Session (2):
(Scaling Up of Affordable and Sustainable Water & Waste Management)

POLICIES AND PRACTICES FOR NON-SEWERED SANITATION

April 25 - 27, 2023
Structure of Presentation

Contents…

• Sanitation Global scenario
• Inclusive Planning approach
• Non sewered sanitation service chain
• Infrastructures and standards
• Reinvited toilets
• Learnings and Success stories from Indonesia, Malaysia and Japan
• CWIS framework
• GWSC and GSCOE
• Regional shift to Safely managed sanitation
3.6B people globally lack access to safely managed sanitation

7%

Increase in proportion of global population using safely managed services since 2015

Faster progress required to achieve the SDG goal of safely managed sanitation by 2030

1. Transported and treated offsite

Source: JMP 2021 Report
SEWERS WILL REACH FEW IN MANY CITIES, INDICATING NEED FOR AN ALTERNATIVE SOLUTION

Note: countries in gray do not have data reported. Source: JMP 2017 Report and 2021 Report; BCG analysis
NETWORK SANITATION SYSTEMS AND HEALTH CONCERNS

Reminder - FSMA Spotlights Webinar: Sewage Network Data as a Potential Tool for Cholera Outbreak Prediction

Wednesday 26th April
12:00 NOON CET

In this webinar, FSMA Spotlights showcases an award-winning project funded by the Bill and Melinda Gates Foundation aimed to identify areas suitable for sewage treatment plants in Lebanon and assess the feasibility of a new sludge treatment technique, the omniprocessor. Unfortunately, the project revealed that most of the sewage networks were not connected to the treatment plants and that all of the treatment plants had been shut down due to the economic collapse resulting in a 200% inflation rate in early 2023.

Despite this setback, the data collected during this project was still valuable and was shared with government officials and funders to highlight the potential risk of a cholera outbreak in the country, given the lack of functioning treatment plants and the extensive, untreated sewage networks.
INCLUSIVE PLANNING APPROACH: MADHYA PRADESH

STRATEGY: PLANNING NON-SEWERED SANITATION SOLUTIONS FOR THE EXCLUDED AREAS
NON SEWERED SANITATION: SERVICE CHAIN

CONTAINMENT ➔ EMPTYING ➔ TRANSPORT ➔ TREATMENT ➔ REUSE/DISPOSAL

Re-invented the Toilet

Omni - Processor
HOUSEHOLDS REINVENTED TOILETS TECHNOLOGIES IN THE PIPELINE (NOT YET AVAILABLE FOR PURCHASE)

All systems use combustion for solids processing, recycle water for flushing, and can fit indoor bathroom, or configured to have the treatment systems outside.

Design by Georgia Tech
Tech transfer under discussion

Design by Cranfield University,
licensed by Huatie and JOMOO

Design by Samsung / SAIT tech transfer under discussion
DIFFERENT TYPES OF FSTP INFRASTRUCTURES
### WIDE RANGE OF OPEX !

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INDONESIA LEARNING

• Since **2002 to 2019** almost 22,000 SANIMAS projects completed in every province of Indonesia, serving an estimated 6 million people

• No other country in the world has implemented this type community sanitation project at such a scale before

• Almost $1 billion invested over 6 key programs

• 97% implemented by MoPWH

• Average infrastructure cost per location = $32,000

• Average number of household connections = 54
LEARNING FROM THE SUCCESS
JAPAN & MALAYSIA PASSED THROUGH ALL PROBLEMS

Shift from manual to mechanized night soil/sludge collection system

- Night soil was originally carried in wooden buckets by farmers from house to house

- Development of mechanized vacuum vehicles by Kawasaki City and start of operation in 1952 (first use of such vehicles) → 26,000 vehicles today

Evolution of vehicles used for night soil/sludge collection and transport in Japan

Tokyo Bay

Sumida River

Kanda River
DEVELOPING WORLD CAN LEARN A LOT FROM JAPAN

Enactment of PAWTP (Johkasou) Act 1983
An overhaul of Japan’s Decentralized Waste water management system

OPERATION & MAINTENANCE OF SMALL-SCALE PAWTP

Legal Framework for Non-Sewered Sanitation
Inspections, O&M and regular desludging
MALAYSIAN SUCCESS OF JOURNEY & REGULATORY ARRANGEMENTS

THE MALAYSIAN JOURNEY

Before 1957

- Poverty
- Waterborne diseases

1970s & 1980s

- Federalization
- Privatization
- Economic regulation
- Infrastructure improvements

1994

- Policy & Control
- Regulate
- Sewerage Services
- Sustainable
- Business Model

2008

- Integrated water/wastewater
- Focus on water resources

Now and beyond

- Local authorities
- Basic sanitation

REGULATORY ARRANGEMENTS

MINISTRY OF WATER

1. Policy & Control
2. Regulate Sewerage Services

MINISTRY OF FINANCE

1. Sewerage Services
2. Septic tank services

MINISTRY OF ENVIRONMENT

Department of Environment

- Regulate Effluent Discharges

Contractors

Operators
STORY OF CHANGE: EASTERN & SOUTHERN AFRICA WATER & SANITATION (ESAWAS)

Mission

To facilitate the development of effective regulation of water sanitation services in the Eastern and Southern African region.
**CWIS FRAMEWORK: A PUBLIC SERVICE SECTOR APPROACH**

### CWIS OUTCOMES

#### EQUITY
Services reflect fairness in distribution and prioritization of service quality, prices, deployment of public finance/subsidies

#### SAFETY
Services safeguard customers, workers and communities from safety and health risks by reaching everyone with safe sanitation

#### SUSTAINABILITY
Services are reliably and continually delivered based on effective management of human, financial and natural resources

### CWIS SYSTEM FUNCTIONS

#### RESPONSIBILITY
Authority(s) execute a clear public mandate to ensure safe, equitable and sustainable sanitation services for all

#### ACCOUNTABILITY
Authority’s(ies’) performance against mandate is monitored and managed with data, transparency, and incentives

#### RESOURCE PLANNING & MANAGEMENT
Resources—human, financial, natural, assets—are effectively managed to support execution of mandate across time/space
GLOBAL WATER AND SANITATION CENTER AS A RESOURCE AGENCY FOR TA

AIT

DEPARTMENTS

• COMPUTER SCIENCE AND INFORMATION MANAGEMENT (CSIM)
• REMOTE SENSING AND GIS (RS & GIS)
• URBAN INNOVATION AND SUSTAINABILITY (UIS)
• ENVIRONMENTAL ENGINEERING AND MANAGEMENT (EEM)
• WATER ENGINEERING AND MANAGEMENT (WEM)

GSGS University

PARTNERS

NETWORK OF

EXPERTS

INTEGRATED MUNICIPAL INFORMATION SYSTEM ‘IMIS’

TECHNICAL ASSISTANCE HUB ‘TA HUB’

CLIMATE ADAPTIVE SANITATION ‘CAS’

GLOBAL WATER AND SANITATION CENTER AS A RESOURCE AGENCY FOR TA

RESEARCH GRANT AND SUPPORT ‘RGS’

PERFORMANCE & PROFICIENCY TESTING ‘PPT’

REINVENTED TOILET TESTING FACILITY ‘RTTF’

MARKET SURVEY AND DEVELOPMENT ‘MSD’

CLIENTS

BI-LATERAL & MULTI-LATERAL FINANCING INSTITUTIONS

TARGETED MARKET

THAILAND

BANGLADESH

NEPAL

PAKISTAN

INDONESIA

TARGETED INDUSTRY

• CLIMATE CHANGE ASIA
• ARTIFICIAL INTELLIGENCE CENTER
• GEOINFORMATICS CENTER
• AIT ENTREPRENEURSHIP CENTER
• AIT SOLUTIONS
• AIT EXTENSION

THAILAND

INDONESIA

NEPAL

PAKISTAN

India

BANGLADESH

NEPAL

PAKISTAN

INDONESIA

CONFIDENTIAL
ENVISIONED ROLE OF GSCoE AT IIT PALAKKAD

**Key functions**

- Evidence & research (performance of existing tech, to inform standards & norm setting, and to inform forward-looking technologies)
- Standards and norm setting
- EFT platform embedded for technology optimization
- Analysis of real-life testing & demos to understand readiness of technologies
- Certification, accreditation and validation of new technologies
- Creating training content on innovative tech
- Sanitation start-up identification, screening and incubation

**Partners/ stakeholders**

- Laboratory network (CSE, CDD, BITS Goa, ASCI, Wash-I, IIT-P), other IITs, WIH
- State TSUs working on standards in specific states
- WIH engagement with Telangana Govt. (T-works)
- Field Testing partners (Elefo, Eram, Ankur, Kalyani, Banka, and xx)
- Capacity building partners, State partners, PMCs, Training institutions

**Linkages**

- State TSUs (for adoption of standards & regulations in states)
- NFSSM Alliance (tech task-force to advance norms and standards conversation)
- GSCoE @ IIT Palakkad [Upstream]
- WIH
- National Govt. stakeholders (Line ministries, PSA office, Govt. statutory bodies, State TSUs)

**Technical & program-management staffing**

- Front-face conversations on the adoption of standards for bio-solids, pathogens, and services (leveraging work done in states)
- Provide research and evidence-generation capacity to Govt. stakeholders
- Convenings with Govt. departments, industry bodies, TPs & CPs, and non-govt. stakeholders
MECHANISMS FOR CROSS LEARNINGS AND BEST PRACTICES TO THE SOUTH ASIA REGION TO SCALE INCLUSIVE SANITATION OBJECTIVES

Disseminating knowledge and learnings from India to South Asia by fostering a regional collaboration towards cross learning and sharing

Workshops and convenings
- Curate workshops, convenings, working groups at a South Asia level, aggregate knowledge and share learnings, case stories, and challenges on CWIS

South to South Exposure Visits
- Curate exposure visits that enable stakeholders to learn from and share implementation approaches based on the gaps and thematic area of focus

Institutional Capacity Building
- Advisory and mentorship support towards strengthening the Communities of Practice to scale CWIS

Codifying Learnings & Best Practices
- Support local partners towards curating knowledge products / media narratives to build thought leadership and allow replication

Thematic areas
- Inclusion: Access, equity and empowerment of marginalized groups
- Private Sector Engagement: Enhanced participation by developing an enabling ecosystem, via model contracts, ease in payments, etc.
- Capacity Building: Training and building curricula for capacitating govt., administrative officials, and other stakeholders
- Monitoring & Evaluation: Data collection and tracking for quality assessment & policy creation
- Climate Change: Building city resilience by planning and adapting towards climate change
- Collaborative Platforms: Building collaborative systems for a holistic approach to service delivery for sector outcomes
Sanitation Tours

LEADERSHIP DEVELOPMENT FOR

CITY-WIDE INCLUSIVE SANITATION

Learning visits for the achievement of sanitation goals and SDG 6 in South Asia

India → South Asia → World

Administrative Staff College of India

cv@asci.org
sachary@asci.org
GOVERNMENTS IN SOUTH ASIA:
LEADING THE REGIONAL SHIFT TO SAFELY MANAGED SANITATION

INDIA

National Workshop on Urban Sanitation, April 2016

MoUD at FSM4 International Conference, February 2017

Primer on FSSM released at National Workshop on City’s Journey Beyond ODF – FSSM, September 2016

National FSSM Policy released at National Workshop on UD, 28th February 2017

BANGLADESH & NEPAL

Institutional and Regulatory Framework for Faecal Sludge Management in Urban Areas of Nepal

Government of Nepal
Ministry of Water Supply and Sanitation
Kathmandu, Nepal
April 2017
Thank you!

Roshan Raj Shrestha
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Bill & Melinda Gates Foundation
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