

Climate-Resilient WASH Interventions in Urban Slums: Enhancing Adaptive Capacity and Community Well-Being in Bhubaneswar

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Global South Academic Conclave on WASH and Climate linkages
2nd - 4th February 2024, Ahmedabad

Introduction

- This study focuses on 19 Wards across 49 settlements of Bhubaneswar, Odisha, engaging with the impact of climate change on WASH services in the vulnerable slum areas.
- Challenges in urban WASH, especially in informal settlements
- Deep-seated inequities persist despite progress
- Climate-induced disasters and their impact on existing WASH infrastructure and services
- Emphasis on climate-resilient interventions for WASH inclusion

Key Tenets

- Recognize that for improving access, we have to go beyond 'engineering' solutions
- Advance social inclusion and gender equality
- Enable convergence and coordinated response
- Place most-vulnerable communities at center from design to execution

Strategies

Enable voice and agency of urban poor and vulnerable communities to shape inclusive sanitation-

Facilitate government-community connect through Community Operating Structures

Build capacity of community and sensitize stakeholders to further social inclusion in a coordinated manner

Forge partnership with CSO, experts and private sector to enable diverse responses

Engage local stakeholders to improve governance

Strengthen sanitation system to ensure safely managed and inclusive service and infrastructure



Aim at

Community Preparedness –Transfer knowledge on safe sanitation services

Build capacity of community representatives to mobilize, educate, plan, shape and manage ; services

Hold community meetings to ensure meaningful connect with the most vulnerable

Observe Special Days

Strengthen Government- community connect for better service provisioning of and inclusion of most vulnerable.

Organize multi-stakeholder consultations to strengthen preparedness and redressal of long-standing grievances

Sensitize Urban Local Bodies on community engagement/ gender: Sensitize by documenting and capturing effect of exclusion, and voice and agency of community

Disseminate innovative practices on inclusive sanitation emerges: Gain recognition for change agents/champions for promoting inclusive sanitation outcomes,

Objectives and Methodology

Objectives:

- Evaluate risks and vulnerabilities of WASH services
- Advocate for improved WASH services
- Enhance resilience during extreme climate events
- Place communities most-at-risk at the centre of the response

Methodology:

- Analytical Hierarchy Process (AHP) for socio-economic vulnerability
- UNICEF's risk-scoring methods for hazard, vulnerability, and exposure indices
- Mixed-method approach with field-level assessments in Bhubaneswar slums
 - HHs questionnaire survey
 - FGDs
 - KIIs of the Multi-sector Stakeholders

Goal is to establish an 'inclusive' policy environment for the urban poor and a community-based model for demanding, planning, implementing and monitoring WASH services for marginalised groups in slum settlements

Analysis of the Existing WASH System-Phase I

WASH gap analysis: Assessing the ground situation with respect to inclusive and sustainable WASH access.

WASH marginalisation analysis: Identifying persons/groups facing multiple barriers in accessing WASH

WASH stakeholder analysis: Listing different stakeholders and examining the relationships that can impact WASH system functioning

WASH institutional structure analysis: Map human and financial resources as set out in government policy

Analysis of readiness of WASH System to integrate climate resilience -Phase II

Climate-resilient WASH services gap effect analysis: To assess the climate-driven impact on WASH services in informal settlements

Climate-resilient WASH governance analysis: To assess capability of existing sub-national WASH governance systems at the ward level to integrate climate risk into WASH programming

Climate-informed water safety assessment: To assess hazards and risks affecting water supply -from source to treatment to distribution to users

Climate-prepared ward level capacity assessment: To assess climate-action preparedness of ward level duty bearers and institutions

Begin with micro planning

- Step 1** Connect with urban local body to mandate micro-planning as joint system and community effort
- Step 2** Conduct awareness campaign with RHO/GESI actors and WASH system on the issue-for e.g. safely managed sanitation
- Step 3** Build capacity and develop tools to undertake micro-planning
- Step 4** Conduct household survey to assess priorities; audit facility for safety and inclusiveness
- Step 5** Submit WASH improvement proposal to urban local body (ULB)
- Step 6** Facilitate ULB to check feasibility to secure approvals
- Step 7** Help finalize the proposal and plan for administrative/budgetary sanctions
- Step 8** Jointly execute the project
- Step 9** Monitor the quality of supply of service and uptake by all
- Step 10** Document good practices and intensify WASH inclusion

Community Monitoring of WASH Inclusion

Saniwall- Community and service provider's public dashboard

- Monitors service inclusion and defines roles for each service.
- Displays ward service status systematically for prompt issue resolution.
- Gathers data from Micro Compost Centre, Material Recovery Facility, Swachh Bharat Mission Cell, and WATCO division office.
- Collects household data via Community Management Committee, Slum Development Committee, and Sanitation Sub-Committee in old and extension settlements.
- Data updated weekly to ensure real-time insights.
- Monthly joint review by multi-sector stakeholders including elected representatives

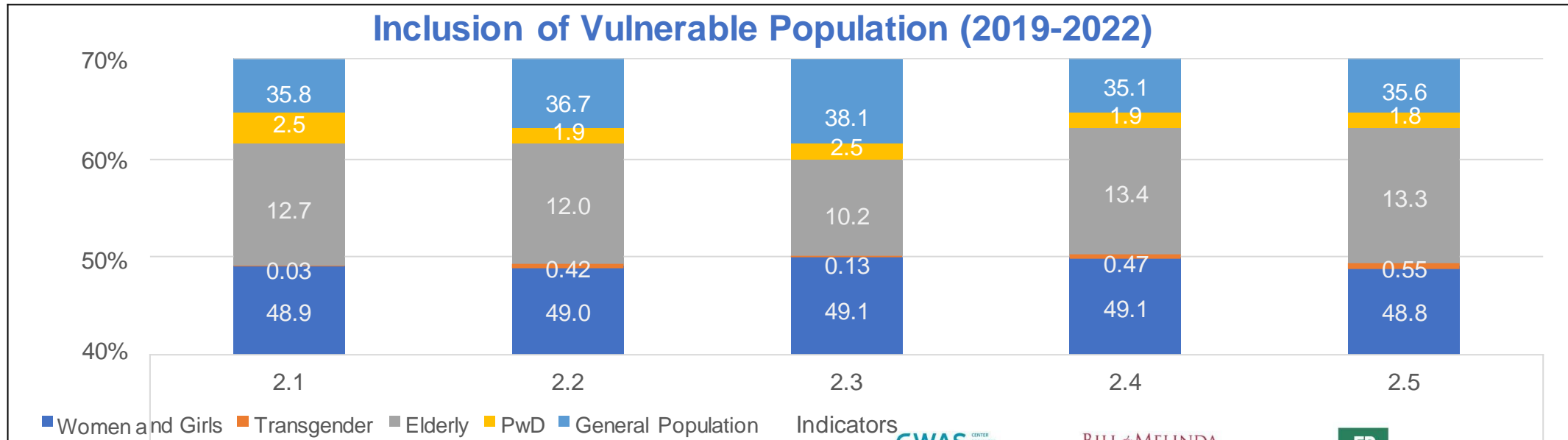
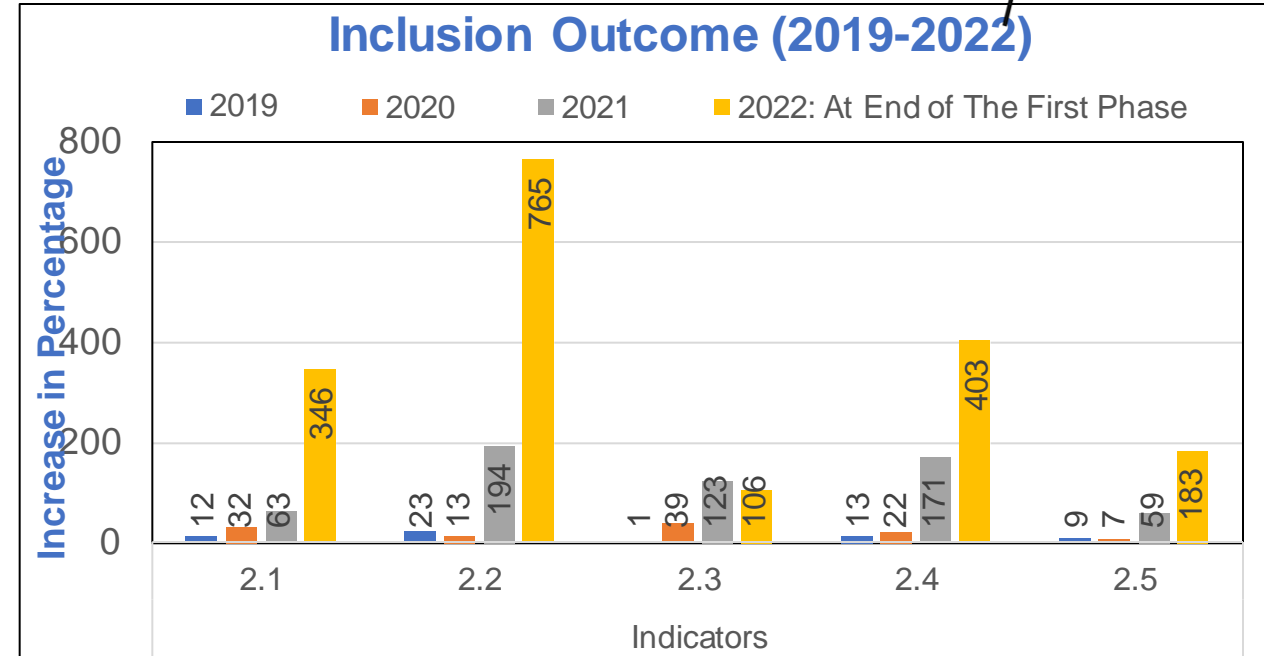
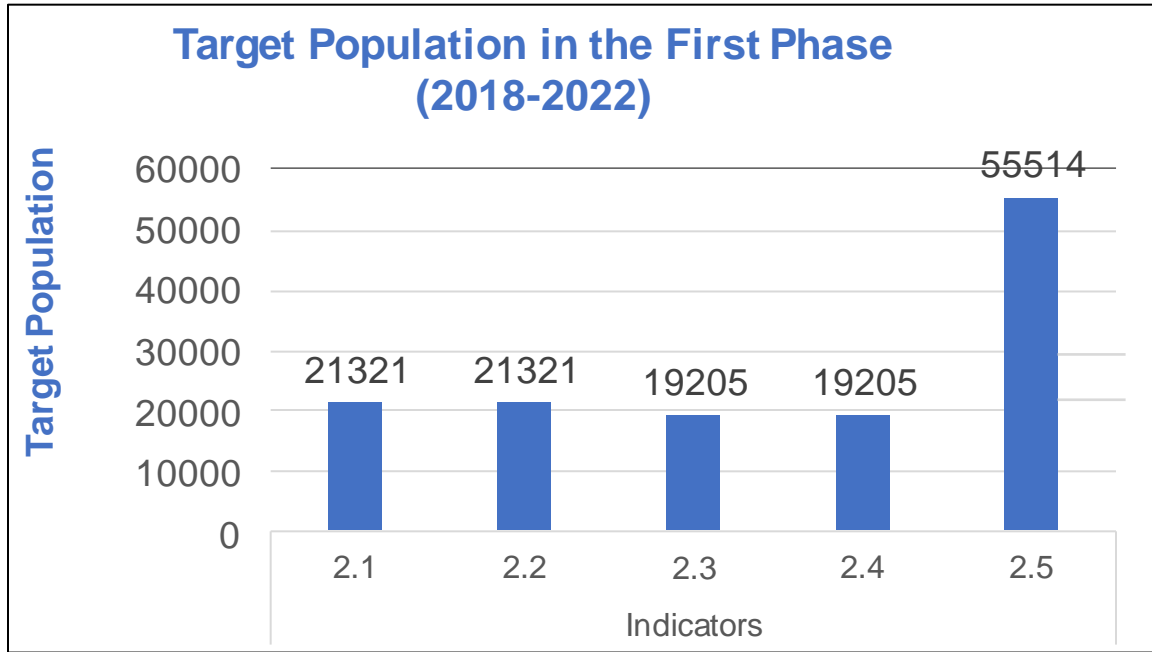
Australian Aid **Water For Women** **EY** **Centre for Advocacy and Research**

SANIWALL

Ward No- _____ Zone- _____

Total Household Total population PwD Household Transgender Household No. of HH having individual Toilets..... No. of HH having water connection..... No. of Community / Public Toilet..... No. of House hold giving segregated waste..... No. of House hold giving non segregated waste..... No. of House hold not giving waste Next Date of Review Meeting.....	Name of the Ward Officer..... Name of the Sanitary Inspector..... Details of Waste Collection Agency..... WATCO Official's Name..... Name of the Community Organizer..... Name of the Junior Engineer..... BMC Grievance No. Name of the community Platform providing support
<p style="text-align: center;"><i>Weekly Status of Sanitation Service</i></p> No of HH Desludging..... No of HH Waste Segregation..... Aggregated weight of waste collected..... Aggregated weight of dry waste collected..... Aggregated weight of E-Waste collected..... Aggregated weight of MO KHATA generated.....	<p style="text-align: center;"><i>Monthly Total</i></p> No of HH Desludging..... No of HH Waste Segregation..... Aggregated weight of waste collected..... Aggregated weight of dry waste collected..... Aggregated weight of E-Waste collected..... Aggregated weight of MO KHATA generated.....

Inclusion –Outcome 2019-2022



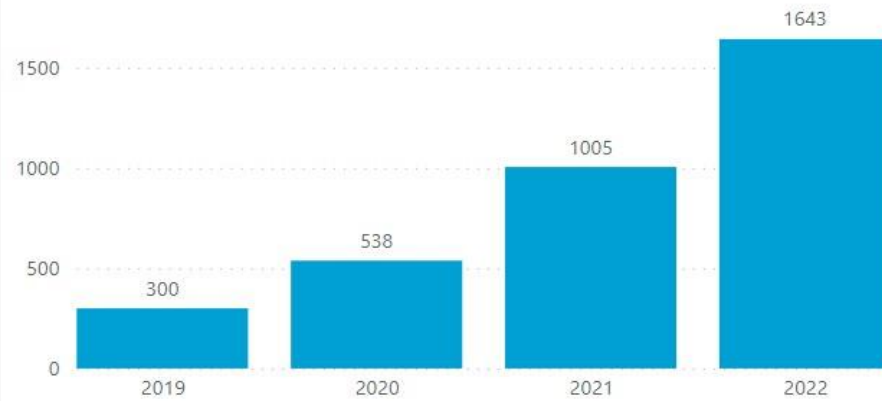
Bhubaneswar

COMMUNITY LEADERSHIP : GENDER, PERSONS WITH DISABILITIES AND CASTE BREAKUP

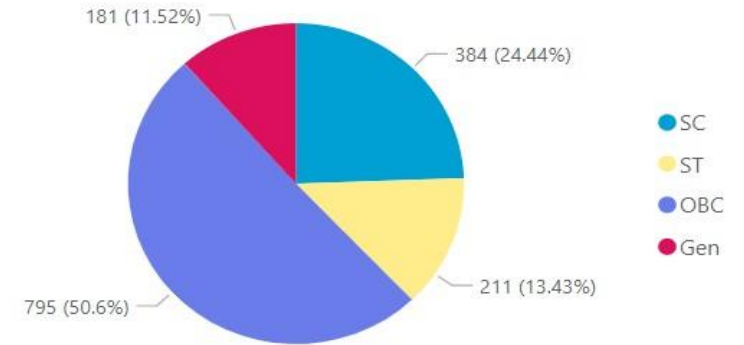
Settlement

- Abanti Bihar Basti
- Aditya Nagar Basti
- Adivasi Gaon
- Akhandalamani Basti
- Aurobinda Basti
- Baba Trinath Adibasi And...
- Baliapata
- Barabari Raghunath Nagar
- Barabhujia Basti Jagamara
- Basti Bikash Parishad (1)
- Basti Bikash Parishad (2)
- Bhoi Sahi Gadakana
- Dumuduma Bhoi Sahi-A
- Dumuduma Pana Sahi
- Durga Mandap Basti
- Ekamra Vihar
- Gadakan Sabar Sahi
- Ganapati Nagar
- Gandhi Basti
- Hatiasuni
- Jagamara Bhoi Sahi
- Janata Nagar
- Jokalandi Cluster-7
- Kalimandir Basti
- Kalinga Basti
- Kalyani Sahi Basti Gadak...
- Kholia Building
- Kimbhiria Jagannath Basti

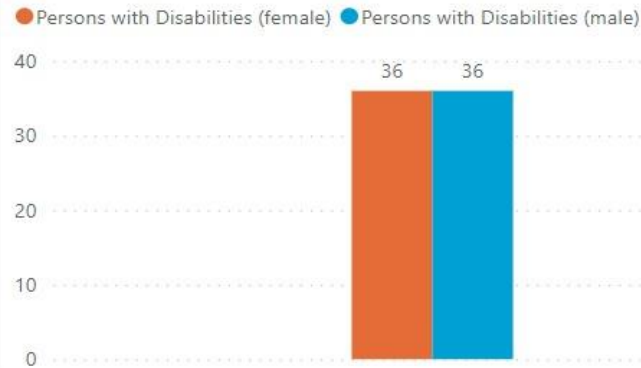
Leadership Trend by Year



SC and ST Representation in Leadership



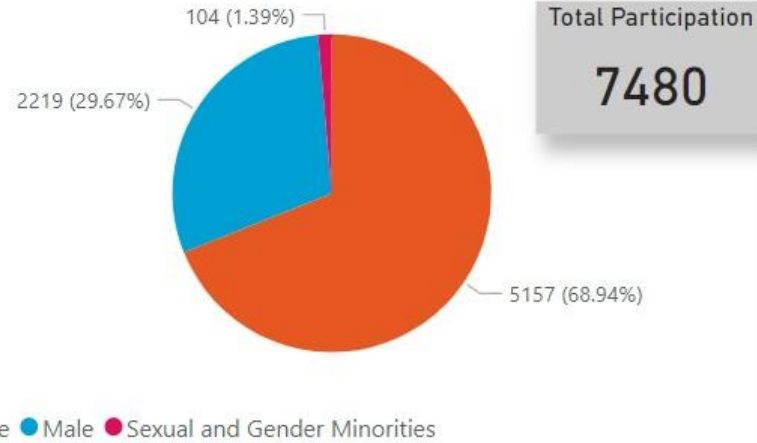
Representation of Persons with Disabilities in Leadership



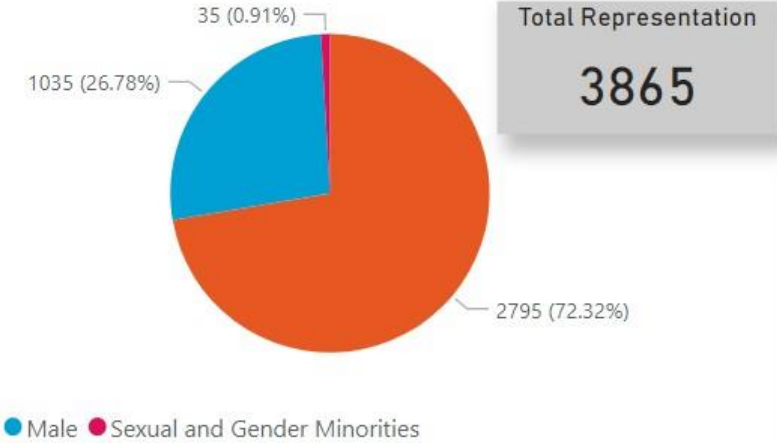
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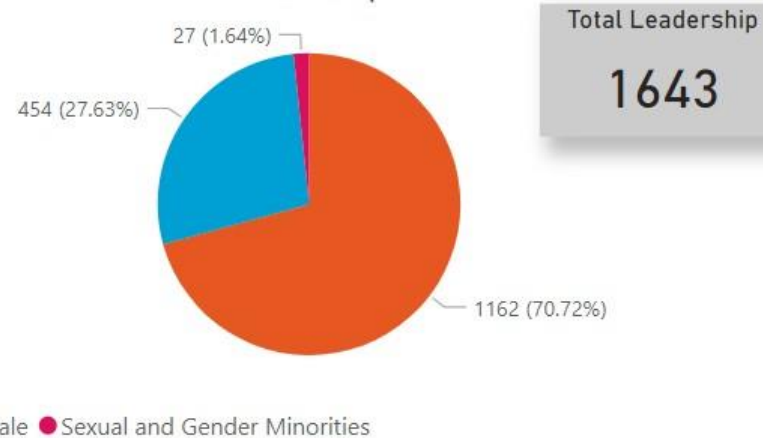
Community Participation



Community Representation



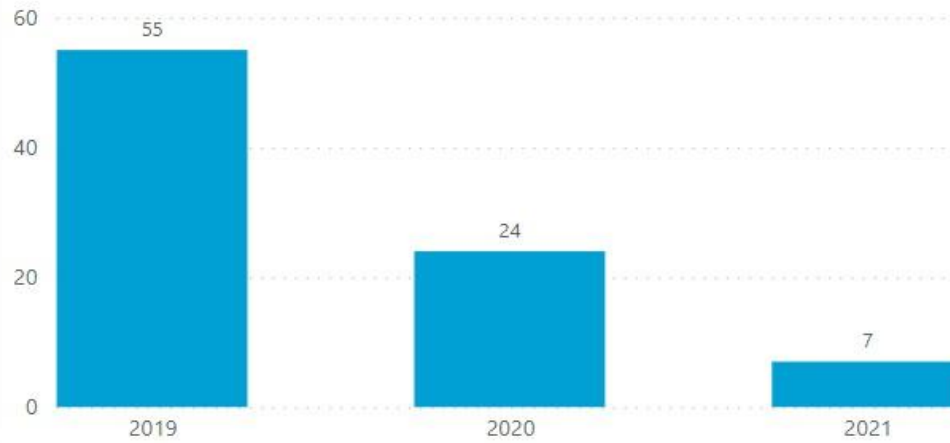
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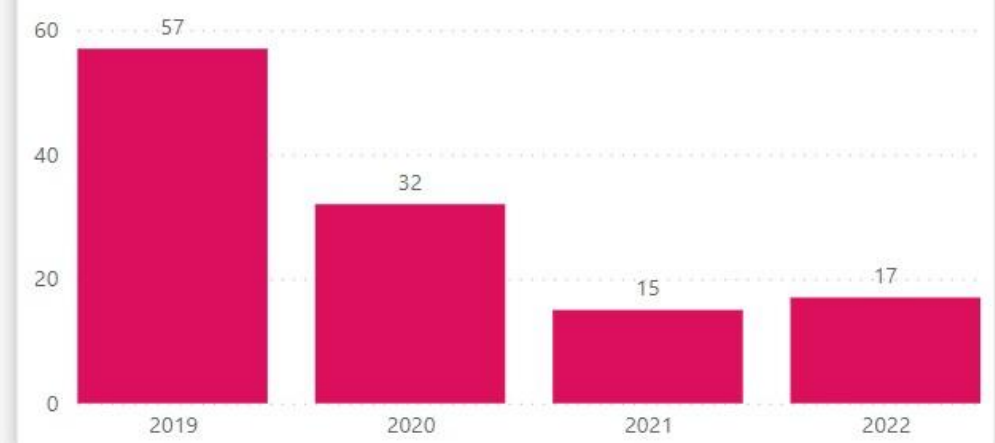
Year

- 2019
- 2020
- 2021
- 2022

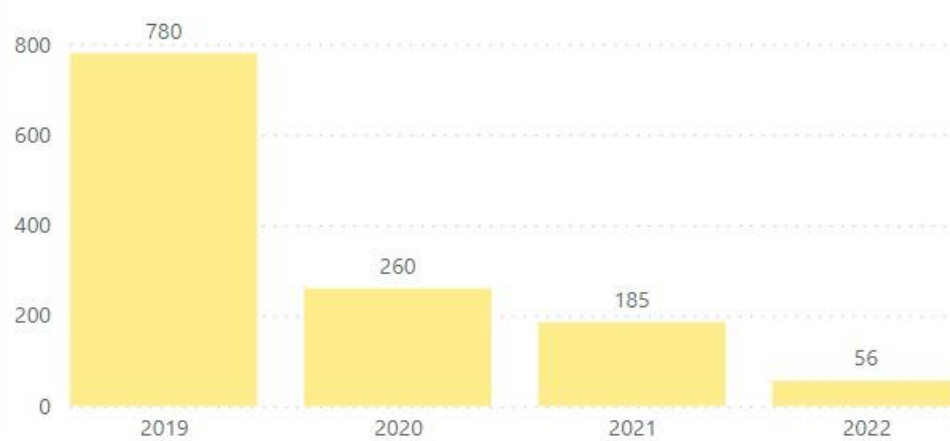
Access to Water ATM: Demand Fulfillment Trend



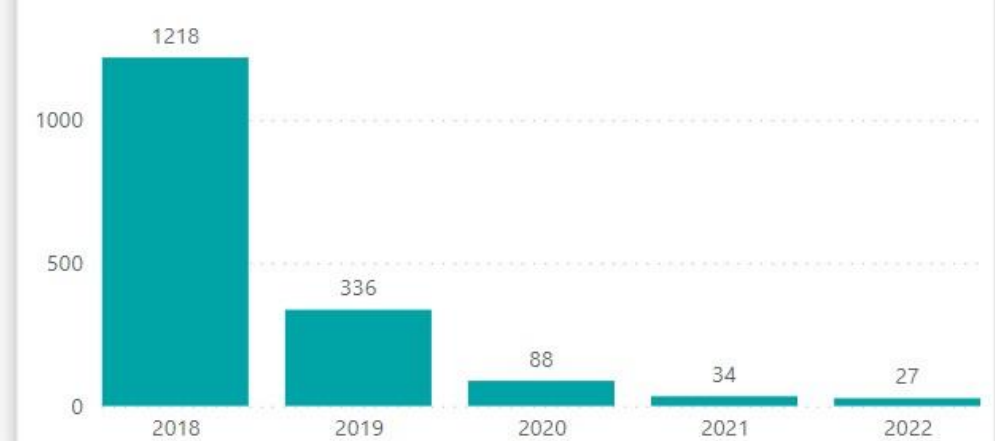
Safe Desludging: Demand Fulfillment Trend



Water with Accurate Pressure: Demand Fulfillment Trend



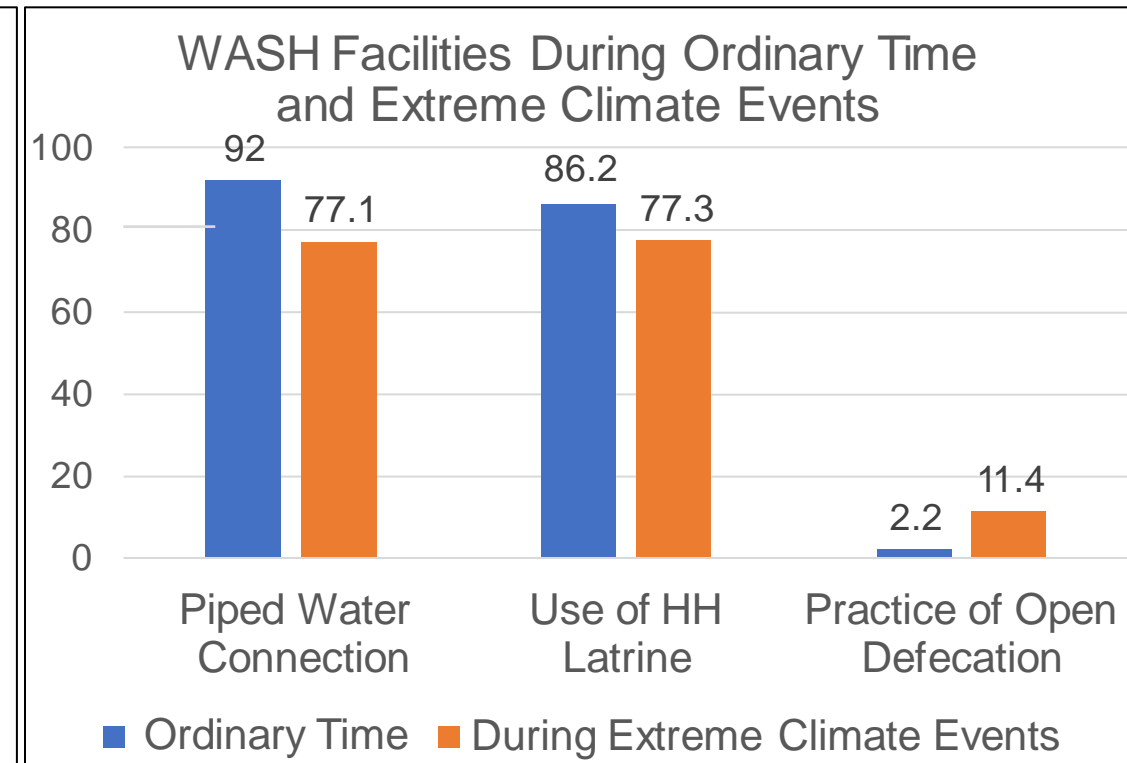
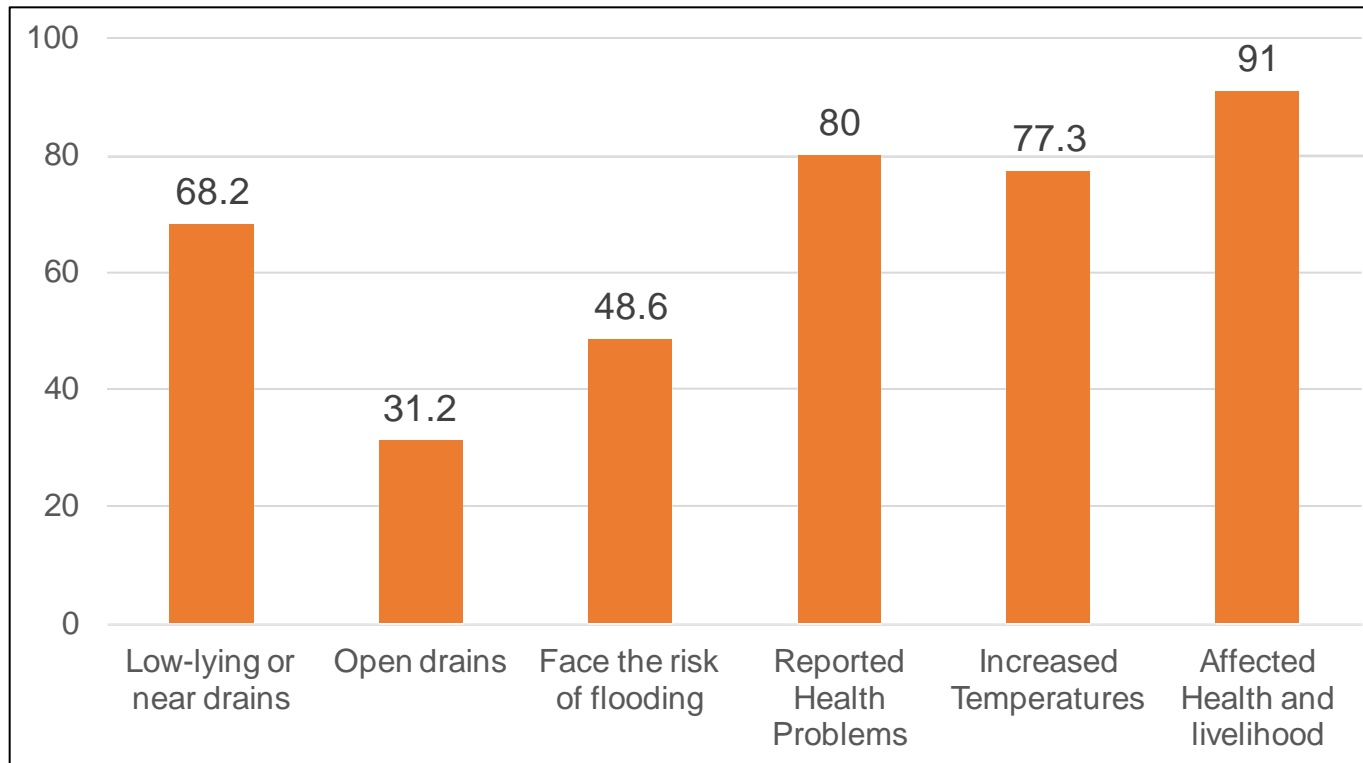
Average Days : Demand Fulfillment Trend



Building evidence-based climate-resilient WASH 2023-24

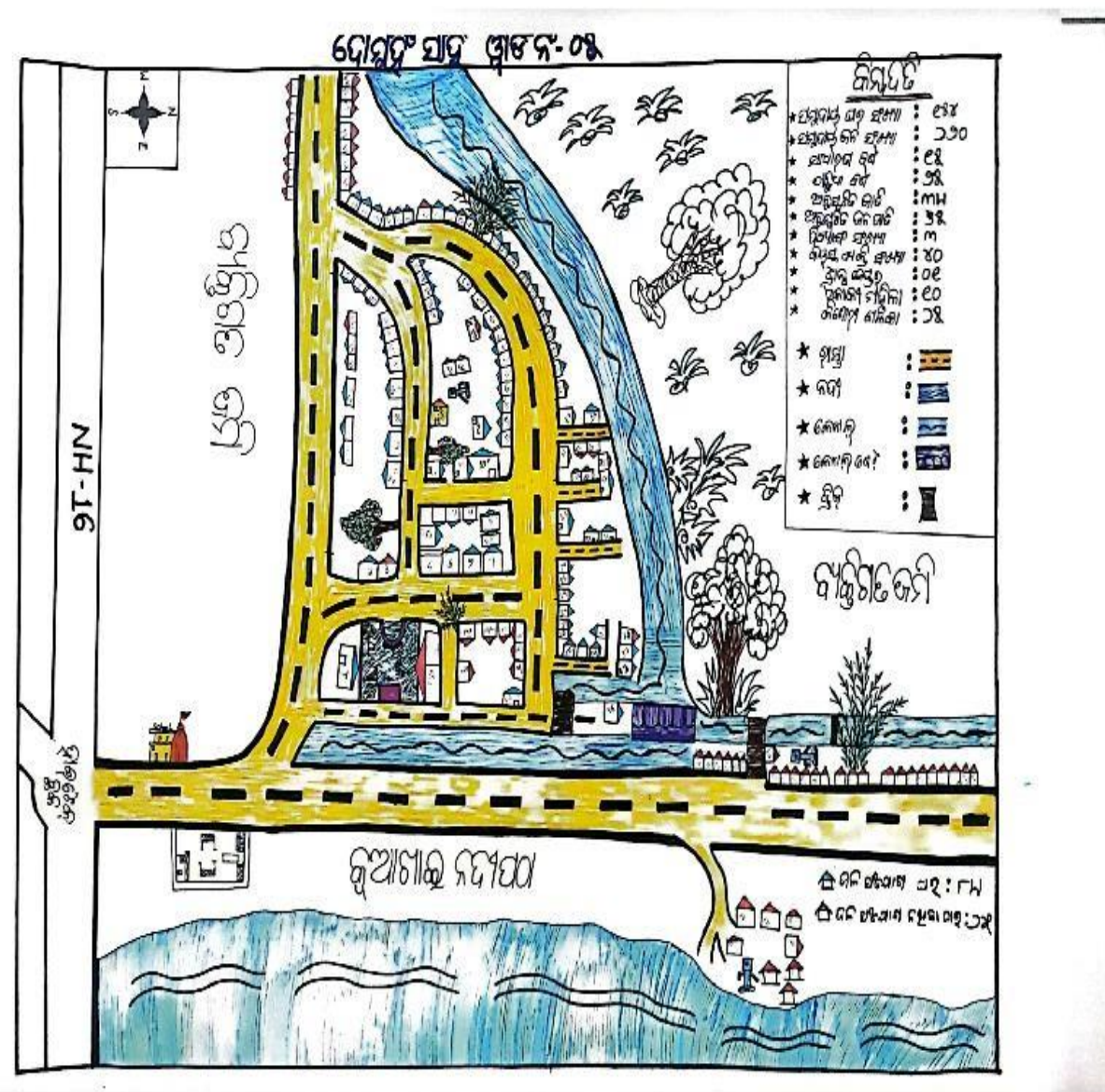
In Bhubaneswar, the Risk and Vulnerability study assesses the climate-driven impact on WASH services in slums, highlighting the degradation of WASH services during flooding and underscores the importance of community monitoring or Saniclimiwall.

Key Findings:



Drinking Water Supply Issues and Planning

Existing Issue	Proposed Resilient WASH plan
65 of 154 HHs waiting for PWS connection	<ul style="list-style-type: none"> Layering of water pipeline High raised –resilient- functional taps at community/ HH level O &M - regular maintenance by SDA
HHs collect water from private houses, brick factory, river and tube well	<ul style="list-style-type: none"> Periodic water testing, disinfection and removal of chemical contaminants Renovation of water sources for resilient models
Muddy, odd smell due to contamination during monsoon	<ul style="list-style-type: none"> Filtering, boiling water, disinfection at HH source protection & disinfection (high raised platform, water points)



Ward-specific Challenges and Prioritization:

- Water scarcity, contamination in Ward 5
- Industrial contamination, water scarcity in Ward 11
- Irregular water supply, pollution in Ward 16
- Muddy water supply, flooding in Ward 22
- Water scarcity, foul-smelling water in Ward 42
- Caste discrimination, pipeline issues in Ward 43
- Community water supply delays in Ward 49
- Through advocacy, residents' initiatives in Bhubaneswar, including regular water quality tests, repairing defunct water sources, and raising water collection points and toilet seats bring tangible benefits such as saving lives and livelihoods, through reducing health risks, and improving community well-being.
- These actions not only address immediate challenges but also contribute to the establishment of adaptive strategies for more resilient WASH infrastructure.

Strengthening concurrent monitoring through “Saniclimiwall”

SANI AND CLIME WALL																																							
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Zone : South East																																							
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- Evolved from inclusive WASH to climate-resilient WASH.
- Community monitoring reflected in Saniclimiwall aids in tracking and monitoring inclusive climate-informed WASH services, disruptions, adaptations, and mitigations, aligning with JMP and Rio Markers.
- Saniclimiwall emphasizes the use of 'alternative sources' of water and sanitation services to enhance their climate resilience.

Localisation and Adaptive Climate Preparedness...



Awareness rally on safe sanitation practices



Conducted PRA with local residents across Wards



Early warning podcast through IVRS



A disability assistive aid facilitated to access water tap and toilets for individuals with disabilities, Janata Nagar, Ward 21.



Handwashing at Janata Nagar School, Ward 21



Handwashing station in front of School, Ward 63

Localisation and Adaptive Climate Preparedness...



Pad bank Nirakari Nagar, Ward 21



Safe sanitary pad disposal incinerator, Syed Mumtaz Ali School



Saniclimiwall review meeting with Stakeholders, Ward 50



Raised water pipeline connection platform in Ward 5



Raised toilet in Ward 43 slum



Affordable 1000 CC vehicles for desludging services by the BMC

Recommendations and Future Scale-up

Aim- To comprehensively tackle climate impacts and improving Climate-resilient WASH

- **Ward-level micro planning:** Ward-level micro planning with PRA involves community-driven decision-making, prioritizing local needs, and fostering collaboration for sustainable development.
- Prioritized **5** wards in Bhubaneswar for interventions, including adaptive measures based on:
 - ✓ contamination of water sources due to frequent floods and following the spreading of vector and water-borne diseases (Bhubaneswar Ward 16).
 - ✓ disruptions in water supply and managing sanitation services post-cyclone and frequent thunderstorms (Bhubaneswar Ward 22).
- **Active and Inclusive Approach:** Transcending gender, disability, socio-economic status Equitable access for WASH resilience

- **Recognition of Climate-Resilient Approach:**

Through Saniclimiwall, focusing attention on climate resilience, contamination prevention, and system reliability, especially in extreme climatic conditions

- **Evolving Participatory Processes:**

Focusing on awareness of climate risks, early warning systems, localization and WASH adaptations and strengthening 4th tier of local self-government to address the intricate climate change challenges impacting vulnerable community.

- **Capacity Building:**

Enhancing community and stakeholder capacity to handle climate-related challenges in WASH services; will be developing community radio through mobile-App and partnering with the Indian Meteorological Department (IMD) and National Institute of Disaster Management (NIDM) in shaping climate change adaptation (CCA) with disaster risk reduction (DRR).

We celebrate our small victories...

We continue to aspire for more...

The Journey Continues...

Thank You

CWAS
CENTER
FOR WATER
AND SANITATION
CRDF CEPT
UNIVERSITY

BILL & MELINDA
GATES *foundation*



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