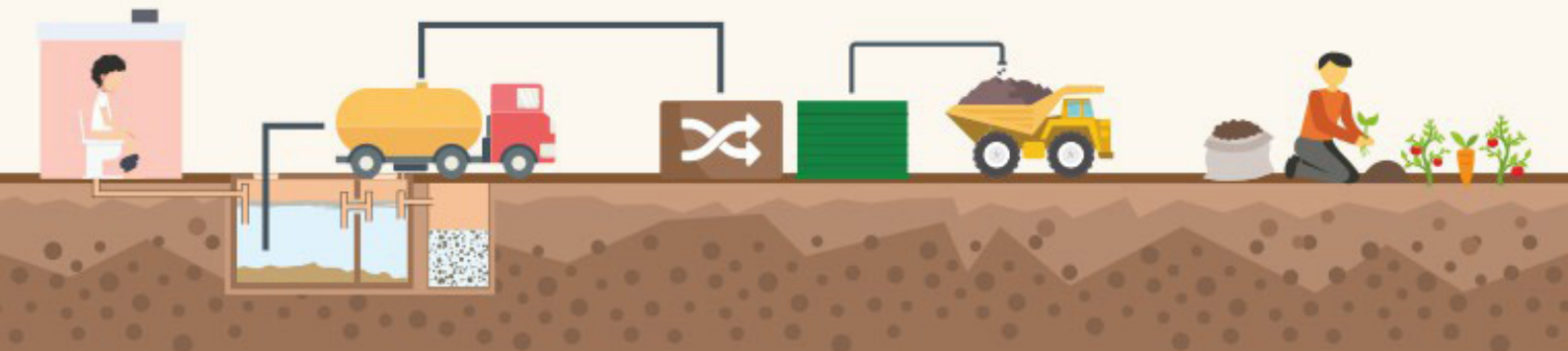


City Sanitation Assessment Memorandum

Incorporating the
Shit Flow Diagram (SFD) and City Service Delivery
Assessment (CSDA)

Ekurhuleni, South Africa



City Sanitation Assessment Memorandum Ekurhuleni, South Africa

16 November 2024

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1.Introduction

This memorandum provides a summary snapshot of the sanitation situation in Puranichowk. The first section summarises sanitation service outcomes in terms of the flows and fate of faecal waste in the city in the Shit Flow Diagram (SFD) graphic. The SFD graphic is accompanied by the City Service Delivery Assessment (CSDA) which provides an overview of the enabling environment and highlights the reasons for the unsafe faecal waste flows shown in the SFD. The CSDA is also accompanied by an Action Checklist to help stakeholders identify and prioritise immediate and follow-up actions to facilitate the delivery and sustained operation of sanitation services.

Note: This desk-based assessment tool aims to stimulate thinking and support professional judgement, not to substitute it. Please note that this document only captures the summary SFD and CSDA graphics and the associated Action Checklist. It highlights the current sanitation situation in the city and can be used to support advocacy and stakeholder discussions on improving sanitation. For a more detailed descriptive understanding of the sanitation situation in a city, users are encouraged to develop a full report for their city (please refer to the Annex or click here to view report templates for a [SFD](#) and a [CSDA](#)). This would require extensive consultations with a wide range of stakeholders and expert analysis of the sanitation situation as summarised by the SFD and CSDA graphics presented here

2. Shit Flow Diagram

This Faecal Waste Flow Diagram, shit flow diagram or SFD, represents the overall sanitation situation in the city.

Across the top are a series of steps that make up the sanitation service chain:

1. Excreta are captured in a toilet and contained, either on-site in a pit or tank, or through a sewer contained
2. The faecal waste is emptied from an on-site facility, and transported by road to treatment and disposal, or transported directly to treatment and disposal through a sewerage network
3. The faecal waste is treated and discharged or possibly re-used.

The width of the arrows is proportional to the population whose faecal waste follows each pathway. This is a proxy for the hazard to public health, arising from individuals excreting microorganisms that cause disease. The width of the arrows does not reflect the physical amounts of faecal sludge or wastewater to be managed, which has many determinants.

The green arrows represent safely managed faecal waste flows that do not constitute a risk to public health. The red arrows turning towards the bottom of the graphic represent unmanaged or unsafely managed flows that pollute the environment and harm public health.

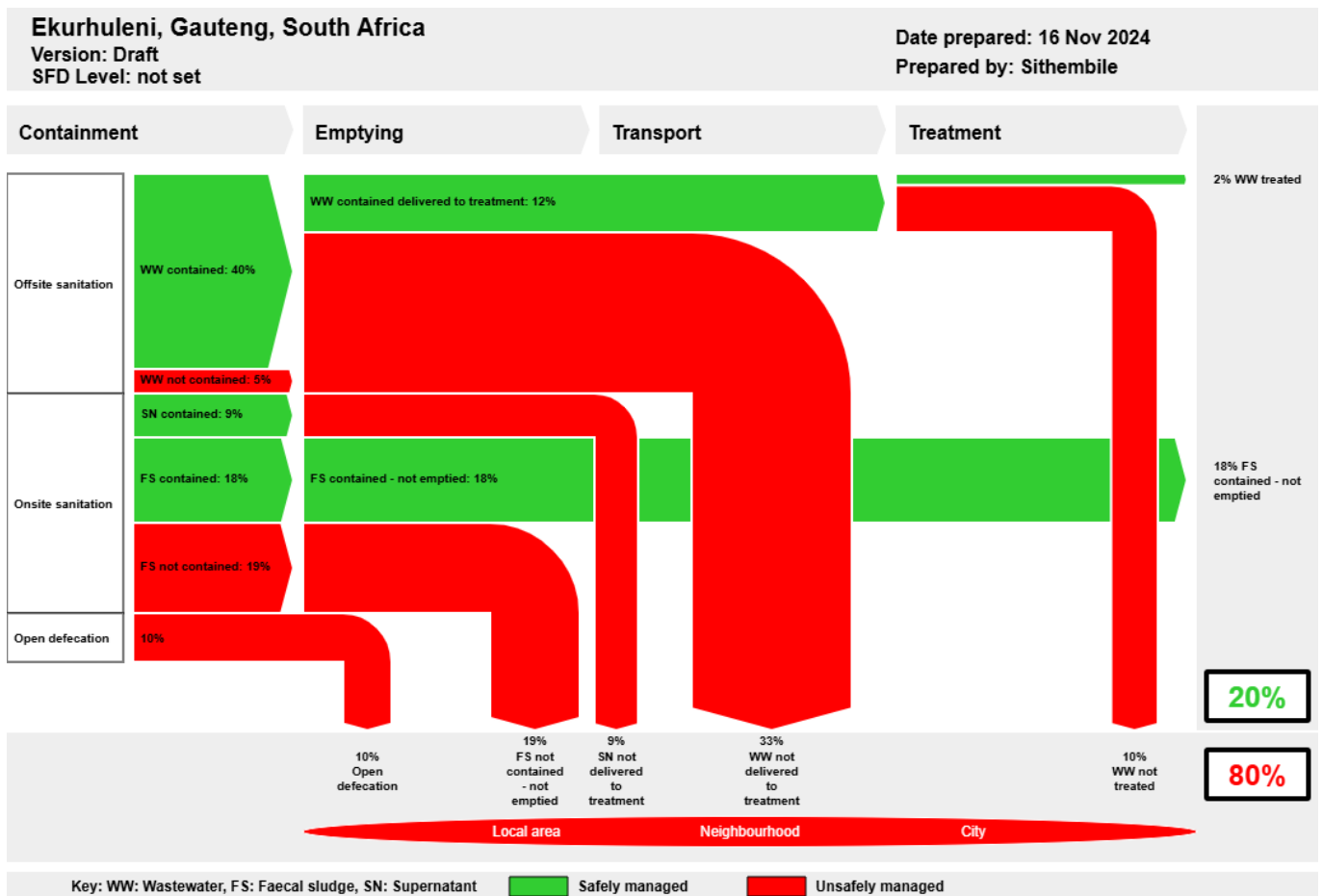


Figure 1: Shit Flow Diagram

3. Enabling Environment–City Service Delivery Assessment

Ekurhuleni has some households which use non-sewered sanitation systems and others which are connected to an underground sewer network.

The City Service Delivery Assessment, or CSDA, summarises the status of the enabling environment for sanitation in the city. It aims to show in a simple way. It shows the institutional barriers to sanitation service delivery which cause the unsafe faecal waste flows shown in the SFD. It is structured around 3 pillars, listed on the left of the graphic:

- **Enabling** - the policy, legal and institutional environment.
- **Delivering** - the resources and mechanisms available to improve sanitation.
- **Sustaining** - the operating environment, funding and personnel needed to provide ongoing and sustainable sanitation services.

Each pillar is composed of two building blocks specific to the pillar, and a third focusing on inclusion – the extent to which the needs of poor people, women and other disadvantaged groups are addressed.

The three columns of traffic light colours correspond to the three steps in the service chain described above for the SFD. **Green** indicates that functional sanitation is in place, but standards can be raised; **yellow** indicates areas where there is at least something to build on, but much progress remains to be made and **red** indicates areas where there is little to build on, and it is necessary to start from a basic level.

Sewered and non-sewered systems are assessed separately due to the different institutions and regulations involved, levels of development, strengths and weaknesses, and the actions needed to make improvements

Sewered Sanitation



WC, house connection



Sewerage



Sewage treatment & reuse

ENABLING

Policy and legislation	➤	➤	➤
Planning and budgeting	➤	➤	➤
Inclusion	➤	➤	

DEVELOPING

Funding	➤	➤	➤
Capacity and outreach	➤	➤	➤
Inclusion	➤	➤	

SUSTAINING

Regulation and cost recovery	➤	➤	➤
Institutions and service providers	➤	➤	➤
Inclusion	➤	➤	➤

Figure 2: Sewered Sanitation

Non-Sewered Sanitation



Toilet, pit or septic tank



Emptying & transport



Sludge treatment & reuse

ENABLING

Policy and legislation			
Planning and budgeting			
Inclusion			

DEVELOPING

Funding			
Capacity and outreach			
Inclusion			

SUSTAINING

Regulation and cost recovery			
Institutions and service providers			
Inclusion			

Figure 3: Non-Sewered Sanitation

4. Action Checklist for Citywide Inclusive Sanitation

The objective of the Action Checklist is to provide users with a checklist of possible ‘next steps’ arising from the CSDA to support the discussion on identifying and prioritising interventions. It aims to help users answer the question “Now we know why sanitation services are working or not – what do we do next?”. While this is not an exhaustive list of actions and will need to be supplemented by other actions tailored to the local context, the action points mentioned here can guide users to identify a series of possible priority actions to be considered. Under each thematic area, the actions have been categorized as basic, intermediate and consolidating actions which may need to be implemented at the national (N) or local (L) level, or both. In some countries the State, Provincial or Regional Government may substitute for National Government or have an additional role.

- **Basic:** Actions corresponding to red chevrons from the CSDA, where there is little to build on, and it is necessary to start from a basic level;
- **Intermediate:** Actions corresponding to yellow chevron from the CSDA, where there is at least something to build on, but much progress remains to be made;
- **Consolidating:** Actions corresponding to green chevron from the CSDA, where functional sanitation is in place, but standards can be raised.

Action points under each theme are color coded for ease of understanding:

- Foundations for citywide inclusive sanitation
- Actions for immediate impact on sanitation citywide
- Developing the enabling environment for non-sewered sanitation
- Actions for immediate impact on non-sewered sanitation
- Developing the enabling environment for sewered sanitation
- Actions for immediate impact on sewered sanitation

The next step is to review and discuss which of the suggestions apply in Ekurhuleni, and what the suggestions will mean in practice. While the table below only summarizes the relevant action points under each thematic area, they also need to be applied for the specific sanitation chain component that is being considered – for this please refer to the output shown on the Toolbox dashboard. This entire process of applying these action points should be done in consultation with various city level stakeholders and in the light of local practicalities, politics, resources and capacity.

Table 1: Action checklist across thematic areas.

This table will only show the action points which are relevant for this city.

Thematic area	Action focus	Basic actions	Level	Intermediate actions	Level	Consolidating actions	Level
Policy, Legislation, Regulation	Overall	Review and update national sanitation policies to ensure all aspects of CWIS are addressed	N, L	Disseminate and apply CWIS policies	N, L		
		Review regulatory framework for the protection of public health and environment	N, L	Set norms / standards for public health and environmental protection	L		
		Design programme to equip, train and motivate environmental health staff to enforce sanitation rules	N, L	Strengthen enforcement of environmental and public health regulations	L		
	Non-Sewered Sanitation	Review and establish or strengthen legal basis for regulation of FSM services	N	Introduce regulation of service providers	L		
		Review and establish or improve byelaws addressing on-site systems and FSM services	L	Strengthen FSM byelaws	L		
		Formally recognize existing informal FSM service providers in regulations and legislation	L	Develop "one-stop shop" licensing arrangements	L		
		Require and enable service providers to dispose of all faecal sludge safely	L	Incentivise faecal sludge disposal at recognized sites and introduce sanctions for illegal dumping	L		

Thematic area	Action focus	Basic actions	Level	Intermediate actions	Level	Consolidating actions	Level
	Sewered Sanitation	Review and establish legal basis for regulation of sewerage services	N				
		Review and establish or improve byelaws, to ensure an obligation to connect to sewerage if available	L	Strengthen sewerage byelaws	L		
Institutional arrangements	Overall	Identify all CWIS stakeholders, form a coordinating forum for CWIS, and define and agree institutional roles	N, L	Establish institutional framework. Coordinate NSS and sewerage - possibly under a single entity	L		
	Non-sewered			Review (dis)incentives for improved FSM. Increase incentives for households and service providers	N, L		
				Establish responsibility for faecal sludge treatment and re-use	L		
	Sewered Sanitation	Identify and agree local institutional framework for sewerage. Formally clarify mandates, responsibility and accountability	L	Investigate reasons why users and utilities do or do not invest in sewerage	N, L		
			sewerage		utilities to invest in sewerage		
		Ensure sewerage authority has sufficient financial and	N, L				

Thematic area	Action focus	Basic actions	Level	Intermediate actions	Level	Consolidating actions	Level
		administrative autonomy					
Planning	Overall	Conduct area-based, gender and pro-poor focused diagnostic studies as basis for planning	L	Establish systems to monitor and evaluate service quality	N		
						Strengthen monitoring of all sanitation services	N, L
	Non-Sewered Sanitation	Responding to the SFD, make local plans for FSM services and associated finance and institutional arrangements	L	Develop plans to enhance public access to FSM services	L		
		Allocate a safe faecal sludge disposal site (if not available) while planning and designing treatment facility	L	Build / improve faecal sludge treatment facilities, considering reuse options	L		
Advocate for FSM in national planning entities and sector ministries (works, housing, health, environment, etc.)		N	Establish monitoring framework for NSS service standards – focus on FSM and onsite facilities	N, L			
Sewered Sanitation			Establish monitoring framework for sewerage– focus on connection rates and overflows	N, L			
Financing	Overall	Identify the financing required to address service improvements to the poorest	L	Introduce specific pro-poor financial arrangements (such as targeted subsidies)	N, L		

Thematic area	Action focus	Basic actions	Level	Intermediate actions	Level	Consolidating actions	Level
		Develop costing and tariff models for sanitation	N, L	Establish revenue streams (e.g. water bill surcharge, extra property tax)	L		
		Identify funds needed for inclusive sanitation services and introduce practical demand-led financing mechanisms					
	Non-sewered	Build awareness and agreement around the budgetary requirements for FSM services	N, L	Develop programs with inclusive FSM funding windows and incentives for cities	N		
	Sewered Sanitation	Build awareness and agreement around the budgetary requirements for sewerage services	N, L	Develop and implement programs with sewerage funding windows and incentives for cities	N		
				Develop and implement improved financing model for sewer connections	N, L		
Promotion, User engagement	Overall	Consult communities to identify sanitation needs and aspirations, taking account of housing tenure mix	L	Improve technical options and services, in response to user feedback	L		
		Engage with landlords and tenants on constraints to FSM and sewerage services	L	Develop assistance and enforcement packages for landlords	L		

Thematic area	Action focus	Basic actions	Level	Intermediate actions	Level	Consolidating actions	Level
	Non-Sewered Sanitation	Do formative research on reasons for open defecation, and develop and start to implement a strategy to reduce it	L	Review rates of open defecation and adjust strategy as needed	N, L		
		Engage with manual emptiers and their clients to develop a strategy for phasing out unhygienic manual emptying	L	Support transition from informal manual emptying to improved and regulated services	L		
	Sewered Sanitation			Establish monitoring framework for sewerage– focus on connection rates and overflows	N, L		
Capacity, TA, Technology	Overall	Map the land/housing tenure status (tenure “mix”), resulting sanitation pathways and stakeholder relationships	L				
		Based on community needs and aspirations, identify technology gaps and pilot appropriate, affordable options	L	Develop a range of sanitation technology and market supply chains for all population groups	L		
		Stimulate customer demand/ willingness to pay for safe FSM	L	Stimulate customer demand/ willingness to pay for improved onsite sanitation facilities	L		
	Non-sewered	Identify scale of the capacity gap and TA required to address FSM service needs	N, L	Build public and private sector capacity for city-wide FSM services	N, L		

Thematic area	Action focus	Basic actions	Level	Intermediate actions	Level	Consolidating actions	Level
	sanitation	Support service providers with promotion, training, skills development and access to capital	L				
	Sewered Sanitation			Build public and private sector capacity for city-wide sewerage services	N, L		
		Repair broken pumping stations and leaking sewers, and improve management to avoid recurrence of problems	L				

5. Annex: Outline for a City Sanitation Assessment Report

If your city has an SFD and the stakeholders have worked together to develop a CSDA graphic and agree follow-up actions, the following is a suggested outline for a short report which could accompany the graphics and provide more depth than the memorandum. The value of the report will depend on the level of professional judgement, input and analysis of the contributing authors

Remove the annotations in blue text when completing the report.

1. City background information

- 1.1. Population, land-use, basic geology, topography and hydrology, etc. *Brief overview only.*
- 1.2. Basic relevant sanitation census and health data.

2. Shit Flow Diagram (SFD)

- 2.1. Copy of SFD graphic
- 2.2. Data sources and stakeholder inputs into the SFD. *Only a brief description is needed. Please also add explanations for any assumptions made for missing data here*
- 2.3. Description and analysis of main faecal waste flows and priorities for improvement

3. CSDA Graphic

- 3.1. Copy of CSDA graphic.
- 3.2. Process followed to develop the CSDA. *Only a brief description is needed.*

4. CSDA Findings and analysis

- 4.1. Enabling pillar: *report on the weaknesses and interpretation of the findings under each stage of the simplified sanitation chain. Write up the sewer and non sewer services separately, and reflect on the differences and similarities, if any.*
- 4.2. Delivering: *as above.*
- 4.3. Sustaining: *as above.*
- 4.4. Overall Inclusion findings *Summarize the main messages from the inclusion scores – these are all city-wide and the different means of delivery are not relevant.*

5. Recommendations for action

- 5.1. Priorities *based on discussions with stakeholders, summarize the main 'red' areas from the CSDA and any key 'yellow' ones which require prioritization.*

5.2. Agreed actions: *summarize the agreements with stakeholders on the follow-up actions identified using the SDAC table:*

- *Set out the agreed actions and who will be doing what. Take account of staffing capacity and available resources.*
- *Define the timeline. Be realistic and take a phased approach. Many actions may be required, but not everything can be done immediately.*
- *Write up the sewerred and non sewerred services separately and focus on the different action points required for each type of service.*
- *Wherever joint actions across departments or by multiple stakeholders are needed, e.g. on urban sanitation policy or inclusion activities, emphasise the need for collaboration.*

5.3. Accountability: *Describe the accountability mechanisms established to ensure that the actions agreed will really happen. Also how stakeholders will continue to have opportunity to comment and input.*

Annexes

I – List stakeholders involved, and dates of meetings held

II – List data sources for SFD and CSDA scores