35th SuSanA Meeting

Saturday 23. August 2025

sustainable
sanitation
alliance

Session 3

Sanitation Workers

Session 3

Sanitation Workers

Next Presentation:

Sarah Dickin- Uppsala University

Complicated plastics – menstrual waste and sanitation systems

Presentation by Sarah Dickin on behalf of larger team including Sara Gabrielson, Carla Liera, Collins Rutto, Neville Okwaro, Gin Dupont

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Complicated plastics

- Global policy review
- Survey and mapping exercise with sanitation workers in Kisumu
- Analysis of pad samples from different markets in Nairobi

One pile is a sanitation system and one pile is an informal waste heap

Policy review

- 15 countries were included, aiming for:
- Geographical spread across LMICs
- Countries that had some prioritization of MHH already
- Dedicated policies
- Positive responses to GLAAS questions

Africa	Kenya
	Uganda
	South Africa
	Senegal
	Burkina Faso
	Ethiopia
Asia	Bangladesh
	Nepal
	India
	Philippines
North and South America	Mexico
	Argentina
	Colombia
Oceania	Solomon Islands

Findings

- GLAAS:
  - 56% of countries in the GLAAS survey had a WASH policy/plan that included a MHH component (N=68).
  - More likely to be included in a WASH school plan (68%) than plans for urban sanitation (44%)
  - A total of 23 countries reported targets for MHH

- Of our sample of 15 countries: **47%** of the included countries had a dedicated menstrual policy and of these policies all of them included menstrual waste in some way.
- Menstrual waste was mentioned in **27%** of available sanitation policies, and **20%** of available solid waste policies.

Disaggregated experiences of sanitation work

	Women		Men	
	N	% of Women	N	% of Men
Timing of work				
Both day and night	1	7.14	6	5.7
During sunlight hours	13	92.86	61	57.6
During the evening and night	0	0	39	36.8
Chi square $\chi 2=7.70$,p=0.02				
Registered sanitation worker				
Yes	11	78.6	46	44.7
No	3	21.4	57	55.3
Chi square $\chi 2=5.67$,p=0.02				
Years' experience as a sanitation worker				
Up to 5 years	13	92.9	66	62.3
6 to 10 years	1	7.1	29	27.4
11 or more years	0	0	11	10.4
Chi square $\chi 2=5.23$,p=0.07				

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	N	%
What is the end disposal of faecal sludge collected from the latrines (more than one answer possible)		
Taken to the KIWASCO lagoon	**69**	**50.0**
Taken to the resource recovery centre	1	0.7
Washed into waterbody or other area (e.g. Lake Victoria)	11	8.0
KIWASCO faecal sludge treatment plant	14	10.1
Other (e.g. buried in a nearby dug pit near the toilet)	39	28.3
Don’t know	4	2.9
How often do you have to deal with waste that contain sanitary towels/menstrual pads in your sanitation work?		
Always	**76**	**63.3**
Often	36	30.0
Sometimes	6	5.0
Rarely	2	1.7
How much out of the solid waste would you estimate is sanitary towels/menstrual pads?		
The majority of all the solids waste emptied from each latrine	**47**	**41.2**
About half of the solid waste emptied from each latrine	40	35.1
Only a small amount of the solid waste	25	21.9
I don’t know	2	1.8
Perception of volume over time		
There is more menstrual waste today compared to when I started doing this job	**82**	**68.3**
There is less menstrual waste today than when I started doing this job.	25	20.8
No, it is the same menstrual waste today as when I started doing this job.	12	10.0
I don’t know	1	0.8

Menstrual waste challenges on the ground

- Sanitation workers face a range of health, environment, and social risks exacerbated by handling menstrual waste

- Maps of menstrual waste flows in Kisumu showed **differing** perceptions of the reality of menstrual waste disposal.

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Get in touch

- Sarah.Dickin@uu.se

- Paper on menstrual waste maps here: ‘Entangled risks: knowledge co-production with sanitation workers to address current and future challenges of handling menstrual waste in informal settlements in Kenya’ https://www.sciencedirect.com/science/article/pii/S1353829225001030

- If you can validate the policy review please let us know!

Acknowledgements:

- Research funding: Formas (Swedish Research Council for Sustainable Development)
- Assistance from USAID Western Kenya Sanitation Project in organizing key stakeholder workshops

FORMAS

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Sanitation Workers

Next Presentation:

Berry van den Pol - PRACTICA

Professional

Pit Emptying

PuPu

Berry van den Pol
www.practica.org

PRACTICA

Innovative Technologies managed by Entrepreneurs

RATIONALE

1. Urban need for safe pit emptying

2. Challenges
    1. Accessibility
    2. Affordability
    3. Contents of pits
    4. Poor services
    5. Health risks and environmental impact

3. Adapted equipment needed for safe and viable pit emptying in densely populated areas

PuPu Pump

PuPu : Pull and Push..

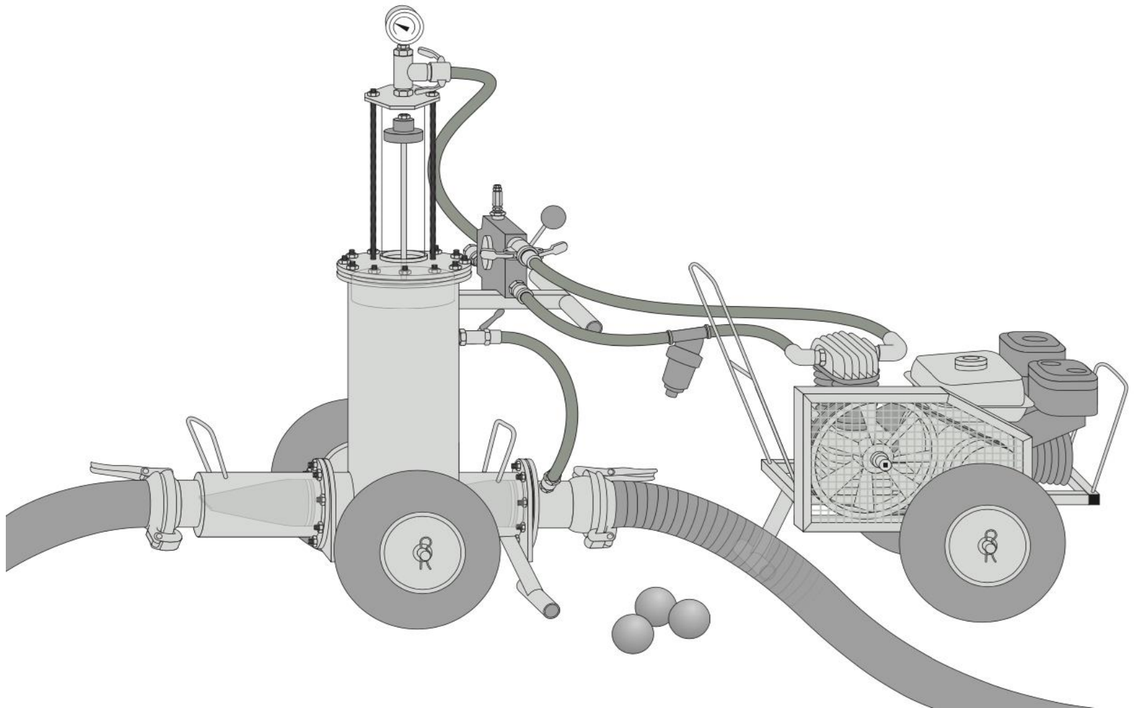
- Pump, Compressor and Transport unit
- Air pulls sludge from **pit to pump** and then **pushes it to tank** – 20L strokes
- High push capacity (100+ m distance)

ANY VEHICLE, ANY TANK SIZE

PuPu

PuPu-Pump – Features

- 4 inch suction and delivery hoses
- Duckbill valves for thick sludge and debris
- Up to 6m3/hr capacity.
- Water and air bubbling injection
- Sponge pigging ball for hose cleaning



1L of fuel for 3000L of sludge
Simple, Repairable, Robust
Hygienic equipment
Can operate in densely populated areas

PuPu Pump – in practice

Deployed in 8 countries by different modalities; private sector, utilities, NGOs

1. Mwanza, Tanzania.
First time pit emptying services established in Lake Victoria towns. Pits not empty able by vacuum truck.

2. Adama, Ethiopia.
Linking solid waste priorities to fecal sludge management.

3. Nakuru, Kisumu, Kenya.
Nawasco + local business. 600+ pits emptied since 2022. 80% success, 200% uptake increase and customers asking for specific PuPu service providers

PuPu Pump – Scaling plan

- Manufacturing in India
- Global marketing and support from Netherlands
- **Regional PuPu hubs** for marketing, training and ser

- GPS monitoring device and dashboard
  = volume control for safe discharge
- Integration into **city-wide viable FSM chains**

PuPu

www.practica.org

Session 3

Private Sector

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Private Sector

Next Presentation:

Bara Wahbeh - AKYAS

AKYAS

Transforming pit latrines from containment into mini-onsite treatment centres.

Aug 2025

By AKYAS Sanitation | AKYAS Environmental

Concept

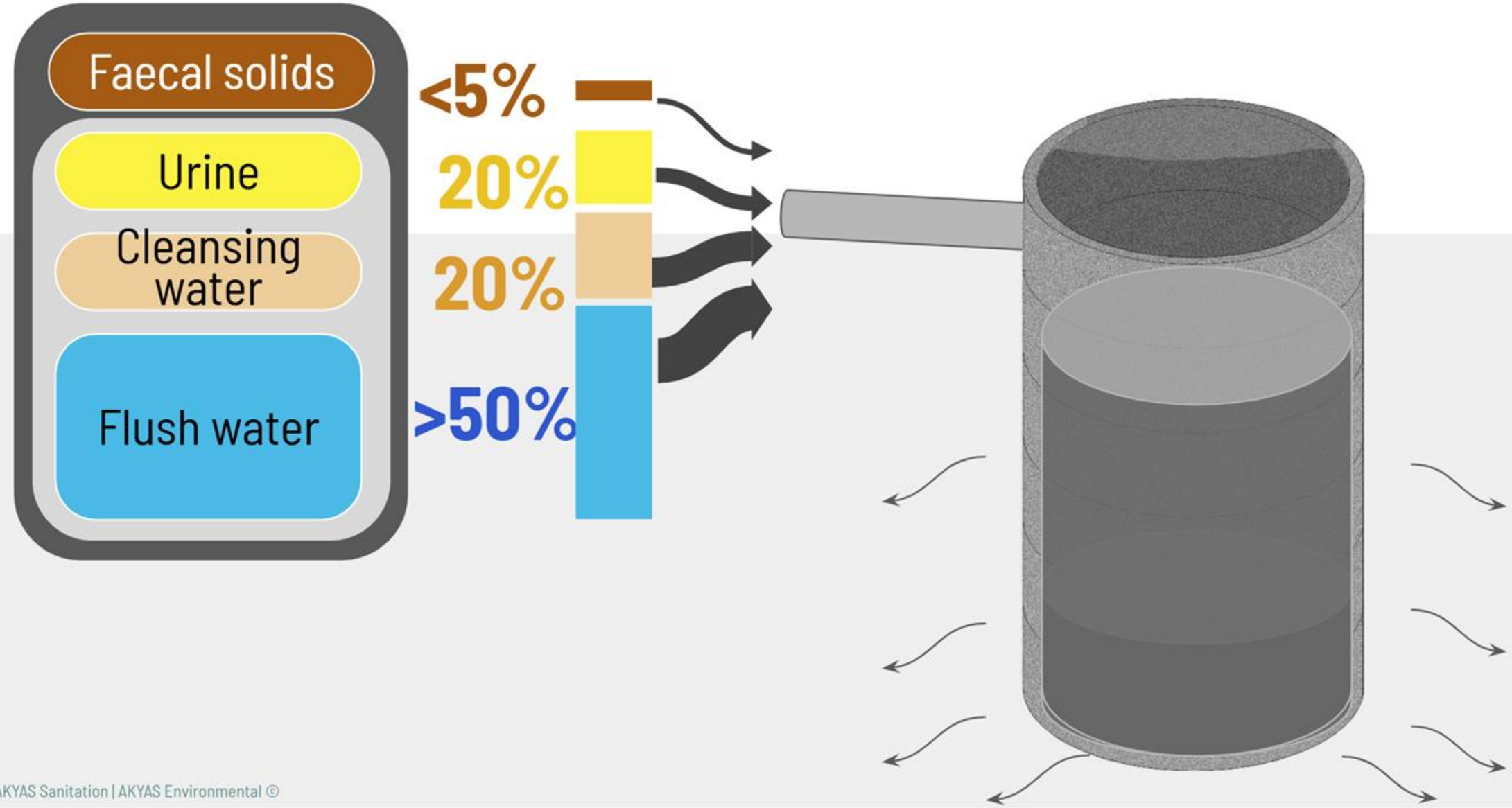
Mixed waste streams

⬇

Complex treatment

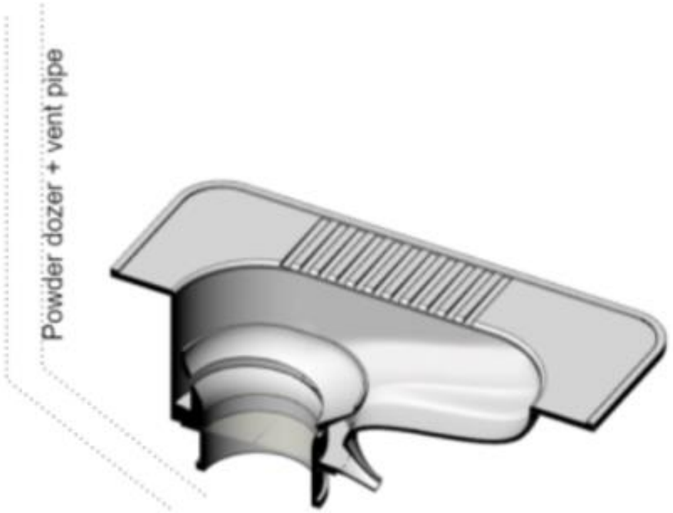
Early waste streams
separation
=
Individualized & cost effective

The FSM Challenge

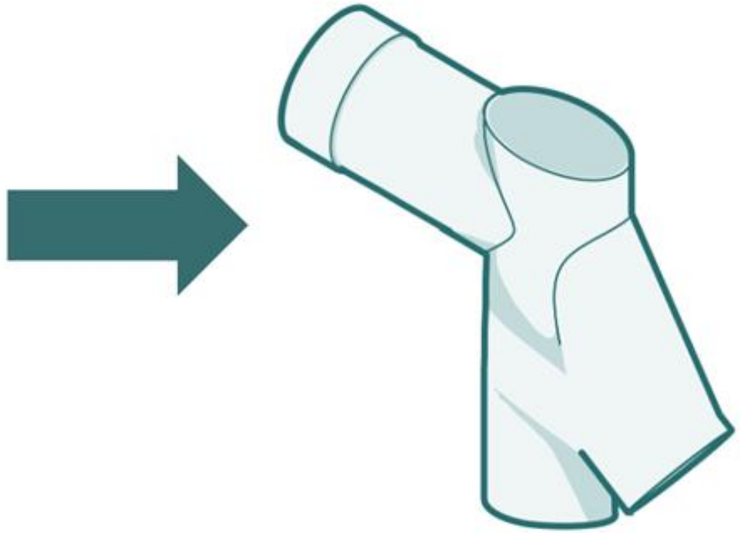


Typical UDDT

AKYAS Liquid diversion pan



AKYAS Effluent Diversion Unit "EDU"



Toilet frontend

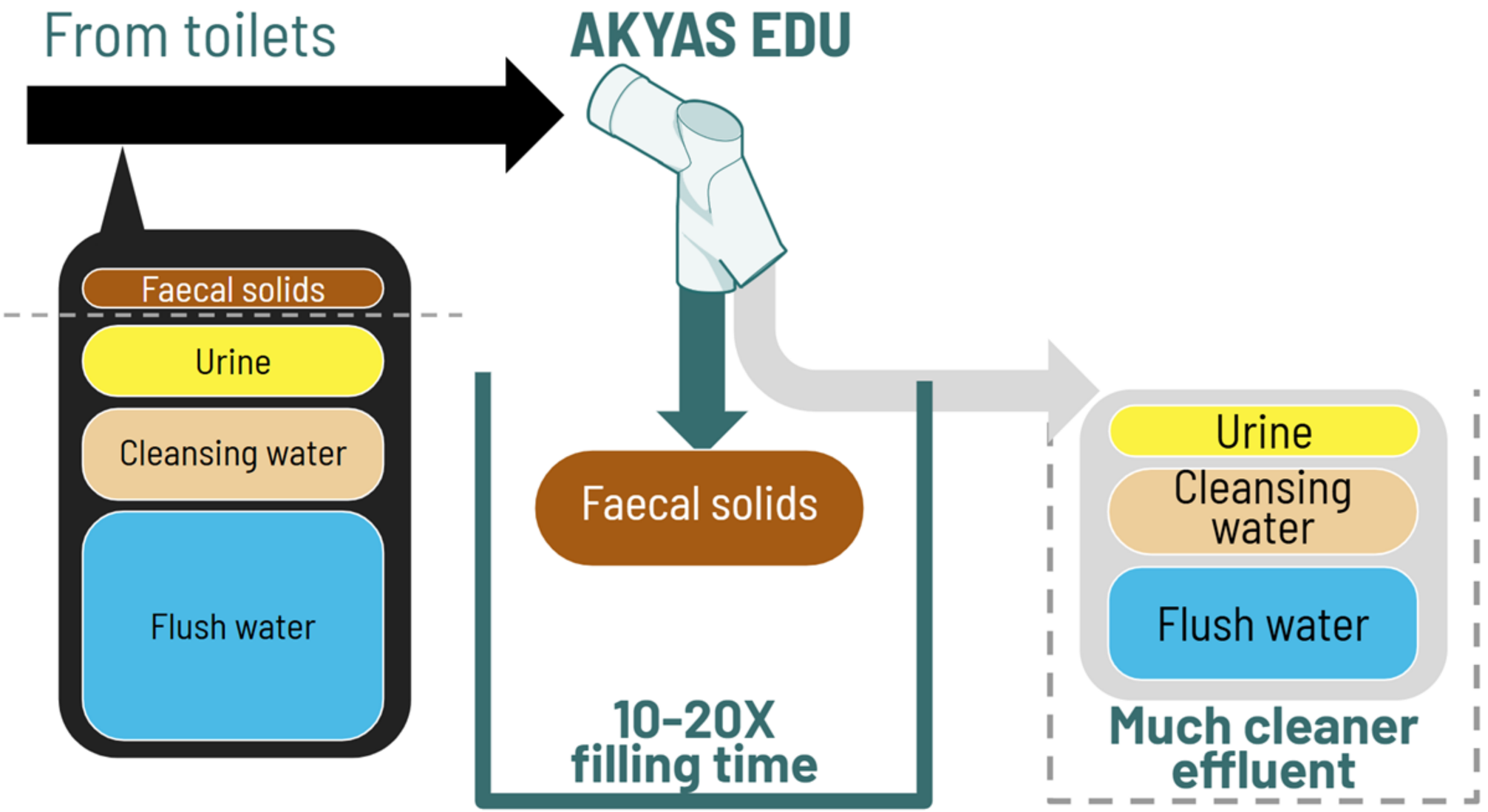
Behavior change

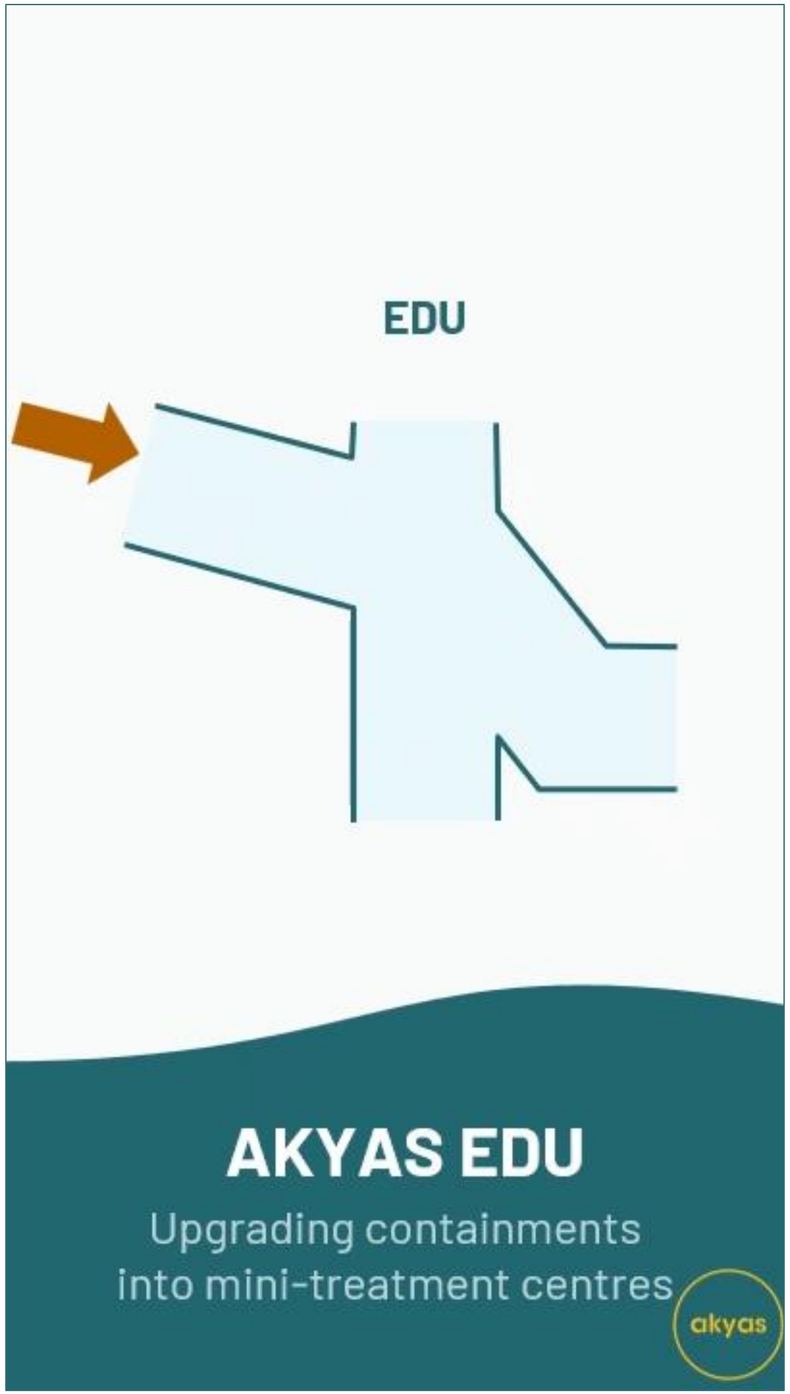
Toilet frontend

Social acceptability

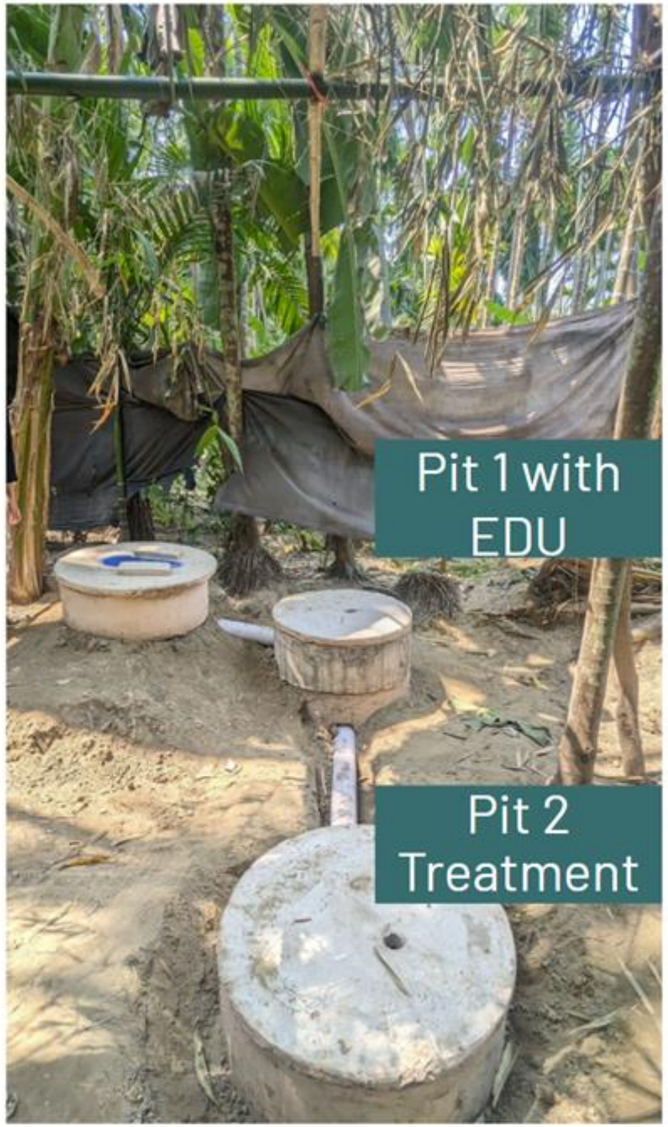
Toilet backend

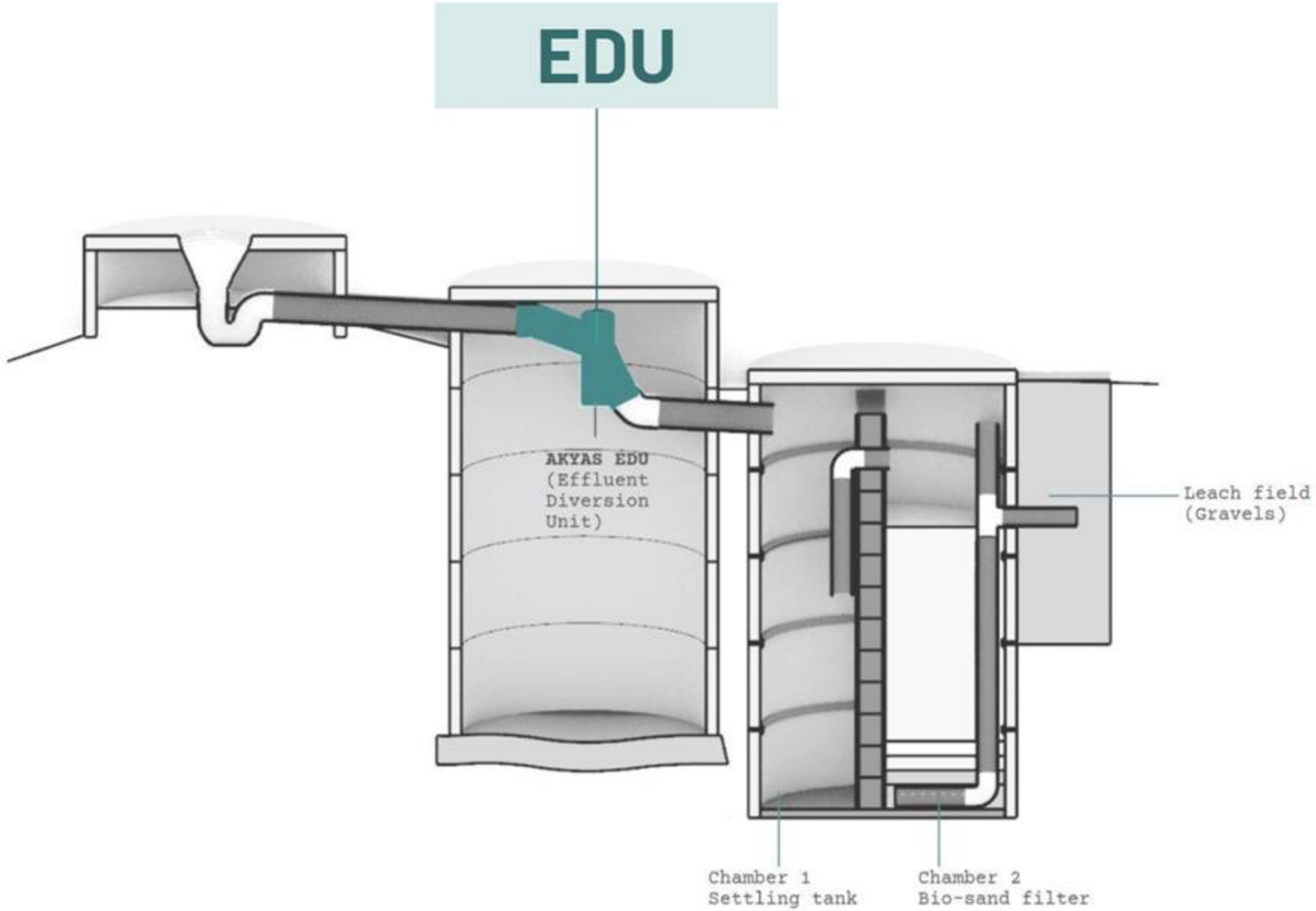
Solution





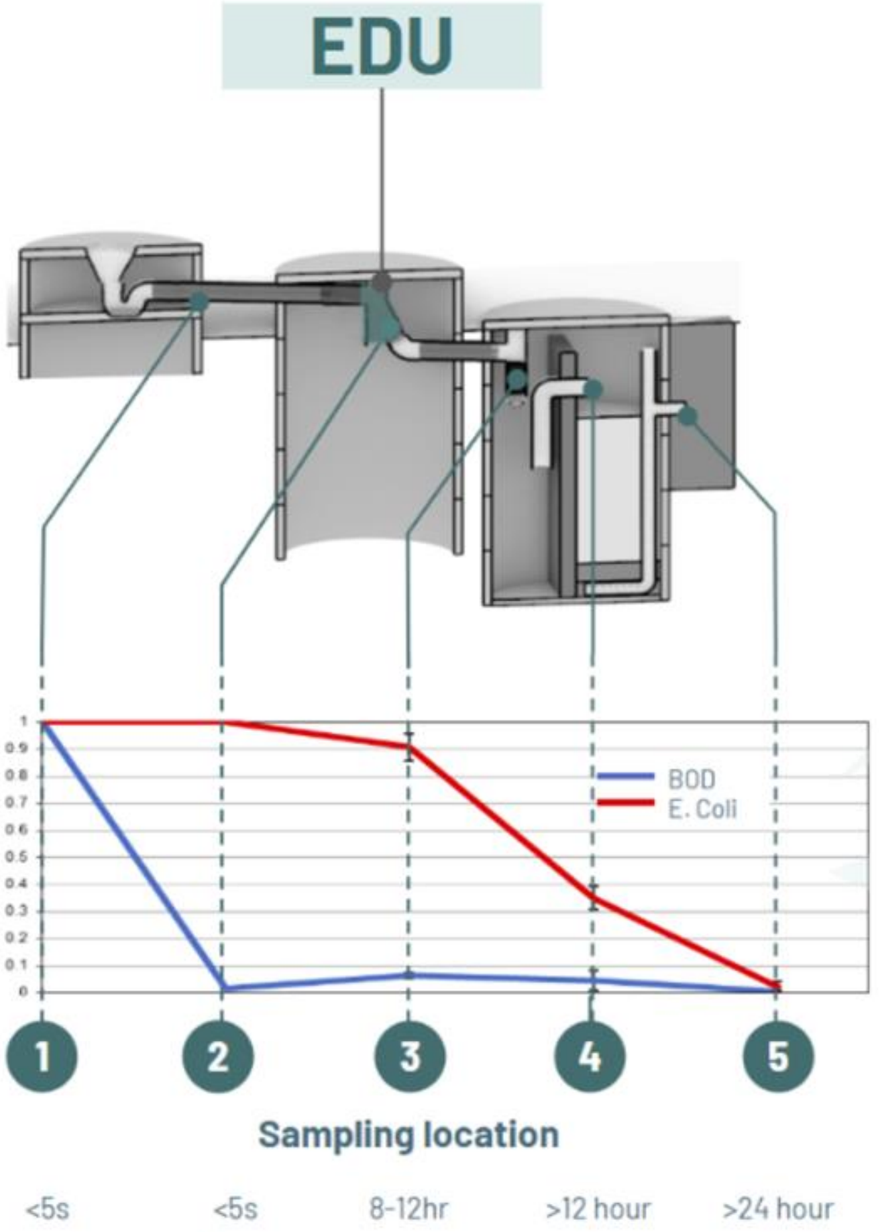
Solution





Use case 1

Dual-pit latrine



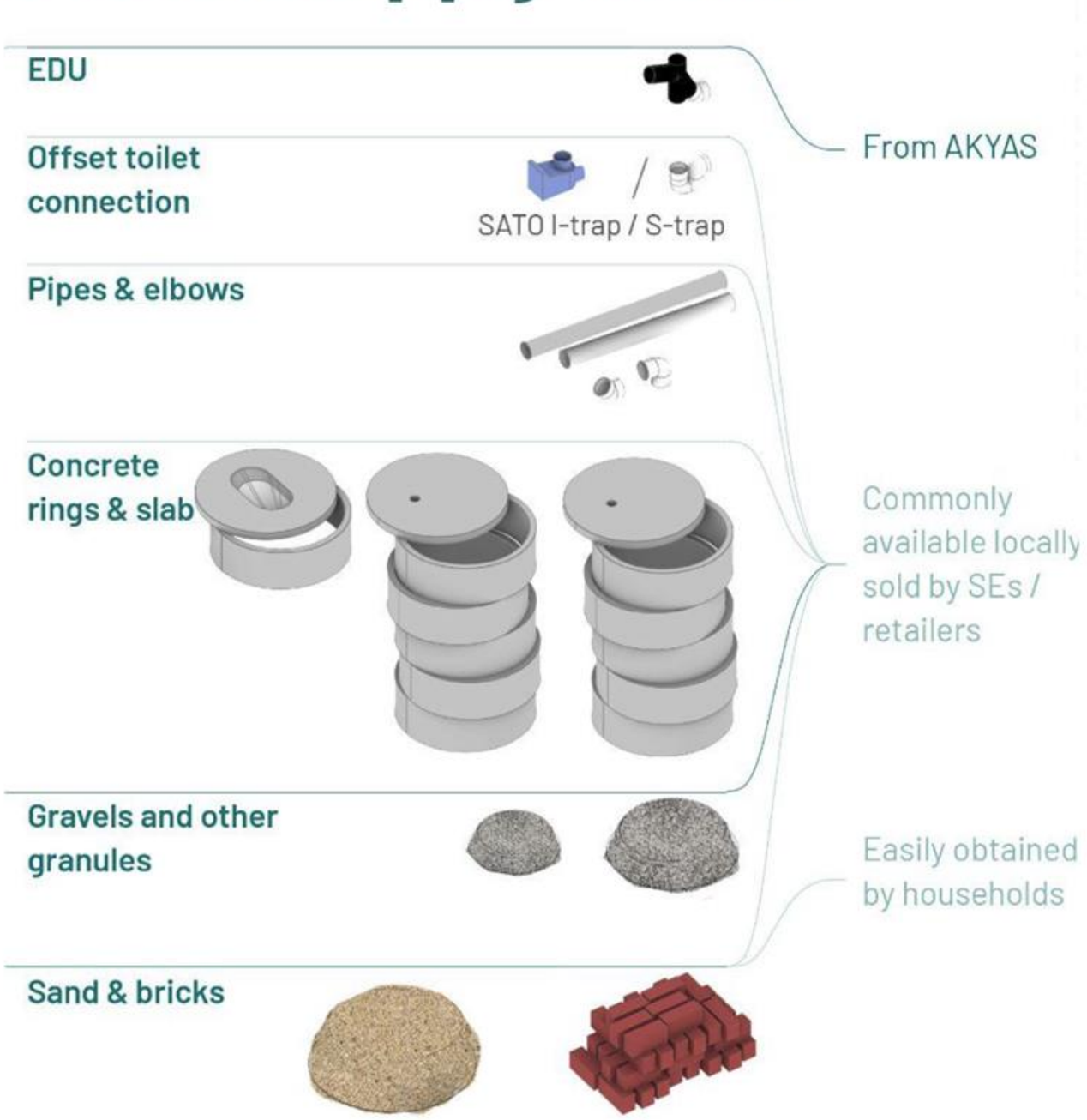
99% reduction of BOD, COD, TS

98% pathogen reduction

2023 | Cox's Bazar, Bangladesh

Consulting & Co-creating

Embedding into local supply chain



Sustainable business model

EDU - driving local jobs and hardware demand

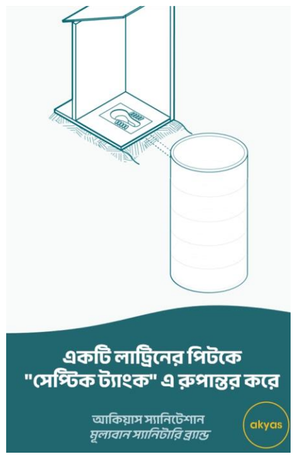
Currently

AKYAS

Sanitation entrepreneurs

Households

Sales Promoters



Scaled-up impact

Local manufacturer & distributor

Program partners

Awareness campaign

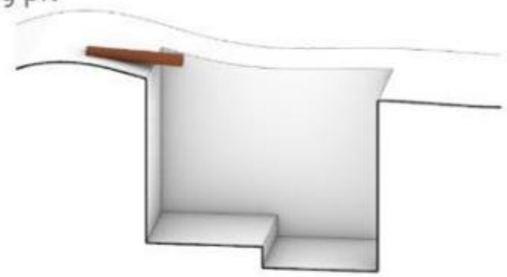
Affordability program

Training program

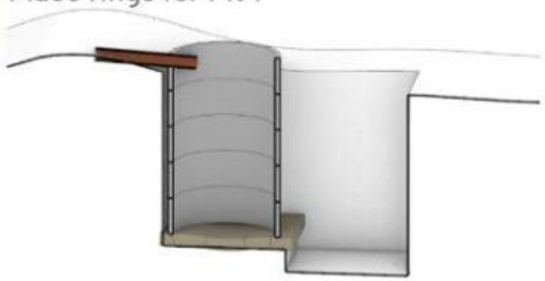

AKYAS Innovation
2024 | Kisumu, Kenya
Expanding

202

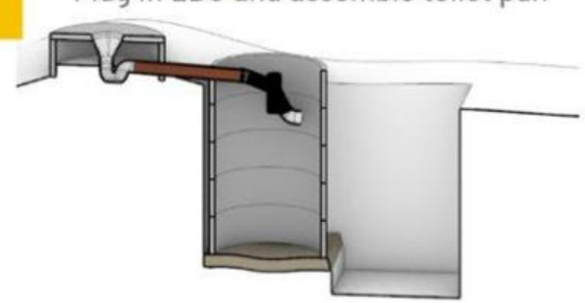
1 Dig pit



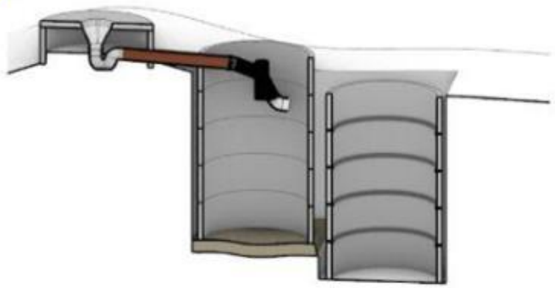
2 Place rings for Pit 1



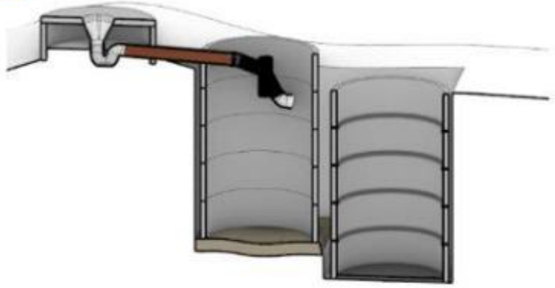
3 Plug in EDU and assemble toilet pan



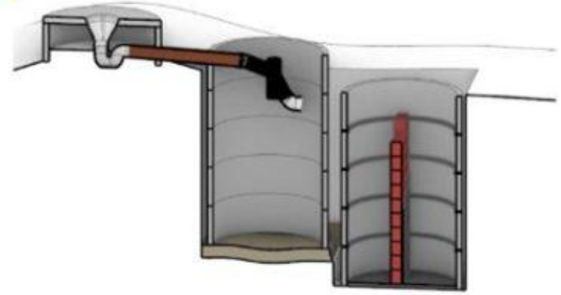
4 Place rings for Pit 2



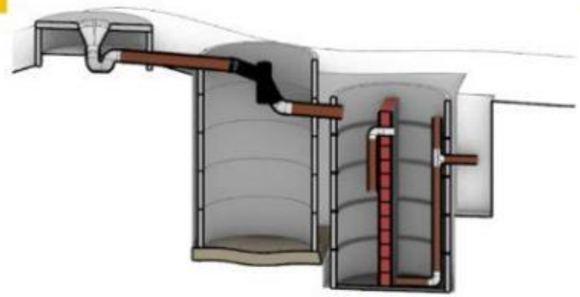
5 Cement the bottom of Pit 2



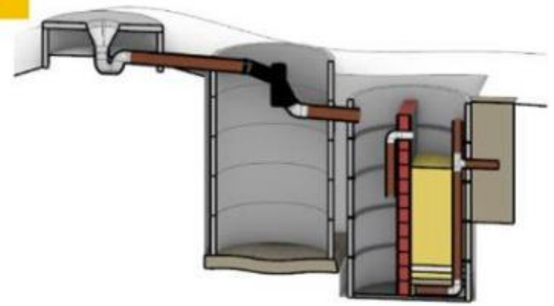
6 Build brick wall to form 2 chambers



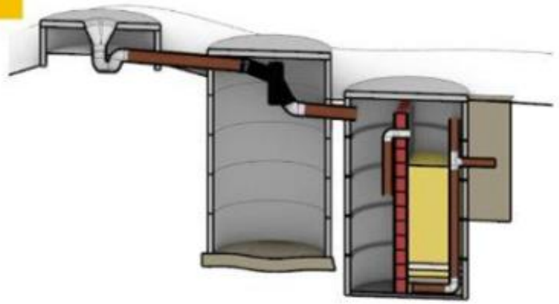
7 Align pipes



8 Check and fill chamber 2



9 Check and polish



Climate resilience combinations

Rural — Semi-urban — Urban

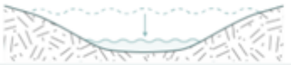
Too little water

Too much water

Water stress/ Water scarce

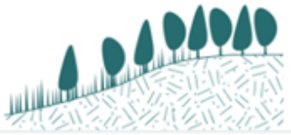
Low water-table/ Low water retention

Low availability of freshwater bodies/ precipitation



Adequate availability of freshwater bodies

Adequate rainfall



High water-table

Flood / Waterlog

Coastal area/ Delta areas/ Vulnerable to sea level rise

C

Onsite treatment
+
Water harvest & aquifer recharge

Nature-based

D

Onsite treatment
+
Water reuse (e.g. in flushing)

E

Redirecting effluent via simplified sewer
+
Treatment

B

Onsite treatment
+
Irrigation / agriculture

Nature-based

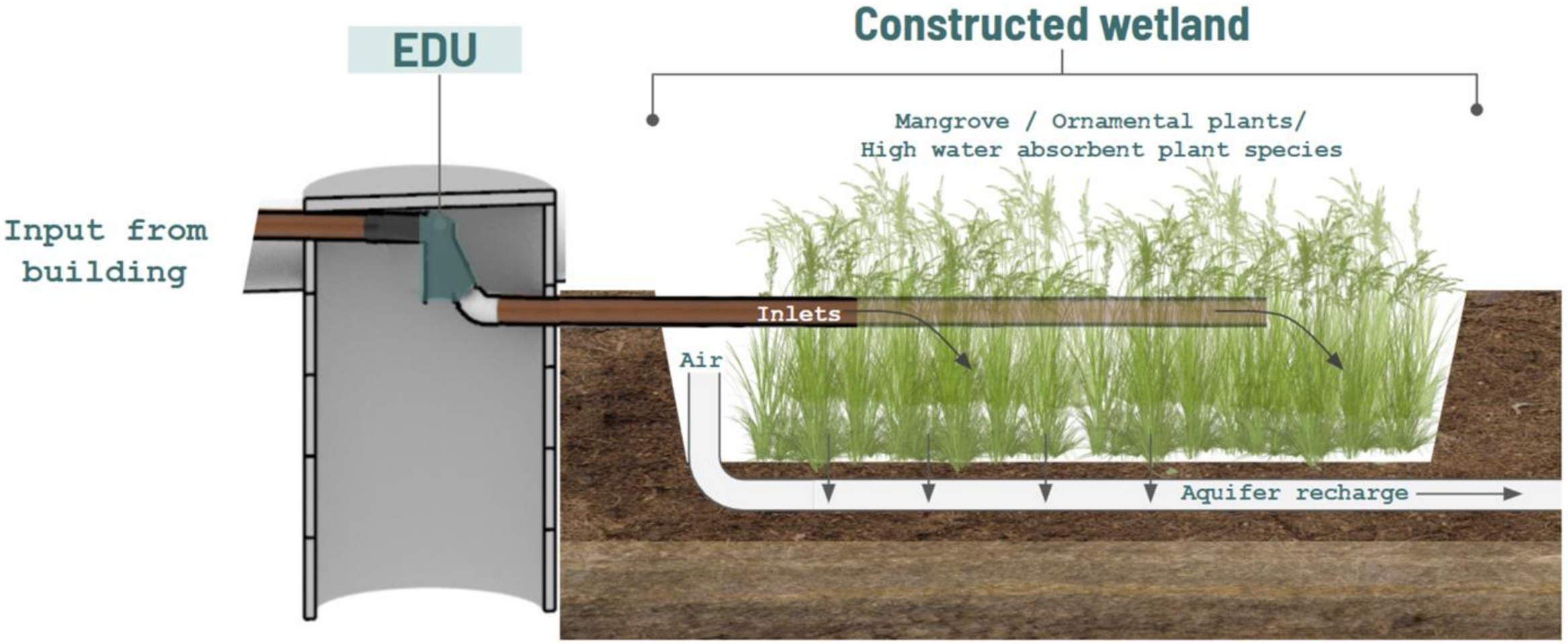
A

Onsite treatment

Nature-based

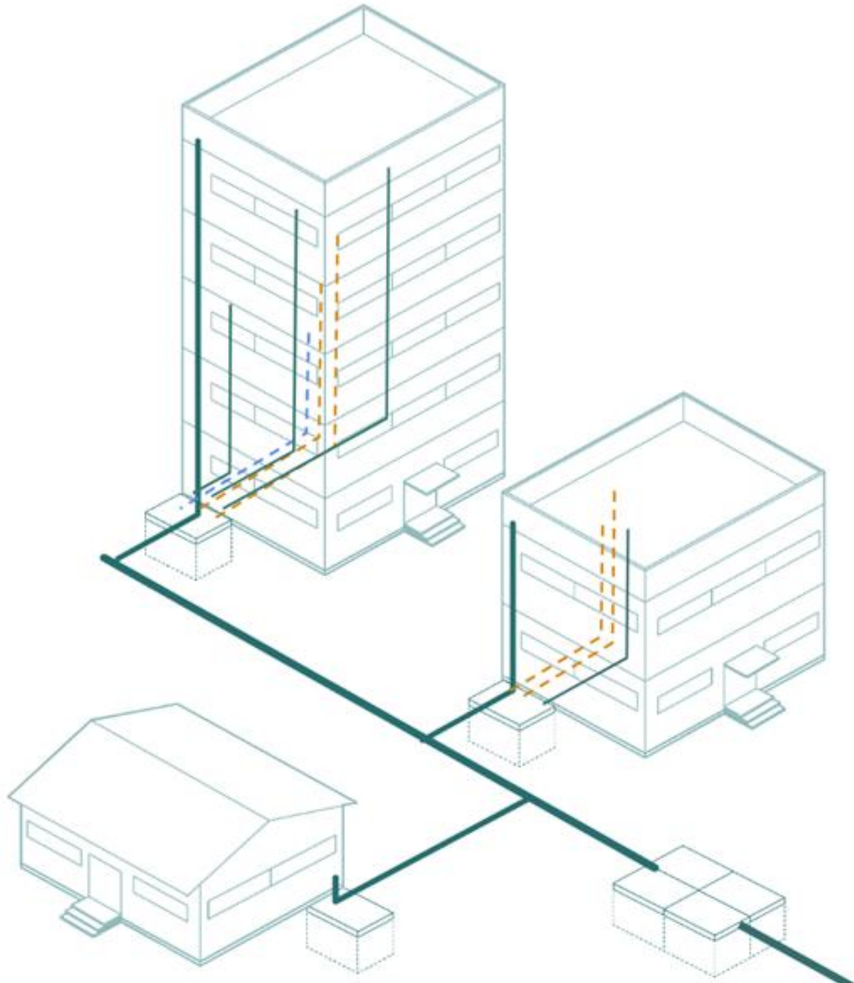
Use case 2 - Pilot application

Building + constructed wetland



Use case 3 – Future application

Condominium sewer



AKYAS Team

A global team designing & deploying WASH innovations

Bara Wahbeh
Executive Manager

Environmental eng. & serial entrepreneur

Mandy Mui
Chief of Innovation

Architecture & spatial planning

Dr. Sophia Tan
Chief of Impact

Public health & medicine

Dr.Ala'a Ahmed
Soil Scientist

Water Resources & Environmental Management

Aniruda Jagtap
Business Strategy

MBA

Samuel Tell
Chemist

Operational economy & chemistry

I have an idea. Let me build it, break it, and make it better

"Devil's in the details."

Always start with WHY.

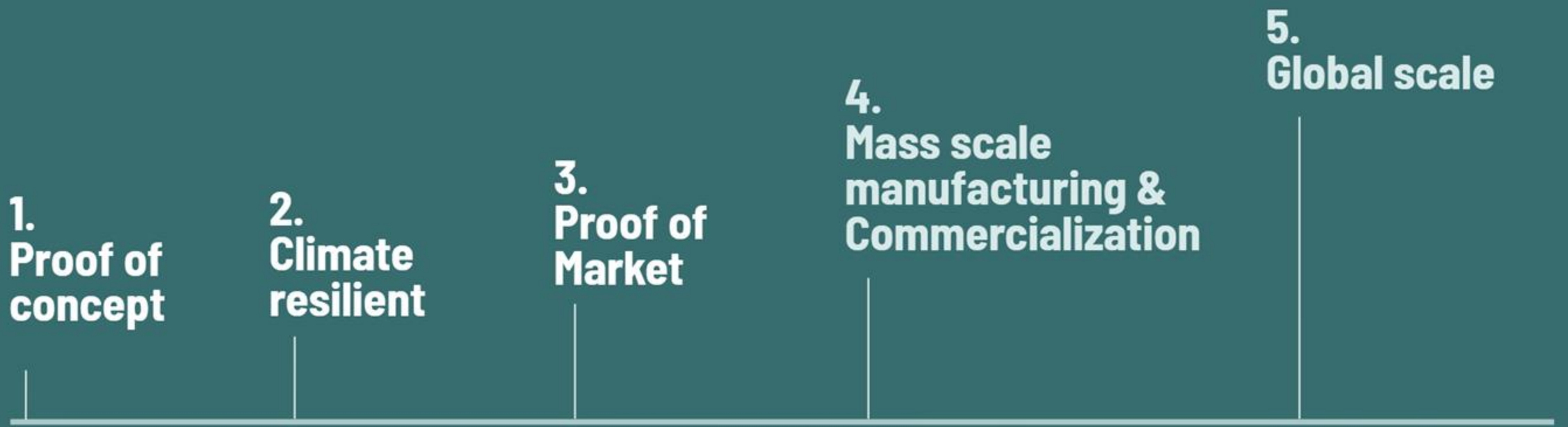
The time for climate action is NOW.

This is a great direction to go

$ x tech x scale = impact

akyas

Partner with us!



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LinkedIn: AKYAS Sanitation

Email: info@akyas-sanitation.com

Brochure

Latest Publication

EDU animation

Session 3

Private Sector

Next Presentation:

Valentin Post - FINISH Mondial

FINISH MONDIAL

Financial Inclusion Improves Sanitation & Health

Small changes underscore large numbers
The case of MSMEs

Valentin Post,

Director, FINISH Mondial Foundation

Ministry of Foreign Affairs of the Netherlands

WASTE

amref Flying doctors

FINISH MONDIAL FOUNDATION

Results (2024 for info only)

FINISH

300,000+

safely managed sanitation systems (46% new, 54% rehabilitated)

1.5+ million

people directly benefited

5+ million

workdays generated

€100+ million

mobilized via local financing

36,602 tonnes

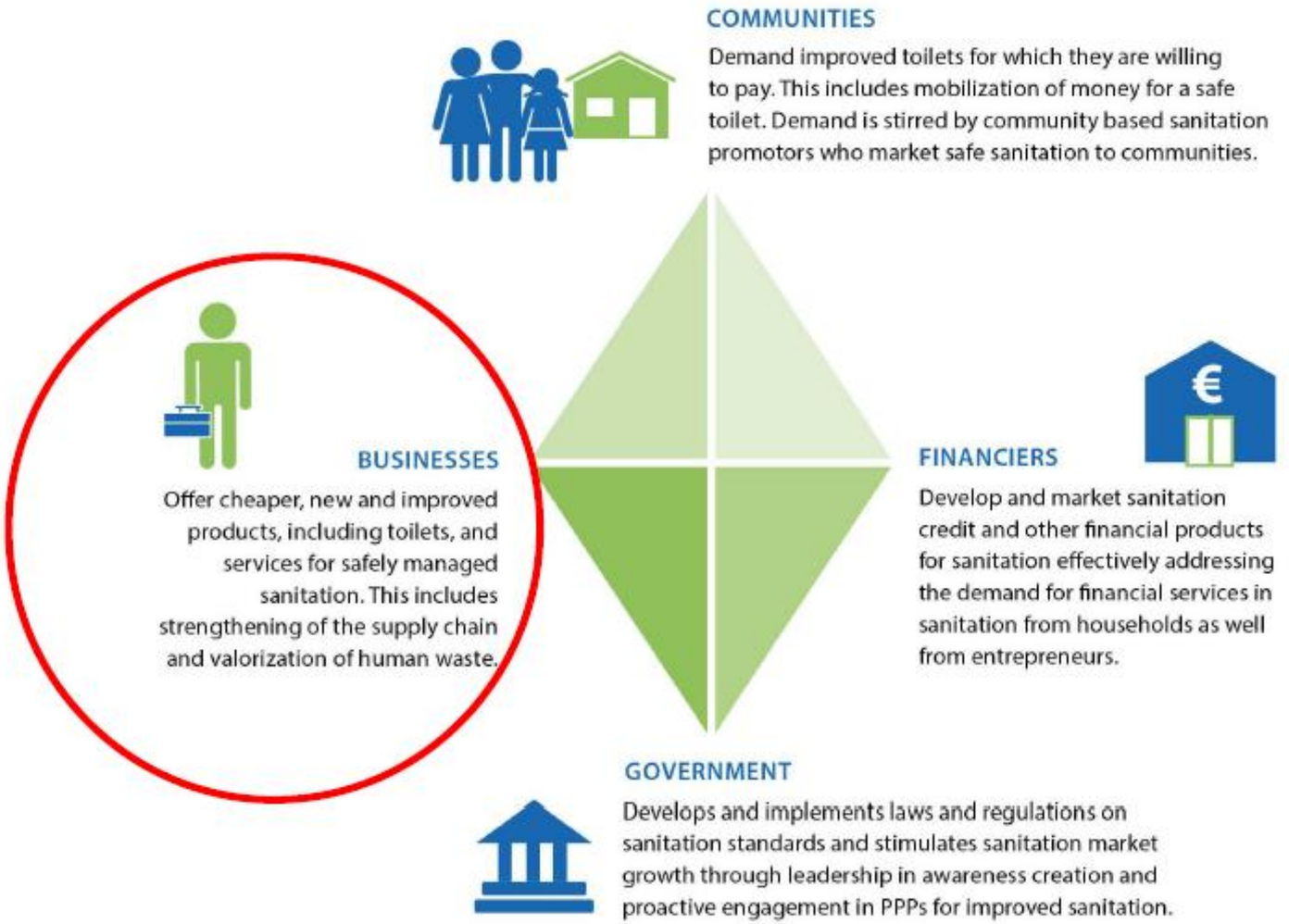
faecal sludge treated (1,372 tonnes reused)

41,467 tonnes

solid waste treated (9,682 tonnes reused)

Our approach

A proven model for local market development



MSMEs, why do we assist?

FINISH

- Shield against falling back into poverty (financial literacy, savings)
- Lower CAPEX ↓ interest rate burden
- Employment
- Sustainability, innovation
- Healthier clients = better clients

Some current challenges:

- *CP uses CSR to support health activities. Yearly payment € 4.5; normal expenses € 125, how to valorise ?*
- *MSMEs as client FIs w/o distorting markets*

MSMEs, how do we assist?

FINISH

Aggregating demand – strengthening the business case

Training verticals – technical trainings & refresher trainings

Business training from simple bookkeeping to BP

Organising entrepreneurs (e.g pit emptiers Bangladesh, artisans Uganda in groups) & registration (Kenya)

Accessing finance (MF+; proof of concept on bigger support)

Enabling environment

Proof of concept new technologies / systems

FINISH

Let's create a global sanitation revolution together!

www.finishmondial.org

For further details: vpost@finishmondial.org

Allianz | Allianz Partners

cardano

Centenary Bank

CMC

FamilyBank

FINISH INK

FSMC Enriching Communities

FWWB

Hofokam Loans for Success

Imarika SACCO

LIXIL

Ministry of Foreign Affairs of the Netherlands

P4G Pioneering Green Partnerships, Investing in Impact

SidianBank

Take a stake Fund

UNDP

unicef

Session 3

Sanitation Workers & Private Sector

Q&A and Discussion

Session 3

Emergency WASH

Session 3

Emergency WASH

Next Presentation:

Linus Dagerskog & Mohamed Ali - SEI

Water Innovations for Circularity and Enhanced Resilience in Iraq

Linus Dagerskog
Mohamed Ali

SEI Stockholm Environment Institute

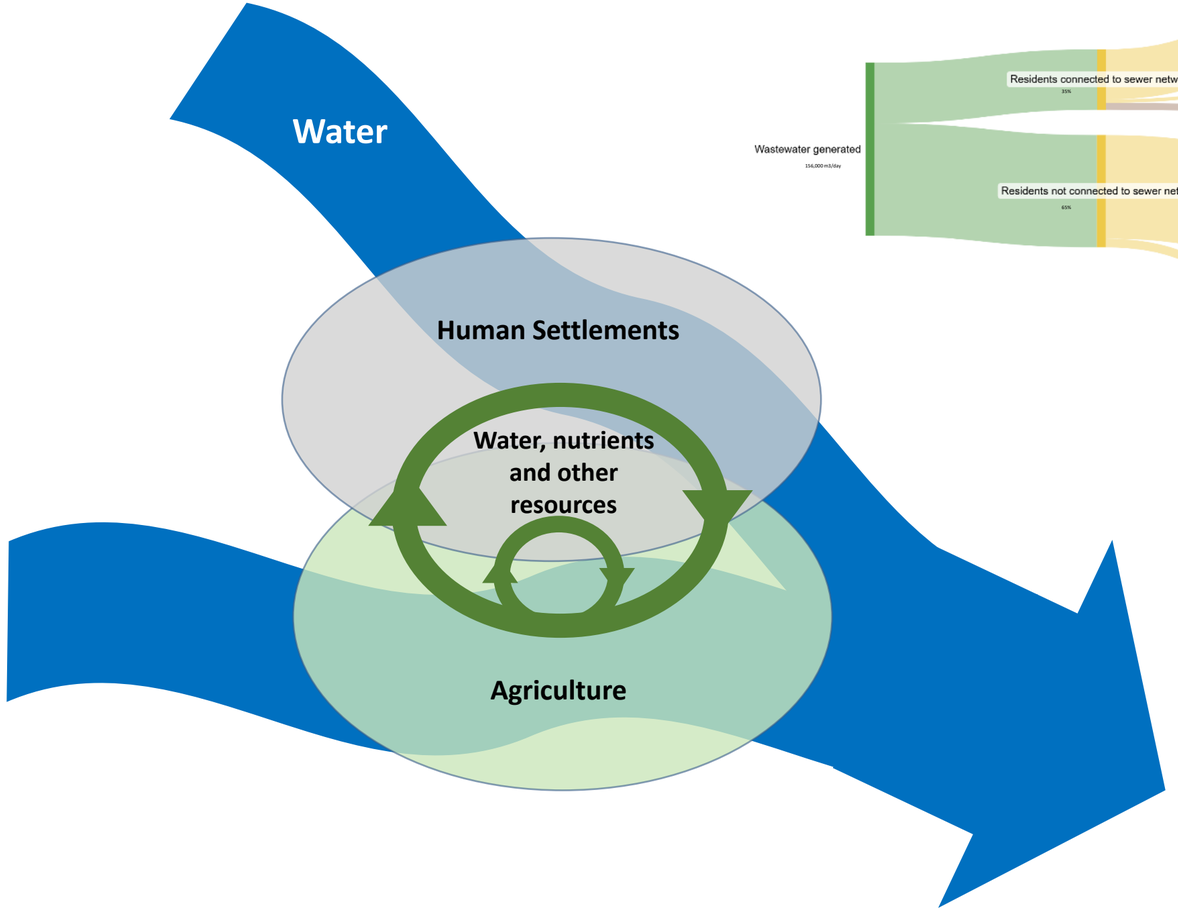
SuSanA meeting 35th August 2025

WICER · Iraq
Water Innovation for Circularity and Enhanced Resilience

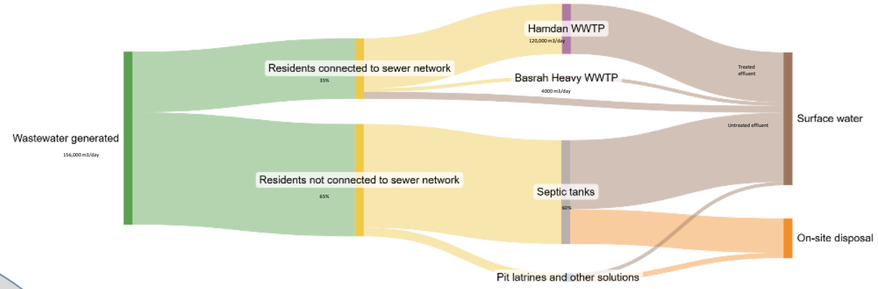
Water Innovations for Circularity and Enhanced Resilience

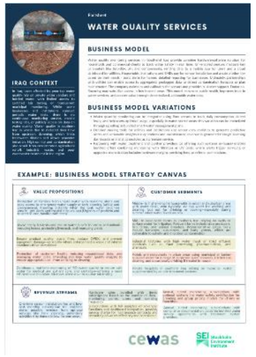
WICER · Iraq

WS-A: Resilient Water Management

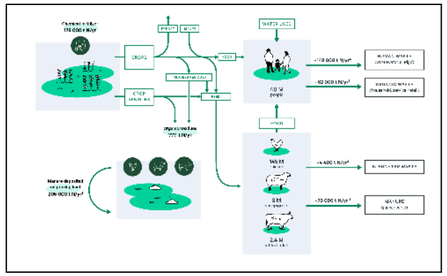


WS-B: Exploring Urban Circularity





WS-C: Exploring Rural Circularity



WICER rural circularity component

1. Circularity in theory: Assess circularity potential in Iraq

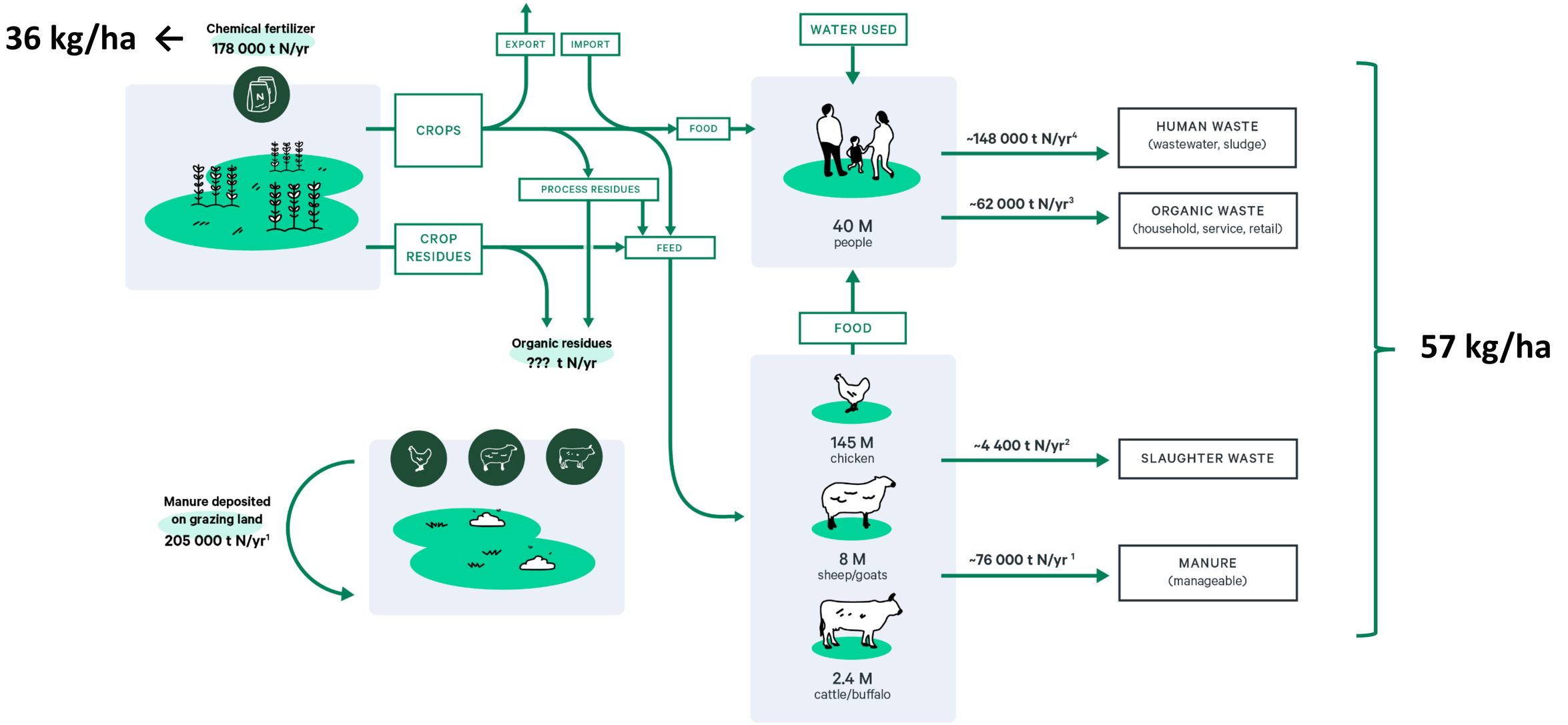
2. Circularity in practice:

a) Document good circularity practices in Iraq

b) Support the development of management models for community level NbS (constructed wetland)

Alessandro Amodio
Karrar Al-Jorani
FAO-Iraq

Circularity potential in Iraq : Nitrogen (N) as example

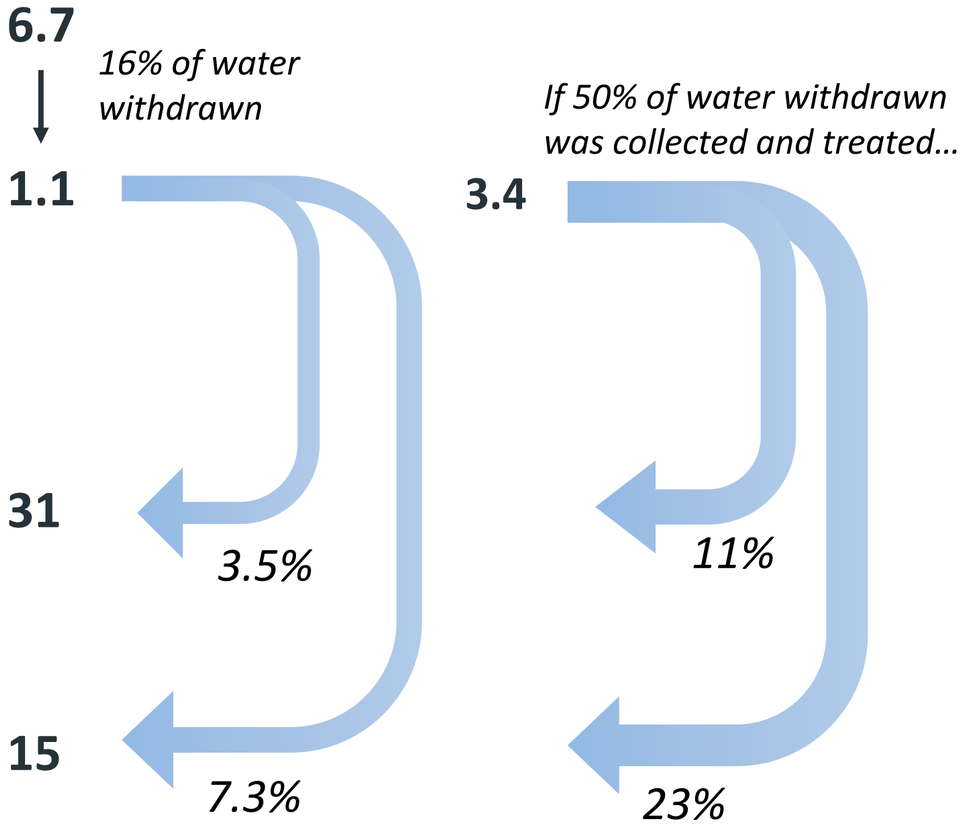


Notes and sources:
Livestock numbers and chemical fertilizers from FAO-stat (2023), population from national census (2024). KRI not included due to missing data in FAO-stat database.
1. Total quantity N in excreted in manure from FAO-stat (2022). Repartition of manure between deposition on grazing land and "manageable" was adapted from GLEAM/FAO reports for West Asia. Proportion manageable manure assumed to be 25/10/75/30/10 % for cattle+buffalo/sheep+goats/chicken/mules+asses/camels respectively.
2. Number of animals slaughtered in Iraq from FAO-stat (2023). Kg per animal live weight Tier1 data for Iraq from FAO-stat, except poultry assumed to be 2 kg (Khalaf and Abdalltef, 2025). Proportion of slaughter waste assumed at 45/40/30/50/55 % of live weight for cattle+buffalo/sheep+goats/poultry/camels/asses+mules respectively. Assumed 2.5% of N in resulting slaughter waste.
3. FAO Food Waste Index report (2024).
4. Based on protein-intake (FAO-stat, average 2020-2022) using method by Jönsson and Vinnerås (2003).

Circularity potential in Iraq – water from wastewater

- **Municipal water withdrawal in Iraq** (B m^3)**:** **6.7**
- **Wastewater collected in Iraq** (B m^3)**:** **1.1**

  → 43% indirect reuse *(Velpuri et al. 2023)*
- **Agricultural water withdrawal in Iraq** (B m^3)**:** **31**
- **Irrigation water requirement in Iraq** (B m^3)**:** **15**



Data source: FAO Aquastat (2022)

SANITATION CIRCULARITY PRACTICES

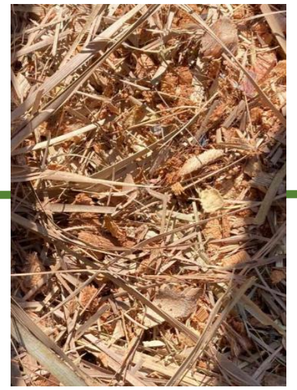
Qushtappa, Erbil (BORDA, 2025)

Constructed wetland at University of Sulaimani (UoS/WFP, 2024)

Agricultural Research Center, Erbil (BORDA, 2023)

AGRICULTURE CIRCULARITY PRACTICES

Mulching

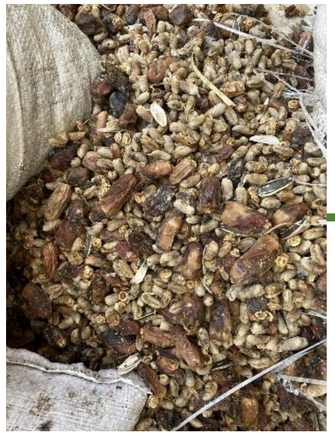

B/C : ~3 – 12

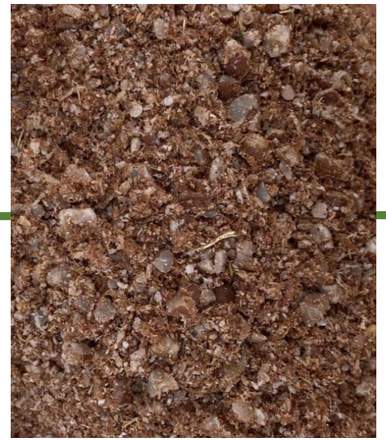
Manure fertigation



B/C: ~ Equal to chem fert.

Date stone grinding






B/C: ~ Equal to buying feed

Management guide for constructed wetlands in Iraq

- Support to WFP-Iraq and MoWR
- Enhance sustainability of CW pilots
- Guide to be published by WFP-Iraq

cewas

SEI Stockholm Environment Institute

Management Guide for the Bazyan Constructed Wetland System

A Context-Responsive Guide for Practical Operation, Local Oversight, and Institutional Readiness in Sanitation Nature-Based Solutions

Focus Area:
Bazyan District, Sulaymaniyah
KRI, Iraq

As of: June 24, 2025

SEI

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Conclusion

- Water quantity and quality challenges acute in Iraq
- Water resource focus as entry point, circularity as part of the solution
- Increasing interest and openness to NbS and circularity
- Various options need to be tried out and adapted
- Need for capacity building, O/M, entrepreneurship, enabling policies etc
- Great opportunities for regional learning

WICER · Iraq
Water Innovation for Circularity and Enhanced Resilience

Meeting the Modelers

- Knowing the participants,
- Storytelling & Local Application
- Strategic & Global Perspective
- Key Takeaways & What’s Next

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Key Takeaways

- Most participants rated the training as 3 out of 5, primarily due to the short duration and limited hands-on time, especially with SWAT.
- The team is currently working on modeling Al-Azim River Basin using SWAT, followed by application of WEAP.
- participants mentioned the training shifted their mindset from traditional data gathering toward integrated modeling for decision-making.
- Tools like WEAP and SWAT can standardize data formats, shareable scenarios, and promote cross-departmental alignment.
- Participants highly valued the international collaboration, and the Jordan case study was the most referenced as useful and inspiring.
- There was a clear call for: More time per software, and stronger alignment with Iraq’s data and hydrological context, follow-up projects to ensure actual implementation.

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THANK YOU!

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WICER · Iraq
Water Innovation for Circularity and Enhanced Resilience

Session 3

Emergency WASH

Next Presentation:

Arwa Abdelhay - German Jordanian University

Advancing WASH Resilience Through Knowledge: German Jordanian University Insights

Prof. Arwa Abdelhay

German Jordanian University

35TH SUSANA MEETING
23rd August 2025-Stockholm

How to Support?

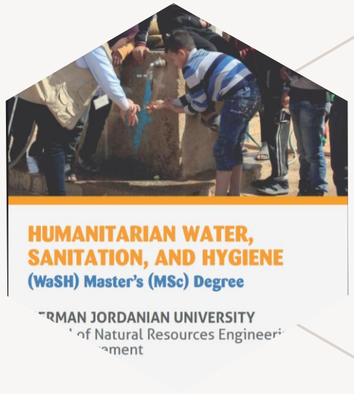
GJU is serving as a bridge between research, education, and practice, ensuring that innovations and best practices reach communities and practitioners and they are adapted to the given contexts

Exploring the impactful initiatives at the German Jordanian University aimed at strengthening WASH resilience through different modalities of capacity building .


GJU'S
APPROACH
TO ADVANCE
WASH
RESILIENCE


RESEARCH & INNOVATION
• Operational research
• Pilot projects
• Sector needs informed research
CAPACITY BUILDING
• Short courses
• Simulation-based learning
• Certificate-based programs
• Internships
ENHANCED WASH RESILIENCE

Knowledge Transfer Modalities & Localization of WASH Learning System



Localization of WASH Learning Systems

WASH MSc. Program Funded by BHA, UNICEF, SUEZ

Simulation Based Learning

Delivering a response within a context that simulates real-life settings

Webinars and Short Courses

Relevant to the Sector Needs

Regional Workshops

Fostering knowledge exchange and cooperation across diverse contexts.

Tailored Training Packages

Ensuring that the knowledge, skills, and tools provided are directly relevant to the specific context, challenges, and needs of the target audience.

Thank you

Arwa Abdelhay

Arwa.abdelhay@gju.edu.jo

www.gju.edu.jo

Session 3

Emergency WASH

Next Presentation:

Robert Gensch- German Toilet Organisation

Humanitarian WASH Knowledge Management

SANIHUB and the new SWM Compendium

35th SuSanA Meeting
August 23, 2025 | Stockholm

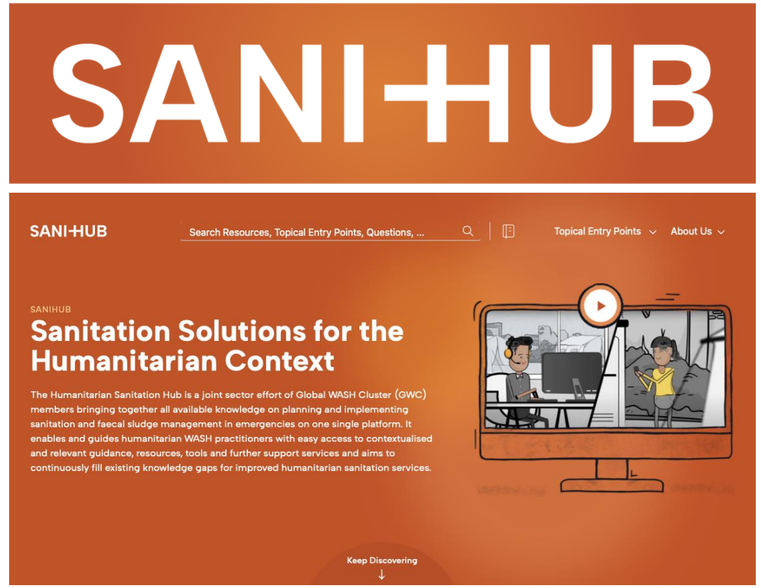
German Toilet Organization

SANIHUB

+ **Global sector go-to-point** for humanitarian sanitation and FSM practitioners with structured access to relevant knowledge and resources

+ **Personal remote support** through an expert helpdesk and an active SANIHUB community

+ **Sector-wide approach to knowledge management** to improve collaboration, increase resource efficiency and quality of work



Project Partners

German Toilet Organization

eawag aquatic research

The Netherlands Red Cross

BORDA

IHE DELFT

CAWST

solidarités international

Financially supported by

Bill & Melinda Gates foundation

SANIHUB - Key Sections

Structured knowledge

Topical Entry Points

- Sanitation Project Cycle
- Challenging Contexts
- Sanitation Technologies
- Region/Country
- Wider Sanitation System
- Capacity Development
- Research, Innovation and Events
- Case Studies

Active workstreams on demand

Community

GET INVOLVED

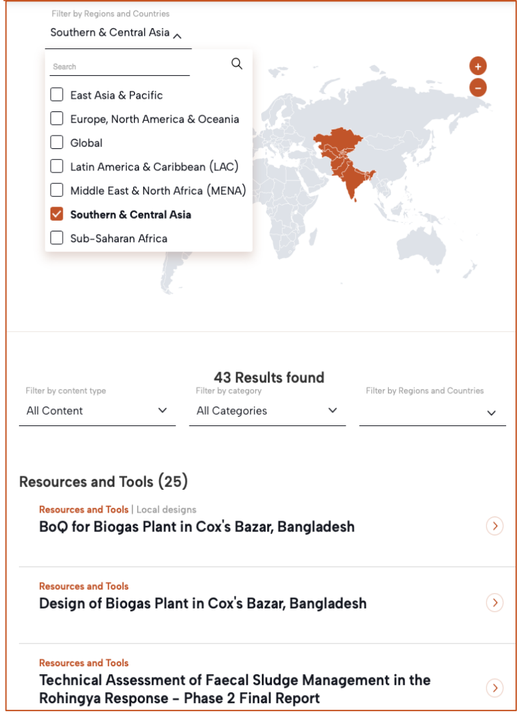
The SANIHUB Community

The purpose of the SANIHUB Community is to improve the quality of humanitarian sanitation services through the enhancement of knowledge sharing, joint sector learning and collaboration among humanitarian WASH actors.

- SANIHUB Community Coordination
- Workstream 1: Helpdesk & Expert Team
- Workstream 2: Sanitation and FSM Standards
- Workstream 3: Research
- Workstream 4: Capacity Development
- Workstream 5: Relevance and Quality of Content

Comprehensive

Search



Team of Experts

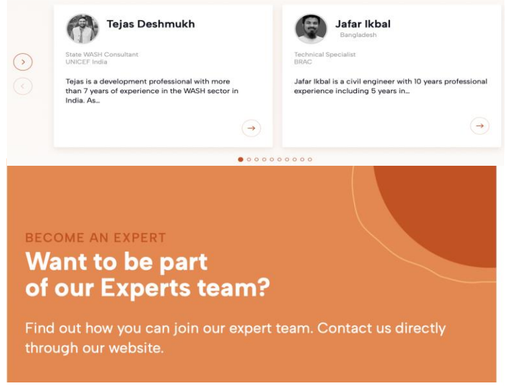
Helpdesk

ASK THE EXPERT TEAM

Get help from an Expert

The expert team is ready to help you. Kindly provide your contact information as well as your detailed request/question and any additional information that may be relevant through the adjacent form. The more detailed the better. We will contact you as soon as possible.

Get help from an Expert



Upcoming:

Generative AI integration

Get Involved!

- Share it with your networks
- Sign up to our mailing list or join us on LinkedIn
- Join the SANIHUB community

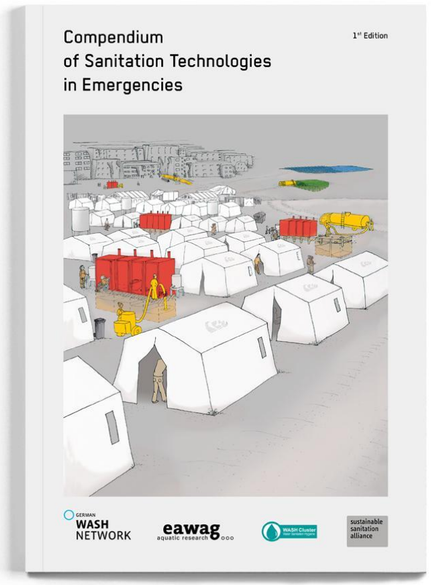
For AI integration we are looking for:

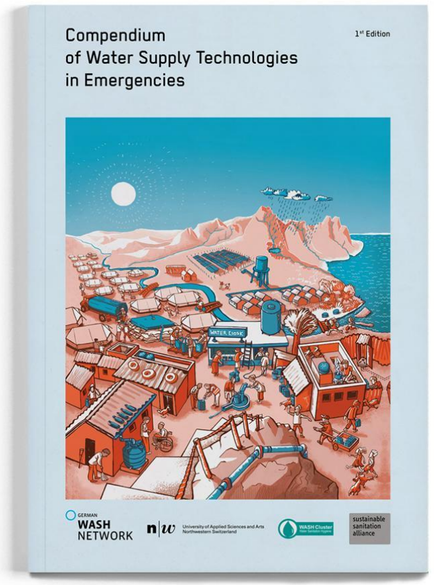
- Sanitation experts as ‘super users’ to support AI response validation and resource curation
- Humanitarian agencies interested to partner with us

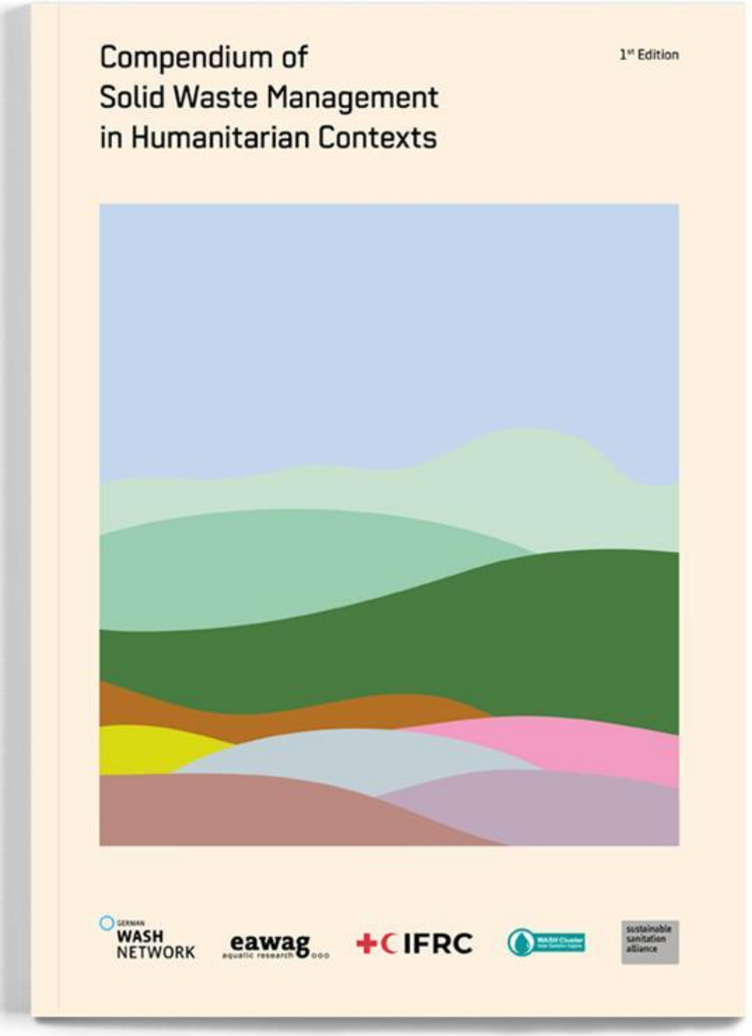
sanihub.info

info@.sanihub.info

Emergency WASH Compendium Series







Overview

- Comprehensive compilation and categorisation of most relevant SWM technologies
- Focus on domestic solid waste
- Systematic starting point and reference guide to access available SWM information
- Capacity strengthening and decision support tool

Compendium Structure

1. Preparing for SWM
2. SWM Service Chain Technology Overview
3. Cross-Cutting Issues
4. Management of Special Waste Types

Preparing for SWM

1 **Preparing for SWM**

- Waste Prevention
- Waste Separation
- SWM Assessment

2 SWM Service Chain Technology Overview

3 Cross-Cutting Issues

4 Management of Special Waste Types

SWM Service Chain

1 Preparing for SWM

2 **SWM Service Chain Technology Overview**

3 Cross-Cutting Issues

4 Management of Special Waste Types

Storage	Collection and Transport	Treatment and Recycling	Use and Disposal
			Use
S.1 Individual/Household Storage	C.1 Manual Transport	T.1 Composting	U.1 Sale of Recyclable Materials
S.2 Community/Shared Storage	C.2 Animal Transport	T.2 Vermicomposting	U.2 Reuse of Waste Materials
S.3 Public Litter Storage	C.3 Motorised Transport – Small Vehicles	T.3 Anaerobic Digestion	U.3 Consumer Goods
	C.4 Motorised Transport – Large Vehicles	T.4 Black Soldier Fly Waste Processing	U.4 Construction with Waste Materials
	C.5 Transfer Station	T.5 Making Fuel from Biomass	U.5 Use in Agriculture
		T.6 Plastic Recycling	U.6 Use of Biogas
		T.7 Plastic Upcycling	U.7 Use of Fuel from Biomass
		T.8 Plastic Downcycling	Safe Disposal
			U.8 Controlled Waste Pit
			U.9 Controlled Disposal Site / Landfill
			Unsafe Disposal (not recommended)
			U.10 Open Dumping
			U.11 Open Burning
			U.12 Contained Burning

X-Cutting Issues

1 Preparing for SWM

2 SWM Service Chain Technology Overview

3 **Cross-Cutting Issues**

4 Management of Special Waste Types

X.1 Institutional and Regulatory Environment
X.2 Inclusive Planning and Participation
X.3 Monitoring, Evaluation, Accountability and Learning (MEAL)
X.4 Occupational Health and Safety
X.5 Market-Based Programming
X.6 Hygiene Promotion and Behaviour Change
X.7 Links to Other Clusters and Topical Domains
X.8 SWM and Climate Change
X.9 Protection, Accessibility and Conflict Sensitivity
X.10 Advocacy

Special Waste Management

1 Preparing for SWM

2 SWM Service Chain Technology Overview

3 Cross-Cutting Issues

4 Management of Special Waste Types

- W.1 Medical and Health Care Waste Management
- W.2 Hazardous Waste Management
- W.3 Disaster Waste Management
- W.4 Menstrual and Incontinence Waste Management
- W.5 Relief Waste Management
- W.6 Management of Solid Waste from Sanitation Facilities and Drains
- W.7 Management of Waste from Electrical and Electronic Equipment (WEEE)

Emergency WASH Knowledge Portal | Online Platform

Sanitation Technologies in Emergencies

Water Supply Technologies in Emergencies

Hygiene Promotion in Emergencies

Solid Waste Management in Humanitarian Contexts

www.emergency-wash.org

Session 3

Sanitation Planning

Session 3

Sanitation Planning

Next Presentation:

Janine Cumberledge - JG Afrika (Pty) Ltd

JG AFRIKA
EXPERIENCE QUALITY INTEGRITY

DIALOGUES IN FLOW: SCALING THE SFD IN SOUTH AFRICA

Capacity building programme for developing and owning Excreta Flow Diagrams (SFDs) in 38 Water Services Authorities across all nine (9) provinces in South Africa

SuSanA 35th Annual Meeting

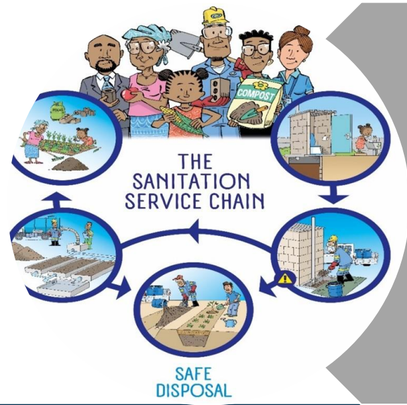
August 2025

Presented by Janine Cumberledge

THE SOUTH AFRICAN CONTEXT

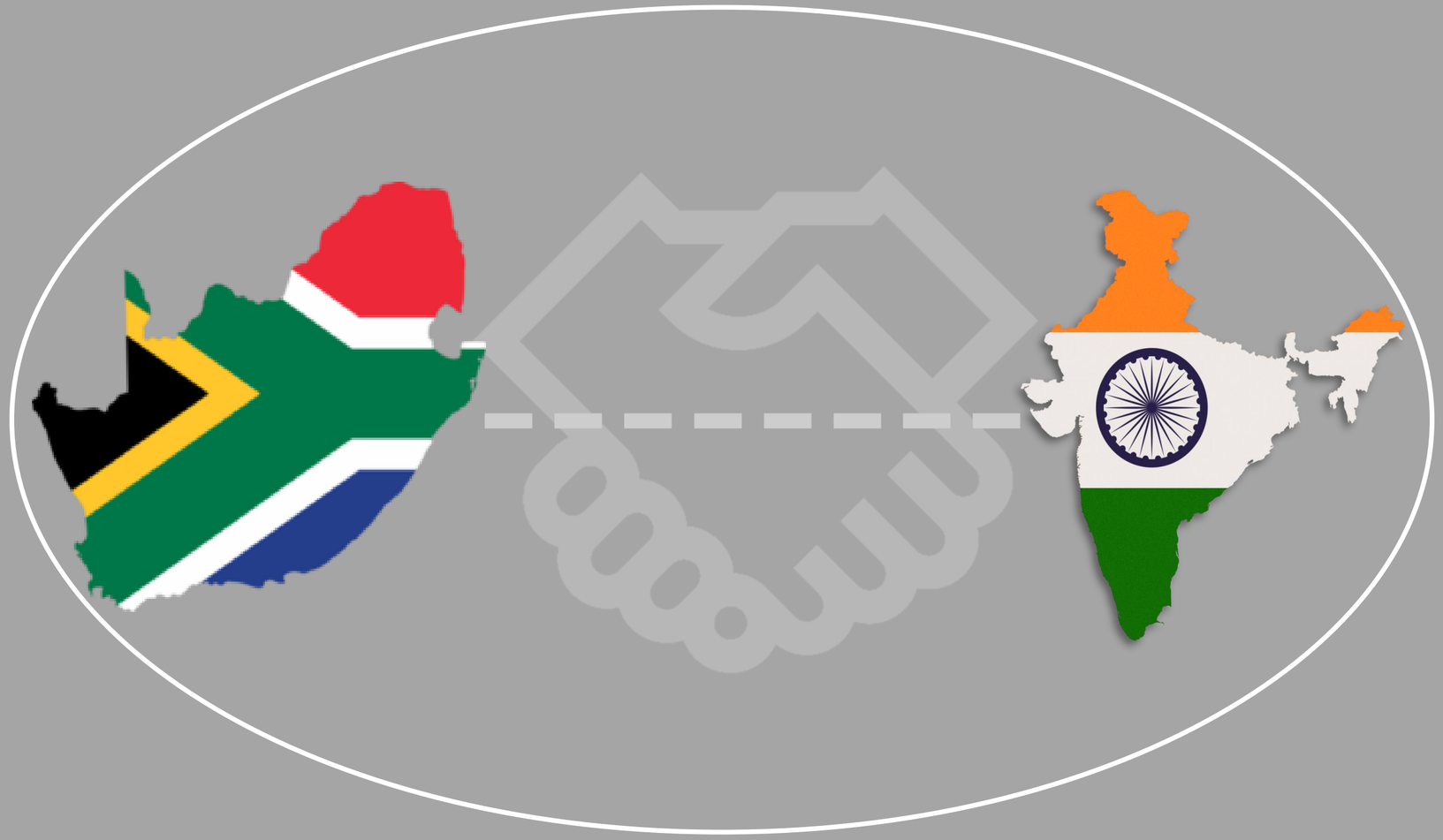
Traditional focus on sewered sanitation

Development and Implementation of the National Faecal Sludge Management Strategy

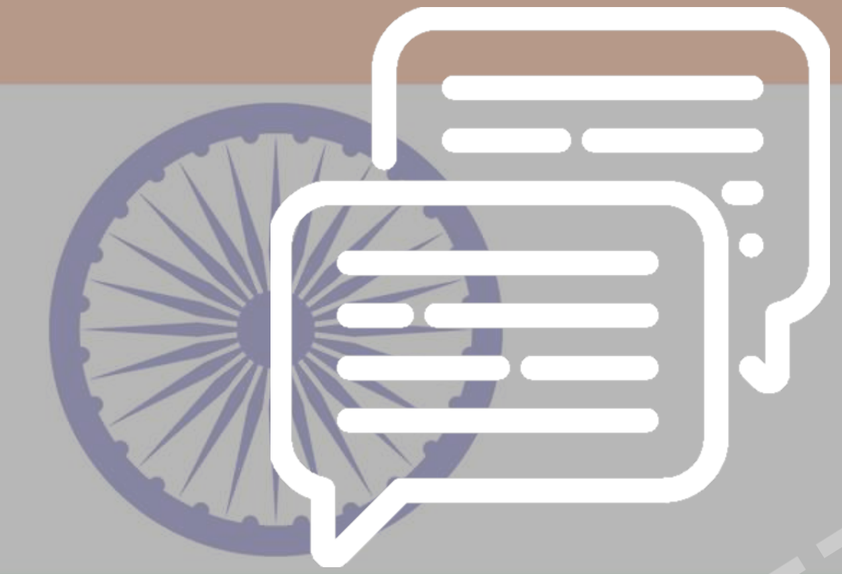


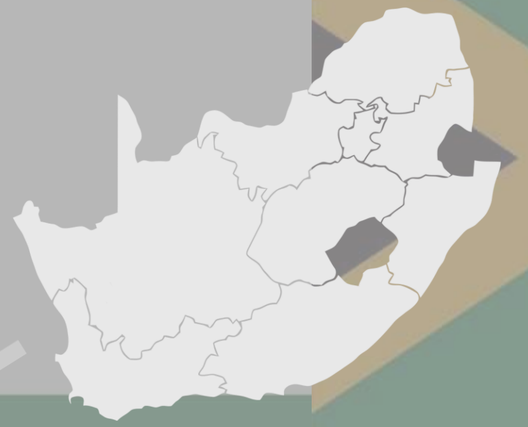
Inclusion of On-site sanitation

SOUTH-SOUTH DIALOGUES



INTERCOUNTRY COLLABORATION





ecosan SERVICES FOUNDATION

SA- SFD Data Input List

About your Municipality/WSA

1	WSA Name/Municipality Name	
2	Province	
3	Concerned Person Name	
4	Concerned Person Contact Number	

Clear data entry cells

IMPORTANT NOTE: Values entered in Column D can be *numbers* or *percentages*. Any percentages entered in this column must be in terms of **percentage of total households**. Please indicate which is used by selecting "number" or "%" in column E.

Sr No	Data Description	Input	select one	Percentage of total HHs	Source (With publishing year) and/or description of assmption(s)	Hints/notes
City Demography						
1	Total Population of WSA/selected area		number			
2	Total Households of WSA/selected area		number			Check : A + B + C below should add up to this total
Toilet Data						
A	HHs having toilets			0.0		This should include all types of toilets, even those considered "unimproved"
B	HHS with Damaged, failed, Collapsed or Flooded toilets			0.0		Ideally determined by field verification - This, added to row A, should equal the TOTAL households with toilets
C	HHs practicing Open Defecation	0	number	0.0		HHs with "none" toilets

Sr No	Data Description	Input	select one	Percentage of total HHs	Source (With publishing year) and/or description of assmption(s)	Hints/notes
	Total HHs that have toilets (numbers only)	0	number		Entered above	Total households with toilets pulled from Toilet Data A - we are going to break it down now into households with and without containment (off vs. on-site sanitation)
1	**How many HHs WITH TOILETS do not have containment Units (only numbers permitted)**			0.0		Households with off-site sanitation/sewered sanitation
	Among this, how many are Directly connected to (Without any containment):					
	Sewers			0.0		In South Africa, generally these are connected to sewers
	Soak pit			0.0		Identified through field verification
	Open Drain/Storm Sewer			0.0		Identified through field verification
	Water Body or Open ground			0.0		Identified through field verification
	Don't Know Where	0		0.0		Generally not applicable in SA

Data entry | Sheet2 | Sheet 3 | +

JG AFRIKA

INTRA-COUNTRY COLLABORATION

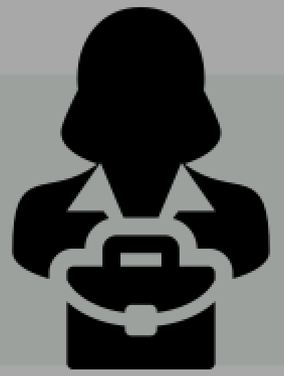
water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

WATER RESEARCH COMMISSION

Local and National Government

Private Sector



Universities

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2030
NDP


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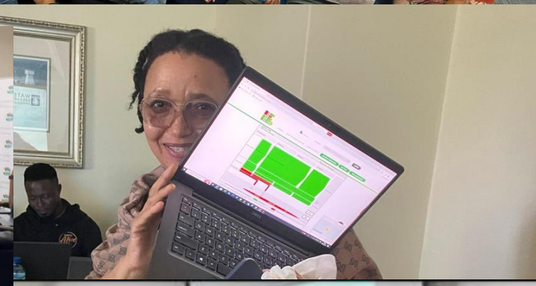
2030
NDP




Waiting for others to join...
Meeting chat
GROUP INTRODUCTION
SANITATION SERVICE CHAIN
Containment
Emptying
Transport
Treatment
Reuse/ disposal
1. Offsite sanitation
2. Onsite sanitation
TOILET
water & sanitation
NDP
REDBAT
BEAUTY
IRENE ULTRA

SCALING THE SA-SFD

36/144 = 25% & BEYOND

THANK YOU

Please feel free to scan the QR code to learn more about JG Afrika and our work

CumberledgeJ@JGAfrika.com

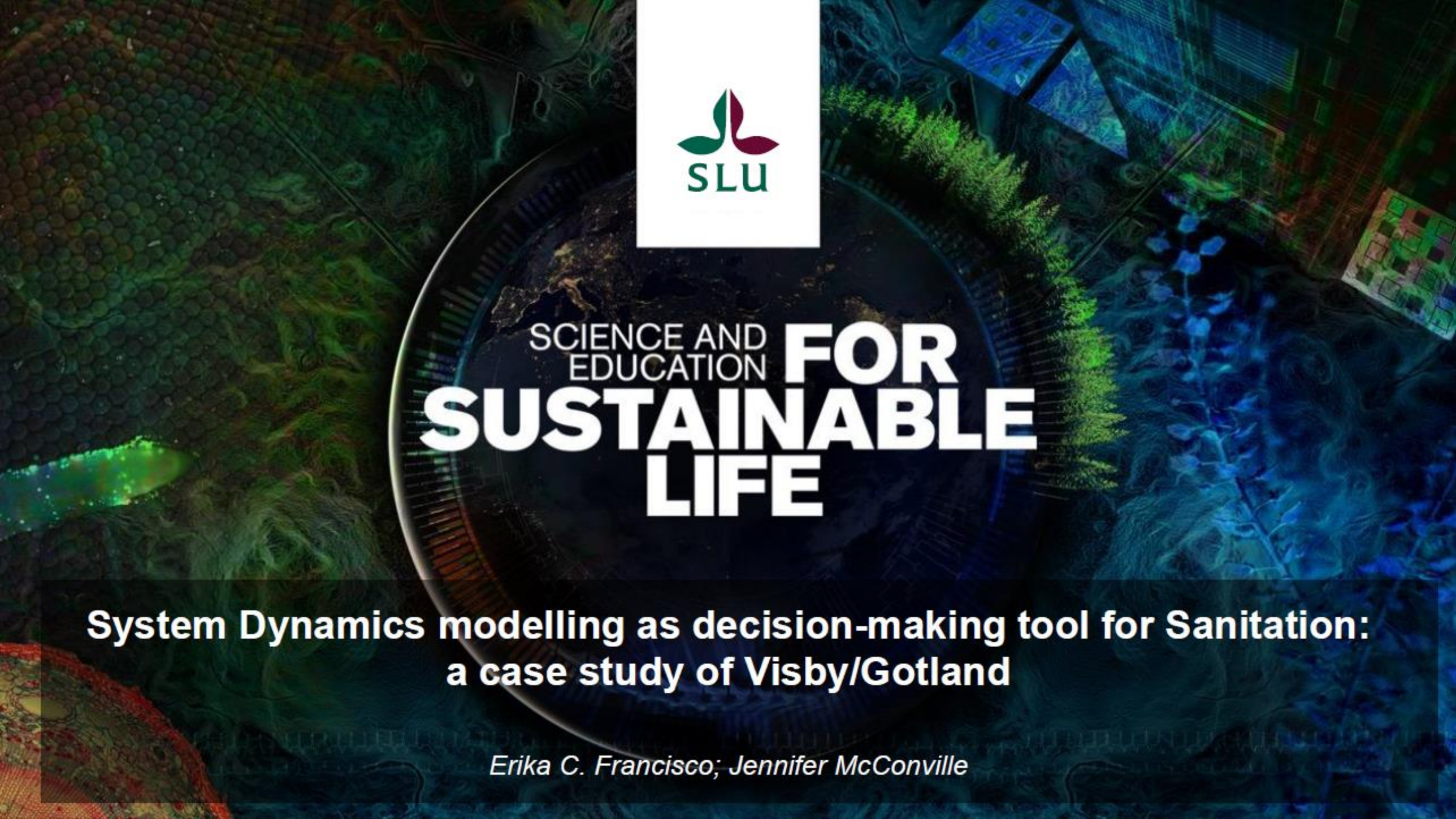
JG AFRIKA
EXPERIENCE QUALITY INTEGRITY

Session 3

Sanitation Planning

Next Presentation:

Erika Francisco – SLU



System Dynamics modelling as decision-making tool for Sanitation: a case study of Visby/Gotland

Erika C. Francisco; Jennifer McConville

Introduction

- Sanitation systems;
- Urine diversion;
- Resource recovery;
- Decision-support tools,
- System dynamics modelling - SDM

The objective of this study is to develop a system dynamics model interconnecting a urine diversion as decentralized system into a traditional wastewater treatment plant taking as study of case the city of Visby in Gotland, Sweden.

SLU

P2GreeN

Germany

Spain

P2GreeN
REDUCE, REUSE, RECOVER

TURNING HUMAN EXCRETA INTO FERTILISER

Sweden

Gotland,

LEADING THE PATH TOWARDS SUSTAINABLE BREWING: TRANSFORMING HUMAN URINE INTO DRY FERTILIZER FOR BARLEY CULTIVATION!

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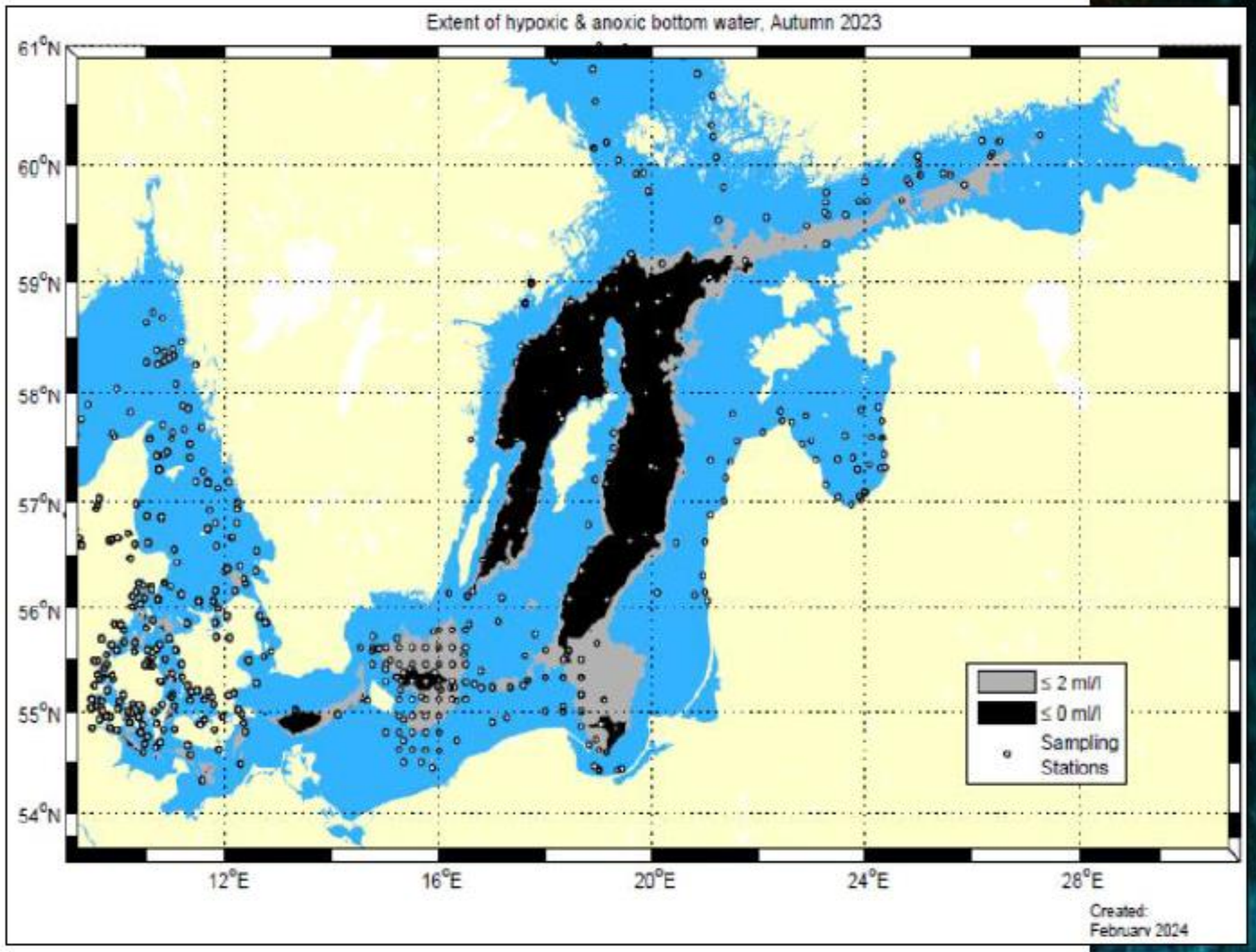
file://storage.slu.se/Home$/erco0002/Downloads/2007_ENVISAT_Symposium_07A03_463337.pdf



https://www.raceforthebaltic.com/baltic-sea

Methodology

Case of Study

- Visby, Gotland: Sweden's largest island
- Visby's WWTP
- 2023: over 2 million people travelled to the island

SDM development

- STELLA software
- Model consists of two modules:
  - (1) Visby WWTP + seasonal tourism variations
  - (2) Urine Diversion for fertilizer (summer)
- Environmental indicators: CF, WF, MEP

Scenarios - simulation

- 1-3: WWTP capacity
- 4-5: WWTP + Urine Diversion (public toilet)

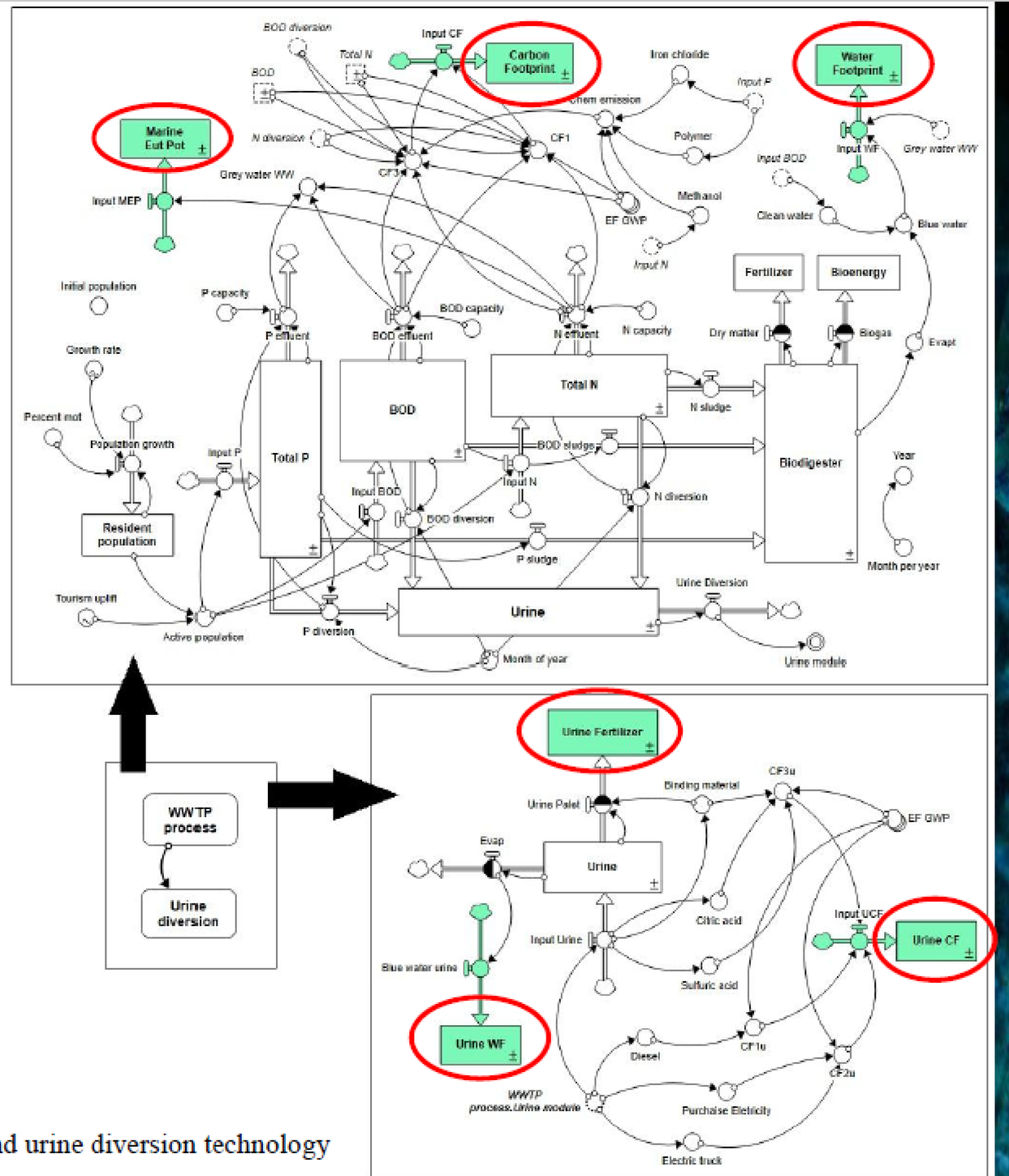
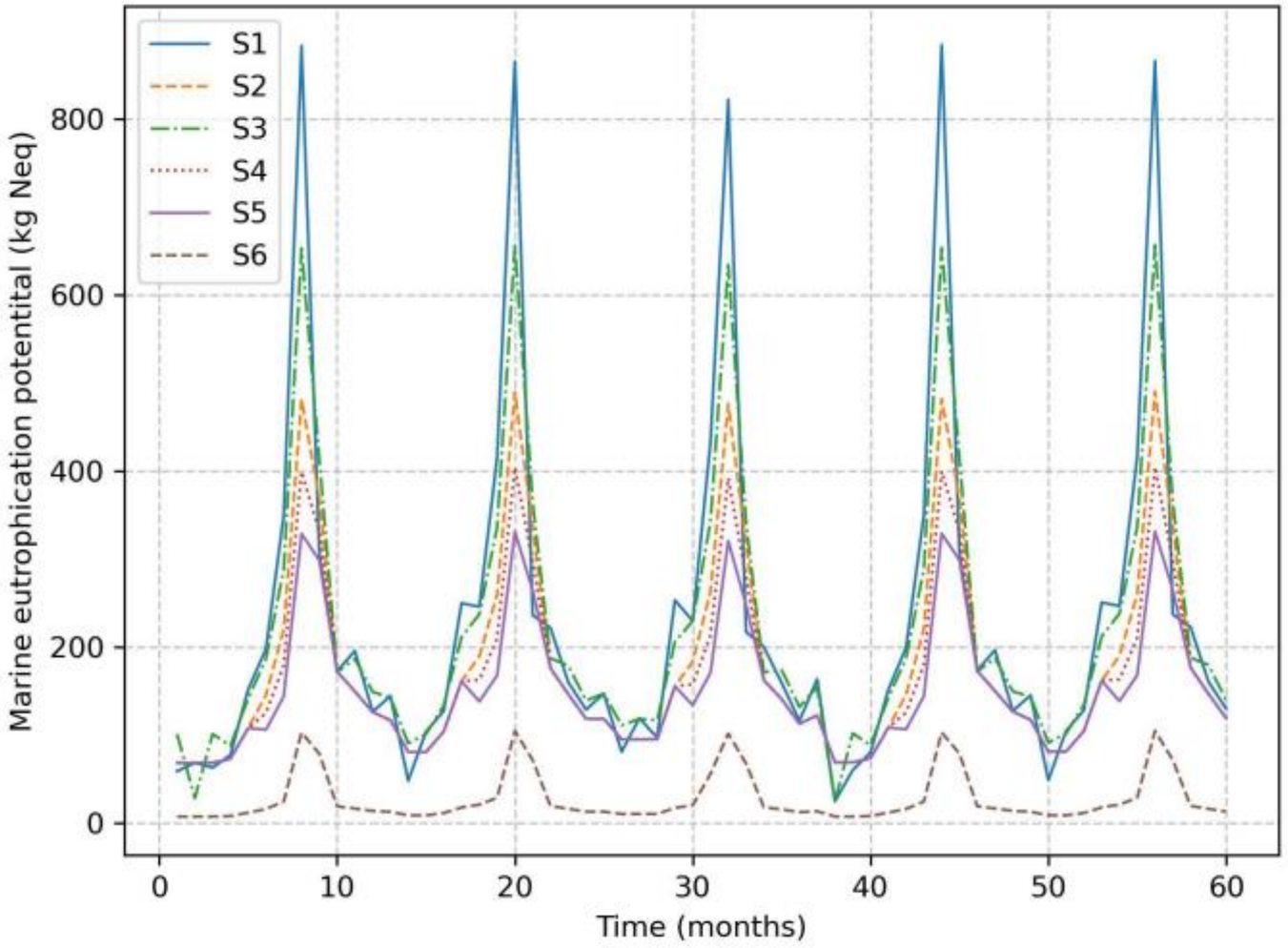


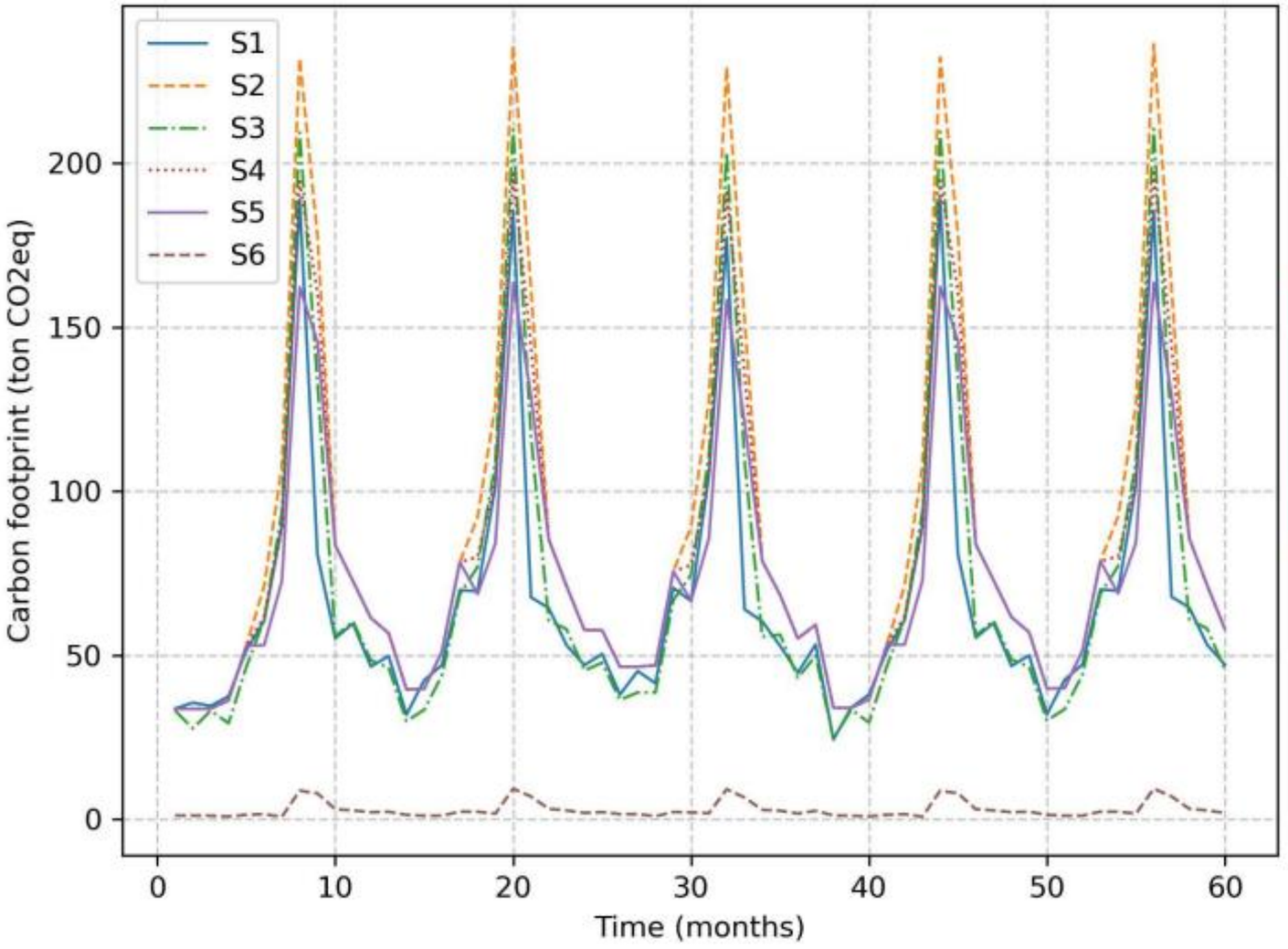
Figure 2. WWTP-UrDiv model representing the wastewater treatment and urine diversion technology

Results



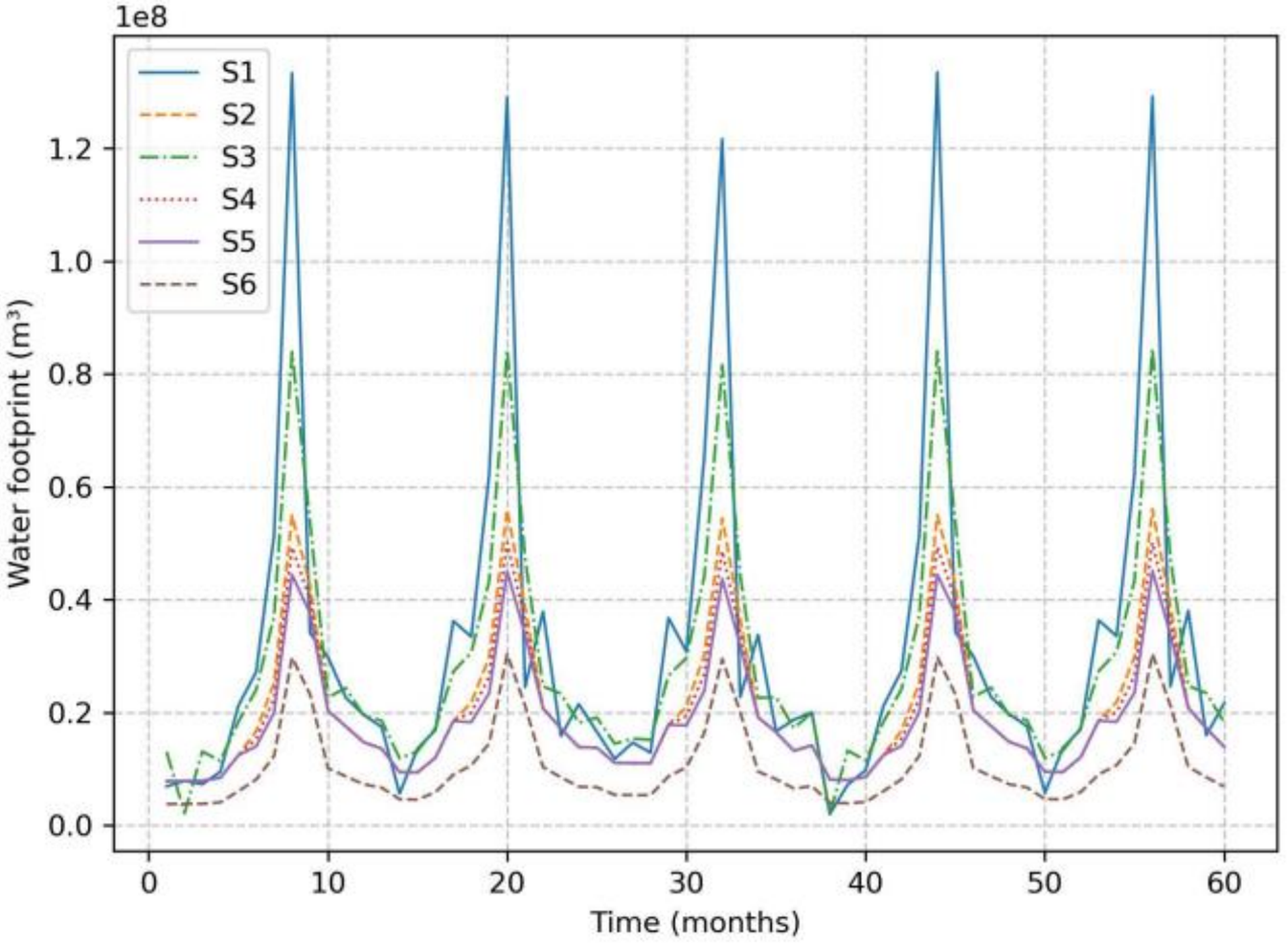
Marine eutrophication potential:

- Scenario 1: highest impact
- Scenario 5: reduction of 20%
- Scanario 6: reduction of 85%



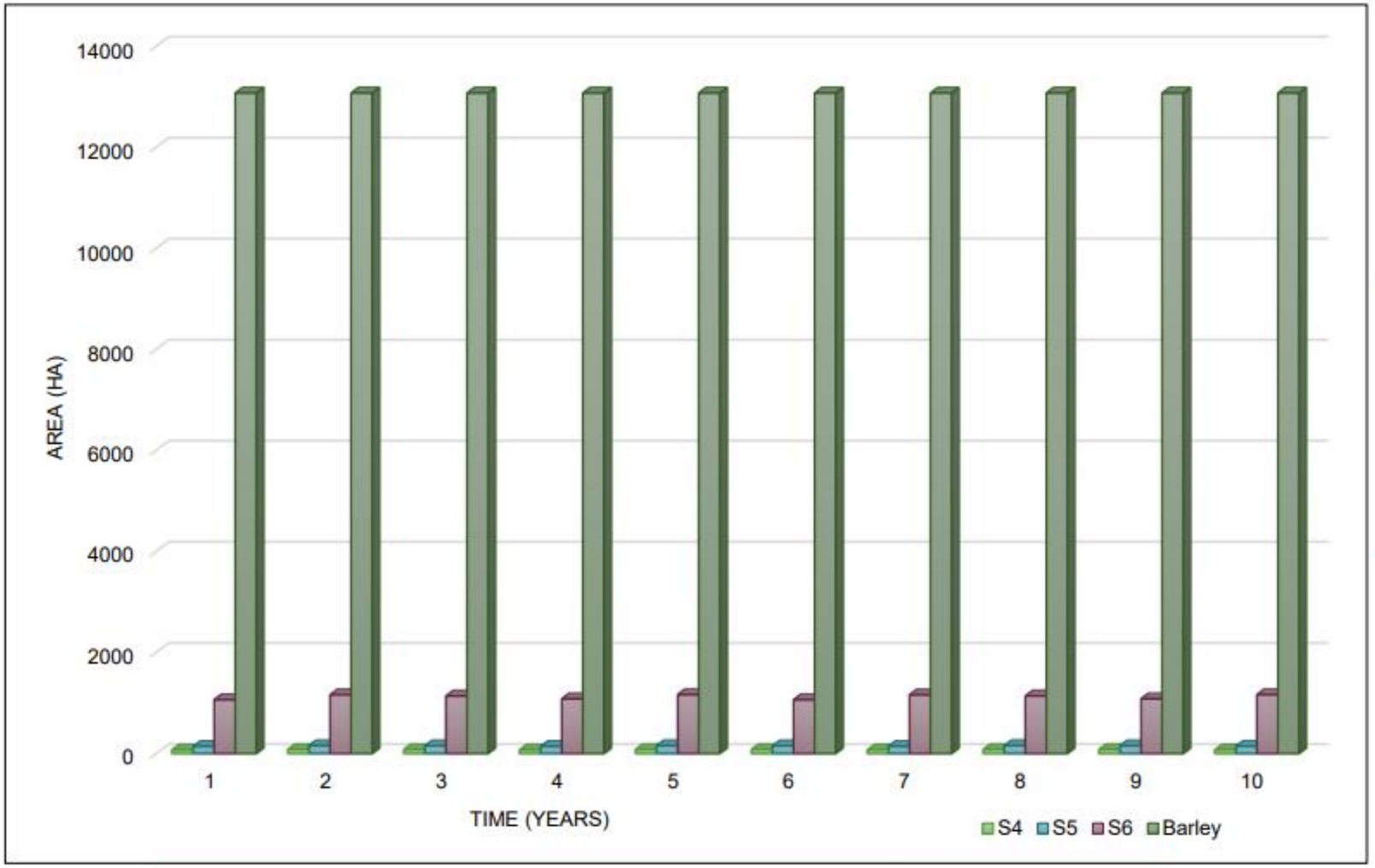
Carbon footprint:

- Scenario 5: reduction of 18.3%
- Scenario 6: reduction of 96%



Water footprint:

- Scenario 5: reduction of 10%
- Scenario 6: reduction of 48%
- Water recovery (6): around 800,000m^3



Barley production:

- 50%: 1M person
- 100%: 2M person

Urine-based fertilizer:

- Scenario 4: 79ha/year (0.6% barley)
- Scenario 5: 150ha/year (1% barley)
- Scenario 6: 1,123ha/year (8.5% barley)

Thanks...

Contact:

erika.francisco@slu.se

Session 3

Sanitation Planning

Next Presentation:

Sakar Hada - Clean Development Consult Pvt. Ltd.

INCLUSIVE SANITATION IMPROVEMENT PLAN IN PATARASI RURAL MUNICIPALITY

Presented by Sakar Hada

35th Susana meeting | August 23rd, 2025

OVERVIEW

- Background
- Context and Purpose
- Assessment and Methodology
- Key findings
- Proposed solutions
- Conclusion
- Acknowledgment

INTRODUCTION

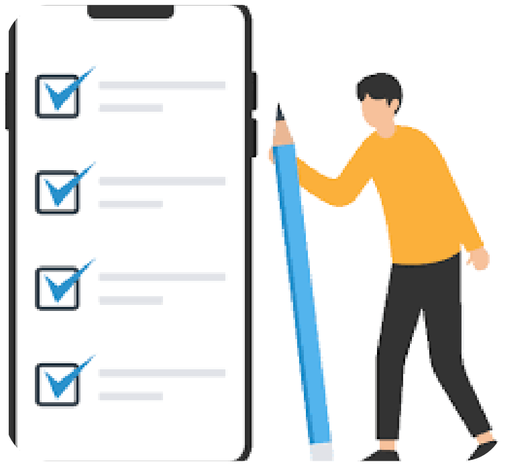
Background

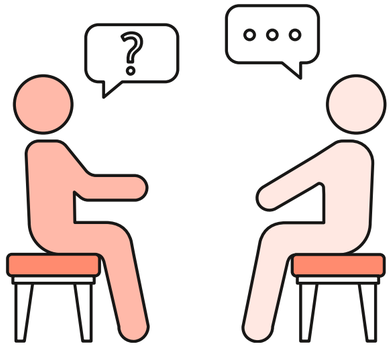
- Developed under SUMATRA Project with KIRDARC, MWU, IHE Delft
- Technical support by Clean Development Consult
- Aims to ensure inclusive, sustainable sanitation in rural Nepal
- Aligned with SDG 6.2 – Sanitation for All

Context and Purpose

- Patarasi RM, Jumla, Karnali Province – 16,824 people, 3,342 households.
- Challenges: Limited sanitation coverage, unsafe waste disposal, flooding issues.
- Purpose:
- Provide a roadmap for safe sanitation.
- Develop tailored, inclusive solutions using the CWIS framework.
- Guide annual planning and attract external support.

ASSESSMENT AND METHODOLOGY





Institutional and HH survey

421 households and 79 institutions surveyed

Focus Group Discussion

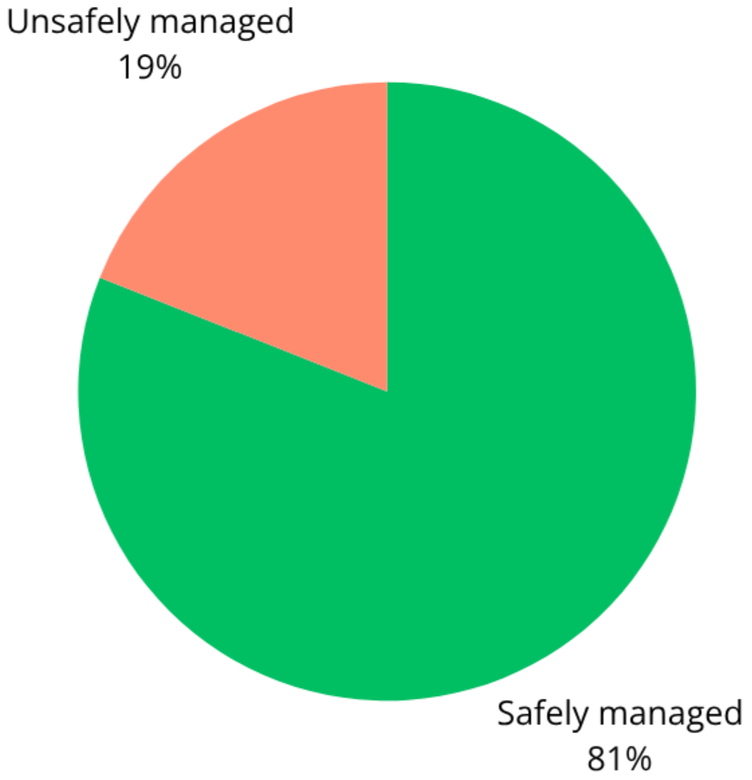
Validate and complement HH survey findings.
Identify current sanitation practices, challenges and oppurtunities for fecal sludge, grey ater and solid waste management

Key Informant Interviews

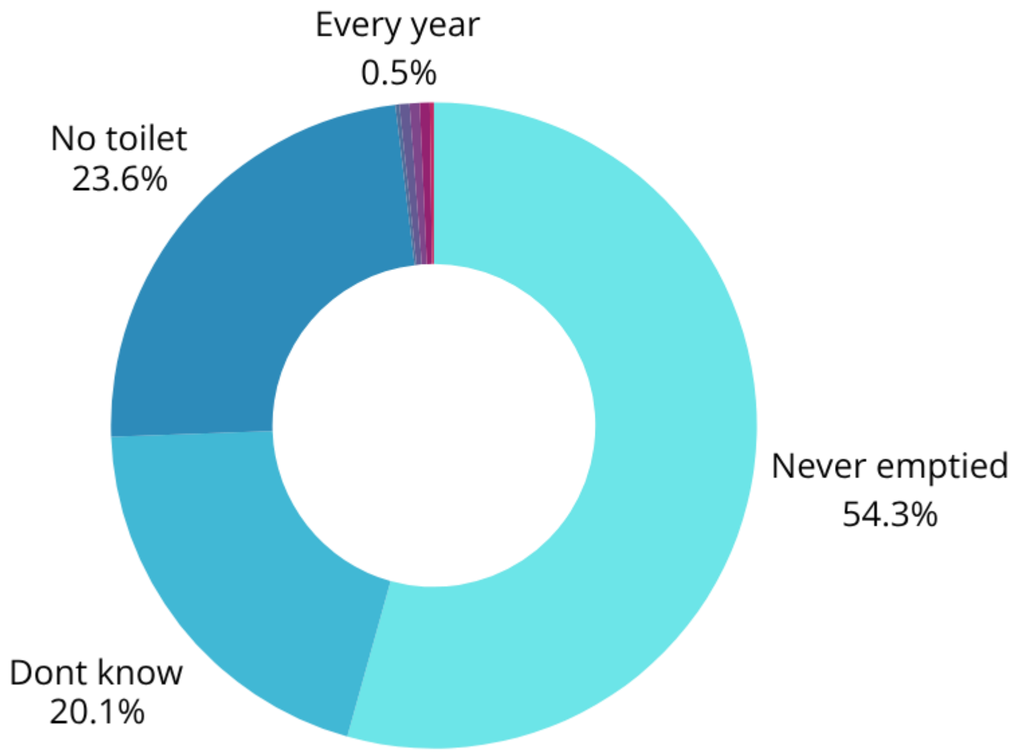
Understand the municipality's sanitation vision, priorities, and planned initiatives.
Explore current service delivery gaps and potential partnerships.

KEY FINDINGS

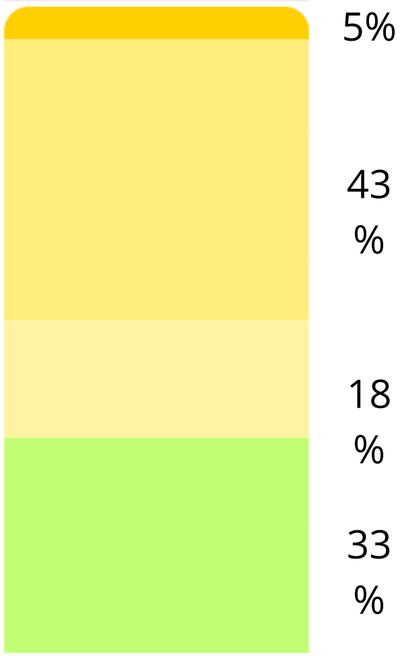
SFD



Emptying frequency

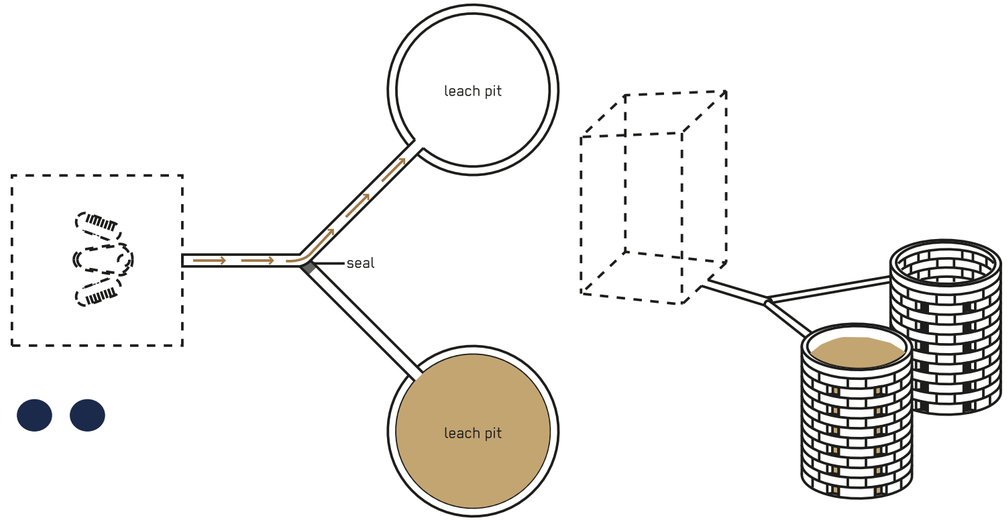


JMP Sanitation Ladder



Proposed solutions

- FSM Improvement: Twin-pit latrines, sealed containments, phased upgrade to septic tanks.
- Service Models: Safe manual emptying now; future mechanical emptying with small vehicles; treatment via trenching and FSTP.
- Solid Waste: Establish community-based collection & segregation.
- Greywater: Promote soak pits, drains, and reuse options.
- Stormwater: Improve drainage in vulnerable wards.

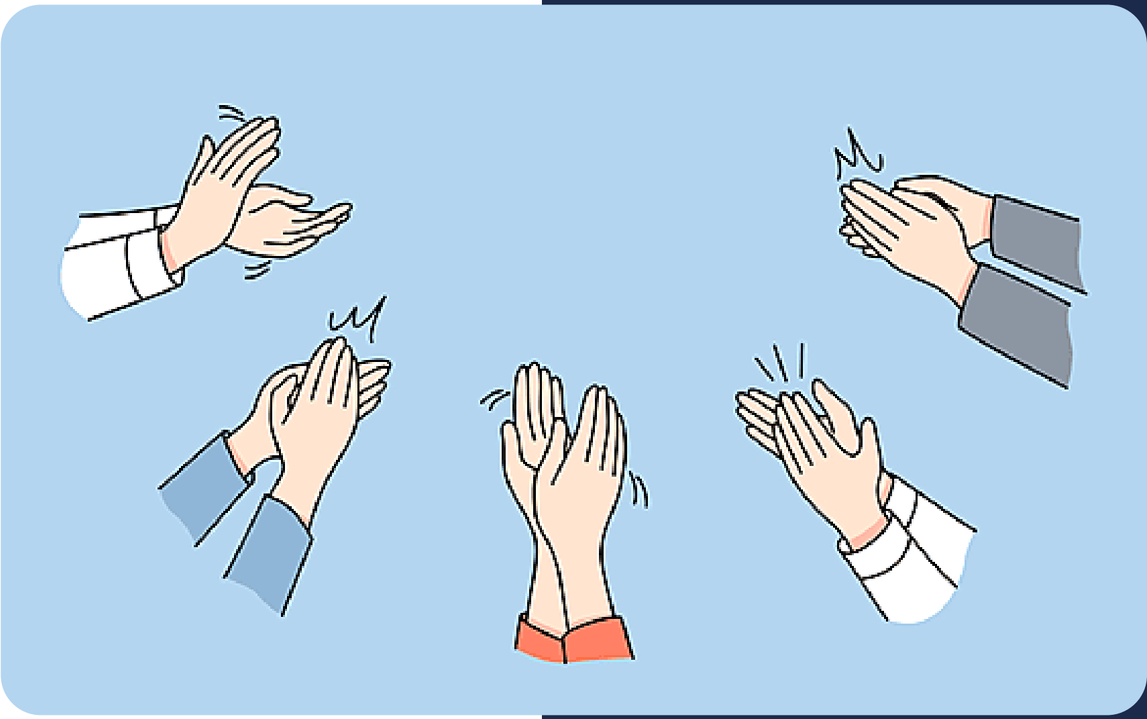


CONCLUSION

- MSP is a scalable, evidence-based model for rural sanitation planning.
- Emphasizes community engagement, inclusivity, and sustainability.

Acknowledgements

- KIRDARC Nepal
- Leadership of Patarasi Rural Municipality
- Households and Institutions surveyed



THANK YOU!

Presented by Sakar Hada | sakarsakar4@gmail.com

Session 3

Sanitation Planning

Next Presentation:

François Brikke - IWA

The City-wide Inclusive Sanitation Approach (CWIS)

WHAT IS THE SITUATION TODAY?

FRANCOIS BRIKKE

AUGUST 2025

inspiring change

CWIS – A PUBLIC SERVICE APPROACH

CWIS PRINCIPLES

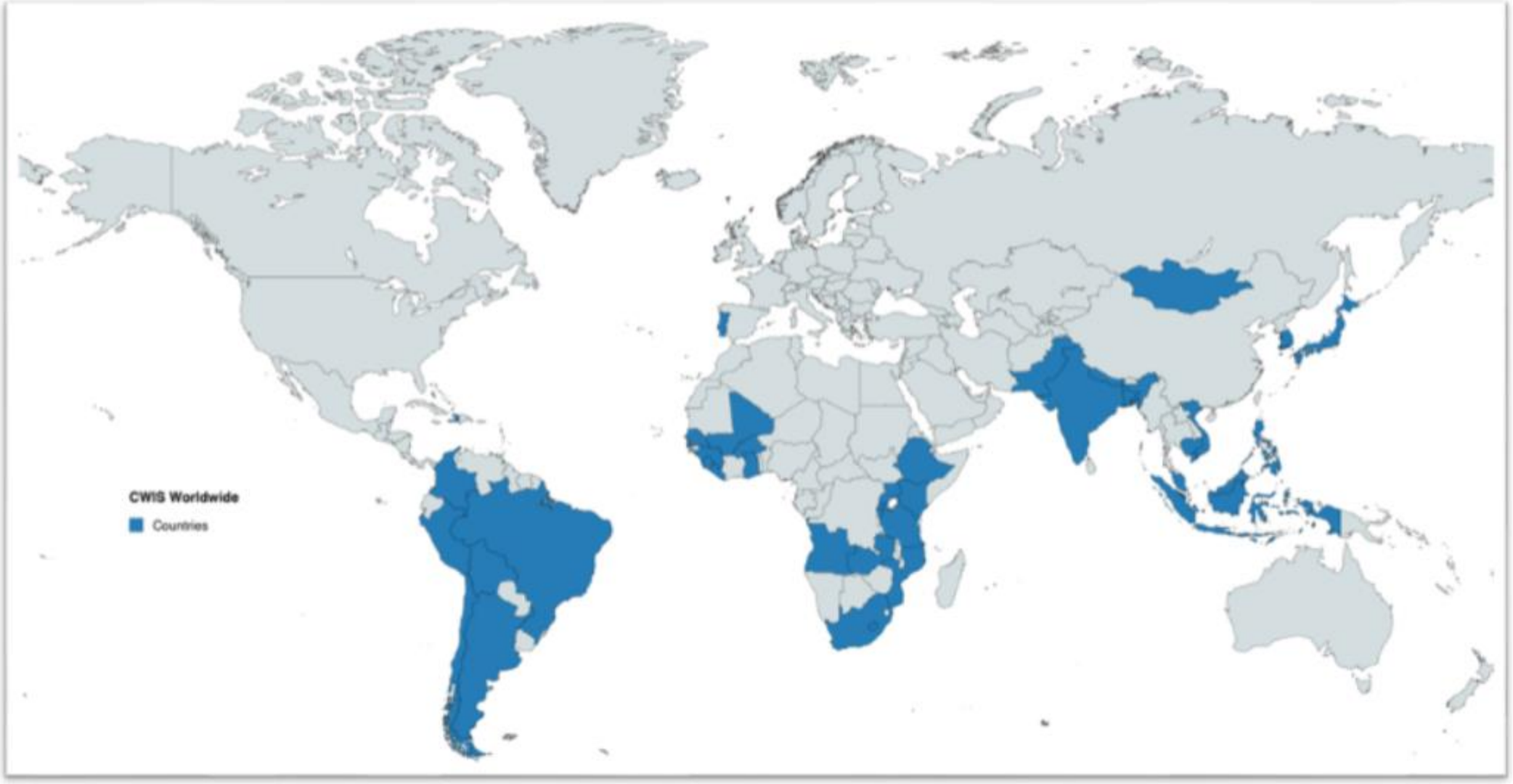
- **EVERYONE BENEFITS** from safe services and public investment with a focus on reaching the poorest
- **GENDER & SOCIAL EQUITY** are designed into planning, management, monitoring
- Human waste is **SAFELY MANAGED ALONG THE SANITATION CHAIN**, starting with containment
- Authorities operate with a **CLEAR, INCLUSIVE MANDATE, PERFORMANCE TARGETS**, resources, and accountability
- Authorities deploy **RANGE OF HARDWARE, FUNDING & BUSINESS MODELS** to meet goals
- Comprehensive long-term planning **FOSTERS INNOVATION, PRO-POOR FINANCING**; informed by analysis of needs, resources
- **POLITICAL WILL** & accountability incentivizes improvements in capacity, leadership, outcomes

CWIS FRAMEWORK

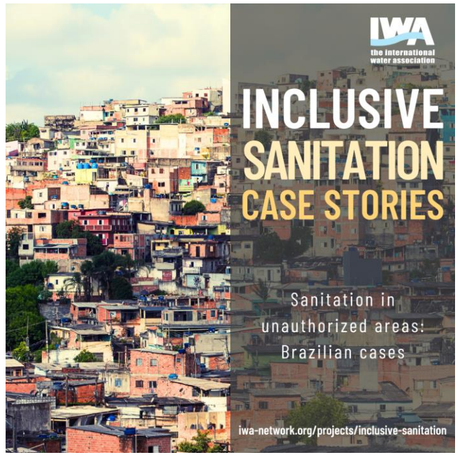
	EQUITY	SAFETY	SUSTAINABILITY
CWIS OUTCOMES	Services reflect fairness in distribution and prioritization of service quality, prices, deployment of public finance/ subsidies	Services safeguard customers, workers and communities from safety and health risks by reaching *everyone* with safe sanitation	Services are reliably and continually delivered based on effective management of human, financial and natural resources
CWIS FUNCTIONS	**RESPONSIBILITY** Authority(s) execute a clear public mandate to ensure sa equitable and sustainable, sanitation services for all	**ACCOUNTABILITY** Authority's(ies') performance against mandate is monitored and managed wit data, transparency, and incentives	**RESOURCE PLANNING & MANAGEMENT** Resources–human, financial, natural, assets–are effectively managed to support execution of mandate across time/space

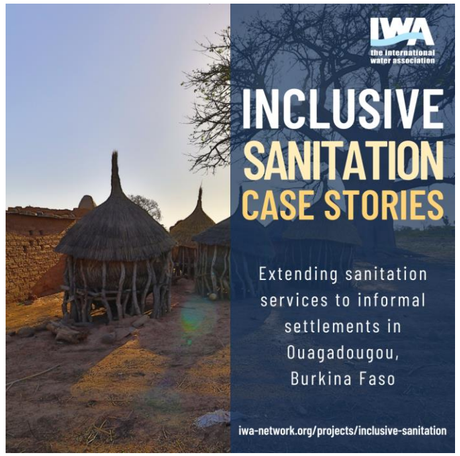
DATABASE RESULTS

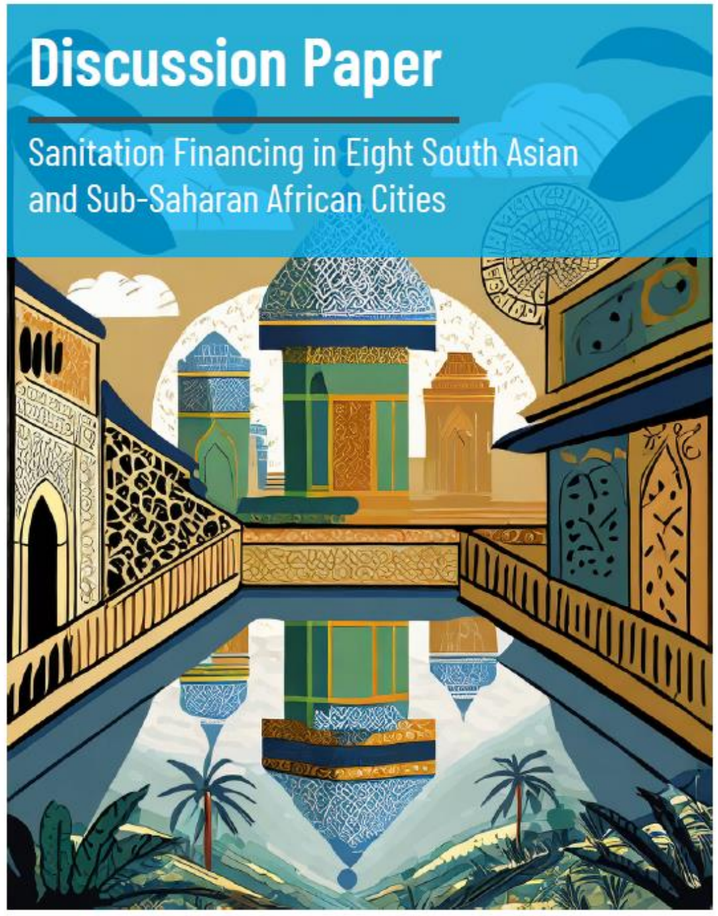
the international water association

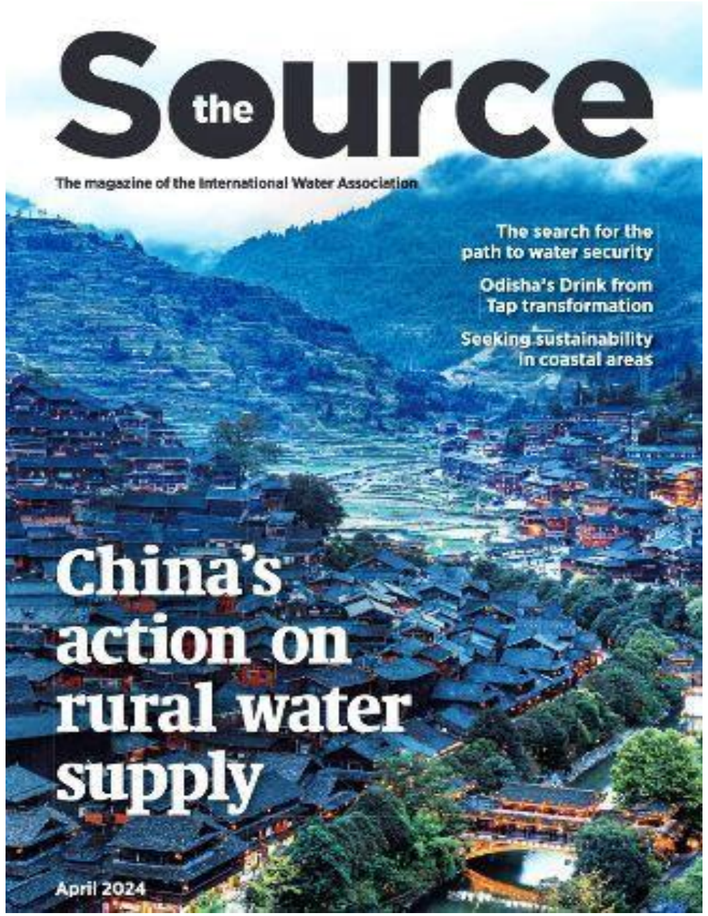


PUBLICATIONS



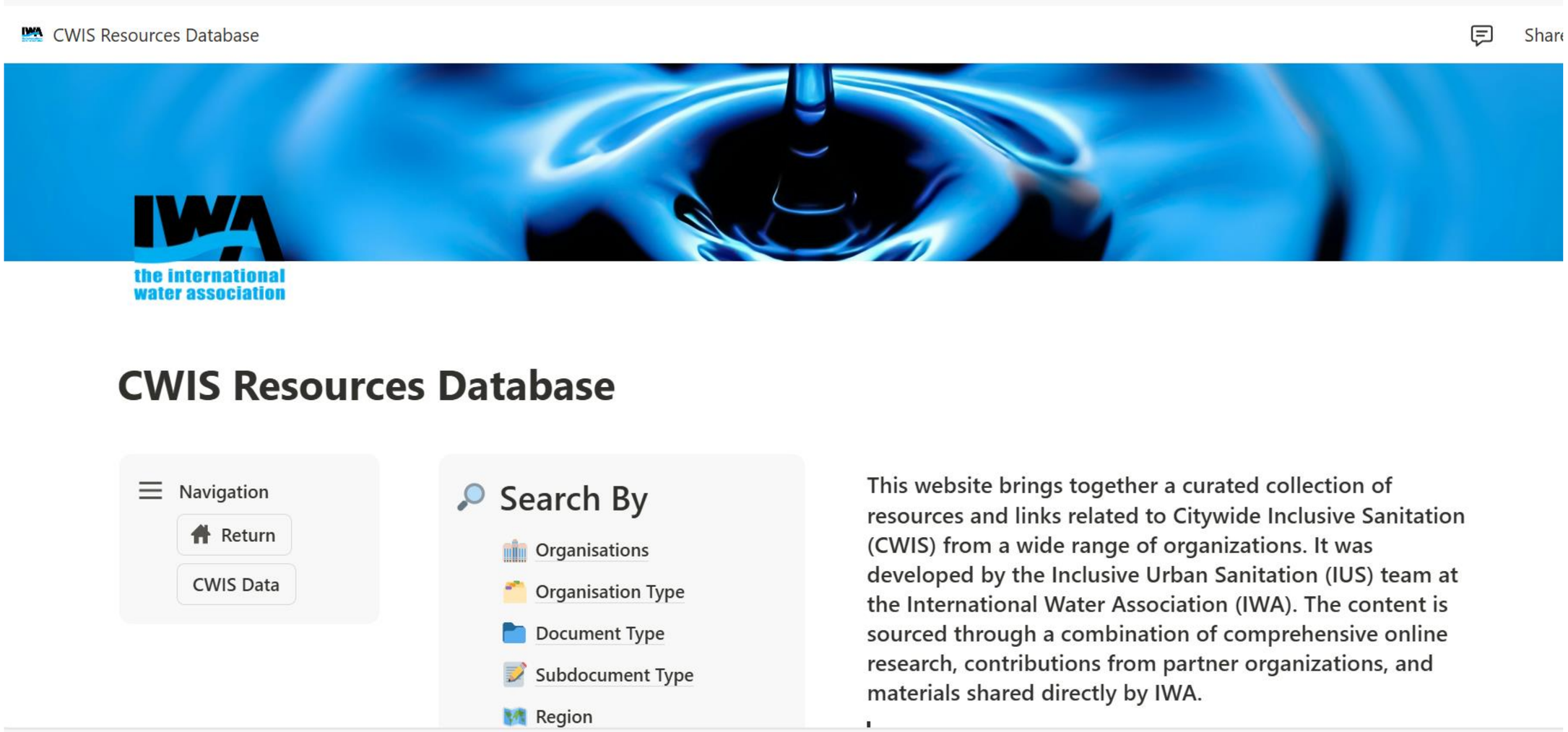






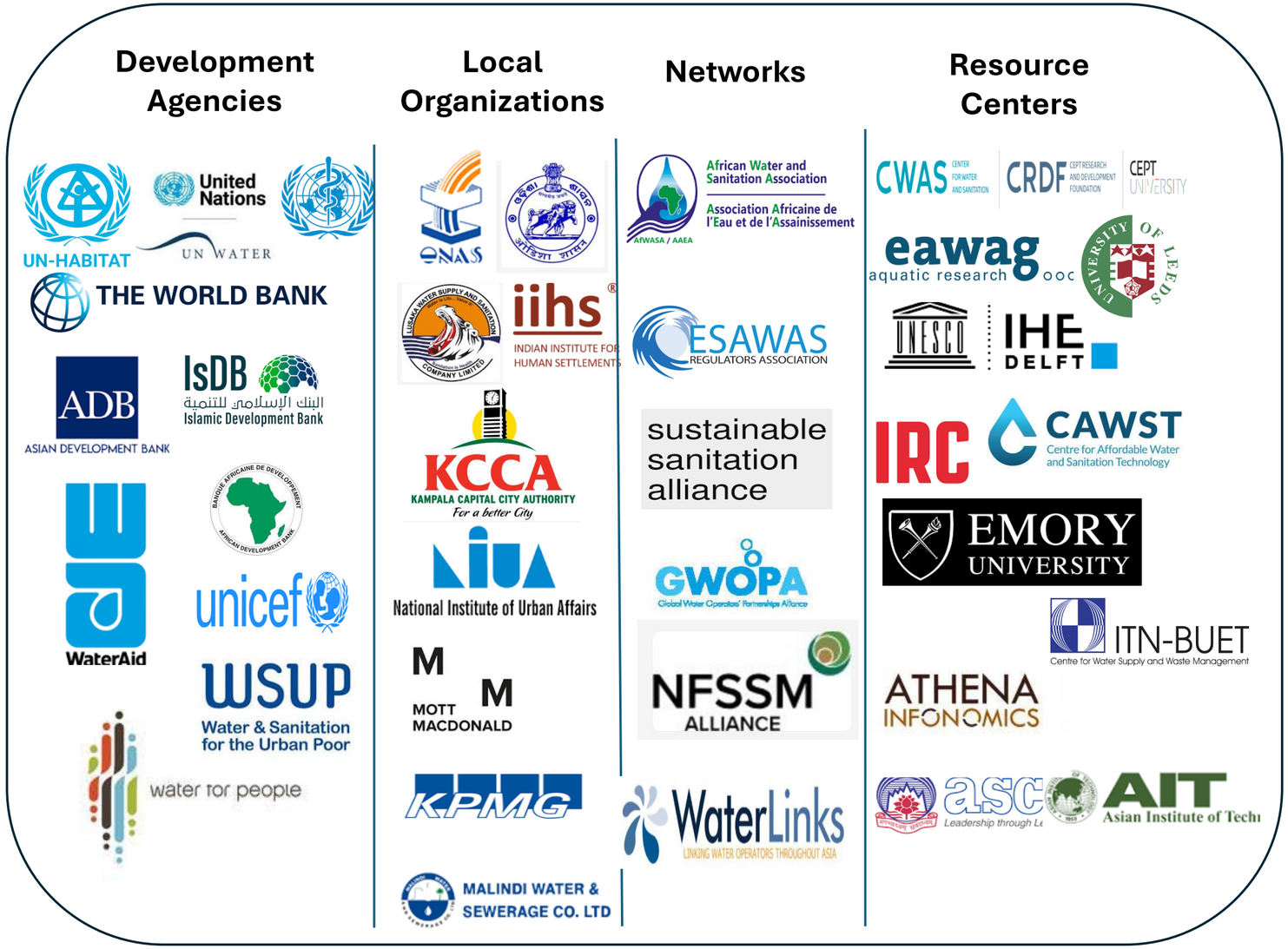
CWIS Resources Database

244 documents



CWIS Global Consultation

Lessons Learnt on CWIS and on Sanitation SDG (55 Interviews)



Lesson learnt concerning the implementation of the CWIS approach

CWIS factors that contribute to the acceleration of SDG 6.2 achievements

Reflections on post 2030 Agenda

Discussion paper

Feedback Webinars

Report to be shared early 2026

Effectiveness and relevance of the Citywide Inclusive Sanitation (CWIS) approach

Inception Report

Very Preliminary Findings

- Sanitation gone from infrastructure to service and system planning
- Both sewered and non sewered services planned
- Better definition of mandates and responsibilities
- More focus on poverty and gender
- Major IFIs have all included CWIS in their sanitation policies
- Major firms are also introducing CWIS (MM, EY, KPMG)
- CWIS often only partially implemented, as governments may have similar existing approaches
- CWIS difficult to understand at local level to start with / other priorities

IUS Forum : Shaping the Future of Inclusive Urban Sanitation

Session 1

CWIS : Lessons Learned and Looking Forward

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Session 2

Let’s Innovate: Breaking the Status Quo with Innovation

Session 3

Anticipating Change: Accelerating Sanitation SDG and exploring a Potential Post 2030 Agenda

The City-wide Inclusive Sanitation Approach (CWIS)

THANK YOU

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Session 3

Emergency WASH & Sanitation Planning

Q&A and Discussion