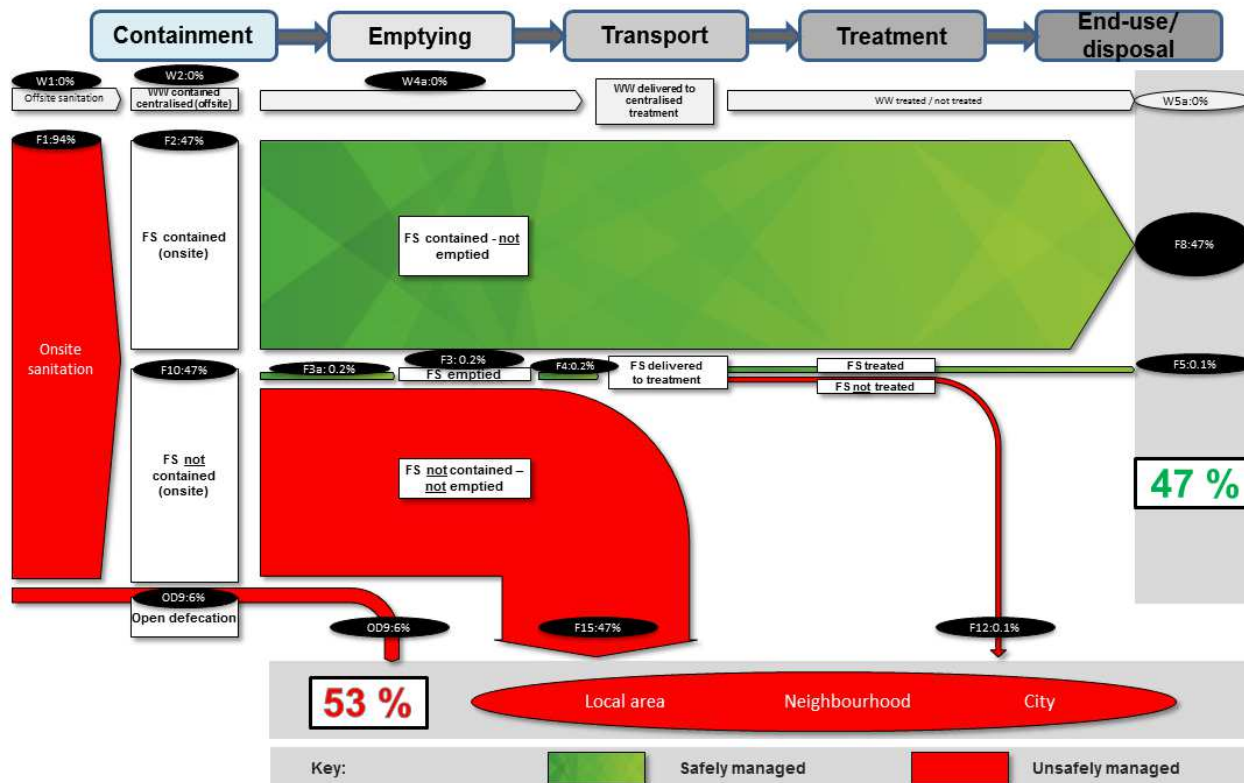


1. The Diagram

Yei / South Sudan (25. August 2015)

Field based

Status: DRAFT



2. Diagram information

Field based:

The field-based-approach was applied involving Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs)

Produced by:

The SFD was produced by Younes Hassib with support from Cyrill Buergi, John Bebe Khamis (all GIZ) and Leonie Kappauf (GfA).

Status:

This is a Draft SFD

Date of production:

25 August 2015

It is bordered to the south (towards Uganda) by Morobo County and to the west by the DR-Congo. The town lies within Yei River County, one of six counties in CES. Yei River County itself is divided into five administrative sub-units. The main part of the town is located within Yei Town payam (districts), which consists of five bomas (sub-districts), namely Yei, Ronyi, Gimunu, Pokula and Minyori (GG 2010).

Yei Municipality falls under the tropical savannah climate. It is located in the so-called "Greenbelt", the most fertile and traditional cereal surplus producing zone of Southern Sudan. At around 820 metres above sea level it has very reliable rainfall. The average annual rainfall is 1336 mm with a pronounced peak in August and with a high evapotranspiration of 2.000 to 2.500 mm per year.

The population in Yei town has been exposed to several outbreaks of Cholera in the past decade (2006, 2009, 2014).

3. General town information

Yei is the second largest urban centre in Central Equatoria State (CES) (the largest is Juba, the capital of the new Republic of South Sudan), with a population of around 230,000 (GG 2015).

4. Service delivery context

The Republic of South Sudan acquired independence in July 2011. As a new nation, South Sudan has the dual challenge of dealing with the legacy of more than 50 years of conflict and continued instability, along with huge development needs. Core administrative structures and mechanisms of political representation were emerging, and the government was beginning to provide basic services, among them water and sanitation to the population when conflict broke out in December 2013. A peaceful resolution to the conflict has not yet been achieved. As a consequence a number of indicators are showing in the wrong direction; the incidence of poverty for example has worsened, from 45% in 2011 to more than 57% in 2015 (WB, 2015).

The Government of South Sudan (GoSS) developed a Water Sector Policy and a Water, Sanitation and Hygiene (WaSH) Sector Strategic Framework in 2011. A draft Water Bill which, once approved by cabinet and signed into law will constitute the national Water Act. An Environmental Policy is also under preparation. Institutional responsibilities for Urban WaSH are split between three ministries, namely: i) Ministry of Water Resources and Irrigation (MWRI) which is mandated to oversee development and management of urban water supply ii) Ministry of Housing and Physical Planning (MHPP) which is responsible for urban sanitation, and iii) Ministry of Health (MoH) which is responsible for hygiene promotion.

The Local Government Act (2009) in conjunction with the Water Policy (2009) and the Water Sector Strategic Framework (2011), grants local authorities in South Sudan the responsibility for water supply and sanitation service provision within their jurisdictions. The institutional frame conditions provide a number of alternatives to local authorities as to how they fulfil this responsibility. In view of the low technical capacities of local authorities they generally do not directly act as service providers but delegate these services to an entity that enjoys financial autonomy. Accordingly service provision in Yei is assumed by the Yei Town Water Supply and Sanitation Services Ltd. (YTWSS).

YTWSS was recently created (2012) and operates the small new water distribution system (8km network) with a total of 11 kiosks. Two of which are not operational as they need to be supplied by water tankers. So far YTWSS has no stake in sanitation.

5. Service outcomes

Water supply in Yei is organized in various ways. The recent household survey (Gg 2015) revealed that 62% of the population have access to improved water sources, of which the largest fraction (36%) use public hand pumps, which usually tap into the shallow aquifer. A centralized water supply reaches only 7% of the population, predominantly through water kiosks. Further 7% use water from unsafe open water sources.



Figure 1: Pilot pit latrine provided by DUWSS (Source: GIZ 2015)

Correspondingly, sanitary facilities rarely depend on piped water. Barely 1% of the population use either flush- or pour-flush facilities (Gg 2015). The overwhelming majority of households use traditional pit latrines, which only provide minimal stability, a mud floor and some protection for privacy (60%). When full, the pits are abandoned and a new pit is dug. In an effort to save space, pits are occasionally very deep (reportedly 7 to 9 m). Consequently the risk of faecal matter negatively affecting the water quality of the upper groundwater layer is of concern.

Results of groundwater analysis conducted in 2012 clearly show a microbial contamination of anthropogenic origin (36%). Interviews in hospitals confirm that water-borne diseases increase in the rainy season, when water levels in boreholes and the probability of interference with faecal matter from pit latrines rise.

Emptying the containment facilities is practiced by only 7% of the households. The current lack in emptying infrastructure, such as adequate disposal sites and service providers are further reasons for the current situation.

Septic tanks with a solid substructure account for less than 1%. These structures, serving hotels, restaurants and public toilets, require occasional emptying.

Vacuum trucks have to come all the way from Juba (170km) to empty septic tanks and discharge the septage in an unregulated solid waste dump site in *Minyori* 30 km to the south. Reason, why emptying and discharging 10m³ amounts to over 1200 SSP (1 USD = 3 SSP) (600 SSP truck service, 500 SSP Municipality Block charge, 120 Boma charge). The facility can not be reached in the rainy season.

Sludge drying beds and wetlands are under construction (see Figure 2) and shall be taken into operation end of 2015. Additionally, vacuum trucks are due to be handed over to improve the unresolved disposal of faecal matter in Yei.



Figure 2: Construction site of future sludge drying beds (Source: GIZ 2015)

6. Overview of stakeholders

Responsibilities for WaSH are fragmented on national level as responsibility for urban water supply is under MWRI, MHPP is in charge of urban sanitation and MoH for hygiene promotion respectively. The delegation of sanitation responsibilities to the newly created utility YTWSS is confined to operating the few public sanitation facilities and future emptying and disposal infrastructure.

Interviews were conducted with the stakeholders presented in below Table.

Key Stakeholders	Institutions / Organizations
Public Institutions	<ul style="list-style-type: none"> o Yei Municipality o Yei Town Water Supply and Sanitation Services Ltd. o Departments for Public Infrastructure and Water and Sanitation o Hospitals (Yei & Martha)
Private Sector	3 public toilet operators
Development Partners, Donors	GIZ "Development of the Urban Water and Sanitation Sub-Sector" (DUWSS) Programme

Table 1: Key Stakeholders

7. Credibility of data

In absence of official census data and officially published reports of national institutions the main sources of information used for the present SFD are studies, reports and survey results produced within the past 5 years. A representative survey covered 8% of the population in 2010 (GG 2010) and a recent survey exclusively on sanitation service levels covered some 4% of the population (GG 2015) provide a comprehensive description of the state of sanitation in Yei.

Nine KIIs have been conducted with different stakeholders in addition to 3 FGDs which confirmed the general state of faecal sludge disposal in Yei town.

Among the challenges which were faced during the preparation of the SFD are the following:

- o The lack of officially published data that is being used by public authorities to forecast and plan interventions in the water and wastewater/sanitation sectors.
- o Generally low degree of mapping water quality data of water sources and sanitation facilities on the level of public institutions.

Assumptions for preparing the present SFD:

- o Based on water quality analysis results and soil properties with high permeability rates it was assumed that high groundwater levels in 50% of Yei town interfere with existing pit latrines.
- o Contamination of drinking water leads to recorded high prevalence of water-borne diseases in Yei and subsequently to classifying FS disposal practices in large parts of town as "unsafe disposal".

Recommendations for updating the SFD:

- o Groundwater map and/or ground water quality analysis to be used for an update of SFD.
- o Record keeping of vacuum truck operation in town.
- o Comprehensive pit latrine inventory.

8. Process of SFD development

The present Draft SFD was prepared on the basis of the methodology developed by the BMGF project.

Secondary data was subject to review and verification through Key Informant Interviews (KII) with relevant stakeholders and Focus Group Discussions (FGD) as listed in Table 1.

Additionally, field information was collected.

Based on the access levels of the population to specific sanitary facilities the SFD calculation tool was used to subsequently calculate the excreta flow. Assuming the presence of groundwater in 50% of the cases, on-site facilities have a significant impact on polluting the underground.

According to the SFD, current practices of excreta disposal in Yei result in 47% safe disposal. The majority of households however remain caught between insecure access to water safe for drinking and unsafe sanitation that pollute their drinking water.

Limitations of SFD:

In circumstances where groundwater is a relevant environmental media that is prone to contamination detailed groundwater maps need to be used to precisely determine affected parts of town.

9. List of data sources

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

- Studies and reports:
 - (AECOM 2014), South Sudan Household Survey Reveals Diversity of Community WASH Conditions, Preliminary Survey Findings, AECOM International Development 2014
 - (AfDB 2013), Small and medium town water supply and sanitation feasibility study and detailed design, African Development Bank September 2013
 - (CoM 2011), South Sudan Development Plan 2011-2013, Council of Ministers Draft, 4th July 2011
 - (Gauff 2015), Yei Urban Water Supply and Sanitation Project, Hydrogeological & Geophysical Investigations Report, Gauff GmbH on behalf of KfW, MARCH 2015
 - (GG 2010) Feasibility Study for the Establishment of a Poverty Oriented Development of Water Supply and Sanitation Services for Yei, GfA-Gauff on behalf of GIZ, May 2010

- (GG 2015), Household Sanitation Survey in Yei – Survey Report, GfA-Gauff on behalf of GIZ, June 2015
- (ODI 2011), Urban displacement and vulnerability in Yei, Working paper by the Humanitarian Policy Group within Overseas Development Institute, December 2011
- KII's with representatives from:
 - Yei Municipality
 - Yei Town Water Supply and Sanitation Services Ltd.
 - Department for Public Infrastructure
 - Department for Water and Sanitation
 - Yei Civil Hospital
 - Martha Lutheran Health Centre
 - Private operators of public toilet
- Focus Group Discussions held with:
 - 12 Chiefs (community leaders) in Yei
 - 8 representatives from 4 NGOs
 - 3 operators of public toilets.

SFD Yei, South Sudan, 2015

Produced by:
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