Towards Citywide Inclusive Sanitation for Improved Sanitation Services in South Africa

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Brief overview

Citywide Inclusive Sanitation (CWIS) is an approach to urban sanitation, where all members of the city have equitable access to adequate and affordable improved sanitation services through appropriate systems of all scales (sewered & non-sewered), without any contamination to the environment, along the entire sanitation value chain. This study, using a major municipality in South Africa as the study site, looks at the CWIS service framework for improved sanitation service delivery. A conceptual framework would be developed that looks into how transitioning to a circular sanitation economy – through resource recovery - is in line with the Sustainable Development Goal 6.

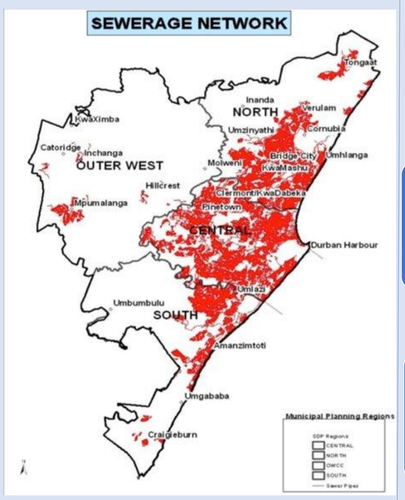
Research question: Can the citywide inclusive sanitation and circular economy approach be applied to manage the sanitation crisis in South Africa, for service delivery improvement?

Objective

Produce the most effective guideline/tool for a CWIS Planning Framework development for South Africa, for improved sanitation service delivery, in line with achieving Sustainable Development Goal 6, by 2030.

Study Area

eThekwini Municipality, Durban, South Africa



- Extensive inward migration - Waterborne sanitation -> 56% of population.
- Limited future expansion of sewered areas - capacity limits at existing WWTW.
- Aspiration of population to waterborne sanitation - Not feasible to provide conventional wastewater treatment for entire area, as there are financial & topographical constraints.

Methodology

Excreta/Sludge Flow Diagram (SFD) — To monitor the sanitation service chain, to identify its strengths and weaknesses, from containment, including emptying, transport, treatment and safe disposal or resource recovery.

City Service Delivery Assessment (CSDA) approach — A complementary tool to assess why the situation is as it is. It supports a systematic process for working with stakeholders to assess the enabling environment for citywide inclusive sanitation.

CWIS approach: Manilla Principles — A public service approach aimed at advancing CWIS outcomes - safe, equitable, and sustained services - across each city, to advance the CWIS function ns (responsibility, accountability and resource planning & management.

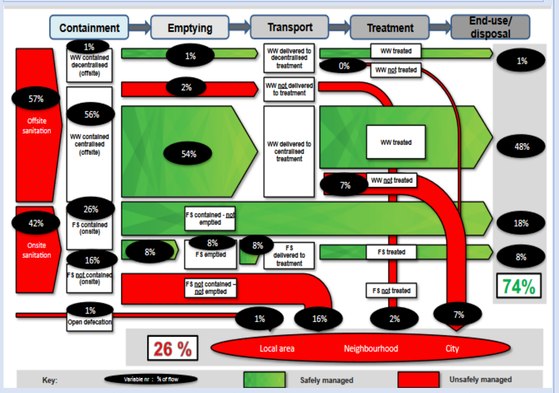
Compare most effective tool/ guideline for *CWIS Planning Framework* — A framework provides a broad structure/model to help in solve a real-world problem. A guideline offers specific recommendations/instructions for implementation of a framework [as a sanitation planning & service delivery tool].

Transdisciplinary Approach

Excreta/Sludge Flow Diagram

*An SFD provides an overview of **how** sanitation is working or not working in a city.*
It shows % of population contributing to each excreta flow.
It shows % safely and unsafely managed excreta.
It reflects how inclusive the sanitation service is.
It is effective for advocacy and awareness raising, but not for technical design.

- Field-based study for Durban, South Africa.
- Study was developed with the active engagement of local municipality.
- One area of weakness in the estimations is regarding the proportion of WW that is not delivered to the treatment works due to overflow from blockages at pump stations.



Source: https://sfd.susana.org/about/worldwide-projects/city/40-durban

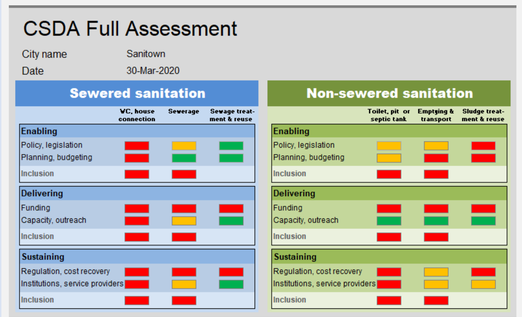
City Service Delivery Assessment (CSDA)

*A CSDA assesses **why** this is happening.*
It facilitates assessment of the enabling environment for CWIS.

1. Facilitates assessment of the enabling environment for CWIS

2. Generates graphics to support a systematic process for working with stakeholders to build consensus

3. Separately addresses both sewered and non-sewered sanitation.



4. Includes an Action Checklist to help stakeholders identify and prioritise actions to improve sanitation.

Manilla Principles: a CWIS approach

Bridged Approach to Inclusive Sanitation (BAIS)

1. **Equity** – everyone is given equal access (SDG 6.2) to service in terms of availability, accessibility, affordability and acceptability.
2. **Public and Environmental Health** – sanitation starts at the toilet and goes through service chain. Entire sanitation chain needs to be well-planned, to manage pollution (SDG 6.3).
3. **Mix of Technologies** – determined by multiple factors. You can have centralised, decentralised, container-based, etc.
4. **Comprehensive Planning** – don't just look at short-term answers, but plan for long-term, keeping future scenarios in mind. Also consider water supply, solid waste management, stormwater drainage. Bridge top-down and bottom- up planning approaches.
5. **Monitoring and accountability** - if you cannot measure it, you cannot improve it. O&M carried out for long-term sustainability.
6. **Mix of business models** – sanitation is public service mandate, private sector support is invaluable: PPP, Build-operate-transfer (BOT) models. Sanitation economy for more innovations, through resource recovery incentives.

CWIS Planning Framework

- Operational Outcomes
- Functional Linkages
- 4S pillars of comprehensive planning

Concluding Remarks

A combination of decentralized and centralised wastewater treatment will help the Municipality to provide better services and faster, to be context-specific. Adherence to discharge limits ensures protection of the public and environment. Cost-effective options are required, with minimal operational and maintenance activities.

In summary, a framework provides a broad structure or model, while guidelines offer specific recommendations or instructions for implementation. Develop a novel planning methodology for CWIS in both the global and South African context. How can we plan CWIS by bridging top-down and bottom-up approaches? *End product = novel CWIS Planning Framework for South African cities.*

To prove robustness of framework for other types of South African cites, the developed tool will be implemented to assess the sanitation situation in smaller and under-developed towns as a Planning Tool for long-term sustainability, as we head to 2030.

Global South Academic Conclave on WASH and Climate Linkages

CWAS CENTER FOR WATER AND SANITATION CRDF CEPT UNIVERSITY

BILL & MELINDA GATES foundation

FP FACULTY OF PLANNING