

11 SANITATION SERVICES

11.1 Background

Section 24 of the Constitution of the Republic of South Africa states that "everyone has the right to an environment that is not harmful to their health or well-being". This makes access to safe and hygienic sanitation a human right. Access to safe and hygienic sanitation improves public health, dignity, and a clean environment. The Department of Water and Sanitation is committed to achieving the vision and objectives of the National Development Plan (NDP), which targets all South Africans to have access to affordable, reliable, and hygienic sanitation by 2030. The NDP coincides with the Sustainable Development Goal Target 6.2 (SDG 6.2), which aims to "achieve access to adequate and equitable sanitation and hygiene for all and end open defecation" by 2030.

In 2015, South Africa adopted a revolutionary approach under the theme – "It is not all about flushing", recognising that South Africa is a water-scarce country, with a projected 17% deficit in the availability of water by 2030 if the same rate of water consumption is maintained. The projected water deficit will significantly impact the historical way of providing waterborne sanitation and requires the sector to reconsider sanitation approaches, with more investment in non-sewered, low water and waterless sanitation solutions to increase the rate of sanitation service delivery within the five years left until 2030.

The DWS has recognised that due to a) the impact of climate change, b) water resources constraints, and c) energy supply challenges, the historic approach of providing waterborne sanitation is no longer sustainable and realistic to achieve universal access to safely managed sanitation. The envisaged 17% deficit in the availability of water and projected demand by 2030 requires the water sector leader to embrace the use of a range of sanitation solutions, including innovative technologies, which require little or no water or recycled water to lower water requirements.

In response to the National Sanitation Policy (2016), DWS developed the National Sanitation Framework (NSF). It is an implementation framework that assists the government in providing equitable and safe sanitation for all settlement types. It guides towards ensuring appropriate support to Water Services Authorities (WSAs) in cases of service delivery lapses and non-compliance with regulator prescripts, leading to a deterioration in the provision of sanitation services. The NSF provides for the revision of the national minimum norms and standards as it relates to sanitation services, thus ensuring more equitable provision of sanitation underpinned by the strengthened monitoring and compliance to these standards. The NSF reinforces the importance of prohibiting the provision of bucket toilets by municipalities as a sanitation solution,

ending open defecation, and eradicating sanitation backlogs by rolling out a range of support measures to poor-performing municipalities, thus ensuring a turnaround of sanitation services. In doing so, the future choice of sanitation technology options for the provision of sanitation services must be based on technical considerations and include population density, groundwater pollution risks, and economies of scale. In line with the National Water and Sanitation Master Plan (NWSMP) actions, all new settlements and developments should use water-efficient sanitation solutions.

There is an urgent need to focus on sustaining the sanitation infrastructure that has been provided since the dawn of our democracy to prolong its lifespan so that the infrastructure remains operational, safe, and hygienic whilst investing in new infrastructure to respond to rapid urbanisation. Moreover, there is also a need to ensure there is adequate investment in the operation and maintenance of wastewater infrastructure.

11.2 State of Sanitation Services in South Africa

South Africa has made significant progress in ensuring universal access to improved sanitation. In May 2024, StatsSA reported that in the last 21 years, there has been substantial progress in access to sanitation in South Africa. In the same period, the percentage of households with improved sanitation facilities, such as flush toilets and pit toilets with ventilation pipes, increased from 61,7% to 83,3% (StatsSA, 2024). Nationally, access to flush toilets is at 66%, while access to pit toilets with ventilation pipes is at 17%, and access to pit toilets without ventilation pipes is at 14% (Figure 11.1).



Figure 11.1: Access to sanitation in South Africa 2023 (StatsSA, 2024).

At 95%, Western Cape has the highest ratio of flush toilets, followed by Gauteng at 87%. Mpumalanga and Limpopo have the highest combined percentage of pit latrines

at 54% and 69%, respectively. The largest percentage of pit toilets with ventilation pipes were observed in Eastern Cape (40.5%), Limpopo (31.9%) and KwaZulu-Natal (31.7%).

Percentage distribution of households that have access to improved sanitation by province for 2002–2023 is presented in (Figure 11.2).



Figure 11.2: Percentage (%) distribution of households that have access to improved sanitation by province, 2002–2023 (StatsSA, 2024).

A noteworthy increase in improved sanitation of 55% was observed in the Eastern Cape. The significant increase in the Eastern Cape is due to the installation of Ventilated Pit (VIP) toilets which took place in 2022 and 2023. Also noteworthy are the figures below 70% observed in North West, Limpopo, and Mpumalanga.

The SDG 6.2 target has significantly changed the approach to sanitation services, from access to a household sanitation facility, as previously prioritised under the Millennium Development Goals, to ensuring "safely managed sanitation". This calls for a paradigm shift as it is no longer about simply constructing a toilet but a holistic approach to sanitation management across the entire sanitation service chain. The sanitation service chain refers to capture and containment, emptying, transportation, treatment, and disposal or reuse. Hence, there is a need to embrace a combination of on-site, off-grid, sewered or non-sewered sanitation systems, including centralised or decentralised wastewater treatment solutions. In addition, South Africa must accept

the reality that the country no longer has the luxury of flushing 9 to 12 litres of potable water while some parts of the country do not have access to drinking water.

Although the flush toilet system is everybody's aspiration, it comes at a high cost, which at times is not viable as it does not justify economies of scale and population density. The adoption of alternative sanitation systems can be a significant driver of water security in the country.

The inputs to the sections below came from the Chief Directorate: Sanitation Services Support.

11.2.1 Development of the National Sanitation Integrated Plan (NSIP)

The NSIP provides a 10-year roadmap for ensuring access to adequate sanitation services, eradicating open defecation and sanitation backlogs per province, creating a pathway to generate new sanitation opportunities, and providing innovative solutions to address challenges in the sanitation sector. The NSIP is a countrywide, long-term turnaround plan for Sanitation with inputs and data provided by all 144 WSAs (including Metros) to enable long-term sustainable management of sanitation services in South Africa. The NSIP sets targets for the short, medium, and long term, and the implementation of these actions will grow competency and capability within municipalities, thus enabling improved performance.

The NSIP will help prioritise sanitation provisions aligned to the National Development Plan (NDP) 2030 commitments, NWSMP, and SDGs. The vision of the NSIP is a coordinated plan that considers South Africa's water resource scarcity promotes equitable, efficient, and sustainable sanitation services to all, and contributes to public health and a clean environment. The NSIP strategic drivers are:

- 1) To achieve universal access to sanitation and hygiene that are managed safely
- 2) To turn around the current decline in performance in the delivery of sanitation services.
- 3) To strengthen the regulatory framework for on-site and non-sewered sanitation.
- 4) To Responding to climate change and improve the climate resilience of sanitation infrastructure.
- 5) To create economic opportunities along the sanitation service chain.
- 6) To finding innovative ways to deliver sanitation services and use alternative sanitation technologies in addressing sector challenges such as:

- use of bucket toilets and unsafe pit latrines
- the rise in the use of chemical toilets
- practising of open defecation

To strengthen governance, support, and implementation of the NSIP, Provincial Sanitation Task Teams are set up to work as a vehicle to drive integrated planning, monitoring, reporting, and implementation of sanitation programmes and projects in a coordinated manner.

11.2.2 The National Faecal Sludge Management Strategy 2023

The National Faecal Sludge Management (FSM) Strategy was ratified in October 2023. The strategy aims to implement parts of the National Sanitation Policy, the National Development Plan (NDP), and the SDGs (DWS, 2023). The National FSM Strategy will establish sustainable management and regulatory frameworks for faecal sludge management in South Africa. It guides the sanitation sector on the safe management of faecal sludge to enhance the operation and maintenance of on-site sanitation systems, prevent groundwater contamination, safeguard public health, and protect the environment from pollution throughout the sanitation service chain. The strategy acknowledges the economic value of sanitation by promoting the beneficial use of faecal sludge as a resource.

Faecal sludge management will be mainstreamed as an integral part of sustainable sanitation services that will ensure that people live in an environment that is not harmful to their health and well-being. Of importance is the need to recover, re-use, and recycle resources from faecal sludge and wastewater sludge for beneficial use. The strategy indicates the actions required by various stakeholders, guided by six pillars (Figure 11.3).



Figure 11.3: Pillars of the National FSM Strategy

The Department is working with the Water Research Commission and various Universities to fast-track resource recovery initiatives from sludge. The private sector is also encouraged to take advantage of the sludge beneficial use and resource recovery business opportunities. As part of the Promotion and User Engagement Pillar, DWS developed FSM educational and awareness materials using innovative approaches to communicate relevant messages to specific stakeholders.

11.2.3 Developing Shit/ Excreta Flow Diagram Capacity Building Programmes

A shit flow diagram, also known as SFD or excreta flow diagram, is a tool used to visually illustrate the management of human waste within urban sanitation systems. It is one of the tools that were developed globally to assist countries in meeting the SDG 6.2 target on Sanitation and Hygiene. Figure 11.4 demonstrates the sanitation service chain and options for managing faecal sludge.



Figure 11.4: Sanitation Service Chain in South Africa (DWS, 2024).

It clearly shows how human excreta generated in a municipal area is contained (safely or unsafely) as it moves from defecation to disposal or end-use. It functions as a tool to identify where sanitation improvements are needed. The SFD aims to estimate a proportion of the population using safely or unsafely managed sanitation. It consists of a diagram, a narrative report, and a record of data sources. SFD has been identified as a useful tool for better understanding the sanitation situation within South Africa. SFDs have been developed for only a few WSAs in South Africa. Therefore, It is not currently possible to develop a provincial or national view of sanitation status using SFD outputs.

DWS has modified the global SFD manual to fit the South African context while still maintaining the global standard. The South African SFD manual focuses mainly on information that is relevant to South Africa. DWS is rolling out SFD "Train the Trainer" programme in a phased approach, starting with 36 WSAs across the country. Lessons learnt from phase 1 will be used to modify the South African SFD manual. The next phase will focus on the remaining 108 WSAs.

11.2.4 Development of financial mechanisms and economic models to facilitate faecal sludge management circular economy

The water and sanitation sector has embraced the reality that sanitation has economic value. Therefore, there is a need to explore approaches to creating economic and job opportunities along the sanitation service chain. This can be realised by transitioning

from linear to circular economy by converting faecal and wastewater sludge into various by-products such as biogas, composting, and biochar.

DWS is working with the University of KwaZulu-Natal to develop guidelines on financial mechanisms and economic models to facilitate faecal sludge management. These guidelines will assist the sector in transforming faecal sludge into a commercially viable resource.

11.2.5 Development of Regulatory Mechanisms for non-sewered sanitation services

Sanitation services in South Africa vary from sewered (decentralised) wastewater systems to non-severed (centralised) sanitation systems depending on settlement conditions. The management of faecal sludge from non-sewered sanitation systems is not a Green Drop focus, even though sludge from these systems is disposed of at wastewater treatment works. Furthermore, research has proven that faecal sludge and wastewater should be treated differently, focusing on the impact of faecal sludge on the WWTWs. The other challenges around non-sewered sanitation are full toilet pits or containments, health and safety handling of faecal sludge, and appropriate treatment and disposal methods of faecal sludge. Faecal sludge management is now included in the Compulsory National Norms and Standards for Water Supply and Sanitation Services.

Regulation mechanisms are available for offsite systems through the Green Drop Certification Programme. In contrast, existing regulatory mechanisms for onsite sanitation systems are limited to package plants, decentralised systems, and vacuum tank discharges through Bylaws and enforcement. To address this gap, a new set of criteria has been developed and will be incorporated into the Green Drop Certification process to ensure safely managed sanitation regardless of the sanitation system used. These new criteria will be communicated to WSAs and rolled out accordingly. The inclusion of the non-sewered sanitation criteria into the Green Drop Certification Audit will be implemented in a phased approach, firstly stakeholder advocacy and awareness engagements, secondly water services institutions training and capacity building, and finally a trial at selected WSAs.

The aim of the approach is to provide sufficient time for:

- Sector stakeholders to grasp and understand the complexities of including assessment of non-sewered sanitation systems.
- WSAs to improve current monitoring and evaluation systems.
- DWS to further refine the criteria through practical testing of the draft criteria (through pilot trial at selected WSAs).

11.3 Bucket Eradication Programme

The bucket sanitation system is a toilet with a bucket or other receptacles placed directly under the toilet seat to collect urine and faeces. It is widely regarded as one of the worst sanitation systems because it violates the human dignity of the users and those responsible for collecting and disposing of the waste. The current Bucket Eradication Programme (BEP), initiated in 2012, seeks to replace bucket toilets with waterborne sanitation in the Eastern Cape, Free State, Northern Cape, and North West. The project has had significant delays, mainly because the Sanitation function went through several transfers between departments and Implementing Agents appointed by the different departments. The programmes also experienced technical challenges such as engineering planning and design of the sanitation infrastructure upgrades. All the original BEP elements have been completed except for one Northern Cape project and eight Free State projects. These projects are expected to be completed during the 2024/25 financial year (Table 11-1).

MUNICIPALITY	PROJECT	NO OF BUCKETS PER PROJECT	COMPLETED TOILETS	COMPLETION %		ESTIMATED
				March 2023	August 2024	DATE
Setsotso	Clocolan	3379	0	21%	74%	December 2024
	Ficksburg	218	0	46%	71%	December 2024
	Senekal	2435	0	39%	74%	December 2024
Nketoana	Arlington	1192	0	24%	76%	March 2025
	Reitz	739	0	43%	90%	December 2024
	Petrus Steyn	960	0	40%	63%	March 2025
Tokologo	Dealesville	1279	0	31%	91%	December 2024
Siyancuma	Campbell (Ph 2 – Bulk Water) (Ph 3 – Reticulation)	596	596	0%	Ph 1 – 5,5% Ph 2 – 0%	July 2025 March 2026
	Siyancuma	387	387	100%	-	-
Tsantsabane	Postdene	134	134	100%	-	-
	Maranteng	149	149	100%	-	-
Sol Plaatjie	Motswedimosa	656	656	100%	-	-
	Fraser Moleketi	97	97	100%	-	-
Total		12 221	1 423			

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11.4 Sanitation Challenges

- Even when all the BEP projects are complete, South Africa will not have eradicated bucket toilets because the scope of the current BEP only included bucket toilets identified in the initial audit in formal settlements. There are other bucket toilet systems in informal settlements, and new bucket toilet systems may be introduced on an ongoing basis.
- More than 10% of pits are full, while more pits are being constructed with limited emptying services in place.

- Onsite sanitation solutions such as VIPs are generally not being emptied, and this has resulted in some households reverting to unimproved sanitation solutions.
- Additional wastewater due to rapid urbanisation is overloading wastewater treatment works.
- Groundwater contamination risks due to poorly constructed sanitation facilities boreholes drilled close to sanitation facilities.
- There are limited regulatory mechanisms to ensure on-site sanitation systems are well-constructed and well-managed.
- Approximately 30% of WWTWs exceed their current design capacity, resulting in malfunctioning wastewater treatment works.
- Inadequate investment in the operation and maintenance of wastewater infrastructure.
- Incomplete and/or unrealistic Water Services Development Plans (WSDPs) are affecting the ability to plan and implement projects.

Achieving the Sustainable Development Goal 6.2 will require multi-sectoral partnerships and collaborations between government, private sector, academic and research institutions, civil society organisations, communities, and others. With only five years left until 2030 and approximately 2.8 million households without appropriate sanitation, the WSAs in collaboration with all stakeholders, need to accelerate the transition to safely managed sanitation in South Africa and ensure that 'no one is left behind'.