WOMEN-LED CLIMATE RESILIENT FUTURES

SOLUTIONS FROM MAHILA HOUSING TRUST

Publication designed and developed by City Collab.
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MHT

The Mahila Housing Trust (MHT), founded in 1994, works towards improving built environments in underprivileged urban communities through collective action. They mobilize women to exercise their civic rights, empower them to take charge of their habitat improvement process, and foster participatory governance. By collaborating with marginalized communities and local governments, MHT promotes climate resilience and participatory governance. Operating across nine Indian states in both urban and rural areas, it has earned national and international acclaim, including the Ashden Award for Cooling in Informal Settlements, United Nations Global Climate Action Award for Women's Action Towards Climate Resilience for Urban Poor in South Asia, and United Nations Sasakawa Award for Disaster Risk Reduction, among many others.

WIEGO
Women in Informal Employment: Globalizing and Organizing

Women in Informal Employment: Globalizing and Organizing (WIEGO) is a global research - policy network focused on improving conditions for workers in informal employment, especially women and people living in poverty. Their mission is to improve the working conditions and to challenge the systems that cause poverty and inequality to build a more just world of work. They develop statistics, research and policy analysis that workers can use for advocacy. Their values, which centre around respect, solidarity, care and inclusivity, inform the way they support workers in informal employment and serve the wider labour movement.

CITYCOLLAB

City Collab is a strategic communication and creative production practice. They partner with changemakers in urban development to amplify their purpose and impact. With expertise in strategy, facilitation, message framing and visual communication, they help highlight the key ideas and make them resonate with the targeted audience.

Introduction

Climate change poses a significant and growing threat to vulnerable populations worldwide, particularly those with limited social protection and restricted access to basic services. This vulnerability is especially pronounced in India, where over 80% of the urban workforce is employed in the informal economy, often without labor rights or social security (Vanek et al, 2020). Informal workers—most of whom are women—already face systemic risks, which are further compounded by climate change impacts such as extreme weather, rising pollution, and limited access to energy and water. For many, homes and public spaces double as workplaces, meaning that floods, heatwaves, and energy price hikes directly threaten their well-being, incomes, and housing security (WIEGO, 2023).

Extreme heat and urban flooding, in particular, have severe implications for the livelihoods and health of informal workers. A study in Delhi found that for every one-degree Celsius increase in temperature, informal workers experienced a 19% decline in net earnings, with income losses reaching up to 40% during heatwaves (Das and Somanathan). For home-based workers—most of whom are women—flooding results not only in damage to homes and public infrastructure but also in the loss of raw materials, finished goods, and essential tools stored at home, further compounding income insecurity (Chauhan et al., 2022). These climate risks are layered atop existing multidimensional vulnerabilities, including tenure insecurity, lack of access to social services, and infrastructure deficiencies associated with urban informality. Addressing climate change in this context requires going beyond merely responding to impacts; it represents a powerful entry point for tackling interconnected risks that disproportionately affect marginalized urban residents, especially women in informal settlements (Cities Alliance, 2024).

A wide range of solutions exist, including low-cost technological innovations, community-led initiatives, and public investments. However, it is essential to critically examine locally driven processes of transformation to understand what works, who enables these processes, and at what scale, in order to respond effectively to the magnitude and urgency of current and future climate challenges. Governments must also prioritize workers and vulnerable communities in climate resilience and adaptation planning, policy formulation, and implementation to ensure safe, healthy, and secure living and working environments.

In this context, WIEGO spearheaded the documentation of Mahila Housing Trust's (MHT) work on implementing climate resilience interventions in collaboration with women informal workers. These interventions span habitat development, access to basic services, and policy advocacy, reflecting an integrated approach that addresses both immediate climate risks and long-term adaptive capacity. This documentation is part of the project "Climate Justice and the Urban Informal Economy," co-financed by Canada's International Development Research Centre (IDRC).

Established in Ahmedabad in 1994, MHT emerged from SEWA's engagement with women in the informal economy, responding to their demand for improved infrastructure, secure housing, and access to basic services—recognizing that a home is both a productive asset and a workplace. Over the years, MHT has provided technical and financial assistance, legal guidance, and capacity-building support to enable women home-based workers to access public services and improve their housing conditions. Following the 2010 Ahmedabad heatwave and the escalating climate crisis, MHT embedded climate resilience as a cross-cutting focus across all its programmes.

City Collab has partnered with MHT and WIEGO to curate, organize, and present a comprehensive documentation of MHT-led climate-related interventions and their impacts within the broader framework of climate-resilient urban development. The goal of this documentation was to capture and present an overview of climate resilience interventions and solutions implemented by MHT at multiple scales, from individual households and communities to policy advocacy at city and state levels, with a focus on integrating the needs of women informal workers into climate action plans and implementation frameworks.

Methodology

The investigation began with a comprehensive review of MHT's work over the past twenty-five years, highlighting interventions across multiple habitat domains. Building on this review, multiple interactions with MHT and WIEGO teams, and a survey of relevant literature, a list of 40 climate interventions was compiled. These solutions were then grouped into eight dimensions of climate resilience. These dimensions were identified through secondary research to highlight the most pressing vulnerabilities faced by urban communities. They cover two key aspects: responding to climate impacts, which addresses specific hazards such as heat or water stress, and enabling resilience, which focuses on building adaptive capacity through interventions like access to entitlements, social protection, and improved sanitation.

A set of critical parameters and data points, common across all interventions, was identified to provide a comprehensive understanding of each intervention's scope and impact. These parameters included the geographic contexts in which the interventions were demonstrated and implemented, their observed outcomes, and additional aspects such as cost, type of intervention, and alignment with relevant government policies. Guided by this analytical framework, empirical data and qualitative insights were gathered through structured interviews and discussions with MHT program teams.

Once the database was compiled, it became clear that the interventions could be most effectively organized by dimensions of climate resilience and represented in a matrix format. This allows for comparability and clarity by presenting key parameters and indicators for each solution. Together, the documents provide an overview of possible climate solutions for informal women workers in urban areas and can also serve as a reference for other home-based worker networks in their advocacy efforts.

Women Led Climate Action: 8 Dimensions of Climate Resilience

Combating Extreme Heat

Reducing heat-related impacts by implementing urban cooling strategies, enhancing green spaces, improving building designs, and increasing community awareness to protect health and ensure resilience against escalating heat stress.

Addressing Water Stress

Providing access to safe, reliable, and affordable water by promoting conservation, efficiency, and decentralized water solutions to address scarcity caused by shifting rainfall, droughts, extreme heat, and declining groundwater, particularly in densely populated and low-income urban areas.

Managing Urban Flood Risks

Enhancing flood preparedness and response through improved drainage systems, nature-based solutions, stronger early warning mechanisms, and resilient urban planning to minimize impacts on lives, health, livelihoods, and critical infrastructure.

Reducing Carbon Emissions and Air Pollution

Reducing emissions and improving air quality through targeted nature-based solutions, community engagement, capacity building, and policy interventions to protect health, support informal workers, and build healthier, more resilient cities.

Enabling Equitable Energy Access

Expanding equitable energy access through legal connections, efficient products, renewable solutions, decentralized technologies, and inclusive policies to support households, livelihoods, and public infrastructure, while reducing inequalities and addressing climate vulnerability.

Integrated Climate Resilience Planning

Comprehensive planning that aligns finance, policies, and community action to build adaptive capacity, while promoting inclusive urban planning and integrating climate risks into city plans to foster sustainable, equitable resilience.

Facilitating Access to Entitlements & Social Protection

Strengthening inclusive safety nets, expanding access to government programs and affordable housing, securing land rights to build resilience and equity for at-risk urban communities often facing economic instability, inequality, and heightened exposure to climate shocks.

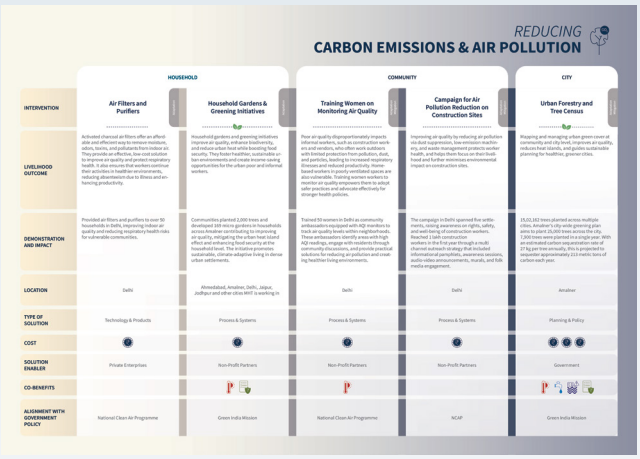
Improving Sanitation and Hygiene

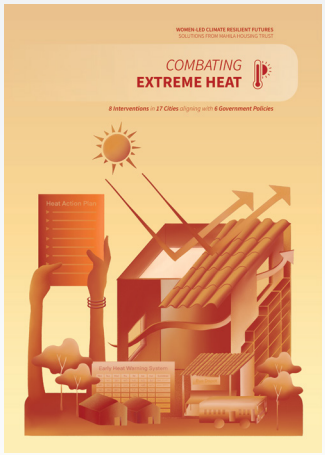
Strengthening sanitation infrastructure, promoting hygienic practices, and implementing climate-resilient waste and wastewater management to safeguard health and improve the well-being of urban populations.

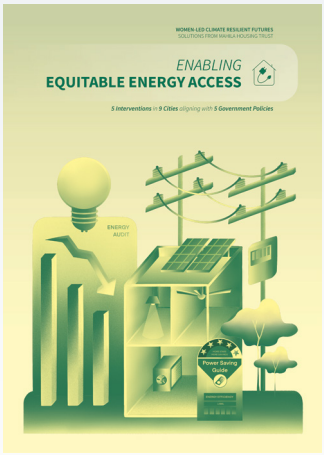
Publication Framework

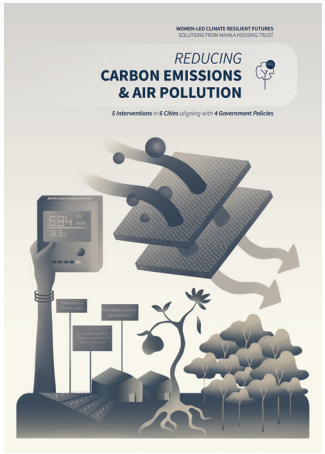
The final documentation is organized into eight thematic volumes, each corresponding to a specific dimension of climate resilience. These volumes are designed to serve both practitioner audiences and state actors, offering a resource that can be engaged with at multiple levels: individual volumes may be consulted independently by stakeholders interested in particular thematic areas, or collectively to provide a comprehensive understanding of the broader resilience framework.

Within each volume, interventions are systematically presented in a matrix format, with columns representing individual interventions and rows denoting key parameters, facilitating clear comparison and analysis. Each volume also concludes with a contextual section that critically situates the interventions, detailing the relevant climate dimension, the specific challenges addressed, progress achieved, and persisting gaps, all substantiated by existing literature and empirical evidence.









What Each Volume Covers: Interventions, Scale and Parametres

About Interventions

Intervention Name
Targeted actions and strategic solutions deployed to address specific dimensions of climate vulnerability or risk. Also called 'climate interventions'.

Livelihood Outcomes
Describes how the climate intervention supports informal workers in sustaining, improving, or securing their income-generating activities amid climate risks. The focus is specifically on the livelihoods of women, informal workers, and home-based workers.

Demonstration and Impact
Results and impacts emerging from MHT's role in designing, facilitating, and implementing climate interventions across multiple cities in India.

Scale of Intervention

Household Level
Interventions addressing immediate needs and reduce individual vulnerabilities

Community Level
Interventions fostering collective resilience and coordinated action

City Level
Interventions contributing to systemic change through planning, policy, and institutional collaboration.

Parameters

Location
Cities where the intervention was piloted, adopted, or scaled

Type of Intervention
Specifies the nature of the climate intervention and the core strategy employed to enhance resilience

- **Technology & Products**
  Tangible tools, devices, or materials developed to address specific climate risks.
- **Planning & Policy**
  Strategic plans, policy frameworks, and guidelines that shape and steer climate-responsive action.
- **Process & Systems**
  Institutional mechanisms, operational processes, and community-led practices that support the effective coordination and implementation of climate solutions.
- **Infrastructure & Services**
  Physical assets, service delivery systems, and upgrades to the built environment that enable climate resilience at scale.

Type of Response
Classifies the intervention as adaptation or mitigation or both

- **Adaptation**
  A climate action approach focused on reducing vulnerability and enhancing the capacity of people, systems, and infrastructure to cope with the impacts of climate change.
- **Mitigation**
  A climate action approach aimed at minimizing the severity or long-term risks of climate change by addressing its root causes through sustainable practices and structural change.

Alignment with Government Policy
Identifies which existing government programmes, policies, or mandates the intervention aligns with or supports.

Cost of Intervention
Estimated cost for implementing a climate intervention, based on field experience in the Indian context:

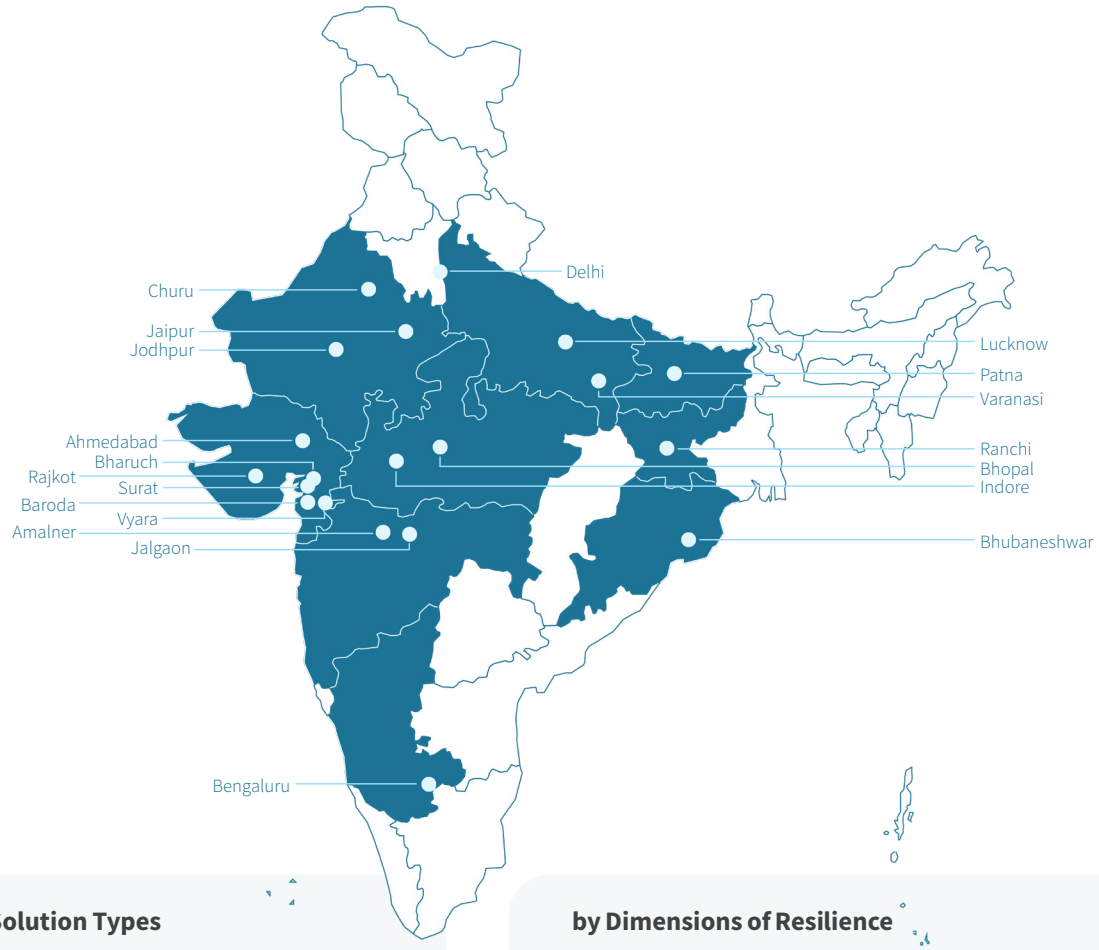
- ₹ **Low Cost** – Less than ₹25,000
- ₹₹ **Medium Cost** – ₹25,000 to ₹1,00,000
- ₹₹₹ **High Cost** – Above ₹1,00,000

Solution Enabler
The primary actor or institution responsible for supporting or enabling the climate intervention

- **Government**
  Policy support, public funding, regulatory approvals, infrastructure, and integration into city- or state-level plans.
- **Private Enterprises**
  Design and supply climate-resilient technologies, offer services or financing models, and sometimes co-implement projects
- **Research & Academia**
  Generate evidence, design tools or models, conduct impact assessments, and offer technical expertise for informed decision-making.
- **Community Action Group**
  Mobilize local participation, identify needs, lead implementation on the ground, and ensure solutions are relevant, and sustained.
- **Non-Profit Partners**
  Act as facilitators between stakeholder, they offer capacity building, technical support, advocacy, and monitoring.

Nature- Based Solutions (NbS)
Interventions that use natural processes to protect, restore, and sustainably manage ecosystems. (Indicated via a leaf symbol in the matrix)

40 Interventions implemented across 20 cities in 9 states in India



by Solution Types

10 Technology and Products
14 Processes and Systems
8 Infrastructure and Services
8 Planning and Policy

by Type of Response

30 Adaptation
1 Mitigation
9 Adaptation and Mitigation

by Scale of Intervention

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12 Community Level
8 City Level

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5 Addressing Water Stress
4 Managing Urban Floods
5 Reducing Carbon Emissions and Air Pollution
5 Enabling Equitable Energy Access
6 Integrating Climate Resilience Planning
3 Facilitating Access to Entitlements & Social Protection
4 Improving Sanitation and Hygiene

by Solution Enabler

6 Community Action Groups
18 Government
5 Non Profit Partners
8 Private Enterprises
3 Research and Academia

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List of Interviews

Interview with Bijal Brahmbhatt, March 2, 2025

Interview with Bijal Brahmbhatt and Bhavna Maheriya, March 17, 2025

Interview with Bhavna Maheriya, April 18, 2025

Interview with Bhavna Maheriya and Rachna Shah,
April 23, 2025

Interview with Bhavna Maheriya and Rachna Shah,
April 26, 2025

Interview with Bhavna Maheriya, April 29, 2025

Interview with Bhavna Maheriya and Nitin Macwan,
April 23, 2025

Interview with Bijal Brahmbhatt, July 8, 2025

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A Scoping Study in Delhi

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MHT Annual Report, 2022 MHT

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Models of climate resilience in urban slums- a case study of the Mahila Housing Trust initiatives in India, Vois Planet

Jodhpur Heat Action Plan, 2023 NRDC

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Combating climate - change induced Heat stress: Assessing cool roofs and its impact on the indoor ambient temperature of the households across slums of Ahmedabad, 2018 IIPH

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EE2: Promote innovations to improve light, ventilation, and thermal comfort, 2021 WIEGO

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Project Report: Developing GeoAI-Enabled Flood Vulnerability Model for Amalner, a Blueprint for India's small Towns, 2023-2024 MHT

Monsoon Action Plan for 3 Wards in Ahmedabad, 2019 MHT

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Baseline Study on on 'Delhi Women Construction Workers + Air Pollution', MHT

How to Assess Security of Tenure and Emulate Mortgages for Financing Semi-Formal Homes: Lessons from Mahila Housing SEWA Trust, 2014 WIEGO

A Framework for Improving Sanitation in Urban Poor Communities, 2018 MHT

CP1: Influence design and process of government-led slum redevelopment and public housing projects, 2021 WIEGO

PE3: Secure land and property rights for women home-based workers, 2021 WIEGO

Policy Reform for Slum Rehabilitation of Government of Gujarat 2010 & 2013, 2013 MHT

RETV Assessment of PMAY projects in Ahmedabad, 2020 MHT

COMBATING **EXTREME HEAT**

8 Interventions** in **17 Cities** aligning with **6 Government Policies

The years 2023 and 2024 have shattered global temperature records, with 2024 becoming the first year with an average temperature clearly exceeding 1.5°C above the pre-industrial level – a threshold set by the Paris Agreement, contributing to extreme events, including floods, heatwaves and wildfires. (European Union's Earth Observation Programme, 2025). India has also seen temperatures rise sharply, with several cities crossing 48°C in 2020 (Picciariello et al, 2021).

Women in the urban informal economy are among the most vulnerable. Evidence from a recent study of SEWA's self-employed members in India indicates that extreme heat has significant adverse effects on the livelihoods of both home-based and outdoor workers by compromising their health, reducing productivity, and diminishing income (Jenkin & Kalsi, 2025).

Home-based work represents a significant share of urban employment in India. Between 2017 and 2018, it was estimated that 418.5 lakhs (41.85 million) people or 9.1% of people employed were home-based workers of which women comprised about 39.4% of workers in urban areas (Raveendran, 2020). These homes-cum-workplaces are located in large slums and informal settlements, and sometimes in public housing complexes, where homes are often built with tin, tarpaulin, or asbestos sheet roofs that trap heat and demand high cooling energy. A 2020 study by WRI India found that slums in Mumbai were six degrees hotter than nearby housing societies (Mackres et al., 2023). For home-based workers, this translates directly into lost income, MHT's focus group research showed a 50% drop in productivity during summer afternoons, especially among women (Mahila Housing Trust).

Outdoor workers, including street vendors, waste pickers and construction laborers, are similarly vulnerable, with extreme heat resulting in adverse health outcomes such as heat stroke and dehydration. During the May 2024 heatwave in Delhi, when temperatures exceeded 50°C, several worker fatalities were reported. In response, the Ministry of Labour and Employment issued an advisory recommending measures such as shift rescheduling and the provision of cooling infrastructure; however, implementation has remained inconsistent (Sharma & Mehrotra, 2025).

Over the past 15 years, MHT has engaged in developing and piloting strategies to address heat resilience. In Ahmedabad, its work contributed to the inclusion of the specific challenges faced by indoor informal workers in the city's Heat Action Plan, thereby extending the scope beyond early warning systems and health preparedness (WIEGO et al., 2021). The plan incorporated a cool-roof program, including measures such as the application of white paint in informal settlements, which have since been scaled more widely. MHT has also tested the provision of cooling stations as safe, shaded spaces for outdoor workers during periods of extreme heat.

While these solutions are effective, rising annual temperatures mean that these adaptations may not be enough in the long term to ensure heat resilience for poor women in the informal sector. MHT is partnering with governments on policy initiatives such as urban forestry, citywide greening, and the development of grounded, community-focused heat models. However, for these measures to be sustained and move beyond pilot stages, government leadership will be essential in adopting, scaling, and embedding heat resilience strategies within broader urban planning processes (Brahmbhatt, 2025).

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MHT WIEGO Women in Informal Employment: Globalizing and Organizing CITYCOLLAB

COMBATING EXTREME HEAT

	HOUSEHOLD			COMMUNITY	CITY			
INTERVENTION	**Solar Reflective Paints** (Adaptation)	**Ventilation Solutions** (Adaptation)	**Cool Roofs & Climate Resilient Design & Construction Methods** (Adaptation)	**Early Heat Warning Systems** (Adaptation)	**Cool Shelters & Public Amenities** (Adaptation)	**Heat Action Plan** (Adaptation, Mitigation)	**Community-Powered GeoAI Model for Heat Vulnerability** (Adaptation, Mitigation)	**Guidelines for Thermally Comfortable Public Housing** (Adaptation, Mitigation)
LIVELIHOOD OUTCOME	Solar reflective paints increase surface reflectivity (albedo) and reduce heat absorption when applied to roofs and walls. They can reduce indoor air temperatures by 2–5°C, creating safer and more comfortable conditions for home-based workers who often lack access to cooling appliances. Beyond improving health and productivity, this low-cost solution also reduces reliance on fans or air coolers, cutting energy use and household electricity expenses while easing the urban heat island effect in dense settlements.	For home-based workers, ventilation is essential because high humidity worsens the effects of heat by limiting sweat evaporation, leading to discomfort, dehydration, and sometimes severe heat-related illnesses. Solutions such as roof vents improve airflow, lower indoor heat, and enhance air quality in small homes, creating safer, more comfortable working conditions while also reducing energy use for cooling.	Cool roof systems and climate-resilient construction are improving urban living by making homes cooler, more energy efficient, and better prepared for extreme heat. Modular, waterproof cool roofs can lower indoor temperatures by up to 7°C compared to asbestos roofs, creating comfortable workspaces for home-based workers. Construction methods like cavity walls and rat-trap bond provide better insulation, making buildings more comfortable in hot climates.	Early heat warning systems work by combining weather monitoring, mapping of high-risk areas, and timely alerts to predict heatwaves and alert communities. They enable workers to adjust schedules, reduce exposure, and take preventive measures. This minimizes health risks, prevents productivity loss, and supports income stability during extreme heat events.	Cooling strategies in social infrastructure is essential to reduce heat exposure for outdoor workers like street vendors, construction workers, porters and other vulnerable populations. Cooling stations, climate-responsive bus stops, and cooling areas equipped with mist sprinklers, provide much-needed relief for those working or traveling outdoors during extreme heat. Integrating cooling strategies in schools and health centers ensures more comfortable environments for learning and healthcare.	8 cities in India have adopted the Heat Action Plan as a comprehensive city-level strategy to mitigate the effects of extreme heat. The plan includes measures to raise public awareness, build healthcare capacity, and reduce heat exposure in public spaces and buildings. Key initiatives, such as cooling shelters and cool roofs, specifically address the vulnerabilities of informal workers including vendors, construction laborers, and home-based workers.	By integrating satellite data, on-ground sensors, and community mapping, the geoAI model goes beyond traditional Urban Heat Island identification to identify areas most vulnerable to heat stress, particularly in underserved urban communities. It enables data-driven decisions and targeted interventions—such as improved shading, ventilation, and cooling infrastructure protecting public health while safeguarding and enhancing the livelihoods of informal workers.	Enhancing natural ventilation and thermal comfort in public housing directly boosts the productivity of women-led home-run businesses while safeguarding health, reducing medical expenses, and amplifying the economic benefits of their livelihood activities. These measures ensure energy efficiency, reduce heat stress, and promote the well-being of residents and home-based workers, particularly in regions experiencing extreme heat stress.
DEMONSTRATION AND IMPACT	Solar reflective paints were promoted in 30,000 homes across 12 cities in India. Reflective coatings have also been implemented in a public health centre in Surat, two schools in Bengaluru, and public housing in Lucknow and Ahmedabad. With sustained advocacy, this solution has been integrated in Heat Action Plans across several Indian cities.	Rooftop ventilation solutions have been successfully adopted by over 500 families across five cities in India. This low cost innovation has helped improve indoor air quality, reduced heat buildup, and enhanced thermal comfort within homes.	Various cool roof technologies were developed and tested by social enterprises in real-world settings in collaboration with communities. These solutions, accessible through a cooperative loan model, enabled wider adoption, with ModRoof being taken up by over 500 families.	Women from slum communities across five cities were trained to interpret heat data, share early warnings via WhatsApp, and use wall displays to reach high-risk groups, strengthening community preparedness and resilience to extreme heat events. Advocacy with local governments has led to mainstreaming of city-level warning systems and early alerts.	The first-of-its-kind 'Net Zero Cooling Station' in Jodhpur provides a safe, cool space for outdoor workers during extreme heat events. India's first cool bus stops were launched in Ahmedabad, offering respite to commuters. Climate-resilient construction was introduced in schools and livelihood spaces in multiple cities.	Co-developed and implemented Heat Action Plans in collaboration with local governments across six cities, integrating community-led, climate-responsive solutions. These plans are designed to protect low-income communities, informal workers, and other at-risk groups, by enhancing preparedness and resilience to extreme heat.	Trained over 90 community members in Surat to capture real-time temperature and humidity data across 30 routes using thermal sensors and FLIR cameras, generating hyperlocal insights for targeted heat mitigation strategies. A similar initiative is planned for Ahmedabad in 2025, further scaling evidence-based climate action.	Advocated with the Government of Gujarat to raise unit size in public housing from 25 to 30 sq.m. Policy recommendations also included mosaic tiling on roofs, light and ventilation shafts and climate appropriate construction materials. These recommendations were also incorporated into the national housing policy frameworks.
LOCATION	Ahmedabad, Surat,Jodhpur, Jaipur, Delhi, Banglore, Amalner, Ranchi, Bhubneshwar,Bhopal, Lucknow, Patna	Ahmedabad, Bhubneshwar, Surat, Delhi, Ranchi	Ahmedabad, Surat, Jaipur, Bhopal, Ranchi, Bhubneshwar	Jodhpur, Surat, Delhi, To be planned in Churu, Varanasi, Jalgaon, Indore & Patan	Jodhpur, Ahmedabad, Bhopal, Vyara, Tapi	Ahmedabad, Jodhpur, Churu, Varansi, Jalgaon, Indore	Surat, Ahmedabad	Gujrat
TYPE OF SOLUTION	Technology & Products	Infrastructure & Services	Technology & Products	Process & Systems	Infrastructure & Services	Planning & Policy	Planning & Policy	Planning & Policy
COST	₹	₹	₹ ₹	₹	₹ ₹ ₹	₹ ₹ ₹	₹ ₹ ₹	₹ ₹ ₹
SOLUTION ENABLER	Private Enterprises	Private Enterprises	Private Enterprises	Government	Government	Government	Research & Academia	Research & Academia
CO-BENEFITS					GG	GG		
ALIGNMENT WITH GOVERNMENT POLICY	Cool Roof Policies of States Heat Action Plans (HAPs) of Cities	Energy Conservation Building Code (ECBC)	Cool Roof Policies of States Heat Action Plans (HAPs) of Cities	National Disaster Management Plan (NDMP), 2019 Heat Action Plans (HAPs) of Cities	National Disaster Management Plan (NDMP), 2019 Heat Action Plans (HAPs) of Cities	National Disaster Management Plan (NDMP), 2019 Heat Action Plans (HAPs) of Cities		Pradhan Mantri Awas Yojana (PMAY) Energy Conservation Building Code (ECBC) for Public Housing Eco-Niwas Samhita (ENS)

ADDRESSING **WATER STRESS**

5 Interventions** in **11 Cities** aligning with **5 Government Policies

Globally, the changing climate is disrupting water systems in complex ways. Unpredictable rainfall, shrinking glaciers, rising sea levels, and extreme events like floods and droughts are making water increasingly scarce, unreliable, and compromised in quality. Data suggests that at least 50% of the world's population — around 4 billion people — live under highly water-stressed conditions for at least one month of the year (Kuzma et al., 2023). In India, the water crisis is acute, with water shortages identified as the country's top climate risk for 2025–2027 (Elsner et al., 2025). Poor sanitation and polluted water sources have significantly reduced the quality and quantity of water from traditional supplies. Unplanned urbanisation has threatened lakes and reservoirs that once served as vital buffers against scarcity. Surface systems that depend on pipelines and open channels are increasingly vulnerable to evaporation during extreme heat, while over-reliance on borewells has driven groundwater depletion. As these supplies run dry, many households are forced to depend on costly, unregulated private tankers, deepening inequalities in access.

Women are disproportionately affected by worsening water stress. The responsibility for collecting drinking water from sources located off premises falls primarily on women (UNICEF & WHO, 2023). Many spend hours walking long distances or queuing at community taps. For women engaged in productive work, this not only reduces available working hours but also undermines health and diminishes household income. Workers such as vegetable vendors and those engaged in food production, whose livelihoods depend directly on reliable water access, face even more severe losses when supply is irregular or unsafe.

One of MHT's earliest initiatives was the Parivartan Slum Network Program (SNP), implemented in collaboration with the Ahmedabad Municipal Corporation (AMC). Through this program, nearly 40,000 households across 41 slums accessed a package of integrated services, including piped water supply. Over the years, MHT's approach has evolved from facilitating access to water toward promoting sustainable water management practices. These include water-saving measures, well recharge, and rainwater harvesting, which were later scaled up into city-wide water conservation plans in partnership with local governments, particularly in smaller towns. In Amalner, for example, MHT has revived traditional water systems and mobilized CSR funds to supplement limited municipal budgets, simultaneously building infrastructure and strengthening local government capacity (WIEGO et al., 2021). Across these efforts, women's leadership has been central, ensuring that solutions respond to the lived realities of the informal economy.

Reliable and consistent domestic piped water remains the most critical intervention to ease women's water burden and safeguard livelihoods. Yet in most Indian cities, access is tied to property ownership, excluding residents of slums and informal settlements (WIEGO et al., 2021)). Delinking tenure from service provision is key to achieving widespread improvements. In parallel, long-term resilience depends on embedding water-conscious design, nature-based solutions, and reforms such as water metering into urban planning (Brahmbhatt, 2025).

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MHT WIEGO Women in Informal Employment: Globalizing and Organizing CITYCOLLAB

ADDRESSING **WATER STRESS**

	HOUSEHOLD			COMMUNITY	CITY
INTERVENTION	**Municipal Piped Water Connections** (Adaptation)	**Water-Saving Practices & Products** (Adaptation)	**Rainwater Harvesting System** (Adaptation, Mitigation)	**Well Recharge for Groundwater Replenishment** (Adaptation, Mitigation)	**City-wide Water Conservation Plan** (Adaptation, Mitigation)
LIVELIHOOD OUTCOME	Ensuring access to clean, safe water at the doorstep reduces time spent collecting water, empowering women home-based workers to pursue income-generating activities. It improves health by reducing waterborne diseases and boosts household earnings. By lowering reliance on bottled water and tankers, it offers an affordable and sustainable solution while bringing households under government services, strengthening citizenship.	Encouraging adoption of water-saving products reduces utility costs and household expenses for informal and home-based workers. By helping communities adapt to droughts and irregular rainfall, it safeguards water-dependent livelihoods. For women tasked with water collection, conserving water at home eases their workload, unlocking time for paid work and fostering long-term economic resilience.	Collecting and storing rainwater from rooftops creates a sustainable water source for home based workers, reducing costs for low-income families. This intervention improves access to water through groundwater recharge and eases pressure on municipal systems. Rainwater harvesting also mitigates urban flooding, protecting the built environment and safeguarding livelihoods for women workers, from disaster-related risks.	Replenishing depleted wells through community-led recharge initiatives ensures water security and mitigates drought impacts. This intervention promotes sustainable water management, reduces utility costs, and strengthens climate resilience in water-scarce communities. It secures water-dependent livelihoods, especially for women workers, and supports long-term economic stability while enhancing collective resilience.	Implementing a City-wide Water Conservation Plan reduces water waste and promotes sustainable usage through rainwater harvesting, recycling, and awareness campaigns. By ensuring long-term water security for urban communities and ecosystems, it secures reliable, affordable water access. By taking the lead, local governments can protect health, safeguard livelihoods, and foster economic stability and resilience across the city.
DEMONSTRATION AND IMPACT	Enabled 60,727 households across more than 25 cities to access municipal piped water supply. In Amalner, 325 new water connections were provided in slum areas, along with water supply from over 70 wells. Additionally, 270 mini water supply systems were installed in slums across the city to improve access to safe drinking water.	Reached over 96 lakh individuals through awareness campaigns and promoting water-saving technologies like sprinkler taps, water meters, drip irrigation, and efficient appliances. 2,14,184 households benefited from integrated water management, enhancing water security across vulnerable settlements.	Implemented in more than 60 households across three cities demonstrating scalable models for urban water resilience. The initiative influenced the local government in Ranchi to introduce subsidies to encourage wider adoption of rainwater harvesting.	Facilitated the recharge of wells across seven cities to restore groundwater levels and enhance local water security. In Amalner, a citywide open well rejuvenation program revitalized 21 wells. The city's primary water pumping stations were upgraded to solar energy, reducing dependency on conventional power.	A city-wide plan was developed for Amalner in collaboration with the local government, followed by on-ground implementation. These efforts promoted sustainable urban water management and strengthened climate resilience. The groundwater table rose by 1.3 meters, benefiting a catchment population of 1.15 lakh.
LOCATION	Ahmedbad, Amalner, Jodhpur, Bhopal, Lucknow, Ranchi, Delhi and others cities in which MHT is working in	Ahmedabad, Amalner, Ranchi, Bhopal, Jaipur and all others cities MHT is working in	Ahmedabad, Ranchi and Delhi	Ahmedabad, Patan, Amalner, Ranchi, Jaipur, Jodhpur, Lucknow	Amalner
TYPE OF SOLUTION	Infrastructure & Services	Technology & Products Process & Systems	Infrastructure & Services	Infrastructure & Services	Planning & Policy Process & Systems
COST	₹	₹	₹ ₹	₹ ₹	₹ ₹ ₹
SOLUTION ENABLER	Government	Private Sector	Private Sector	Government & Private Sector	Government & Research & Academia
CO-BENEFITS					
ALIGNMENT WITH GOVERNMENT POLICY	Atal Mission for Rejuvenation and Urban Transformation 2.0 (AMRUT 2.0) Jal Jeevan Mission Nal Se Jal Yojana	National Water Policy (2012) National Water Mission (NWM) Jal Jeevan Mission (JJM)	National Water Policy (2012) National Water Mission (NWM)	National Water Policy (2012) National Water Mission (NWM)	National Water Policy (2012) National Water Mission (NWM)

CONTROLLING **URBAN FLOOD RISK**

4 Interventions** in **4 Cities** aligning with **4 Government Policies

Recent data suggests that floods and storms account nearly 20% of weather-related disaster deaths (United Nations Office for Disaster Risk Reduction, 2025). Urban areas are particularly vulnerable due to rapid urbanization, the depletion of water bodies and permeable surfaces, reduced water retention, and inadequate stormwater management. In Indian cities, inland flooding and waterlogging have become persistent challenges during the monsoon season, with major centers such as Mumbai, Hyderabad, Chennai, and Bengaluru experiencing floods almost annually (Jha, 2023).

Most cities lack adequate stormwater drains, and existing systems are poorly maintained, frequently clogged, and unable to keep pace with urban growth. Informal settlements, often situated in low-lying or hazard-prone areas and lacking proper drainage are especially vulnerable to intense and erratic rainfall. For women, who constitute a large share of home-based workers, flooding causes not only physical damage to homes and infrastructure but also to raw materials, finished goods, and essential tools stored at home, compounding income losses (Chauhan et al., 2022). Street vendors and other outdoor workers face further disruption, as flooding restricts mobility and access to workplaces.

In many settlements, unpaved roads, standing water, and poor sanitation contribute to unhygienic living conditions and the spread of disease. These compounded impacts erode productivity and income, while also heightening financial stress, thereby deepening the vulnerability of informal workers during the monsoon season.

Community interventions, including flood alarms and pre-monsoon drain cleaning, offer limited tools for managing urban flooding but remain small in scale and lack systemic impact. Pioneering initiatives like the Parivartan Slum Upgradation Programme in Ahmedabad (1995–2010) demonstrated the scalable impact of upgrading entire settlements through the provision of municipal services, paved roads, and stormwater infrastructure. However, in recent years, national schemes such as JNNURM and Pradhan Mantri Awas Yojana (PMAY) have shifted the focus of funding from slum upgradation to public housing construction. Progress on housing delivery has been slow, and with 30–50% of the urban population still residing in slums, local governments must re-integrate slum upgrading as part of city-level stormwater infrastructure planning.

Beyond upgrading stormwater infrastructure, cities also need integrated approaches that combine grey infrastructure with nature-based solutions including wetlands, permeable surfaces, sponge-city designs, and reservoirs to absorb excess rainfall and reduce flood risk (Brahmbhatt, 2025). Thoughtful planning of public spaces, markets, and road networks is essential to prevent recurring waterlogging. These systemic measures are critical for safeguarding women's livelihoods, protecting their mobility, and ensuring access to essential services during urban flooding.

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CONTROLLING
URBAN FLOOD RISK

	COMMUNITY			CITY
INTERVENTION	**Urban Settlement-Level Flood Alarms** (Adaptation)	**Monsoon Action Plan (Community Preparedness for Monsoon Management Plan)** (Adaptation)	**Stormwater Drainage Infrastructure** (Adaptation)	**AI-Based Flood Management Plan** (Adaptation, Mitigation)
LIVELIHOOD OUTCOME	Localized early warning systems installed at key points in flood-prone areas are crucial to detect rising water levels. These simple alarms alert residents, especially at night, enabling timely evacuation, enhancing community safety. For home-based and informal workers who store tools and goods at home, these systems also help protect vital assets, prevent income loss, and strengthen both livelihood security and long-term flood resilience.	The heavy rainfall season poses significant risks to home-based workers, endangering their health, productivity, and livelihood assets due to waterlogging, water damage, and sanitation challenges. The Monsoon Action Plan is a community-driven preparedness initiative designed to mitigate these flood risks in vulnerable areas. It includes cleaning stormwater drains, establishing early warning systems, and strengthening emergency preparedness measures.	Storm water drainage infrastructure helps prevent water from accumulating and potentially damaging properties, directing rainwater from roofs, paved areas, and other surfaces away from buildings and infrastructure. Improved rainwater drainage infrastructure prevents waterlogging and frequent flooding in dense urban settlements—reducing damage to homes, tools, and workspaces and ensuring safer mobility for workers.	Using real-time data, predictive analytics, and machine learning to forecast rains and floods helps optimize response strategies, and enhances urban resilience against water-related disasters, enabling communities to prepare and protect their livelihoods. By optimizing resource allocation and response strategies, it minimizes damage to assets and ensures quicker recovery.
DEMONSTRATION AND IMPACT	The solution was successfully piloted in one community in Ahmedabad, yielding substantial results. Given its effectiveness, it can now be scaled and implemented in other communities to achieve similar positive outcomes.	Pre, during, and post-monsoon preparedness strategies were developed in collaboration with community members and local governments, and successfully implemented across three cities. Over 85 slums have actively developed and executed their own pre-monsoon action plans strengthening resilience to seasonal challenges.	Implemented infrastructure upgrades in Dhal ni Pol, a dense settlement in Ahmedabad's historic old city, including improved access to percolation wells and stormwater drainage as part of the heritage precinct development. These upgrades have enhanced water management and resilience, benefiting 800 households. Additionally, advocated with AMC for stormwater improvements in several slum settlements.	Implemented in Amalner, benefiting 1.05 lakh people at the city level. The initiative utilized Random Forum System AI technology, with a community-led AI model that was validated by the local community in Amalner. This approach ensured that the technology was tailored to the community's needs and had a direct, positive impact on residents' lives.
LOCATION	Ahmedabad	Ahmedabad, Surat, Delhi	Ahmedabad	Amalner
TYPE OF SOLUTION	Technology & Products	Process & Systems	Infrastructure & Services	Planning & Policy Process & Systems
COST	₹	₹ ₹	₹ ₹ ₹	₹ ₹ ₹
SOLUTION ENABLER	Private Enterprises	Government	Government	Research & Academia
CO-BENEFITS				
ALIGNMENT WITH GOVERNMENT POLICY		National Disaster Management Plan (NDMP) 2019	Atal Mission for Rejuvenation and Urban Transformation (AMRUT) Jal Shakti Abhiyan (JSA) Jal Jeevan Mission (JJM)	National Disaster Management Plan (NDMP) 2019

REDUCING
CARBON EMISSIONS & AIR POLLUTION

5 Interventions** in **6 Cities** aligning with **4 Government Policies

In 2019, 99% of the world's population lived in areas where air quality did not meet WHO guidelines (WHO, 2024). India is frequently cited among the most polluted countries, with 21 of the 30 most polluted cities globally located within the country (Britton, 2019). In urban areas, emissions from vehicles, industries, and construction are highly concentrated. Rising temperatures due to climate change further worsen air quality by increasing ground-level ozone and trapping pollutants. A growing challenge is the rapid loss of trees and green cover in cities, driven by unplanned urbanization and infrastructure expansion. This weakens the natural capacity of cities to filter air, cool temperatures, and absorb carbon emissions. The deteriorating air quality has severe consequences for public health, with rising cases of asthma, respiratory illnesses, and heat-related mortality, especially among the vulnerable groups.

Pollution is a major concern for outdoor workers in urban areas in India. Construction sites are of particular concern, where dust, machinery emissions, and vehicular pollution expose workers to hazardous air. Women make up 49% of India's construction workforce and face heightened risks (Clean Air Fund, 2023) —not only from respiratory illnesses like silicosis, but also from stress, depression, and memory loss—due to sustained exposure to toxic air.

This underscores the need to address air pollution not only as an environmental crisis but as a worker safety and equity issue.

In recent years, campaigns such as Help Delhi Breathe (HDB) have built coalitions to raise awareness of air pollution. As part of this coalition, MHT focused on supporting female construction workers in Delhi's resettlement colonies to engage in clean air advocacy. Women were trained to understand air quality scientifically, use AQI monitors, and report concerns through tools such as the Green Delhi app. They promoted simple protective measures at worksites including using masks, sprinkling water to control dust, and keeping children away, while also engaging local authorities to improve waste collection and reduce open burning (Clean Air Fund, 2023).

Campaigns provide opportunities to engage targeted groups and generate momentum for advancing the clean air agenda. Yet reducing carbon emissions and addressing air pollution remains a complex challenge, involving governance, urban planning, and technology. It requires sustained advocacy and coordinated action from the State, together with active collaboration with local communities. For instance, in cities such as Amalner, community-led greening initiatives have been scaled and adopted by the local government to guide the development of an urban forestry plan. To effectively mitigate air pollution and safeguard vulnerable workers, such interventions must be systematically integrated into urban planning and backed by dedicated budget allocations (Brahmbhatt, 2025).

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REDUCING
CARBON EMISSIONS & AIR POLLUTION

	HOUSEHOLD		COMMUNITY		CITY
INTERVENTION	**Air Filters and Purifiers** (Adaptation)	**Household Gardens & Greening Initiatives** (Adaptation)	**Training Women on Monitoring Air Quality** (Adaptation, Mitigation)	**Campaign for Air Pollution Reduction on Construction Sites** (Adaptation, Mitigation)	**Urban Forestry and Tree Census** (Adaptation, Mitigation)
LIVELIHOOD OUTCOME	Activated charcoal air filters offer an affordable and effecient way to remove moisture, odors, toxins, and pollutants from indoor air. They provide an effective, low-cost solution to improve air quality and protect respiratory health. It also ensures that workers continue their activities in healthier environments, reducing absenteeism due to illness and enhancing productivity.	Household gardens and greening initiatives improve air quality, enhance biodiversity, and reduce urban heat while boosting food security. They foster healthier, sustainable urban environments and create income-saving opportunities for the urban poor and informal workers.	Poor air quality disproportionately impacts informal workers, such as construction workers and vendors, who often work outdoors with limited protection from pollution, dust, and particles, leading to increased respiratory illnesses and reduced productivity. Home-based workers in poorly ventilated spaces are also vulnerable. Training women workers to monitor air quality empowers them to adopt safer practices and advocate effectively for stronger health policies.	Improving air quality by reducing air pollution via dust suppression, low-emission machinery, and waste management protects worker health, and helps them focus on their livelihood and further minimises environmental impact on construction sites.	Mapping and managing urban green cover at community and city level, improves air quality, reduces heat islands, and guides sustainable planning for healthier, greener cities.
DEMONSTRATION AND IMPACT	Provided air filters and purifiers to over 50 households in Delhi, improving indoor air quality and reducing respiratory health risks for vulnerable communities.	Communities planted 2,000 trees and developed 169 micro gardens in households across Amalner contributing to improving air quality, mitigating the urban heat island effect and enhancing food security at the household level. The initiative promotes sustainable, climate-adaptive living in dense urban settlements.	Trained 50 women in Delhi as community ambassadors equipped with AQI monitors to track air quality levels within neighborhoods. These ambassadors identify areas with high AQI readings, engage with residents through community discussions, and provide practical solutions for reducing air pollution and creating healthier living environments.	The campaign in Delhi spanned five settlements, raising awareness on rights, safety, and well-being of construction workers. Reached 1 lakh construction workers in the first year through a multi channel outreach strategy that included informational pamphlets, awareness sessions, audio-video announcements, murals, and folk media engagement.	15,02,162 trees planted across multiple cities. Amalner's city-wide greening plan aims to plant 25,000 trees across the city. 7,900 trees were planted in a single year. With an estimated carbon sequestration rate of 27 kg per tree annually, this is projected to sequester approximately 213 metric tons of carbon each year.
LOCATION	Delhi	Ahmedabad, Amalner, Delhi, Jaipur, Jodhpur and other cities MHT is working in	Delhi	Delhi	Amalner
TYPE OF SOLUTION	Technology & Products	Process & Systems	Process & Systems	Process & Systems	Planning & Policy
COST	₹	₹	₹	₹	₹ ₹ ₹
SOLUTION ENABLER	Private Enterprises	Non-Profit Partners	Non-Profit Partners	Non-Profit Partners	Government
CO-BENEFITS					
ALIGNMENT WITH GOVERNMENT POLICY	National Clean Air Programme	Green India Mission	National Clean Air Programme	NCAP	Green India Mission

ENABLING
EQUITABLE ENERGY ACCESS

5 Interventions** in **9 Cities** aligning with **5 Government Policies

As the world accelerates the transition to cleaner, low-carbon energy, it is critical to ensure that marginalized and low-income communities are not left behind. Equitable energy access is essential to improve health, livelihoods, and resilience to climate impacts. Globally, 2 billion people remain dependent on polluting and hazardous fuels such as firewood and charcoal and over 670 million people remain without electricity access (IEA et al., 2025), perpetuating health risks and deepening existing inequalities.

Despite India's progress in recent years in extending electricity to urban slum households, 13 lakh (1.3 million) homes still lack access to electricity for lighting needs (Census of India, 2011). Unreliable power supply and frequent outages remain significant barriers. The physical environment in informal settlements also affects energy needs and infrastructure. In tightly packed communities with limited natural light and ventilation, residents depend heavily on artificial lighting and cooling, driving up energy use and costs.

When homes double as workplaces, the challenges of energy poverty extend to poor women's work. Many low-income women depend on electricity for home-based work, such as operating sewing machines for embroidery or running small grocery shops with refrigerators. Basic infrastructure deficiencies, such as electricity shortages, hinder productivity, while utility costs eat into their available income.

Access to efficient and affordable energy is critical for low-income households, which often spend a substantial portion of their limited incomes on lighting, cooling, heating, and powering home-based livelihoods. Evidence from MHT's slum electrification work in Ahmedabad illustrates that residents, when supported through pro-poor service delivery mechanisms and suitable billing policies, demonstrate a strong willingness to obtain legal electricity connections and pay for reliable services, even when city tariffs are higher compared to other urban centers (WIEGO et al., 2021).

MHT has also piloted solar home systems and solar-based appliances to enhance the sustainability and cost efficiency of home-based livelihoods, while simultaneously enabling access to the Government of India's grid-connected solar rooftop program. In electricity-surplus states such as Gujarat, residential rooftop solar schemes hold significant potential for scale. However, uptake among low-income households remains limited. Several barriers constrain adoption: the physical constraints of densely packed, poorly constructed settlements limit the feasibility of rooftop installations; awareness of renewable energy options among residents is generally low; and high upfront costs coupled with insufficient financial support further restrict adoption (WIEGO et al., 2021).

These challenges highlight the need for structural reforms to advance equitable energy access. Key priorities include de-linking service delivery from land ownership, making legal electricity connections affordable for the urban poor, and simplifying procedures for accessing public services.

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ENABLING
EQUITABLE ENERGY ACCESS

	HOUSEHOLD				CITY
INTERVENTION	**Legal Electricity Connections**	**Energy Audit of Households**	**Energy-Efficient Products**	**Solar Home Systems & Solar Powered Appliances**	**Solar Solutions for Public Infrastructure**
LIVELIHOOD OUTCOME	Providing access to legal electricity ensures safe, reliable, and affordable energy, enhancing climate resilience by supporting essential needs like cooling, lighting, and overall well-being during extreme weather events. It creates comfortable living and working spaces, vital for sustaining livelihoods and improving quality of life for all.	Energy audits serve as an educational tool for households to evaluate energy consumption, understand usage patterns, and adopt energy-efficient practices. Simple adjustments like optimizing light points, using lower wattage appliances, or splitting circuits based on needs can significantly reduce energy costs and improve efficiency.	Enhancing climate resilience by reducing energy consumption, lowering emissions, and promoting sustainability via usage of LED lighting and energy-efficient appliances can help communities reduce utility expenses, improve indoor comfort for home-based work, and extend usable work hours.	Enhancing climate resilience by providing renewable energy and sustainable solutions like solar-powered lights, fans, and coolers—reduces the dependence on unreliable grid power. This improves energy security in vulnerable areas, supports home-based work, extends working hours, and protects livelihoods during heatwaves and outages.	Promoting the adoption of solar technologies in city-level infrastructure enhances energy efficiency, reduces dependence on non-renewable sources, and lowers carbon emissions. Solar integration in public buildings, transportation, and urban utilities fosters sustainable urban development and strengthens climate resilience.
DEMONSTRATION AND IMPACT	Enabled 1,83,049 households to access grid electricity, enhancing energy reliability, reducing dependence on unsafe and polluting alternatives, and supporting the growth of home-based livelihoods—particularly for women and low-income families. This initiative strengthens both household well-being and economic resilience.	Trained over 150 energy auditors to become micro-entrepreneurs, equipping them to deliver services and green energy appliances and technologies at the community level. Additionally, 16,000 women trained as Climate Resilient Specialists, building local capacity to drive climate action across vulnerable urban settlements.	54,941 low-income households across seven cities have adopted energy-saving solutions including LED lights, energy-efficient fans, and appliances. These interventions have helped reduce energy costs, enhance indoor comfort, and strengthen the viability of home-based livelihoods, especially for women and marginalized communities.	Rooftop solar panels in 2,554 households in low-income settlements provide clean energy and reduce electricity bills. Surplus energy is credited back by the power company, delivering economic savings. Solar panels installed in public housing reduced energy consumption for shared facilities like water pumps and lighting.	11 residential schools in Vyara were solarized providing reliable, clean energy for students. Supported the solarization of five municipal pumping stations in Amalner adding 78 kWh of solar capacity citywide. This reduced electricity costs for water pumping ensuring more frequent water supply for 1.15 lakh households.
LOCATION	Ahmedabad, Jaipur, Delhi	Ahmedabad, Bhopal	Ahmedabad, Bhopal, Surat, Delhi, Ranchi, Jodhpur, Jaipur	Ahmedabad, Surat, Vyara	Amalner
TYPE OF SOLUTION	Infrastructure & Services	Process & Systems	Technology & Products	Technology & Products	Technology & Products
COST	₹	₹	₹	₹ ₹	₹ ₹ ₹
SOLUTION ENABLER	Government	Non-Profit Partners	Private Enterprises	Government	Government
CO-BENEFITS					
ALIGNMENT WITH GOVERNMENT POLICY	National Electricity Policy Muft Bijli Yojana	Ujjala Scheme (BEE)	Ujjala Scheme (BEE)	National Solar Mission Pradhan Mantri Surya Ghar Scheme	PM Surya Ghar: Muft Bijli Yojana

Adaptation

INTEGRATING CLIMATE RESILIENCE PLANNING

6 Interventions** in **12 Cities** aligning with **2 Government Policies

Multiple climate threats such as extreme heat, water scarcity, and increasing weather unpredictability pose severe challenges, especially for low-income groups who face heightened vulnerability and uncertainty. The root causes of their vulnerability lie in a combination of their geographical locations; their financial, socio-economic, cultural, and social status; and their access to resources, services, and decision-making power (World Bank Group, 2025). Addressing this requires innovative tools and collective measures at the household, community, and state levels that can minimize risks and support quicker recovery.

In India, these risks are intensified in urban informal settlements, where housing is often poorly constructed, drainage systems inadequate, and access to basic services limited for the poor. For informal workers, such as home-based producers, street vendors, construction laborers, and waste pickers, climate shocks translate into health risks, loss of workdays, and declining incomes. Those with climate-sensitive and precarious livelihoods are often least able to adapt, with limited access to adaptation options and little influence on decision-making (Birkmann et al., 2022). Women in these sectors face compounded challenges, balancing economic activity with household responsibilities.

A recent study by SEWA reveals that women in the informal economy are highly aware of the impacts of climate change on their lives and livelihoods. However, they have limited understanding of its scientific basis, as well as of adaptation and mitigation strategies. Strengthening this knowledge would enable them to engage more meaningfully in local action and to advocate for their specific needs within adaptation and mitigation efforts (Jenkin & Kalsi, 2024). A central aspect of MHT's work on climate change has been Community-Based Vulnerability Assessments (CBVAT) and Community-Based Resilience Action Planning (CBRAP), which include focused capacity-building to equip women to identify the specific climate risks they face such as extreme heat, flooding, and water scarcity, and to map vulnerabilities related to housing, water and sanitation, health, and livelihoods.

The findings inform community-level resilience action plans that integrate housing improvements, basic services, and disaster preparedness measures. These plans then serve as a foundation for engaging local governments and demanding improved services. Supporting resilience planning with financial solutions such as climate credit loans and parametric insurance schemes, where payouts are automatically triggered by extreme heat events can significantly reduce the impacts of climate risks. (Brahmbhatt, 2025).

While working with communities, MHT also recognizes the need to advocate for the inclusion of women informal workers' needs in State-level Climate Action Plans and policies. Moving forward, an integrated, cross-departmental approach will be essential. Climate change considerations should cut across welfare, labour, urban planning, and infrastructure policies to comprehensively address the vulnerabilities of informal workers (Brahmbhatt, 2025).

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INTEGRATING
CLIMATE RESILIENCE PLANNING

	HOUSEHOLD		COMMUNITY		CITY	
INTERVENTION	**Parametric Climate Risk Insurance** (Adaptation)	**Climate Credit Financing Loans** (Adaptation)	**State-Level Climate Policy Integration** (Adaptation)	**Climate Resilient Vending Zones** (Adaptation)	**Community-Based Vulnerability Assessments & Resilience Action Plans (CBVAT / CBRAP)** (Adaptation)	**Integrated Slum Development Plan** (Adaptation)
LIVELIHOOD OUTCOME	Parametric climate risk insurance provides swift financial support based on predefined triggers like rainfall or temperature thresholds that enables vulnerable communities and informal workers to recover quickly from climate shocks, replacing lost income or assets, resuming livelihoods with minimal disruption, while enhancing resilience and economic stability.	Offering affordable micro-loans for climate-resilient upgrades such as solar installations, electric vehicles, energy effecient appliances reduces long-term costs, improves living and working conditions and enables small-scale entrepreneurs to invest in sustainable practices—enhancing productivity, income security, and resilience to climate-related risks.	Integrating community-led and local climate initiatives into state-level climate policies ensures a grassroots-up perspective. This approach provides a pathway to scale systems and processes that strengthen policies addressing climate resilience, mitigation, and adaptation, promoting sustainable development and risk reduction.	Providing shaded, well-ventilated spaces for street vendors, reduces heat exposure and improves working conditions. These zones enhance productivity, income stability, and safety, protecting livelihoods from climate-related disruptions while promoting sustainable urban spaces.	Engaging local communities to identify climate risks, assess vulnerabilities, and develop tailored resilience strategies, ensuring inclusive and sustainable urban development.	Integrated slum development plans combine improvements in housing, infrastructure and access to services with community participation to create safer, healthier living environments. By addressing specific vulnerabilities, these plans enhance climate resilience and empower communities to adapt and recover more quickly, ensuring sustainable livelihoods and improved quality of life.
DEMONSTRATION AND IMPACT	Designed a parametric heat insurance product to support 26,000 families, primarily women, living in heatwave-prone zones across Gujarat. They facilitated collaboration with various stakeholders to ensure effective training, enrollment, and smooth implementation of the program throughout the coverage period, including support during claims settlement.	Awaas Sewa, instituted as a technical service provider collaborates with women-led financing cooperatives to design climate loans as a specialized portfolio. 10,206 housing loans have been issued for solutions like solar energy systems, energy-efficient appliances, electric vehicles, bio-gas plants, cool roofs, and disaster-proofing homes.	Supported the integration of key community-driven initiatives within state-level climate policies reinforcing localized climate action. Policy alignments include the Majhi Vasundhara scheme in Amalner, the Cool Roof Policy in Ahmedabad, Heat Action Plan in Jodhpur, Water Management Plans in Amalner and Ranchi, Solid Waste Management strategy in Jaipur, Malaria Abolition Plan in Bhopal, and the Climate Action Plan in Patan, demonstrating the potential of multi-level governance in driving impactful, community-rooted climate solutions.	Collaborated with Rajkot Municipal Corporation to identify 9-10 vending zones with a high concentration of women vendors out of 86 zones, to study the intersection of climate and gender impacts. A six-month study was launched in 2025 to assess vulnerabilities and resilience needs of women in informal vending. Key findings and actionable recommendations will be shared to enhance climate resilience, support sustainable livelihoods, and improve safety for informal women workers in these zones.	Enabled the implementation of CBVAT/CBRAP across more than 200 slums, strengthening community-based planning and vulnerability assessment processes to build more resilient and inclusive urban neighborhoods.	Facilitated the development of over 115 slum development plans, promoting inclusive, community-driven approaches to upgrading infrastructure, improving living conditions, and enhancing resilience in urban informal settlements.
LOCATION	Ahmedabad, Baroda, Surat	Ahmedabad, Baroda, Surat	Amalner	Rajkot	Ahmedbad, Jaipur, Jodhpur, Delhi, Bhopal, Ranchi, Surat, Bangalore	Ahmedbad, Surat, Bhubaneshwar and Jaipur
TYPE OF SOLUTION	Technology & Products	Technology & Products	Planning & Policy	Planning & Policy	Process & Systems	Process & Systems
COST	₹	₹		₹ ₹ ₹	₹	₹
SOLUTION ENABLER	Private Enterprises	Non-Profit Partners	Government	Government	Community Action Group	Government
CO-BENEFITS						
ALIGNMENT WITH GOVERNMENT POLICY		Ujjala Scheme (BEE)	State Climate Action Plan (SCAP), National Action Plan on Climate Change (NAPCC)		Climate Change Policy	

FACILITATING
SOCIAL PROTECTION & ENTITLEMENTS

3 Interventions** in **8 Cities** aligning with **3 Government Policies

Access to social protection such as food subsidies, pensions, healthcare, and insurance is vital for building resilience against climate change impacts. These safety nets help vulnerable communities adapt, recover, and safeguard livelihoods. Secure land and housing, with basic amenities, are equally central to well-being and resilience. Without such protections, marginalized populations face compounded risks that deepen poverty and undermine adaptation efforts.

India's national government has introduced several entitlement schemes: the Public Distribution System (PDS) provides subsidized food grains; the Pradhan Mantri Jan Dhan Yojana (PMJDY) promotes financial inclusion; and the Pradhan Mantri Awas Yojana (PMAY) seeks to provide affordable housing. Additional schemes specifically target women, such as widow pensions and maternity and healthcare benefits.Yet women face persistent barriers to access due to patriarchal norms, procedural hurdles, and opportunity costs of navigating complex processes (Chatterjee, 2023).

SEWA's experience shows that comprehensive protection for informal women workers and their families must include health care, including occupational health and maternity care, child care, insurance, pension and housing with basic amenities like a tap and toilet in every home and electricity or solar energy. These services should be universal, co-created with women, delivered near where they live or work, and integrated with livelihoods, while also addressing information gaps and digital divides to ensure equitable access (Chatterjee, 2023) .

MHT facilitates access to entitlements for poor households by raising awareness, helping open bank accounts, navigating complex administrative processes, and strengthening the social and economic resilience of low-income communities. These efforts serve as critical first steps toward engaging communities in broader initiatives to improve living conditions, build climate resilience, and advocate for better city-level policies (Brahmbhatt, 2025).

Yet, social protection alone is insufficient. Housing and tenure security remain critical gaps in supporting women's livelihoods and resilience. Public housing projects are often located on the urban periphery, disconnected from jobs and social networks, and constructed with materials that exacerbate heat stress while providing poor light and ventilation. For households in informal settlements, the absence of tenure security compounds precarity: without legal recognition, families face eviction threats and are unable to access essential services, subsidies, and social protection schemes (WIEGO et al., 2021).

Despite this, slum upgrading programs do not figure prominently in national priorities. Instead, current policy approaches often privilege sector-specific, siloed interventions such as cool roofs, standalone toilets, or waste management projects that address individual deficits but forfeit the compounded benefits of an integrated approach. Integrating secure housing, tenure rights, and basic services into social protection frameworks would not only strengthen climate resilience but also safeguard the livelihoods and well-being of women informal workers and their families (Brahmbhatt, 2025).

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MHT WIEGO Women in Informal Employment: Globalizing and Organizing CITYCOLLAB

FACILITATING
SOCIAL PROTECTION & ENTITLEMENTS

HOUSEHOLD

INTERVENTION	**Improving Access to Government Housing Programs for Urban Poor**	**Securing Land & Property Rights**	**Facilitating Access to Government Schemes & Entitlements**
LIVELIHOOD OUTCOME	Improving access to government housing programs for urban poor involves simplifying the application processes, increasing awareness, and ensuring affordable, quality housing options, fostering better living conditions and social equity. Secure shelter enables urban poor to invest in home-based livelihoods, reduce climate vulnerability, and focus on income-generating activities without fear of displacement.	Ensuring legal ownership and stable housing, with a pragmatic gradualist approach, using measures like no-eviction guarantees, occupancy certificates supports incremental progress, while also pursuing formal property and land titles as a long-term goal. This enables families to invest confidently in home-based enterprises, access credit, and safeguard livelihood assets—paving the way for long-term income stability.	Ensuring vulnerable communities access government schemes like the public distribution system for food security, pensions, insurance, healthcare, and labor card registration directly strengthens livelihood security. These entitlements provide vital buffers against climate-induced shocks, securing food security, health, and income continuity to help families recover faster and sustain livelihoods during crises.
DEMONSTRATION AND IMPACT	Over 31,000 households have been supported in securing formal housing and forming Resident Welfare Associations (RWAs) to actively manage their communities, promoting long-term ownership and sustainability. Drawing from this mobilization experience and extensive fieldwork, MHT introduced process reforms in Gujarat State and national policies to ensure community, especially women's, active involvement in redevelopment and formal housing processes.	Supported the registration of 25,166 property titles, with 24,979 women gaining joint or sole ownership or tenure rights. This initiative not only ensures legal housing security for low-income families but also enhances women's economic agency, empowering them to secure their livelihoods and build long-term resilience.	Facilitated access to social security schemes and entitlements for over 1 lakh households, strengthening the social and economic resilience of low-income communities by ensuring they receive critical benefits and support.
LOCATION	Ahmedabad, Ranchi, Jodhpur, Jaipur	Ahmedabad, Jaipur, Delhi, Vyara, Ranchi	Ranchi, Delhi, Banglore, Jaipur, Jodhpur, Ahmedabad, Surat and other cities MHT is working in
TYPE OF SOLUTION	Process & Systems	Process & Systems	Process & Systems
COST	₹ ₹ ₹	₹ ₹ ₹	₹
SOLUTION ENABLER	Government	Government	Government
CO-BENEFITS			
ALIGNMENT WITH GOVERNMENT POLICY	Pradhan Mantri Awas Yojana (PMAY)	State Housing Policies and Land Title Policies	Respective social security policies and schemes national

Adaptation

Adaptation

Adaptation

IMPROVING
SANITATION & HYGIENE

4 Interventions** in **12 Cities** aligning with **3 Government Policies

With two-thirds of the global population projected to live in cities by 2030—many in informal settlements with limited infrastructure—ensuring access to safe and sanitary living conditions is increasingly urgent for improving quality of life in fast-growing urban areas. It is also a critical element of climate risk mitigation, particularly in densely populated, low-income neighborhoods. Improved sanitation and hygiene can prevent outbreaks of waterborne diseases, which frequently intensify during floods and extreme weather events. Improved WASH systems enhance both community wellbeing and climate resilience. Key outcomes include increased household wealth through more secure and diversified livelihoods; community empowerment via enhanced social capital and safety, particularly for women; improved access to education; and better community health. (Omasete et al., 2022).

In India's informal settlements, poor sanitation and waste management create hazardous living environments. Waterlogging, sewage mixing with drinking water, and irregular garbage collection heighten the risk of disease outbreaks while spilling over into public and private spaces, directly affecting how people live and work. For home-based workers without adequate sanitation, cramped dwellings become sites of constant exposure to unsanitary conditions, resulting in heightened health risks, rising medical costs, and disruptions to both household and income-generating activities. Outdoor workers such as street vendors, waste pickers, and construction laborers also face daily exposure. Long hours in markets, streets, and worksites without safe toilets or proper waste disposal expose them to infection and illness, while accumulated garbage and open drains reduce productivity and add daily strain to their livelihoods. Most Indian cities emphasize shared sanitation facilities in poor settlements. However, MHT has consistently advocated for individual toilets, given their direct impact on women's health, productivity, and dignity. Alongside infrastructure provision, the organization has trained women to monitor water quality, mobilize residents for waste segregation, and lead efforts in vector surveillance, strengthening both agency and resilience at the grassroots level. Beginning with the Parivartan Slum Network Program in Ahmedabad, which provided integrated services of water, sanitation, waste management, and paved roads, these efforts have since extended to multiple cities. MHT's approach has involved mobilizing community groups to press for services, assisting households in accessing government subsidies for individual toilets, and supporting connections to water and sewage networks where possible. (WIEGO et al., 2021).

Yet systemic challenges remain. National policies often prioritize new housing construction over upgrading basic infrastructure in dense existing settlements, leaving sanitation deficits unresolved. Smaller municipalities face funding shortages, technical limitations, and infrastructural constraints that prevent services from being extended at scale. Addressing these gaps requires governments to integrate sanitation improvements in slum communities within broader urban planning frameworks and ensure that community-driven approaches are embedded in citywide systems (Brahmbhatt, 2025).

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IMPROVING
SANITATION & HYGIENE

	HOUSEHOLD			COMMUNITY
INTERVENTION	**Individual Toilets**	**Waste Segregation Initiatives**	**Improving Water Quality**	**Vector-borne Disease Management**
LIVELIHOOD OUTCOME	Building individual, household level toilets to improve sanitation access, promotes hygiene and reduce waterborne diseases, contributing to climate resilience by preventing contamination of water sources and ensuring better health in the face of extreme weather events. It reduces any disease related income loss and saves time spent accessing distant facilities.	Improved waste segregation, efficient collection, recycling, and clean processing not only create cleaner cities and reduce landfill waste but also significantly lower greenhouse gas emissions. Formalizing these practices, coupled with social security support, ensures secure and dignified livelihoods for informal waste workers, acknowledging their vital contribution to building sustainable and inclusive urban ecosystems.	Safe drinking water is ensured through regular testing and the use of methods like copper vessels, purifiers, and purifying drops, effectively reducing contamination and preventing waterborne diseases. Beyond safeguarding health, these measures have significant impact on women's livelihoods by lowering healthcare burdens, enhancing family well-being, and freeing up time and energy for women to engage in income-generating activities.	Effective vector-borne disease management integrates regular surveillance, sanitation drives, mosquito repellent devices, and targeted awareness campaigns to control disease spread in vulnerable settlements. By training community health workers to identify mosquito breeding grounds, inspect homes, and educate families, the approach emphasizes early prevention. These interventions enhance overall health and help reducies medical expenses.
DEMONSTRATION AND IMPACT	Facilitated the construction of nearly 60,000 household toilets across Indian cities. Partnered with local governments in Amalner and Bharuch to achieve open defecation-free status by constructing toilets and promoting behavioral change toward consistent toilet usage, significantly improving public health in underserved communities.	Launched awareness campaigns on WATSAN services and practices, climate change, and livelihoods, reaching over 96 lakh individuals. Promoted better waste management practices in slums in Delhi and Lucknow, enhancing community participation in environmental sustainability.	Engaged over 16,000 women across multiple cities to gather critical evidence on climate risks, including water quality issues. In Amalner, trained 25 women as Water Managers, empowering them to oversee well-recharge, monitor water quality, and implement water-saving measures. The data enabled grassroots leaders to successfully advocate for improved water systems, including clearing drains, paving streets and connecting water and sewer lines.	Mobilized an average of 300+ women across six cities to collect evidence of climate risks, with a focus on vector surveillance. In informal settlements. Trained community women and children, designated as "Child Doctors" to identify mosquito larvae in stagnant water and monitor specific breeding sites. To date, over 500 Child Doctors and women have actively contributed to this grassroots vector surveillance.
LOCATION	Ahmedabad, Surat, Jaipur, Bhopal, Ranchi, Bhubneshwar, Jodhpur, Delhi, Lucknow, Bharuch	Delhi, Luckhnow	Amalner, Delhi, Ahmedabad, Ranchi, Bhopal, Jaipur, Banglore and other cities that MHT is working in	Ahmedabad, Jaipur, Delhi, Bhopal, Ranchi,Banglore, Lucknow, Bhubaneshwar
TYPE OF SOLUTION	Infrastructure & Services	Process & Systems Technology & Products	Process & Systems Technology & Products	Process & Systems Technology & Products
COST	₹	₹	₹	₹
SOLUTION ENABLER	Government	Community Action Group	Community Action Group	Community Action Group
CO-BENEFITS				
ALIGNMENT WITH GOVERNMENT POLICY	Swachh Bharat Mission (SBM)	Swachh Bharat Mission (SBM)	National Water Policy (NWP) National Water Mission (NWM)	National Vector Borne Disease Control Programme (NVBDCP)