



# Challenges of Faecal Sludge Management in African Countries

## The Uganda Context

Ministry of Water and Environment

Rural Water Supply and Sanitation Department

Eng. Olweny Lamu

August 20, 2021



# Presentation Outline



- FSM in Africa
- Status of FSM in Uganda
- Challenges of FSM in Uganda
- Ongoing Efforts in FSM in Uganda
- Recommendations



# FSM in Africa



- As of 2020, **1.7 Billion** people in the world lack basic sanitation facilities; 300 million of them in Africa (JMP, 2021).
- Only **7%** are connected to sewers, only 1% is treated (2017)
- In Africa **19%** of the people practice open defecation, while the rest use on-site sanitation (UNEP, n.d).



# FSM in Africa



- Improper faecal sludge management and poor sanitation contributing to the **115 deaths** per hour from excreta-related diseases in Africa.
- Economic losses due to poor sanitation account for approximately **1 to 2.5%** of gross domestic product (GDP) on the continent and faecal contamination causes an annual average of 3,500 cases of cholera in Kenya and 1,800 in Ghana (World Bank, 2012).



# FSM in Africa



- The cost of an effective water, sanitation and hygiene (WASH) response is estimated to be **USD 2.2 million** per year in Kenya and 1.2 million in Ghana (Water and Sanitation Program (WSP), 2012).
- The cost of **inaction** will have significantly more costly adverse effects on human health, the environment and the economy; using the case of Kenya, the economic loss is around USD 900 million. This is **450 times** greater than the USD 2.2 million cost for implementing WASH.



# FSM in Uganda



- As of 2020, **20%** (8.32/41.6 million) of the people in Uganda have access to basic sanitation facilities.
- As of 2020, **17%** (7/41.6 million) of the people in rural areas and **28%** (11.6/41.6 million) in urban areas in Uganda have access to basic sanitation facilities (JMP, 2021)
- As of 2020, **18%** (7.5/41.6 million) of the people in rural areas and **44.8%** (18.6/41.6 million) in urban areas in Uganda have access to basic sanitation facilities (SPR, 2020)
- Poor sanitation costs Uganda **US\$177 million** annually





# FSM in Uganda



## Toilet Facilities by Type in Uganda (UBOS Census Report, 2014)

Type of Toilet Facility	Percentage
Flush Toilet	2.5
VIP Latrine	9.3
Covered pit latrine private with a slab	20.8
Covered pit latrine without a slab	32.8
Uncovered pit latrine with a slab	6.3
Uncovered pit latrine without a slab	17.9
Ecosan	0.9
Other	1.1
No Facility	8.8
<b>Total</b>	<b>100</b>



# FSM in Uganda



- Faecal sludge originates from on-site sanitation technologies and is not collected via a sewerage system
- Faecal sludge management is the storage, collection, transportation, treatment and safe end use or disposal of faecal sludge
- While faecal sludge is rich in nitrogen, phosphorus, potassium and organic matter, it also contains high counts of pathogenic coliforms, E. coli and helminth eggs.  
**So FS is both useful and dangerous at the same time.**





# FSM in Uganda



- **23%** of people in **17 Large** Towns under NWSC are connected to the sewerage network (SPR, 2020)
- Total sewerage network in the 17 large Towns is **693Km**
- About **2%** (826,965) of the total population of Uganda is connected to the sewerage network (SPR, 2020)
- **12%** of household toilets in Kampala are connected to the sewerage network
- There are only **8,975** active sewer connections in Kampala



# FSM in Uganda



- In Kampala about **35%** of the fecal sludge produced is collected, transported, and delivered to the fecal sludge treatment plant at Lubigi, operated by NWSC.
- Currently, **900 m<sup>3</sup>/day** of faecal sludge is generated in Kampala against an installed FS treatment plant capacity of **400m<sup>3</sup>/day**; i.e. only **44%** of the sludge generated in Kampala can be treated.
- Faecal Sludge Accumulation rate for Kampala is **270** and **280 L/C/Year** respectively for pit latrines and septic tanks for Kampala (Strande et al, 2018)



# FSM in Uganda



- Faecal Sludge Generation rate for Africa ranges between **100 – 1,000 L/C/Year**; while Faecal Sludge Accumulation Rates in Africa is on Average **40 and 60L/C/Year** for households with pit latrines and septic tanks respectively (UNEP, n.d)
- About **74,000m<sup>3</sup>/d** of faecal sludge is produced in Uganda from emptiable toilets (**only about 65% of Flush, VIP & Covered Toilets**).
- Sludge Accumulation Rate is about **2,963m<sup>3</sup>/d** in Rural areas in Uganda from emptiable toilets (**only about 65% of Flush, VIP & Covered Toilets**)



# FSM in Uganda



- There are about 45 FSMFs in the country with an average capacity of **50m<sup>3</sup>/d**; with combined capacity of **2,250m<sup>3</sup>/d**
- Uganda has installed capacity to treat only **3%** of the Faecal Sludge generated in rural areas



# Challenges of FSM in Uganda



- Where available, existing FS treatment facilities are often underutilized or overloaded, and release untreated or partially treated effluent into the environment.
- Low installed capacity for FS treatment (**3%** of generated FS)
- Low treatment efficiencies of FS treatment plants
- Some plants not receiving or receiving very low sludge enough to operate the plant



# Challenges of FSM in Uganda



- Service chain for storage, collection, and transportation of faecal sludge is not well developed
- FS mixed with solid waste makes FS treatment operations difficult
- Pit latrine coverage in Uganda is estimated at **85.5%** (UBOS, 2010)
- Less than **5%** of the pit latrines are lined with capability for emptying





# Challenges of FSM in Uganda



- Poor infrastructure coupled with lack of appropriate sludge transporting vehicles makes emptying of transporting of faecal sludge difficult
- Support to FSM in refugee settlements and hosting communities still limited
- Regulation of FSM services is lacking (enforcement, guidelines, effluent discharge limits)
- Weak institutional collaboration in FSM
- Limited funding to achieve SDG targets



# Ongoing Efforts in FSM in Uganda



- National FSM Baseline Study & FSM Implementation Guidelines, 2019
- National Fecal Sludge Assessment for small towns
- Kampala Sanitation Masterplan, 2008
- Urban Sanitation Implementation Manual, 2015
- City Wide Approach to Sanitation (in Kampala), 2018



# Recommendations



- Uganda needs to develop and implement a National Sanitation Master Plan that is inclusive of FSM
- There is need to strengthen institutional collaboration in implementation of FSM
- There is need to strengthen the regulatory function of the Ministry of Water and Environment through its Water Utility Regulatory Department to include regulation of sanitation services including FSM services (enforcement, guidelines, effluent discharge limits)
- Strengthen the service chain support mechanisms for FSM (Containment, Emptying, Transportation, Treatment, Safe Disposal/Re-use)