

# ARUMLOO LOW FLUSH TOILETS

## Public-Private Partnership Case Study

Arumloo (Pty) Ltd specialises in the design and manufacture of water-saving solutions, with a core focus on water-saving toilets. Arumloo has collaborated with the Water Research Commission (WRC) on the design and demonstration of the Arumloo low-flush toilet, as part of the WADER and SASTEP programmes. To date, there have been three key projects with the WRC related to this product:

- The development of the micro-flush toilet (initial concept development – WADER)
- Demonstration of the Arumloo technology at Barkerville School (SASTEP)
- Demonstration of the Arumloo technology at Qhobosheaneng School (SASTEP)



### At A Glance

Project	Arumloo low Flush Toilets
Public Sector Partner	Water Research Commission, South Africa
Private Sector Partner	Arumloo (Pty) Ltd
Partnership Period	5 years +
Region	South Africa

## The Problem

South Africa is experiencing severe water scarcity and a critical sanitation backlog impacting schools, rural households, and urban informal settlements. According to the Department of Water and Sanitation, nearly 20% of the population lacks access to adequate sanitation facilities, with many relying on pit toilets. These pit toilets, often installed through government initiatives, place a significant maintenance burden on local authorities and pose serious safety risks.

Inadequate maintenance of these facilities has led to several tragic incidents, including reported child fatalities from falls into sub-standard pit toilets. For example, in 2018, a report by the South African Human Rights Commission highlighted the death of a 5-year-old child who fell into an unsafe pit toilet in a rural school.<sup>1</sup> This underscores the urgent need for improved sanitation infrastructure and maintenance to protect vulnerable populations and address the sanitation crisis.

## The Solution: Low Flush Toilets



### **Arum Lily Technology**

Water savings without compromising performance.



### **Water-Efficient Solution**

Bridging pit toilets and full-flush systems.



### **Design Standards**

Mandated for new projects in water-scarce areas.

The Low Flush Toilets technology offers a water-efficient alternative to traditional sanitation solutions, bridging the gap between pit toilets and full-flush systems. Building on initial research into pour-flush toilets by the Water Research Commission (WRC). Their innovation is inspired by the Arum Lily, enabling substantial water savings without sacrificing flush performance.

As a private company, Arumloo has concentrated on developing and commercialising this technology, while their government partner, the WRC, has focused on policy and legislative changes to facilitate the adoption of low-flush toilets.

Recent advancements include emerging design standards and new policies from the Department of Water and Sanitation (DWS) that mandate low-flush toilets for new developments in water-scarce areas. Low-flush toilets are now incorporated into the DWS norms and standards for sanitation, reflecting a significant step toward more sustainable and efficient sanitation solutions.



## Success Factors

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**Commercialisation and Installation:** Through the public-private partnership, Arumloo has successfully commercialised its technology and installed the low flush water-efficient toilets in various schools, offices, and private households.
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**Government and Community Engagement:** Collaboration with government entities helped Arumloo navigate regulatory requirements and gain trust within local communities. This engagement was crucial for acceptance and widespread adoption, especially in schools and public institutions.
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**Scalability and Global Expansion Potential:** The success of the initial installations and strong market acceptance enabled Arumloo to expand into international markets, such as Botswana, Kenya, and Dubai, reinforcing the PPP's role in scaling innovative sanitation solutions beyond local borders.
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**Long-Term Impact Focus:** The PPP was driven by a long-term vision, with both partners focusing on lasting change rather than short-term outcomes. This focus on sustainable solutions, such as water-efficient toilets, directly contributed to improving public health, reducing water consumption, and fostering long-term environmental sustainability.



**Jonny Harris**

CEO, Arumloo (Pty) Ltd



*“The partnership with the WRC has been invaluable to enable the commercialisation of our low flush toilet. The ongoing work by the WRC to shape policy and create opportunities for the demonstration of alternative sanitation solutions has provided the platform for us to focus on the technical development of our product.”*

## Impact



### Expanding Access to Sanitation

Made flush toilets accessible in impractical areas, improving sanitation and hygiene.



**30,000 L**  
of water saved

*Household's typical yearly water saving*



**70%**

reduction in water demand

*Impact data from the school trial, January to June 2023*

## Learnings



**The Power of Strategic Partnerships:** Collaborating with government entities has been crucial for demonstrating and promoting Arumloo's technology within the public sector. Without such partnerships, innovative solutions may struggle to gain traction compared to established conventional technologies.



**Challenges in Influencing Policy:** As a technology provider, it can be exceptionally challenging to shape policies that facilitate the adoption of new technologies. Overcoming regulatory barriers requires sustained effort and engagement with policymakers to align new innovations with existing standards.



**The Long Road to Change:** Introducing and embedding new technology is a lengthy process. Arumloo's experience illustrates that it takes significant time—over a decade in their case—to design, develop, and create conditions for widespread adoption. Patience and persistence are key in this journey.



**The Importance of a Long-Term Vision:** Successful technology adoption requires a long-term perspective. It's essential to consider not only the product's performance but also the broader roadmap for its integration and acceptance within the market. Building a comprehensive strategy that addresses both immediate and future challenges can significantly enhance the likelihood of success.

## Conclusion

The Arumloo initiative not only exemplifies the power of innovative sanitation solutions but also illustrates the pivotal role of collaborative partnerships in driving meaningful change. By integrating the expertise and resources of both the public and private sectors, the initiative addresses South Africa's critical water and sanitation challenges with a forward-thinking, sustainable approach. This model of cooperation serves as a blueprint for scaling similar solutions, offering hope for long-term resilience in regions facing resource scarcity and infrastructure gaps. Ultimately, it demonstrates that through innovation and partnership, complex societal issues can be effectively mitigated.

<sup>1</sup>Greenpeace Africa. (2022, July 5). Water crisis in South Africa - Greenpeace Africa. <https://www.greenpeace.org/africa/en/blogs/51757/water-crisis-in-south-africa/>

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With thanks to our leaders:



\*Kimberly-Clark

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