SFDs: Visualizing Excreta Flows in Cities

Habitat III

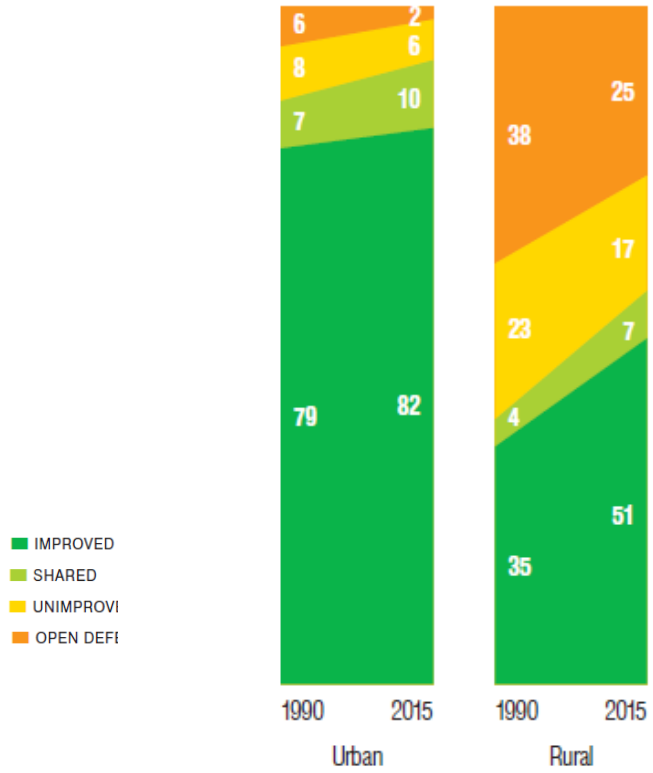
19 October 2016

Cecilia Rodrigues, GIZ

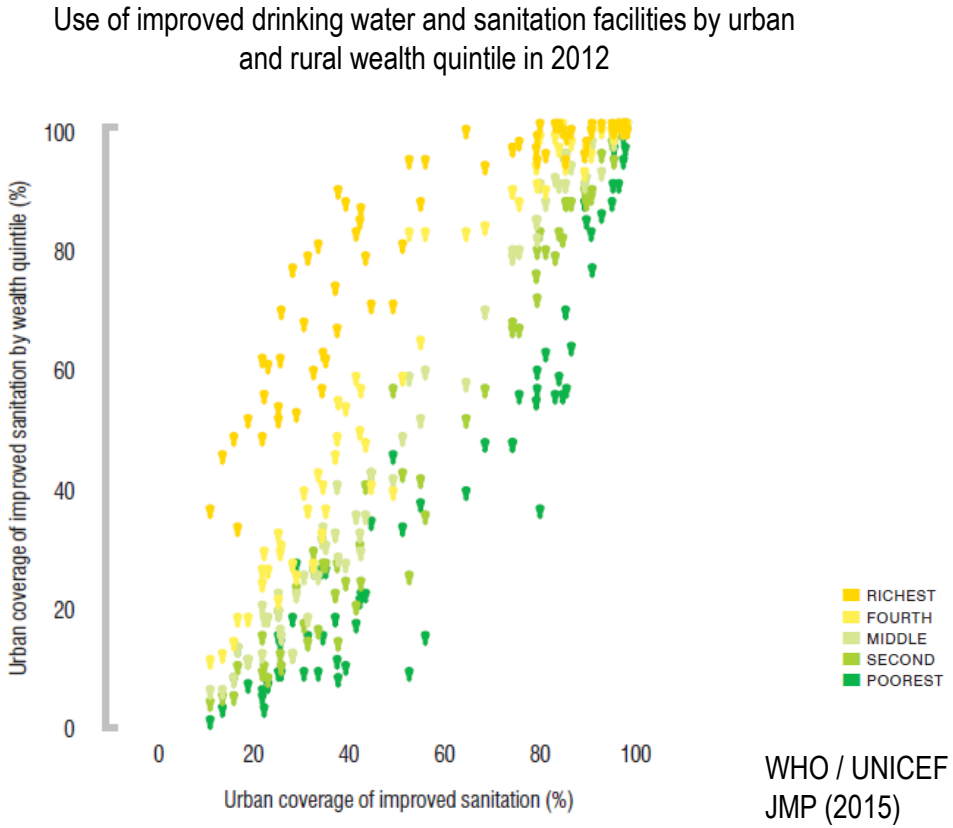
The status quo – MDGs in urban areas

Target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

Urban and rural trends in sanitation coverage

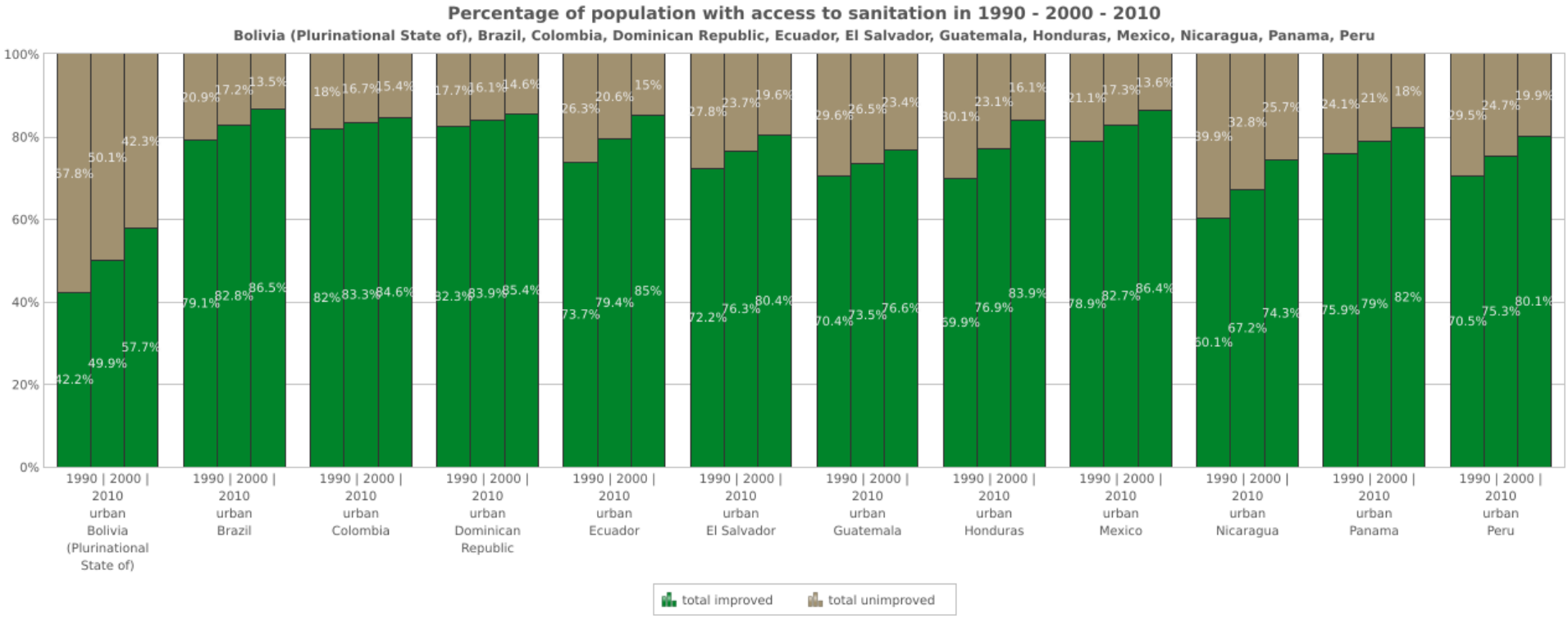


Use of improved drinking water and sanitation facilities by urban and rural wealth quintile in 2012



WHO / UNICEF JMP (2015)

Urban sanitation in LA



Source: JMP 2015

SDG: A more comprehensive approach

Goal 6. Ensure availability and sustainable management of water and sanitation for all

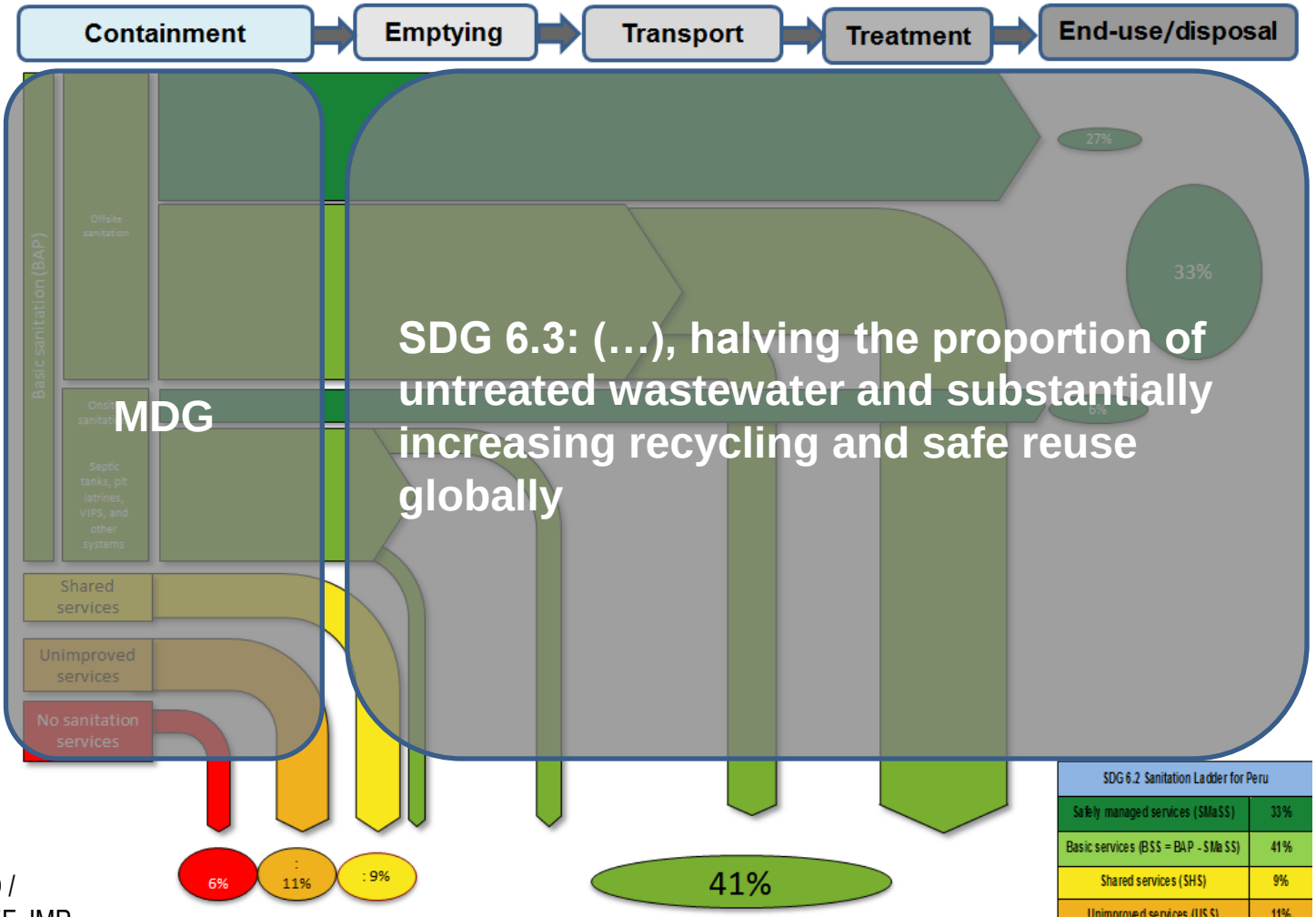
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

- 6.2.1 Proportion of population **using safely managed sanitation services, including a hand-washing facility with soap and water**

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

- 6.3.1 **Proportion of wastewater safely treated**
- 6.3.2 Proportion of bodies of water with good ambient water quality

The transition from MDG 7 to SDG 6

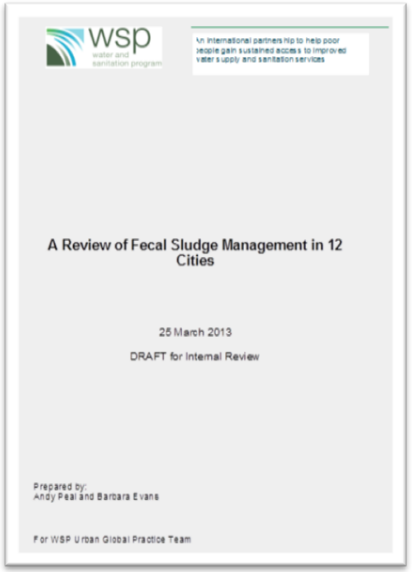


SDG 6.2 Sanitation Ladder for Peru	
Safely managed services (SMaSS)	33%
Basic services (BSS = BAP - SMaSS)	41%
Shared services (SHS)	9%
Unimproved services (USS)	11%
No sanitation services (NSS)	6%

* WHO / UNICEF JMP

The status quo

- **Strong focus on sewerage** by IFIs and governments, but
- **Most urban dwellers with sanitation access use on on-site systems:** <10% of urban Africa has sewer access
- **Virtually all poor people** use informally managed on-site sanitation systems
- **Failure to manage the whole sanitation service chain** results in gross fecal contamination of the environment



* A Review of Fecal Sludge Management in 12 Cities. Unpublished report, 2013 World Bank - WSP

** The Missing Link in Sanitation Service Delivery, 2014 World Bank - WSP C

The status quo – Results

- Data on sanitation not collected city-wide so problems not properly identified and prioritized
- Poor sanitation in informal areas not generally addressed, although often a major city-wide public health hazard
- On-site systems often seen as a temporary solution and therefore neglected by city authorities and poorly managed
- Policy and spending usually biased towards sewerage – subsidies for the rich
- As usual, the main victims are poor people, women and other vulnerable groups

The SFD Promotion Initiative

SFD Promotion Initiative

sustainable sanitation alliance

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of Federal Ministry for Economic Cooperation and Development

UNIVERSITY OF LEEDS

WORLD BANK GROUP Water

wsp water and sanitation program

WEDC

Loughborough University

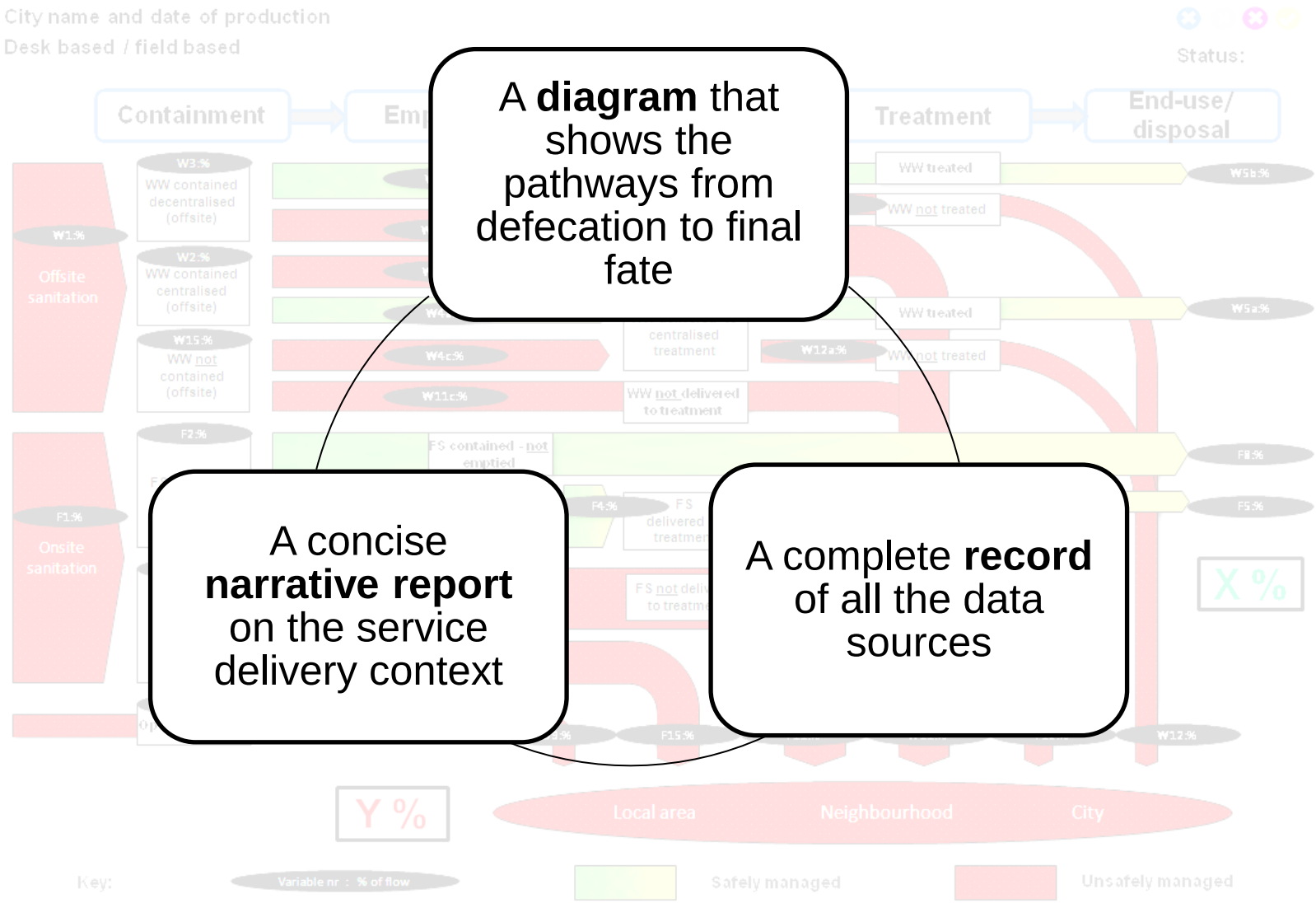
CSE

eawag aquatic research

Sandec Sanitation, Water and Solid Waste for Development

BILL & MELINDA GATES foundation

What is an SFD?

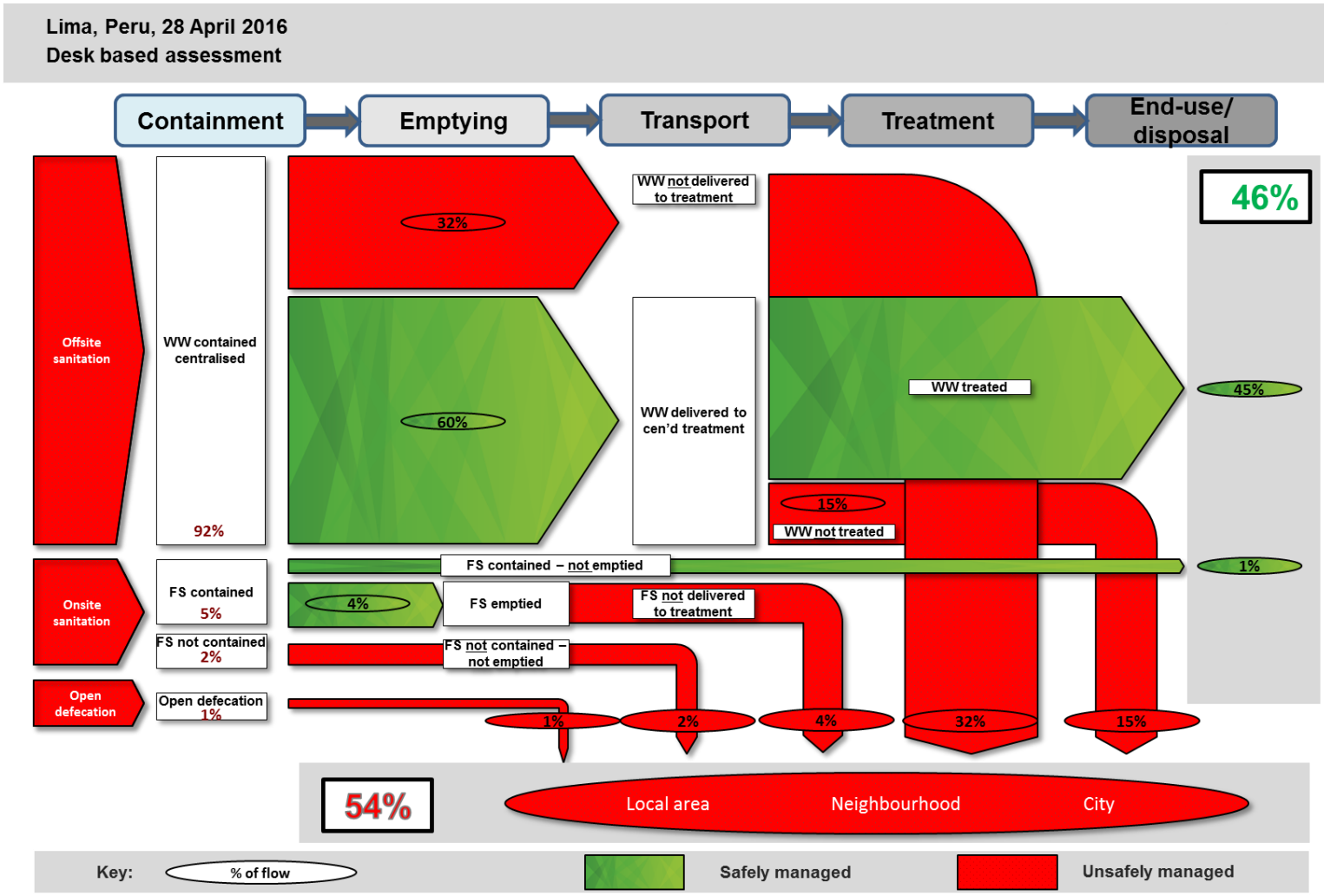


A **diagram** that shows the pathways from defecation to final fate

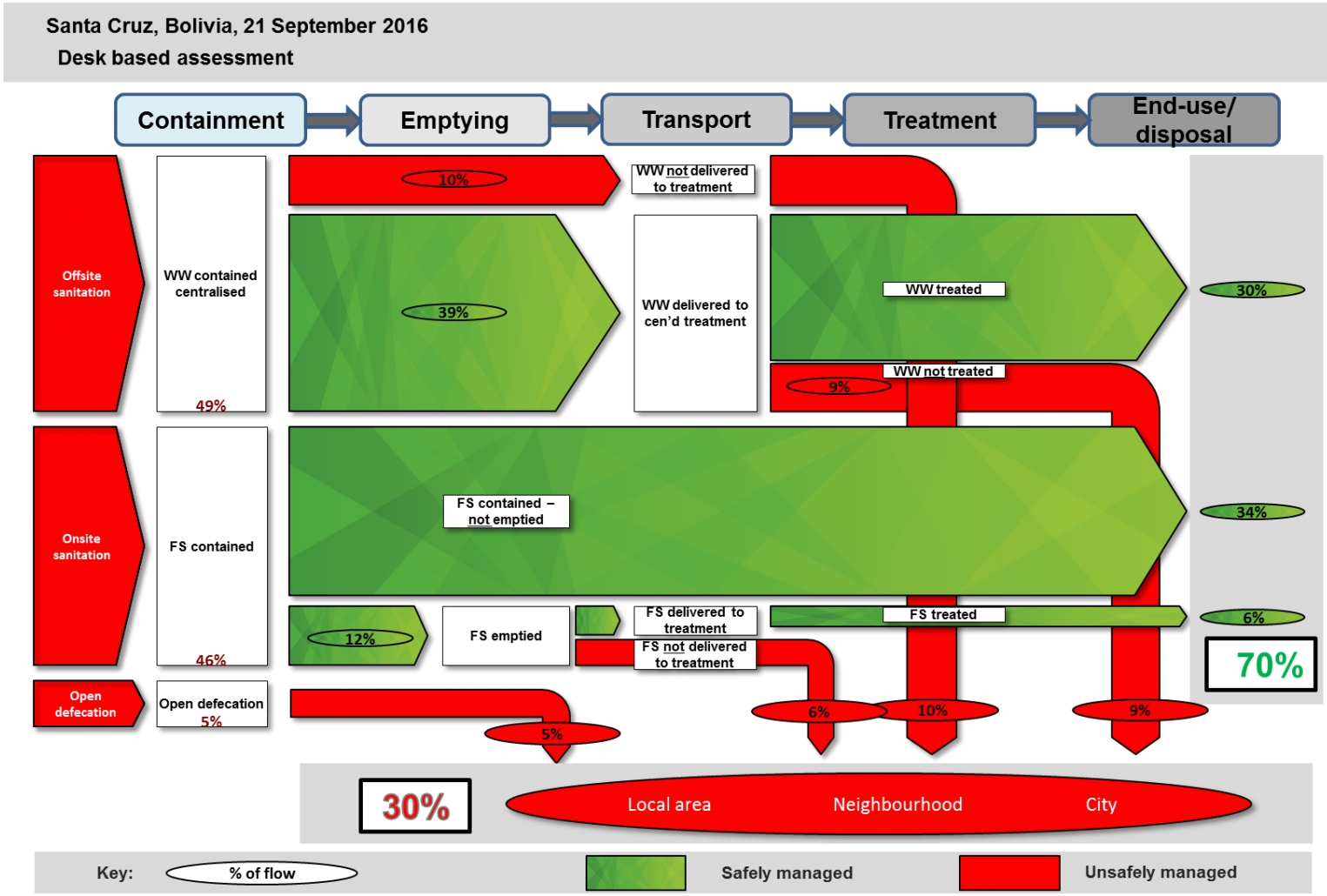
A concise **narrative report** on the service delivery context

A complete **record** of all the data sources

SFD for Lima, Peru



SFD for Santa Cruz, Bolivia (Draft)



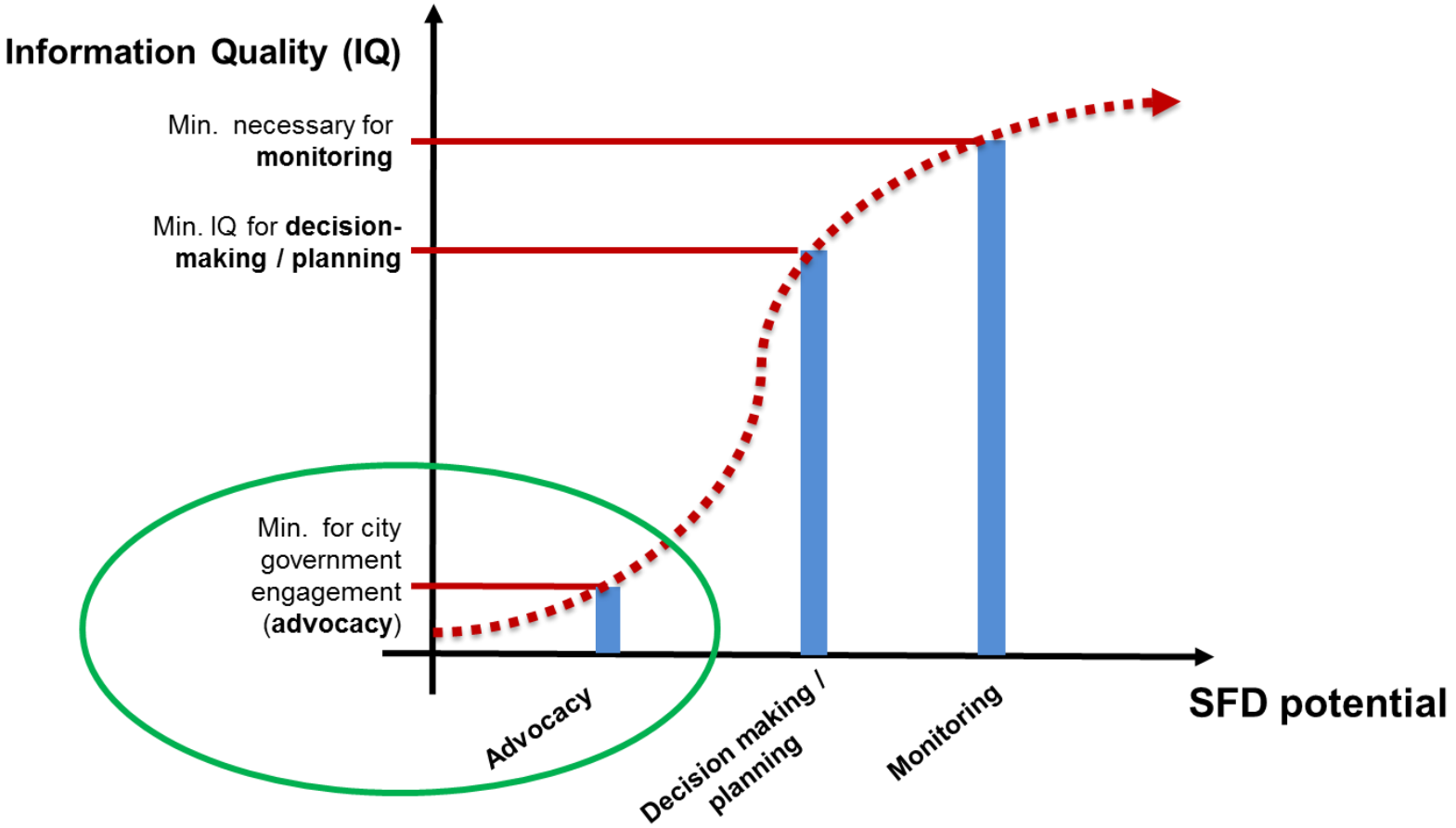
Service Delivery Context Assessment

	Containment	Emptying	Transport	Treatment	End-use/ disposal
Enabling • Policy • Planning • Regulation	**Policy:** To what extent is sanitation included in acknowledged and available policy documents? **Institutional roles**: To what extent are the roles and clearly defined and operationalized? **Service provision:** Does the regulatory framework enable investment by service providers? **Standards:** Are norms and standards systematically monitored and reported? **Targets, Investments…**				
Developing • Outputs • Equity	**Quantity / capacity:** Does access to sanitation meets the demands and targets? **Quality:** Are the procedures and processes for monitoring and reporting access to sanitation? **Choice:** Is there a range of affordable and appropriate techn. that meets the needs of the poor? **Reducing inequality: Do** plans and measures ensure sanitation serves all users,?				
Sustaining • Expansion • Service outcomes	**Demand:** Are there policies and procedures, or programs to stimulate demand and behaviours by households? **Sector development:** Are there ongoing programs and measures to strengthen the role of service providers (public or private) in the provision of sanitation services, in urban or peri-urban areas?				

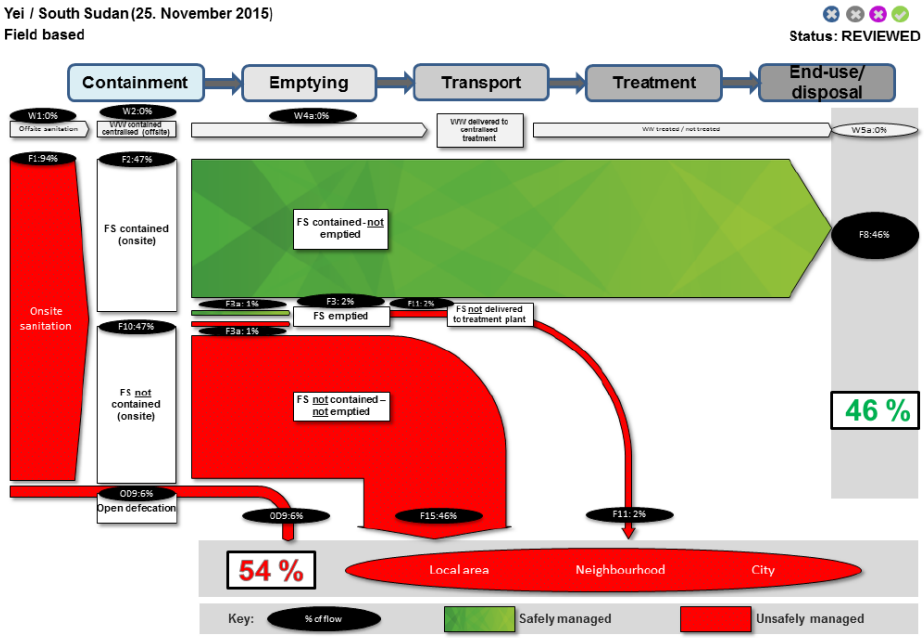
- **It IS**
  - An effective **communications** and **advocacy** tool
  - A tool for engineers, planners and decision-makers
  - Based on contributing populations and an indication of where their excreta goes
  - A representation of public health ***hazard***
  - An overview from which to develop sanitation priorities

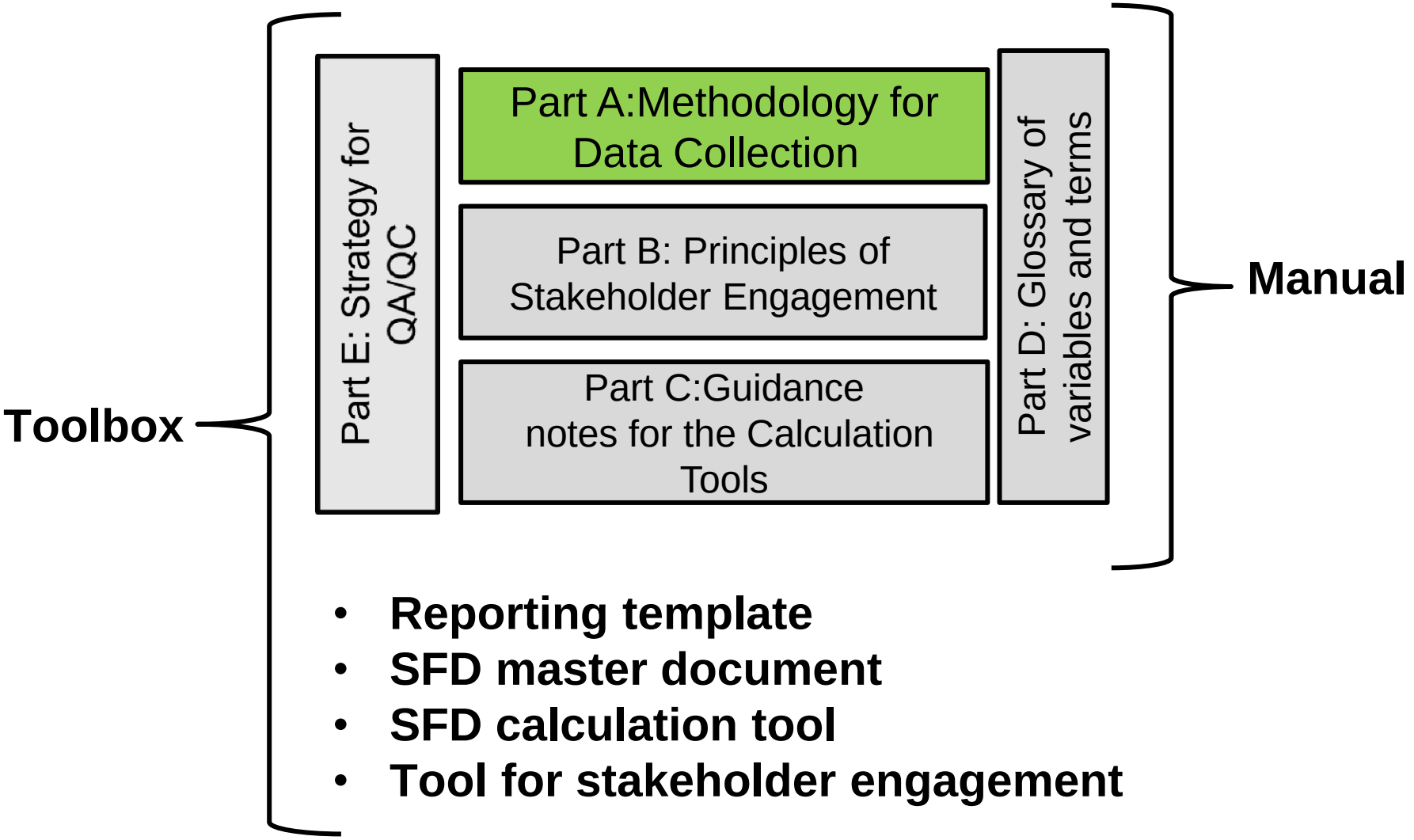
- **It is NOT**
  - Based on volumes/mass – these are determined by other related factors
  - A representation of public health ***risk***
    (risk = hazard x behavior/vulnerability)
  - A precise scientific analytical tool

SFD potential in relation to information quality



The tools and methods




Toolbox
Part E: Strategy for QA/QC
Part A:Methodology for Data Collection
Part B: Principles of Stakeholder Engagement
Part C:Guidance notes for the Calculation Tools
Part D: Glossary of variables and terms
Manual
• Reporting template
• SFD master document
• SFD calculation tool
• Tool for stakeholder engagement

SFD Data to Graphic Converter Tool

Data input

SFD VARIABLES

CITY:		Proportion of each septic tank which is FS (ie not effluent, supernatant or infiltrate) (default is 50%).	50%	NOTES ON SOURCES, STUDY AREA AND/OR POPULATION BOUNDARIES:
COUNTRY:		Proportion of each fully lined tank (sealed) which is FS (not effluent, supernatant or infiltrate) (default is 50%):	50%	
POPULATION (N):	100	Proportion of a) each lined tank with impermeable walls and open bottom; and b) each pit (all types) which is FS (not effluent, supernatant or infiltrate) (default is 50%):	50%	
DATE PREPARED:				
PREPARED BY:				

IMPORTANT NOTE:

If it is necessary to assign or estimate percentages from expert opinion it is recommended that the approach used is one that will minimise the maximum error. For instance, where it is known that the faecal waste flow is along two different pathways, but the percentage split is not known, assuming that the flow is split 50:50 will minimise the maximum error

KEY TO SHADING

- WHITE AND PATTERNED CELLS ARE UNPROTECTED AND CAN BE POPULATED
- LIGHT GREY CELLS ARE PROTECTED, SPREADSHEET CALCULATES VALUES.
- DARK GREY CELLS ARE PROTECTED, AND INDICATE THAT VARIABLE IS NOT RELEVANT.

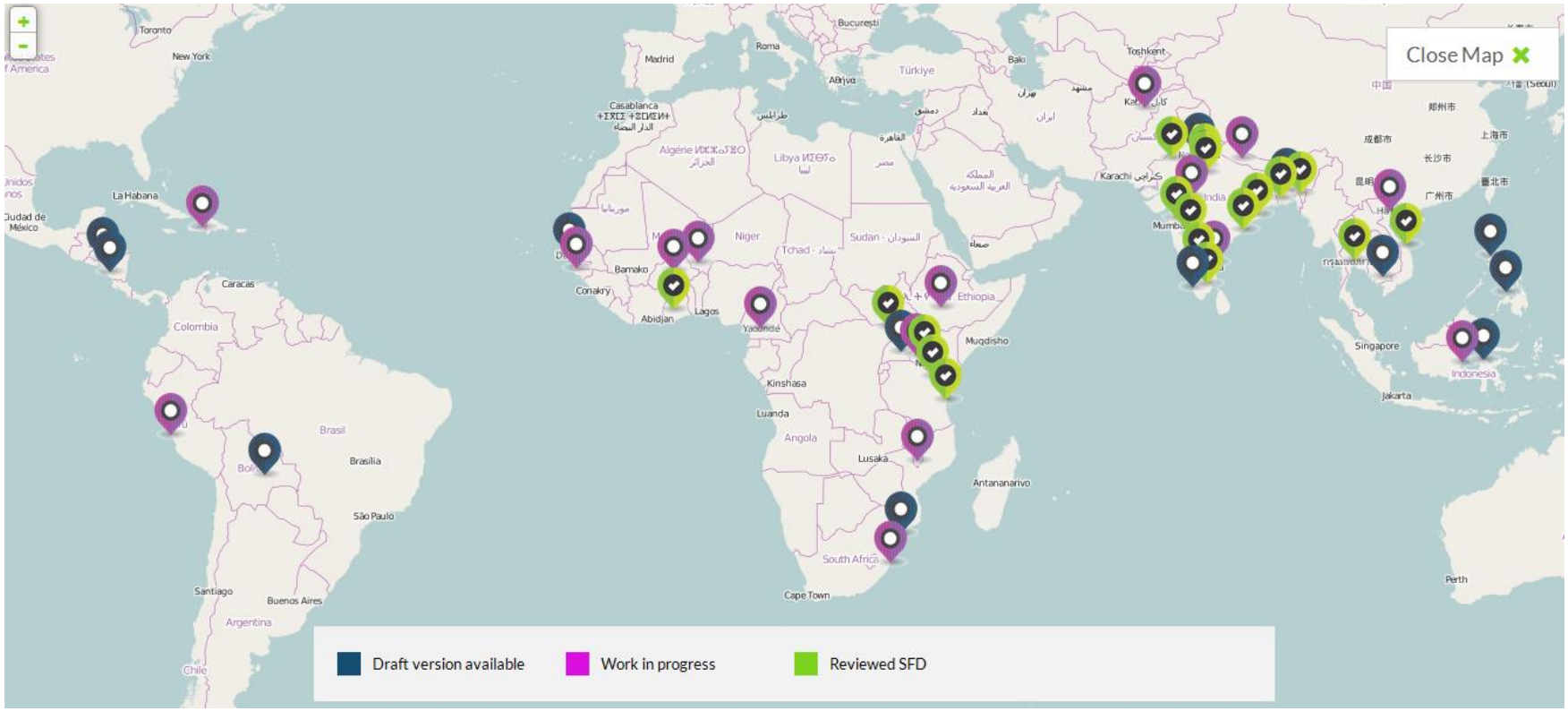
					FAECAL SLUDGE													WASTEWATER CONTAINED CENTRALISED						WASTEWATER CONTAINED DECENTRALISED						WASTEWATER NOT CONTAINED				OD
Tab 1 ref	Description of sanitation containment system	Sanitation containment system schematic reference (see PPT document)	Population using this type of system? (N (cm))	Proportion of population using this system (%)	Population using this system with emptying? (T (cm))	Proportion of population using this system with emptying (%)	Variable F2 FS contained (onsite)	Variable F3a FS contained - emptied	Variable F3b FS contained - not emptied	Variable F2E FS not contained (onsite)	Variable F3Ea FS not contained - emptied	Variable F3Eb FS not contained - not emptied	Variable F1b FS delivered to treatment plants	Variable F1Eb FS not delivered to treatment plants	Variable F1c FS treated	Variable F1Ec FS not treated	Variable W2 WW contained (offsite)	Variable W3a WW delivered to centralised treatment plants		Variable W3Ea WW not delivered to centralised treatment plants	Variable W3a WW treated at centralised treatment plants		Variable W3Ea WW not treated at centralised treatment plants	Variable W3 WW contained decentralised (offsite)	Variable W4b WW delivered to decentralised treatment plants		Variable W4Eb WW not delivered to decentralised treatment plants	Variable W4b WW treated at decentralised treatment plants		Variable W4Eb WW not treated at decentralised treatment plants	Variable W5b WW not contained (offsite)	Variable W5a WW not contained, delivered to centralised treatment plants		Variable W5Ea WW not contained, not delivered to centralised treatment plants	Variable OD% Open defecation
			From survey and census data on, where none available, based on expert opinion	(n) (Nage of N)	From survey and census data and/or from discussion surveys, where none available, based on expert opinion	(n) (Nage of n)	(n-p) (Nage of N)	(n=^p) (Nage of N)	(T2=T3a) (Nage of N)	(np) (Nage of N)	(n=^p) (Nage of N)	(nT2D-T3a) (Nage of N)	(Nage of F1b OR F1b)	(Nage of N)	(F1b OR F1E -F1)	(Nage of F1c)	(Nage of N)	(F1=F1)	(Nage of N)	(Nage of W2)	(Nage of N)	(W2-W3a)	(Nage of N)	(Nage of W3a)	(Nage of N)	(W3a – W3a)	(Nage of N)	(Nage of W4b)	(Nage of N)	(W4b – W4a)	(Nage of N)	(Nage of W5b)	(Nage of N)	(W5b – W5a)	(Nage of N)	(Nage of W5b)	(Nage of N)	(W5b-W5a)	(np) (Nage of N)
T1A1C1	User interface discharges directly to a centralised combined sewer	Reference L1		0%														0%		0%	0%		0%	0%												
T1A1C2	User interface discharges directly to a centralised foul/separate sewer	Reference L1		0%														0%		0%	0%		0%	0%												
T1A1C3	User interface discharges directly to a decentralised combined sewer	Reference L2		0%																					0%		0%	0%		0%	0%					
T1A1C4	User interface discharges directly to a decentralised foul/separate sewer	Reference L2		0%																					0%		0%	0%		0%	0%					
T1A1C5	User interface discharges directly to tank pit	Reference L3		0%			0%		0%																											
T1A1C6	User interface discharges directly to tank pit, where there is a 'significant risk' of groundwater pollution	Reference S1		0%						0%		0%																								
T1A1C8	User interface discharges directly to open drain or storm sewer	Reference L4		0%																	0%	0%														
T1A1C7	User interface discharges directly to water body	Reference L5		0%																																
T1A1C8	User interface discharges directly to open ground	Reference L5		0%																																

Description of terms and variables provided in the accompanying glossary

Quality control and quality assurance

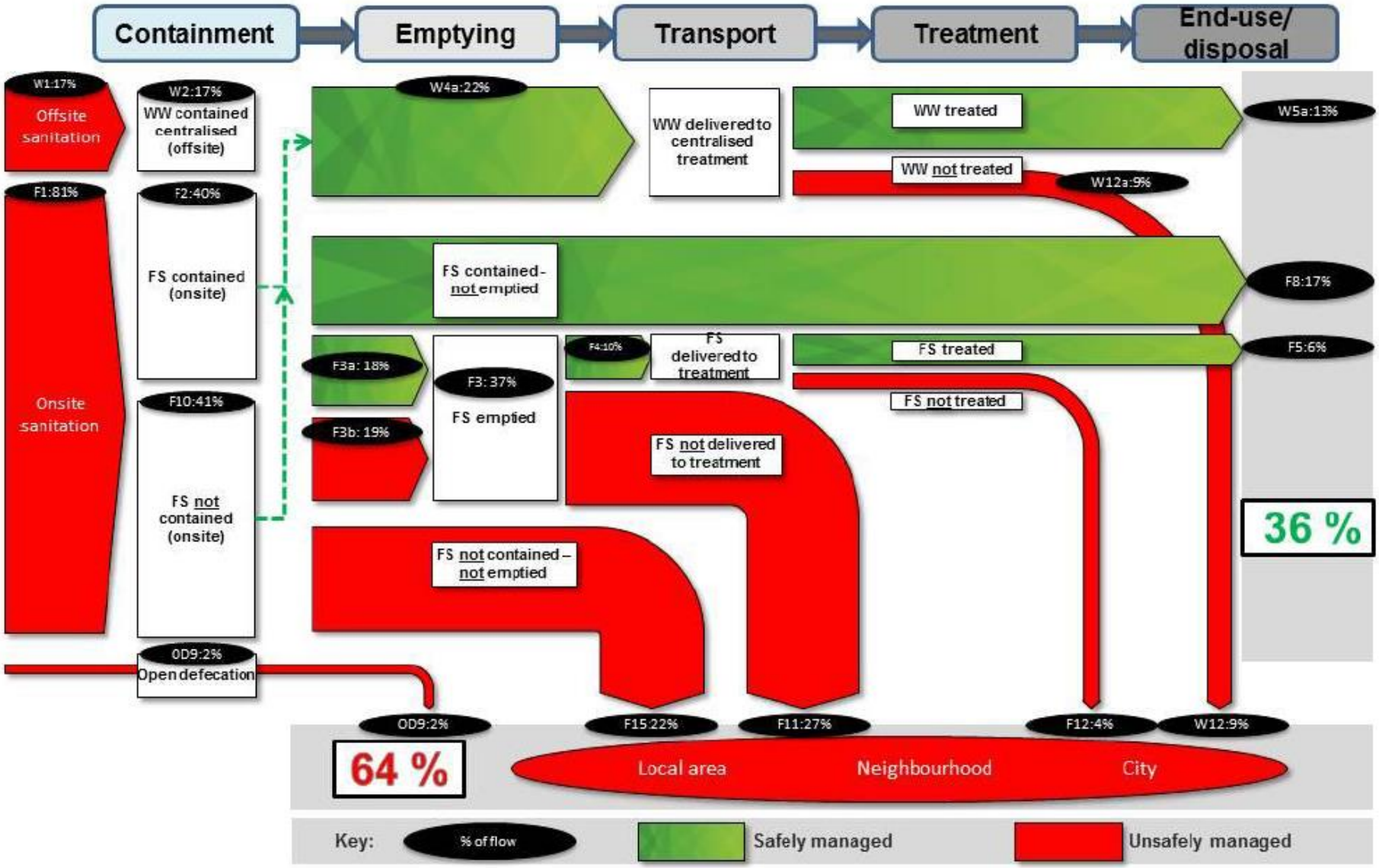
Summarize data by the reference numbers assigned to them in the reporting template						
CONTAINMENT:						
EMPTYING:						
TRANSPORT:						
TREATMENT:						
ENDUSE/DISPOSAL:						
	CONTAINMENT	EMPTYING	TRANSPORT	TREATMENT	ENDUSE/DISPOSAL	
Types of data sources used	○	○	○	○	○	Municipal, utility or private local service provider records
	○	○	○	○	○	Interviews with city authorities and local government departments
	○	○	○	○	○	Documented studies
	○	○	○	○	○	Community representatives (interviews desk- and field-based, FGDs only field-based)
	○	○	○	○	○	Service providers (interviews desk- and field-based, FGDs only field-based)
	○	○	○	○	○	Observation (only field-based)
Further availability of data sources	○	○	○	○	○	This is a one-off exercise no further data expected
	○	○	○	○	○	Limited amount of new data expected, SFD to be revised
	○	○	○	○	○	Substantial amount of new data expected, SFD to be revised
If udated SFD expected, enter date:						
How has current SFD been used (entire service chain)					○	SFD has <u>not</u> been shared with local stakeholders
					○	SFD has been shared with local stakeholders but no follow up action agreed
					○	SFD has been shared and follow up actions have been agreed
					○	SFD has been shared and follow up actions have been agreed and initiated

SFDs Worldwide



Moshi / Tanzania (23. November 2015)
Desk based

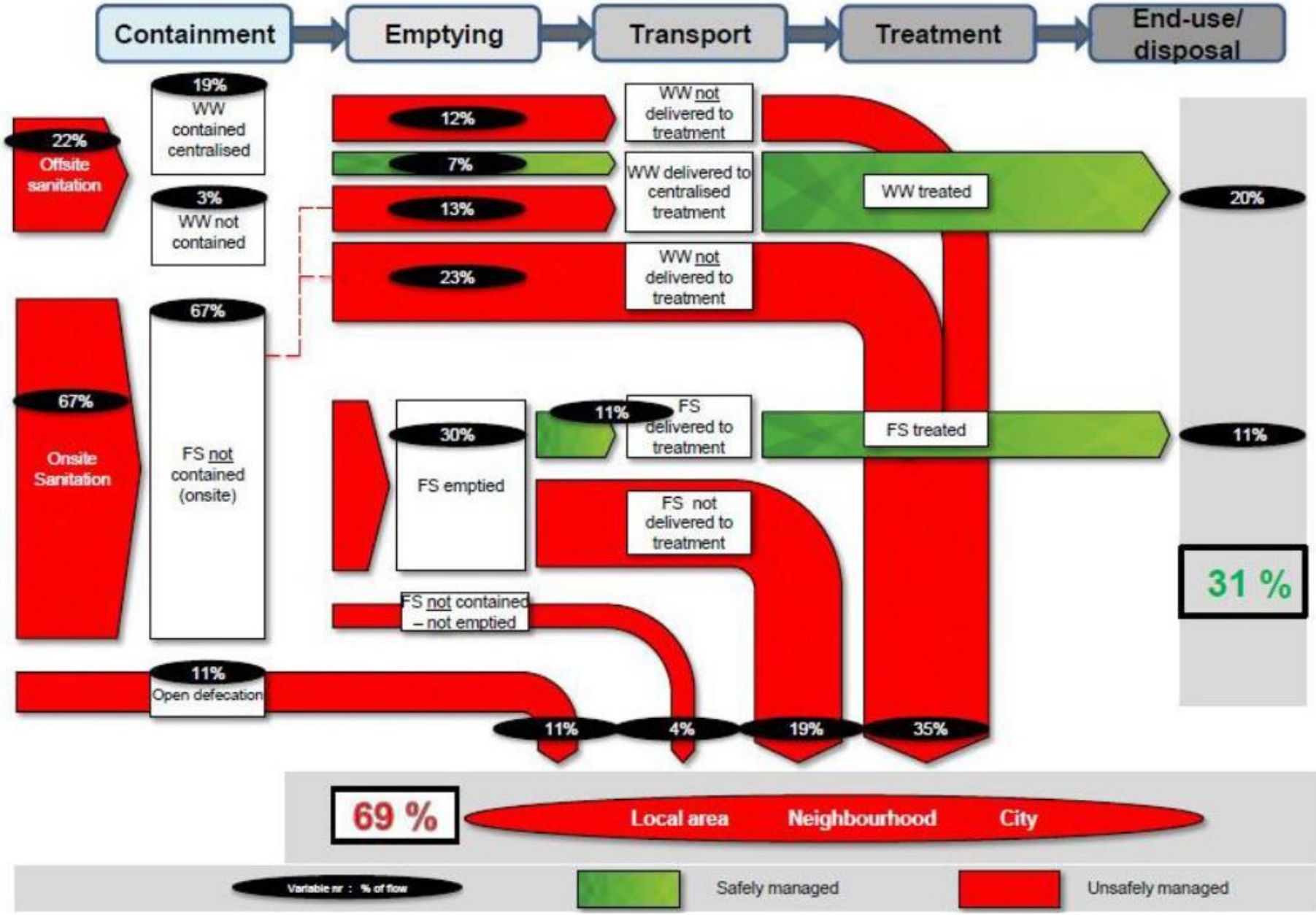
Status: FINAL



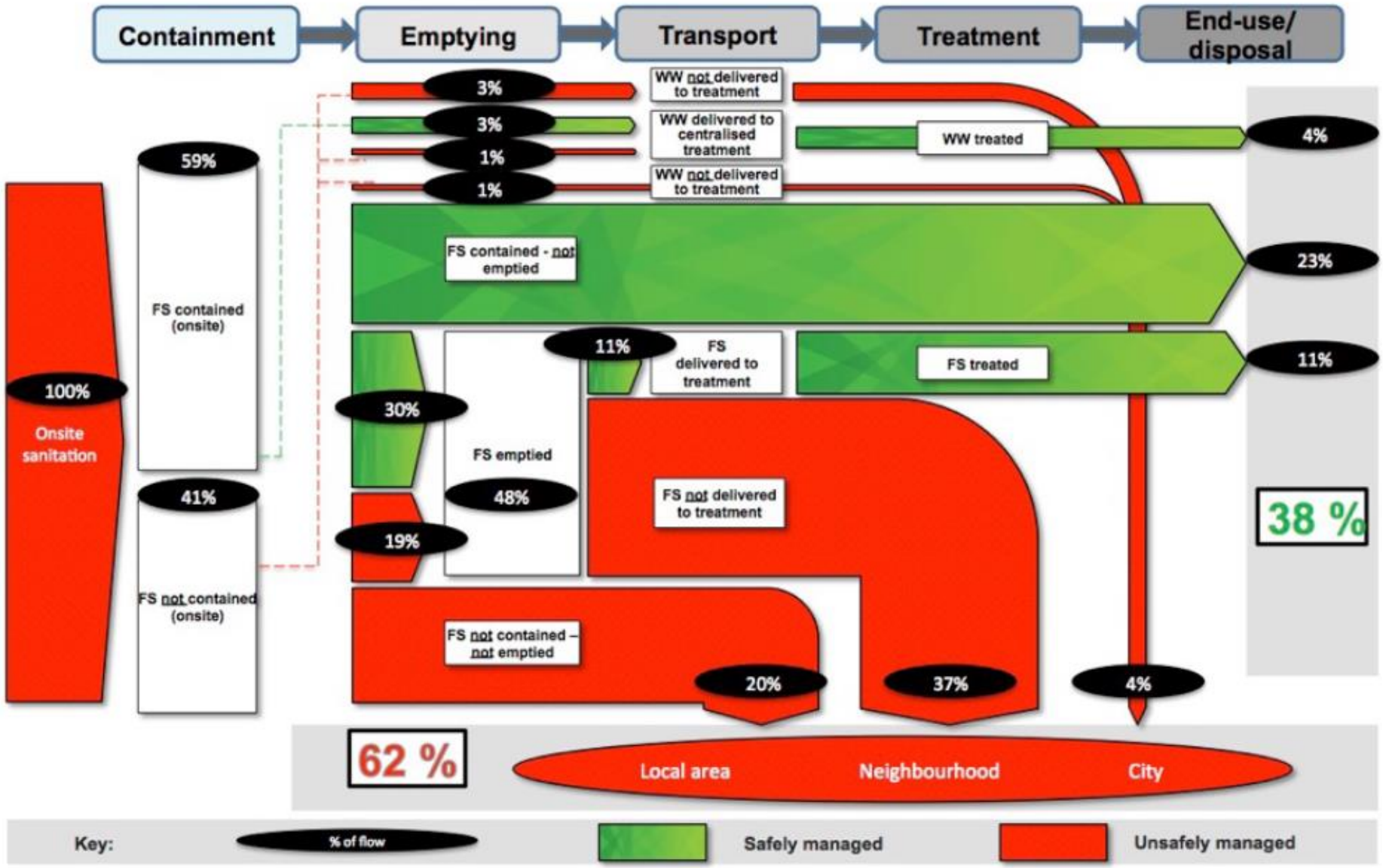
Cuttack- 28 July 2015

Desk based

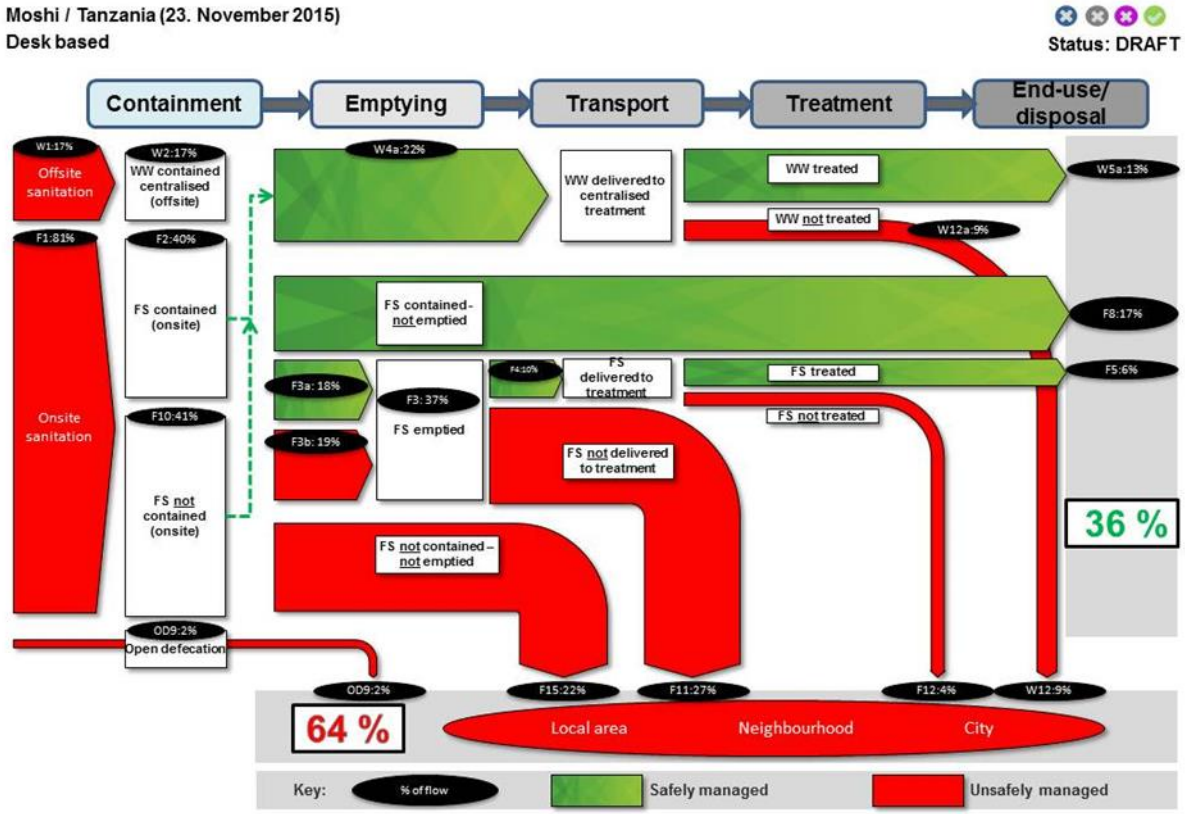
Status: Final



Danang, Vietnam, 13.11.2015
Desk based assessment



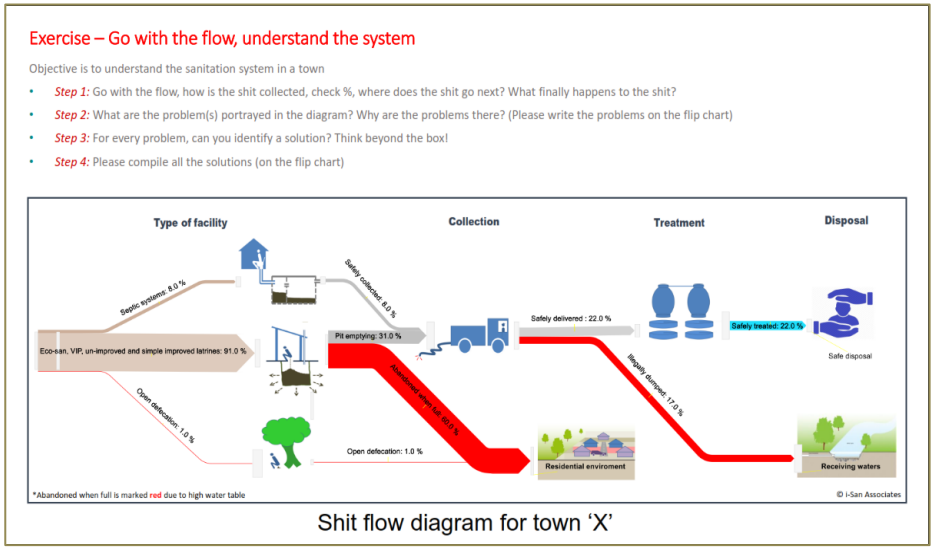
Moshi, Tanzania



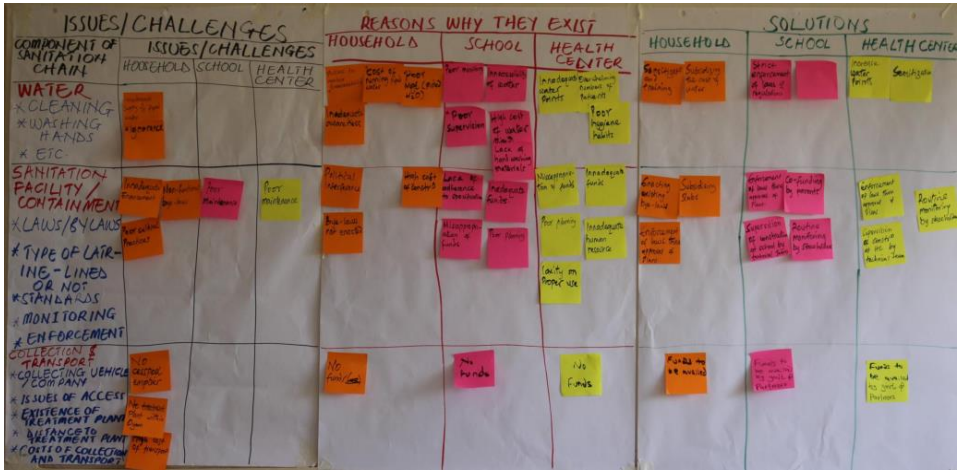
Town planning, GIZ Uganda

Reform of the Urban Water and Sanitation Sector (RUWASS)

- Used in 4 towns as a platform for involvement of a wider group of stakeholders (technical and non-technical)

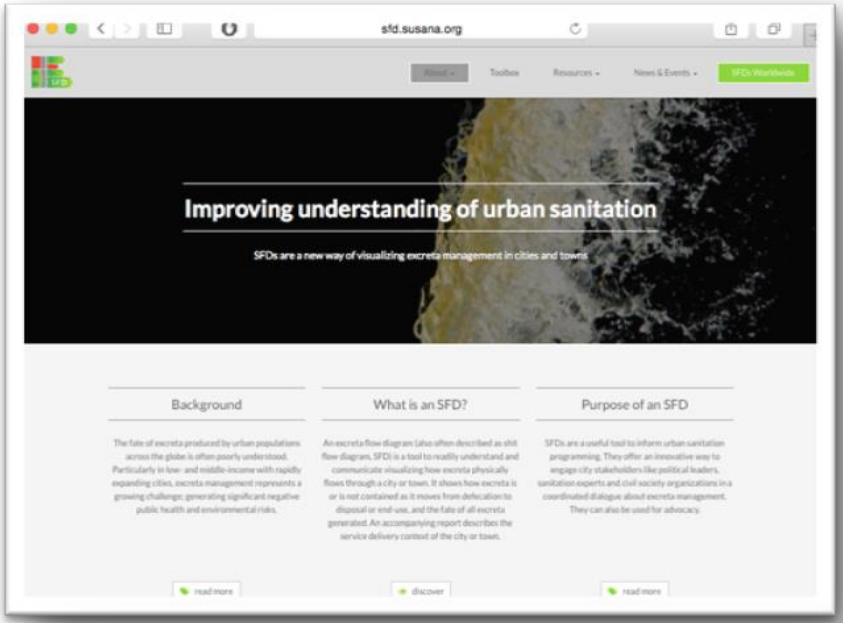


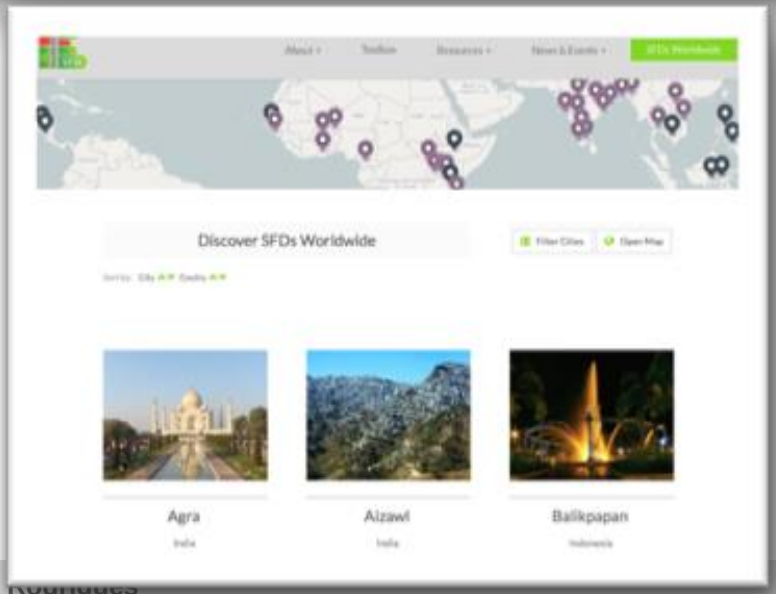
Shit flow diagram for town 'X'



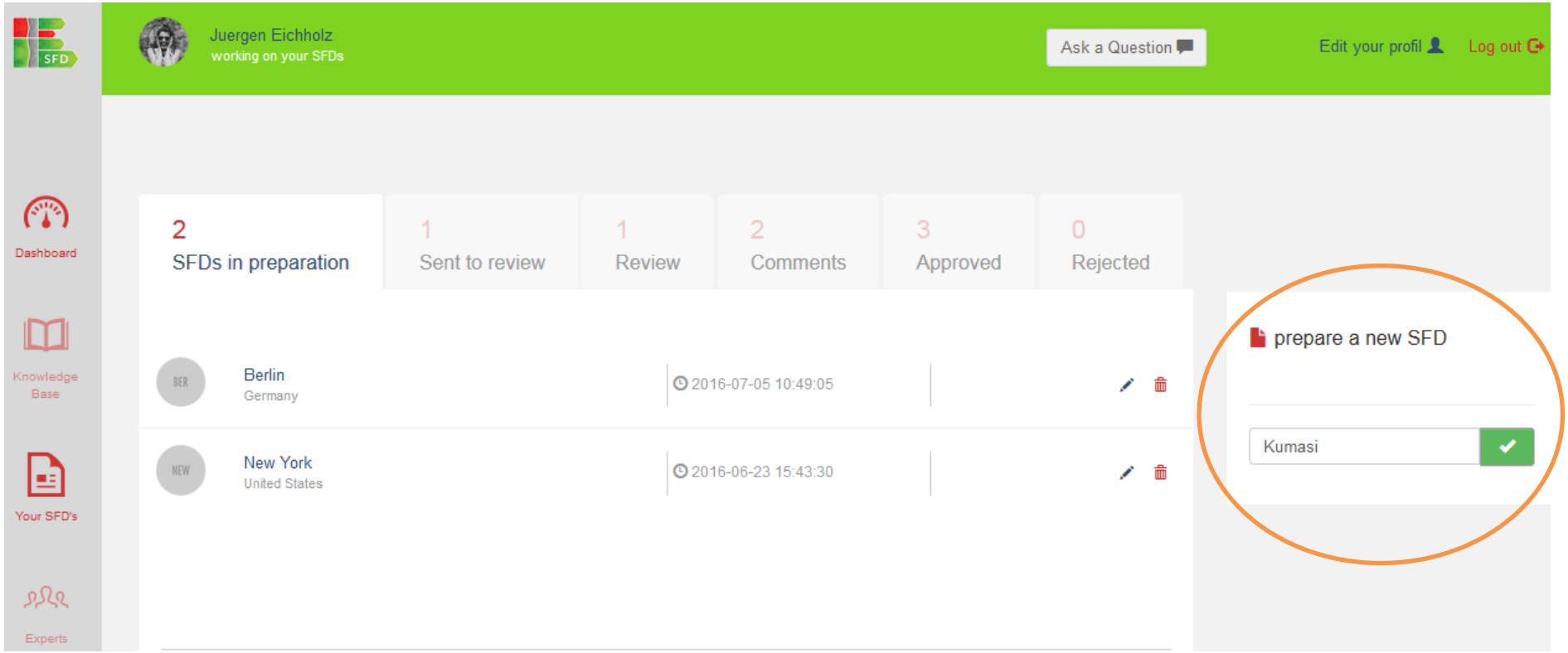
www.sfd.susana.org

SFD Portal



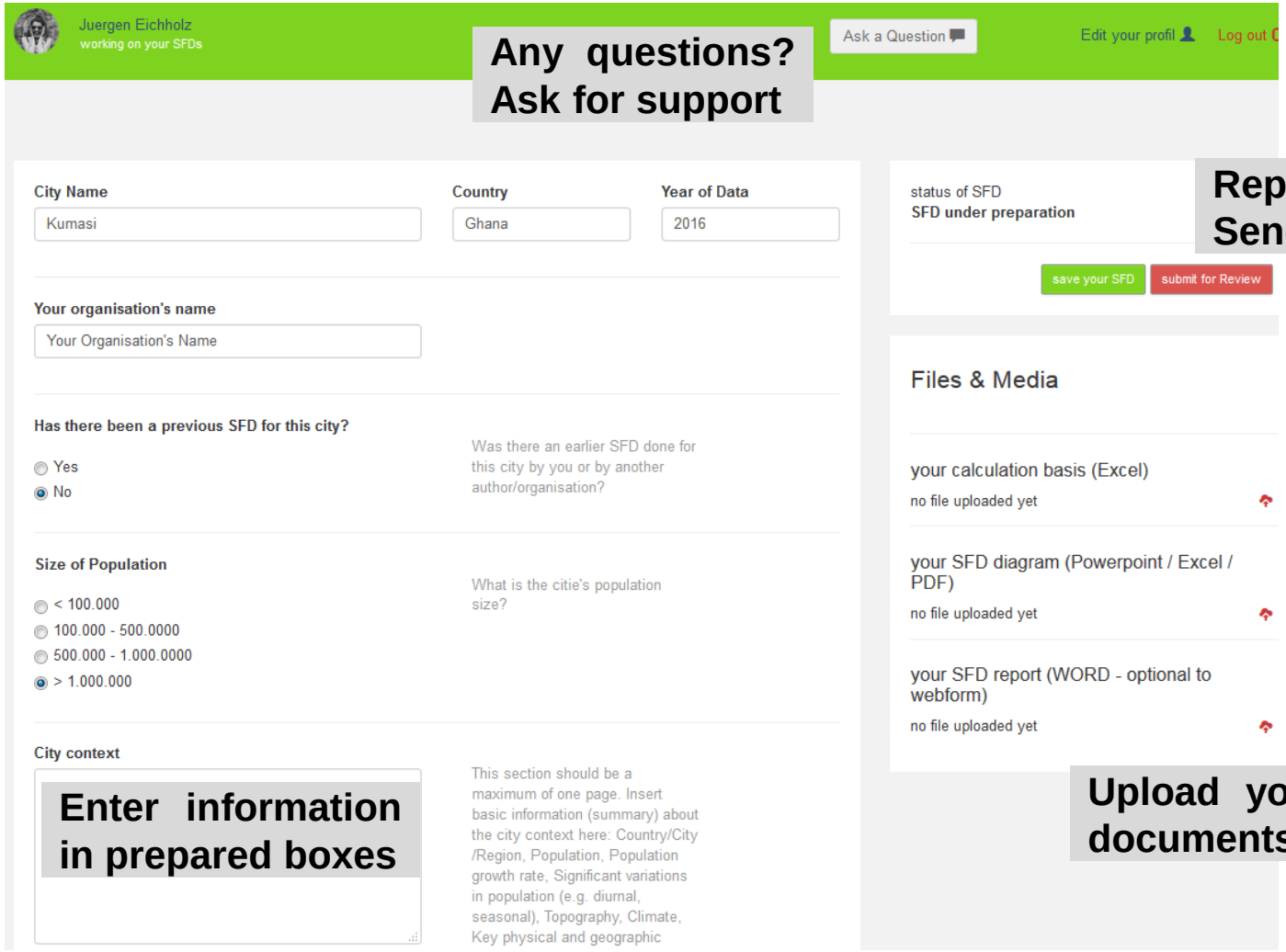


The SFD helpdesk



Support also available via email: sfd-helpdesk@susana.org

The SFD helpdesk



SFD potential in the SDG context

- Creates a common language that facilitates multi-sectoral dialogues and non-expert participation
- Initiates discussions on the local level about priorities and alternatives
- Builds capacity and promotes a better understanding of excreta management and sanitation systems
- Allows for additional uses, i.e. to map business opportunities, reuse potential, CO2 emissions

Way forward

- Refine methodology, tools and templates
- Develop guidance documents and interactive training package
- Provide support to the independent production of SFDs
- Receive and quality control SFDs for posting on website
- Analyzing the results of the SFDs produced in Phase 1

Obrigada!

Cecilia.Rodrigues@giz.de

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sustainable sanitation alliance

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of Federal Ministry for Economic Cooperation and Development

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