framework to strengthen the capacities of water utilities to protect their systems systematically, determine gaps in security technologies and improve their risk management approaches and technologies. Defending critical infrastructure is a cat-and-mouse game, forcing water utilities to stay on guard, innovate constantly, and implement new technologies.
- Policy frameworks require integration between the Department of Water and Sanitation (DWS) and Science and Innovation (DSI). This could be facilitated by the WRC to provide an enabling environment for utilities to invest.
- The government has been working to establish the South African National Cloud Strategy, which provides guidelines and recommendations for the adoption and utilisation of cloud services in both the public and private sectors. This could allow utilities to have better guidance over the adoption of cloud-based technologies. This policy should be finalised and strengthened with utility inputs.
- Countries with strict regulatory targets that impose financial penalties for high leakage rates, such as the UK and Denmark, have provided particularly appealing markets to leak detection vendors, and hence innovation uptake in these parts of the world is greater. Stricter regulation is required whereby NRW targets are set, and penalties issued if they are not met.



Call for proposal area 4: Wastewater Use and Management

- Focusing on wastewater reuse and resource recovery from industrial , domestic and mining-influenced wastewater sources,
- ✓ This will involve/include projects addressing the following:
 - Industrial water use efficiency in support of reduced effluent generation
 - Water use assessment/evaluation in support of renewable energy, e.g. Green hydrogen
 - Fit-for-purpose use of wastewater effluents
 - Innovative technologies, processes and approaches for resource recovery from wastewater effluents
 - Demonstration and scale-up of high value products, services & processes for wastewater effluent valorization
 - Sustainable post operation water use and management



Call for proposal area 4: Sanitation

- **Sanitation transformation initiative**
 - ✓ About re-engineered toilets, sanitation-sensitive design (SSD), municipal sanitation linked business.
 - ✓ A non-sewered sanitation future



Call for proposal 5: Water use in agriculture

- Improving water use efficiency and understanding of the water footprint in agriculture.
- Improving irrigation systems and agriculture practices while protecting water resources.
- Supporting communities and farmers to improve agricultural products and mainstreaming indigenous underutilised crops.
- Supporting the adoption and use of transformative and sustainable agriculture approaches such as Water – Energy - Food (WEF)nexus and the Circular Economy.
- Extending the service life of the irrigation water infrastructure in South Africa.
- Enhancing the harmonisation of WEF sector policies and advancing cross-sectoral management of related resources through scenarios and pathways development.
- Strengthening existing weather early warning systems to enhance preparedness and intervention for risk reduction.
- Promoting water use efficiency pathways to ensure water security.
- Accelerating pathways for achieving SDGs and NDP goals to enhance resilience and adaptation.



2023

THANK YOU

