

Knowledge Product

Policy Brief - Strengthening Enabling Systems

Kaloola-BORDA Partnership



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1 Background information

Roughly one-third of households in South Africa still rely on on-site sanitation. Many residents live in dense or high-water-table areas where pits/tanks are unsafe or unserviceable. Faecal Sludge Management (FSM) backlogs and hazardous handling increase public health and environmental risks. The Department of Water and Sanitation (DWS) FSM Strategy (2023) was developed and issued to close these gaps [1]. Traditional Ventilated Improved Pit (VIP) or septic tank models can fail in space-constrained areas (such as informal settlements), flood-prone, or rocky terrain, where network sewers are capital-intensive and slow to deliver. Container-based sanitation (CBS), such as the Loowatt/Kaloola technology, can meet basic sanitation duties under the Water Services Act while municipalities plan and build long-term infrastructure [2].



Figure 1. The Loowatt System™ showing the toilet structure outside a customers home (left) and the flushing mechanism (right)

The Loowatt Ltd, commercialised as Kaloola Home in South Africa, is an example of CBS. Kaloola uses the patented **Loowatt System™** (referred to as ‘toilet’ in the

remainder of this policy brief). A waterless flush toilet which hermetically seals waste (faecal sludge - a mixture of human excreta (urine and faeces), water and solid wastes (e.g. toilet paper). However, in this case there is no water, the waste remains classified (faecal sludge) in a lining material (a polymer film) and transfers it to a container below the floor (**Figure 1**), locking away germs and odour and providing a clean bowl for every use. The toilet uses no water or chemicals, and even compared to low-flush toilets, it can save South African homes more than 3,600 L of water every year [3].



Kaloola during the South Africa Youth Day celebrations, in June 2025

What is CBS?

CBS offers a safe, rapidly deployable service for dense informal settlements, flood-prone areas, schools, and settlements awaiting bulk infrastructure. South Africa already has the legal tools to enable CBS—most notably the Water Services Act, the 2025 Revised Compulsory National Water and Sanitation Services Standards, the

National Sanitation Policy (2016), the FSM Strategy (2023), and the adoption of SANS/ISO 30500 for on-site non-sewered sanitation (NSS) systems. With targeted updates to municipal by-laws, service-level standards, and procurement/permits aligned to waste norms, CBS can be mainstreamed as a regulated utility service that complements sewerage and on-site options [1,4,5,6]. CBS is a (sometimes paid) service model where sealed containers capture excreta at the household or communal toilet; a regulated operator exchanges full cartridges (or similar) on a schedule; and excreta are transported for safe treatment and resource recovery. Modern CBS systems align with NSS standards (SANS/ISO 30500: 2018, now updated to SANS/ISO:2025) covering performance, user safety, emissions, and treated outputs [6,7].



Kaloola showing their operation facilities during the P4G kick-off site visit (May 2024)

2 Policy Context - Current South African Policy & Standards Landscape

Current policy on what enables CBS is shown in **Table 1** below.

Table 1. South African Policy Landscape for Container-based Sanitation

Policy/ Regulation/ Strategy		Description (with respect to CBS)
Constitutional & Primary Statute	Water Services Act (No. 108 of 1997)	Establishes the right to basic sanitation, empowers the Minister to set national norms and standards, and requires Water Services Authorities (WSAs) to plan and provide services—including alternative service models where appropriate [4].
National Norms & Standards for Service Levels	Compulsory National Water and Sanitation Services Standards (2025)	Under the <i>Water Services Act</i> , these are the current national service standards and repeal the 2001 (R509) regulations. They set requirements for water and sanitation services that WSAs must meet—relevant to defining CBS service levels, reliability, health protection, and customer care [8].
Policy	National Sanitation Policy (2016)	Endorses a complete sanitation value chain approach (containment, emptying/collection, transport, treatment, reuse/disposal), explicitly recognising non-sewered options and the need for regulated FSM [5].
	National Water and Sanitation Master Plan (2018)	Calls for citywide inclusive sanitation and improved FSM as part of equitable service delivery [5].

Policy/ Regulation/ Strategy		Description (with respect to CBS)
Strategy	DWS Faecal Sludge Management Strategy (2023)	Provides national direction for safe collection, transport, treatment, and beneficial use; confirms faecal sludge's risk profile and the need to comply with environmental waste norms and treatment standards [1].
Product/ Performance Standards for Systems	SANS 30500 (adopted from ISO 30500):	South Africa adopted the international standard for NSS systems to specify/verify CBS hardware performance and safety (ISO released an updated ISO 30500:2025 replacing the 2018 edition) [6,7].
Environmental Regulations and Compliance	National Environmental Management: Waste Act (NEMWA) 59 of 2008	Under NEMWA [9] norms, faecal sludge is treated as a hazardous/infectious waste unless adequately treated; disposal/beneficial-use pathways must comply with: • National Norms & Standards for the Assessment of Waste for Landfill Disposal (Government Notice (GN) Regulation (R)635, 2013; updated 2024). • National Norms & Standards for Disposal of Waste to Landfill (GN R636, 2013; updated 2024). These govern classification, restrictions, and landfill engineering classes—pushing diversion to treatment/reuse.

Policy/ Regulation/ Strategy			Description (with respect to CBS)
Water Quality (for any reuse/ discharge)	SANS 241 (Drinking Water)		Remains the referenced benchmark for potable water quality and appears across DWS tools and sector guidance; any CBS treatment that produces water for reuse (not currently the norm for the Kaloola toilet, but it can be an option in future, to reuse the water used to wash the barrels that collect the waste) must meet the relevant quality specifications/permits (a new consolidated SANS 241 edition has been in public comment; 2015 remains widely referenced in the DWS dashboards) [10] .

3 Gaps and Implications

Policy Gaps That Hinder CBS Scale-Up

- *Service definition & Key Performance Indicators (KPIs) at municipal level:* Many by-laws and service/ tender contracts still assume pit toilets, chemical toilets, or sewers only as basic sanitation. CBS service metrics (swap frequency, response times, safe chain verification) are often missing [\[11\]](#).
- *Permitting & waste logistics:* Unclear local permitting for temporary storage, transfer, and routing of containerised excreta to treatment: there needs to be a standard operating permit that is aligned to waste norms (R635/R636). For CBS to be implemented [\[12\]](#).
- *Standards uptake:* SANS/ISO 30500 adoption is progressing, but mark/certification schemes and test capacity need finalisation to streamline procurement [\[13\]](#).
- *Operations:* Revised Compulsory Water and Sanitation Norms and standards (June 2025) dictate emptying of CBS more than twice a week
- *Uptake:* Revised Compulsory Water and Sanitation Norms and standards (June 2025) does not mention CBS, rather mentions “Bcuket toilet (or similar removable

container). This may make it seem as if the Kaloola system is a ‘glorified bucket system’ and hinder user acceptance and uptake.

4 Recommendations Summary

4.1 Recommendations

What government and utilities can do in the next 12–18 months:

1. Recognise CBS as a regulated utility service.

- Embed CBS in WSA Water Services Development Plans and sanitation strategies as a permanent option where sewers/pits are not feasible.
- Use the 2025 Compulsory National Water and Sanitation Services Standards to set CBS customer standards (uptime, swap intervals, hygiene, grievance redress) [\[14\]](#).
 - *Uptime:*
Toilets must be adaptable to users’ needs, not leak waste, be easy to clean, withstand frequent weekly servicing, and resist daily use.
 - *Swap intervals:*
Toilets must be emptied in regular intervals (e.g. once a week). Among CBS business models, profitability is normally not possible if more than one service a week is needed.
 - *Hygiene:*
Cleaning standards of CBS must include containers and bags being cleaned by cleaning methods such as pressure, washing, soaking in chlorine solution, or sun drying.
 - *Grievance redress:*
The development of a line of communication for issues such as missed collection, defective toilets, and leakages. This can be in the form of a mobile number, WhatsApp, USSD number, and must be visible on toilets, and response times must be monitored.

2. Standardise procurement and technical specs.

- Require SANS 30500 (or ISO 30500:2025 equivalent) compliance for CBS toilets/treatment units; reference performance tests for pathogen log-reductions, odour, emissions, and effluent/solid outputs.

- Include safe-chain verification: sealed container logistics, manifesting, and tracking [6,7].

3. Issue model municipal by-law clauses & permits.

DWS with the Department of Cooperative Governance and Traditional Authority (CoGTA) to publish model clauses for CBS service levels, occupational health & safety, data reporting, and penalties; set a standard permit pack for (i) depot/transfer points, (ii) transport, and (iii) treatment facilities that aligns to R635/R636 classification, transport and disposal/beneficiation rules [12]. This is important for the Kaloola toilet, which operates in KwaZulu-Natal and has traditional authorities.

4. Finance & tariffs.

- Allow performance-based service contracts (per household per month) with outcome KPIs (missed swaps, safe disposal certificates).
- Enable access to grants and blended finance where CBS is the least-cost, fastest-to-serve option identified in Water Services Development Plans (WSDPs) (aligned to National Sanitation Policy 2016 value-chain approach) [5].

5. Treatment & resource recovery.

Prioritise decentralised treatment that meets environmental approvals; divert from landfill where feasible, in line with R636 restrictions. Encourage co-treatment or conversion to a by-product, such as compost, where authorised [12].

6. Certification & market development.

Finalise a domestic SANS 30500 certification/mark scheme and designate test labs to cut transaction costs and speed municipal procurement [13].

4.2 Recommended Implementation Roadmap

In the next 12–24 months, this is a possible way to scale the uptake of the Kaloola toilets:

• Q1–Q2:

- WSAs map high-priority wards (dense informal, flood-prone) and include CBS in WSDPs; DWS circulates model by-law and permit templates; start pilot procurements referencing SANS 30500 [6].

• Q2–Q3:

- Set up CBS depots/transfer points with approved Standard Operating Procedures (SOPs); contract licensed transport; confirm treatment site permits aligned to R635/R636 [12].

• Q3–Q4:

- Scale service to ≥5,000 households per WSA segment; live reporting to DWS NIWIS-like dashboards; independent audits for safe-chain compliance. (Water reuse, if any, must meet applicable quality standards and authorisations; potable reuse would need to meet **SANS 241** where relevant) [10].

5 Conclusion

CBS is not a “stop-gap”; it’s a regulated, standards-based service that lets WSAs deliver safe sanitation now while sewers and bulk treatment are planned. The 2025 national service standards, the 2016 policy, the 2023 FSM Strategy, SANS/ISO 30500, and waste norms provide a clear compliance pathway. The remaining work is municipal operationalisation—by-laws, permits, procurement—and building certification.



Entrance hall at the National Convention Centre, during the P4G Summit in Hanoi, Vietnam (April 2025)

6 References/ Further Reading

- [1] Faecal Sludge Management Strategy (2023) - <https://www.dws.gov.za/Documents/PRINTERS%20FINAL%203D%20FSM%20Strategy%202023.pdf>
- [2] Reference: https://www.gov.za/sites/default/files/gcis_document/201409/a108-97.pdf
- [3] Loowatt website 'Transforming global sanitation' - <https://www.loowatt.com/>
- [4] Water Services Act 108 of 1997: https://www.gov.za/sites/default/files/gcis_document/201409/a108-97.pdf
- [5] National Sanitation Policy (2016): <https://policyvault.africa/policy/national-sanitation-policy-2016/>
- [6] GreenCape Industry Brief (2020) 'Reusing wastewater – Promoting on-site treatment and reuse': https://greencape.co.za/assets/WASTEWATER_TREATMENT_INDUSTY_BRIEF_WEB-13-11-2020.pdf
- [7] ISO 20500:2025: <https://www.iso.org/standard/87343.html>

- [8] Compulsory National Water and Sanitation Services Standards (2025): <https://www.gov.za/documents/notices/water-services-act-compulsory-national-water-and-sanitation-services-standards>
- [9] NEMWA (Act 59 Of 2008): <https://www.gov.za/documents/national-environmental-management-waste-act>
- [10] National Integrated Water Information System 'Drinking Water Quality Compliance': <https://www.dws.gov.za/niwis2/dwq2>
- [11] National Water Act: National norms and standards for domestic water and sanitation services (2017): <https://www.gov.za/documents/notices/national-water-act-national-norms-and-standards-domestic-water-and-sanitation>
- [12] National Norms and Standards for the Assessment of Waste for Landfill Disposal (2013): https://media.lawlibrary.org.za/media/legislation/13183/source_file/2013-r635.pdf
- [13] Infrastructure News 'Desperate need for SANS 30500 certification scheme': <https://infrastructurenews.co.za/2022/12/12/desperate-need-for-sans-30500-certification-scheme/>
- [14] GreenCape Container-Based Sanitation: Guidelines and Best Practices: <https://greencape.co.za/library/cbs-guidelines/>



Networking with guests at the Kaloolo-BORDA Partnership exhibition booth during the P4G Summit in Hanoi, Vietnam (April 2025)