



City-wide Inclusive Sanitation Scaling and Sanitation Innovation

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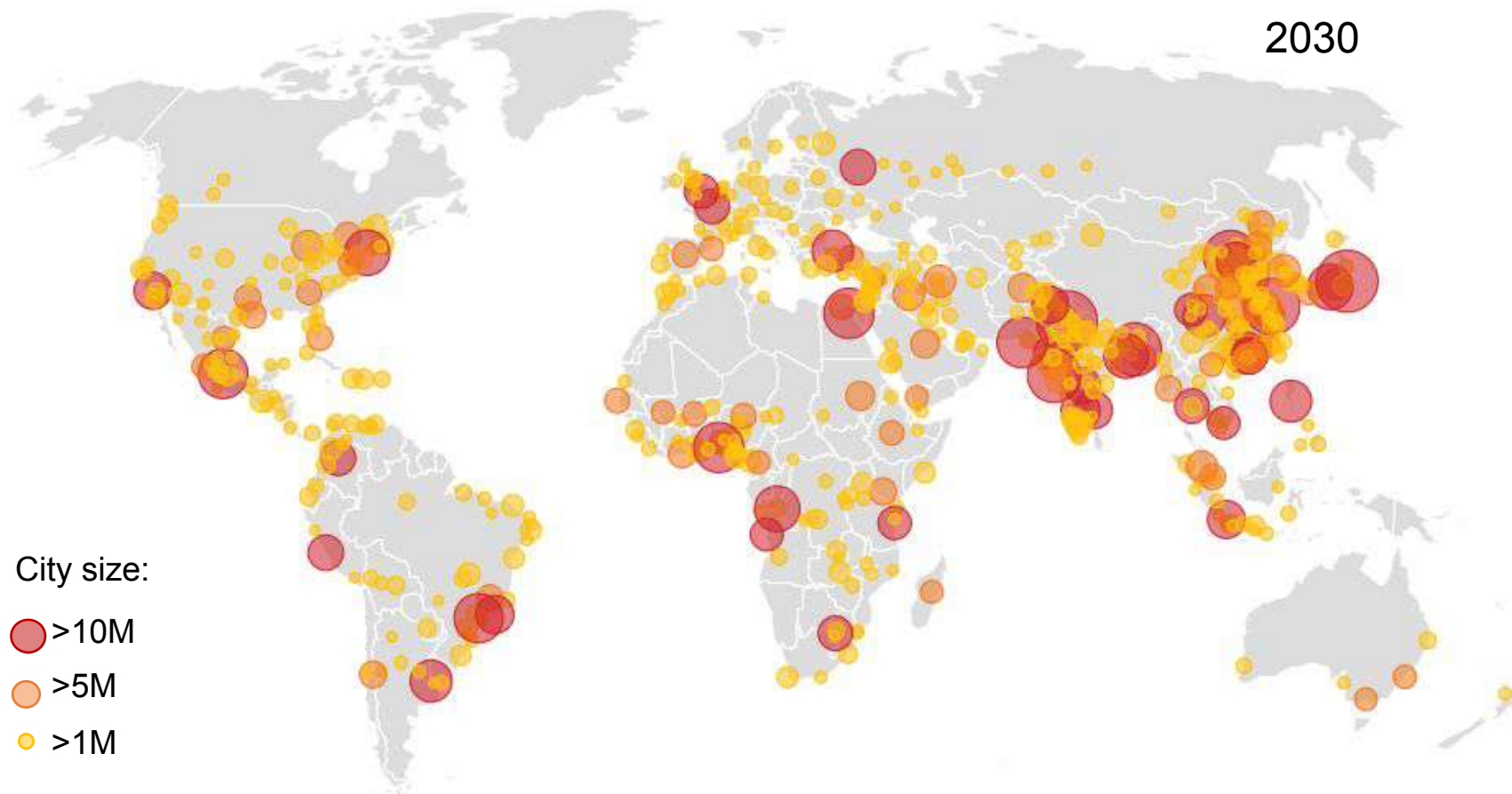


Outline

- Brief overview of City-wide inclusive sanitation (CWIS)
- Nationwide capacity-building program of ITN-BUET on CWIS/FSM (2018 – 2021)
- **Scaling CWIS and Sanitation Innovation (2021 – 2025)**



Big Cities are growing

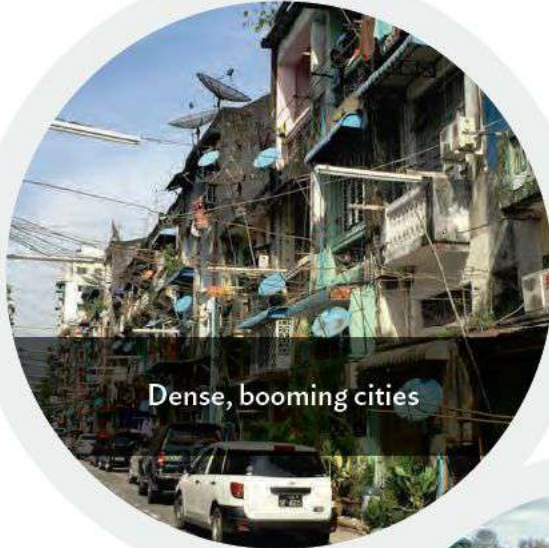


In 2017, **over 4 billion people** (55% of the world's population), were living in urban areas.

In 2030, **there will be 5.1 billion people**, (60% of the world's population), living in cities and towns of all sizes.



Challenges for Urban Sanitation



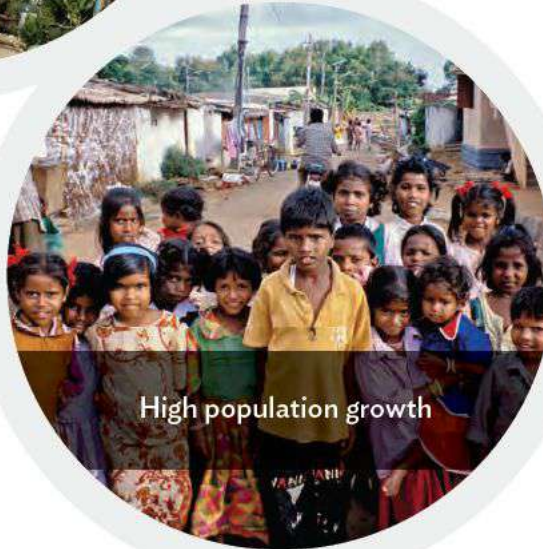
Dense, booming cities

Significant portion of the urban population live in slums (poor supporting institutions, poorly built and managed sanitation services)



Lack of access to quality on-site sanitation services and fecal sludge management

The urban population growth dramatically outpaces the gains in access to sanitation



High population growth



Historical focus on building centralized wastewater treatment facilities

Conventional sewer networks often do not serve newer or informal settlements. Extension challenging and costly.



Challenges for Urban Sanitation



Mumbai



Dhaka

Poor people remain unserved in
traditional sanitation approach

Context-specific solutions are required



- **Centralised systems**
where economy of scale works.
- **Decentralised systems**
in areas dictated by topography, population density, and fund availability
- **Fecal Sludge Management** in
outer areas where access is an
issue. Eg- slums, and peri urban
regions



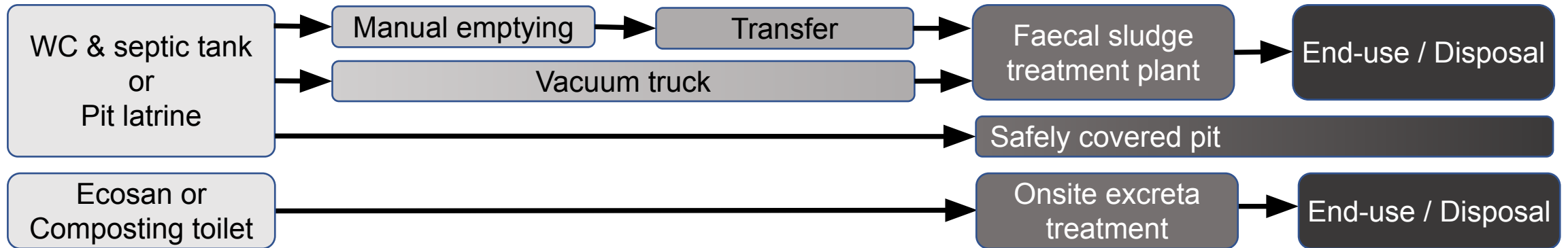
The Sanitation Service Chain



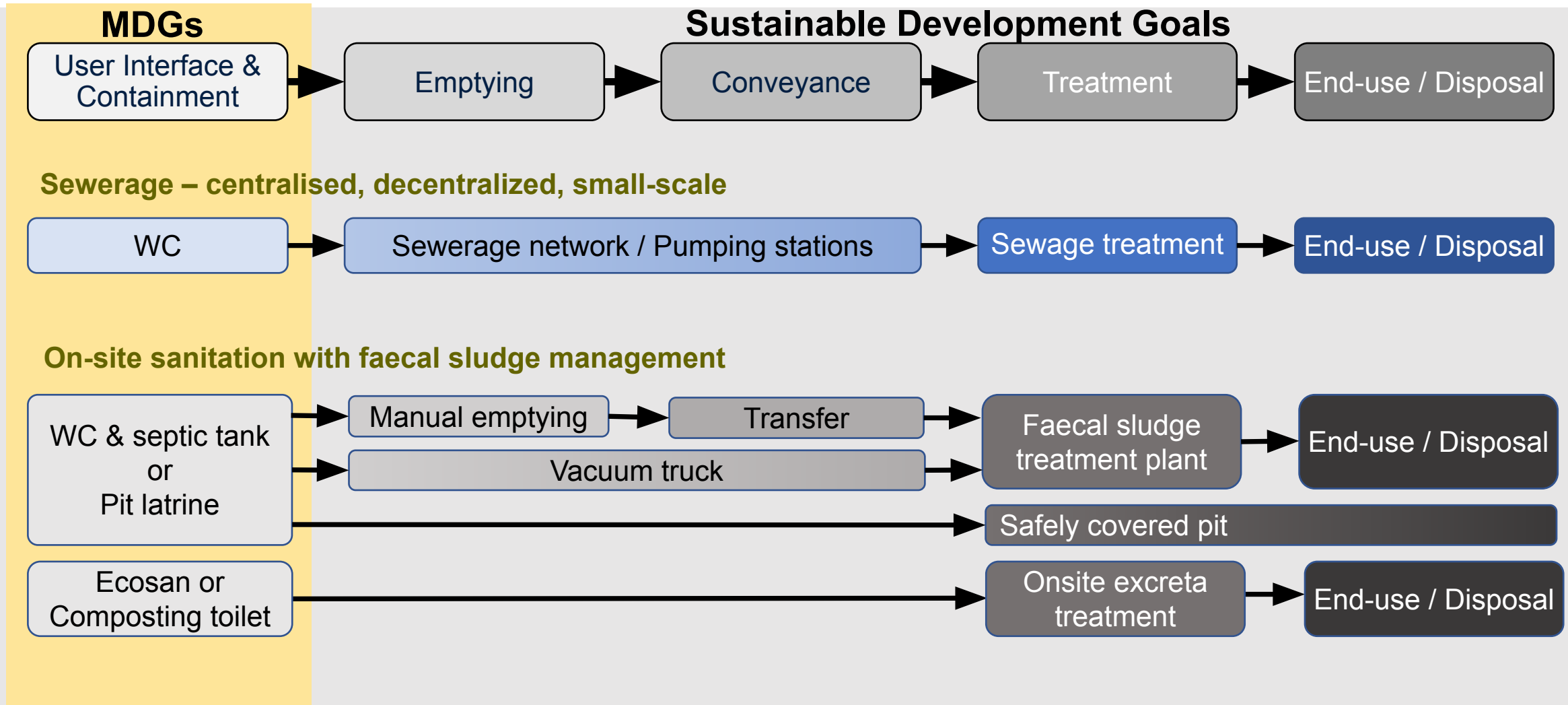
Sewerage – centralised, decentralized, small-scale



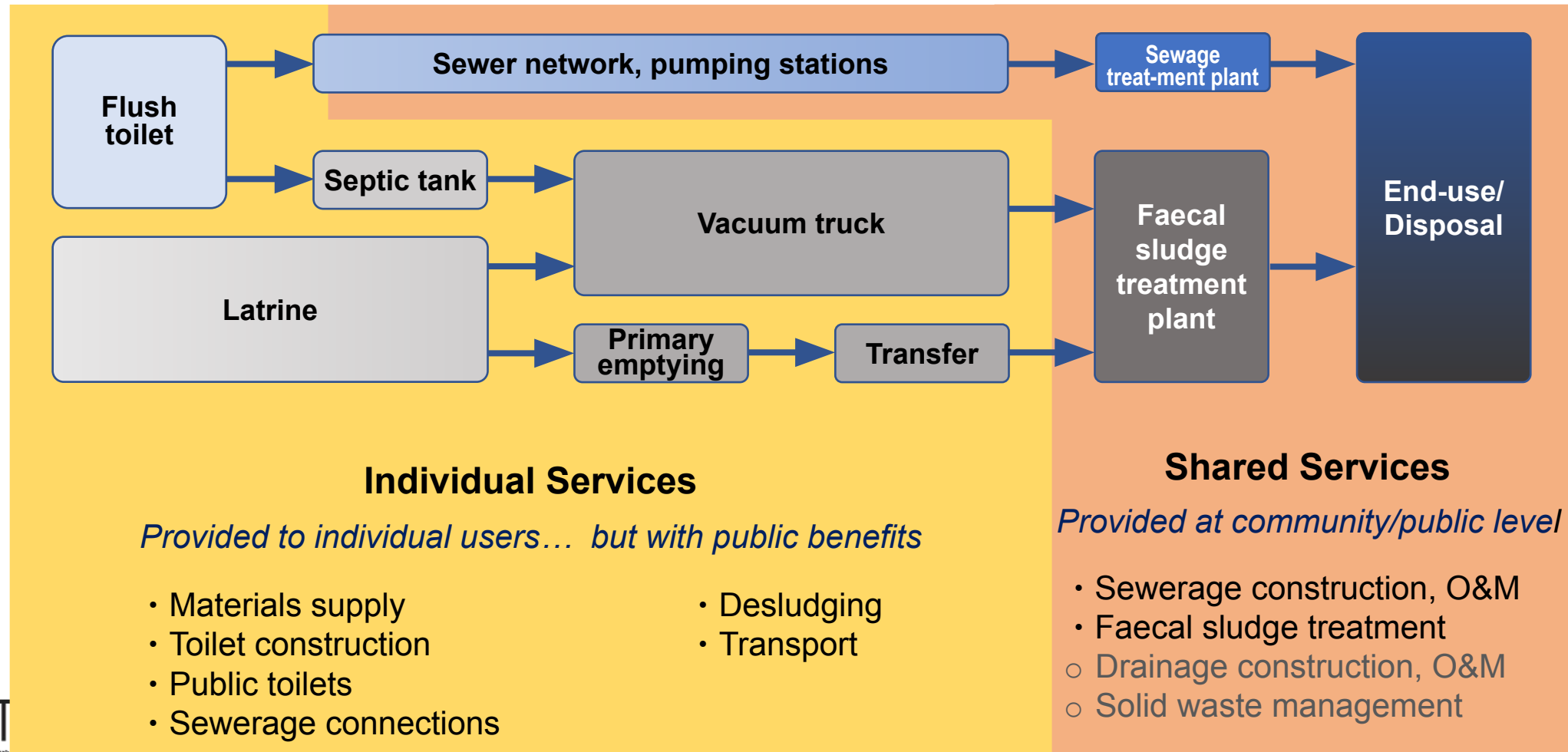
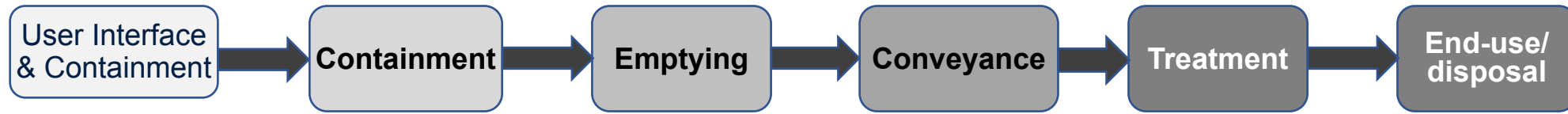
On-site sanitation with faecal sludge management

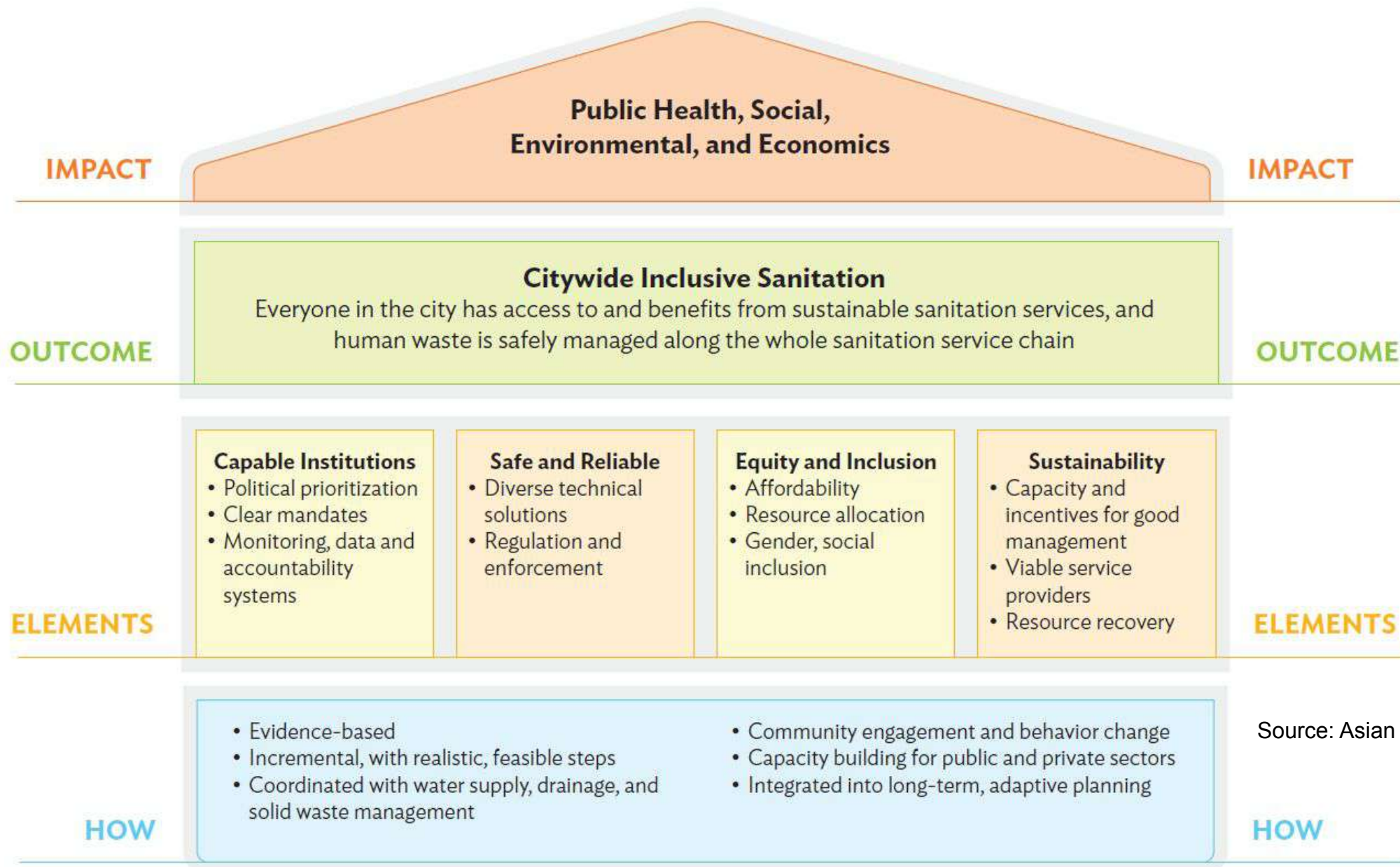


Meeting the Sanitation SDGs



Sanitation also depends on “Services”



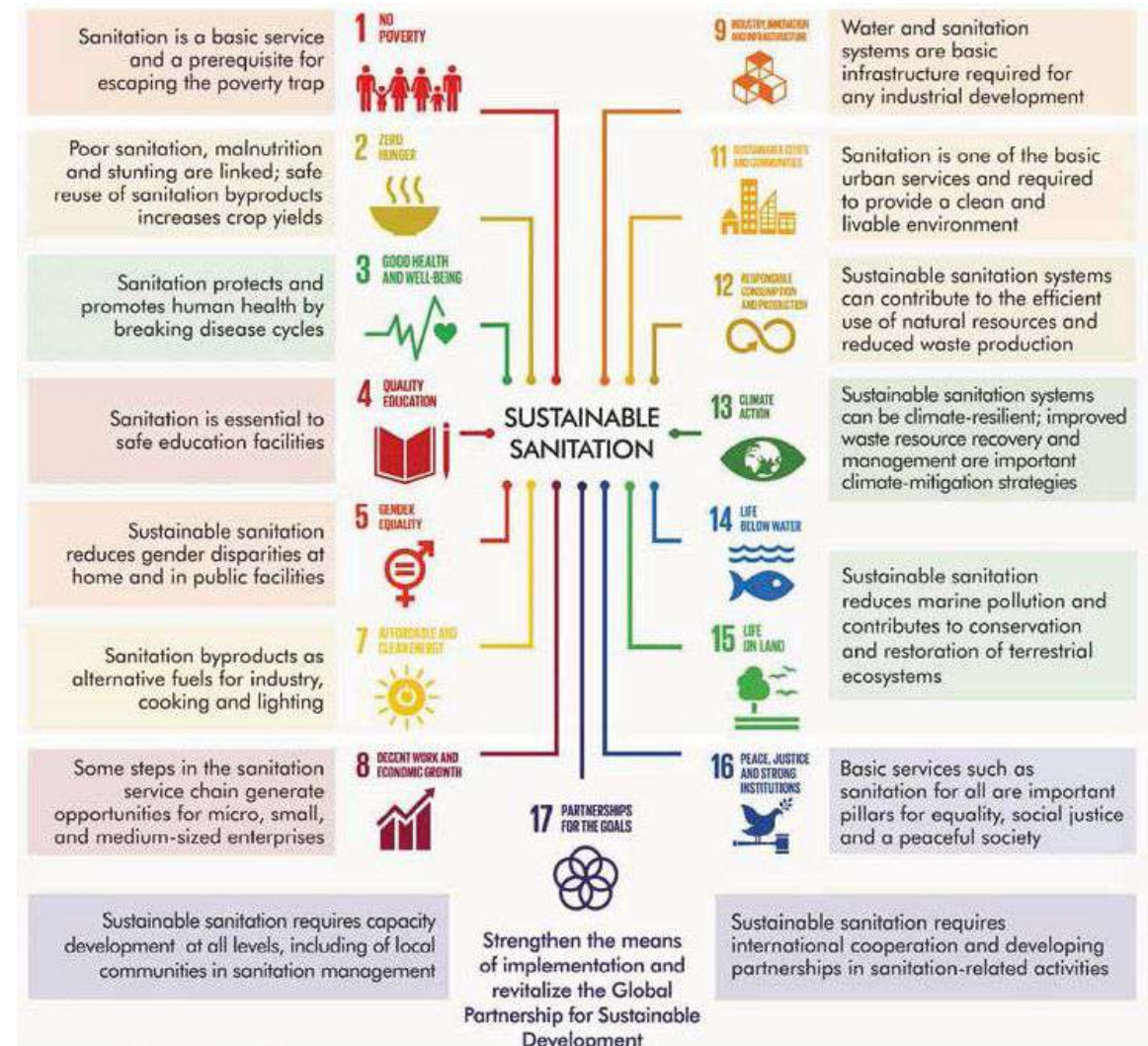


Source: Asian Development Bank



CWIS and Sustainable Development Goals

- CWIS is mainly : 6.2.1 to 6.3.1
Access to improved sanitation to
Treatment of all wastewater produced.
- But CWIS is also
 - good health and wellbeing (SDG 3)
 - gender equality (SDG 5)
 - reduced inequalities (SDG 10)
 - sustainable cities (SDG 11)
 - resource recovery (SDG 7)
 - circular waste economy (SDG 12)



CWIS requires a change in traditional approach to sanitation

- Simply **providing the infrastructure is not enough**. Sanitation depends on continuous well-functioning **services**
- So we need a **wide range of service providers**.
- To work effectively, an **enabling environment at community, local government and national level needs to be in place**.

Shifting mindsets can be achieved in relatively short periods if capacity building programs are carried out at the right time with the appropriate content



Building capacity in the WASH sector for more than two decades



Centre for Water Supply and Waste Management

MISSION

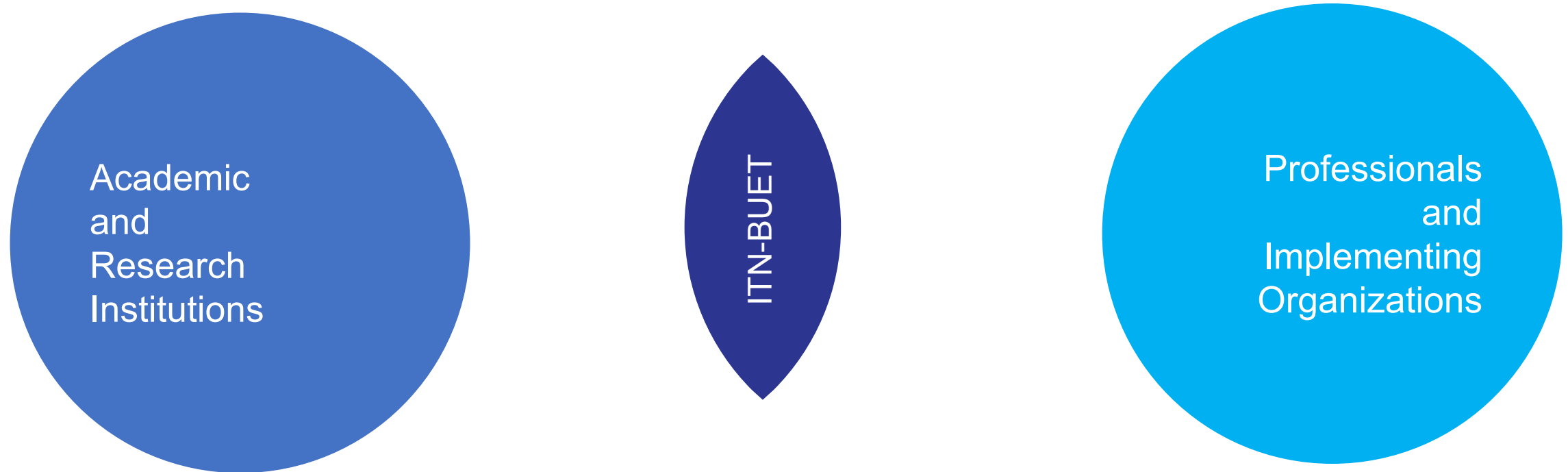
To achieve a strong, capable human resource base for sustainable development of water supply and environmental sanitation

VISION

Striving for Safe Drinking Water and Environmental Sanitation



ITN-BUET Plays a Bridging Role



ITN-BUET

Centre for Water Supply and Waste Management



Major activities at a glance

- Training module development and delivery
- Networking with training institutes
- Sensitization/dissemination workshops, seminars
- Reorientation of course curricula
- Publications
- Research and study
- Providing sector policy formulation supports
- Rendering Technical Assistance

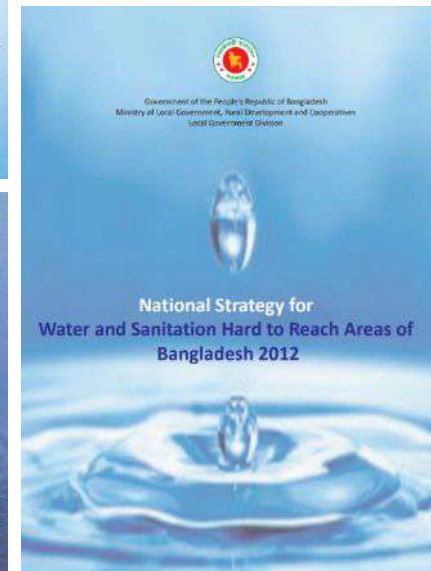
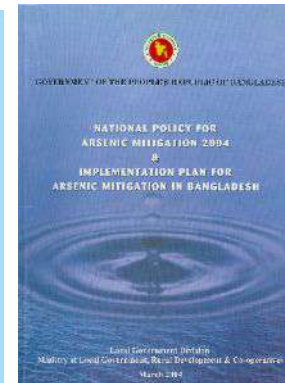
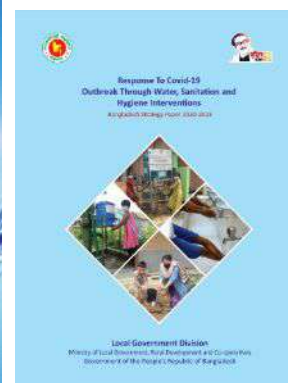
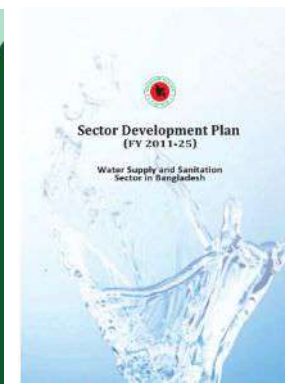
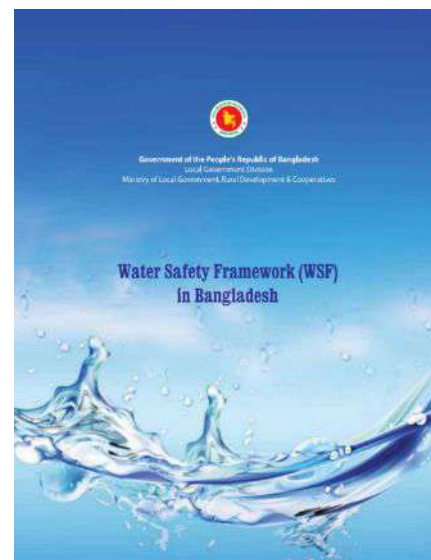
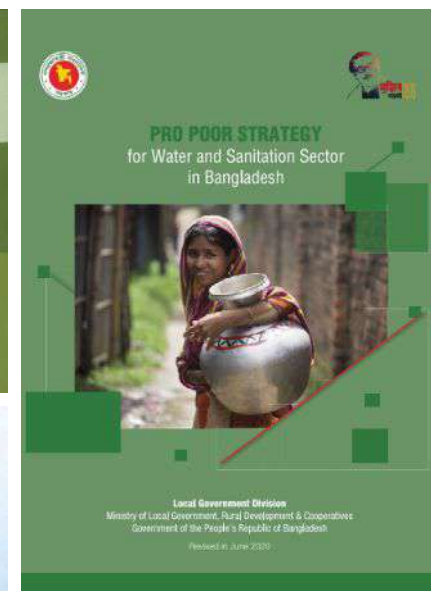
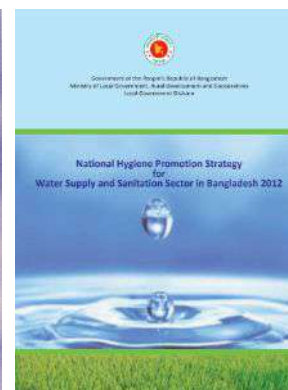
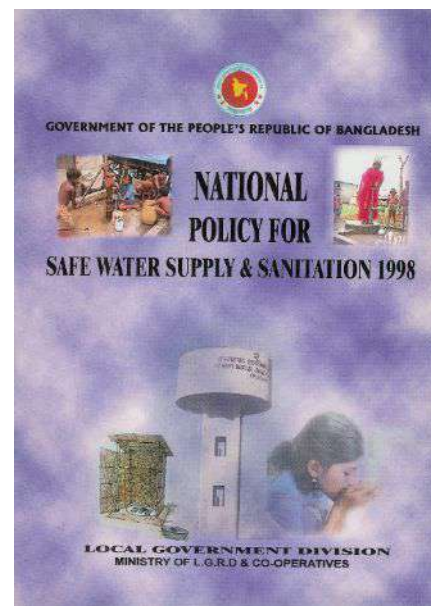


Activities of ITN-BUET

- Supported government in **10+** Policy, strategies, guidelines, and standards for WASH sector
- Offered **55+** capacity building courses
- Conducted **300+** training programs
- Trained **10,000+** participants
- Conducted **15+** research and studies
- Generated **50+** books and publications



10+ policies, standards and guidelines for the WASH sector



ITN as a focal in R&D for the WASH sector (SDP 2011-25)



ANNEX 2

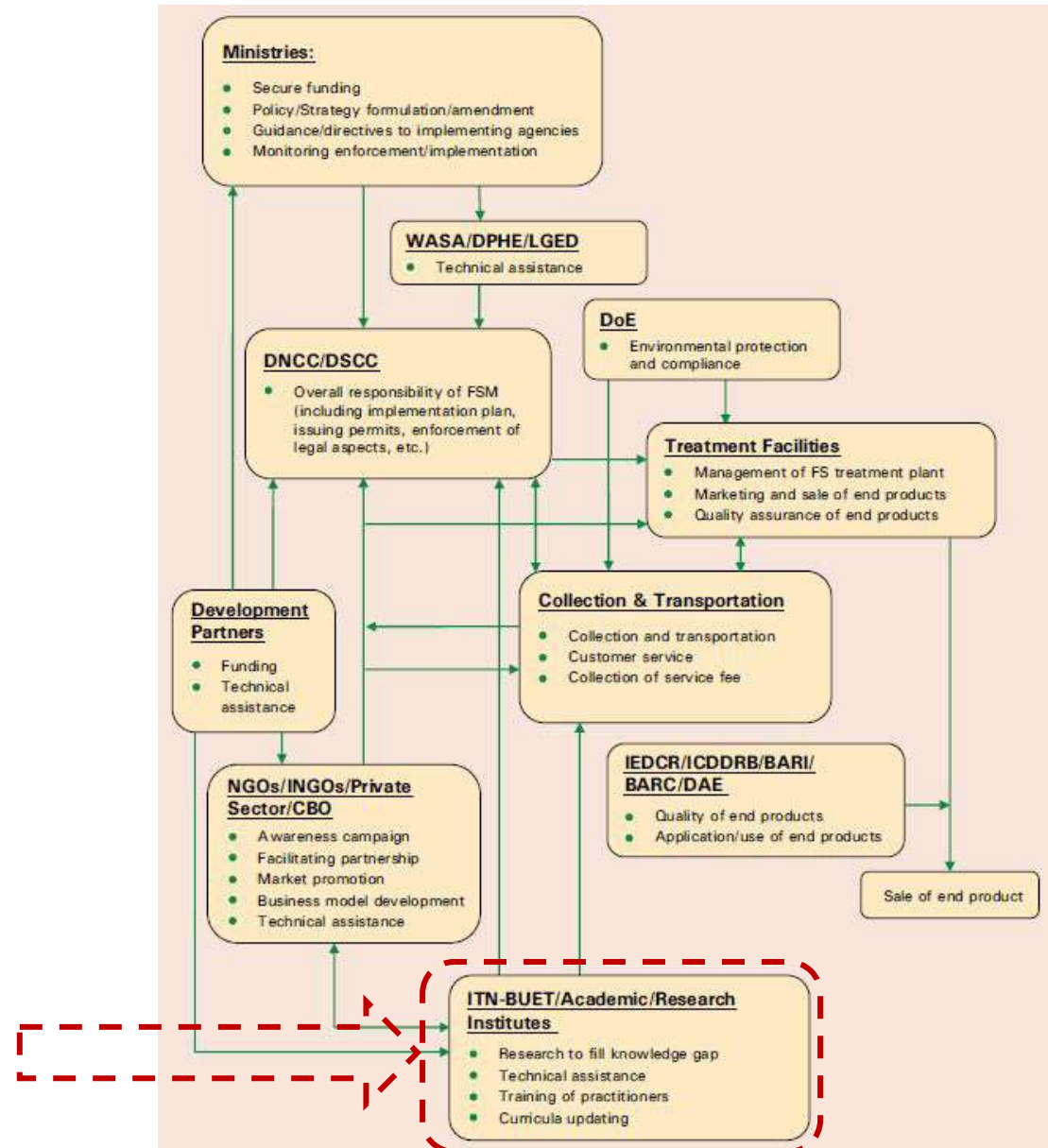
Thematic Groups and their Members

Sl. no.	Thematic Area	Agencies (focal agency in bold)
1.	Water Supply and Sanitation	DPHE , UNICEF
2.	Hygiene	UNICEF , Directorate of Health
3.	Environmental Sanitation	DPHE , BRAC, WaterAid
4.	Sector Reforms and Institutional Reforms	PSU , ABD, World Bank, DPHE, WASA, LGED, DANIDA

9.	Cross-cutting Issues	WSSC,B , DPHE, WSP, WAB, NGO-F, DANIDA
10.	R & D	ITN , DPHE, WASA
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10.	R & D	ITN , DPHE, WASA
11.	Monitoring and Evaluation	PSU , DPHE, WASA, LGED
12.	Disaster Response	UNICEF , DPHE, Disaster Management Bureau

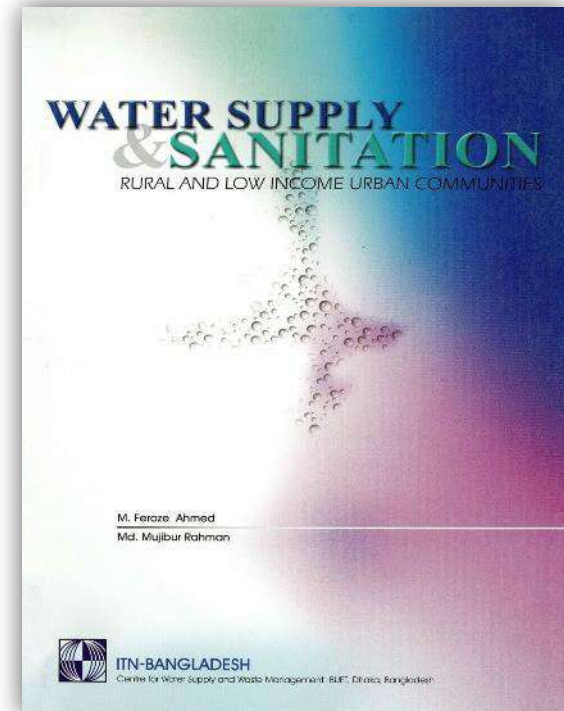
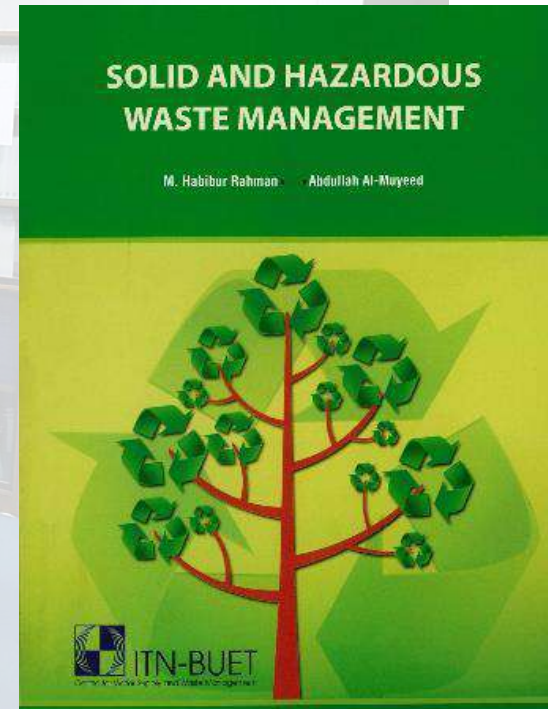


ITN-BUET as capacity building organization in IRF for FSM



Enriched resource centre for academic and professional use

- **06 textbooks** for environmental Engineering education
- Developed teaching materials and guides
 - Water Safety Plan
 - Rainwater Harvesting System
 - Fecal Sludge Management
- **15 research series**
- **16 publications** on arsenic, environmental pollution control, climate change, sanitation, FSM
- **4 technical guide/manual** on WASH technologies



Specialized training courses

Fecal Sludge Management

Inclusive Urban Sanitation

Solid Waste Management

Water Safety Plan

Impact of Climate Change in WASH

Arsenic Contamination in Bangladesh

Training Skill Development

Logical Framework Approach towards Sustainable Planning of WASH

Design, construction, O&M of resilient WASH Interventions



Major research/study

- Risk Assessment of Water Supply options for Arsenic Mitigation (RAAMO)
- Storage and Recharge Potential of Rainwater in Dhaka City
- Removal of Manganese and Arsenic from Groundwater
- Assessing the sanitation/fecal sludge management (FSM) service delivery in Paurashavas
- Health and safety of waste and sanitation workers during the pandemic



Water technology: field testing and assessment

- A Handy Kit for Detection of Arsenic in Groundwater
- Performance Study of Existing PSFs and Design Modification
- Field test of modified community-based Iron and Arsenic removal unit
- Arsenic mitigation for Extreme Poor in the Remote Char Areas
- Multipurpose Solar Desalination System for Schools in Saline Prone Areas



Sanitation technology: field testing and assessment

- Sanitation Strategies and Technologies in Flood-prone and High-water table Areas
- SanMark-CITY: Intelligent Design in Urban Sanitation Marketing
- Appropriate Design of Ecological Sanitation for Bangladesh
- Biofil toilet evaluation at Rohingya camp, Cox's Bazar



National-level Capacity Building (2018 – 2021)

*Collaboration with DPHE
and sector partners*

**BILL & MELINDA
GATES foundation**

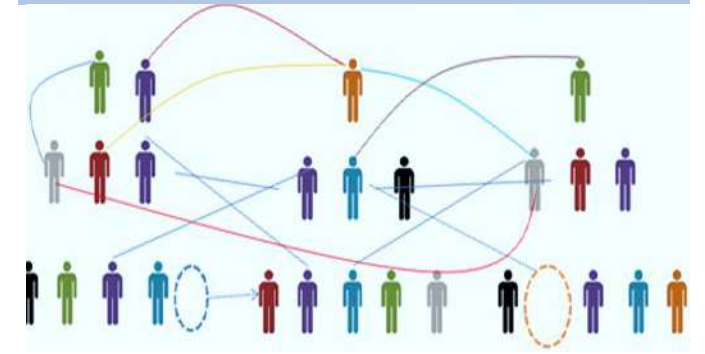
**Make policy instruments
available to harmonize
CWIS/FSM**



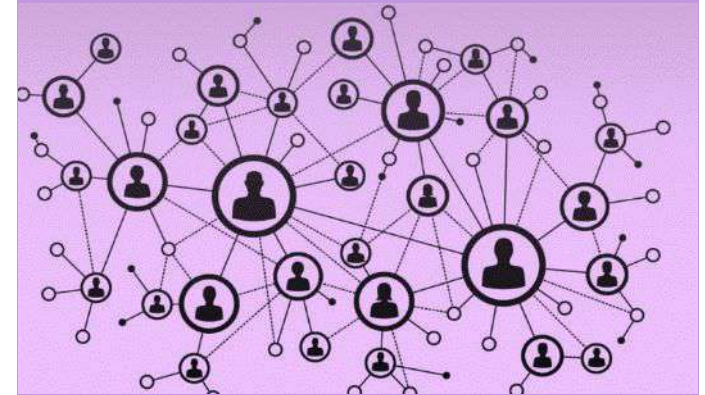
**Research and knowledge
products on CWIS/FSM**



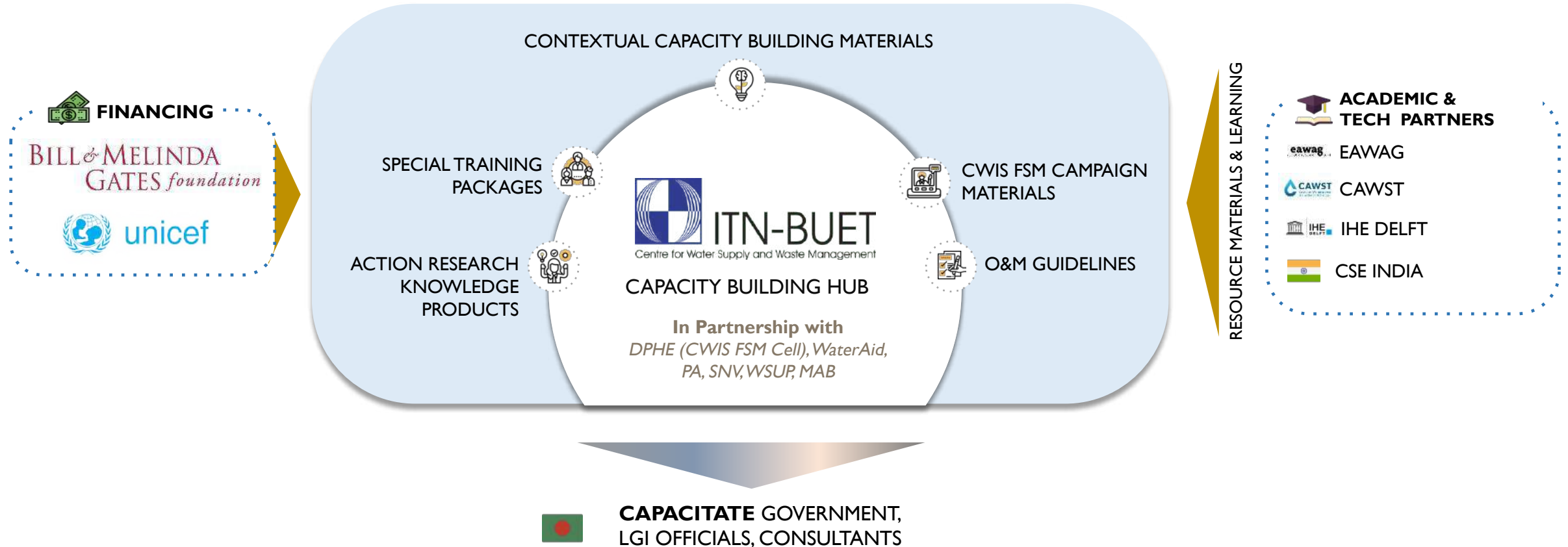
**Capacity building
support for
mainstreaming**



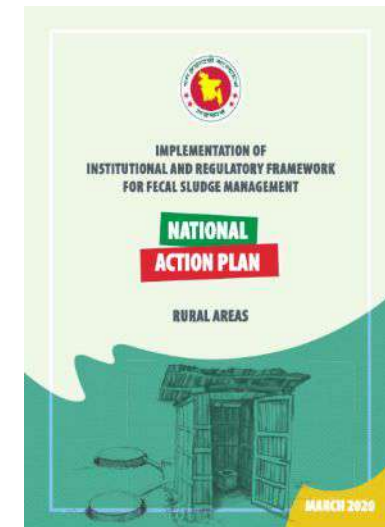
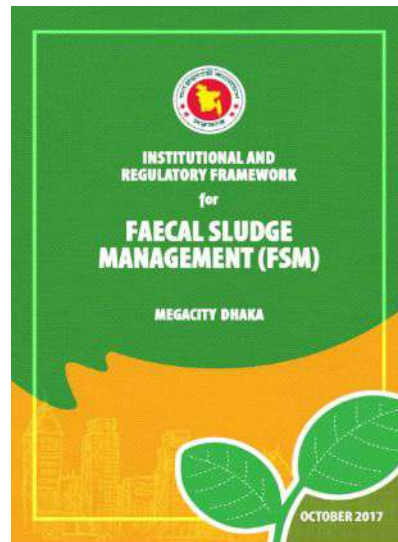
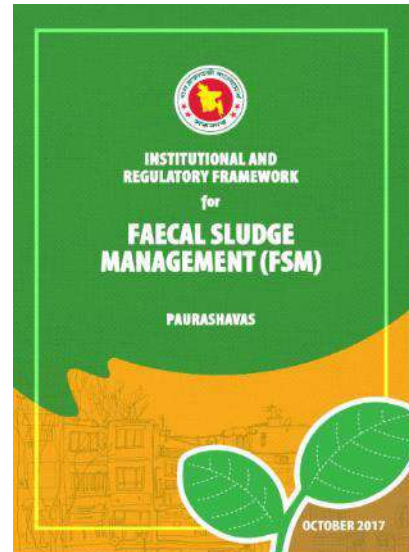
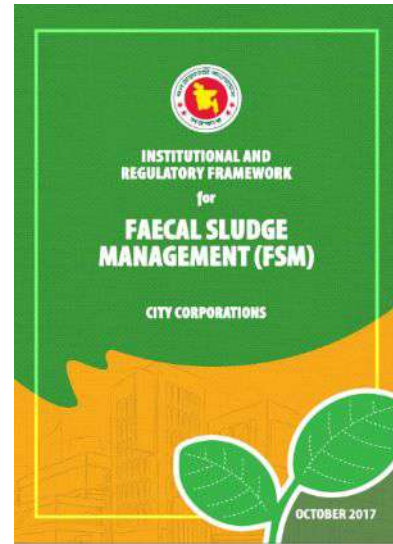
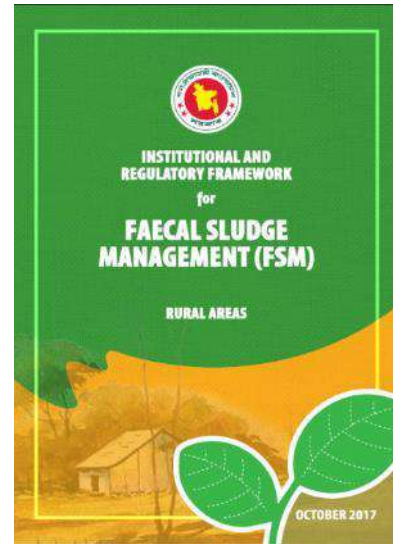
**Networking for scaling
CWIS/FSM**



Modality of Capacity Building (2018 – 2021)



Institutional Regulatory Framework to National Action Plans on FSM



Advocacy – Engagement - Dissemination

- The significance of CWIS/FSM advocated to the highest level of the concerned Ministry
- 329 Paurashavas and 12 City Corporations oriented on IRF-FSM
- 100 municipalities oriented on NAP for implementing IRF-FSM
- 50+ decision-makers and high officials sensitized on CWIS/FSM
- Municipality mayors engaged in dialogue for social mobilization on FSM



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Capacity Building for Mainstreaming CWIS/FSM

- **69 Paurashavas** (Municipalities) received capacity building support
- **574 engineers and officials** enhanced skills
- **59 Master Trainers** are now capable to deliver training to field level implementers
- **50+ private sector consultants** enhanced skills to provide technical support in implementing CWIS
- **CB packages are available** for all tiers including decision makers, planners, implementers and field workers
- An equipped **Fecal Sludge testing laboratory** operational at BUET

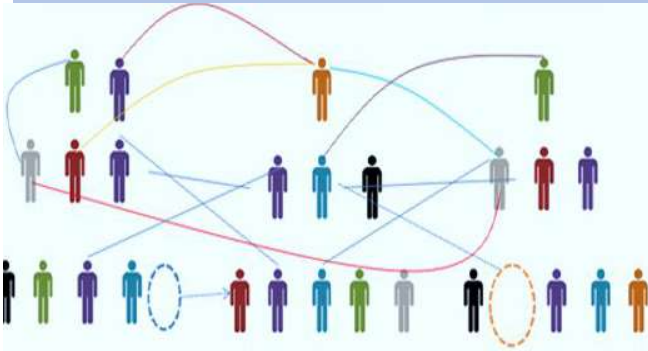


Capacity Building for Mainstreaming CWIS/FSM



Occupational Health and Safety Training

Capacity building support
for mainstreaming
CWIS/FSM



In association with the DPHE
CWIS-FSM Support Cell



5000 Wasteworkers trained in 45 cities

In association with the DPHE
CWIS-FSM Support Cell

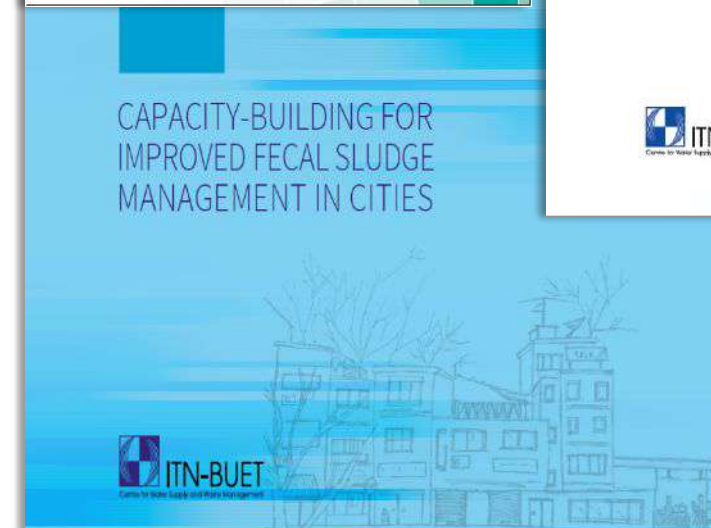


ITN-BUET
Centre for Water Supply and Waste Management



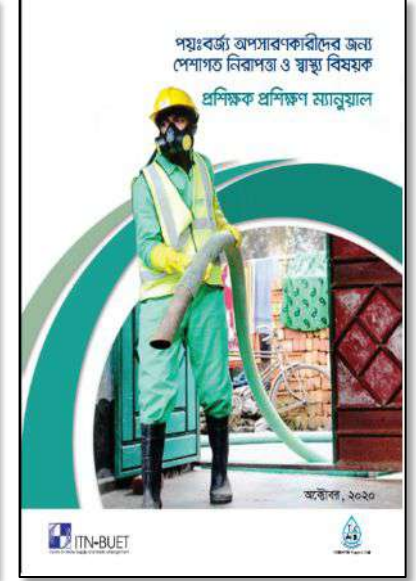
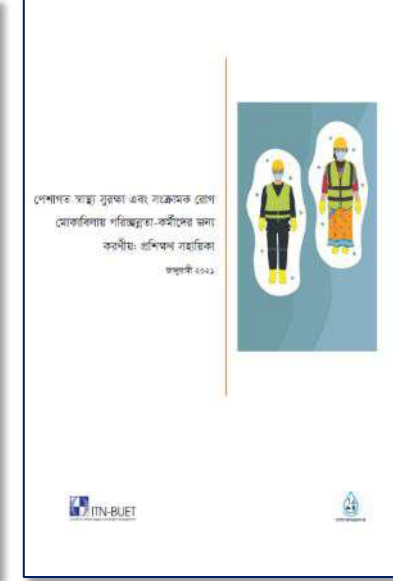
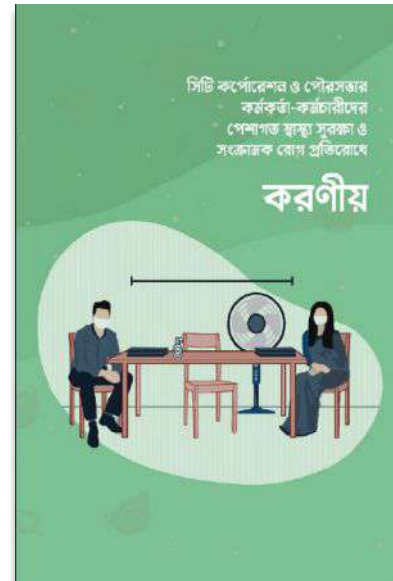
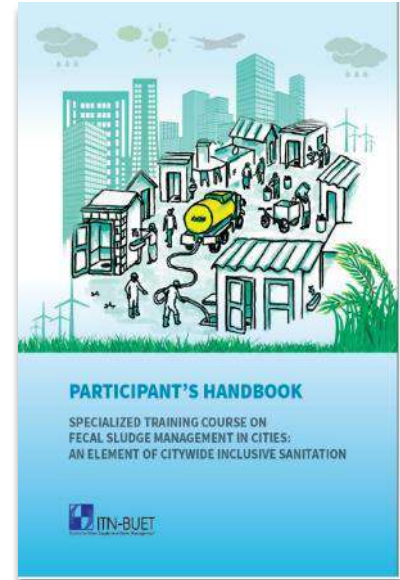
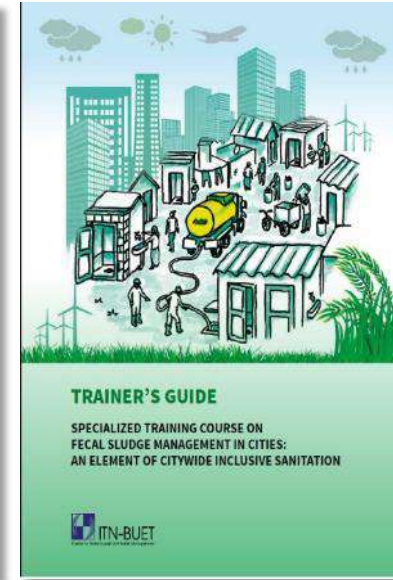
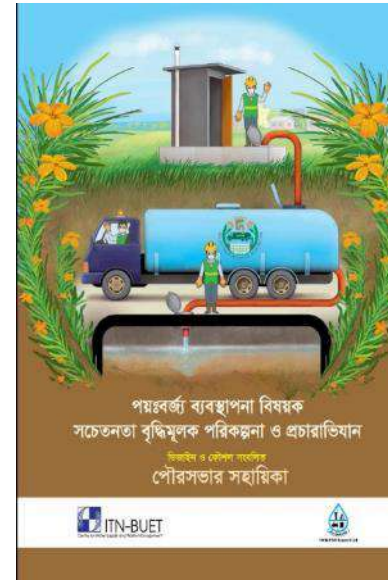
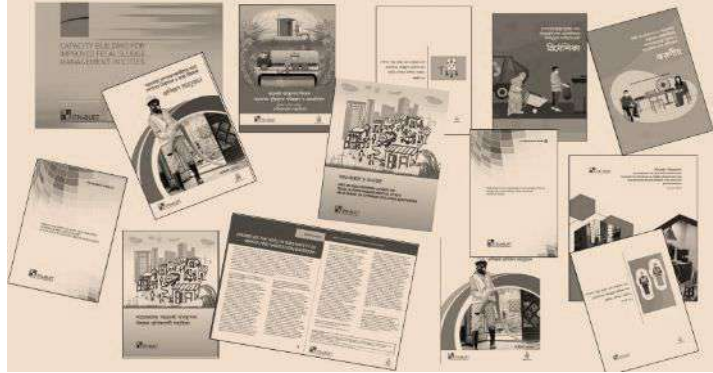
Research and case studies

- Performance Assessment of FSM Services
- Health and Safety of waste and sanitation workers
- Assessment of selected laboratory facilities to operate as FSM laboratory
- Scaling CWIS framework to assess sanitation SDG status
- Extension of SARS-CoV-2 genetic material detection in on-site sanitation systems
- Septic tank sludge treatment in Bangladesh: Constructed wetlands



IEC/BCC Materials – Training Manuals - Handbook

Research and knowledge products on CWIS/FSM



FSM Network – Advocacy – Resource Repository

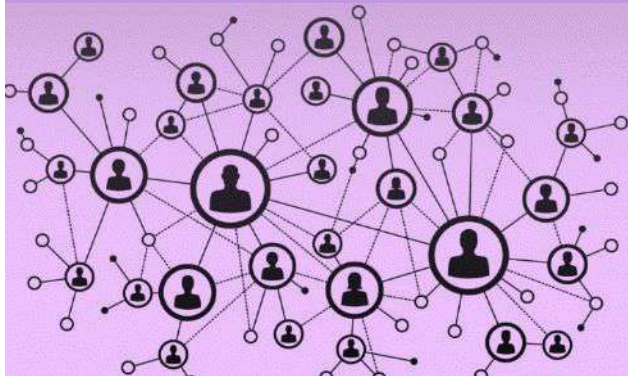
FSM Network for advocacy and knowledge sharing

- 3rd and 4th FSM Convention
- 3rd National-level Pit emptier convention
- Advocacy for COVID-19 vaccination of frontline workers
- Session hosting and exhibition in the 5th, & 6th FSM Conferences
- Online resource sharing platform

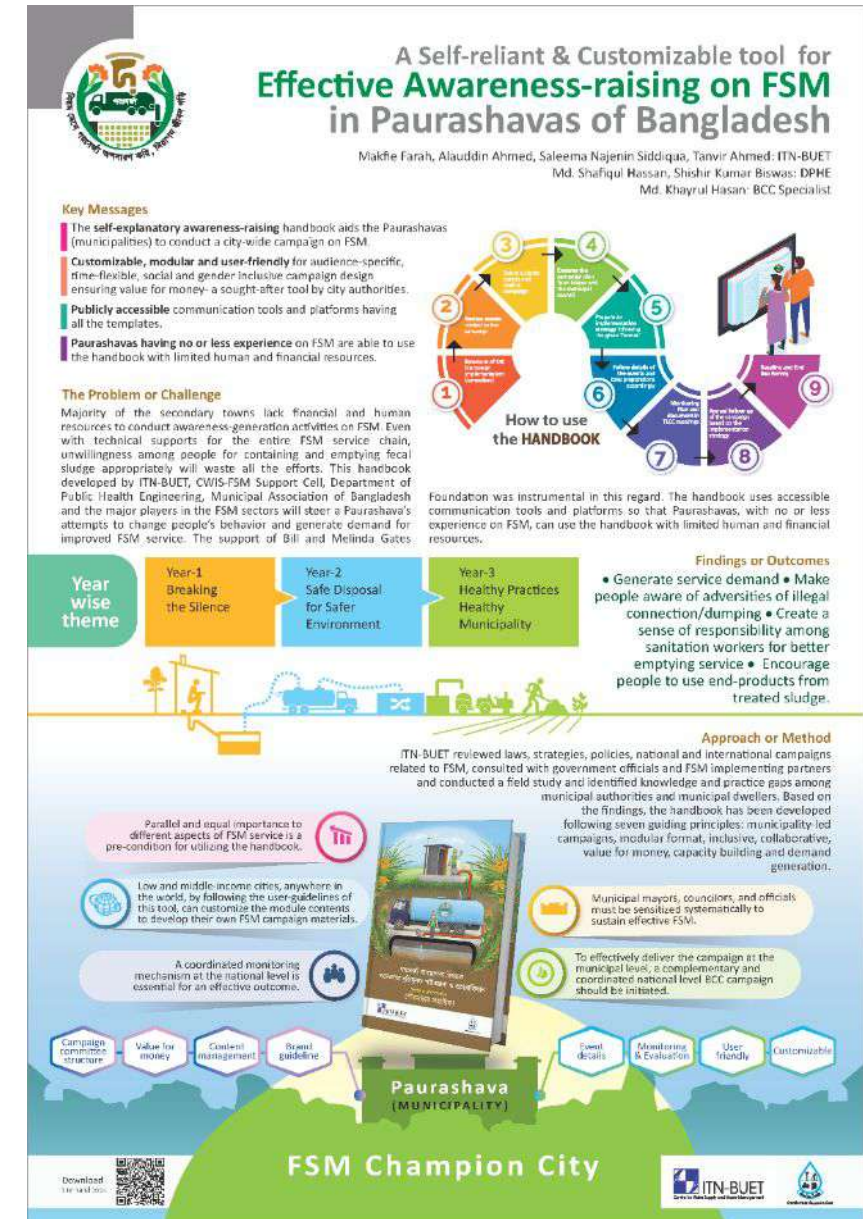


Networking - Conferences

Networking for scaling CWIS/FSM



Coordinated the virtual FSM6 Exhibition on behalf of the FSM Network

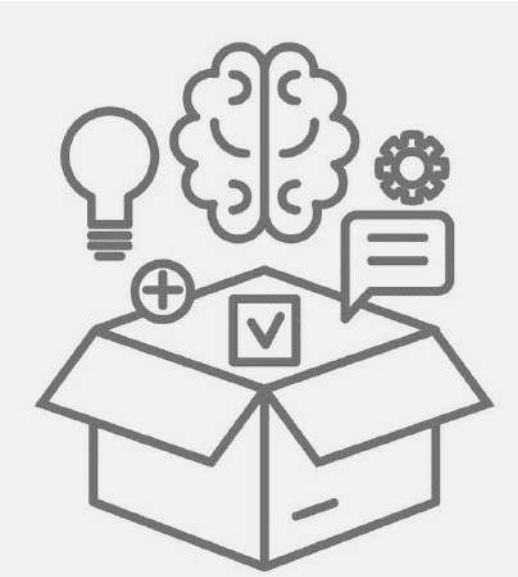


Scaling the CB initiatives (2021 – 2025)

- Consultation with sector partners: CWIS-FSM Support Cell, TA Hub, INGOs and academic partners
- Consultation with regional partners, ENPHO



Develop, update and contextualize CWIS/FSM resources for different target groups



- CWIS concept implementation strategy,
- FSTP operation
- Mechanical emptying
- Gender and WASH
- Climate change and disaster risk reduction
- Sanitation service business



ITN-BUET performing as a CB Hub in Bangladesh and the South-Asian Region



- **Strengthened partnership** at national, regional and global level:
 - Government agencies
 - Technical universities
 - Government and private technical centers
 - I/NGOs.
- **FSM reference lab**
- **Liaise with development partners** to incorporate CWIS/FSM resources in their investment projects
- **Work with ENPHO** to expand CB initiatives and the region



Enhance capacity at different tiers

Implement capacity-building activities for:

- 500 municipal officials
- 100 govt. officials
- 100 women sanitation entrepreneurs
- 2 private sector and 50 private sector professionals
- 06 partner organizations
- 15 cooperatives/business groups of sanitation workers



Evidence generation, documentation and learning integration



- Reference/textbooks focusing CWIS
- The Global Sanitation Graduate School
- Internship/ fellowship program for potential young professionals with special attention to women
- Study/action research on CWIS and urban sanitation
- Measure urban sanitation empowerment in Bangladesh



FSM and CWIS Mentor Cities to foster peer learning

10 mentor cities for CWIS-FSM to demonstrate the efficient models for:

- (a) Transformative governance
- (b) Sanitation planning and business and service models
- (c) Sanitation workers OHS
- (d) Women entrepreneurship
- (e) Digital financial inclusion
- (f) Taxation and tariff structures for sustainability
- (g) O&M and monitoring of FSTPs
- (h) Gender and social inclusion
- (i) Community engagement and behavior change communication



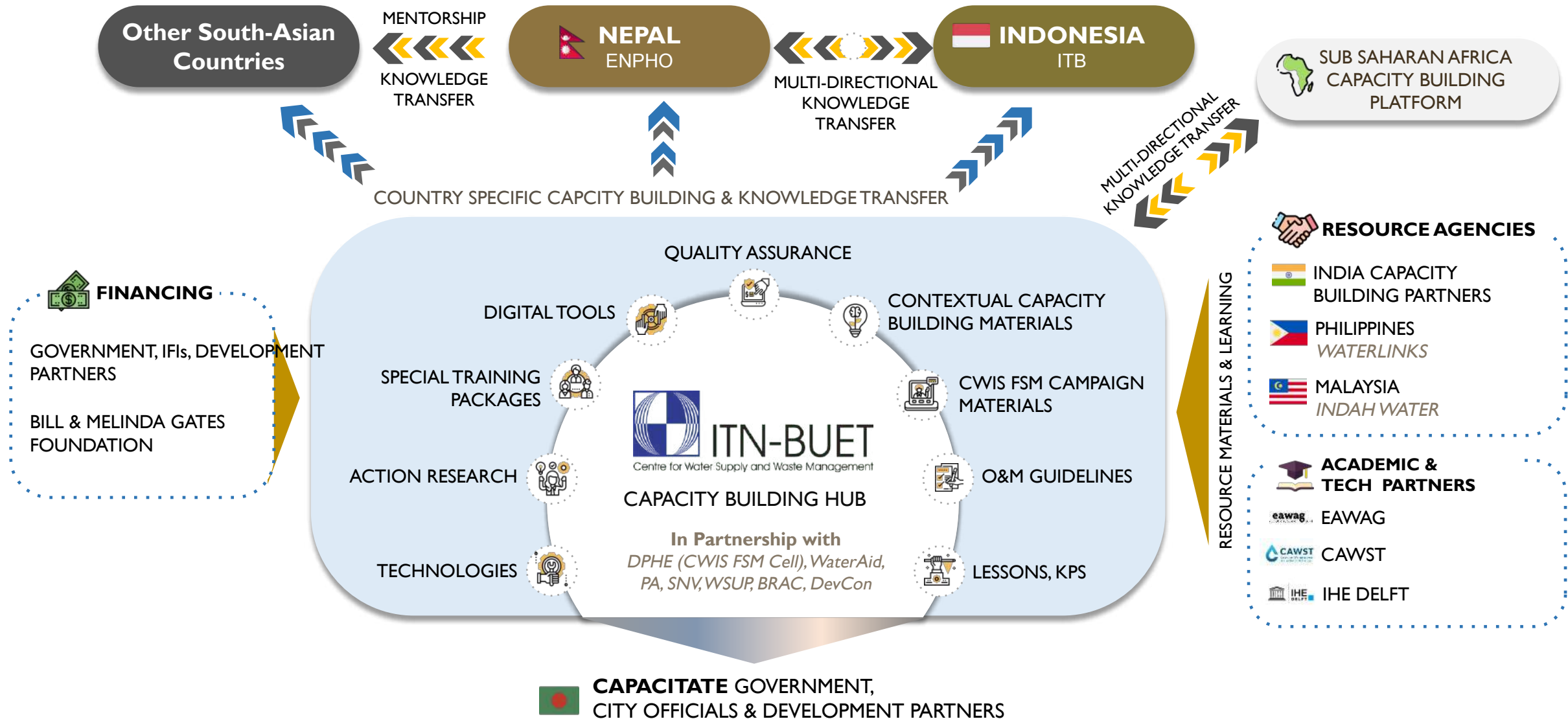
Regional Hub for Knowledge Harvesting



- A regional CWIS-FSM Network of partners
- Transfer of skills among countries in South Asia, SE Asia, and Sub-Saharan Africa
- Showcasing best practices through cross-learning events
- Integrated Municipal Information System (IMIS) for cities



Scaling CWIS: Regional Capacity Building Hub

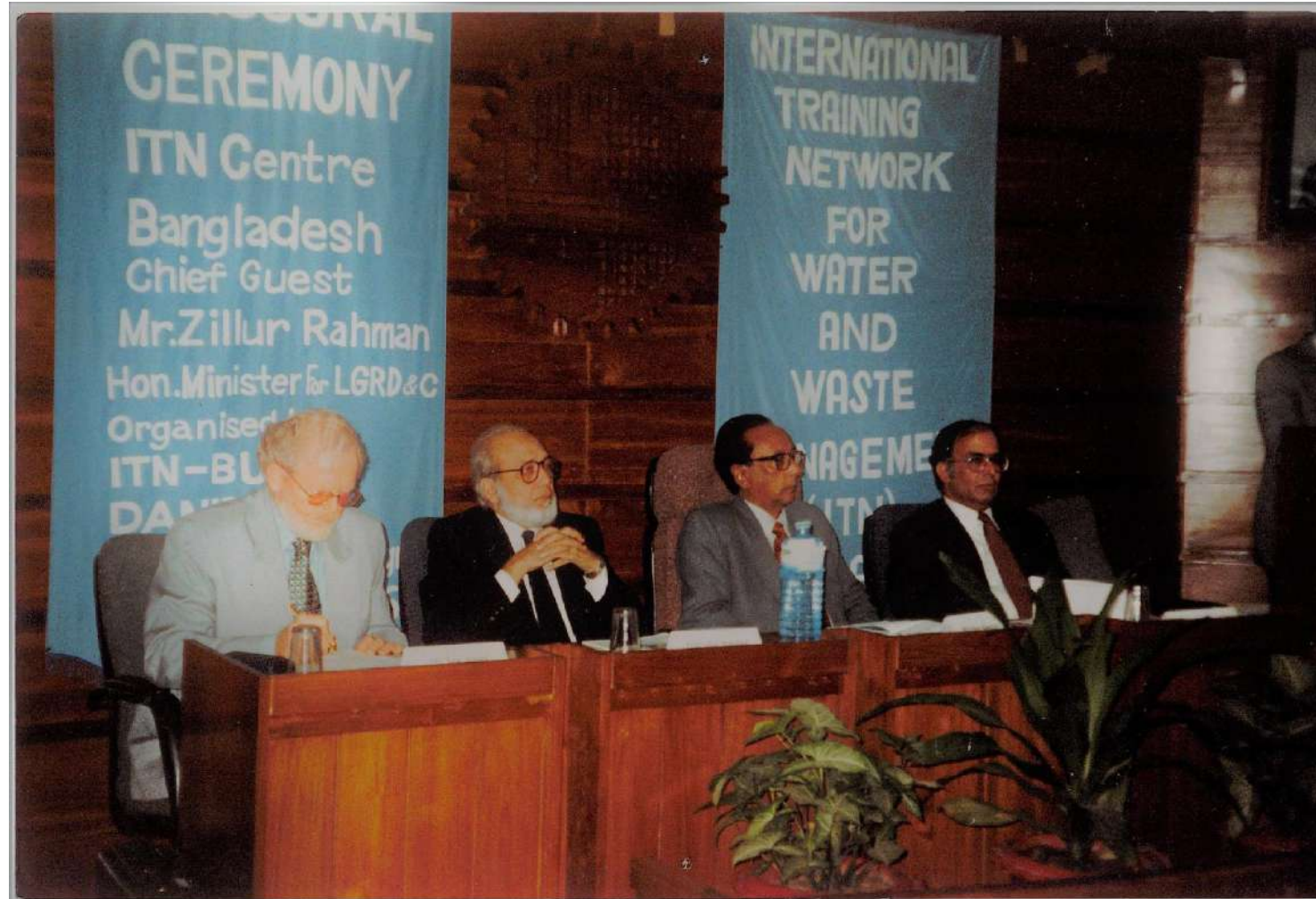


Summary

- The CWIS approach requires a change in mindset which can be achieved through capacity building
- The project can potentially transform the capacity building landscape in the sanitation sector in the country
- We can enhance knowledge base, promote research and innovation
- We can project our capacity and excellence regionally and globally



25 years of ITN Centre



ITN Centre inaugural ceremony, Council Bhaban, BUET
19th November, 1996

Thank You

<https://itn.buet.ac.bd>