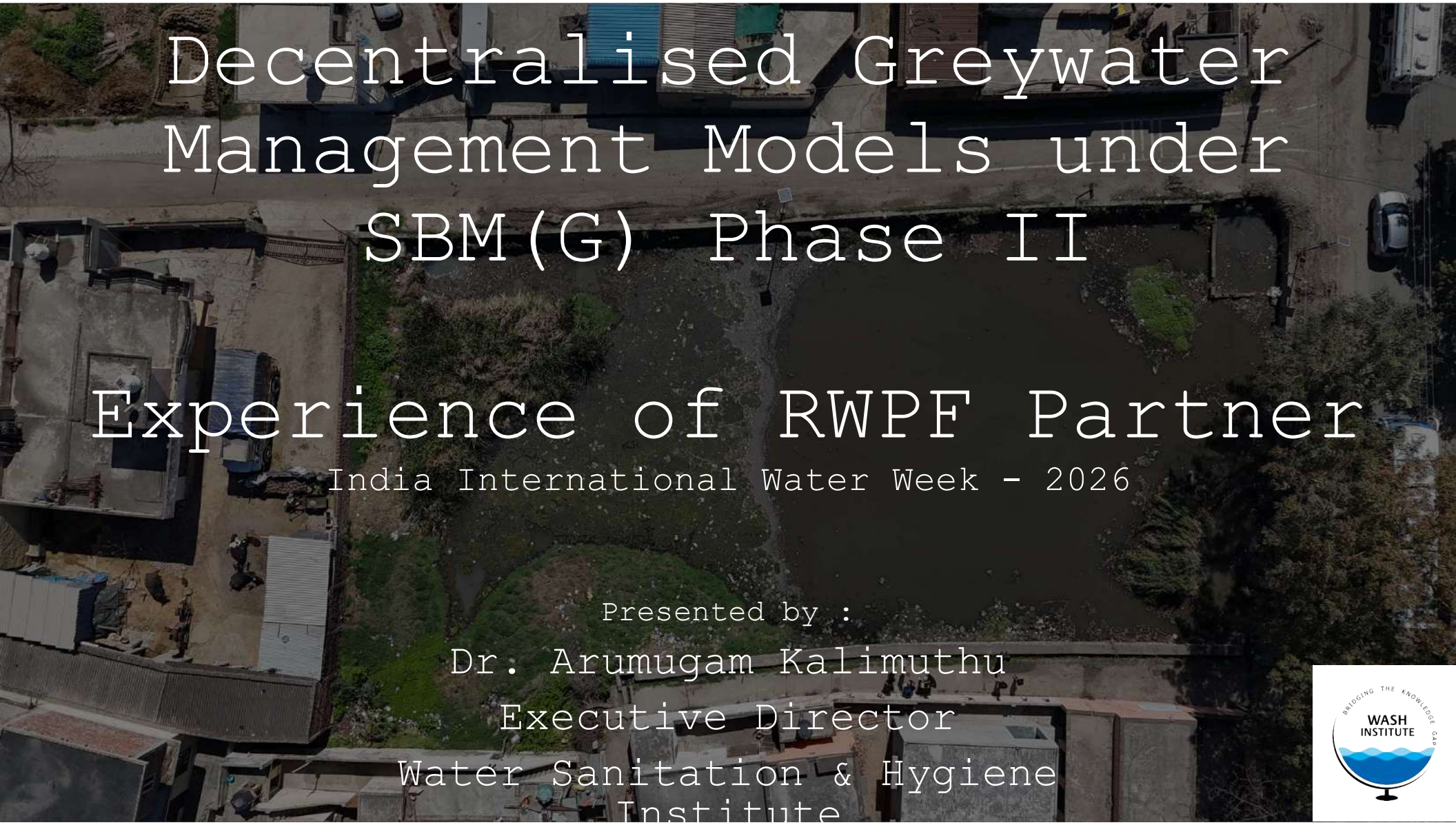


# Decentralised Greywater Management Models under SBM(G) Phase II

## Experience of RWPF Partner

India International Water Week - 2026


Presented by :

Dr. Arumugam Kalimuthu

Executive Director

Water Sanitation & Hygiene Institute

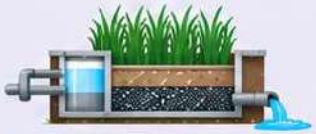
# RURAL WASH PARTNERS' FORUM

- Department of Drinking Water and Sanitation, Ministry of Jal Shakti envisioned and launched **a collaborative platform bringing together development partners** to work towards novel and innovative **solutions to the challenges in the WASH sector.**

- WASH Institute provided support for scaling up Greywater Management and Faecal Sludge Management. Experience of greywater management (GWM) in three States :

  - Punjab & Haryana (Plains)
  - Himachal Pradesh (Hilly)

# Technical models for Greywater Management

| Greywater points in village | Household Level | | Community & Village level | |
|---|---|---|---|---|
| |  **Kitchen gardens** (Reuse for horticulture and home gardens) |  **Individual Pits*** (Suitable for households) |  **Community Pits*** (For colonies, institutions and public facilities) |  **Drain End Point Systems*** (For larger volumes at drain outlets) |
| 1  **Households** (Kitchen, bathroom, wash areas) | ✓ | ✓ | ✓ | ✓ |
| 2  **Institutions & Commercial Areas** (Schools, offices, markets, hospitals, hotels etc.) | ✓ | ✓ | ✓ | ✓ |
| 3  **Public Water Points** (Community taps, stand posts etc.) | – | ✓ | ✓ | ✓ |
| 4   **Community Sanitary Complexes** (Public toilets, bathing facilities etc.) | – | – | ✓ | ✓ |
| 5  **Drain End Points** (Outlets carrying greywater) | – | – | – | ✓ |

# KITCHEN GARDEN MODEL

## Observation

- Kitchen gardens are a traditional practice especially in hilly areas, water scarce area and provides nutrition to the households
- 700,000+ household kitchen gardens in Himachal Pradesh

**To ensure safe use of greywater, the following key points were incorporated into training modules**

- Greywater should flow gently in a pipe or channel; splashing should be avoided
- Puddles or stagnation should be avoided



Bamboo conduit used to avoid splashing of greywater in

# SOAK PIT MODEL FOR GWM

## Challenge

- **Concrete floors and roads** with compacted soil underneath cause poor percolation in soak pits. Construction costs also increase where concrete has to be cut for implementing a soak pit.
- Soak pits gets filled with **debris and solid waste** very easily when connected to open drains

## For soak pits to be effective, suitable siting criteria and standard designs were provided

- **Screens and traps** should be used in the HH to prevent solids from entering pit – solids from cow dung, kitchen washing and bathing
- **Drains should have Screen Chambers and Silt Trap** to be installed before community soak pits to prevent choking of Soak pits and enabling easy maintenance
- **Maximum capacity of Soak pits should not exceed 10,000 litres** - sur on





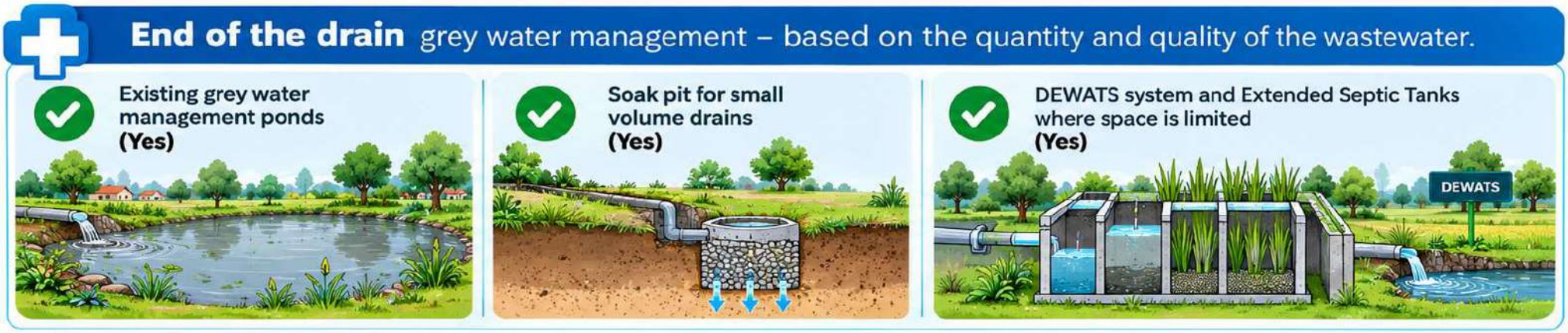

# DRAIN END POINT TECHNOLOGIES

**Challenge**

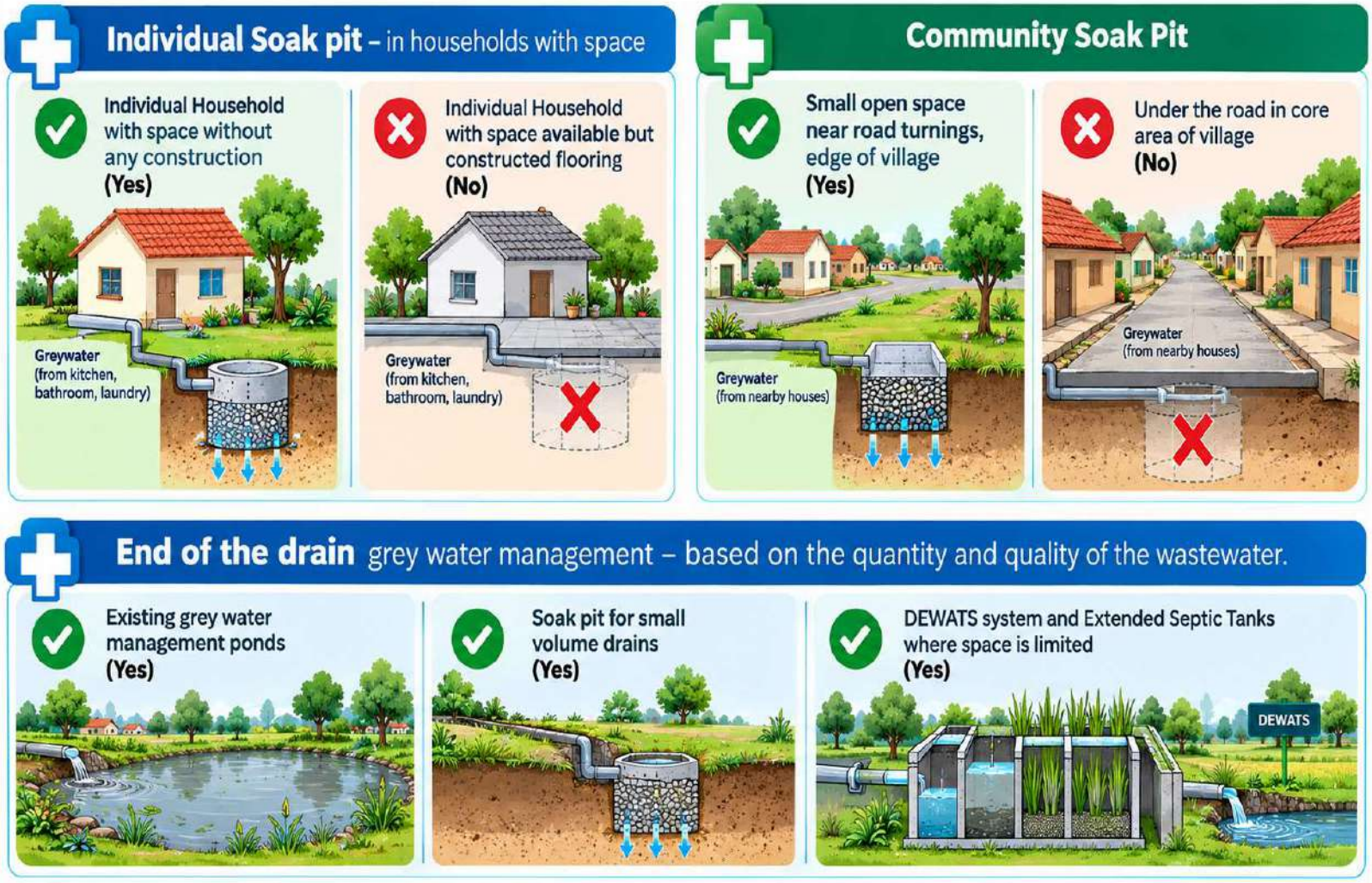
- Wastewater discharge into open lands and water bodies
- **Suitable space** & **high cost of GWM systems**

**Decision criteria with clear "capacity-space requirement" matrix and standard designs provided**

- Best fit **solutions for intercepting and diverting greywater** to treatment plants
- Leach pit - small volume drains (< 10 KLD)
- Waste Stabilization Ponds in existing ponds /wherever space available
- DEWATS system where adequate space for WSP not available



# STATE LEVEL TECHNICAL STRATEGY




- State strategy **derives from and localises the national guidelines**
- Strategy helps in **easy and standardised decision-making** for officials and engineers on ground
- **Encourages reuse of treated wastewater,** mainly in

# CAPACITY BUILDING FOR GREYWATER MANAGEMENT

## Challenge

**Limited technical capacity at village level** severely restricted GWM planning

## A holistic capacity-building model was recommended for GWM

- **Orienting the state level decision-makers** on state technical strategy
- **Training the most appropriate cadre** for on ground roll-out
  - Technical Assistants of MGNREGA scheme were used in Punjab as the solutions were highly technical in nature
  - SHG women were trained in Himachal to reach remote villages
- Trainings were **practical and experiential** to ca ent

**104**
Workshops & Training Batches

**2 1**
**2**
Govt Officials & Technical staff

**505**
**3**
Volunteers / CRP women trained

**Training Sessions**



**Field Survey**



**Game Activity**



**Map Activity**



**Training Sessions in Swachhagrahi's Training**





# Village Action Plans for Greywater Management

## Challenge

- **Fostering community ownership and overcoming "Not in My Backyard" attitudes** were critical to adoption of GWM in villages

## Integrated planning and awareness building models were recommended

- Communities were engaged and made aware of need for GWM in their village;
- Space for soak pits and treatment systems was identified by communities

**15,379**
Villages Covered

**25,821**
Village Meetings Conducted

**415,467**
No. of People made aware



Data collection at village with IEC




Village Map Preparation

↓

Village Basic Information from Elected Representatives

↓

Village Meeting and awareness session

↓

Physical Lane to Lane Survey

## Progress Monitoring Dashboard




## 15,379 village GWM plans include:

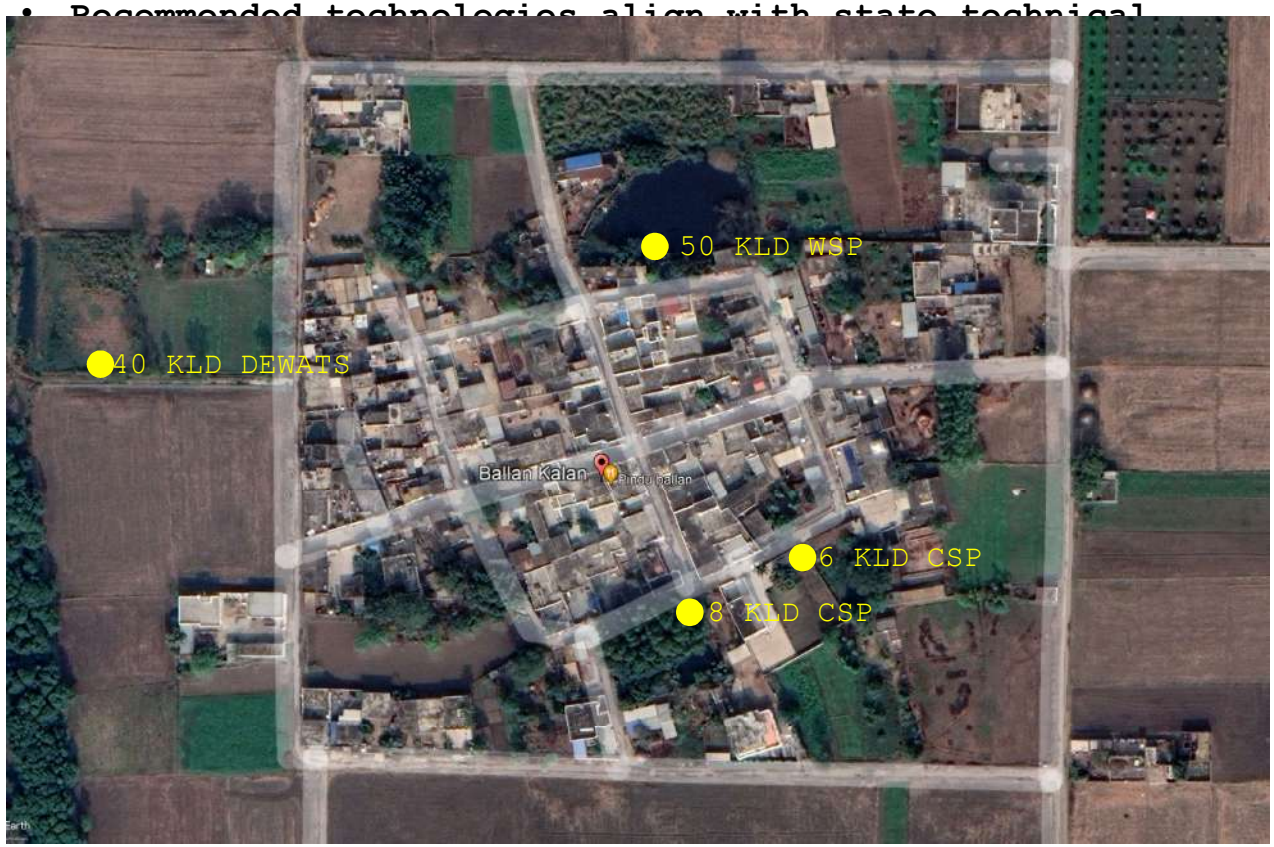
**9,506**
Waterbodies protected from greywater pollution

**1,36,744**
Institutions managing greywater safely

**100,000+**
Total GWM units planned (including Kitchen Gardens, Individual/Community Soak Pits and DEP systems)

## Progress Monitoring and VAP Report Dashboard

- **Data collected using digital tool** auto generates VAP with list of GWM interventions required
- **Location (GPS) and photograph provided** for each intervention
- **Recommended technologies align with state technical**



# Case Study 1: Village level GWM

## Village Bahadurpur, District Rupnagar,

- Bahadurpur was discharging wastewater into the National Green Tribunal (NGT)-regulated Sutlej River
- Urgent need for decentralized wastewater treatment system

### Challenge

- Availability of funds

### Solution

- 50 KLD DEWATS proposed; Cost ₹25 lakh ($ 27.5k)
- Head of village council led the entire effort – fundraising, community engagement, land identification, and project management
- Funds raised by converging SBM(G), MGNREGA and MLA fund
- Standard Drawings and Designs with estimates and site supervision



# Stages of Construction











# Case Study 2: State level GWM in Himachal Pradesh

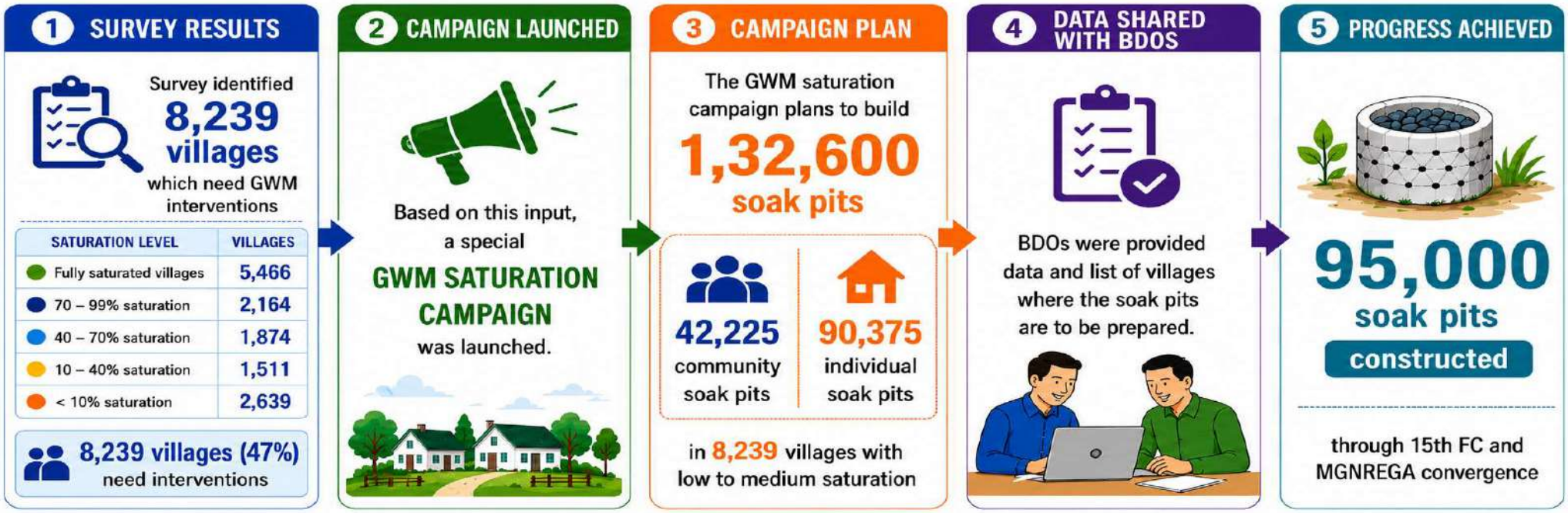
**Problem Statement**

- Understanding GWM status in 17,000+ villages in remote, hilly terrain, identify gaps, and address them effectively

**Solution**

- Trained 1745 women Self-Help Group members, each from a cluster of villages
- Community engagement and data collection surveys conducted by trained women
- Data collection surveys identified gaps in each village – designed a state-wide GWM campaign





# Thanks!

Do you have any questions?

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