SFD Promotion Initiative

Ugie

Elundini Local Municipality, Joe Gqabi District Municipality

Eastern Cape, South Africa

SFD Lite Final Report

This SFD Lite Report was created through field-based research by Emanti Management and Centre for Science and Environment for a Water Research Commission project and as part of the SFD Promotion Initiative.

Date of production: 3 October 2018

Last update: 22 October 2018

SFD Lite Report

The SFD Promotion Initiative (SFD PI) has developed recommended methods and tools for preparing SFD Graphics and Reports. A full SFD Report consists of the SFD Graphic, the analysis of the service delivery context and enabling environment for service provision in the city for which you are preparing your SFD, and the complete record of data sources used. This analysis allows a systemic understanding of excreta management in the city, with evidence to support it. As a starting point (first step stone) to this (explained in detail in the SFD Manual), the SFD Lite is a simplified reporting template that summarises the key information about the excreta management situation in the city.

SFD Lite Report Ugie, South Africa, 2018

Produced by:

Unathi Jack, Emanti

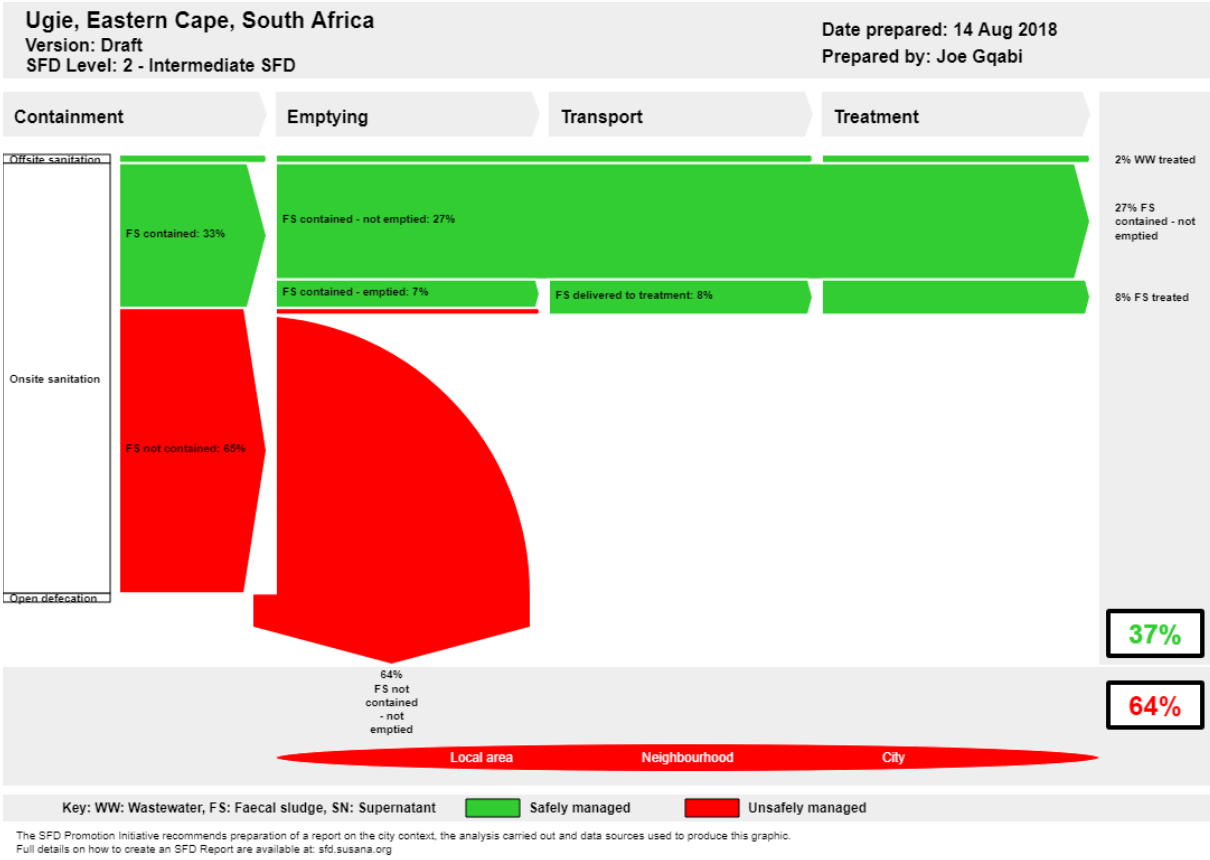
Philip de Souza, Emanti

Shantanu Kumar Padhi, CSE

Amrita Bhatnagar, CSE

Executive Summary

1. The SFD Graphic



2. Diagram information

Desk or field based:

This is a field based SFD.

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Emanti Management (Pty) Ltd, Stellenbosch, South Africa.

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Date of production:

3 October 2018

3. General City Information

Ugie is situated in the Elundini Local Municipality of Joe Gqabi District Municipality (JGDM) in the Eastern Cape province of South Africa.

Ugie developed as an activity centre for the farmers in the rural areas and also served as a shopping centre to the nearby rural communities. Currently, Ugie has a population of 15,234 and a total number of households of 5,078 (i.e. 797 people per square kilometre and 3 persons per household). Ugie town and its surroundings has a mixture of both urban and rural areas, with the associated breakdown of households being 2,134 urban and 2,944 rural households.

Ugie normally receives about 693 mm of rain per year, with most rainfall occurring mainly during summer. Temperatures for Ugie range from 16.6°C in June to 25.8°C in January.

4. Service outcomes

The following sanitation technologies were noted:

- Toilet discharges directly to a centralised foul / separate sewer – flush toilets are connected directly to the wastewater treatment plant.
- Fully lined tank – sealed, no outlet or overflow – these are either buried concrete tanks, buried plastic tanks or plastic tanks covered with concrete slabs.
- Containment (fully lined tanks, partially lined tanks and pits, and unlined pits failed, damaged, collapsed or flooded – with no outlet or overflow – these are the tanks made from cement blocks with two compartments. Seepage emanating from these tanks through these blocks was noted.
- Pit (all types) never emptied, but abandoned when full and covered with soil, no outlet or overflow – these are pits that are not lined and never emptied. When full, the top structure is removed and taken to a new pit. These pits are covered with soil when abandoned.
- Pit (all types) never emptied but abandoned when full but NOT adequately covered with soil, no outlet or overflow – these are pits that are not lined and never emptied. When full, the top structure is removed and taken to a new pit. It is believed that these pits are not adequately covered with soil when abandoned.
- Pit (all types) never emptied but abandoned when full and covered with soil, no outlet or overflow – some of these unlined pits are located where the groundwater table is high. Some of these unlined pits are located in sandy soil type and ground water monitoring results have indicated non-compliance.

5. SFD development process

Data was collected through secondary sources (reports, plans), and then Ugie was visited to conduct interviews with the relevant stakeholders, including site visits to infrastructure to witness the on-the-ground situation. This information was used to fill in gaps and cross-check data collected.

The data was fed into the SFD Graphic Generator to calculate the excreta flow in terms of percentage of the population.

37% of the excreta in Ugie is managed safely as there is some treatment at the Prentjiesberg WWTW and Ugie Ponds, but excreta for 64% of Ugie is not managed safely, as it is not contained and can pollute groundwater sources and the environment. No open defecation is noted.

NOTE: Excreta being safely managed or not is dependent on the containment of the system, and not on whether the waste is safely handled or not.

6. List of data sources

Below is the list of data sources used for the development of the SFD.

- Published reports: Census 2011, Community Survey 2016
- Unpublished documents: IDP, WSDP
- Key informant interviews: JGDM, Elundini

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Abbreviations

DM	District Municipality
DWS	Department of Water and Sanitation
FS	Faecal sludge
GDS	Green Drop System
IAM	Infrastructure Asset Management
ICT	Information and Communications Technology
IDP	Integrated Development Plan
IT	Information Technology
JGDM	Joe Gqabi District Municipality
LG	Local Government
LM	Local Municipality
MuSSA	Municipal Strategic Self-Assessment
NRW	Non-Revenue Water
O&M	Operations and Maintenance
RDP	Reconstruction and Development Programme
SALGA	South African Local Government Association
SDBIP	Service Delivery and Budget Implementation Plan
SFD	Shit Flow Diagram
StatsSA	Statistics South Africa
VIP	Ventilated Improved Pit Latrine
W_2RAP	Wastewater Risk Abatement Plan
WCDM	Water Conservation and Demand Management
WRC	Water Research Commission
WSA	Water Services Authority
WSDP	Water Services Development Plan
WSP	Water Service Provider
WTW	Water Treatment Works
WW	Wastewater
WWTW	Wastewater Treatment Works

1. City context

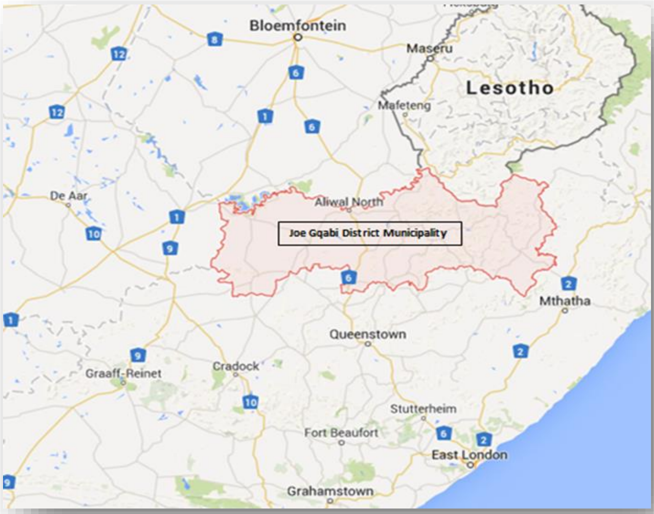
Ugie is situated in the Elundini Local Municipality of Joe Gqabi District Municipality (JGDM) in the Eastern Cape province of South Africa. The JGDM covers an area of 25 663 km² and displays a diverse set of landscapes, from deeply incised mountainous terrains to flat far-reaching plains. Cities and towns that form the District are Aliwal North, Barkly East, Burgersdorp, Jamestown, Lady Grey, Maclear, Mount Fletcher, Oviston, Rhodes, Rossouw, Sterkspruit, Steynsburg, Ugie and Venterstad (JGDM IDP, 2018). The majority of its population speaks *IsiXhosa* (StatsSA, 2011). The Joe Gqabi District Municipality (JGDM) is a Water Services Authority (WSA) for its area of jurisdiction in terms of the Water Services Act (Act 108 of 1997, Water Services Act). It therefore has statutory responsibilities and accountability in terms of legislation and policy with respect to the provision of water services.

Elundini Local Municipality has a population of 144,929 (2016) with 35,804 households (2016) (WSDP, 2018) (4,05 persons per household). The average annual population growth rate for Elundini Local Municipality is 0.6% (WSDP, 2018). Within JGDM, Elundini Local Municipality had the highest density, with 28.9 people per square kilometre.

Ugie developed as an activity centre for the farmers in the rural areas and also served as a shopping centre to the nearby rural communities. In 2011, the town had a total area of 19.11 km² with a total population of 13,467 (i.e. 705 people per square kilometre) and a total number of households of 4,486 (i.e. 3 persons per household) (Census, 2011). Currently, Ugie has a population of 15,234 and a total number of households of 5,078 (i.e. 797 people per square kilometre and 3 persons per household) (JGDM WSDP, 2018 and Personal communication, 2018). Ugie town and its surroundings has a mixture of both urban and rural areas, with the associated breakdown of households being 2,134 urban and 2,944 rural households.

Ugie normally receives about 693 mm of rain per year, with most rainfall occurring mainly during summer. Temperatures for Ugie range from 16.6°C in June to 25.8°C in January (Coastal & Environmental Services, 2012). The region is the coldest during July with temperatures of 1.2°C on average during the night (Coastal & Environmental Services, 2012).

The Ugie area is hilly with slopes covered by grassland in places (Coastal & Environmental Services, 2012). The Wildebeest River winds along the north western part of the city. Mudstone and sandstone of the Beaufort Group of the Karoo Sequence predominate in the Ugie area, but sedimentary rocks of the Molteno, Elliot and Clarens Formations are also present (Coastal & Environmental Services, 2012). The dominant soils on the sedimentary parent material are well drained, with a depth of 500-800 mm and clay content from 15-55% (Coastal & Environmental Services, 2012). The soils are of Hutton, Clovelly, Oatsdale forms on sediments and Shortlands on dolerite (Coastal & Environmental Services, 2012). As the town is on a mountainous terrain, the ground water table varies from the areas along the river and those away from the river (JGDM, 2018).



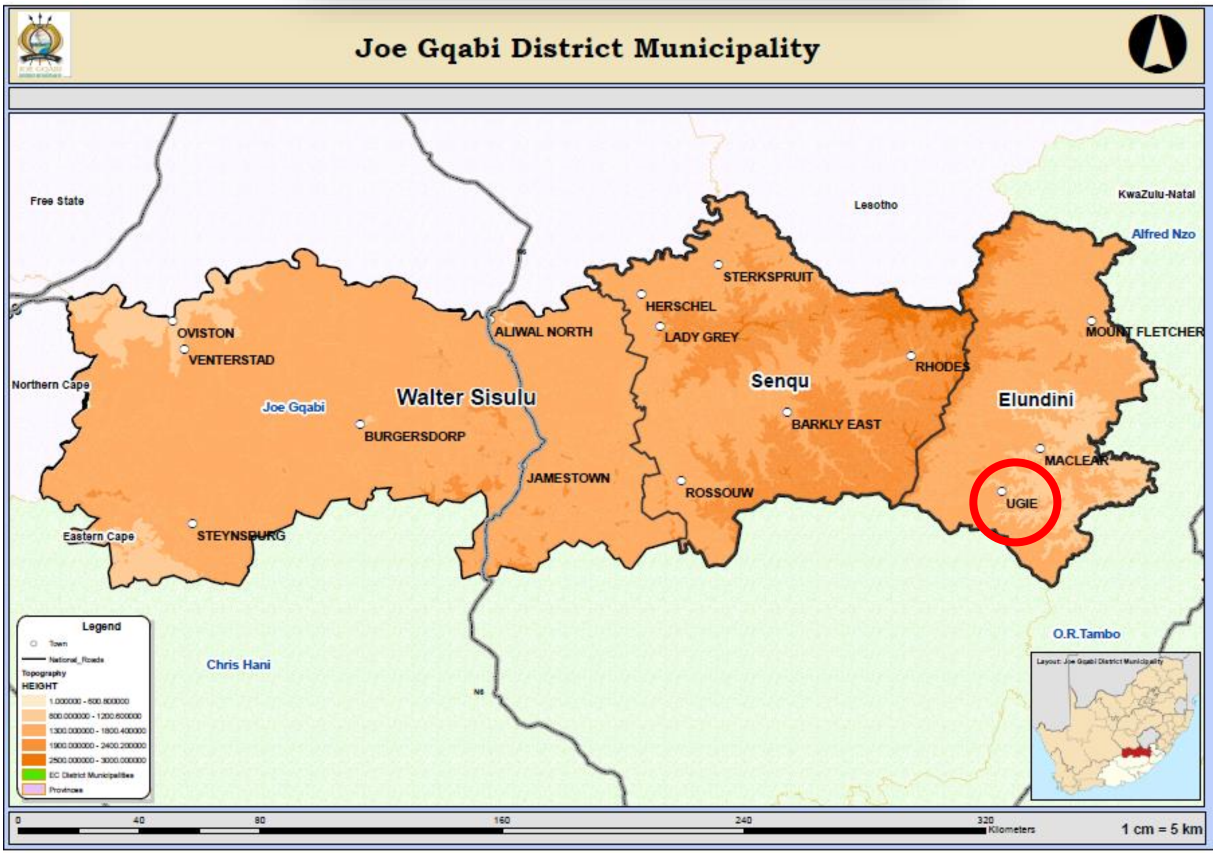


Figure 1: Location of Ugie within Elundini Municipality in Joe Gqabi District Municipality

2. Service outcomes

Service outcome analysis is based on secondary sources. The following key sources of data are used:

- StatsSA Census (2011)

- StatsSA Community Survey (2016)
- Integrated Development Plan for JGDM (2017-2018)
- Draft Water Services Development Plan for JGDM (2018-2019)
- Draft Water Services Development Plan for Elundini Local Municipality (2018-2019)

Data on emptying and transport is not currently closely monitored, and is mostly qualitative in nature.

2.1 Overview

This section presents the range of sanitation technologies/infrastructure, methods and services designed to support the management of faecal sludge (FS) and/or wastewater (WW) through the sanitation services chain in Ugie. The details on the quantitative estimations are presented in the table below and sections that follow.

Table 1: Sanitation technologies and contribution of excreta in terms of percentage of population

No.	Sanitation technologies and systems as defined by:		SFD reference variable	Percentage of population
	Joe Gqabi DM	**SFD promotion initiative**		
1	Toilet flushes directly to sewer	Toilet discharges directly to a centralised foul/separate sewer	T1A1C2	2.0%
2	Septic tank (plastic or concrete)	Fully lined tank (sealed), no outlet or overflow	T1A3C10	12.6%
3	Septic tank (plastic or concrete)	Containment (fully lined tanks, partially lined tanks and pits, and unlined pits) failed, damaged, collapsed or flooded – with no outlet or overflow	T1B10C10	6.1%
4	VIPs (urban)	Pit (all types), never emptied but abandoned when full and covered with soil, no outlet or overflow	T1B7C10	20.2%
5	VIPs (urban)	Pit (all types), never emptied, abandoned when full but NOT adequately covered with soil, no outlet or overflow	T1B8C10	1.1%
6	VIPs (rural)	Pit (all types), never emptied but abandoned when full and covered with soil, no outlet or overflow, where there is a 'significant risk' of groundwater pollution	T2B7C10	58.0%

2.1.1 Containment

There is a limited sewerage network, with the only off-site formal waterborne sewer system being linked to the Prentjiesberg Wastewater Treatment Works (WWTW) with domestic effluent originating from the PG Bison owned houses and associated truck-stop.

The remaining areas are reliant on on-site sanitation systems. The following on-site containment systems are generally noted:

- Flush toilet connected to a “septic tank” (concrete) for an individual house/building
- Flush toilet connected to a “septic tank” (concrete) which is shared (communal)
- Flush toilet connected to a “septic tank” (plastic) for an individual house
- VIPs

Although the JGDM refers to these containment structures as septic tanks, as they have no formal outlets, they are defined as fully lined tanks within the SFD nomenclature.

There are concrete tanks in Ugie town serving for example, houses, the school, shops and the police station. These houses are provided with individual water connections.

There are communal concrete tanks (~2.5 mx 2.5 m x 2 m) in Popcorn Valley serving approximately 56 low-income houses. These tanks often overflow/leak (blocked lines) resulting in unhygienic conditions and possible impacts on the Wildebeest River (distance of approximately 100 m to the river, and this is upstream of the drinking-water treatment plant inlet). These houses are provided with individual water connections. Each house has at least one flush toilet and a hand washbasin as standard sanitary fixtures. In Ugie Park, the community is served via communal concrete tanks, with flush toilets for approximately 8 to 10 households served by a communal concrete tank. These tanks regularly overflow/leak resulting in unhygienic conditions in large parts of the township. In other areas (e.g. Old Township, Ntokozweni, Mandela Park) flush toilets are either connected to a plastic or concrete tank. Regarding communal tanks, questions arising include:

- Indigents cannot pay, but to protect public health and the environment, the service must be rendered – how is this managed sustainably?
- Who pays for the emptying service when 4 or 5 houses are connected to a single communal tank?

There are parts of Ugie urban and rural areas where communities use VIP toilets. To-date, these toilets have never been emptied. In rural areas, communities are used to covering up and abandoning a full VIP and relocating the VIP to a new location. In the urban context, limited space could prohibit this practice.

2.1.2 Emptying and Transport

Vacuum tankers are used to empty and transport sewage from the concrete and plastic tanks (individual and communal) to either the Prentjiesberg WWTW or the Ugie Wastewater Pond system. The JGDM is not aware of manual emptying occurring within Ugie.

As the economic circumstance of households improves, the municipality is noting an increased volume of effluent from Reconstruction and Development Programme (RDP) houses. It has been noted that the current fleet of vacuum trucks cannot cope with these increased volumes of effluent. The municipality currently has 3 vacuum trucks, but this is insufficient, and the municipality have requested that 5 vacuum trucks be in service. Vacuum trucks appear to have a volume of 5,000 L.

Vacuum trucks are mostly servicing the urban areas of Ugie. Some of the vacuum trucks are municipal owned/run, while others are outsourced via a service provider with an appropriate contract and associated contract period. The municipality aims to empty all tanks every month (and at least every 3 months), but sometimes tank overflows are experienced. There is no money exchanged between the emptier/vacuum truck and the household/business. At times, high levels of intrusion are suspected (i.e. high water table at the high school), as the contents of the tanks sometimes appear to mostly be water (and not wastewater).

There is currently very little monitoring and management of private emptier, and monitoring at point of discharge to the WWTWs does not appear to be occurring (i.e. do emptiers actually deliver collected sludge to the designated discharge points?). Despite the above, it is noted that it would be more expensive for emptiers to discharge in the rural areas/outside of the urban area, as the discharge points are relatively close by, and that some of the land on the outskirts is heavily access controlled by the nearby industry (PG Bison). Emptiers are provided with a list of households/businesses that they need to service (pre-paid by the household/business to the municipality before the service is performed). As private emptiers are paid on a daily rate, there does not seem to be an incentive to manage time efficiently.

From the site inspection, there appeared to be some evidence of recent emptying at the Prentjiesberg WWTW, while there was little evidence of recent emptying at the Ugie Ponds. The staff at the Prentjiesberg WWTW indicated that to their knowledge only 2 vacuum trucks are operational, and that they deliver their sludge to the Ugie Ponds, and not to the Prentjiesberg WWTW.

Vacuum truck service providers are routinely appointed on a 3-month contract, and as the reappointment process often takes approximately 1 week, this result in the loss of 1 month of service for every 12 months. Due to the current contracts for vacuum truck service providers expiring, and the new appointments not yet being in place, the SFD team were unfortunately not able to meet and discuss emptying and transportation operations with the vacuum truck service providers. The typical number of households serviced, average volume collected per household, skills/capacity/training of the service provider team, use of safety equipment, etc. is therefore currently unknown.

2.1.3 Treatment and disposal

Ugie town and surrounding areas are serviced by two wastewater treatment works, namely the Prentjiesberg Wastewater Treatment Works (WWTW) to the south of town and the Ugie Wastewater Oxidation Ponds located to the east.

As previously noted, there is a limited sewerage network which conveys wastewater to the Prentjiesberg WWTW (design capacity: 0.59 ML/d). The works is based on activated sludge treatment technology, with secondary treatment (aeration) and settling undertaken in one tank. Final effluent is disinfected before it is released to the Wildebeest River. The works are properly fenced with controllable access. At the time of the site inspection, the flow to the Prentjiesberg WWTW was very low. Evidence of effluent/sludge discharge from tanker trucks at the noted discharge point before the works was also visible. The on-site drying beds were empty, and appear to not be in use. The site was manned by a security officer, one process controller and a supervisor. A log-book with monitoring records of basic effluent quantity and quality parameters (e.g. flow, pH, free chlorine residual) was noted in the control room.

The Ugie Wastewater Oxidation Ponds (design capacity: 0.7 ML/d). The Ugie Ponds currently only accepts tankered effluent. It is planned that the Ugie Ponds will be phased out in the future and sewage/sludge will be redirected to the Prentjiesberg WWTW. The works are properly fenced and locked. At the time of the site inspection, no evidence of recent effluent/sludge discharge from tanker trucks at the noted discharge point to the Ugie Ponds was visible. Although sludge appears to be accumulating in the ponds (islands starting to be visible), the final maturation pond still appears to have sufficient capacity. The site was not manned, and no control room was noted (i.e. no monitoring records available on-site).

A large number of households currently use septic and conservancy tanks. The capacity of the Prentjiesberg WWTW would need to increase if these systems are replaced and a more widespread sewer system is installed.

If required, sludge from the Ugie Ponds and Prentjiesberg WWTW is stockpiled on-site (i.e. not disposed of at a landfill). No evidence of sludge stockpiling was evident during the site inspection.

2.1.4 Service Charges

The following charges are noted:

- Once-off connection charge
    - New connections: R893.26 per hour
- Monthly charges
    - Domestic (availability): R124,94
    - Septic tank: R432,59 per draw
    - Waterborne sewerage – domestic (per connection): R132.44 per month
    - Waterborne sewerage – school (per connection): R267.65 per month
    - Waterborne sewerage – hostel (per connection): R267.65.44 per month
    - Waterborne sewerage – hospital (per connection): R669.11 per month
    - Business (per connection): R264.87 per month
    - Government (per connection): R264.87 per month

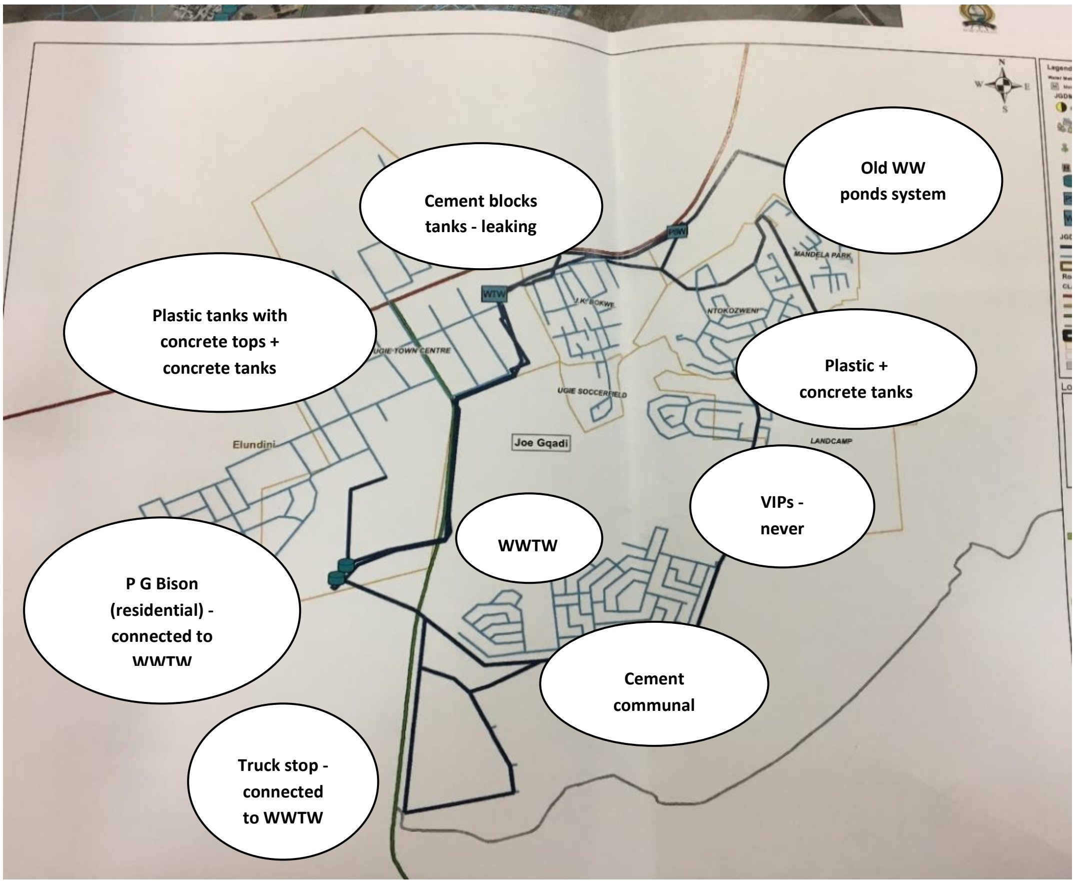


Figure 2: Ugie area representation

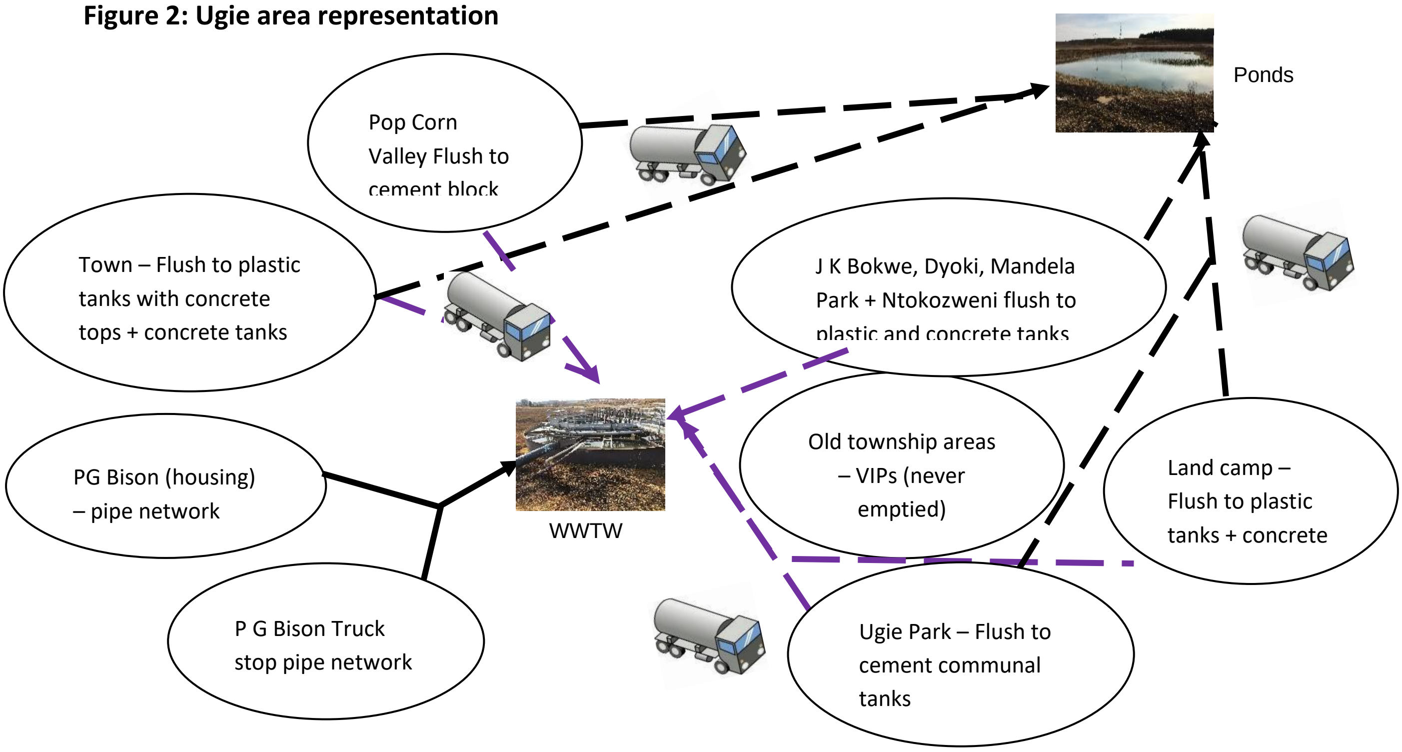


Figure 3: Ugie area sanitation flow representation

2.1.5 Water Conservation and Demand Management

The percentage non-revenue water (NRW) for Elundini Local Municipality for 2016/2017 was recorded as 42% (i.e. water purified = 1,177,752 kL/annum vs. water lost = 490,425 kL/annum) (WSDP, 2018). Water consumption within Ugie urban areas appear to be around 143 litres per person per day which is well below the current South African average consumption which is in the region of 237 litres per person per day under normal conditions (DWS, 2018). By way of example, in Popcorn Valley the generation of excessive grey water has resulted in the containment tanks continuously overflowing.

Many illegal water connections have previously been noted within rural areas of Ugie.

2.2 SFD matrix

The final SFD for Ugie is presented in **Appendix 6.1**.

2.2.1 SFD matrix explanation

All the plastic, concrete and cement block tanks are referred to as "septic tanks" by the municipality. These tanks, however, do not have an outlet/discharge point, and therefore are not defined as a septic tank as per SFD definitions. In this report these are categorised according to their design and functioning as per SFD terms. Below is a description of each of the sanitation technologies in Ugie.

- Toilet discharges directly to a centralised foul / separate sewer – flush toilets in this area are connected directly to the wastewater treatment plant.
- Fully lined tank – sealed, no outlet or overflow – these are either buried concrete tanks, buried plastic tanks or plastic tanks covered with concrete slabs.
- Containment (fully lined tanks, partially lined tanks and pits, and unlined pits failed, damaged, collapsed or flooded – with no outlet or overflow – these are the tanks made from cement blocks with two compartments. Seepage emanating from these tanks through these blocks was noted.
- Pit (all types) never emptied, but abandoned when full and covered with soil, no outlet or overflow – these are pits that are not lined and never emptied. When full, the top structure is removed and taken to a new pit. It is believed that these pits are covered with soil when abandoned.
- Pit (all types) never emptied but abandoned when full but NOT adequately covered with soil, no outlet or overflow – these are pits that are not lined and never emptied. When full, the top structure is removed and taken to a new pit. It is believed that these pits are not adequately covered with soil when abandoned.
- Pit (all types) never emptied but abandoned when full and covered with soil, no outlet or overflow – some of these unlined pits are located where the groundwater table is high. Some of these unlined pits are located in sandy soil type and ground water monitoring results have indicated non-compliance.

Considering the above, the following is noted:

Off-site

According to municipal records, 2% of the population are serviced via off-site sanitation. All of this wastewater is transported to the Prentjiesberg WWTWs (i.e. no leakage, relatively new sewer pipes with low flows) where it is treated to meet specified requirements (no evidence of treatment efficiency, but assume compliance to treated effluent requirements).

On-site

Of the total 4,026 VIPs, 1,082 are urban VIPs and 2,944 are rural VIPs.

It is assumed that 95% (1,028) of the urban VIPs are properly covered when the VIP is full and moved, while the remaining 5% (54) are not properly covered. This is due to possible limited space in the urban environment. As groundwater is, however, not currently utilized in the urban area, the risk of groundwater contamination is rated as 'low risk'.

It is assumed that 100% (2,944) of the rural VIPs are properly covered when the VIP is full and moved, as there is ample space in the rural context, and as these communities have been self-reliant for many years. However, as these rural communities are reliant on groundwater, this is indicated as significant risk.

As VIPs are never emptied and faecal sludge is not transported to any treatment facility, these aspects are not included.

Considering this, 33% of the faecal sludge is contained (20% from VIPs in urban areas and 13% from fully lined sealed tanks in urban areas), while 65% of faecal sludge is not contained (1% from VIPs in urban areas that are full and not properly covered, 6% from fully lined sealed tanks in urban areas that are failing and 58% from VIPs in rural areas where a significant groundwater risk exists.

The 20% faecal sludge that is contained from VIPs in urban areas is never emptied, but considered to be safely managed as it is adequately covered when full and abandoned, with low groundwater risk.
50% of the faecal sludge in the fully lined sealed tanks in urban areas is contained and never emptied, while the other 50% is emptied and transported to the wastewater treatment systems (i.e. Prentjiesberg WWTW or Ugie Ponds). As it is noted that alternative points of discharge do not appear to be feasible, it is assumed that all of the faecal sludge emptied from the tanks is delivered to the wastewater treatment systems (i.e. no illegal dumping).

Once it reaches the wastewater treatment plants, it is assumed that it is treated to meet specified requirements (no evidence of treatment efficiency, but assume compliance to treated effluent requirements).

Open defecation

Assumed to be 0% (no evidence of open defecation).

Table 2: Description of variables used in SFD

Variable	Description
W4a	WW delivered to centralized treatment plant
W5a	WW treated at centralized treatment plant
F3	FS emptied
F4	FS delivered to treatment plant
F5	FS treated

It can be concluded that excreta of 37% of the population is safely managed in Ugie, and that 67% of excreta is discharged into the environment untreated. The following table figure summarizes the percentages of the population using each sanitation technology and the method along the service chain.

Ugie, Eastern Cape, South Africa , 14 Aug 2018. SFD Level: 2 - Intermediate SFD
Population: 15324
Proportion of tanks: septic tanks: 50%, fully lined tanks: 50%, lined, open bottom tanks: 50%

System label	Pop	W4a	W5a	F3	F4	F5
System description	Proportion of population using this type of system	Proportion of wastewater in sewer system, which is delivered to centralised treatment plants	Proportion of wastewater delivered to centralised treatment plants, which is treated	Proportion of this type of system from which faecal sludge is emptied	Proportion of faecal sludge emptied, which is delivered to treatment plants	Proportion of faecal sludge delivered to treatment plants, which is treated
T1A1C2 Toilet discharges directly to a centralised foul/separate sewer	2.0	100.0	100.0			
T1A3C10 Fully lined tank (sealed), no outlet or overflow	13.0			50.0	100.0	100.0
T1B10C10 Containment (fully lined tanks, partially lined tanks and pits, and unlined pits) failed, damaged, collapsed or flooded - with no outlet or overflow	6.0			50.0	100.0	100.0
T1B7C10 Pit (all types), never emptied but abandoned when full and covered with soil, no outlet or overflow	20.0					
T1B8C10 Pit (all types), never emptied, abandoned when full but NOT adequately covered with soil, no outlet or overflow	1.0					
T2B7C10 Pit (all types), never emptied but abandoned when full and covered with soil, no outlet or overflow, where there is a 'significant risk' of groundwater pollution	58.0					

Figure 4: SFD Matrix for Ugie (2018)

2.2.2 Risk of groundwater contamination

Water for urban areas of Ugie is supplied from the Ugie drinking-water treatment plant via pipeline to households with the majority of households either receiving water via household taps or yard connections. Raw water is obtained from the Wildebeest River (i.e. surface water).

Rural areas (outside of the urban boundary) are reliant on groundwater sources, and as little/no treatment is noted, protection of these water sources is essential. .

Although the groundwater is not presently being used in Ugie urban areas, climate change impacts and the increasing water scarcity facing many parts of South Africa and the Eastern Cape.

Of concern, is that in the Popcorn Valley area, sanitation systems were overflowing (old concrete tanks, blocked sewerage lines), and that the pollution could reach the Wildebeest River. As this point is upstream of the intake to the drinking-water treatment plant, a concern exists that the Wildebeest River could be contaminated, and that the drinking-water supply could be compromised.
There is a need to create awareness among the rural people about the need to ensure that pit latrines/VIPs are adequately sealed when closed/moved/new pit dug, and of the effects of using polluted water.

3. Stakeholder engagement: key interviews

The relevant Joe Gqabi District Municipality and Elundini Local Municipality staff were contacted through e-mail, letter and telephone call prior to the visit to Ugie. The purpose of the SFD study and depth of data required was conveyed through an introductory letter to respective staff. Although a number of stakeholders of government departments were noted, this SFD study aimed to focus on interviews with staff from Joe Gqabi District Municipality and Elundini Local Municipality, and their associated service providers.

Interviews were held with the Manager: Water Services and Head: Water Services Compliance, who also accompanied the team to the site inspection. During the site inspection, interviews were held with process controllers at the Prentjiesberg WWTW. As there were no process controller at the Ugie Ponds, these interviews were not conducted. Furthermore, as new service level agreements were being arranged with tanker service providers, these interviews could also not be conducted. In addition, some discussions were also held with members of the public (i.e. private citizens).

A site inspection assisted with verifying data obtained from Joe Gqabi District Municipality published reports (e.g. IDP, WSDP). The key informant interviews and data collected helped in understanding the existing situation and upcoming developments plans in the sanitation sector.

4. Acknowledgements

This report was compiled for a Water Research Commission project and as part of the SFD Promotion Initiative. We would like to thank Mr. Sicelo Pongoma, Manager: WSA and Mr. Stompie Lourens, Head: Water Services Compliance and all participating Joe Gqabi District Municipality and Elundini Local Municipality staff for giving time and necessary information for the assessment. A special thanks to Shantanu Kumar Padhi and Amrita Bhatnagar of CSE for their supervision and guidance during the assessment and report writing.

5. References

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6. Appendix

6.1 SFD Matrix

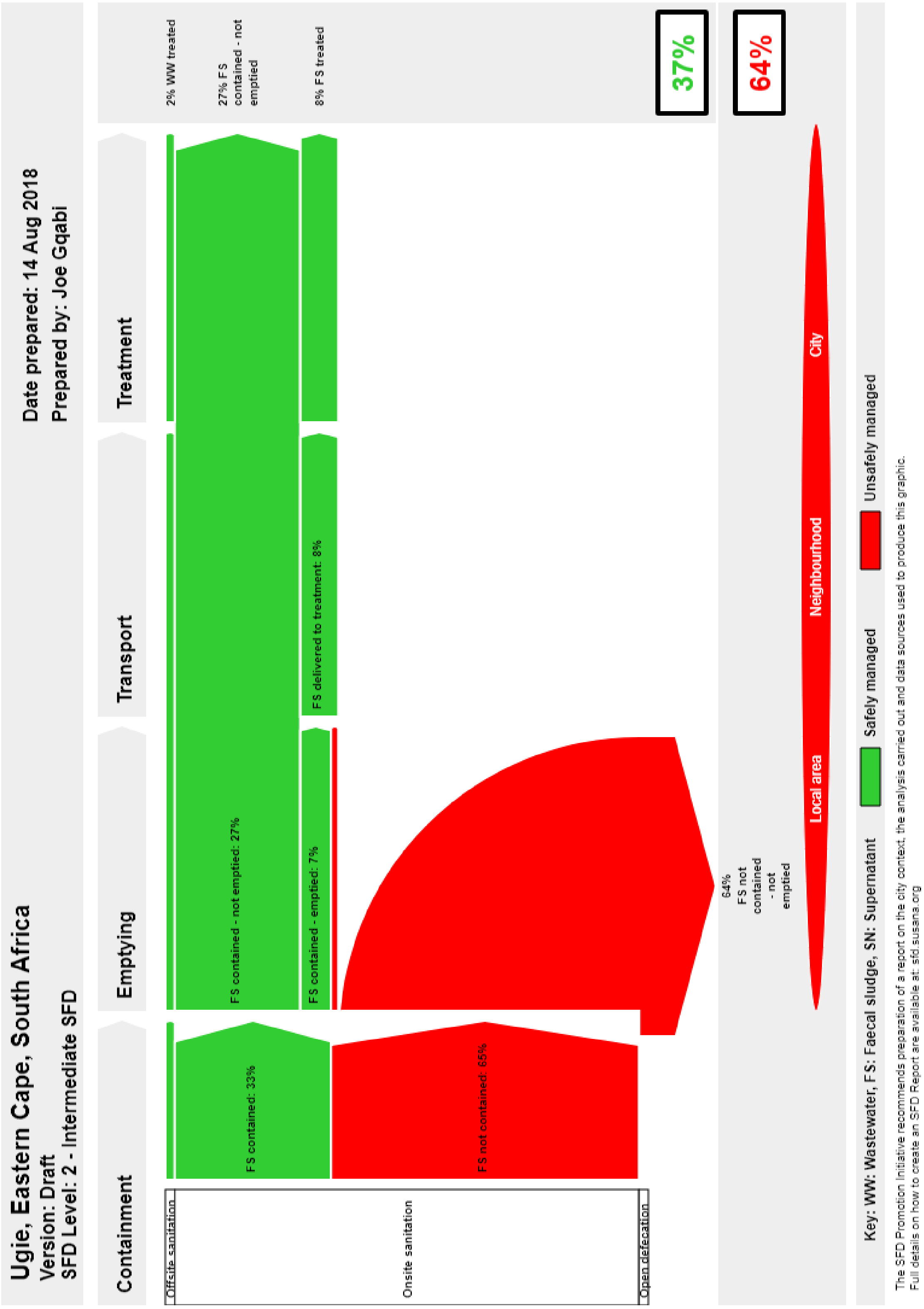

Figure 5: SFD matrix

6.2 Stakeholder identification

Table 3: Stakeholder identification

No.	Stakeholder group	In Ugie context
1	City council / Municipal authority / Utility	Water Services Authority (WSA): Joe Gqabi District Municipality Water Services Provider (WSP): Elundini Local Municipality
2	Ministry in charge of urban sanitation and sewerage	National: Department of Water and Sanitation Provincial: Department of Water and Sanitation (Eastern Cape)
3	Ministry in charge of urban solid waste	National: Department of Environmental Affairs Provincial: Department of Economic Development, Environmental Affairs & Tourism of the Eastern Cape (DEDEAT)
4	Ministry in charge of urban planning, finances and economic development	National: Department of Human Settlements Provincial: Eastern Cape Department of Human Settlements National: National Treasury Provincial: Eastern Cape Provincial Treasury
5	Ministry in charge of environmental protection	National: Department of Environmental Affairs Provincial: Department of Economic Development, Environmental Affairs & Tourism of the Eastern Cape (DEDEAT)
6	Ministry in charge of health	National: Department of Health Provincial: Eastern Cape Department of Health
7	Service provider for construction of on-site sanitation technologies	Various, by tender appointment
8	Service provider for emptying and transport of faecal sludge	Various, by tender appointment
9	Service provider for operation and maintenance of treatment infrastructure	N/A Performed by Elundini Local Municipality
10	Market participants practicing end-use of faecal sludge end products	N/A
11	Service provider for disposal of faecal sludge (sanitary landfill management)	N/A
12	External agencies associated with faecal sludge management services (e.g. NGOs, academic institutions, donors)	N/A

6.3 Tracking of engagement

Table 4: Tracking of stakeholder engagement

Name of organization	Name of contact person	Designation	Date of engagement	Purpose of engagement
Joe Gqabi District Municipality	Mr. Sicelo Pongoma	Manager: WSA	5, 11 and 23 July 2018	Introducing SFD, securing support for project
Joe Gqabi District Municipality	Mr. Stompie Lourens	Head: Water Services Compliance	5, 11 and 23 July 2018	Introducing SFD, securing support for project
Joe Gqabi District Municipality	Mr. Sicelo Pongoma	Manager: WSA	13 & 14 August 2018	Data collection, collation, verification and site visits including key informant interviews
Joe Gqabi District Municipality	Mr. Stompie Lourens	Head: Water Services Compliance	13 & 14 August 2018	Data collection, collation, verification and site visits including key informant interviews
Joe Gqabi District Municipality	Mr. Sicelo Pongoma	Manager: WSA	2-5 October 2018	Draft report review and finalisation
Joe Gqabi District Municipality	Mr. Stompie Lourens	Head: Water Services Compliance	2-5 October 2018	Draft report review and finalisation

6.4 Selected pictures taken during visit

Figure 6: Example of near full VIP

Figure 7: Evidence of full and overflowing containment tanks

Figure 8: Evidence of poorly constructed and leaking containment tanks

Figure 9: Tanker discharge point at Prentjiesberg WWTW

Figure 10: Prentjiesberg WWTW

Figure 11: Treated effluent discharge from Prentjiesberg WWTW

Figure 12: Ugie Ponds showing accumulated sludge