

NEW SANITATION

New South African guide for the selection of appropriate sanitation systems

A new guide has been developed to assist municipalities with the selection of appropriate sanitation systems. Article by Jeanette Neethling.



While South African municipalities struggle to address sanitation service backlogs for low density rural areas, peri-urban and informal settlements, technology developers across the globe are innovating new solutions in sanitation. In South Africa, dry on-site sanitation is utilised in most rural and peri-urban areas while waterborne sanitation is the norm in urban areas (the binary sanitation paradigm).

While the drive to extend waterborne sanitation to rural areas is motivated largely by political pressure and user aspirations, widespread implementation of conventional approaches is unsustainable and near impossible in a country with water scarcity, constrained infrastructure, and limited budgets due to the high costs involved. Alternative solutions have been

developed in recent years with the aim of improving sanitation services without the high capital investment and water usage required for large reticulation services.

The growing suite of options available has the potential to bridge the gap between basic and improved sanitation and allow municipalities to achieve dignified hygiene and sanitation for all. Sanitation alternatives will contribute directly to the target of the National Water and Sanitation Master Plan to “develop, demonstrate and validate appropriate alternative, waterless, and off-grid sanitation solutions.” With more options comes more difficult decision-making, which is why South Africa’s 2016 National Sanitation Policy states a position to “develop criteria to evaluate appropriate sanitation technologies”.

The South African Sanitation Technology Enterprise Programme (SASTEP) is a national system of innovation platform that seeks to fast-track the adoption of innovative and emerging sanitation technologies in South Africa through fostering local manufacturing and commercialisation. In 2021/22, SASTEP commissioned a project to investigate the barriers to uptake of alternative sanitation systems and create a suite of tools to help municipalities overcome these barriers.

The work included consultation with municipal representatives and technology developers to first understand how and why implementation of innovative technologies is hampered. In general, obstacles to the introduction of innovative technology are related to technology selection and technology procurement. In terms of technology selection, this may include limitations such as: limited understanding of sanitation systems and how they are meant to function; lack of knowledge on available systems; resistance to change; and lack of certification and limited testing of new technologies.

In terms of technology procurement, limitations include, inter alia: struggles to procure specific piloted technologies while ensuring fair procurement processes; tender specifications that are either too specific or too broad; evaluation protocols focused solely on capital cost rather than considering lifecycle costs; and limited options for receiving alternative offers or pursuing design-build contracts.

Following the barriers analysis, a suite of tools was produced to improve understanding of sanitation systems in general and support decision makers who have limited capacity and time. The tools aim to empower municipalities, water services authorities, and water services providers to deploy sanitation solutions that are contextually appropriate, including alternative and traditional approaches. While a tool can never replace critical thinking and technical expertise, decision-making tools can open the possibilities for implementation of alternative sanitation solutions. This will introduce a wider range of technology solutions that can be used in addressing sanitation service delivery challenges, ideally leading to increased access to improved sanitation for more South Africans.

This project led to the creation of the following tools:

- **Selecting sanitation systems:** A document setting a framework for understanding what is included in a sanitation system, based on the *Compendium of Sanitation Systems and Technologies* by EAWAG (2014). The aim of this document is to establish a common language among South African decision makers. The document also establishes key criteria to consider when selecting a sanitation system, based both on project goals and constraints.
- **Sani Select decision-support tool:** An MS excel tool that assists with decision-making along the sanitation value chain while considering many different factors
- **Writing a sanitation policy:** A document providing simple guidance for municipalities on writing their own sanitation policy

- **Procurement processes for alternative sanitation systems:** A document providing guidance on procuring alternative sanitation technologies, with some proposed alternatives to traditional approaches. This also includes some example specifications to assist decision makers.
- **Advocating for alternative sanitation systems:** A document providing high-level tips to technology suppliers and advocates to improve their promotion of alternative sanitation systems, based on feedback from those interviewed during this study.

The above tools are a starting point for supporting municipalities and other decision makers in taking the step towards more sustainable and appropriate sanitation. Since the completion of the Guide, SASTEP and Partners in Development have hosted several workshops aimed at municipal engineers and decision – makers. While there is considerable interest in the tools created through this work, the tools must be mainstreamed to ensure uptake. This may include incorporation of the tools and guidance into Department of Water and Sanitation policy and processes and inclusion of the materials in a non-sewered sanitation masterclass for South African professionals. All tools are available freely to the public through the Water Research Commission.



There is a growing suite of sanitation options available to municipalities.