

How to prepare an excreta flow diagram (SFD)



SFD Promotion Initiative
39th WEDC Conference
Kumasi, Ghana
July 2016

Outline

- [Learning objectives](#)
- [The SFD Promotion Initiative](#)
- [What is an SFD?](#)
- [Methodology for data collection](#)
- [Terms and variables: a glossary](#)
- [SFD Calculation Tool](#)
- [Templates](#)
- [Quality Assurance / Quality Control](#)
- [Support available](#)

Learning objectives

- Understand the SFD and the history of their development
- Understand the need for a standardised methodology
- Understand the tools developed
- Use the tools developed to go through a worked example
- Start using the tools to develop a SFD for their city

The SFD Promotion Initiative



Partners of the SFD Promotion Initiative

SFD Promotion Initiative



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
- **On-site systems** are often seen as a temporary solution and therefore neglected by city authorities and poorly managed
- **Data on sanitation not collected city-wide** so problems not properly identified and prioritized
- **Failure to manage the whole sanitation service chain**



* 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 Unpublished report, 2013 World Bank - WSP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

Objectives of the SFD PI

- Promote better understanding of excreta management in cities
 - Continue further development of the SFD approach
 - Provide tools and guidance for the SFD approach
 - Discuss SFDs globally at all levels as an advocacy and decision-support tool
-
- SFDs are used by cities worldwide as part of the urban sanitation advocacy and planning process

What is a SFD

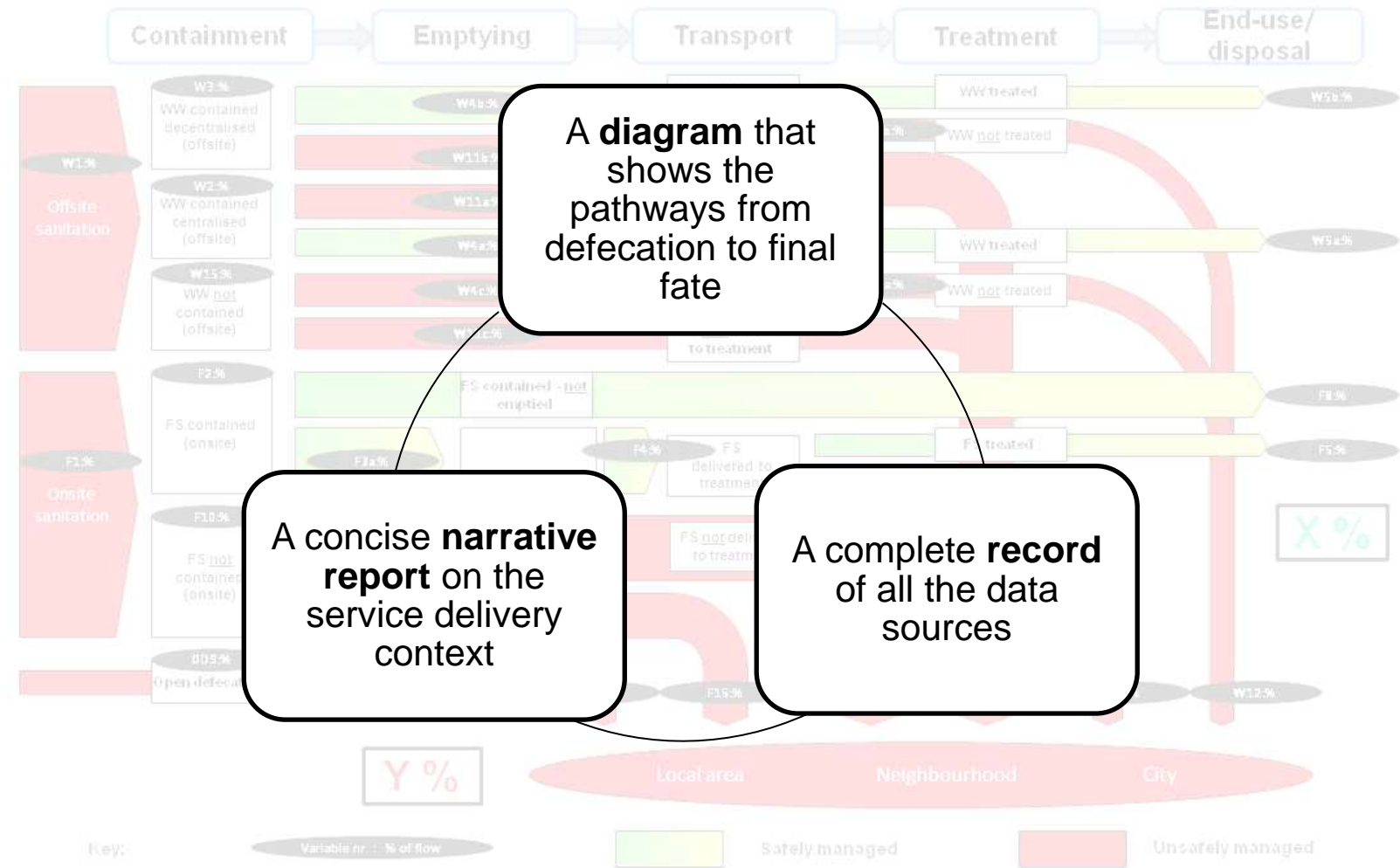


Prit Salian, on behalf of GIZ
SFD Promotion Initiative
39th WEDC Conference
Kumasi, Ghana
July 2016

Overview

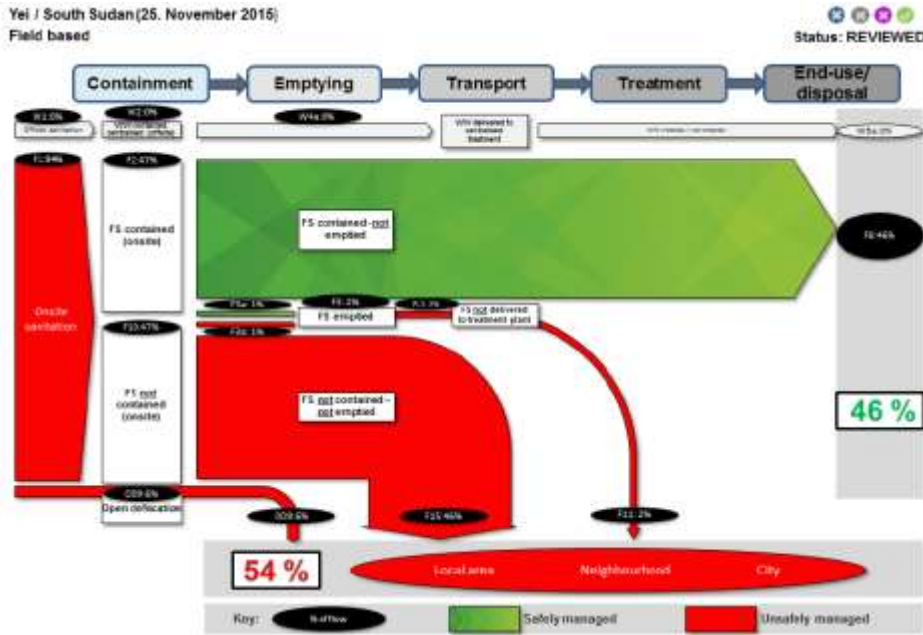
- What is a SFD?
- What is not a SFD?
- Elements of a SFD
- Practical applications of SFDs
- Some SFDs produced so far

What is a SFD?



What is a SFD

Yei / South Sudan (25. November 2015)
Field based



What is a SFD

- An effective communications and advocacy tool to engage city stakeholders like political leaders, sanitation experts and civil society organizations in a coordinated dialogue about excreta management.
- A tool for engineers, planners and decision-makers to inform urban sanitation programming.
- Based on contributing populations, it gives an indication of where their excreta goes
- A representation of public health hazard
- An overview from which to develop sanitation priorities

What is NOT a SFD

- Based on volumes/mass – these are determined by other related factors
- A representation of public health risk (risk = hazard x behaviour)
- A precise scientific analytical tool

Service Delivery Context Assessment



Record of data sources

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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Municipal, utility or private local service provider records
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interviews with city authorities and local government departments
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Documented studies
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Community representatives (interviews desk- and field-based, FGDs only field-based)
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Service providers (interviews desk- and field-based, FGDs only field-based)
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Observation (only field-based)
Further availability of data sources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	This is a one-off exercise no further data expected
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Limited amount of new data expected, SFD to be revised
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Substantial amount of new data expected, SFD to be revised
If updated SFD expected, enter date:						
How has current SFD been used (entire service chain)					<input type="radio"/>	SFD has <u>not</u> been shared with local stakeholders
					<input type="radio"/>	SFD has been shared with local stakeholders but no follow up action agreed
					<input type="radio"/>	SFD has been shared and follow up actions have been agreed
					<input type="radio"/>	SFD has been shared and follow up actions have been agreed and initiated

Kampala, GIZ RUWASS

- Gain common understanding of FSM issues in Kampala amongst stakeholders - Road map
- Identify synergies amongst actors



Moshi, Tanzania

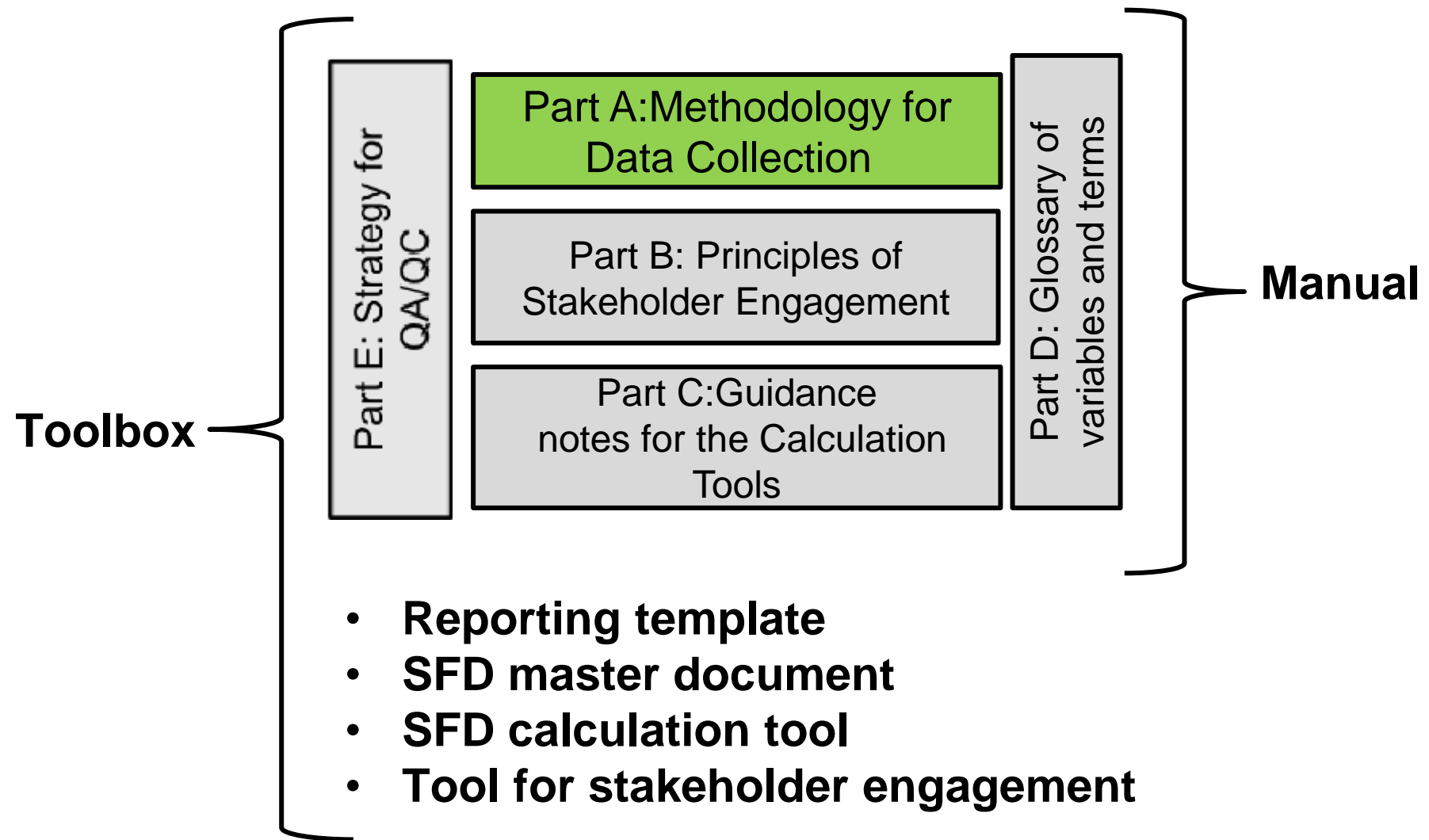


Elsewhere...

- **Zambian National Urban and Peri-Urban Sanitation Strategy (2015-2030), Ministry of Local Government and Housing (MLGH)**
- **Urban Sanitation Implementation Manual, Government of Uganda - Ministry of Water and Environment:**
- **Huge potential in India:**
 - **Used by GIZ Sanitation Program in the trainings for 30 cities**
 - **Widely used by CSE**
- **40 SFDs** being prepared as of now.

Methodology for Data Collection





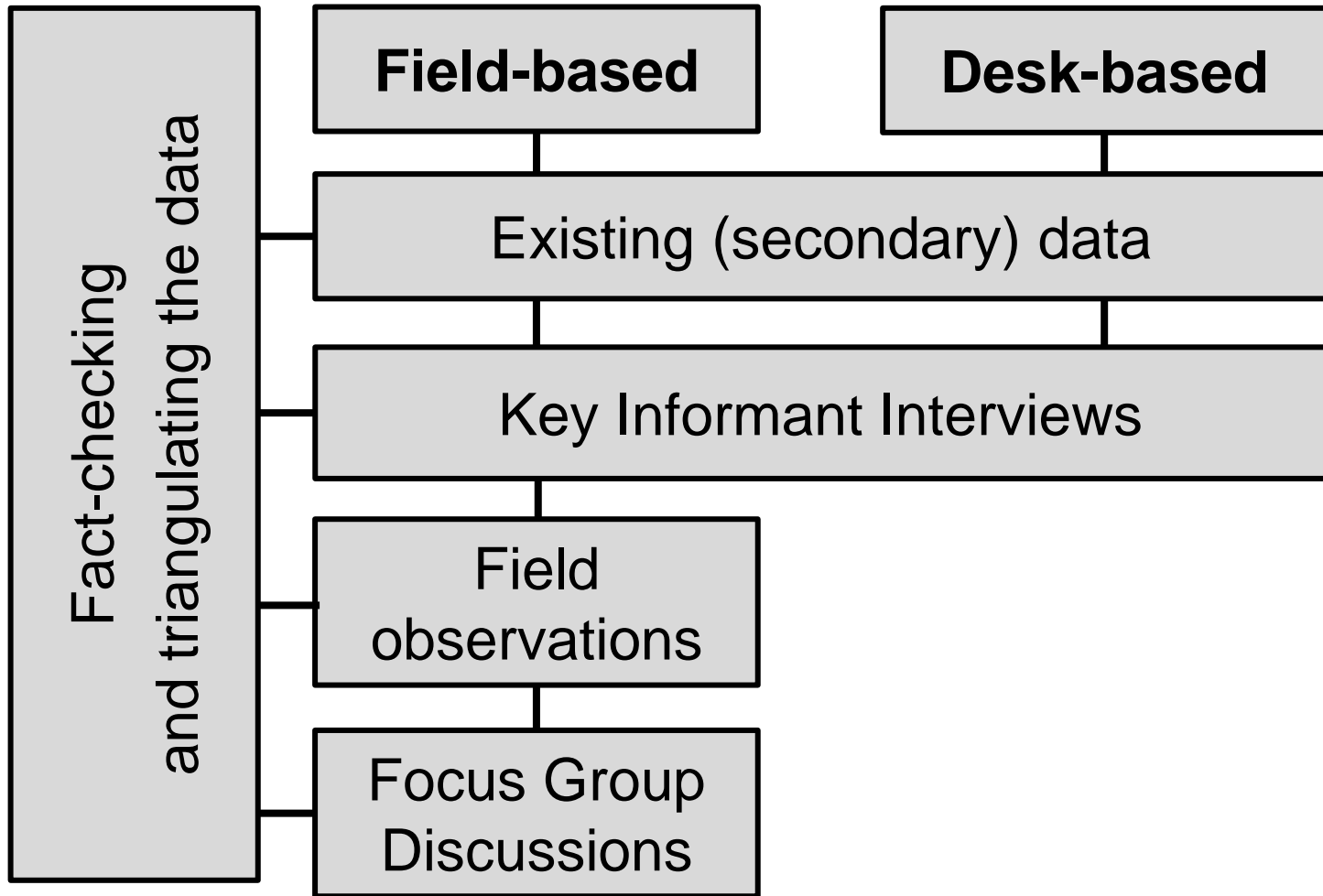




Table of Contents

1	Introduction	3
1.1	Purpose of this document	3
2	Overview of components and data collection methods	4
2.1	Introduction	4
2.1.1	Service delivery context questions	4
2.1.2	Methods for data collection	5
2.1.3	Developing detailed data collection tools	6
2.2	Information to prepare an SFD and supporting service delivery context	6
2.2.1	Desk-based SFD and service delivery context description	6
2.2.2	Field-based SFD and service delivery context analysis	7
2.3	Dealing with uncertainty in the data	8
2.4	Stakeholder engagement	9
2.5	Ethical considerations	9
2.6	Data management considerations	10
3	Protocols for each method of data collection	10
3.1	Literature review of existing secondary data	10
3.1.1	Objective	10
3.1.2	Methodology	11
3.2	Performance data collected in the field	12
3.2.1	Objective	12
3.2.2	Identifying and documenting variations	13
3.2.3	Methodology: details of sanitation service provision	13
3.2.4	Fieldwork model	15
3.3	Observation of service providers	16
3.3.1	Sampling for observations	17
3.4	Key Informant Interviews	18
3.4.1	Objective	18
3.5	Focus Group Discussions	18
3.5.1	Objective	18
3.5.2	Sampling	18
Annex A	SFD and service delivery context: addressing the enabling environment	20
Annex B	SFD and service delivery context: management of excreta through the service chain	22
Annex C	Focus Group Discussion guide	24

Enabling environment to service delivery	Containment	Emptying	Transport	Treatment	End-use/ disposal	Possible sources of information	Desk-based: Context Description	Field-based: Context Analysis
Policy, legislation and regulation	Policy: To what extent is sanitation included in appropriate, acknowledged and available policy documents (National/Local or both)?					Policy documentation	✓	✓
	Institutional roles: To what extent are the institutional roles and responsibilities for sanitation service delivery clearly defined and operationalized?					Policy / strategy documents Existing reports KIs with lead institutions	✓	✓
	Service provision: To what extent does the policy, legislative and regulatory framework enable investment and involvement in sanitation services by appropriate service providers (public or private)?					Policy / strategy documents Existing reports KIs with public and private institutions	✓	✓
	Standards: To what extent are norms and standards for each part of the sanitation service chain systematically monitored and reported?					Existing reports KIs with lead institutions	✓	✓
Planning	Targets: To what extent are there service targets for (each part of) the sanitation service chain in the city development plan, or a national development plan that is being adopted at the city level?					City/national development plans KIs with city authorities	✗	✓
	Investment: How much was invested in sanitation services in the last investment plan and how much has been incorporated into the next approved investment plan? What has been achieved as a result of the last level of investment (including investing in human resources, Technical Assistance, etc. as well as infrastructure)?					City investment plans Investment plans of donors, private sector, etc. KIs with lead institutions	✗	✓
Equity	Choice: To what extent is there a range of affordable, appropriate, safe and adaptable technologies for sanitation services available to meet the needs of the urban poor?					KIs with lead institutions Observations	✗	✓

Enabling environment to service delivery	Containment	Emptying	Transport	Treatment	End-use/ disposal	Possible sources of information	Desk-based: Context Description	Field-based: Context Analysis
	Reducing inequity: To what extent are there plans and measures to ensure sanitation serves all users, and specifically the urban poor?					City authority reports KIIs with lead institutions	×	✓
Outputs	Quantity / capacity: To what extent is the capacity of each part of the sanitation value chain growing at the pace required to ensure access to sanitation meets the needs/demands and targets that protects public and environmental health?					Studies / reports KIIs with lead institutions	×	✓
	Quality: To what extent are the procedures and processes for monitoring and reporting access to sanitation services applied, to ensure safe and functioning facilities and services through the service chain?					City authority reports KIIs with lead institutions FGDs	×	✓
Expansion	Demand: To what extent has government (national or local) developed any policies and procedures, or planned and undertaken programs to stimulate demand of sanitation services and behaviours by households?					KIIs with lead institutions	×	✓
	Sector development: To what extent does the government have 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?					KIIs with lead institutions	×	✓
Service outcomes	Quantity: To what extent is the percentage of total excreta generated by the city (from onsite and offsite sanitation technologies) managed within each part of the service chain? <i>(This information generates the SFD. Refer to Annex B and accompanying documents for details)</i>					Policy documentation Reports KIIs with lead institutions Observation	✓	✓
		Equity: To what extent do the city's sanitation technologies serve low-income communities? (Emptying and Transport services only)				Reports KIIs with lead institutions FGDs Observation	×	✓

	System type	Containment	Emptying	Transport	Treatment	End-use/disposal	Possible sources of information
System technologies and methods used in the city	Wastewater direct to sewer (centralised)	What technologies are used to connect the population to centralised sewers?	-	What methods are used to transport the wastewater?	What methods are used to treat the wastewater?	What methods are used for end-use/disposal of the wastewater?	Municipal, utility or private local service provider records
	Wastewater direct to sewer (decentralised)	What technologies are used to connect the population to decentralised sewers?	-	What methods are used to transport the wastewater?	What methods are used to treat the wastewater?	What methods are used for end-use/disposal of the wastewater?	Interviews with city authorities and local government departments
	Contained onsite	What technologies are used that contain excreta onsite?	What methods are used to empty the faecal sludge from these technologies?	What methods are used to transport the faecal sludge emptied from these technologies?	What methods are used to treat the faecal sludge?	What methods are used for end-use/disposal of the faecal sludge?	FGDs (community representatives and/or service providers)
	Not contained onsite	What technologies are used where excreta is not contained onsite?	What methods are used to empty the faecal sludge from these technologies?	What methods are used to transport the faecal sludge emptied from these onsite technologies?	What methods are used to treat the faecal sludge?	What methods are used for end-use/disposal of the faecal sludge?	Observation Documented studies

	System type	Containment	Emptying	Transport	Treatment	End-use/disposal	Possible sources of information
Percentage of the population using each system technology and method	Wastewater direct to sewer (centralised)	What percentage of the population are using technologies that connect directly to centralised sewers?	What percentage of this population are actually connected to and served by centralised sewers?	What percentage of the population served by centralised sewers has their wastewater reaching treatment facilities?	What percentage of the population served by centralised sewers has their wastewater treated?	What percentage of the population served by centralised sewers has their wastewater disposed with/out treatment? What percentage of the transported wastewater has a further end-use?	Municipal or utility records Observation
	Wastewater direct to sewer (decentralised)	What percentage of the population are using technologies that connect directly to decentralised sewers?	What percentage of this population are actually connected to and served by decentralised sewers?	What percentage of the population served by decentralised sewers has their wastewater reaching treatment facilities?	What percentage of the population served by decentralised sewers has their wastewater treated?	What percentage of the population served by decentralised sewers has their wastewater disposed with/out treatment? What percentage of the transported wastewater has a further end-use?	Documented studies
	Contained onsite	What percentage of the population are using onsite sanitation technologies that contain excreta on site?	What percentage of this population have their onsite sanitation technology emptied?	What percentage of the emptied faecal sludge is transported to a treatment plant?	What percentage of the transported faecal sludge is treated?	What percentage of the transported faecal sludge is disposed with/out treatment? What percentage of the transported faecal sludge has a further end-use?	Interviews with service providers FGDs (community representatives and/or service providers)
	Not contained onsite	What percentage of the population are using onsite sanitation technologies that do not contain excreta on site?	What percentage of this population have their onsite sanitation technology emptied?	What percentage of the emptied faecal sludge is transported away?	What percentage of the transported faecal sludge is treated?	What percentage of the transported faecal sludge is disposed with/out treatment? What percentage of the transported faecal sludge has a further end-use?	Municipal records Observation
	Open defecation	What percentage of the population is practising open defecation?	-	-	-	-	-

Terms and Variables: A Glossary

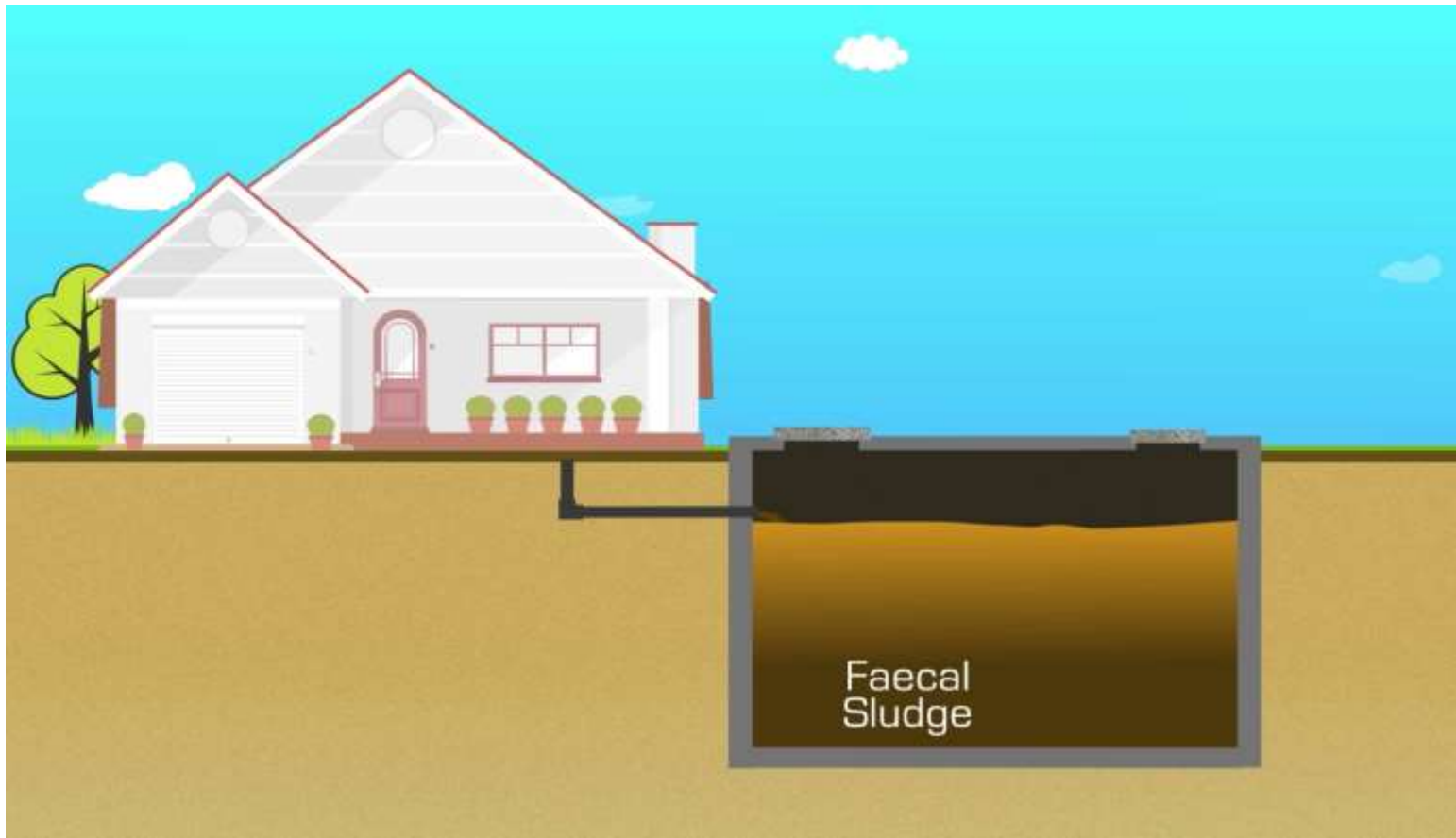


Bhitush Luthra, CSE, India
SFD Promotion Initiative
39th WEDC Conference
Kumasi, Ghana
July 2016

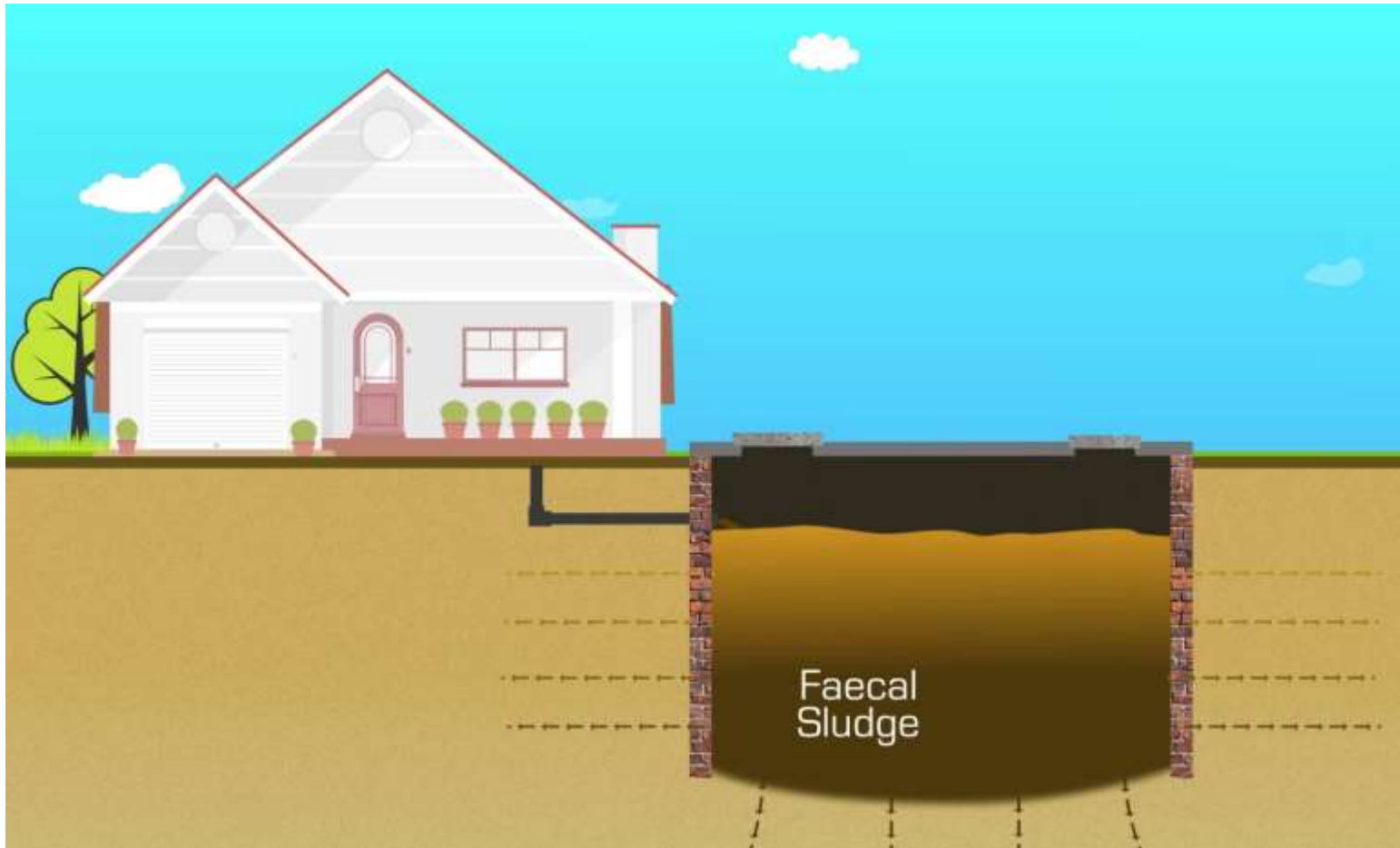
Identify the structure



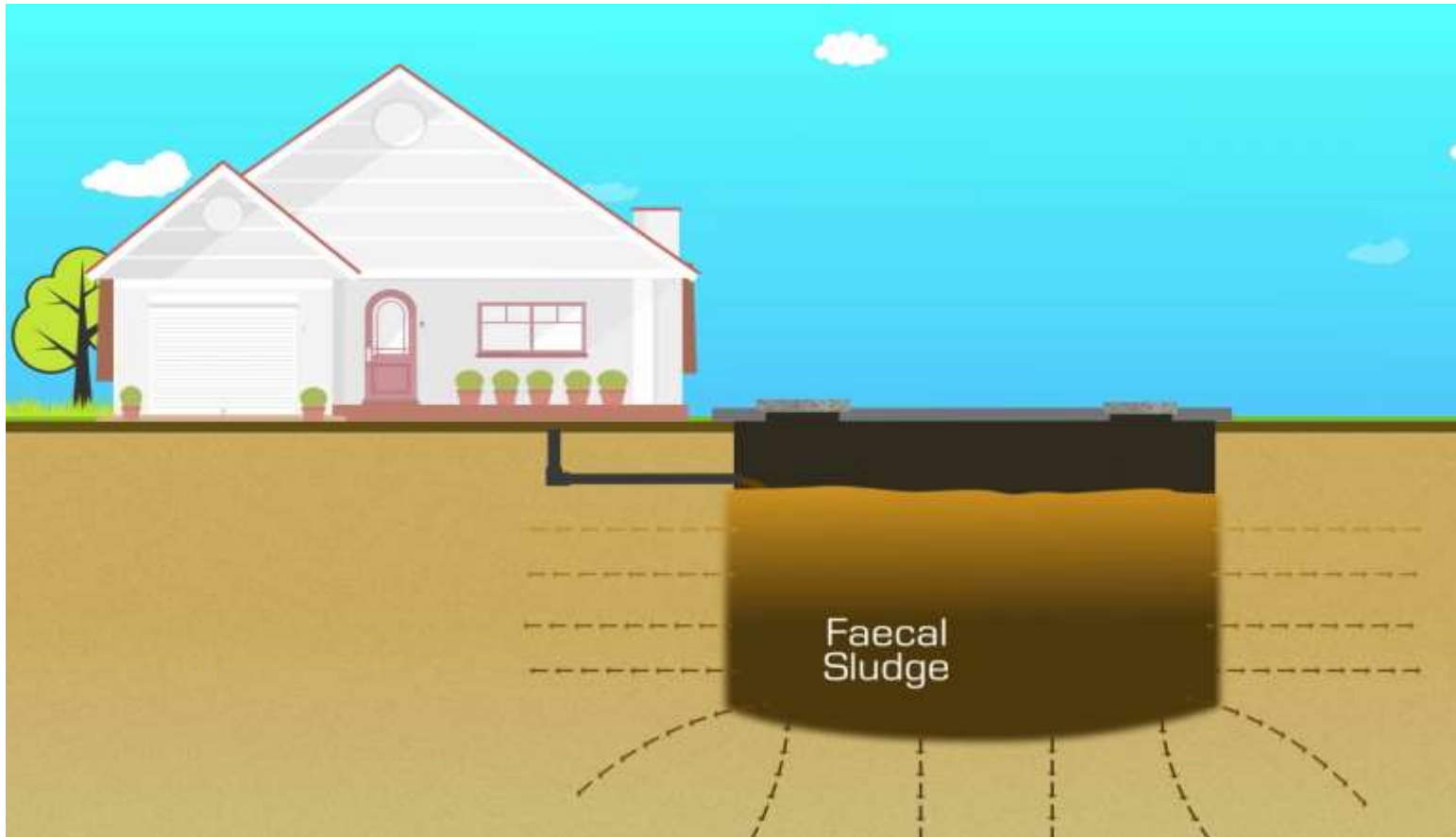
Identify the structure



Identify the structure



Identify the structure



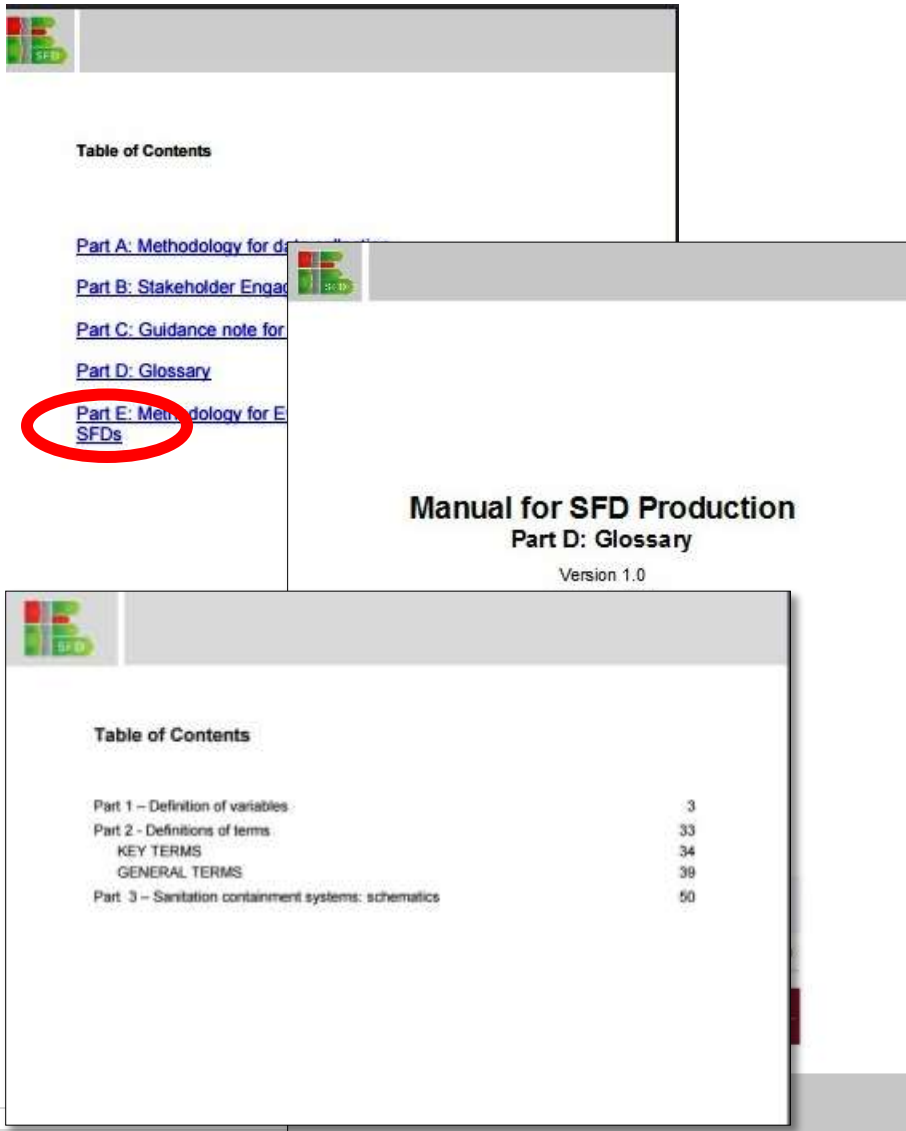
Terms and Variables

Purpose

- It helps the user to understand the variables and terms used in the manual (calculation tool, master SFD, methodology etc.) in much better way.
- The purpose of Glossary is to bring everyone around the globe on same page, because septic tank as it is comprehended in India might not be same for Africa.

General Instructions

- Please go through the glossary of terms and variables before entering data to calculation tool
- It is divided into three parts
 - Part 1 : Definition of Variables
 - Part 2 : Definition of Terms
 - Part 3 : Sanitation containment systems: schematics



The image shows a screenshot of the 'Table of Contents' page from the 'Manual for SFD Production Part D: Glossary Version 1.0'. The page lists five parts, with 'Part E: Methodology for E SFDs' circled in red. Below this, a larger screenshot shows the 'Table of Contents' page for the 'Manual for SFD Production Part D: Glossary Version 1.0', which lists three parts: Part 1 (Definition of variables), Part 2 (Definitions of terms), and Part 3 (Sanitation containment systems: schematics).

Table of Contents

[Part A: Methodology for d](#)

[Part B: Stakeholder Engag](#)

[Part C: Guidance note for](#)

[Part D: Glossary](#)

[Part E: Methodology for E SFDs](#)

Manual for SFD Production
Part D: Glossary
Version 1.0

Table of Contents

Part 1 – Definition of variables	3
Part 2 - Definitions of terms	33
KEY TERMS	34
GENERAL TERMS	39
Part 3 – Sanitation containment systems: schematics	50

Part 1 - Definition of variables

Variable No: W2- Wastewater contained centralised (offsite)

Ref <i>(refer to SFD calc tool, Tab2, col A)</i>	Description <i>(Refer to SFD calc tool, Tab2, col B)</i>	Definition	Sanitation containment system reference <i>(Refer to PPT document and SFD calc tool, Tab 2, col C)</i>
T1A1C1	User interface discharges directly to a centralised combined sewer	This is a fully functioning user interface discharging directly to a correctly designed, properly constructed, fully functioning centralised combined sewer. The excreta is raw, untreated and hazardous, but since it is captured in the sewer, all the excreta in this system will contribute to variable W2.	L1
T1A1C2	User interface discharges directly to a centralised foul/separate sewer	This is a fully functioning user interface discharging directly to a correctly designed, properly constructed, fully functioning centralised foul/separate sewer. The excreta is raw, untreated and hazardous, but since it is captured in the sewer, all the excreta in this system will contribute to variable W2.	L1

Part 2 - Definitions of terms

GENERAL TERMS

Term	Definition	Comments and Regional Examples	References
Abandoned Pit Latrine	A pit which is never emptied but instead, once full, the content is covered over with soil and the pit abandoned.	e.g. Arbor loo	
Applied to Land	<p>Wastewater: May be applied to agriculture, home gardening, forestry, sod and turf growing, landscaping, parks, and golf courses.</p> <p>Faecal Sludge: May be applied to agriculture, home gardening, forestry, sod and turf growing, landscaping, parks, golf courses, mine reclamation, as a dump cover, or for erosion control.</p>		Tilley et al, 2014 "Compendium of Sanitation Systems" 2nd Edition, p148
Blackwater	Blackwater is the mixture of urine, faeces and Flushwater along with anal cleansing water (if water is used for cleansing) and/or dry cleansing materials		Tilley et al, 2014 "Compendium of Sanitation Systems" 2nd Edition, p10
Centralised Sewer System	A system used to collect, treat, Discharge, and/or reclaim Wastewater from large user groups (i.e. neighbourhood to city level applications).	In some locations, Sewer systems do not Discharge to a centralised Treatment Plant but instead Discharge unTreated Wastewater direct to a Water Body.	Tilley et al, 2014 "Compendium of Sanitation Systems" 2nd Edition, p98
Combined Sewer	Sewer network where Blackwater and Stormwater runoff are carried by the same Sewers.		David Blockley, 2005 "The New Penguin Dictionary of Civil Engineering"

Part 3 – Sanitation containment systems: schematics

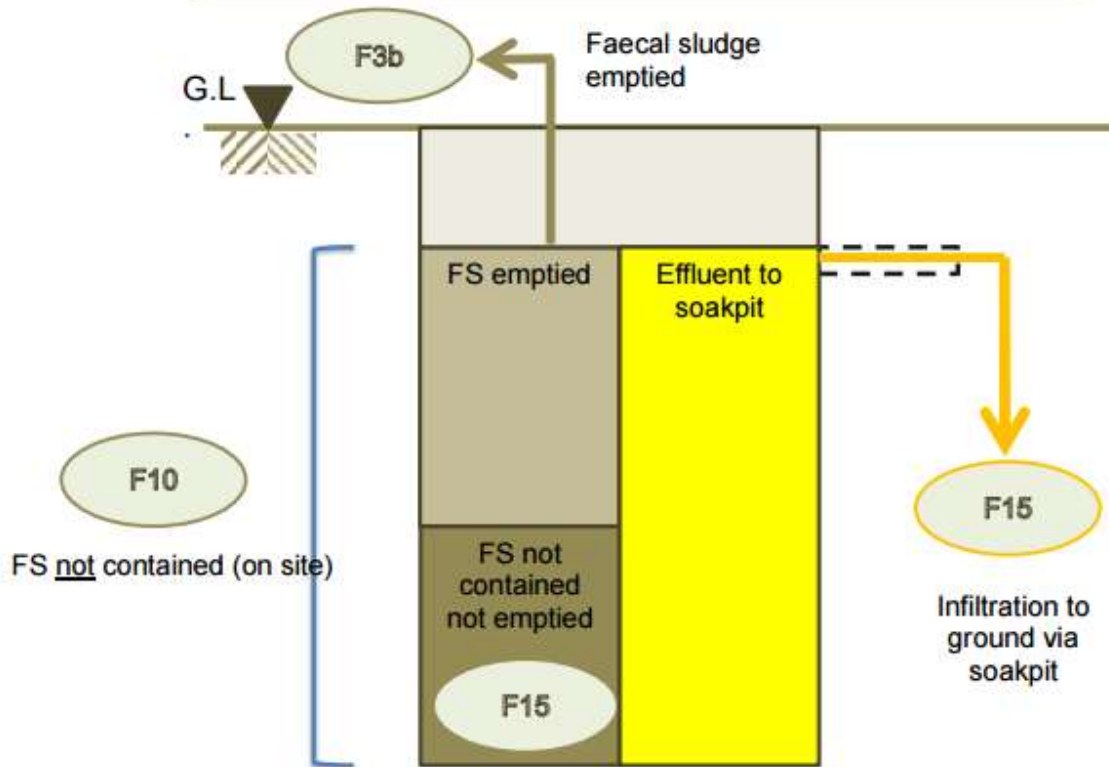
Notes:

- This document should be read in conjunction with the following:
- Master SFD Diagram (PPT)
- Guidance note for calculation tool (Word)
- Calculation tool (Excel)
- Glossary
 1. Definition of variables document (Word)
 2. Definition of terms document (Word)
 3. These schematic drawings show all of the possible sanitation containment systems defined on Tables 1 and 2 (see over).
- For ease of reference, and to indicate which systems populate the same variables, the systems have been grouped together and numbered L1 to L20 and S1 to S5.
- System references L1 to L20 are for use when pollution of groundwater is a Low Risk.
- System references S1 to S5 are for use when pollution of groundwater is a Significant Risk.

S2

Groundwater Pollution: Significant Risk
 General description: Tanks connected to soakpit

Apply to systems:
 2A2C5
 2A3C5
 2A4C5



Assumptions
 (where there is no other data):
 50% of tank content is effluent (F15)
 50% of remaining is FS not contained emptied (F3b); and 50% is FS not contained not emptied (F15)

SFD Calculation Tool



Oscar Veses, University of Leeds
SFD Promotion Initiative
39th WEDC Conference
Kumasi, Ghana
July 2016

SFD calculation Tool

- Excel file with macros
- 3 tabs:
 - Groundwater Contamination
 - Sanitation Systems
 - SFD variables
- Final tab → Unique matrix with info on sanitation systems in a city
- Final purpose:
 - Calculate % of excreta for all variables in the SFD
- Definition of variables → Glossary (.docx)

Download the Graphic Converter here:

<http://www.susana.org/en/resources/library/details/2357>

SFD calculation Tool

- General Instructions:
 1. Enable “macros” on Excel
 2. Review of groundwater risk
 3. Enter info on sanitation containment systems
 4. Creation of the matrix of the city
 5. Enter general city data and performance of sanitation systems (white cells)
 6. Create the SFD

SFD calculation Tool

- Groundwater contamination tab



Please answer all the questions below:

Questions	Answers	Question 1 Outcome	Question 2 Outcome	Groundwater Pollution Risk Level
I) Vulnerability of the Aquifer A) What is the rock type in the unsaturated zone? <small>(see Supplementary information Table 1)</small>	Fine sand, silt and clay	Low Risk		
B) What is the depth to the groundwater table? <small>(see Supplementary information Figure 1)</small>	< 10m			
II) Sewerage sanitation A) What is the percentage of sanitation facilities that are located <10m from groundwater sources? <small>(see Supplementary information Figure 1)</small>	Less than 25%		Significant Risk	Low Risk
B) What is the percentage of sanitation facilities, if any, that are located up-drift of groundwater sources?	Greater than 25%			
III) Water supply Percentage of drinking water produced from groundwater sources	0% (zero percent)			
IV) Water production Water production technology <small>(see Supplementary information Table 2)</small>	No groundwater sources used			

Percentage of drinking water produced from groundwater sources	Water production technology	Answer to 1 AND 2 is Low Risk	Answer to 1 is Significant Risk and Answer to 2 is Low Risk	Answer to 1 is Low Risk and Answer to 2 is Significant Risk	Answer to 1 AND 2 is Significant Risk
Greater than 25%	Protected boreholes, protected dug wells or protected spring where adequate sanitary measures are in place	Low Risk	Low Risk	Significant Risk	Significant Risk
Greater than 25%	Unprotected boreholes, dug wells or springs	Low Risk	Significant Risk	Significant Risk	Significant Risk
Between 1% and 25%	Protected boreholes, protected dug wells or protected spring where adequate sanitary measures are in place	Low Risk	Low Risk	Low Risk	Low Risk
Between 1% and 25%	Unprotected boreholes, dug wells or springs	Low Risk	Low Risk	Low Risk	Low Risk
0% (zero percent)	No groundwater sources used	Low Risk	Low Risk	Low Risk	Low Risk



SFD calculation Tool

- Groundwater contamination tab

Please answer all the questions below:

Groundwater

Groundwater pollution risk level

Q1) Vulnerability of the Aquifer

A) - What is the rock type in the unsaturated zone?

fine sand, silt and clay
 weathered basement
 medium sand
 coarse sand and gravels
 sandstones/ limestones fractured rock

B) - What is the depth of the groundwater table?

< 5m
 5-10m
 > 10m

Q2) Lateral separation

A) - What is the percentage of sanitation facilities that are located <10m from groundwater sources?

Greater than 25%
 Less than 25%

B) - What is the percentage of sanitation facilities, if any, that are located uphill of groundwater sources?

Greater than 25%
 Less than 25%

Q3) Water supply
 Percentage of drinking water produced from groundwater sources

Greater than 25%
 Between 1% and 25%
 0% (zero percent)

Q4) Water production
Water production technology

Protected boreholes, protected dug wells or protected spring where adequate sanitary measures are in place
 Unprotected boreholes, dug wells or springs
 No groundwater sources used

Answer ALL questions and part questions by selecting from the options listed within each box.
When all selections are made, click the "Show Excel Sheet" button
Show Excel Sheet

- 4 Questions
- 2 outcomes:
 - Low risk
 - High risk

SFD calculation Tool

Groundwater contamination tab

Please answer all the questions below:

Please answer all the questions below:

Questions	Answers
1) Vulnerability of the Aquifer	
A) What is the rock type in the saturated zone? (See Supplementary information Table 1)	fine sand, silt and clay
B) What is the depth to the groundwater table? (See Supplementary information Figure 1)	>10m
2) Lateral separation	
A) What is the percentage of sanitation facilities that are located <10m from groundwater sources? (See Supplementary information Figure 1)	Less than 25%
B) What is the percentage of sanitation facilities, if any, that are located updrift of groundwater sources?	Greater than 25%
3) Water supply	
Percentage of drinking water produced from groundwater sources	0% (zero percent)
4) Water production	
Water production technology (See Supplementary information Table 2)	No groundwater sources used

Question 1: Outcome
Low Risk

Question 2: Outcome
Significant Risk

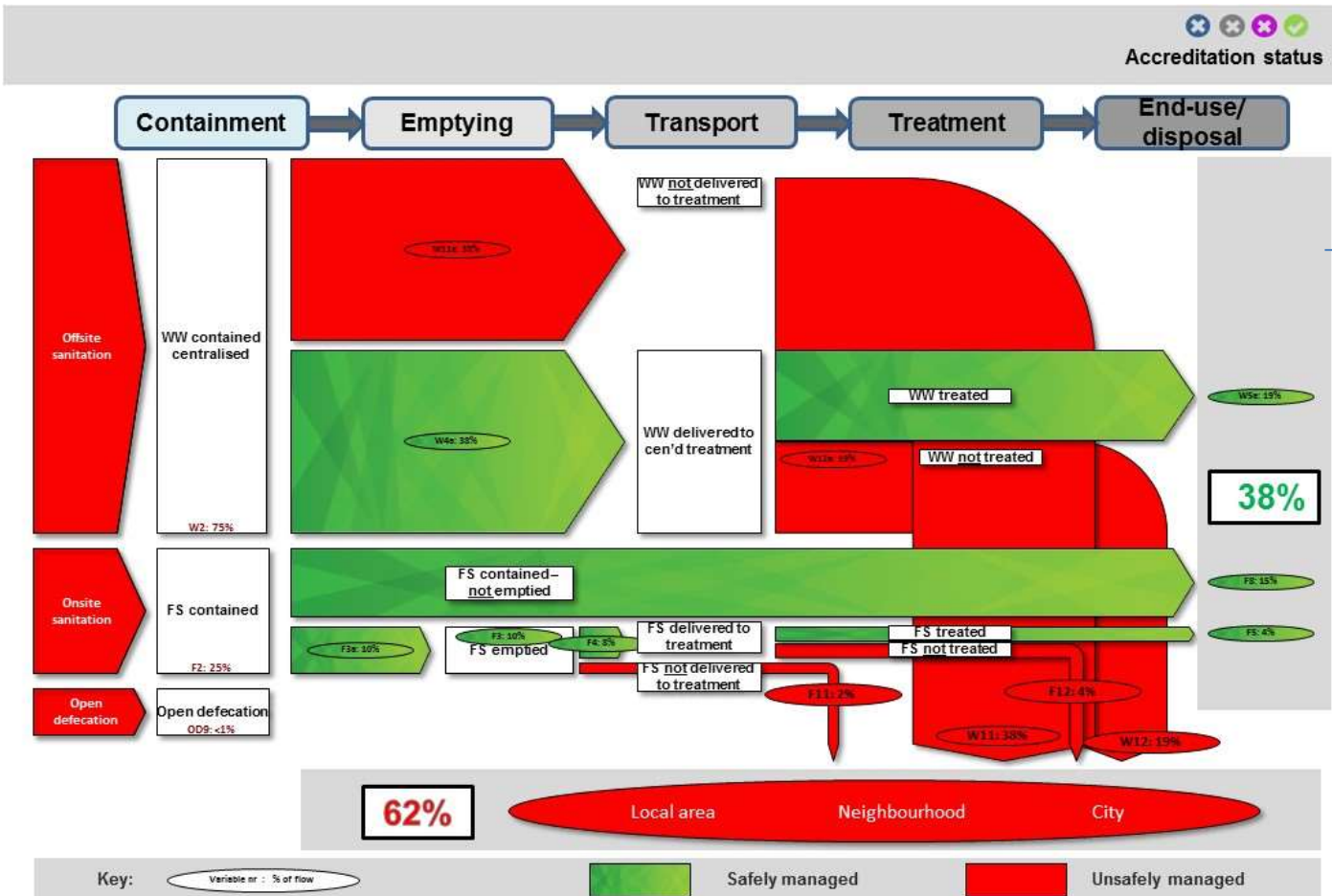
Answer 100

Groundwater Pollution Risk Level
Low Risk

Percentage of drinking water produced from groundwater sources	Water production technology	Answer to 1 AND 2 is Low Risk	Answer to 1 is Significant Risk and Answer to 2 is Low Risk	Answer to 1 is Low Risk and Answer to 2 is Significant Risk	Answer to 1 AND 2 is Significant Risk
Greater than 25%	Protected boreholes, protected dug wells or protected spring where adequate sanitary measures are in place	Low Risk	Low Risk	Significant Risk	Significant Risk
Greater than 25%	Unprotected boreholes, dug wells or springs	Low Risk	Significant Risk	Significant Risk	Significant Risk
Between 1% and 25%	Protected boreholes, protected dug wells or protected spring where adequate sanitary measures are in place	Low Risk	Low Risk	Low Risk	Low Risk
Between 1% and 25%	Unprotected boreholes, dug wells or springs	Low Risk	Low Risk	Low Risk	Low Risk
0% (zero percent)	No groundwater sources used	Low Risk	Low Risk	Low Risk	Low Risk

- 4 Questions
- 2 outcomes:
 - Low risk
 - High risk

SFD calculation Tool



2 files:
 1. .pptx (editable)
 2. .png

Templates





www.sfd.susana.org



About ▾

Toolbox ▾

Resources ▾

News & Events ▾

SFDs Worldwide

Methodology

How to make an SFD

Improving understanding of urban sanitation

SFDs are a new way of visualizing excreta management in cities and towns

Templates will help you to create an SFD

About ▾

Toolbox ▾

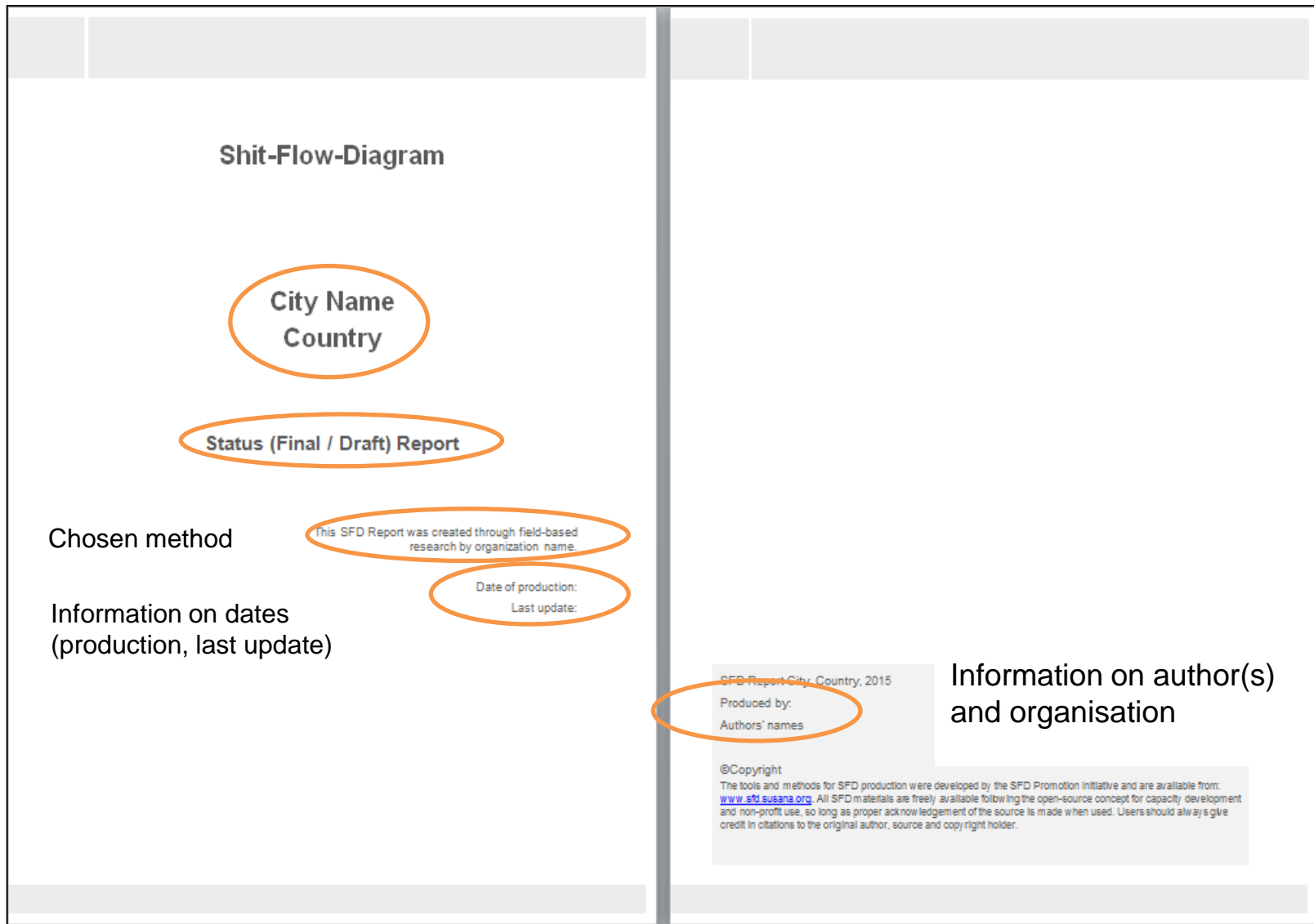
Resources ▾

Methodology

How to make an SFD

Report template (doc)

- Cover Page
 - provides the 'formal' frame of the report
- Executive Summary
 - presents the key outcomes of the assessment on 4 pages
 - is not a stand-alone component
- Main Part: Detailed report
 - includes all information collected in the process
 - should not be longer than 20 pages
- Appendix
 - provides additional details (Stakeholder, SFD Diagram, QAQC)



Report template (doc)

- Front Pages
 - provides the „formal“ frame of the report
- Executive Summary
 - presents the key outcomes of the assessment on 4 pages
 - it is not a stand-alone component
- Main Part: Detailed report
 - includes all information collected in the process
 - should not be longer than 20 pages
- Appendix
 - provides additional details (Stakeholder, SFD Diagram, QAQC)

Executive Summary



Executive Summary City Name
Country Name Produced by: Organization

1. The Diagram

City name and date of production
Desk based / field based Accreditation status

Replace the diagram by right clicking on the image and selecting 'change picture'

2. Diagram information DD/MM/YYYY

Desk or field based:
Clarify whether the SFD was done from desk or from field.

Produced by:
Put the name(s) of the organization that produced the SFD. If applicable, you can acknowledge support of people who contributed to the production of the report but are not necessarily partners; e.g. produced by XXX, with support / close collaboration / inputs from XXX.

Collaborating partners:
Put the names of all collaborating partners/ organizations here. In the instance that there are no collaborating partners, delete this section.

3. General city information

Mention in brief general information on the geographical context, focusing on

City boundaries (which boundary was chosen for the SFD and why. Particularly important if it differs from the political/administrative boundaries)

Population (focus particularly on variances of population through diurnal population and seasonality)

Important spatial features (population density, informal housing arrangements etc.)

Executive Summary City Name
Country Name Produced by: Organization

4. Service delivery context

The chapter on the service delivery context should always start at the top of page 2.

A brief analysis of the city's service delivery context should go here, including

Provide an overview of each step in the sanitation service chain with a particular focus on positive characteristics and on gaps hindering effective service delivery. You may want to structure the text along the following topics

Highlight key aspects

For desk-based studies, this would be: Policy, legislation and regulation (with reference to the stakeholder overview);

For field-based studies, this would be: Policy, legislation and regulation, Planning, Reducing Inequity, Outputs and Expansion (again, with reference to the stakeholder overview);

Service outcomes sub-section with break-down along the service chain, highlighting key points about containment, emptying, transport, treatment, end-use / disposal – referring to the SFD diagram to keep the narrative short.

Conclusions that are being drawn from the service delivery context description/analysis

5. Service outcomes

Provide a brief overview on technologies and methods used for different sanitation systems through the sanitation service chain; this should be focussed on positive/negative highlights, which mainly contribute to the percentages on the SFD (details will be given in detailed report). For example: A high percentage of onsite sanitation technologies that don't contain faecal sludge.

The risk of groundwater contamination could be discussed. For example, the use of groundwater for drinking purposes above a certain percentage results in a high percentage of red arrows if systems do not contain faecal sludge.

When using bullet points they should look as follows:

- o Bullet point one
- o Bullet point two

enabling environment for sanitation service delivery should go here focusing on

The regulatory framework and who is responsible to implement and control service delivery.

You may want to include a table with the key stakeholders for service delivery (example given below). Information from the "Stakeholder tracking tool" can be used, however, the detailed stakeholder analysis should go to the detailed report.

Key Stakeholders	Institutions / Organizations /
Public Institutions	e.g. City Council, Ministry of Health, Ministry of Local Government etc. Utility
Nongovernmental Organizations	e.g. NGO, CBO, Faith-based Organizations
Private Sector	e.g. private employers
Development Partners, Donors	XXX, yyy, zzz
Others	Academic

Table 1: Title (Source/Institution and year)

If using bullet points they should look as follows:

- o Bullet point one
- o Bullet point two
- o Bullet point three

If you are going to be inserting images at any point in this document they should be placed in alignment with the correct column. The width should not exceed that of the column itself. An example follows:

Figure 1: Image title (Source: Person/Institution and year)

Make sure texts and pictures do not overlap.

Content:

The Diagram | Diagram information | General city information
 Service delivery content | Service outcomes | Overview of stakeholders
 Credibility of data | Process of the SFD development | List of data sources

Report template (doc)

- Front Pages
 - provides the „formal“ frame of the report
- Executive Summary
 - presents the key outcomes of the assessment on 4 pages
 - it is not a stand-alone component
- Main Part: Detailed report
 - includes all information collected in the process
 - should contain around 20 pages
- Appendix
 - provides additional details (Stakeholder, SFD Diagram, QAQC)



Table of Content

1	City context.....
2	Service delivery context description/analysis ## delete as required.....
2.1	Policy, legislation and regulation.....
2.1.1	Policy.....
2.1.2	Institutional roles.....
2.1.3	Service provision.....
2.1.4	Service standards.....
2.2	Planning ## include only for field-based assessment.....
2.2.1	Service targets.....
2.2.2	Investments.....
2.3	Reducing inequity ## include only for field-based assessment.....
2.3.1	Current choice of services for the urban poor.....
2.3.2	Plans and measures to reduce inequity.....
2.4	Outputs ## include only for field-based assessment.....
2.4.1	Capacity to meet service needs, demands and targets.....
2.4.2	Monitoring and reporting access to services.....
2.5	Expansion ## include only for field-based assessment.....
2.5.1	Stimulating demand for services.....
2.5.2	Strengthening service provider roles.....
3	Service Outcomes.....
3.1	Overview.....
3.2	SFD Matrix.....
4	Stakeholder Engagement.....
4.1	Key Informant Interviews.....
4.2	Focus Group Discussions ## does not apply for desk-based assessment.....
4.3	Observation of service providers ## does not apply for desk-based assessment.....
5	Acknowledgements.....
6	References.....

Table of Content

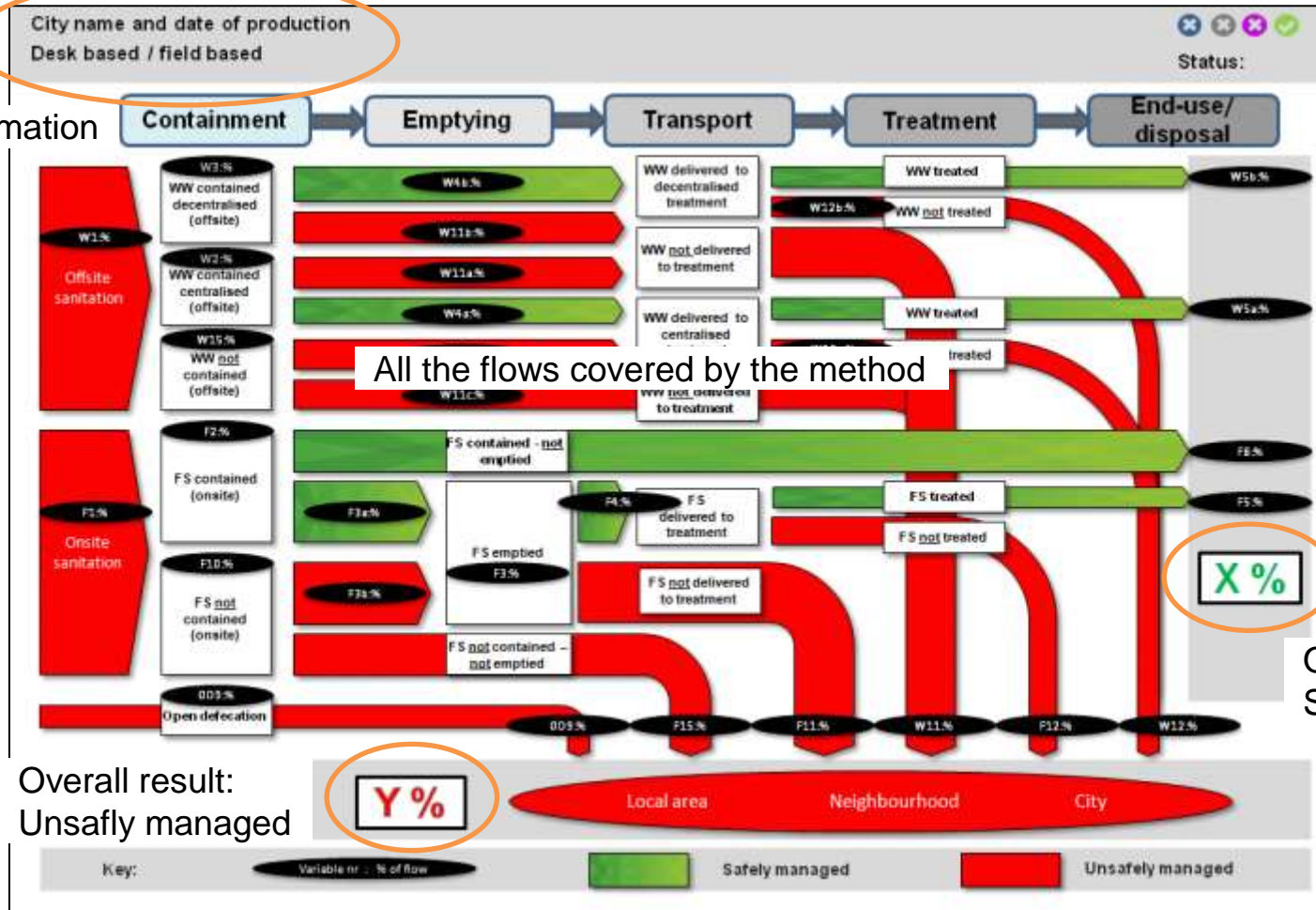
1. City context
2. Service delivery context description / analysis
3. Service Outcomes
4. Stakeholder Engagement
5. Acknowledgements
6. References

Report template (doc)

- Front Pages
 - provides the „formal“ frame of the report
- Executive Summary
 - presents the key outcomes of the assessment on 4 pages
 - it is not a stand-alone component
- Main Part: Detailed report
 - includes all information collected in the process
 - should not be longer than 20 pages
- Appendix
 - provides additional details (Stakeholder, SFD Diagram, QAQC)

Template for Diagram (ppt)

General Information



Template for Stakeholder Tracking (xlsx)

- Stakeholder Identification
 - Name / Position
 - Contact information
 - Influence (high/medium/low)
 - Interest (high/medium/low)

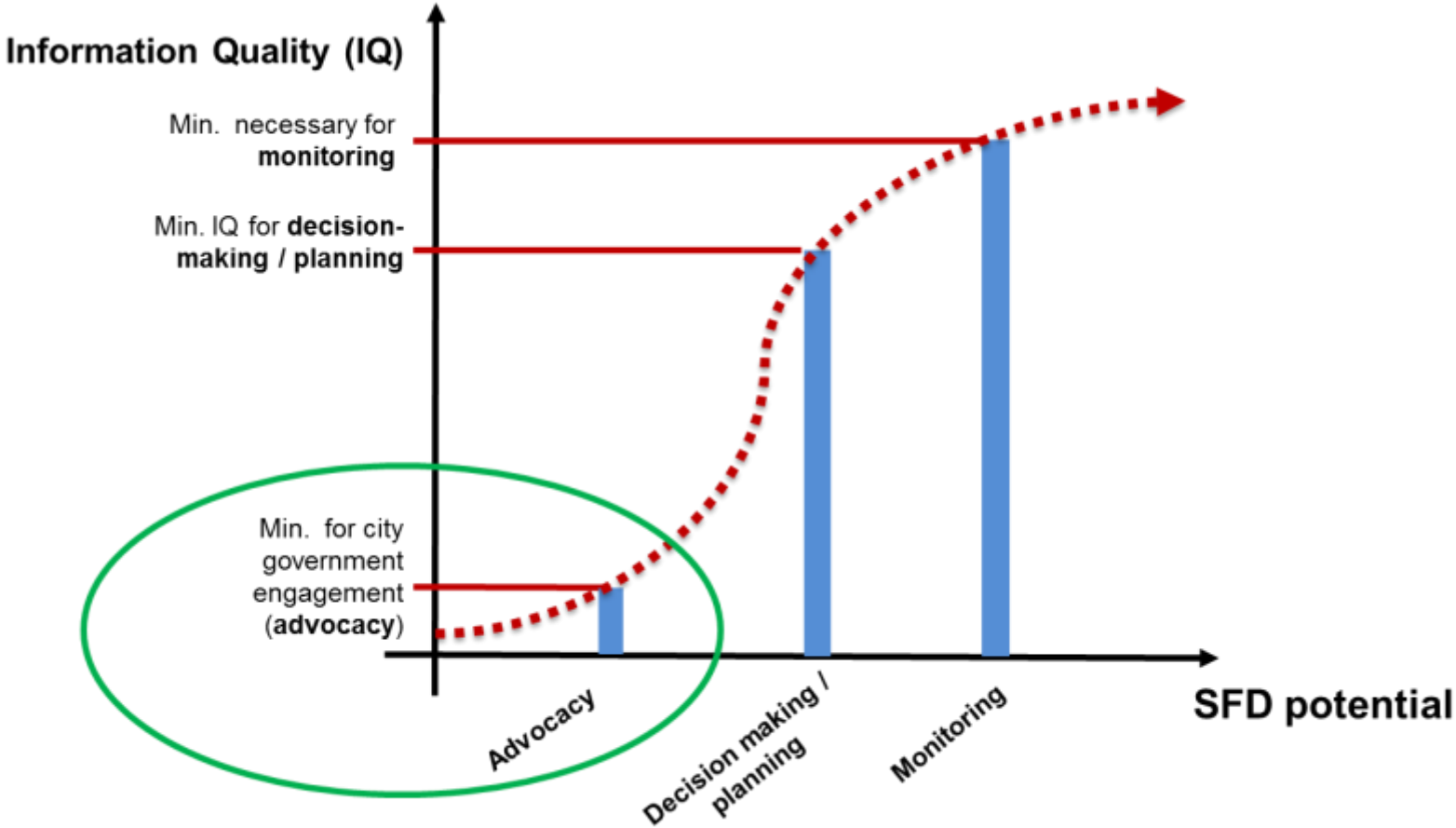
- Tracking of engagement
 - Date of Engagement
 - Purpose of Engagement
 - Summary of outcomes

QA/QC



Quality Assurance / Quality Control

SFD potential in relation to information quality



The 3 steps of the QA/QC

This process is for the entire report

1. QUALITY OF COMPLETED WORK

- Adherence to methodology and reporting template

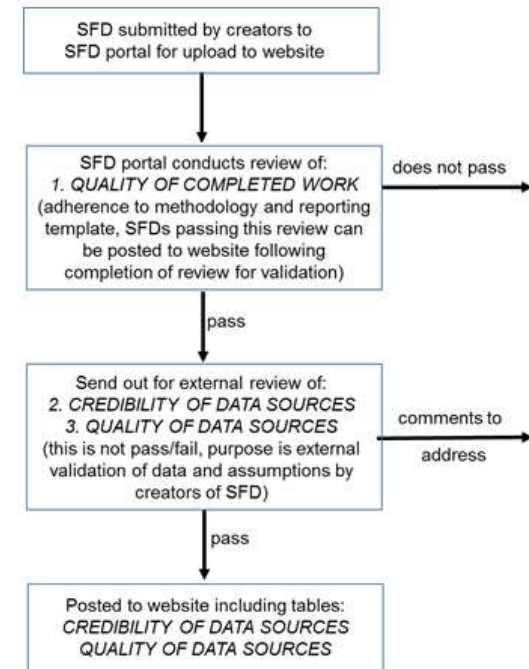
2. CREDIBILITY OF DATA SOURCES

- *See next slides*

3. QUALITY OF DATA SOURCES

- *See next slides*

➤ provide a consistent way for reviews of fact-based data



CREDIBILITY OF DATA SOURCES

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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Municipal, utility or private local service provider records
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interviews with city authorities and local government departments
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Documented studies
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Community representatives (interviews desk- and field-based, FGDs only field-based)
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Service providers (interviews desk- and field-based, FGDs only field-based)
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Observation (only field-based)
Further availability of data sources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	This is a one-off exercise no further data expected
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Limited amount of new data expected, SFD to be revised
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Substantial amount of new data expected, SFD to be revised
If updated SFD expected, enter date:						
How has current SFD been used (entire service chain)	<input type="radio"/>	SFD has <u>not</u> been shared with local stakeholders				
	<input type="radio"/>	SFD has been shared with local stakeholders but no follow up action agreed				
	<input type="radio"/>	SFD has been shared and follow up actions have been agreed				
	<input type="radio"/>	SFD has been shared and follow up actions have been agreed and initiated				

Enter the used sources here (using reference numbers)

What kind of data source was used for each chapter?

Will there be further information available in future?

How the stakeholders are involved?

Table to Verify Credibility of Data Sources

QUALITY OF DATA SOURCES

SYSTEM TYPE	CONTAINMENT			EMPTYING			TRANSPORT			TREATMENT			ENDUSE/ DISPOSAL			DATA SOURCE
Wastewater direct to sewer (centralized or decentralized)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Municipal utility or private local service provider records
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interviews with city authorities and local govt depts
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Documented studies
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Community representatives
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Service providers
Onsite (contained onsite or not)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Municipal utility or private local service provider records
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interviews with city authorities and local govt depts
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Documented studies
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Community representatives
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Service providers
Open defecation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Municipal utility or private local service provider records
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interviews with city authorities and local govt depts
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Documented studies
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Community representatives
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Service providers
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Observation

- Each type of data source will be ranked for confidence and quality for each step in the service chain: **H**igh / **M**edium / **L**ow level of quality
- Examples are given in the manual

Support available





www.sfd.susana.org



About ▾

Toolbox ▾

Resources ▾

News & Events ▾

SFDs Worldwide

Methodology

How to make an SFD

Improving understanding of urban sanitation

SFDs are a new way of visualizing excreta management in cities and towns

Templates will help you to create an SFD

About ▾






Toolbox ▾

Resources ▾

Methodology

How to make an SFD

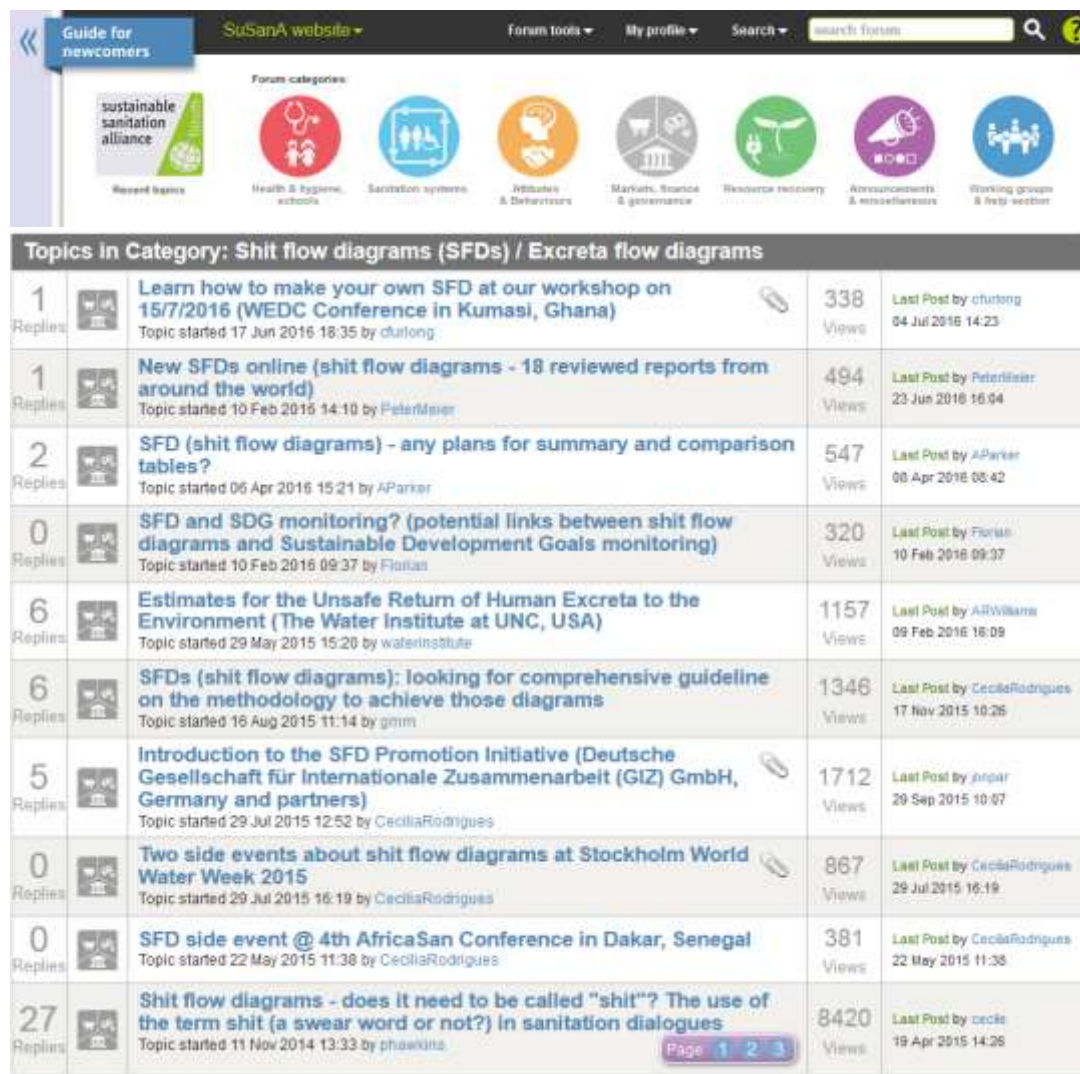
The SFD Tool-Box

 <p>SFD Promotion Initiative</p> <p>Manual for SFD Production</p> <p>Version 1.0 October 2015</p> 	<p>Shift-Flow-Diagram</p> <p>City Name Country</p> <p>Status (Final / Draft) Report</p> <p>The SFD-Report can be used through the following model: <small>Model-Description: 0000011111 Tool-System: 0000011111</small></p>	
<p>Manual for SFD Production (Draft)</p> 	<p>Template for the SFD-Report (Draft)</p> 	<p>SFD Master Diagram (Draft)</p>
<p>SFD Calculation Tool (Draft)</p>	<p>Stakeholder Tracking Tool (Draft)</p>	

SFD at forum.SuSanA.org

Several posts with:

- Background information
- Discussions around SFD
- Latest news
- Upcoming events



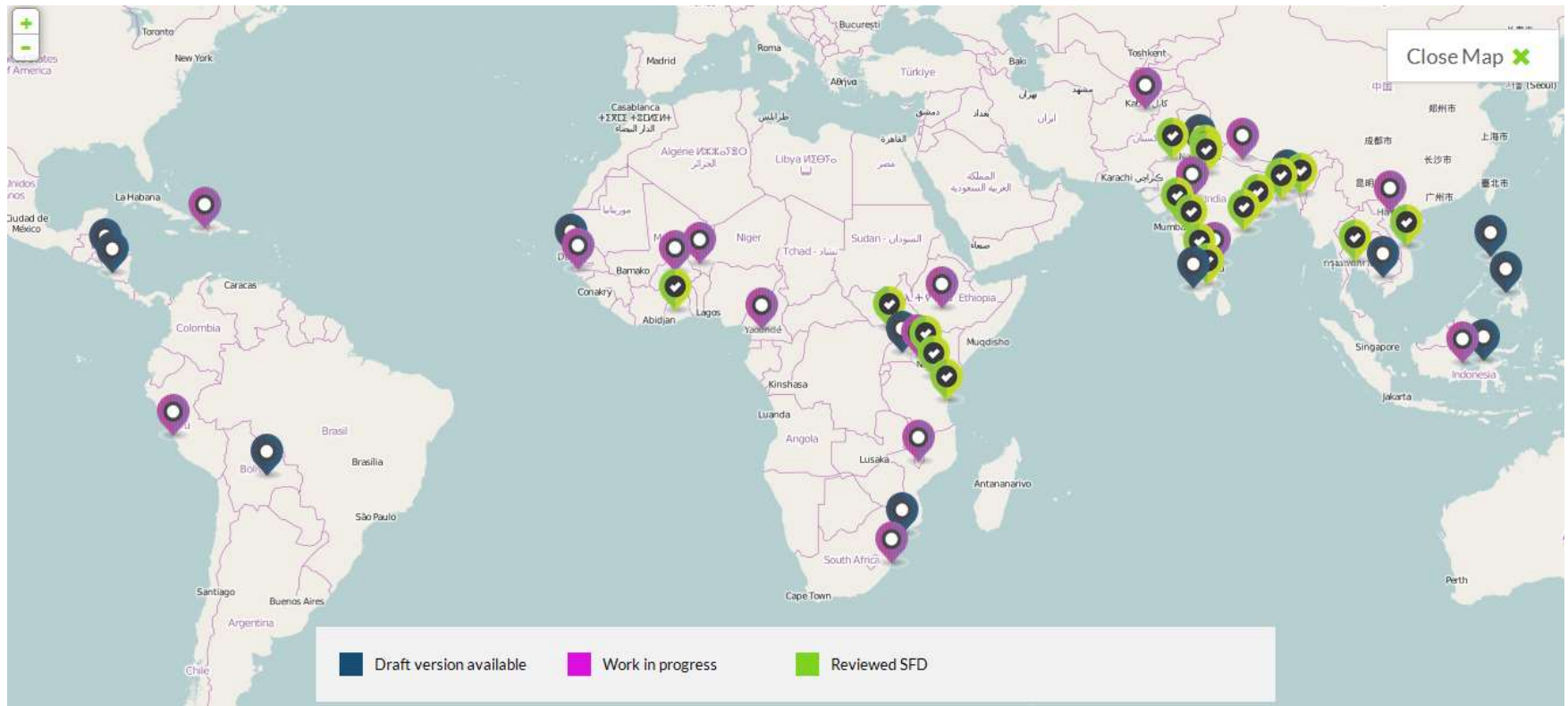
The screenshot shows the SuSanA forum interface. At the top, there is a navigation bar with 'Guide for newcomers', 'SuSanA website', 'Forum tools', 'My profile', and a search bar. Below this is a section for 'Forum categories' with icons for 'Sustainable sanitation alliance', 'Health & hygiene, schools', 'Sanitation systems', 'Attitudes & Behaviours', 'Markets, finance & governance', 'Resource recovery', 'Announcements & newsletters', and 'Working groups & NetS sector'.

The main content area displays a list of topics under the heading 'Topics in Category: Shit flow diagrams (SFDs) / Excreta flow diagrams'. The list includes the following topics:

Replies	Topic Title	Views	Last Post by	Date
1	Learn how to make your own SFD at our workshop on 15/7/2016 (WEDC Conference in Kumasi, Ghana)	338	dturlong	04 Jul 2016 14:23
1	New SFDs online (shit flow diagrams - 18 reviewed reports from around the world)	494	PeterMeier	23 Jun 2016 16:04
2	SFD (shit flow diagrams) - any plans for summary and comparison tables?	547	AParker	08 Apr 2016 08:42
0	SFD and SDG monitoring? (potential links between shit flow diagrams and Sustainable Development Goals monitoring)	320	Florian	10 Feb 2016 09:37
6	Estimates for the Unsafe Return of Human Excreta to the Environment (The Water Institute at UNC, USA)	1157	ARWilliams	09 Feb 2016 16:09
6	SFDs (shit flow diagrams): looking for comprehensive guideline on the methodology to achieve those diagrams	1346	CeciliaRodrigues	17 Nov 2015 10:26
5	Introduction to the SFD Promotion Initiative (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Germany and partners)	1712	Janjar	29 Sep 2015 10:07
0	Two side events about shit flow diagrams at Stockholm World Water Week 2015	867	CeciliaRodrigues	29 Jul 2015 16:19
0	SFD side event @ 4th AfricaSan Conference in Dakar, Senegal	381	CeciliaRodrigues	22 May 2015 11:36
27	Shit flow diagrams - does it need to be called "shit"? The use of the term shit (a swear word or not?) in sanitation dialogues	8420	ceckle	19 Apr 2015 14:26

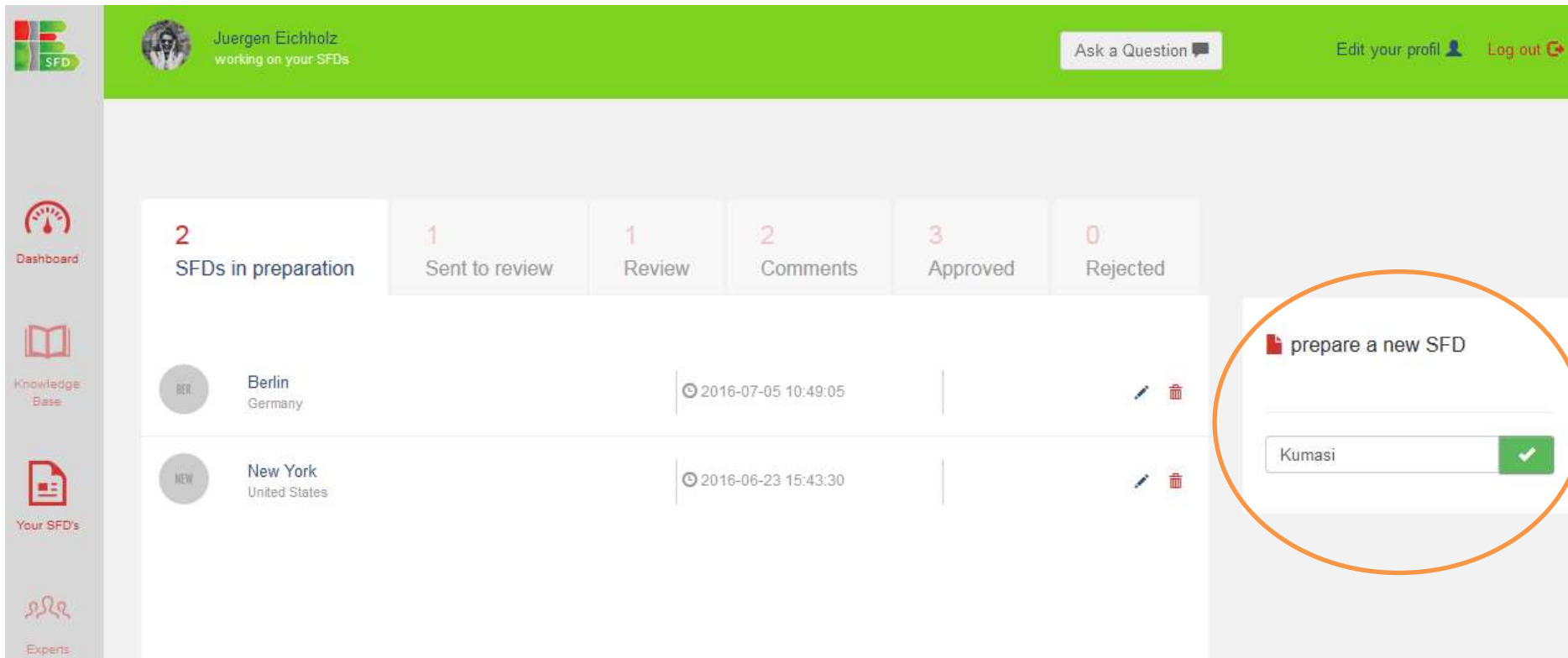
At the bottom of the last row, there is a pagination link: Page 1 2 3.

Learn from other SFD Reports



25 reviewed SFD Reports from around the world on sfd.susana.org/sfd-worldwide

Soon: the SFD helpdesk







The screenshot shows the SFD helpdesk interface. At the top, a green header bar contains the user's name 'Juergen Eichholz' and the text 'working on your SFDs'. To the right of the header are buttons for 'Ask a Question', 'Edit your profil', and 'Log out'. On the left side, there is a vertical navigation menu with icons for 'Dashboard', 'Knowledge Base', 'Your SFD's', and 'Experts'. The main content area displays a summary of SFDs in various stages: 2 SFDs in preparation, 1 Sent to review, 1 Review, 2 Comments, 3 Approved, and 0 Rejected. Below this summary is a table listing two SFDs: one for Berlin, Germany, dated 2016-07-05 10:49:05, and one for New York, United States, dated 2016-06-23 15:43:30. On the right side, a sidebar contains a button labeled 'prepare a new SFD' and a search input field with the text 'Kumasi' and a green checkmark icon. The 'prepare a new SFD' button and the search field are circled in orange.

Possibility to prepare an SFD online

Meanwhile, if you have any questions: sfd-helpdesk@susana.org

Soon: the SFD helpdesk

 Juergen Eichholz
working on your SFDs

Ask a Question  Edit your profile  Log out 

**Any questions?
Ask for support**

City Name: Country: Year of Data:

Your organisation's name:

Has there been a previous SFD for this city?
 Yes
 No

Was there an earlier SFD done for this city by you or by another author/organisation?

Size of Population:
 < 100.000
 100.000 - 500.000
 500.000 - 1.000.000
 > 1.000.000


What is the city's population size?


City context


This section should be a maximum of one page. Insert basic information (summary) about the city context here: Country/City (Region, Population, Population growth rate, Significant variations in population (e.g. diurnal, seasonal), Topography, Climate, Key physical and geographic

status of SFD
SFD under preparation

Files & Media

your calculation basis (Excel)
no file uploaded yet 

your SFD diagram (Powerpoint / Excel / PDF)
no file uploaded yet 

your SFD report (WORD - optional to webform)
no file uploaded yet 

**Report is finished?
Send to Review**

**Enter information
in prepared boxes**

**Upload your
documents**

Thank you!

Please visit
www.sfd.susana.org

sfd@susana.org

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