

FIELDNOTE

Innovation, research enables
better water management



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

wader

WATER TECHNOLOGIES DEMONSTRATION PROGRAMME
An initiative of the Department of Science and Technology
and the Water Research Commission



WATER
RESEARCH
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Dr Manjusha Sunil is involved in efforts to use research and innovation to enable better water management throughout the country. She works as a manager for the Water Research Commission (WRC) and handles its Water Technologies Demonstration Programme (WADER), among others.

*Dr Manjusha Sunil - WRC Manager
Water Technologies Demonstration Programme*

WADER was launched as a partnership between the WRC and the Department of Science and Technology in 2014. It was initiated to bridge the gap between the research and development and pre-commercialisation stages of innovation in the water sector. Hence, WADER should be seen as a sectoral platform for collaboration and support.

We need to promote innovation and research so that we can find a new, better way of managing what natural resources we have to enhance water security in our country. Water, science and innovation are closely linked.

This is where WADER is unlocking new possibilities and applications for the benefit of society. Innovation and research support through this programme have already provided new ways to ensure the efficient use of water resources. The programme's mission is to facilitate high-level, collaborative technology demonstrators to maximise the potential of the water innovation value chain.

WADER promotes the early adoption of promising technologies and accelerates innovation by showcasing technologies that have gone through a credible assessment process.

The programme works closely with innovators and affords them a platform to test their demonstrations, build prototypes and showcase their innovations. This helps with fine-tuning their ideas and developing products that ensure better water management.

Through a series of annual open calls, WADER has

been presented with water technologies that are in the emerging, pre-commercial or early commercialised stages of being used. Some of these technologies are related to water reuse, and ways to use less water through smart water conservation.

So far, WADER has been particularly successful in developing partnerships with other key players in the sector. These players have provided technical input and helped to create international partnerships and opportunities for innovators.

A significant portion of the first two years of the programme was dedicated to developmental work. Building understanding, awareness and buy-in amongst stakeholders, negotiating partnerships and identifying technology demonstrators were some of the aspects that those involved in WADER focused on.

Over the next two years, efforts were focused on establishing processes to ensure that the programme functioned as an effective platform. It involved extensive stakeholder engagements, partnerships and implementation of the technologies selected.



Since then, WADER has provided opportunities to emerging innovators to develop their prototypes and, in the process, build up a potential partnership portfolio through the interaction with donors and funders.

So far, WADER has activated nine technology demonstrators through collaborative partnerships with industry, academia, government and civil society. Each technology demonstrator (a range of new water gadgets and systems) serves as a 'showroom' for the specific technologies. This helps to assess the technical performance, environmental compliance and social impact of the chosen technologies.

Examples include the AquaTrip, Arumloo, and the DEWdrop system.

Aquatrip is a water leak detection system that monitors water flow into a property. The system automatically switches off when it detects a burst geyser, for instance. This enables the system to protect the entire plumbing system and help reduce water loss.

Another example has been the development of the Arumloo, a toilet that can flush with less than two litres of water at a time. Its design was inspired by the shape of the Arum lily, a flowering plant native to southern Africa. This design has helped to set new standards for toilet efficiency. Due to the altered P trap (a plumbing device) and the shape of the toilet pan, the Arumloo is able to flush with much less water than conventional toilets. This patent was originally owned by the WRC but in the interests of SMME development, it was assigned to Isidima.

WADER has also provided a platform for the development of the DEWdrop system. This decentralised ecological wastewater treatment system can recycle up to 400 litres of greywater per day to a quality suitable for flushing toilets and watering gardens. It uses biological treatment and indigenous plants to produce an 'on-tap' supply of recycled water.

There are many ongoing projects within the WRC's portfolio of programmes that will result in products that can add value to the water sector through testing of selected technologies. This will help ensure safe drinking water and strengthen processes to improve water quality.

These and other water innovation technologies intend to ensure a more streamlined water technology innovation cycle capable of bridging the divide between research and research products reaching the market.

It is vital that research is conducted to support the development of robust information that will effectively guide policy and decision makers and inform wise management strategies.

South Africa is developing an innovation culture related to water resources and it is crucial to embrace innovative thinking and new solutions.

As a country, we are strong in applied research and development and the first few stages of the innovation value chain; however, we struggle to take innovations to the market. South Africa also lacks angel investors and venture capitalists who can assist with moving innovations closer to the market.

Demonstrating water technologies in real-world situations is, therefore, critical if we are to bridge the divide between research and development and commercial markets, enhance social benefits and optimise the functioning of the water innovation value chain.

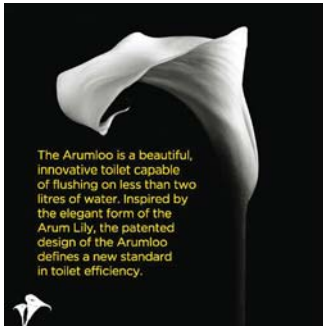
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Some examples of technological innovation supported by the WADER programme.

The AquaTrip system



Arumloo



WATER SAVINGS

LOCATION	NO. OF PEOPLE	FLUSHES PER DAY	LITRES PER DAY	LITRES PER YEAR
Household	5	5	100	36,500
Office	20	3	240	60,000
School	50	2	400	82,000



Dewdrop



University of Cape Town





Water Information Network-South Africa (WIN-SA) aims to capture the innovative work of people tackling real service delivery challenges. It also aims to stimulate learning and sharing around these challenges to support creative solutions. Most importantly, WIN-SA strengthens peer-to-peer learning within the water sector.

To read further, download reports from the WRC Knowledge Hub visit www.wrc.org.za
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