

# IWA Water and Development Congress & Exhibition 2025

8-12 December 2025 | Bangkok – Thailand



## Workshop: Integrated Water Management For Fast-Developing Cities In Asian Countries

### Insights from India

12<sup>th</sup> Dec 2025

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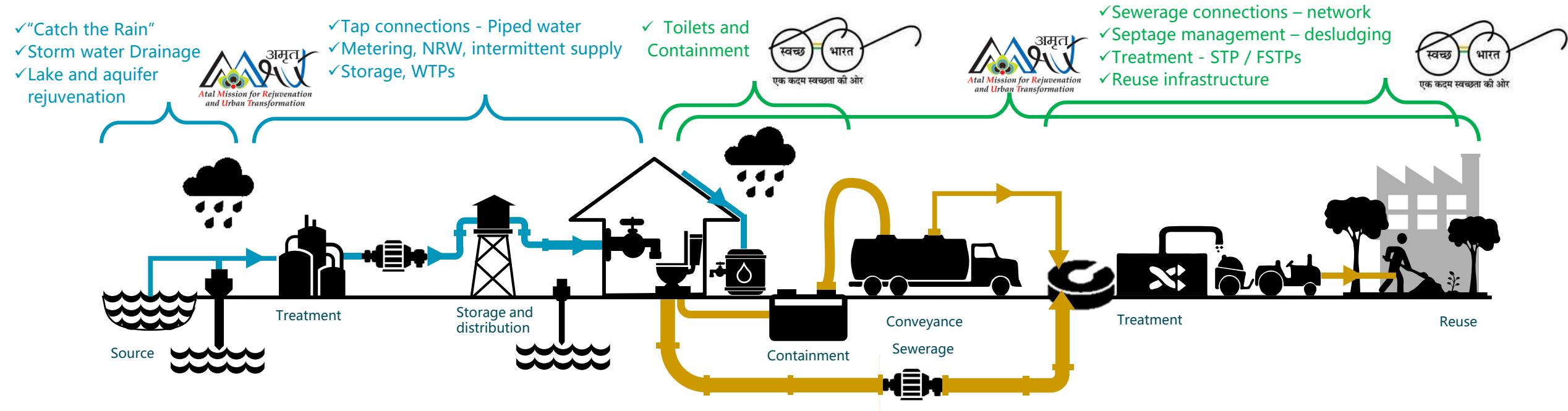
**CoF Research Centre (Xi'an)**  
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**CWAS** CENTER  
FOR WATER  
AND SANITATION

**CRDF** CEPT RESEARCH  
AND DEVELOPMENT  
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# Policy ecosystem and financial outlay in place for U-WASH in India



## Need innovations by local bodies ...

Rethinking WASH in urban planning

WASH as a key sector in climate action

Local and contextual solutions

Mission convergence

# Resource management to ensure Water Security

## Alternative sources - Rooftop rainwater harvesting at community level



- ✓ Water security on-premise for institutions, communities and individuals - Saving drinking water for lean period
- ✓ Demand reduction on municipal water supply

Anjar and Gandhidham cities in Gujarat - 40,000+ Litres fresh water available for 3000+ students, through RWH

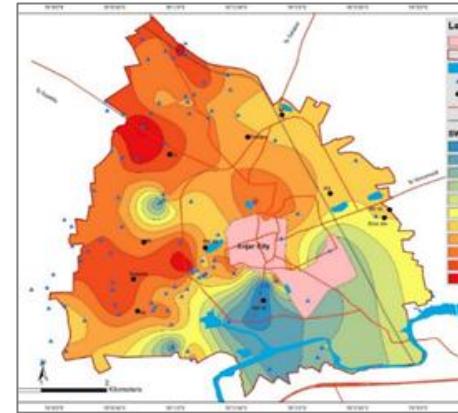
## Improving last mile connectivity for taps at home



- ✓ Research policy and advocacy for Government
- ✓ Ensuring investments in trunk infra benefit all

In Palghar and Ichalkaranji in Maharashtra- Mini Piped Water supply scheme for ensuring last mile for 200+ vulnerable HHs

## Urban flooding as a resource for GW recharge based on geo-hydrological studies



- ✓ Using stormwater to strategically recharge groundwater – solving issues for water table as well a salinity ingress
- ✓ Solution to urban flooding
- ✓ Well monitoring

In Anjar and Gandhidham - 56+ million litres of GW recharged annually equivalent to drinking water for 50,000+ people

## Lake health management and revival strategies



- ✓ Using satellite imagery to assess lake health at scale
- ✓ Predicting extinction risk, temporal changes in quality and surface area
- ✓ Advocacy for conservation actions

Government of Maharashtra with 400+ cities keen on exploring this tool for lake management

# Localized solutions for Safely Managed Sanitation

## Large scale FSSM in Maharashtra



- ✓ State level FSSM strategy and investments – FSTPs developed, co-treatment mapping, desludging vehicles

FSSM recognized as an **immediate need** for **400 cities** in Maharashtra – largely on-site sanitation dependent

## Investments for ALL cities



- ✓ Long term investments - SBM 2.0 outlay for used-water infrastructure in ALL cities
- ✓ Immediate benefits – Leveraging existing open drain networks and interceptor-diversion systems to use STPs

**USD 780 Million** government funding committed for attaining safely managed sanitation in Maharashtra

## Nature based solutions for WASH



- ✓ FSTP design with simple NbS
- ✓ Utilise solar, gravity-based flows, and phytoremediation plants - safeguard against disruptions in energy, technical failures and human resource inputs

**235 FSTPs of 2100 KLD capacity** operational across urban Maharashtra

## Contextual reuse options



- ✓ Treated water for local greening, gardens, urban forests
- ✓ Dried sludge with local farmers
- ✓ Examples of industry-STP reuse

**Maharashtra reuse policy** mandates reuse of treated WW from STPs by industries/ powerplants within 50Km

# Ensuring Citywide Inclusive Sanitation Services

## Scheduled desludging – For All



- ✓ Sanitation as a public service - Scheduled desludging model for service delivery to ALL provided through private service provider
- ✓ Septic tank emptying not linked to fee but collected as a uniform tax

Wai 1<sup>st</sup> city to complete the entire 3-year cycle of scheduled desludging

14,000+ septic tanks deslужed across five cities in Maharashtra.

## Women in sanitation – Self Help Groups



- ✓ Formalized contracts to women's self-help groups for sanitation and related work –
- ✓ Leveraging loan benefits to SHGs for taking group loans for building individual toilets

SHGs engaged in Maharashtra for maintaining community toilets, MHM machines, urban forest maintenance, FSTP operations

## Sanitation worker safety



- ✓ Capacity building for safe operations
- ✓ Institutionalizing PPE in contracts and monitoring

1500+ workers trained around safe operations in Gujarat and Maharashtra

## School WASH services



- ✓ Drinking water security at schools with RWH
- ✓ School toilets

WASH in schools for 3500+ students in Gujarat and Maharashtra

## Urban-rural convergence



- ✓ Co-treatment options for rural sludge at urban STP/FSTP

Urban-rural linkages have been initiated in Maharashtra

# WASH innovation for Climate Mitigation

## Energy efficiency in WASH operations



- ✓ Energy Audit and equipment upgradation for WASH operations
- ✓ Solar energy for STP / WTP / Network Pumping

700 Mwh of clean energy generated through installation of 258 kW solar installation across the six cities - potential of mitigating 12,000 tons CO2 eq. over 25 years.

## Carbon sinks and water circularity



- ✓ Reuse of treated water for developing urban forests co-located at treatment plants

Urban forest of 20,000 sqm– reuse of 85 Million litres of WW and potential of sequestering 30,000 tons CO2 eq. over 25 years.

## Methane monitoring and circularity



- ✓ Methane capture and reuse potential at STPs
- ✓ Exploring effect of improper FSSM on septic tanks emissions
- ✓ Business models for Methane circularity

Reducing Methane emissions (Scope 1) from Wastewater sector

## Solid Waste and circularity



- ✓ Wet/dry segregation and landfill reduction for reducing emissions
- ✓ Recycling and material recovery to reduce Scope 3 / value chain emissions

Reducing Scope 1 and Scope 3 emissions in villages and cities of Gujarat and Maharashtra

# Approach to Replication and Scale-up

**From city ...**

Action-research  
projects

**WASH and Climate Focus** – Vita, Karad, Ichalkaranji, Viramgam, Mansa, Becharaji

**CWIS and FSSM Focus** – Wai, Sinnar, Kolhapur, Satara

**Water Security Focus** – Anjar, Gandhidham

**...to state and national levels ...**

Translated to policy-guidelines,  
program support



Supporting the Swachh Bharat Mission and Climate Mission in Maharashtra

Swachhata Knowledge Partner to Gujarat State and MoHUA



Partnerships with various state govts. for support on WASH monitoring



Inputs to Government of India – suggestions for FSSM policy, climate taxonomy, Liquid waste management rules

**...and beyond**

Tools, training modules, resource materials, demonstrations, collaborations



Building capacity of local governments and communities

Dissemination in various national / international fora

Co-learning in collectives and with development partners

# Thank you

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## About us

The Center for Water and Sanitation (CWAS) is a part of CEPT Research and Development Foundation (CRDF) at CEPT University. CWAS undertakes action-research, implementation support, capacity building and advocacy in the field of urban water and sanitation. Acting as a thought catalyst and facilitator, CWAS works closely with all levels of governments - national, state and local to support them in delivering water and sanitation services in an efficient, effective and equitable manner.



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