

Assessment of the Faecal Sludge Management Services Delivery in Mbarara Municipality, Uganda

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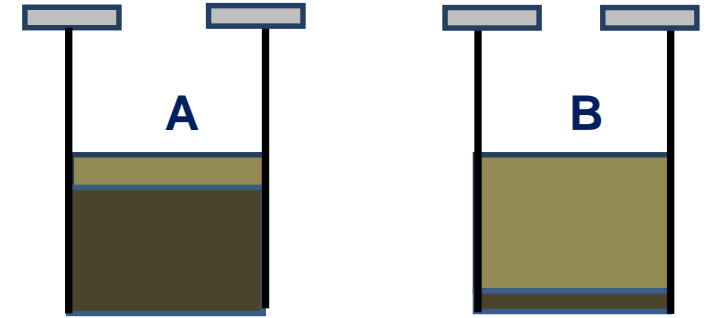
PRESENTATION AT THE SUSANA MEETING AT PROTEA HOTEL,
KAMPALA, ON 22nd FEBRUARY 2020

What do we mean by FS?

- FS is NOT wastewater or wastewater sludge.
- FS comes from onsite sanitation systems, and has not been transported through a sewer. It is raw or partially digested, slurry or semi-solid.
- FS is highly variable in consistency, quantity, and concentration.
- OM, TS, ammonium, and helminth egg concentrations in FS are typically higher by a factor of ten or more than in WW.

What makes FS highly variable?

- Consider Pit A filled slowly; e.g. household toilet with few users. FS has densified at the bottom.
- Pit B filled fast e.g. public/communal latrines, little densification at bottom.
- To decrease filling rate, non FM e.g. *old car batteries, kerosene, EMs, IMOs, salt, sugar, ash, fertilizer, or even a dead cat!* are often applied
- Filling rate (fast or slow), type of system (lined or not) and nature of soil (infiltrating or not), additives etc all influence variability of FS.



Do these pits have the same content?

Therefore, what is FSM and what does it entail?

- FSM is the management of the generation, storage, collection, transport, treatment and safe enduse or disposal of FS.

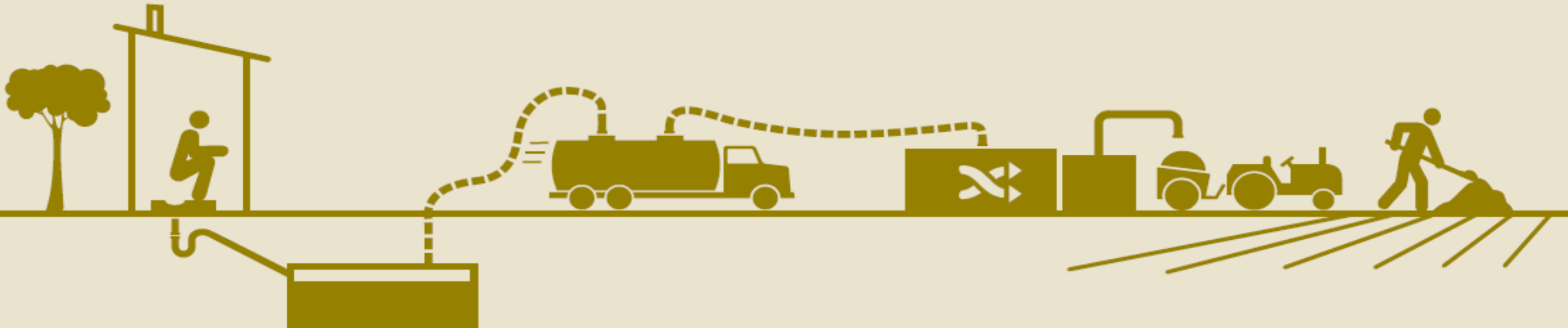
GENERATION AT
USER INTERFACE

STORAGE

COLLECTION & TRANSPORT

TREATMENT

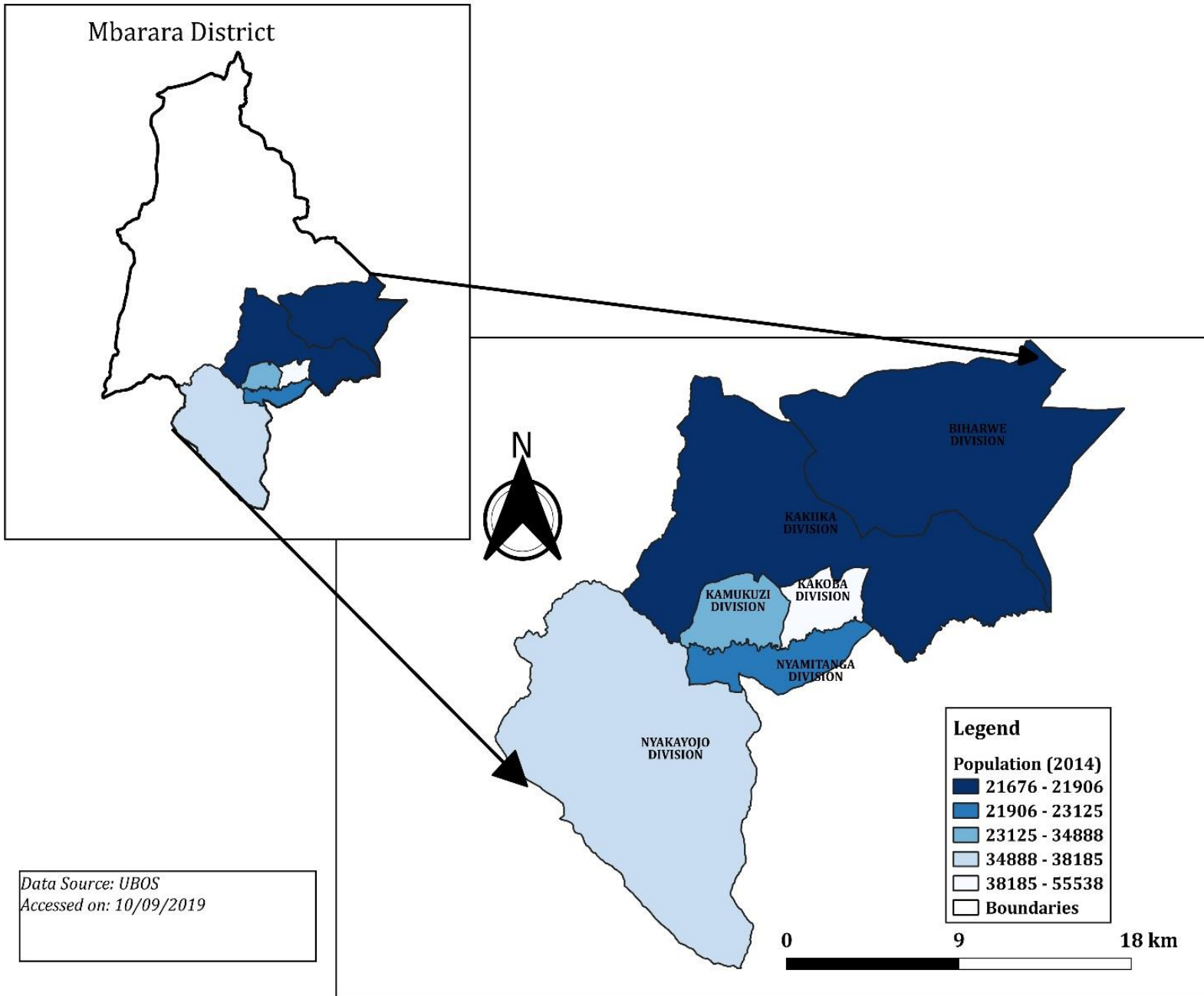
REUSE



Mbarara Municipality, just like other typical African cities

- Experiences sanitation challenges, with NSS/FSM in low-income areas.
- High percentage (>70%) of the population live in unplanned areas.
- Majority of the population (>90%) use NSS.
- Residents in affluent areas use WC/Septic tanks and can afford services of vacuum trucks.
- Low-income residents rely on pit latrines for FSM:
 - Difficult to empty,
 - Poor access,
 - Cannot afford suction trucks.

▪ High level of excreta containment/treatment



Data Source: UBOS
 Accessed on: 10/09/2019

Mbarara is a town in Western Uganda; with 200,000 people. It has one of the highest population growth rates in Africa

Objectives

- **Assess the FSM services delivery in Mbarara Municipality in Uganda in order to understand missing links and develop solutions.**

Specifically, to:

- **determine the types of sanitation facilities, their state, access and functionality, including management upon filling; and thus determine the FS flows;**
- **assess the enabling environment, level of service delivery and commitment to improve FSM.**

Methodology

- We applied two diagnostic tools
- **SFD = visualize the flow of FS – where it originates and ends, resulting into SAFELY and UNSAFELY managed FS!**
- **CSDA = Consider the enabling environment, quality of service along the chain and identify areas for attention.**

Methodology

- Used the Urban Sanitation Status Index (USSI)
- Visualize sanitation at neighbourhood level, using 6 indicators

COMPONENT	Indicator	Information Source
Containment	1. Toilet facility accessibility	Household
	2. Structural integrity	Household
	3. Hygienic improvement	Household
Emptying	4. Access to emptying services	Household
Transport	5. Transport and affordability	HH/service providers
Treatment & Disposal	6. Level of treatment & final disposal	NWSC/NEMA

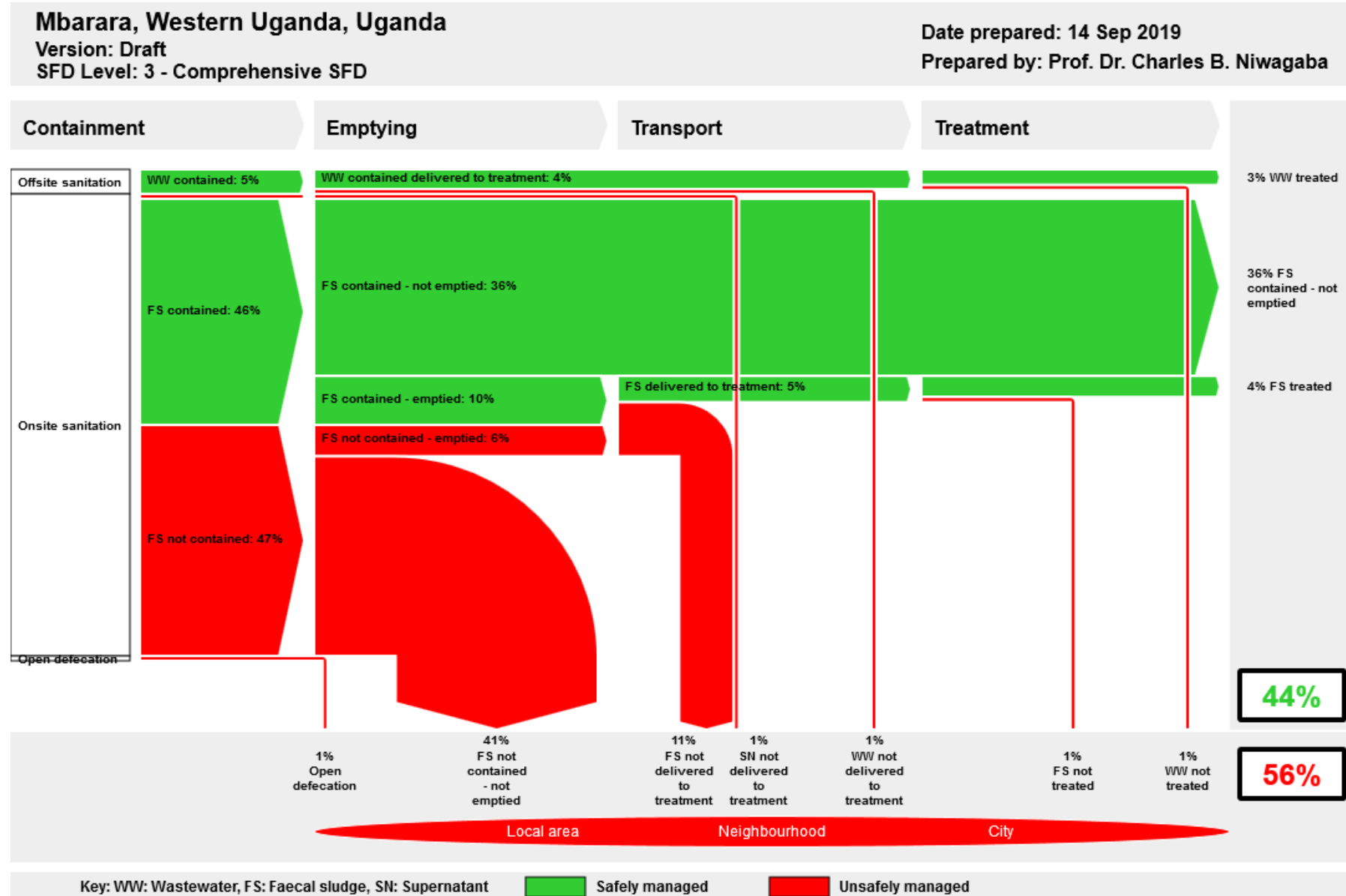
Methodology & Results

- Administered a HH Questionnaire
- KII; and held a validation workshop; also to analyse the SWOT

Type of the system	% Population Using	Sanitation Services Chain								Overall
		Containment		Emptying		Transport		Treatment		
		contained	not contained	emptied	not emptied	transported	not transported	treated	not treated	
Sewered (off site centralised or decentralized)	24.3%	100%	0%	100%	0%	100%	0%	100%	0%	
On-site storage - Septic Tanks		100%	0%	NA	NA	80%	20%	80%	20%	80%
On-site storage - single-use/Traditional Pit latrine	47.5%	100%	0%	100%	0%	100%	0%	100%	0%	
On-site storage - VIP latrine		61.9%	38.1%	60.0%	40.0%	50.0%	50.0%	80%	20%	63%
On-site storage - ECOSAN	1.5%	100%	0%	100%	0%	100%	0%	100%	0%	
Open defecation		95%	5%	70%	30%	98%	2%	95%	5%	90%
	0.5%	100%	0%	0%	100%	100%	0%	100%	0%	
		0%	100%	0%	100%	0%	100%	0%	100%	0%
Unsafe			43%		49%		41%		44%	
Average Unsafe		44%								56%
Affected zones (you can adapt the terms to suit the context)		Local area and beyond via drains (amount direct to groundwater not indentified)		Local area (via overflowing latrines or dumped FS)		Neighbourhood (via leakage/ overflow from sewers or drains)		Receiving waters (via sewer outfall/discharge)		

Methodology & Results

- Information was used to develop the SFD
- SFD gave a visualization of faecal flows



The SFD Promotion Initiative recommends preparation of a report on the city context, the analysis carried out and data sources used to produce this graphic. Full details on how to create an SFD Report are available at: sfd.susana.org

Methodology & Results

- CSDA tool with **three** PILLARS – Enabling, Delivering & Sustaining
- 1) ENABLING – Policy, legal & institutional framework – presented in traffic light form: **G** – Satisfactory **Y** –

CSDA Full Assessment			
City name	Mbarara		
Date	4th October 2019		
Sewered sanitation			
	WC, house connection	Sewerage	Sewage treatment & reuse
Enabling			
Policy, legislation			
Planning, budgeting			
Inclusion			
Non-sewered sanitation			
	Toilet, pit or septic tank	Emptying & transport	Sludge treatment & reuse
Enabling			
Policy, legislation			
Planning, budgeting			
Inclusion			

Methodology & Results

- CSDA tool with three PILLARS
- 2) DELIVERING – the resources and mechanisms available to improve sanitation – presented in traffic light form; **G** – Satisfactory, **Y** – Improving, **R** - Poor

Sewered sanitation

WC, House connection Sewerage Sewage Treatment & reuse

Delivering			
Funding	R	R	R
Capacity, outreach	Y	Y	Y
Inclusion	R	R	

Non-sewered sanitation

Toilet, pit, septic tank etc Emptying & Transport Sludge Treatment & Reuse

Delivering			
Funding	R	R	Y
Capacity, outreach	Y	Y	G
Inclusion	R	R	

Methodology & Results

- CSDA tool with three PILLARS
- 3) SUSTAINING – the operating environment, funding and personnel needed to provide ongoing and sustainable sanitation services – presented in traffic light form; **G** – Satisfactory, **Y** –

Improving, **R** - Poor

Sewered sanitation

WC, House connection Sewerage Sewage Treatment & reuse

Sustaining			
Regulation, cost recovery			
Institutions, service providers			
Inclusion			

Non-sewered sanitation

Toilet, pit, septic tank etc Emptying & Transport Sludge Treatment & Reuse

Sustaining			
Regulation, cost recovery			
Institutions, service providers			
Inclusion			

Generally

- **Stakeholders participate in 1 or 2 components of FSM chain.**
- **Are not coordinated,**
- **Components of the FSM services chain are non-inclusive,**
- **HHs pay masons to build pits; HHs pay private emptiers to empty, collect and transport FS; NWSC does the treatment.**
- **Safely managed excreta is less than 50% (In fact it is**

Conclusions

- **Fully define roles of the various actors,**
- **Sanitation planning should be inclusive,**
- **An actor for each component of FSM chain including valorization,**
- **Enforcement of laws and bylaws – frequent and monitored,**
- **Mobilize and allocate resources to FSM services chain,**
- **Innovations in FS valorization are necessary**

Acknowledgements

- **Stakeholders in Mbarara:**
 - **Mayor, Mbarara Municipality;**
 - **Political and Technical Staff of Mbarara Municipality;**
 - **NWSC, Mbarara Area;**
 - **Private Sector, Civil Society.**
- **APHRC,**
- **Funding agencies supporting APHRC.**

Introducing the Serious Game for Sanitation Planning – RECLAIM Game

Concepts included in the game

- Potential benefits of safe reuse
 - Fertilizers
 - Link to food production
- Potential negative consequences:
 - Water pollution
 - Disease
- Different roles within sanitation chain
 - Housing Officer
 - Treatment Officer
 - Farming Officer
 - Private Contractor
- Unexpected event cards
 - Negative – e.g. floods, disease
 - Positive – e.g. innovations, development



RECLAIM Game

Board



- Urban areas



- Rural areas



- Water



- Unusable land



- (e.g. swamp)

Resource Dice



- Food



- Waste



- Sorted Waste



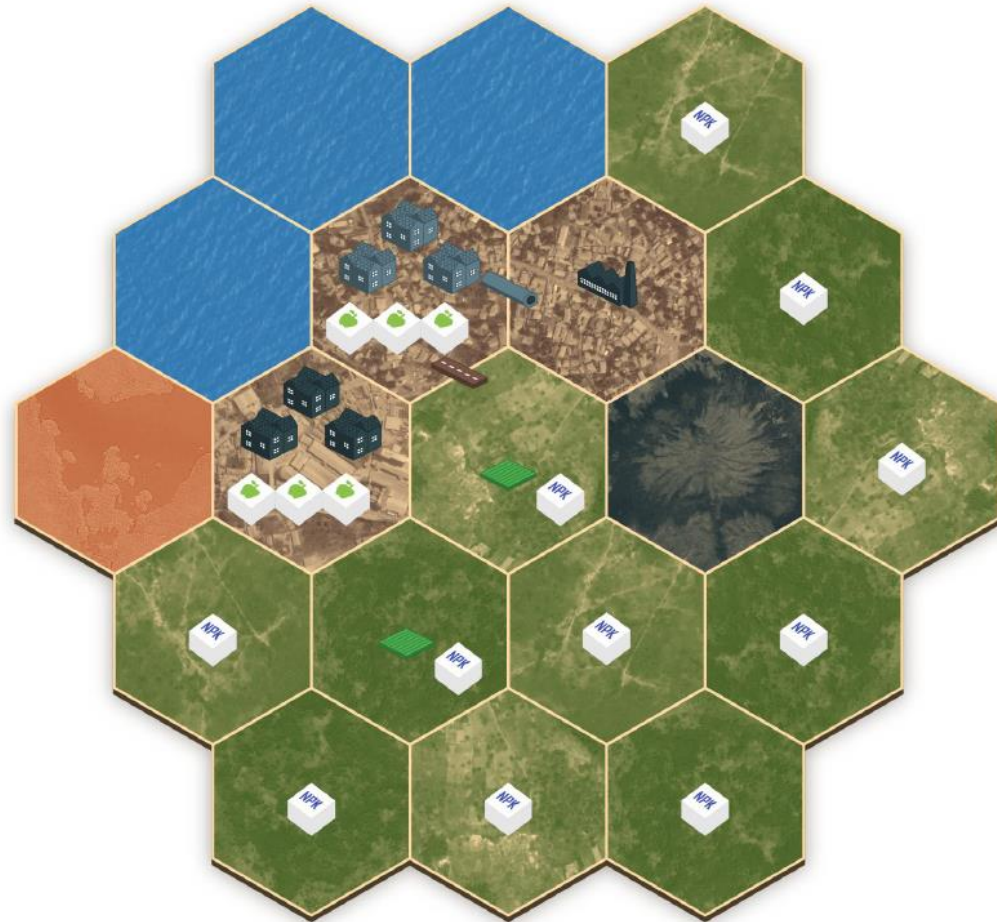
- Landfill



- Fertilizer



- Disease outbreak



Infrastructure

Housing blocks

- Unconnected
- Improved
- "Safe collection"



LEVEL 0
HOUSING
BLOCK



LEVEL 1
HOUSING
BLOCK



LEVEL 2
HOUSING
BLOCK

Transportation

- Roads
- Pipes



ROAD FOR
FOOD, NPK
& SLUDGE



PIPE FOR
MIXED WASTE



PIPE FOR
SEPARATED
WASTE

• Treatment

- Existing system
- Improved
- Resource recovery



LEVEL 0
TREATMENT
PLANT



LEVEL 1
TREATMENT
PLANT



LEVEL 2
TREATMENT
PLANT

• Farms

- Simple
- Improved



LEVEL 1
FARM



LEVEL 2
FARM

Try it out!



SPANS TEAM



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