# Intersectoral collaboration for the implementation of localized, climate-resilient WASH strategies for Health in Karnataka

MOHITH GOWDA DM, ASHISH SHETTY, SHRADDHA SHRIVASTAVA

INTERNATIONAL INNOVATION CORPS

**Global South Academic Conclave on WASH and Climate 2025**

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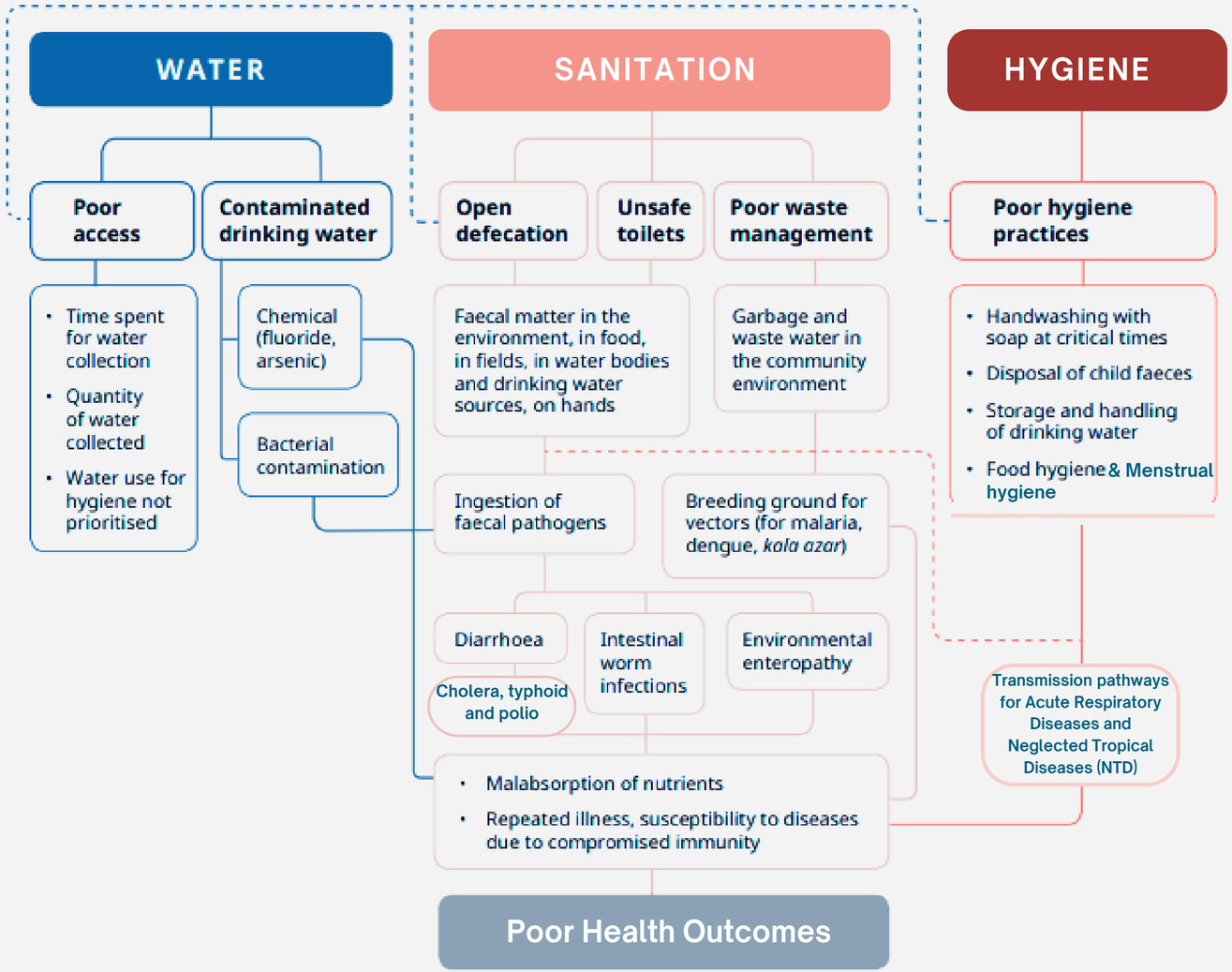
# WASH AND HEALTH: INEXTRICABLY LINKED YET SILOED

Inadequate water, sanitation and hygiene is a significant **accelerator to global disease**

The interlinkages between water, sanitation and hygiene (WASH) and Health




Adapted from: Muralidharan 2019 (Water Aid)

# WASH-ATTRIBUTABLE BURDEN OF DISEASE

## AND BENEFITS FROM ENHANCING WASH SERVICES

### GLOBAL IMPACT OF UNSAFE WASH (2019)

- **1.4 million deaths** and 74 million DALYs (Disability-Adjusted Life Years) could have been prevented with universal access to safe WASH.
- This accounts for **2.5% of all global deaths** and 2.9% of all DALYs.
- Improving WASH facilities could **prevent up to 10% of the global disease burden.**

### HIGHER BURDEN AMONG CHILDREN UNDER 5

- **7.6% of all deaths** and 7.5% of all DALYs in this age group are linked to unsafe WASH.
- Children are **disproportionately affected**.

### LEADING CAUSES OF WASH-ATTRIBUTABLE BURDEN

**Diarrheal Diseases**

- **1 million deaths** and 55 million DALYs.
- **69%** of diseases **preventable** with safe WASH.

**Acute Respiratory Infections (ARI)**

- **0.35 million deaths** and 17 million DALYs.
- **14%** of infections **preventable** with proper hand hygiene

**Neglected Tropical Diseases (NTDs)**

- **0.36 million deaths** and 31 million DALYs.

### ECONOMIC EFFICIENCY OF WASH INVESTMENTS

- For every dollar invested in water and sanitation, there is a **$4.3 return** in reduced healthcare costs.
- **$7 billion per year** could be saved in health system costs by preventing WASH-related diseases.
- The value of deaths averted (based on future earnings) adds **another $3.6 billion per year.**

Source: Toilet Talks Factsheet | WaterAid; WASH and Health Sector Alignment | IRC; Burden of disease attributable to unsafe drinking water, sanitation, and hygiene | The Lancet; The interlinkages between WASH and nutrition | WaterAid; Sanitation and Health | PLOS Medicine

# BARRIERS TO EFFECTIVE WASH AND HEALTH PARTNERSHIP

- Structural and Organizational Misalignment
- Weak Indicators and Measurement Challenges
- Sustainability and Systems Gaps
- Complexity and Diffused Entry Points
- Funding Constraints and Sectoral Silos
- Coordination and Communication Barriers
- Limited Representation and Advocacy
- Lack of Mutual Accountability

Source: WASH and Health Sector Alignment | IRC; All Systems Connect | IRC

# CLIMATE CHANGE: ESCALATING WASH VULNERABILITY AND HEALTH BURDENS

Collectively, drinking water treatment, safe sanitation and hygiene interrupt disease transmission pathways, however, WASH systems themselves are vulnerable to climate change induced extreme events.

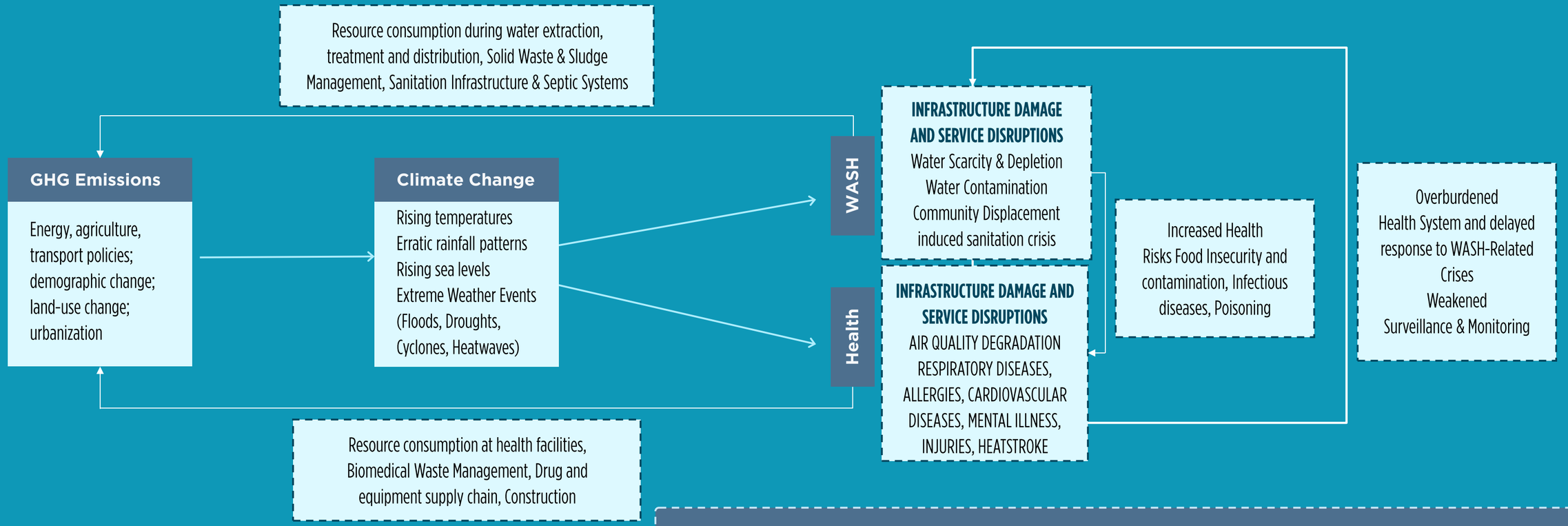



Figure: Created by Authors

Source: Public health, water, sanitation and hygiene | IRC; WASH and Health Sector Alignment | IRC; Protecting Health from Climate Change | WHO; Climate-resilient WASH | WaterAid

**→ Climate resilience must be central to integrating WASH and health efforts.**
**→ Climate change, WASH, and health systems are deeply linked, demanding integrated, resilient strategies.**
**→ The WASH-Health-Climate Change nexus lags behind, with health equity & climate resilience still being articulated.**
**→ Strengthening WASH resilience is a critical step for the health sector to build climate resilience.**

# GLOBAL COMMITMENTS FOR CLIMATE-WASH-HEALTH ACTION


## TARGET 2.2

By 2030, the goal is to end malnutrition, including reducing stunting and wasting in children under 5 by 2025, and addressing the nutritional needs of vulnerable groups like adolescent girls, pregnant and lactating women, and older persons for equitable health outcomes.


## TARGET 3.2

By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births

## TARGET 3.3

By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

## TARGET 3.9

By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination


## TARGET 6.1

By 2030, achieve universal and equitable access to safe and affordable drinking water for all

## TARGET 6.2

By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

## TARGET 6.2

Support and strengthen the participation of local communities in improving water and sanitation management


## TARGET 13.1

Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries



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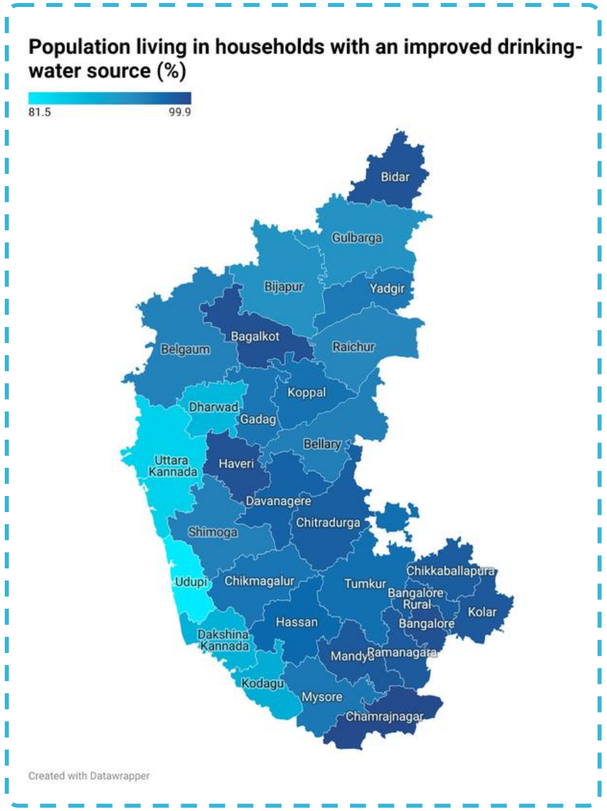
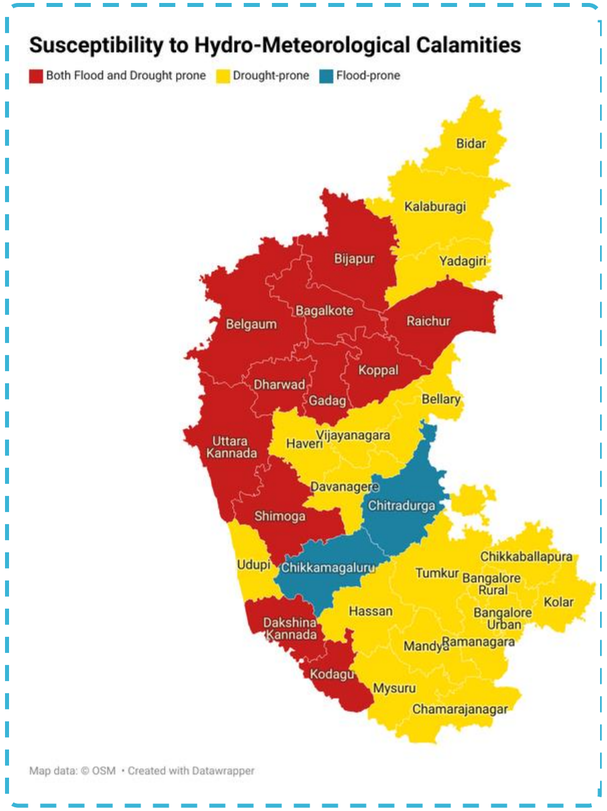
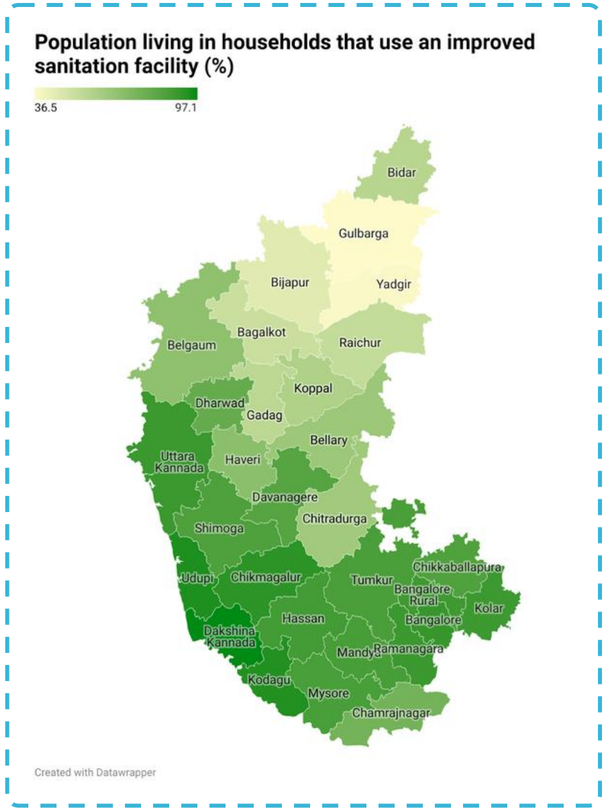
# KARNATAKA: ACCESS TO WASH AND VULNERABILITY TO CLIMATE CHANGE




Source: NFHS 5; Mapping India's Climate Vulnerability: A District Level Assessment | CEEW; Climate change and health | WHO; Transitioning towards Climate Resilient Development in Karnataka | STICERD; Karnataka sees rise in extreme weather events in the last few decades | TheHindu; Climate Change Scenario in Karnataka | KSNDMC 2020; Karnataka State Heat Wave Action Plan – 2022; 1,698 villages in Karnataka vulnerable to floods | Deccan Herald

## WASH PROGRESS AND CHALLENGES

- **Drinking Water**: Significant progress in access to improved sources.
- **Sanitation**: Access remains uneven; some northern districts have less than 40% coverage.
- **Climate Crisis**: Threatens to reverse 50 years of progress in development, health, and poverty reduction

## CLIMATE CHALLENGES

- **Extreme Weather**: Rising frequency and intensity of storms, floods, and heatwaves.
- **Temperature Rise**: Projected warming of 1.5–2°C by the 2030s.
- **Rainfall Variability**: High unpredictability increases vulnerability to hydro-meteorological disasters.

**Vulnerability Hotspots**

- 80% of taluks are drought-prone.
- 23 out of 31 districts face flood risks.
- 15 districts are vulnerable to heatwaves.

# CLIMATE'S TOLL ON HEALTH: WASH CAN MAKE IT OR BREAK IT

Karnataka

**Summer heat in Bengaluru spikes waterborne diseases in children by 30-50%**

*Patients typically show symptoms like nausea, vomiting, diarrhoea, abdominal cramps, fever and dehydration.*

**Strong policy needed to fight dirty water deaths: Experts**

TNN / Aug 4, 2023, 09:35 IST

SHARE AA

**Contaminated water kills 1 every 4 hours**

Chethan Kumar / TNN / Updated: Dec 29, 2017, 11:31 IST

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Editorials

**Eliminate water contamination and save lives**

*Water contamination deaths are a major concern even as the Jal Jeevan Mission (JJM) is underway across India from August 2019.*

**Fluorides, nitrates in water crippling villagers**

Nirmala M Nagaraj / TNN / Sep 22, 2009, 02:35 IST

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**Clean water still a murky dream for Karnataka**

Karnataka is among the top five states reporting a high number of diarrhoeal incidents, according to the Central Bureau of Health Intelligence

Chiranjeevi Kulkarni | DHNS Gururaja B R | DHNS DHNS

Last Updated : 10 July 2022, 00:06 IST

**Almost 4 lakh diarrhoeal disease deaths can be averted through Jal Jeevan Mission, says WHO study**

The government launched the Jal Jeevan Mission (JJM) in 2019 as a nationwide programme that aims to provide all houses in rural areas with tap water connections

Ajith Athrady DHNS

Last Updated : 09 June 2023, 23:18 IST

Health

**24x7 makeshift clinics, testing food, water at gatherings: How Karnataka is trying prevent cholera outbreak amid rising heat**

*State reported 33 cases of cholera this year, most in April; health department to conduct awareness campaigns, ensure supply of medicines, clean water*

Karnataka

**Daunting task for Karnataka to ensure safe drinking water**

*The deaths of six people due to water contamination in Vijayanagara district have revealed that mere availability of water cannot be a goal.*



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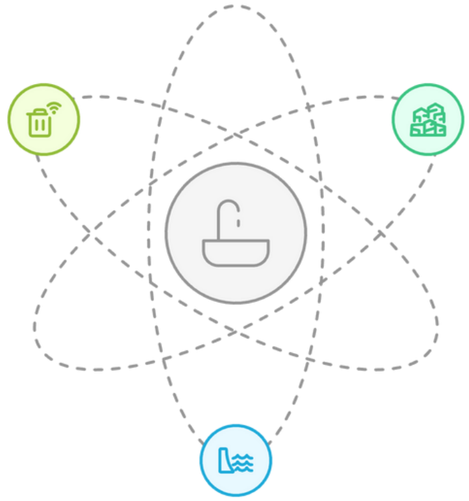
# CLIMATE-WASH-HEALTH ACTION IN KARNATAKA: FLAGSHIP PROGRAMMES

## WASH SCHEMES

### Rural Drinking Water and Sanitation Department (RDWSD)



**AMRUT 2.0**

- **Target**: 100% water supply & sewage management in 500 cities by **2025**
- **Focus**: Wetland & water body rejuvenation
- **Approach**: Tech-driven reforms and Community Participation

**Swachh Bharat Mission Gramin 2.0**

- **Target**: 100% villages to be ODF Plus by **2025**
- **Focus**: Solid and Liquid Waste Management (SLWM) and Sanitation Sustainability
- **Approach**: Community-driven, IEC campaigns for behaviour change

**Jal Jeevan Mission (Mane Manege Gange)**

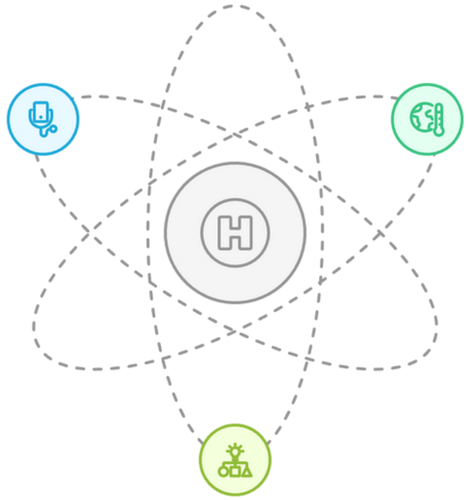
- **Target**: 100% rural Functional HH tap connections by **2024**
- **Focus**: Sustainable, quality drinking water source
- **Approach**: Decentralized water management via GPs & VWSCs

## HEALTH SCHEMES

### Department of Health and Family Welfare (DoHFW)

**Integrated Disease Surveillance Programme**

- **Focus:** Decentralized Surveillance of Epidemic-prone diseases
- **Approach:** Real-time Monitoring using Integrated Health Information Platform (IHIP) & Integrated data from public & private health facilities



**National Programme on Climate Change & Human Health**

- **Focus:** Raise awareness & build capacity on climate change & health impacts
- **Approach:** Fostering partnerships for enhanced surveillance, research, and preparedness for climate-resilient health systems

**National Vector Borne Disease Control Programme**

- **Focus:** Prevention and control of 6 major vector borne diseases diseases
- **Approach:** Surveillance, Integrated Vector Management & rapid response for early detection and outbreak prevention

Source: Rural Drinking Water and Sanitation Department (RDWSD); National Health Mission – Communicable Diseases; National Centre for Disease Control - NPCCHH

# DISSECTING THE FLAGSHIP PROGRAMMES (WASH):
# LOCAL IMPLEMENTATION AND INTERSECTORAL COORDINATION

| SCHEME | LOCAL IMPLEMENTATION MODEL | PRESCRIBED INTERSECTORAL COORDINATION, IF ANY |
|---|---|---|
| **JJM/MMG** | **GP and/ or its sub-committee, i.e. VWSC/ Paani Samiti/ User Group, etc.** to spearhead water supply management<br>**Implementation Support Agencies** - NGOs/ VOs/ women SHGs/ CBOs/ Trusts/ Foundations to support in community mobilization and preparation of action plan | **PRRD, Health, Education**<br>**PHED/Rural Water Supply, NGOs, technical consultants, and financial management teams**<br>*specific purpose for coordination not mentioned in the guidelines* |
| **AMRUT 2.0** | **Municipal Commissioner/administrative head** of the ULB - responsible for mission implementation<br>**City Mission Mgmt Units** comprising of sector experts - optional | **Swachh Bharat Mission (SBM), Smart Cities Mission (SCM), and National Urban Livelihood Mission (NULM)** for integrated urban water management |
| **SBMG 2.0** | **GP** to lead planning and implementation<br>**VWSCs** to support **GP** in preparation of **Village Action plan**, mobilization, implementation and supervision<br>**Swachhagrahis** (volunteer) facilitate sustained behavior change and promote Public health and hygiene | **Local governance bodies** for fund utilization and monitoring<br>**Businesses, corporates, social organizations, banks, and insurance companies** for asset creation and O&M<br>**CBOs, NGOs, SHGs** for social audit and monitoring |

# DISSECTING THE FLAGSHIP PROGRAMMES (HEALTH):
# LOCAL IMPLEMENTATION AND INTERSECTORAL COORDINATION

| SCHEME | LOCAL IMPLEMENTATION MODEL | PRESCRIBED INTERSECTORAL COORDINATION, IF ANY |
|---|---|---|
| **NVBDCP** | *There are separate guidelines for each of the 6 vector-borne diseases covered under NVBDCP; however, the local implementation model has not been clearly set out.* | **Health, rural development, urban development, water resources, education, agriculture, and Panchayati Raj Institutions + 10 others** for activities like source reduction, vector control, community mobilization, and awareness campaigns |
| **IDSP** | Suspected, presumptive and laboratory confirmed cases reported by **health worker (HIO, ANM, ASHA (volunteer)), Medical Officer, lab technician**, respectively<br>Data monitoring by **State/District Surveillance Unit**<br>Any rising trend investigated by a **Rapid Response Team** | **Public health institutions, medical colleges, laboratories, private practitioners, NGOs, CBOs, and government departments (e.g., animal husbandry, environment, water resources)** for data sharing, outbreak investigation, and implementation of control measures. |
| **NPCCHH** | Preparation of **District Action Plan – District-level Multi-sectoral task force** headed by the District Collector<br>Implementation of program activities - **District Environmental Health Cell** headed by a Nodal Officer<br>Community Engagement activities - **VHSNC**, **Health workers** (**CHO, ANM, ASHA (volunteer))** | **Health, Panchayati Raj, and local governance institutions** for implementation of district action plans<br>**Research institutions** for climate vulnerability assessments and case studies on community interventions |

# OPTIMIZING OPPORTUNITIES: LEVERAGING STRENGTHS AND OVERCOMING WEAKNESSES

| OPPORTUNITY | Leverage strengths to seize opportunities | Overcome weaknesses by leveraging opportunities |
|---|---|---|
| **Leverage existing WASH & health schemes for climate resilience** | **Integrate climate resilience into WASH & health programs** - Climate-Resilient Infrastructure, Early Warning & Surveillance Systems, Decentralized Climate Adaptation Plans | **Develop clear intersectoral coordination frameworks** - Joint Task Forces, Integrated Planning and Budgeting, SoPs for crisis response, etc. |
| **Strengthen community participation for localized solutions** | **Use local governance structures to drive bottom-up resilience** planning - Rural/Urban local bodies, Village Committees (VHSNC, RKS, VWSCs), CBOs/NGOs | **Build capacity at local levels to overcome limited expertise** |
| **Improve evidence-based decision-making** | **Utilize IDSP & NPCCHH to track Climate-WASH-Health trends** - water/vector borne diseases, WASH implementation in health facilities, climate vulnerability assessment | **Strengthen data integration & sharing among departments** |
| **Joint capacity building across WASH, health, and climate** | **Expand existing training modules to include adaptation strategies** - early warning signals, disaster resilient infra, community-based adaptation | **Improve funding alignment for cross-sector projects** |

# MINIMIZING THREATS: LEVERAGING STRENGTHS AND OVERCOMING WEAKNESSES

| THREATS | Use strengths to minimize threats | Minimize weaknesses & mitigate threats |
|---|---|---|
| **Climate-induced disasters (droughts, floods, disease outbreaks)** | **Strengthen local disaster preparedness using integrated WASH-health strategies** - Early Warning Systems, Community-Based Response Teams, Integrated Disaster Planning, Emergency WASH & Health Supplies | **Develop adaptive policies to ensure continued service delivery** - Climate-responsive infrastructure investments, Cross-sectoral policy integration, Risk-informed service planning, Flexible funding mechanisms |
| **Fragmented implementation & weak intersectoral collaboration** | **Use existing policy frameworks to enhance coordination** - Align objectives, share data, and streamline interventions | **Establish dedicated coordination bodies at the local level** |
| **Limited financing for cross-sectoral climate resilience programs** | **Align funding across WASH, health, & climate schemes** | **Advocate for sustained multi-sectoral investment in resilience** |
| **Data gaps & lack of evidence-based interventions** | **Utilize existing surveillance systems to collect climate-WASH-health data** | **Build research networks to generate localized evidence for policy action** |

# LOCAL CLIMATE-WASH-HEALTH ACTION: TAKING THIS FORWARD

## NEED FOR EVIDENCE & GUIDANCE

- **Limited research** on effective WASH-Health integration for climate resilience.
- Need for **implementation frameworks** that support local-level coordination.

## TRACKING PROGRESS

- Develop **WASH & health indicators** to measure integration efforts.
- Establish **monitoring mechanisms** to assess climate resilience impact

## FOSTERING COLLABORATION & ACTION

- Strengthen **collaboration** between research & implementation community
- Conduct **pilot projects** & case studies to identify best practices
- Promote **policy dialogues** for evidence-driven decision-making



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