Planning Workshop on FSM Toolbox

Session 2: FSM Planning Tools and Toolbox

Updated Program

14.00 - 16.30	**Session 2: FSM Planning Tools and Toolbox**	
14.00 - 14.05	Introduction	Thammarat K.
14.05 - 14.20	- Diagnostic Tools and Guidelines for Fecal Sludge Management: *Update on the current WSP FSM work*	WSP
14.20 - 14.35	- Shit Flow Diagram Scale Up	GIZ
14.35 - 14.50	- Sanipath Brief Overview	Emory Univ.
14.50 - 15.00	- WSUP Excreta Management Ladder	WSUP
15.00 - 15.15	Coffee/Tea Break	
15.15 - 15.30	- FSM Toolbox: Concept and plans	AIT/hydrophil
15.30 - 15.45	- Initial findings of FSM toolkit mapping	AIT/hydrophil
15.45 - 16.00	- Lessons-learnt from similar toolkit initiatives	AIT/hydrophil
16.00 - 16.30	Feedbacks from city partners Synthesizing FSM tools and planning matrixes	All
16.30 – 18.30	Meeting of Advisory Panel of FSM Toolbox Project *(By separated invitation only)*	AIT/hydrophil

Knowledge production?

Tools, Toolkits, etc.

© Karl Herweg, GfEU 1996
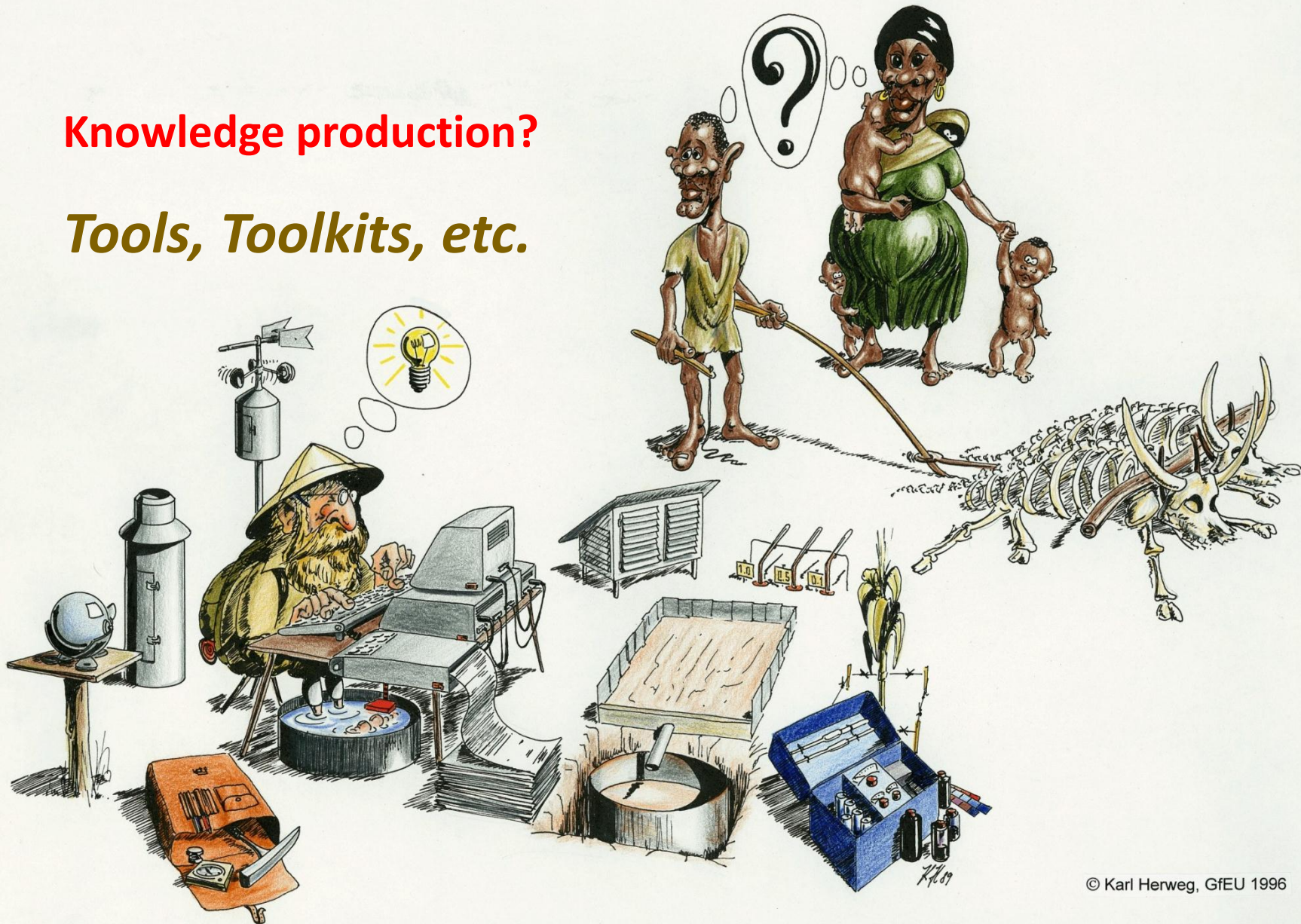
FSM Toolbox

Concept and plans
Initial findings & Lessons-learnt

Project: Development and Dissemination of Fecal Sludge Management
Toolkit for Investors, Planners and Consultants

Objectives of FSM toolbox

Enhance the capability of key players such as investors (donors), city planners/utility administrators and consultants in the development of FSM projects and businesses with competency preparatory tools and resources

Advisory Panel

No.	Name	Affiliation	Organization
1	Mr. Martin Gambrill,	Lead Water and Sanitation Specialist	World Bank, Washington DC
2	Ms. Isabel Blackett	Senior Sanitation Specialist	Water and Sanitation Program, World Bank, Washington DC
3	Mr. Ho Yueh Chuen (Peter)	Senior Consultant	ERE Consulting Group, Malaysia
4	Ms. Jing-Min Huang	Senior Urban Development Specialist	Asian Development Bank, Manila, the Philippines
5	Ms. Blomberg Malinne	Chief Financial Analyst	African Development Bank, Cote d'Ivoire
6	Prof. Meera Mehta	Professor Emeritus	CEPT University, India
7	Dr. Mbaye Mbéguéré	Project coordinator	Office National de l'Assainissement du Sénégal (ONAS), Senegal
8	Mr. Cheikh Toure	Director General	Environnement, déchets, eau (EDE), Senegal
9	Dr. Binay Shah	Water and Sanitation Specialist	Integrated Consultants Nepal (P) Ltd. (ICON), Nepal
10	Ms. Mai Flor	Executive Director	WaterLinks, the Philippines
11	Dr. Wijarn Simachaya	Deputy Permanent Secretary	Ministry of Natural Resources and Environment, Thailand
12	Mr. Teddy Gounden	Project Manager	eThekwini, Durban, South Africa
13	Mr. Dorai Narayana	Head of Department, Planning & Engineering	Indah Water, Malaysia

Core Team

Dr. Thammarat

Dr. Atitaya

Dr. Yuttachai

Regulatory

Institutional

Technology

Capacity Building and Advocacy

Financial

Monitoring

Information alone may not necessarily lead to behavior change ...*but what tools??*

Concept of FSM toolbox

Concept of FSM toolbox

matrix for selection of toolbox

Available Tools

Investor/Donor

City manager/Planner

Consultant

Tool mapping

	Institutional	Regulatory	Financial	Technology	Monitoring	Capacity building	Advocacy
Poor							
Developing							
Good							
Benchmarking							

Assessment Tool

Assess FSM situation

Poor   **Good**

Developing

Benchmarking

Matching between "Situation" and "toolbox" of each key player in order to achieve "target"

Steps to develop FSM toolbox

1. Identify "Requirements" from key players

Types of tool for each key player in 7 aspects
such as

- Guidelines for development of FSM projects
- Compilation of FSM documents
- FSM situational analysis tool
- Performance monitoring tool
- Interactive tools on FSM technology selection
- FSM business and management models
- Advocacy tool for stakeholder sensitization
- Trainings module and courses

7 Aspects

Institutional

Technology
- Onsite system
- C&T system
- Treatment
- Reuse

Financial

Regulatory

requirements

Monitoring

Capacity building

Advocacy

Investor/Donor

City manager/Planner

Consultant

Consultative Workshop at Manila, Philippines (2-3 June 2014)

Types of tool for each key player in 7 aspects

Aspects	Types of tools (proposed)			
	Donor/Investor	**City Planner/Utility Manager**	**Consultant**	**Common tool requirements**
Regulatory	• Situation analysis methodology • Example of regulations (developed and developing countries) • Sample contracts • Case studies • Database of experts/consultants	• Check list with set of criteria and indicators for FSM • Frameworks and guidelines on FSM regulations, legislations • Examples of ordinances and decree • Sample of licensing private operators • Case studies & best practices on FSM	• Checklist / Factsheet • Situational assessment methodology (should cover policy review, baseline conditions, institutional aspects, stakeholders	• Samples of regulations, policies • FSM situational analysis methodology with a check list on criteria and indicators that should be followed
Administrative & Institutional	• Situation analysis methodology • Example of regulations (developed and developing countries) • Sample contracts • Case studies • Database of experts/consultants	• Sample ToR for different aspects such as: • Understanding of regulatory framework, • Bidding and tender documents preparation • Sanitation planning (including maps) • Private sector partnership Tool (PPP Tools) • Decision making tool for selection of the approach	• Check list and fact sheets to Identify the issue, present situation, need (target) • Gap identification • Licensing and operating standards	• Samples of contracts, bidding documents, management model, case studies, database of experts
Financial	• Mapping of funding sources/uses /modalities • Technology selection tool to identify cost investment requirement	• Factsheets / case studies on business planning • Analysis of different technical solutions & different financial models • Cost structure analysis (Tariff setting, etc.) • Market size • Rapid assessment tools • Resource mobilization tools	• Checklist to estimate demands, market size? • Understanding of the cost structure • Tools to prepare business models for cost recovery	• Tool to analyze the cost and benefits of different technical options and models

Types of tool for each key player in 7 aspects

Aspects	Types of tools (proposed)			
	Donor/Investor	**City Planner/Utility Manager**	**Consultant**	**Common tool requirements**
Technology	• Technology Decision Matrix	• Comparative chart of the different technologies (eg. Sanitation Compendium)	• GIS, Excel based • Comparative technological analysis tool • Transfer station options for optimization of travel time • Design of OSS system • Desludging system – trucks, pumps, Treatment, • Disposal and Reuse options • Baseline Data Management • Type and number of OSS • Checklist of type of technologies available	• Comparative chart to analyze the technological options • Pros and cons of different options based on assessment criteria and indicators
Advocacy	• ICE materials • Case studies • Making connections between regulatory and enabling factors • Success stories to convince government agencies • Impact indicator • Build pressure from the grassroots level (bottom up) plus by-in at the top level	• FSM Introductory tool • Checklist • Brochure explaining overall process on FSM • Impacts of no management/no regulation • Light format (brochure /leaflet)	• Tools already exist –need to identify which one is appropriate • Program for public awareness and education – political, bureaucratic and local (all the stakeholders) • Tools for stakeholder engagement • Use the existing tools and streamline • Certification	• Stakeholder awareness tools on FSM in the form of brochures, leaflets • Tools on public awareness • Effective communication and stakeholder sensitization modules
Monitoring	• Guideline for designing management information systems (MIS)	• List of indicators on service provision, on impacts, on requirements and compliance to regulation ; • Sustainability indicators • Sources of verification; supervision visits; • Laboratory tests (on sludge, effluents, bio-solids or other)	• Checklist Public opinion and outcome survey • Performance monitoring - Setting KPIs for service provider performance • Customer satisfaction survey • Certification • Environmental improvement	• Guidelines and performance indicators for different audiences

Steps to develop FSM toolbox

2. Create tool for FSM Assessment (7 aspects)
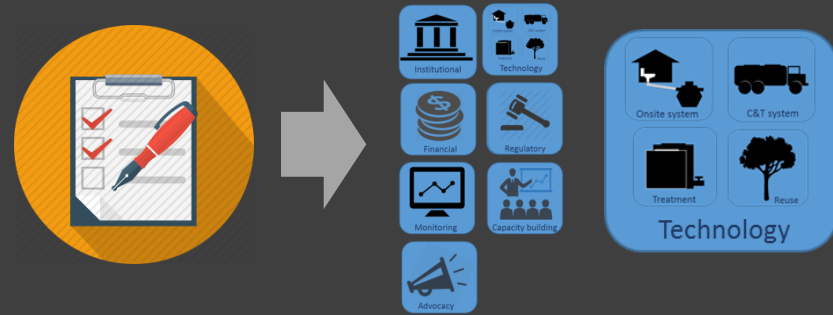
Assess FSM situation

- Poor
- Developing
- Good
- Benchmarking

Concept of FSM assessment tool

Development of questionnaire

Scores

Statistical analysis and Expert adjustment

FSM situation

Steps to develop FSM toolbox

3. Critical review, mapping and develop tools

4. Identify and determine toolboxes

Toolboxes for each aspect

Example: Logistic tool

Finding problem

3. Travel to household/Truck Parking

- A service route selection; FS truck driver decision and municipality's officer planning.
  "Nearest location is usually served first"
- Private company: Investigate the DEWAT system to propose the emptying fee.
  (Random) If the household agree, they will start the desludge.
- Parking as close as possible to the household

Current routing

Legend
- Plant
- Customer
- Travelled Route
- Road Network

Actual Distance Travelled = 49 KM

Logistic tool

Distance required using TSP and different customer order = 23 Kilometer
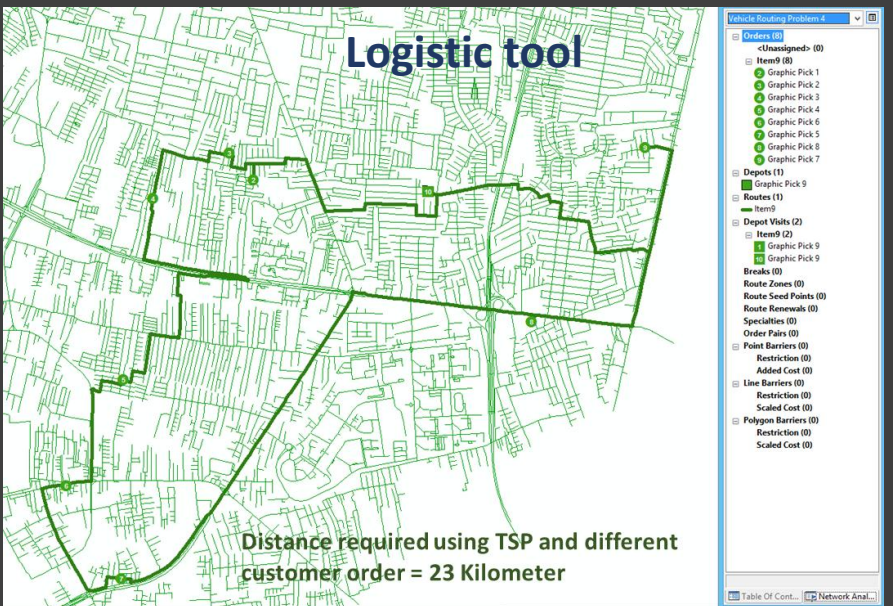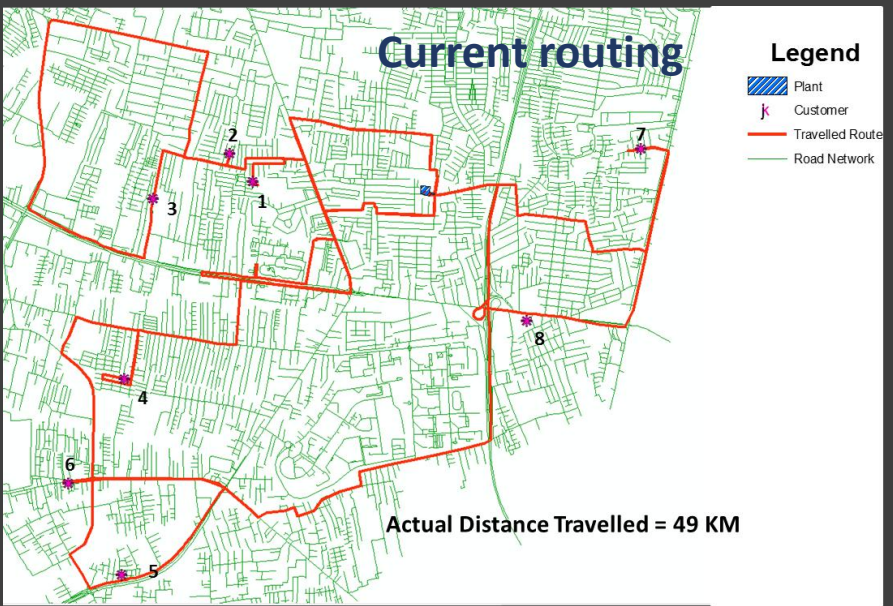
Example: Logistic tool

Total Distance Travelled to Serve all Customers
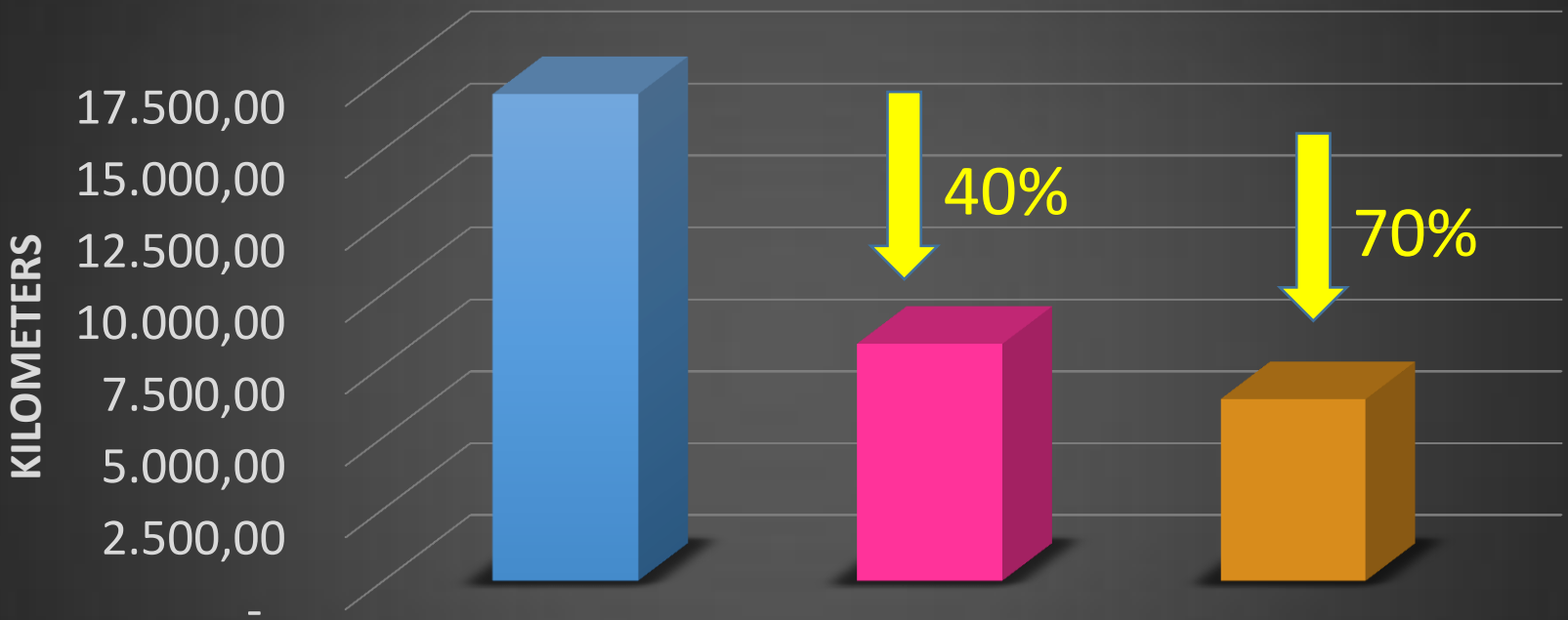
Example: Logistic tool

Planning tool

- New treatment plant location
- No. and capacity of truck
- Operating cost
- Truck cost
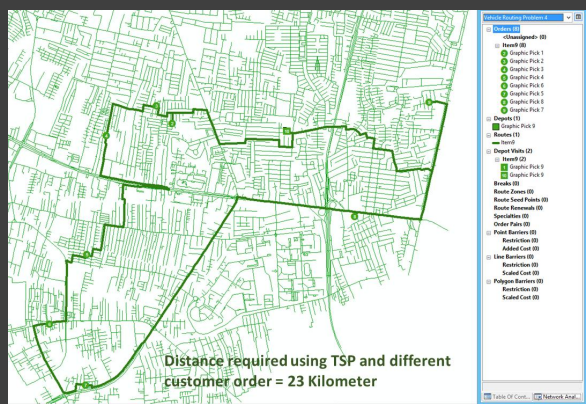
Optimize routing → routine planning
Finding the potential demand zone (customer)
Logistic cost

GIS Oriented Networking and Service Optimization Technique for Faecal Sludge Management

Steps to develop FSM toolbox

5. Create matrix for selection of toolbox

	Institutional	Regulatory	Financial	Technology	Monitoring	Capacity building	Advocacy
Poor	▬	▬		▬			▬
Developing			▬		▬	▬	
Good							
Benchmarking			Identify the criteria				

Geographic location of case study (city-wide)

India

Bangladesh

Vietnam

Senegal

Uganda

Thailand

South Africa

Study area

Tentative

© 2009 www.outline-world-map.com
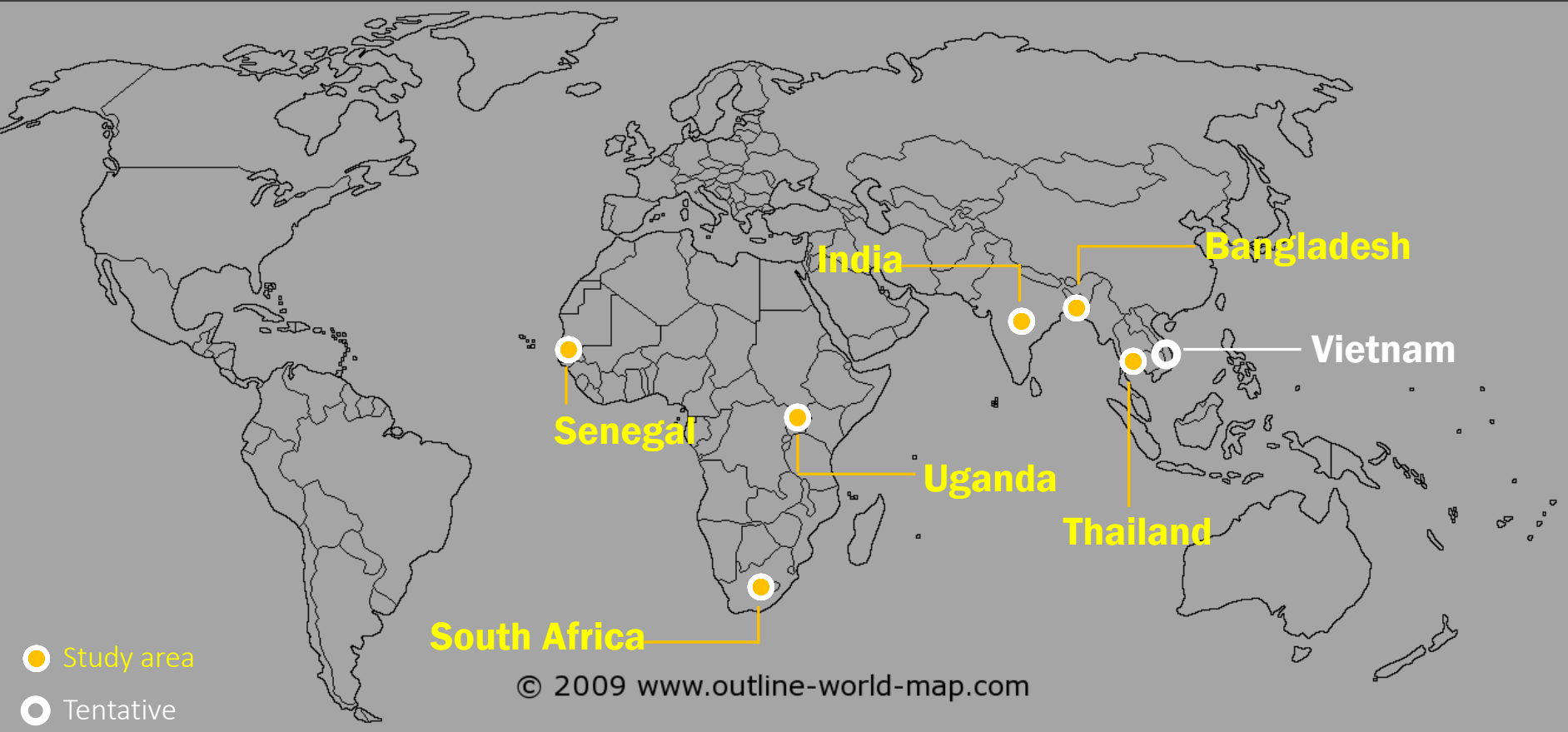
Sharing data, Disseminating and Capacity building

Key targets

Invention of toolbox: Intensive studies on 6 cities as reference

Testing Effectiveness : Implementation on selected 4 cities based on FSM data availability

Capacity Building

- At least **2 development banks or investors** deploy FSM planning toolkits

- City planner/utility managers from at least **50 cities across Asia and Africa** aware of the availability of FSM planning toolkits

- At least **50 consulting companies** aware of the FSM planning toolkits

Steps to develop FSM toolbox

18-month Project plan

Identify "Requirements" from key players

↓

Create tool for Assessment

↓

Review, mapping and develop tools
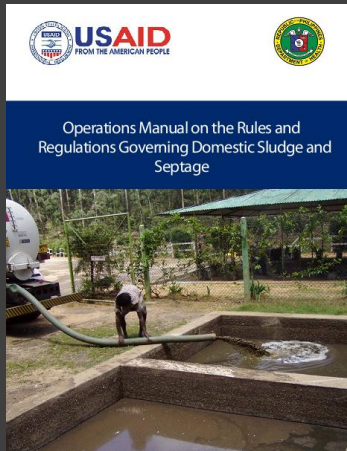
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Identify and develop toolboxes

↓

Create matrix for selection of toolbox

↓

Field testing, validation, dissemination and capacity building

Step	Activities	Due date
1. Determination of requirement from "real case" and setting advisory panel	1.1 Selection of "Real Case" study town and representative of key players	February 2015
	1.2 Determination of "requirements" of key players	February 2015
	1.3 Setting up Advisory panel	January 2015
2. Delineation of available FSM toolkit vs. requirement	2.1 Collate and review available FSM toolkits	January 2015
	2.2 Synthesize lessons learnt from other developments of tools for practitioners	February 2015
	2.3 Selection on types of toolkits	March 2015
3. Formulation of toolkit packages/toolboxes	3.1 Development of contextual details of toolkits	March 2015
	3.2 Configurations of toolkit packages/toolboxes	June 2015
4. Field testing, validation and evaluation	Field testing, validation and evaluation in target countries	July 2015
5. Dissemination and capacity building	5.1 Determination of communication strategy (by disseminating and advocating toolkits)	September 2015
	5.2 Identification of strategic partners for "Training of trainers" (Regional training workshop)	October 2015

Examples of annexed documents

Guideline & Manual

Contracts or Agreement for design and operation

Excel-based tool

Do we have a mutual understanding on FSM Tools, Toolkits, Toolbox?
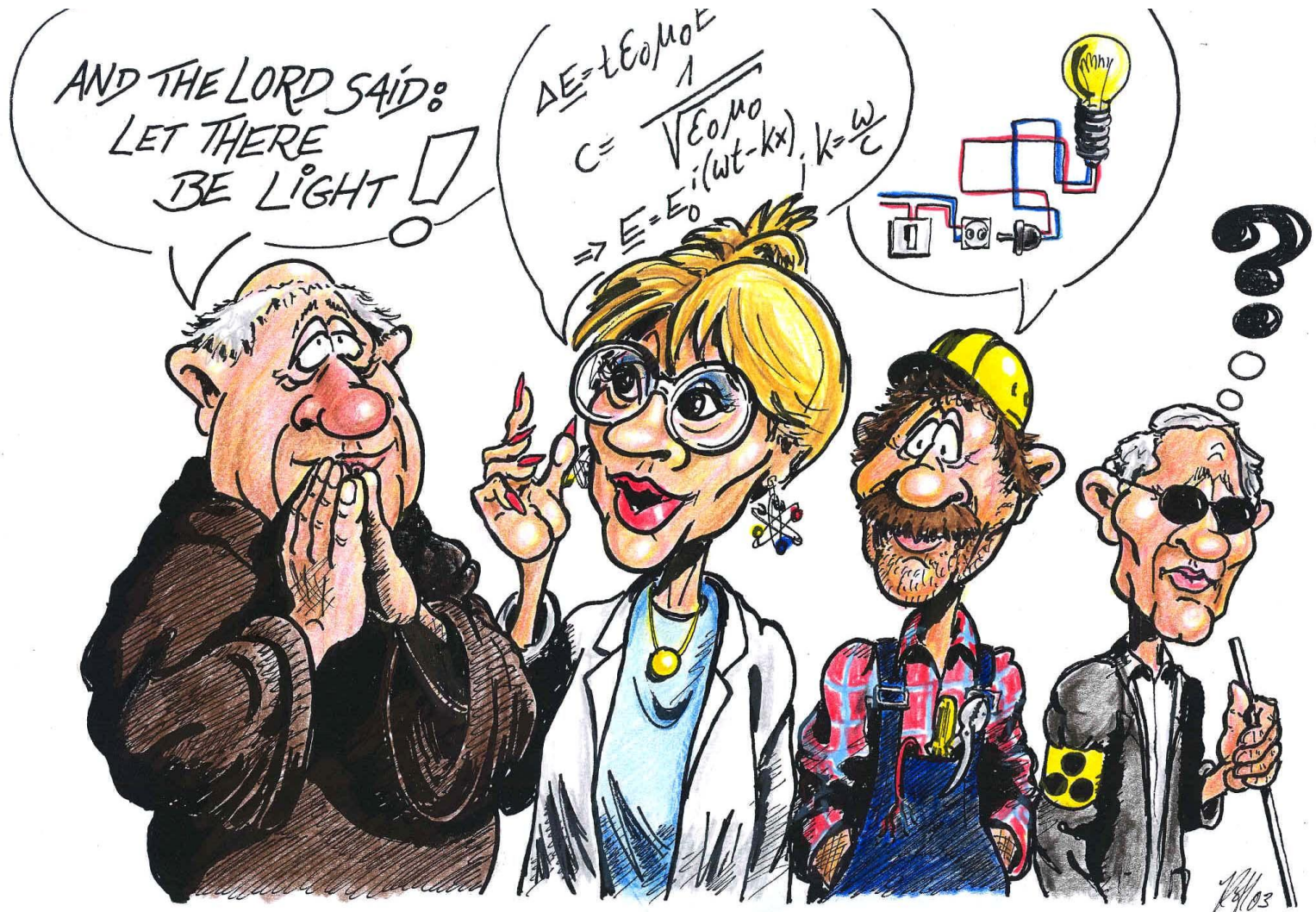
Initial finding of FSM toolkit mapping

Criteria for mapping:

- **Scale for application;** Global, Regional and Local
- **Application;** Sanitation, Water, Wastewater, FSM
- **7 Aspects;** Institutional & Regulatory, Financial, Technology, Driven approach, Capacity building and Advocacy
- **Users;** Investor/Donor, City manager/planner and Consultant
- **Advantage & Limitation**
- **Type of tools;** manual, software, checklist etc.

Initial finding of FSM toolkit mapping

25 toolkits

Symbol	Name of Toolkits
T1	Sanitation : Urban Ecological Planning AAR 4525 FALL 2013
T2	Guidelind for the Planning and Implementation of Rural Sanitation Programs: for provincial and district officer
T3	Toolkit for Public Private Partnerships (PPP) in Urban Water Supply for the State of Maharashtra, India
T4	Public Water system Moitoring Plan Toolkit
T5	Guidelines for the Provision of Safe Water and Sanitation Facilities in Schools
T6	INEE Good Practice Guide Water and Sanitation
T7	The fecal sludge management (FSM) program in the island of Negros in the Visayas region of the Central Philippine
T8	A toolkit for monitoring and evaluating household water treatment and safe storage programs (HWTS)
T9	Structuring Private-Sector Participation (PSP) Contracts for Small Scale Water Projects
T10	Sanitation Marketing Toolkit
T11	Approaches to Private Participation in Water Services
T12	Sector Wide Investment and Financing Tool (SWIFT)
T13	The Rural Water and Sanitation Information System (SIASAR)
T14	Water and Sanitation for all: A practitioner's Companion
T15	A Review of Decision-Making Support Tools in the Water, Sanitation, and Hygiene Sector
T16	LEAN& WATER TOOLKIT (Achieving Process Excellence Through Water Efficiency)
T17	Water Energy Toolkit, Understanding the Carbon Footprint of Your Water Use
T18	Waste Water Treatment Works: UPPF Project Preparation Toolkit
T19	CUPPS- CheckUp Program for Small Systems
T20	Tariff Setting Guidelines- A Reduced Discretion Approach for Regulators of Water and Sanitation Services
T21	Private Sector Participation in Water Infrastructure- OECD Checklist for Public Action
T22	Integrating the Human Right to Water and Sanitation in Development Practice
T23	INEE Minimum Standards Toolkit: Hygiene Promotion and Water/Sanitation
T24	Benchmarking Water and Sanitation Utilities: A Start-up Kit
T25	WASH sustainability assessment tool_beta

Tools under development and other planning guidance

- WSP / Leeds/GIZ, SaniPath, etc.
    - City planners and Consultants
    - Assessment tool

- CSTEP, FSM App, ….
    - Consultant
    - Technology aspect

- CLUES, CLTS, …

Initial finding of FSM toolkit mapping

Key player	Aspects	Local toolkit									Regional toolkit										Global toolkit												
		W	W/W	S			WS			FSM	W		W/W	S	WS					FSM	W		W/W		S	WS						FSM
				T1	T2	T3	T4	T5	T6	T7	T8	T9		T10	T11	T12	T13	T14	T15		T16	T17	T18	T19		T20	T21	T22	T23	T24	T25	
Donors/Investors	Regulatory										X										X		X			X						
	Institutional											X																				
	Financial													X										X								
	Technology																															
	Advocacy																							X								
	Monitoring						X				X			X																		
	Capacity Building																															

W = Water
W/W = Wastewater
S = Sanitation
WS = Water and Sanitation
FSM = Faecal Sludge Management

Initial finding of FSM toolkit mapping

Key player	Aspects	Toolkits																										
		Local toolkit							**Regional toolkit**								**Global toolkit**											
		S	WS	WS	WS	WS	WS	FSM	W	W	S	WS	WS	WS	WS	WS	W	W	W/W	W/W	WS	WS	WS	WS	WS	WS	FSM
		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	T24	T25	
Planner	Regulatory			X					X	X		X			X		X	X	X		X	X	X				
	Institutional		X												X	X			X						X	X	
	Financial			X	X					X	X		X		X		X		X	X	X						
	Technology	X				X	X	X																X	X		
	Advocacy					X	X									X				X			X	X	X	X	
	Monitoring				X	X	X	X	X		X			X		X											
	Capacity Building	X	X			X	X	X									X		X					X	X	X	

W = Water
W/W = Wastewater
S = Sanitation
WS = Water and Sanitation
FSM = Faecal Sludge Management

Initial finding of FSM toolkit mapping

Key player	Aspects	Local toolkit								Regional toolkit									Global toolkit									
		W / S:T1	S:T2	T3	WS:T4	T5	T6	FSM:T7	W:T8	T9	S:T10	T11	T12	T13	WS:T14	T15	FSM	W:T16	T17	W/W:T18	T19	T20	T21	WS:T22	T23	T24	T25	FSM
Consultant	Regulatory								X						X					X				X				
	Institutional		X					X							X											X	X	
	Financial										X				X					X								
	Technology	X				X	X											X							X	X		
	Advocacy		X			X	X																	X	X	X	X	
	Monitoring				X	X	X	X	X		X			X														
	Capacity Building	X	X					X					X												X	X	X	

W = Water
W/W = Wastewater
S = Sanitation
WS = Water and Sanitation
FSM = Faecal Sludge Management

Gap of FSM toolkit mapping

Coverage synopsis of the reviewed 25 toolkits

	Donor/Investors	Planner	Consultants
Regulatory	Available in global and regional level	Available in global and regional level	No local toolkits available
Institutional	Only one in regional level	Much of toolkits in Global level	Few in regional level
	Only two in regional and global	Global and regional level	No regional toolkit
Advocacy	Only one in global level	Many in global level	No regional toolkit
Monitoring	Only local and regional level	No toolkit in global level	Only local and regional level
Capacity Building	No toolkits available	Local and Global level	Only one in regional level

Note: only one FSM toolkit available for Planner and Consultants in technology, monitoring and capacity building aspects !!!

Gap of FSM toolkit mapping

- Few toolkits for FSM

Pie chart:
- Water — 16%
- Wastewater — 8%
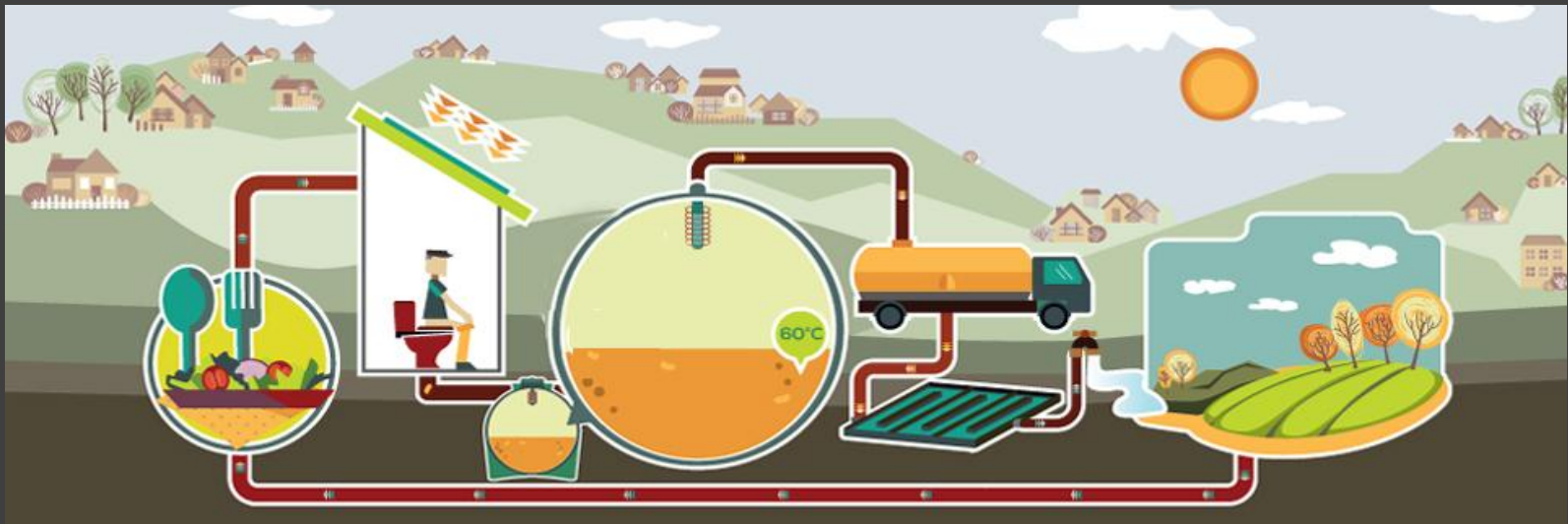- Sanitation — 12%
- Water and Sanitation — 60%
- FSM — 4%
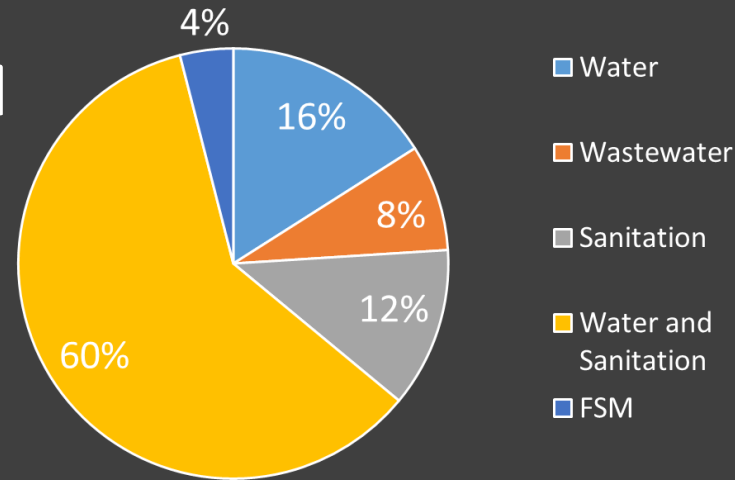
- Several tools need to highlight FSM chain
- Some available tools for Planner and Consultant but only few for Donor/Investor
  - Mostly focus on regulatory, finance and technology aspects
- Need an assessment tool to cover those 7 aspects
- Need for a user-friendly selection mechanism for tools in a toolbox!

Expected collaborations and partnership

- Tool/toolkit developers?

- Potential field-tested city?

- Shared documents/networks?

- Capacity building/training hub?

FSM Orchestra

- We'll Rock You!! -