WOMEN'S ACTION TOWARDS CLIMATE RESILIENCE OF URBAN POOR IN SOUTH ASIA

THE LONGITUDINAL STUDY REPORT

FEBRUARY **2020**

MHT

IN PARTNERSHIP WITH

USAID

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ABBREVIATIONS

AMC- Ahmedabad Municipal Corporation
AUDA- Ahmedabad Urban Development Authority
BMC- Bhopal Municipal Corporation
CAG- Community Action Group
CBO- Community Based Organisation
GRP- Global Resilience Partnership
IDI- In-Depth Interview
MHT- Mahila Housing SEWA Trust
ULB- Urban Local Bodies

DEFINITIONS

CAG: A Community Action Group (CAG) is a slum-level representative association formed through a majority consensus of the CBO (Community Based Organisation) that works towards the community's development.

CBO: Households in a community included in the household listing who are represented by a woman member form the Community Based Organisation (CBO).

Child Doctors: Adolescents were trained during the project to investigate sites of breeding of mosquitoes in their communities and shared information on how this can be prevented.

Emerging sites (slum or city): 'Emerging' cities or slums are those where MHT's engagement is more recent and we are still developing community social capital. This applies to any slum in cities other than Ahmedabad (including Bhopal and Jaipur) and slums in Ahmedabad that where MHT had not previously worked before the start of the GRP project.

Established sites (slum or city): 'Established', when used in the context of a city or slum, is one where MHT had a presence before start of the GRP project and had built significant social capital through its work and partnerships with local government, civil society organisations, and communities. This applies to Ahmedabad as a city and some of the slums within Ahmedabad where MHT had previously worked.

Vikasini: A Vikasini is a woman leader who works in different communities towards the city's development, and participates in the city's policy-making process.

ACKNOWLEDGEMENT

This report is a product of the collective effort of the MHT team and our partners.
We wish to thank Prof. Michel Elliott who has guided the design, implementation, and analysis process. He has pushed us to ask the right questions and helped reflect on our journey so far.
The MHT staff across three cities from Project Managers and City Coordinators to Spearhead team members and Vikasinis have been critical in the data collection and coordination process.
Our partners- Ward Councillors, Department Heads in the Municipal Corporation, and NGO partners- have helped us develop our understanding of the social capital model by shedding light on the relationship they share with the CAGs and Vikasinis.
This research would not have been possible without the continued engagement of CAG members and Vikasinis. They drive the work that we do and have enabled our learning.

INTRODUCTION

The "Women led Resilience Building of Urban Poor in South Asia" project was developed by Mahila Housing SEWA Trust (MHT) and its partners as a part of the Global Resilience Partnership (GRP) challenge. The project aimed to build the resilience capacities of 25,000 low income families living in 100 slums/informal settlements in seven cities of South Asia, to take the lead in action against four climate risks. The four climate stressors – heat waves; flooding and inundation; water scarcity; and vector-borne diseases – are slower onset and attract less attention, but often impact the poor most, compared to other forms of natural disasters and extreme events.

The project worked to create an integrated model wherein women take a lead through collective action and technology incubation, to devise locally relevant pro-poor and gender sensitive climate resilient solutions and promote a culture of sustainable development and resilience among the urban poor in South Asia.[1]
Originally designed as a 36-month long project, it was revised to an **18-month project** with minimal changes in the proposed activities. This created a serious time crunch for the partners to deliver.

The project builds on the conviction that if the urban poor are provided with the requisite knowledge to undertake vulnerability and risk assessments, and are equipped with available resilient technologies, they will be able to devise and implement locally relevant and pro-poor climate resilient solutions.

THEORY OF CHANGE

> Moreover, if the poor are empowered to implement their own resilience plans, and the institutional mechanisms representing their voices are in place, they will be able to better influence city planning and governance on pro-poor adaptation and resilience action.

Our model focuses on building the capacities of the community themselves to take action and prepare for future climate risks. Thus, while technological innovations are critical solutions for climate resilience, the core of the programme remains the building of social capital.

[1]Parts of the insights on the activities and learnings from the project have been taken from the original process case analysis report titled, 'Women's Action towards Climate Resilience of Urban Poor in South Asia: Project Evaluation Report', May 31st, 2018.

PROJECT OVERVIEW

The Global Resilience Partnership (GRP) project was developed in 2015 as a consortium of 18 community NGO, academic, technical, and governmental partners. Originally designed as a 36-month intervention, the project was concluded in 18-months after initial funding (due to changes in the funders' timeline) in December 2017.

I. ORIGINAL PROJECT OBJECTIVES

The strategies adopted in the project included:

1. Organising women at the community (individual slum) level to engage issues associated with climate change stressors by forming Community Action Groups (CAGs);
2. Promoting a city level forum for poor women to link activities from individual communities to form an effective force for city-wide improvements;
3. Providing leadership training at both the community and city-wide levels;
4. Organising multi-stakeholder events;
5. Providing climate change trainings and engaging in communication activities to increase understanding of threats and options associated with climate change stressors;
6. Conducting Community Based Vulnerability Assessment and Resilience Action Planning to assess pre-existing conditions;
7. Implementing Community-Based Surveillance to allow community residents to track changes in climate change stressors;
8. Testing new pro-poor climate change resilience technologies, validating their efficacy and disseminating the results; and
9. Influencing City Government Policies

II. PROJECT CONTEXT

Mahila Housing SEWA Trust (MHT) began work in Ahmedabad's informal settlement communities 25 years ago, and in Bhopal and Jaipur two years prior to the onset of the GRP climate residence project. As a learning organisation, MHT strives to continuously improve knowledge that has grown from its extensive experience of working in communities. **The GRP project played a critical role in the organisation's articulation of its work through a lens of climate resilience. This shift has enabled it to also adapt various aspects of the GRP project to its other work on housing, sanitation, and energy.** In this process, it is essential to revisit and reassess the impact that the project has had beyond its duration.

As context for the 18-month project duration, on an average, community mobilisation, formation and training of Community Action Groups (CAGs) took approximately 12 months in communities that initially lacked CAGs.

Co-creating and implementing activities with CAGs during the 18-month project duration therefore proved a critical challenge for these "emerging"[2] (as opposed to established[3]) slums. Similarly, development of creative communication material and initial pilot technologies took between 8 to 12 months, with community education and awareness programs conducted in the second half of the project timeline.

There has been significant literature on behavioural change and one of the often cited models for behavioural change, especially in the context of this kind of social change, is the transtheoretical model. The model states that there are five stages of behavioural change- precontemplation, contemplation, preparation, action and maintenance.[4] This process, in itself, requires continued and long-term engagement. When the GRP project is examined in the context of this model, more insights are gained. In informal settlements, communities are faced with immediate concerns related to livelihood, health, and access to basic amenities. For the women of these communities, strict gendered roles also restrict their engagement with the outside world. With these two factors in mind, the challenges to prioritise and take action on climate change become conspicuous. Thus, several obstacles in the creation and sustenance of social capital emerged due to the lack of adequate time to institutionalise behavioural change.

[2]Emerging slums are slums where MHT did not already have a presence. These were new intervention sites, and were especially challenging as relationship building in these informal communities take extensive continuous engagement over a long period of time.

[3]Established', when used in the context of a city or slum, is one where MHT had a presence before start of the GRP project and had built significant social capital through its work and partnerships with local government, civil society organisations, and communities. This applies to Ahmedabad as a city and some of the slums within Ahmedabad where MHT had previously worked.

[4]Communication for Governance and Accountability Program, 'Theories of Behavior Change, World Bank. Accessed on 5th February, 2020. http://siteresources.worldbank.org/EXTGOVACC/Resources/BehaviorChangeweb.pdf

Following the conclusion of the project in December 2017, MHT evaluated the outcomes of its interventions. Beginning in the second half of 2019, MHT designed and implemented a longitudinal study to examine the long-lasting impact of the project. The study used mixed methods to identify change at both the individual household level and within communities and MHT. To measure changes in household resilience, this evaluation replicates the baseline and endline household surveys conducted in the original 2017 evaluation. To measure impacts on communities, this evaluation extends the qualitative research conducted within slum communities in the original 2017 evaluation.

This evaluation report seeks to examine the extent to which changes initiated in this Global Resilience Partnership project continue to influence community efforts to manage climate risk and improve household and community resilience, two years after completion of the project.

This report presents the results of the new evaluation study and should be read as part of a series of research that MHT has conducted since completion of the project.

RESEARCH DESIGN

RESEARCH QUESTIONS

Four major themes were explored through a mixed research methodology:

1 To what extent do slum dwellers living in informal settlements maintain higher levels of resilience in their physical household environments, attitudes and behaviour following completion of resilience interventions?

2 To what extent does slum-level community leadership maintain interest, knowledge and action needed to promote climate change resilience?

3 To what extent does city-wide community leadership (Vikasinis) maintain interest, knowledge and action needed to promote climate change resilience at the city level?

4 To what extent does the intervention agency (Mahila Housing SEWA Trust) continue to incorporate resilience knowledge and action into the mainstream work of the organisation, post-completion of the project.

RESEARCH DESIGN

The first theme is tackled through a quantitative survey of residents while the other three are examined through qualitative research.

I. QUANTITATIVE RESEARCH DESIGN

In order to identify changes in the past 1.5 years, the longitudinal survey mirrors the baseline and endline surveys conducted at the start (2016) and end (2017) of the project. The survey replicated the questions used in the original surveys to measure the continued level of understanding within women heads of households as well as actions taken by those households to build climate resilience.
The surveys were conducted in 16 of the same slums (400 households) as the baseline and endline. In as much as possible, the households surveyed in the 2016-2017 baseline and endline were identified and interviewed again, thus allowing the researchers to examine change in particular households over time. In addition, four of these slums (two each in Ahmedabad and Bhopal) are further explored within the qualitative analysis, with one further case added in Ahmedabad to illustrate important dynamics.

AHMEDABAD	BHOPAL	JAIPUR
4 established slums & 4 emerging slums 25 households per slum	4 emerging slums 25 households per slum	4 emerging slums 25 households per slum

400 households (HHs) were surveyed

It should be noted that all the households surveyed were not the exact same as those in the endline. While the aim was to keep it as close to the original sample as possible, only about 48.5% of the households had been surveyed in the original baseline and endline. The surveys were conducted orally and in-person, with the interviewer making up to three attempts to identify the original respondents. If original respondents had moved or if they were not at home after three efforts, neighbouring residents were surveyed in their stead. Therefore, 51.5% of women surveyed for this evaluation did not participate in the original GRP project evaluation but were part of the activities conducted during the project.

OVERALL NO. OF HHS SURVEYED

	LONGITUDINAL	ENDLINE	SAME HHs AS IN ENDLINE & LONGITUDINAL
AHMEDABAD	200	148	97
BHOPAL	100	80	50
JAIPUR	100	85	47
	400 HHs	313 HHs	194 HHs

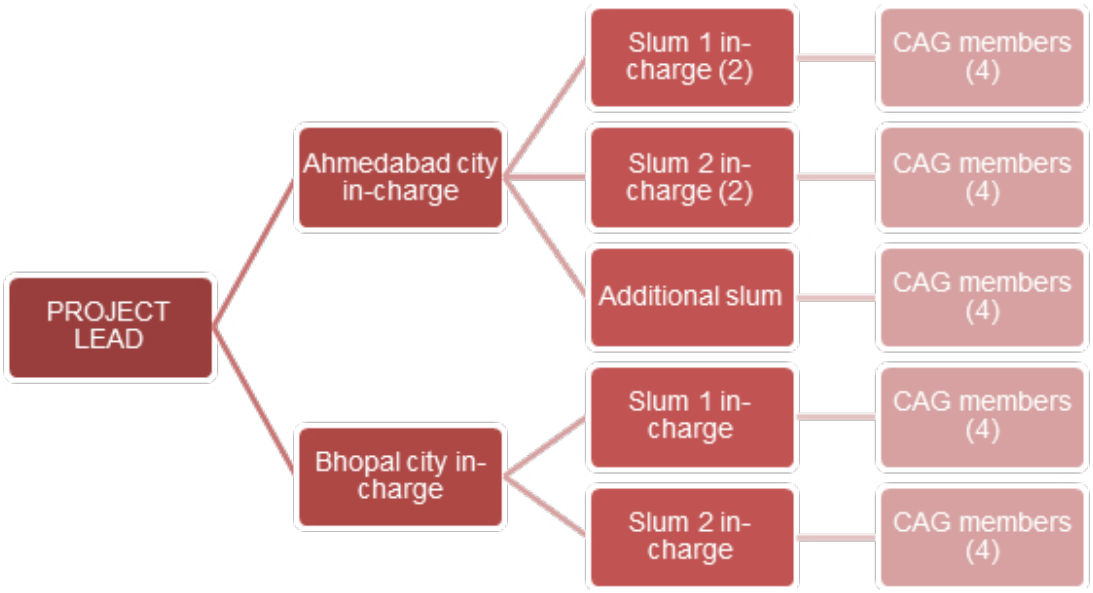
II. QUALITATIVE RESEARCH DESIGN

To understand changes at the slum, city and organisational level, the research team conducted in-depth interviews to build case studies of five slums (three in Ahmedabad and two in Bhopal). The interviewees included MHT staff, CAG members, Vikasinis and stakeholders such as local government officials and MHT partners. The research was divided into two phases: the first phase explored the overall impact of the GRP project and the role of the Community Action Groups (CAGs) in their slums while the second phase examined the role that Vikasinis play at the slum and city level.

The cities chosen for the qualitative were Ahmedabad and Bhopal. MHT's head office is located in Ahmedabad and has been working in the city over the past 25 years. Over these years, the organisation has worked extensively with the local and state government, building strong partnerships with both. In this context, it becomes critical to understand how the community action groups function, and what role the established infrastructure and mechanisms play in sustaining them. In contrast, MHT had been working in Bhopal only for a couple of years when the GRP project was implemented. The city office is significantly smaller than the head office, both in terms of staff and mandate, and it is still developing its unique identity in the city. What then, is the role of the CAGs, Vikasinis and MHT in such contexts?

PHASE 1:

Using the original case analysis report as the basis for the longitudinal study, the slums were selected to match informal settlement communities included in the 2017 study, except for one additional slum in Ahmedabad that presents interesting insights into the functioning of the CAG.
This phase included in-depth interviews (IDIs) with MHT staff and CAG members in Ahmedabad and Bhopal (the two cities studied in the original case analysis- one established and one emerging). A total of 27 interviews were conducted.



PHASE 2:

Phase 2 focused on the growth and role of Vikasinis (city-wide organization of women slum residents). In order to develop a comprehensive picture of the role that the Vikasinis have come to play, Vikasinis from both cities and external stakeholders were interviewed across Ahmedabad and Bhopal. A total of 20 interviews were conducted in this phase: 10 Vikasinis (5 in each city), and 10 external stakeholders (5 in each city).

HOUSEHOLD RESILIENCE VIS-À-VIS FOUR CLIMATE STRESSORS

The GRP project sought to increase the capacity of households to understand and act to improve climate resilience, while piloting contextually relevant, affordable, accessible and adaptable climate resilience solutions. To understand the long-term impact of the project, MHT researchers surveyed residents of slums, as noted above, to assess understanding of climate change and application of solutions on each of the stressors.
The surveys indicate that slum communities have readily adopted more incremental and less expensive technologies such as sprinkler taps and energy efficient bulbs and have made small behavioural changes that are reflected in their everyday life. While more comprehensive improvements such as modular roof or air ventilation sheets have not been adopted by GRP intervention slums, there has been significant uptake of modular roof technology in other slums of Ahmedabad.
Through its goal to incorporate climate resilience into its work beyond the GRP project, MHT has linked slum residents with credit cooperatives for the adoption of modular roof technology, assisting over 350 households in Ahmedabad and Surat in accessing the technology.

Most strikingly, residents' understanding of climate change has improved significantly. At the end of the project 13.42% of the respondents still believed that climate change is an act of god. Since then, this figure has fallen to a mere 3.25%.

> The project's greatest success has been in people's very understanding of climate change, with 96.75% of respondents recognising that climate change is man-made.

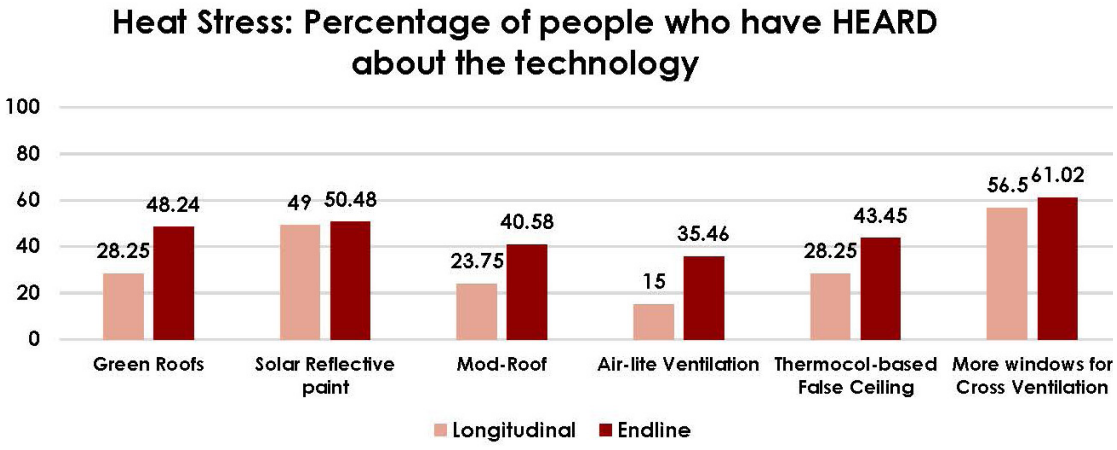
I. HEAT STRESS

Since completion of the GRP project in 2017, residents' understanding or memory of technologies to reduce heat stress introduced during the project has decreased. For example, the percentage of people who had heard of green roofing dropped by almost half, from 51.6% to 26.3%.These figures are for the same respondents as were survey in the endline, indicating lack of retention of these concepts when not reiterated over time. These figures are mirrored across other technological components introduced, such as the fall in understanding of air ventilation technology from 38.2% to 17.5%.

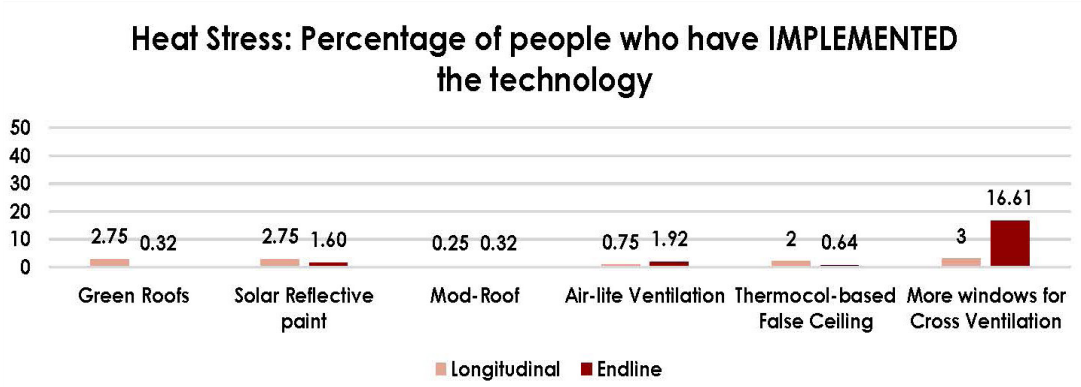
Despite the drop in understanding of technology solutions, uptake of the technologies improved amongst community members who had received information during the GRP project. This is most evident in the more accessible solutions such as green roof and solar paint.

> *Eight percent of the people introduced to these concepts have adopted green roof technologies in Jaipur since the project ended. As further examples, 4% of households in Bhopal have adopted of white paint solutions, while another 7% adopted thermocol based false ceiling to combat heat stress post the project. These are significant insights that indicate the successful implementation of context specific climate resilience technologies when behavioural change is adopted by the community members.*

The more expensive technologies such as modular roof and air ventilation have seen a decline in adoption, primarily because the subsidies provided during the project are no longer available. Modular roof has been adopted only in Ahmedabad (of the three cities that were studied), both during and post the project, primarily because MHT has been able to link slum residents with credit cooperatives. Another critical factor to be noted is that the producer of the modular roof technology was unable to supply it to other cities, thus curbing adoption of the technology.



Heat Stress: HEARD about the technology



Heat Stress: IMPLEMENTATION the technology

II. WATER AVAILABILITY AND QUALITY

Since 2017 December, water stress has increased in Jaipur and Bhopal, where the percentage of residents who assessed that the quantity of water in summer was adequate dropped from 71.8% to 37%. The summer of 2019 was especially tough with heat waves hitting northern India and the delay of the monsoon, exacerbating this stress. This stress led to a loss of work in both Bhopal and Jaipur. 29% and 14% of the respondents in the longitudinal study reported loss of work, compared to 5.9% and 1.3% respectively in the endline. Ahmedabad, on the other hand, reported no loss of work due to water stress in this latest survey.

At the same time, water contamination due to mixing with sewage water decreased throughout the year. This was critical during monsoons, and the reduction in contamination has been significant in cities like Jaipur and Ahmedabad, falling from 30% and 15.5% to 6% and 6.5% respectively. In Jaipur, this reduction has been due to the implementation of a participatory governance project by MHT wherein Vikasinis and CAG members engage directly with local government on these issues. Their active engagement has led to vigilant pre-emptive action, thus critically reducing the contamination of water. However, water-borne diseases have been on the rise due to a heavy monsoon in Jaipur and Bhopal in 2019.

As in the case of heat stress, understanding and recollection of information on rainwater harvesting, water metres and sprinkler taps has decreased since the end of the GRP project. Respondents who reported knowing about these methods in the endline survey

could not recall it during the longitudinal study. Understanding fell from 61.3% to 39.7% for rainwater harvesting, 64.4% to 52.1% for water meters, and 47.9% to 28.4% for sprinkler taps. Reiteration of methods, and demonstration of its adoption, has led to lack of retention.Once again, while understanding has dropped, adoption of technology has risen.

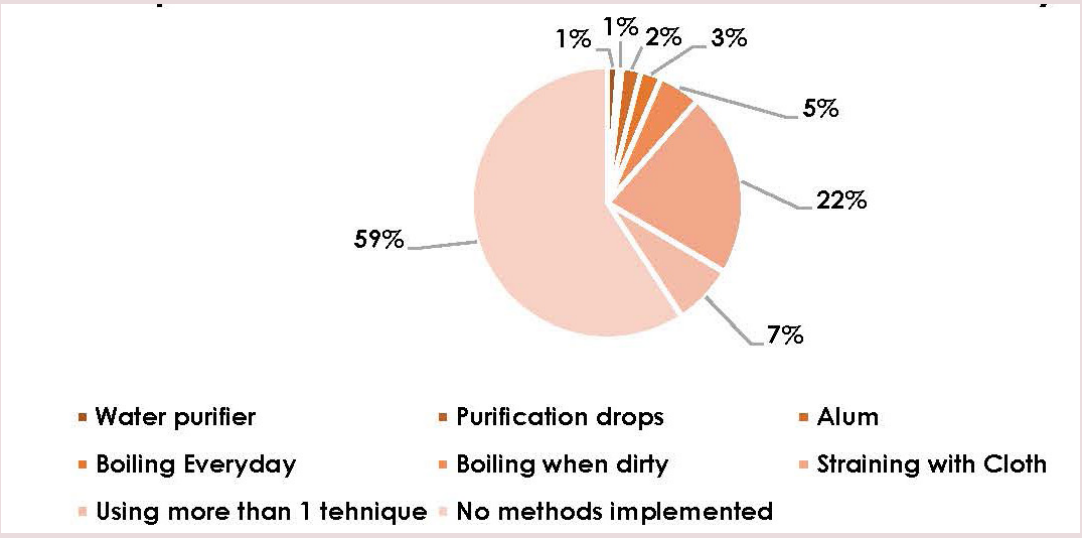
Installation of water metres and sprinkler taps has increased tenfold since the end of the project, rising from 1.6% to 16.8% and 1.3% to 17.5% respectively. This uptake has been greatest in Bhopal, with 41% of the respondents installed water metres and 46% use sprinkler taps. The uptake of sprinkler taps technology is significant, as residents have recognised its importance and have invested in the technology. The installation of sprinkler taps has increased also because the government is providing individual piped water to households in most slums.

Water quality tests performed by MHT staff and Vikasinis in Ahmedabad.

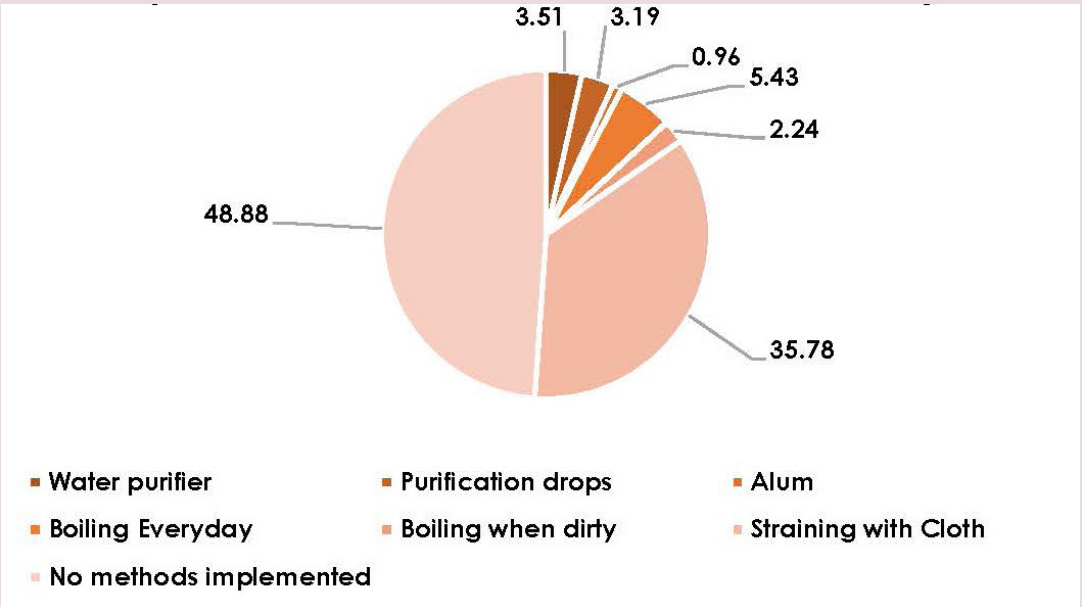
When it comes to the quality of water, regular water testing has fallen, as expected, due to the lack of project resources. In Bhopal, MHT has continued testing water in 5 slums, and this testing and reporting is done on a regular basis. This has also partially impacted whether or not communities purify water before consumption.

The greatest decline in adoption of purification methods, however, has been in Ahmedabad, with 91% of the respondents stating that they do not use any method. This is largely due to the instillation of direct water pipelines in many communities, thus providing cleaner water than that of bore wells. **Residents of the slums in Ahmedabad do not feel the need to use any purification methods since government services have improved. MHT has worked closely with the local government for over two decades to ensure these networked water connections are provided across the city.**

It is, therefore, important to read the charts below in the context of these observations and gains.



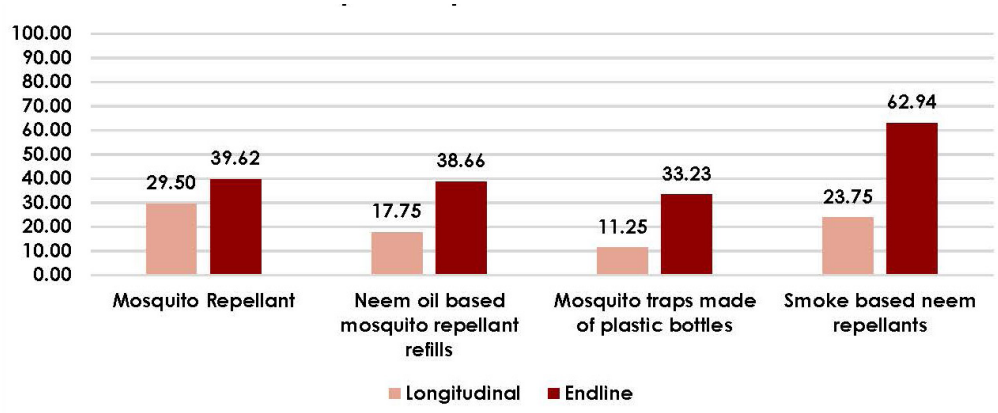
Percentage of people who have IMPLEMENTED water purification methods in the LONGITUDINAL study



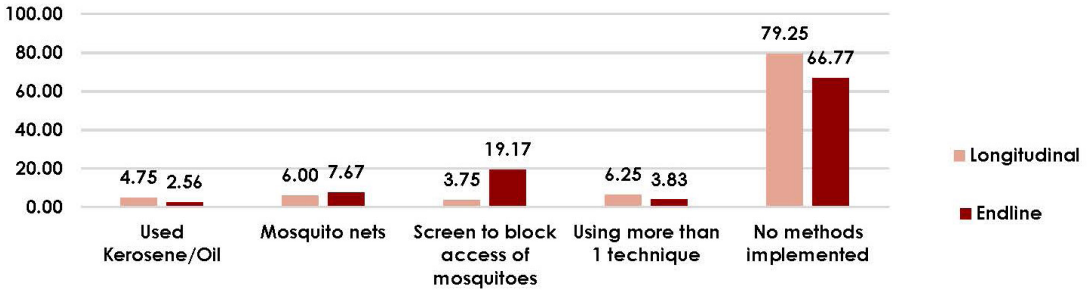
Percentage of people who have IMPLEMENTED water purification methods in the ENDLINE study

III. VECTOR-BORNE DISEASES

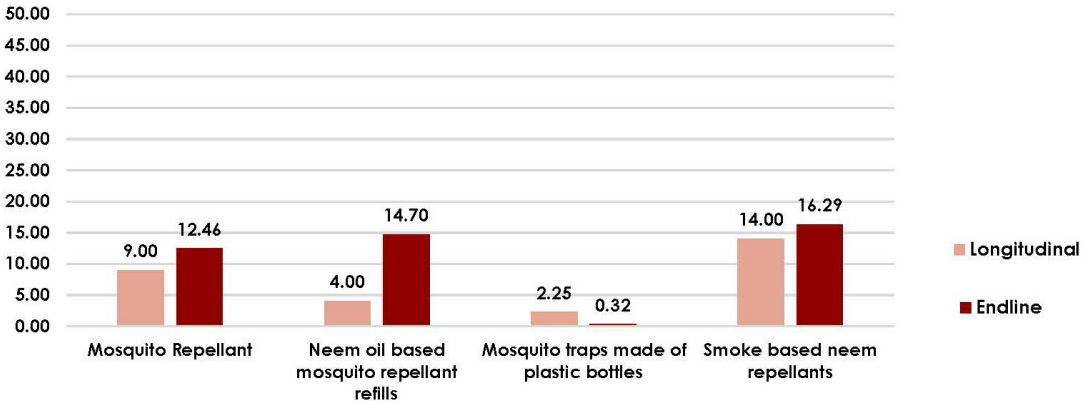
Due to the heavy monsoon of 2018 and 2019, vector borne diseases increased, especially in Bhopal, where dengue increased from 3.5% in the endline to 14% in the current survey. CAG members and Vikasinis have worked actively with the Malaria department of the Municipal Corporation, conducting camps in partnership with them and educating communities on how vector borne diseases can be prevented. Even though there has been an increase in the cases of dengue, malaria cases have fallen.
This is largely due to the success of the 'child doctor' concept introduced in the GRP project. Adolescents were trained during the project to investigate sites of breeding of mosquitoes in their communities and shared information on how this can be prevented. This process was reiterated over weeks, leading to immediate action. For example, if they spotted sites where water stagnated, they would inform residents to have it cleaned before their next visit. Over time, community members themselves became attune to recognising sites for breeding and prevented water stagnation. The success of the child doctors has been recognised by the Bhopal Municipal Corporation, and has been adopted by the government as a method to educate communities on vector-borne diseases.
Overall, the use of kerosene or oil in water to prevent the breeding of mosquitoes has increased, but most other methods of prevention, including those introduced in the project, were less well understood and used. One third to one half of respondents were unable to recall the different methods for prevention such as mosquito repellent, neem oil, smoke based neem repellent and mosquito traps. The qualitative study, on the other hand, contradicts our survey results where, for example, many women in Bhopal and Ahmedabad shared that they used smoke based neem repellents in their communities. These contradictions could possibly be a result of the research methods used, and the difference in respondents between the quantitative and qualitative.



Percentage of people who have HEARD about mosquitoes' prevention methods



Percentage of people using different home-based mosquitoes' prevention methods



Percentage of people who have IMPLEMENTED mosquitoes' prevention methods

IV. WATER LOGGING

Overall, issues with water logging have decreased across cities. Loss of work due to flooding as well as the number of days that children missed school have fallen. Loss of property has fallen from 6.1% of endline respondents to 1.5% today. The greatest difference has been in Jaipur, where 18.8% of the respondents reported loss of property during the endline, while only 4% reported it in the longitudinal study.

Like the other climate change stressors, understanding of new technology designed to reduce flood damage has fallen while adoption of these technologies has risen. In order to help communities retain information, more frequent reiterations are needed. For this to be effective, a cycle of information sharing, feedback, adaption, adoption, and feedback needs to be created. Maintaining behavioural change, as stated earlier, is often the greatest challenge. Change becomes sustainable in the long-run by continued building of the social capital of communities, and creating linkages between the organisation and community members through women leaders. This has been evidenced in MHT's own experience of successfully developing and evolving both a community and city-level model for active citizenship.

V BUILDING SOCIAL CAPITAL FOR SUSTAINABLE CHANGE: CASE ANALYSIS

MHT's approach to build social capital has consistently focused on the creation of local level institutions; enabling local women leaders to recognise and resolve their community's issues and engage directly with urban local bodies. At the centre of the **"Women led Resilience Building of Urban Poor in South Asia"** project is this very approach. In particular, for MHT, this involves three primary functions:

1. Support disenfranchised communities to build social capital and empower them with technical knowledge to affect change.
2. Facilitate last-mile delivery of habitat services by enabling access to finance and carrying out building of infrastructure where necessary.
3. Build on its grassroots experience to bring about policy and regulatory changes towards more inclusive planning & service delivery processes.

While the project sought to introduce contextually relevant and accessible climate resilient technologies and behavioural changes, it did this by focusing on community-led climate change vulnerability assessment and resilience planning as well as capacity building of women community leaders to take action on the climate stressors that affect them. These activities have been discussed in detail in volume 2 of the first series of report titled, 'Women's Action towards Climate Resilience of Urban Poor in South Asia: Project Evaluation Report'.

As part of this study, we went back to the cases studied in the first series to understand how the role of the community action groups has evolved in the varied contexts. A total of five cases were explored, three in Ahmedabad and two in Bhopal. Ahmedabad presented the cases of established and emerging slums in an established city, while Bhopal presented those that were emerging in an emerging city.

At this point, we should clarify the distinctions between 'established' and 'emerging'. 'Established', when used in the context of a city or slum, is one where MHT had a presence before start of the GRP project and had built significant social capital through its work and partnerships with local government, civil society organisations, and communities. This applies to Ahmedabad as a city and some of the slums within Ahmedabad where MHT had previously worked. On the other hand, 'emerging' cities or slums are those where MHT's engagement is more recent and we are still developing community social capital. This applies to any slum in cities other than Ahmedabad (including Bhopal and Jaipur) and slums in Ahmedabad that where MHT had not previously worked before the start of the GRP project. In these spaces, MHT is not only working on immediate goals that come with a project, but also on developing the capacity of local women leaders and MHT to work effectively together. This requires greater investment of time and resources from the organisation.

The slums studied are mentioned below.

Established City: Ahmedabad		**Emerging City: Bhopal**
Established slum	Emerging slum	
Rajeev Nagar 3	Balapir No Tekro	Bagsewaniya
Bhagwati Nagar 2		Rahul Nagar

I. ESTABLISHED CITY: **AHMEDABAD**

In Ahmedabad, water logging and heat stress are the biggest climate stressors, with communities' health and livelihood being affected during monsoon and summer. Water logging also led to an increase in vector borne diseases in the monsoon months, as reported to national media by the AMC.[5]

The implementation of the programme began in April 2016, with 10 to 12 women being chosen from each slum to form a community action group. The women were then given training over a period of 4 to 5 months. However, in some cases, they faced resistance from other community members, especially men, due to the social restrictions that the women face.

A combination of tools was effective during the training and awareness building phase. The use of video, folk media, snakes and ladders games designed to teach the fundamentals of climate change resilience, and narratives were effective in breaking language barriers and communicating complex concepts in a contextually relevant manner. The concept of child doctors was introduced to detect spaces susceptible to the breeding of mosquitoes and educate community members on methods of prevention.

I.VIKASINI MODEL IN AHMEDABAD

The 'Vikasini Manch' or platform was created in 2008, though many of the Vikasinis have been associated with the organisation for much longer. A Vikasini is a woman leader who works in different communities towards the city's development, and participates in the city's policy-making process. The platform is a space where the Vikasinis meet every

[5] Extended Rains in Ahmedabad Raises Concerns Over Increase in Dengue Cases', News18, Published 1st October, 2019, Retrieved 7th February, 2020. https://www.news18.com/news/india/extended-rains-in-ahmedabad-raises-concerns-over-increase-in-dengue-cases-2329721.html

month to discuss city-level issues. It is run completely by the Vikasinis themselves, and MHT provides space and facilitates only when necessary.
In Ahmedabad, the Vikasinis work at three levels:

MEMBER
interaction with individual community members and assistance on issues specific to them such as individual schemes introduced by the government, applications for various identity cards etc.

SLUM
work on issues related to their community. Every Vikasini mobilises women in her community, and works with the CAG by providing guidance and revitalising the groups that have become dormant. She also organises a monthly area meeting so that community members can share their grievances in a public forum while receiving new information and updates on actions taken by the Vikasinis and CAG members.

CITY
the Vikasinis, through the Manch, come together to discuss patterns of lop-sided urban development, and work to advocate on behalf of their communities with both the local and the state government. They also mobilise communities near their own, build awareness, and help in the formation of CAGs in other informal settlements. Many Vikasinis have conducted surveys in partnership with the government to facilitate access to government schemes.

The Vikasinis are chosen from within the CAG, as the most active members who will be able to take on a role outside their own communities. Describing the process, Bhanuben, a Vikasini who has worked with MHT for 18 years, explained,

"Unko jo vishwas tha vo maine nahi thoda; mai teeno level par kaam kar rahi hu."

(I have not broken the trust they put in me; I work at all three levels .)

Having engaged extensively and closely with MHT, the Vikasinis have an in-depth understanding of climate change, including the technical aspects of it. They use their trainings to communicate with their communities and other stakeholders including the government, making them effective voices in the fight against climate change.

The Vikasinis are critical for the success of the CAGs. As witnessed below in the cases of Rajeev Nagar 3 and Bhagwati Nagar, the CAGs continue to conduct regular meetings and actively engage with issues in their slum because of the guidance provided by the Vikasinis. Within the CAGs themselves, other women members often defer to any member who is Vikasini as their leader and look to her to allocate work. In these CAGs, they provide handholding support, activate the CAG members and guide and train them.

"Jo seekhana tha vo seekhaya. Kabhi jab daatna bhi tha, toh data bhi diya.", shares Bhanuben.
(What I had to teach them, I taught them. If I had to reprimand them, I did that too!)

The relationship that the Vikasinis share with urban local bodies, especially the ward councillors, is fairly strong. The councillors recognise them by name and have a clear understanding of the role that they play. They also often depend on the Vikasinis to connect them with communities and help implement policies that have been introduced. In turn, the Vikasinis are able to articulate the issues of the community directly to the decision-makers and put adequate pressure to have them resolved. One councillor we spoke to defined the Vikasinis role concisely;

"Yeh humare liye madhyam setu ka kaam karte hai."
(She plays the bridge between us and the community.)

Vikasinis have participated actively during and post the GRP project in promoting climate resilience. The Vikasinis have mentored the child doctors and provided them legitimacy when they were not taken seriously in the communities. They have led the tree plantation drives, worked to reduce the use of plastic, ensured cleanliness in the community, tested water and used data-based evidence to advocate for better quality water, and are always on a look out for mosquito larvae in stagnant water. Whenever they visit communities, they inform women about climate change and provide solutions on how to combat it.

In Ahmedabad, there are innumerable examples of how the model has evolved over the past decade to create strong agents of change at the city-level. Vikasinis' contribution has been significant at the policy level with their engagement in the formulation of the Monsoon Action Plan, Ahmedabad Heat Action Plan, as well as the Ahmedabad Cool Roof Policy which is under consideration right now. Through their interaction with community members, local government and civil society, the Vikasinis have carved out a vital position for themselves as influencers among the stakeholders.

In one community, the Vikasini actively worked to revive wells and facilitated rainwater harvesting. Pushpaben explained that the water crisis has only worsened, and to combat it, they began reviving wells. After reviving a few, others followed suit.

"Pehle humne kaam kia, fir usko dekh kar logo ko hi khud laga ki hamare ghar mein hi bandkia hua hain, usko hi use karte hain."
(First we did the work, then people saw it and felt that the wells that were closed in their own houses could be used.)

These Vikasinis have transformed their own lives through their engagement with MHT. **Their trajectory from being restricted to the house to now taking on leadership positions at the municipal corporation level and becoming key players for political power to access communities has been nothing short of extraordinary.** The journey has also been fraught with difficulties, be it the social restrictions they faced at home or the economic challenges of engaging with this kind of work.

Deepikaben, to illustrate, shared that her husband was against her joining as she is a home-based worker who tailors and he did not want their income to get affected. Surekhaben also revealed how she would earlier not step out of the house or interact with anyone without her ghoonghat (veil). **Now, she travels using public transport without the ghoonghat.**

Bhanuben echoed the sentiment of having faced hurdles to reach where they are now.

"Dikkaton ka samna karke yahan tak aayi hu, abhi trustee ban gaye hu."

(After facing difficulties I have reached where I am, and today I am a trustee of the organisation.)

This confidence of now being able to face any challenge was reflected in Meenaben's succinct statement,

"Karna hain toh karna hi hain."

(If I decide to do something, then I have to do it !)

II. ESTABLISHED SLUM: **RAJEEV NAGAR 3**

Rajiv Nagar is a large informal settlement in a relatively affluent and centrally located area of the city. The land is privately owned. The 1976 statutory Development Plan prepared by AUDA (Ahmedabad Urban Development Authority) demarcated the plot as part of the city's green belt. However, the authorities never acquired the land. Since the private owners could not make any legal transactions on the land, they illegally subdivided the land and sold individual parcels through grey market transactions.

The community came into being around 1980, and has since then been amidst a legal battle between the owners and the AMC (Ahmedabad Municipal Corporation). A recent High Court Resolution has declared that the original owners will get back 70% of their land. AMC would retain the remaining 30%, which will be used to house the current slum occupants.

The community continues to lack some basic infrastructure, such as proper roads inside the slum.

Since 2017 December, the construction of the gutter line has been completed. While it does overflow on occasion, the Vikasini from Rajeev Nagar 3, Bhanuben, files a complaint with the municipal corporation when this occurs and it is cleaned. A new bore well was also constructed this year after persistent efforts from the CAG. This has alleviated the water scarcity and quality issue to some extent. However, drinking water continues to be an issue. Residents must obtain water from an outside source as the bore well water cannot be consumed. Common methods of purifying the water are sieving or boiling it. They do not use chlorine tablets as they change the taste of the water. Most noteworthy is the storage of rainwater, which gets used around the year.

The CAG combated heat stress by planting trees around the community. Fumigation is done regularly by the corporation during the monsoon months. The community also uses home remedies such as the smoke of neem (Azadirachta indica) leaves or an electric racket.
Cleanliness has improved significantly in the community, with garbage being collected regularly from the slum. People have also begun to segregate waste and are more aware about these issues.

"Log pedh nahi kat te hain, kachra alag karte hain, machar nahi zyada hone dete hain, tanki saaf karte hain, yeh sabhi karte hain." (People do not cut down trees, they segregate waste, do not allow mosquitoes to breed, clean their water tanks etc.)

There is some resistance from the community, but the CAG members do their best to engage with them and explain how these actions are beneficial to them. In general, however, there community understanding of the causes of climate change and how simple actions and change in everyday behaviour can play a role in reducing its effects has improved significantly.
The Vikasini in the slum, Bhanuben, takes a lead role in getting work done. She liaisons with the Ahmedabad Municipal Corporation, MHT and CAG members. The CAG members look towards her for guidance. As one CAG member stated,

"Bhanuben hi jab kaam deti hain, toh hum log vo karte hain. Hum khud se nahi jaate hain." (Only when Bhanuben gives us work, we do it. We don't go (to the government office) on our own.)

Bhanuben organises the CAG meetings and takes other members along with her when she visits the office of an urban local body. **The CAG has continued to file complaints to get the gutters and community cleaned, share information with other members, and plant trees.** It has undergone changes in membership over the past few years, with inactive members leaving and new members being initiated to ensure the functioning of the group remains stable. Members of the CAG also share significant stories of personal growth, with a few of them learning how to read and write after beginning their engagement with MHT.
When asked about the work that she has engaged in following the completion of the project, Bhanuben shared,

"Hamara kaam toh chalu hi hain, hum ghar par nahi baith gaye hain." (Our work continues, we have not sat idle at home). Bhanuben notes a shift from working on government schemes to working on climate change.

VOICE OF BHANUBEN

> *Climate change aur GRP mein judh jaane ke baad, hume jo nahi pata tha vo pata chala aur alag tareeke se kaam krne ka mauka mila, uska anand bhi hua kyuki yeh agli peedhi ke liye zaroori hai.*
>
> (After getting involved with GRP, we learnt about a lot of things we did not know and worked in a different manner. This gave us satisfaction because this is important for the next generation.)

III. ESTABLISHED SLUM: **BHAGWATI NAGAR 2**

Bhagwati Nagar 2 is located in an industrial area on the outskirts of Ahmedabad. The slum is fairly large and spread alongside a main road. Before MHT's intervention in the community, the slum faced severe water and sanitation problems. Water was accessed through a private company to whom each household paid Rs. 100 per month. The gutter lines would overflow and the roads would be littered with garbage.

MHT's engagement in Bhagwati Nagar began years before the GRP project. A large proportion of the residents are migrants. The community appears to be fairly socially conservative, especially with regard to the prescription of gender roles. As a result, resistance to engage with MHT, both from the women and the men, was initially significant. Over time, MHT was able to identify leaders who could take on the role of Vikasinis and CAG members. Today, two Vikasinis live in the slum, both of whom have engaged with MHT for almost a decade. The CAG members have engaged with MHT for around a decade on an individual capacity, even though this group was formally formed only 2 years ago.

Like in the case of Rajeev Nagar 3, cleanliness has been a major achievement for the community. The CAGs have pushed for a sweeper as well as a regular garbage van in the community. This has been critical in cleaning up public spaces, which in turn decreases flooding, water logging, and, secondarily, breeding sites for mosquitoes. The CAG did not focus on these issues earlier, especially not as a collective.

Water availability was consistently an issue, and it has been resolved to some extent. The community now gets water through bore well and tankers. The bore well water is not clean enough for consumption, and therefore, they depend on the tankers which come once every 3 to 4 days. The water is sieved before being consumed. The corporation has provided a direct pipeline at the edges of the slum, and has proposed to provide 4 more. However, the CAG has been active in protesting against this and campaigning for individual water pipelines as a mere 4 new pipelines for the entire community will exacerbate the water crisis, causing tensions amongst the residents.

> *Climate resilience behaviour of not only the CAG members, but also the community at large, has improved considerably. Cleanliness is being taken seriously as awareness of vector borne diseases has increased. People keep stored water covered to prevent breeding of mosquitoes and ensure that stagnant water does not collect in the monsoon. The CAG members also regularly call the AMC to have the slum fumigated.*

Tree plantation has been a major drive that has continued beyond the project. Some families have also installed ventilation roofs to relieve the heat stress they face in summer months.

The adoption of technology piloted during the GRP project was done by the Vikasinis and not the community at large. The reasons cited include affordability and practical concerns such as taste, spatial requirements etc. Since the project ended, however, many households have adopted energy efficient technologies through MHT. **In most cases of technology uptake or behavioural change, the shift takes place due to community action; they see others in the community make a shift and emulate the behaviour.**

The Vikasinis in Bhagwati Nagar 2 convene the monthly CAG meetings and act as the bridge between the community and other stakeholders.

"Hum logon ka main hai Deepikaben. Jo woh kehti hai, hum log karte hai." (Our main person is Deepikaben. We do whatever she tells us.)

During the meetings, issues of the community are discussed and applications are drafted. The Vikasinis have, over time, built a strong relationship with the municipal corporation. Often, they are able to get work done by calling their councillor or sending an application via Whatsapp. This saves them time and money as the AMC office is around 20 kms away.

It is interesting to note that one of the reasons some of the CAG members are unable to interact directly with the Municipal Corporation is the language barrier. Since many of them are migrants from other parts of the country, they do not speak the local language, Gujarati. Thus, as one CAG member stated, the Vikasini usually interacts directly with the AMC official while the rest provide support.

"Hum sab log milke, ek parivaar ki tarah, kaam karte hai."
(All of us work together as a family.)
The women in the community face social restrictions. Most of the CAG members have had extraordinary growth journeys, from not being allowed to step out of the house or share their opinion to taking on leadership roles in the community, speaking at public fora and engaging with government officials. As Deepikaben, the Vikasini who usually takes a lead on these issues explained,

"Abhi kisi ko toh aage aana hi tha, toh mujhe laga, mai hi aage aati hu."(Someone had to come forward and take on a leadership role. I thought, 'let me come forward'.)
Engaging with other stakeholders has also given them confidence in their voice. The training they get from MHT facilitates this process.

"Woh sab sikha ke jaate hai. Hum apne aap karne lage hai." (They (MHT) teach us everything. We have now started doing things on our own.)
Lack of access to proper roads inside the slum, streetlights and drinking water remain critical issues that need to be addressed.

IV. EMERGING SLUM: **BALAPIR NO TEKRO**

Balapeer No Tekro is a relatively small slum community of about 100 families located in the eastern part of Ahmedabad. The slum comprises very poor populations with an average family income between Rs. 5000 and Rs. 10,000 per month. Literacy levels are also low. Most people are engaged in vegetable vending, casual labour, and sale of used clothes.

The slum is located on a sloped terrain and rises upward from the main access road. The condition of houses as well as sanitation infrastructure in the slum is very poor. The houses are tiny with tin roofs, and are tightly packed along very narrow, undulant alleys often littered with garbage and covered with open sewage. Several families have made additions to their houses over the years and have encroached upon the already narrow lanes. This makes it difficult to lay new sewage lines in the community. There are community toilets on the edge of the slum.

MHT began working in the community only in 2015, with the spearhead team member, Krishnaben, taking a lead in mobilising the women. It took many months to build a rapport with women from the community and also identify potential CAG members. Social cohesion continues to be a challenge, as the CAG members do not receive much support from others. This is partly because some of the major issues that the community faces cannot be resolved due to infrastructural restrictions. For example, replacement of the sewage line requires displacement of houses that have encroached onto the lane. The AMC itself, when approached by CAG members, have been unable to resolve the problem. This inaction is viewed by community members as ineffectiveness on the part ofthe CAG, discouraging community members from showing support. In such cases, it becomes critical to capitalise on low hanging fruit.

Nevertheless, climate change resilience behaviour has improved. Due to geographic and infrastructural restrictions, heat stress is significant in the slum. To combat it, many hang wet curtains on the entrance door to cool the room when there is a breeze. They do not have space to plant trees, though some have kept plants in their own homes. Therefore, while some changes have helped, heat stress continues to be a factor that affects their health.

Water testing is done every fortnight, and when the quality is poor, residents use the chlorine tablet given by the corporation to clean it.
Thus, there is clear evidence that continued engagement and information flow can enable immediate action. Conventional methods such as mosquito mats, fumigation and neem smoke are used to prevent vector borne diseases.
Lack of space and financial insecurity has kept residents from adopting technologies piloted during the project.

Over the years, the relationship with the corporation has improved. Two adolescent girls have also been trained as CAG members from the community, and they submit applications to the AMC when needed. They engage with the issues of the community

and are slowly emerging as leaders. Meetings of the CAG are usually held only when someone from the MHT team visits. Many of the members ask to be paid for the work that they are doing, and have stopped engaging since work is voluntary.

2. EMERGING CITY: **BHOPAL**

In Bhopal, in addition to heat stress and water scarcity, vector borne diseases are a major cause of concern. MHT, in partnership with the Bhopal Municipal Corporation, has consistently worked on climate resilience issues since its intervention in the city. As an emerging city, MHT, the newly formed CAGs, and the Vikasinis are still building their social capital, having worked together for only a few years. MHT has made great strides in building a close relationship with some parts of local government, such as the Malaria department, through its child doctor initiative. It is, however, still in its nascent stage of developing a unique identity in the city, and has more limited resources when compared to Ahmedabad.

During the project, MHT initiated the creation of CBOs in the 13 slums selected. Potential leaders were identified during the project, and many have taken on a significant role in the community following the completion of the project.
However, community engagement focused on resilience technologies during the project was stronger in Bhopal than in Ahmedabad.

> *The child doctor concept was well liked, and many slums took on the task of promoting greenery around their areas through tree plantations, kitchen garden, vermin-composting and cleanliness drives.*

Appreciation of Child Doctors by BMC officials

The project ended, the case provides mixed insights. In cases where women's leadership has been strengthened and sustained, many of these activities have continued.

I. VIKASINI MODEL IN BHOPAL

As an emerging city, the Bhopal team is still building its social capital by initiating institutions at the community level. In Ahmedabad, the Vikasini model evolved organically, about 14 years after MHT began its work and over a decade. Once the CAGs were developed, members themselves took a lead for city-level work and demonstrated successful results, as shared earlier. Conversely, in Bhopal, MHT tried to adapt and adopt the model before the CAGs or CBOs were fully established and functional. **Due to the short project duration (18 months), enough time was not available to build capacity of CAG members to voluntarily take responsibility to work at the city level.**

Hence, Vikasinis were selected by MHT field staff (instead of CAGs electing it) based on their performance and commitment of delivering services in their own slum. But it was realised that pre-maturely selecting CAG members as Vikasinis didn't necessarily lead to the desired result. Add to this the fact that the even shorter project duration didn't provided enough opportunities to these selected Vikasinis to work at city level and learn from that experience, and a better understanding of how the model functions in Bhopal emerges. Building relationships with stakeholders as well as a unique identity within the community requires time and consistent effort, which they did not have. This resulted in a higher dropout rate of Vikasinis. However, a few Vikasinis that continued working have delivered positive impact over the last few years. Their stories are significant and noteworthy for evolving a comprehensive model that take into account the aforementioned challenges.

During the process of the study, we struggled to find stakeholders who knew Vikasinis on an individual basis and could share about their work. Around 25 women were originally identified to be Vikasinis but only 5 of them remain active. The primary reason for this is the lack of remuneration for the work they do. The women who were chosen were unable to see the non-monetary benefits of continued engagement, and felt that the trade-off was too high.

Having said that, the few women who are active have been critical in getting the community's work done, building a relationship with the councillor and keeping the CAGs running. Sapnaben from Bagsewaniya has been active in the community and is a recognisable face. The councillor knows her well and views her as a key informer for the community; she communicates the slum's issues to the councillor and the councillor communicates actions taken by the local government to her .

NEW POTENTIAL LEADERS ARE NOW EMERGING.

One young leader, Saba, who does water testing regularly in Bagsewaniya, views herself as a Vikasini. When MHT first began its intervention in the slum, her brothers would not allow her to attend meetings in the community. Over time, she has pushed her boundaries and is now able to visit the MHT office by public transport alone.

Two other Vikasinis in a slum on the periphery of Bhopal have formed the dream team that work to get the community's work done. They are active in the community and are viewed as leaders. Community members reach out to them on a regular basis for issues to be resolved both on an individual and slum level. Through their leadership, they have been able to successfully promote some climate resilient technologies.

II. EMERGING SLUM: **RAHUL NAGAR**

Rahul Nagar is located in the southern part of Bhopal, and houses over 2000 households. The slum is aligned with the main road, which is well connected with the city, and has paved roads within. The topography of the slum has been the major concern: the slum is located on a hilly terrain and uphill and downhill households face differing problems. A huge drain passing through the slum gets flooded during the monsoons and leads to water entering into houses, especially those located towards the lower side. The slum also lacks proper drainage, creating unhygienic circumstances during the monsoon months.

The community has made significant strides in terms of hygiene and cleanliness. The CAG members ensure that the surroundings are clean and take action when the Municipal Corporation does not clear the garbage.
The women have also started a kitchen garden which is now flourishing. This began during the GRP project's implementation phase, but has continued to grow over the years. The CAG members ensure that the garden is well maintained and have personally invested in its growth. Vegetables grown in the garden are consumed by the residents, and witnessing the fruition of their efforts has encouraged them to continue their focus on making their slum cleaner and greener .

It took consistent advocacy with local government over years to get individual water pipelines in the community. Quality of the water supplied, especially during the monsoon

months, is poor. Despite multiple complaints, this issue has not been resolved, and the members have often been told that the debris in the water is because of the rains. As a result, many households sieve the water before consuming.

> *Methods introduced during the GRP project, such as burning neem leaves, use of mosquito mats, coils, and agarbatti (incense sticks) are common for the prevention of mosquitoes. They also regularly call the Municipal Corporation to have the area fumigated during monsoons.*

Examples of households adopting technologies introduced during GRP were visible. One of the members got both white paint as well as the ventilation roof installed. She found the latter to be very effective in not only providing ventilation to the kitchen, but also sunlight, thus reducing the consumption of electricity during the day. Green roofing was not feasible for many with tin sheet roofs that would not take the weight of the plants.

Some of the women in this community reported significant individual growth, from never having gone out to engaging with other women, community members, MHT staff and local government officials. As one CAG member explained,

"Iske pehle main kuch nahi karti thi... Mere mein himmat aa gayi hai."
(Before this, I did not do anything. Now, I have got courage.)

The CAG meets informally to discuss and resolve issues of community, but do not follow practices such as formally organising meetings and maintaining minutes. The CAG members approach the Municipal Corporation as a collective and submit applications to resolve issues, most common being those related to cleanliness (cleaning of gutter, solid waste management etc.) and sanitation.

"Jo samasya aata hai, CAG uska hal nikal dete hai". (The CAG tries to come up with a solution to whatever problem that emerges.)
Within the CAG, however, a few members are more active than others. One of the members, Vimlaben, also runs the Anganwadi (a pubic child care centre for infants). She has built a rapport with the councillor and is able to file complaints over the phone rather than through a formal process.

III. EMERGING SLUM: **BAGSEWANIYA**

Bagsewaniyais located on the South East part of Bhopal, and is notified by the government.[6] About 1000 families reside in the area, and the slum is well connected to the city by road. The slum has experienced severe issues related to habitat, and water, more specifically. The water they receive through hand pumps and bore wells was red and could not be consumed. They depend on water tankers for drinking water, and even though they do have pipelines, water supply is not regular. The situation has improved vastly now, primarily due to the active engagement of a few women from the CAG that was formed.

When the CAG was first being formed, resistance to participating was significant. However, one of the existing women leaders, Sapnaben, helped mobilise other women and engaged them in meetings. Today, the original CAG has dismantled, but 3 women continue to work on the issues that the community faces.

A major reason for the dissolution of the CAG was the lack of cohesion within the community. The group was unable to garner support from other members in the community, and even faced challenges to their work. One example of this was the piloting of a vermin-composting site. Two of the CAG members took an active role to ensure that waste was segregated and the vermin-composting site was maintained. They explained that they had even spent days next to it to prevent other people in the community from using it as a garbage dump. However, over time, they could not sustain this and had to give it up. The lack of support from both community and family affected their morale and they eventually left the CAG citing familial commitments. Others who were part of the group left because they had immediate concerns such as gaining paid work.

Now, a few women actively participate in various activities. As noted in other cases, actively involved women grow from situations in which they cannot leave their homes or be involved in any activity outside to community engaged civic leaders. For them, in addition to the technical knowledge they gained through the trainings, the biggest gains are in confidence to speak openly.

"Jabhi time milta hain, mai karti hu. Mere ko aage toh hona hain."
(Whenever I get time, I do it. I must go forward.)

[6]A notified slum is an area in a city or town that is formally recognised by the government as a slum under the Slum Areas (Improvement and Clearance) Act, 1956.

One of the women regularly tests the quality of water supplied as well as the temperature. These findings are recorded and then shared with the community through area meetings so that action can be taken on it accordingly. This is an ongoing activity that has continued well beyond the project.

They have also pushed to have the road paved. Consistent efforts and follow-ups have led to the tarring of the road. The slum has also become cleaner as there is a regular garbage van that collects waste from the community.

The active community women have built a relationship with the councillor. The councillor's residence is near the slum, making him accessible. The Vikasini from the slum, Sapnaben, regularly acts as a link between the community and the councillor, sharing critical information on both sides.

A few households adopted technologies such as thermocol or polystyrene roofs and white paint to combat heat stress. Most households use conventional methods of mosquito prevention such as mats or coils. Some have adopted the more organic options. The Vikasini, Sapnaben, has got a lush terrace garden, which helps keep her house cool and also provides her with some home-grown vegetables. Thus it was evident that ideas introduced during the GRP project were still in use by this community.

Sapnaben from Bagsewaniya has been active in the community and is a recognisable face. The councillor knows her well and views her as a key informer for the community; she communicates the slum's issues to the councillor and the councillor communicates actions taken by the local government to her .

KEY LEARNINGS

Presented below are the key learnings that emerged from the endline and the longitudinal study. As a part of this process, some of the learnings that emerged from the endline might have changed. MHT aims at continuous reflection on its work and builds on existing knowledge while recognising shifts over time.
The points in red are the learnings that emerged from the endline. Those in black are iterations that developed over the course of this longitudinal study. The aim here is to present them alongside and take forward the conversation emerging from the two studies.

I. ABOUT COMMUNITY ENGAGEMENT FOR RESILIENCE

- Entry into new communities requires perceptions of legitimacy, trust, and incentives on the part of community women to partner, which can only be built over time with multiple engagements. It becomes critical, therefore, to have projects that are longer as they allow for a strong foundation to be built. In case of Bhopal (and with emerging slums of Ahmedabad), the project duration (18 months) did not provide sufficient time to apply MHT's theory of change effectively thus ending up with CAGs that did not demonstrate desired collective leadership qualities. As a result, CAGs successfully accomplished goals during project duration but lacked a sense of collective leadership and identity. Individual leaders have, however, emerged successfully from the process and have continued to work for their community.

- Continued participation by highly disenfranchised women in marginalised commun¬ities requires strategies to promote individual and community empower-ment, solve tangible problems, and build recognition/identity within community. This was reiterated in the cases wherein successes have led to more cohesion and engagement (community garden in Bhopal, Vikasini engagement in Ahmebdad) and institutional challenges, obstacles in implementation, and lack of cohesion within the community has led to the dissolution of the groups (as in the case of Bagsewaniya).

- Leadership works best when it is developed and interacts at and promotes coordinated action at the slum, community and city level. While this has been the case in Ahmedabad with the Vikasini Manch that evolved organically from the CAGs, evidence from Bhopal presents a different story. Even though there is no Vikasini Manch at the city level in Bhopal, individual women have been critical in coordinating work done at the slum level and have also helped sustain CAGs, indicating the potential for it to grow into a city level platform if provided with adequate support and time.

- For women to move from disenfranchised to empowered, it is not enough to train them alone. It is critical for the training to be put into practice. Ongoing projects act as enablers as they provide required opportunities and resources to practice what the CAG members have learned.

- Empowering women to advocate in a non confrontational/collaborative manner increases municipal support to address these needs. MHT's approach to identify gaps/ issues in government policy and programs through bottom-up approaches, going to government with a solution and then supporting them in executing this solution, has emerged as a successful model to forge long-lasting partnership with government. In both cities, and at the level of community leaders and MHT staff, ongoing engagement is essential and integral to progress. The perception that Vikasinis and CAG members are critical links between the local government and community is widely shared.

- Bringing solutions to local government, rather than problems, enables a shift in their approach. Across cities, MHT projects are successfully implemented through the adoption of MHT-initiated civic engagement methods by local government. In Ahmedabad, MHT has been actively involved in the design of the monsoon action plan by the Municipal Corporation. On the other hand, the concept of child doctor caught the attention of the Bhopal Municipal Corporation and has been incorporated into their work. In fact, MHT has signed an MoU with the Muncipal Corporation to collaborate on this issue.

- Working with multi stakeholders requires wider and flexible scope of work to accommodate priorities of other partners.

- Resilience in informal settlements requires coordinated action amongst many local actors over time, with leadership that is not too concentrated amongst a few members of the slum community and which is maintained over time. Both quantitative and qualitative research support this. Retention of information on resilience, for example, lowered due to lack of continuous engagement and reiteration.

- Systematic, repeated, and innovative communication tools are necessary to enable scientific and futuristic thinking in communities whose members are used to thinking short term. Understanding of climate change and its causes has stayed with the community members due to tools such as the snakes and ladders game.

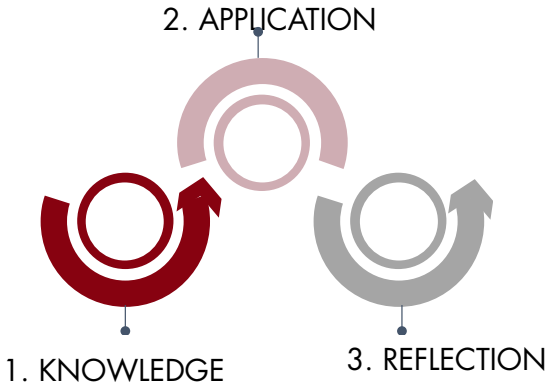
- Community's continued interest in resilience planning requires delivery of

more immediate tangible actions or benefits. Low hanging fruit sets the pace for long-term planning. Active CAGs are those that had early wins and have built momentum over time. However, it is crucial to identify when the shift from short-term, immediate problem solving to long-term, systemic thinking needs to take place.

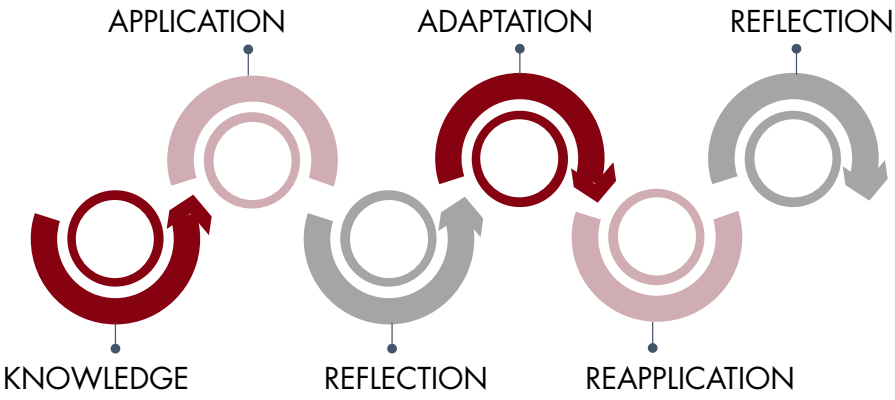
- Successful pro poor technologies should be cost-effective: commercially available, culturally appealing, with proper services provided along with the purchase. Small behavioural changes are often preferable along with the adoption of new technologies.

- Moderately active CAGs become inactive if they don't have incentive and interest to participate. Active projects provide this opportunity. In the absence of active projects, such opportunities need to be created by wider engagement with other stakeholders.

- Enabling behavioural change takes time. For a project that is as ambitious as this, reiterations and reflections are required. The process adopted in the GRP project was:



For future projects, however, a more robust process is recommended as follows:



This process of reflection, adaption, reapplication and reflection will (a) help develop more context-specific methods of dealing with the challenges that emerge from the process and (b) create continuous dialogue between MHT and the community, helping both evolve their understanding of the issues and methods to tackle them.
In MHT's experience, learning is most effective when applied. For CAG members to put into use the training they receive, there is a need for long-term handholding, support and reflection. Thus, the project duration must allow for these processes to be completed if they are to remain effective post the project's intervention.

II. ABOUT SUCCESSFUL REPLICATION

- Transferability can occur among the staff and in community action simultaneously although the community aspect needs more time. It also requires handholding support and financial resource commitment. In the case of the Vikasinis of Bhopal, the adoption of a model without a foundation of social capital has prevented it from reaching its full potential. Time required for Replication/Adaptation of model by other community may vary depending on various factors like:

o Existing social fabric of the community
o Priorities of communities and how it can be addressed in short term; only after short term priorities (survival needs) are addressed does the community think about long-term
o Time and resources to engage with other stakeholders
o Demonstration of early success

III. ABOUT ORGANISATIONAL DEVELOPMENT

- Theory of change about the community also applies to staff and internal operations: "Knowledge has to be co-created". For MHT staff, the project was critical in reassessing the work that they had been doing and learning to articulate it in the context of climate change.
- Resilience learning and processes developed through GRP projects can be effectively integrated into MHT's mainstream work and built and expanded upon. Since the completion of the project, MHT has dedicated two modules of the CAG training programme to climate change and resilience. The tools created for the project are being used across cities in other projects as well.
- MHT has ensured that the creation and development of social capital remains a priority for the organisation's staff and community leaders while delivering project targets. In fact, going forward, this interlink between the building of social capital and the development of community-led climate resilience solutions will be further explored through the organisation's work.

ANNEXURE

I. DATA TABLES FOR THE SAME HOUSEHOLDS IN ENDLINE AND LONGITUDINAL STUDY

TABLE 1: Technologies combating heat stress: Same Households

Heat Stress								
	Endline	Ahmedabad	Jaipur	Bhopal	Longitudinal	Ahmedaba	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Green Roofs- Heard	51.55	40.21	48.94	76.00	26.29	17.53	27.66	42.00
Green Roofs- Implemented	0.52	1.03	0.00	0.00	1.55	1.03	2.13	2.00
Solar Reflective Roofs- Heard	52.58	50.52	25.53	82.00	50.52	55.67	46.81	44.00
Solar Reflective Roofs- Implemented	2.06	3.09	2.13	0.00	4.12	3.09	4.26	6.00
Mod-Roof- Heard	44.33	54.64	4.26	62.00	28.87	25.77	23.40	40.00
Mod-Roof- Implemented	0.52	1.03	0.00	0.00	0.52	1.03	0.00	0.00
Air Lite Ventilation- Heard	38.14	25.77	25.53	74.00	17.53	5.15	17.02	42.00
Air Lite Ventilation-Implemented	1.03	1.03	2.13	0.00	1.55	2.06	0.00	2.00
Thermacol based False Ceiling-Heard	46.39	36.08	10.64	92.00	33.51	35.05	21.28	42.00
Thermacol based false Ceiling- Implemented	0.52	1.03	0.00	0.00	1.55	0.00	0.00	6.00
More windows for cross ventilation- Heard	65.46	57.73	48.94	96.00	57.22	74.23	29.79	50.00
More windows for cross ventilation- Implemented	13.92	22.68	10.64	0.00	3.09	1.03	2.13	8.00

TABLE 2: Water Availability and quality: Same Households

Water Availability and Quality								
	Endline	Ahmedabad	Jaipur	Bhopal	Longitudinal	Ahmedaba	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Quantity of water in summers adequacy	75.77	69.07	70.21	94.00	47.94	50.52	34.04	56.00
Not purchased water in the last year	82.99	88.66	55.32	98.00	80.41	95.88	38.30	90.00
Loss of work due to water stress	5.67	6.19	8.51	2.00	11.86	0.00	36.17	12.00
Knowledge about water harvesting and conservation methods	46.91	39.18	12.77	94.00	25.26	14.43	4.26	66.00
Rain Water Harvesting- Heard	61.34	48.45	55.32	96.00	39.69	22.68	55.32	58.00
Water Metres- Heard	64.43	49.48	63.83	94.00	52.06	68.04	31.91	40.00
Water Metres- Implemented	1.55	0.00	4.26	2.00	16.49	1.03	31.91	32.00
Sprinkler Taps- Heard	47.94	32.99	42.55	82.00	28.35	6.19	44.68	56.00
Sprinkler Taps- Implemented	1.03	0.00	4.26	0.00	14.43	2.06	40.43	14.00
Quality of water good (taste/odour/color)	78.35	84.54	44.68	98.00	73.20	75.26	44.68	96.00
Water testing in one last year	57.73	46.39	53.19	84.00	22.16	23.71	31.91	10.00
Methods to purify water: Water purifier	4.64	4.12	10.64	0.00	2.58	1.03	4.26	4.00
Methods to purify water: Purification drops	4.64	3.09	0.00	12.00	4.64	0.00	2.13	16.00
Methods to purify water: Alum	1.55	0.00	6.38	0.00	4.64	0.00	8.51	10.00
Methods to purify water: Boiling Everyday	6.70	9.28	8.51	0.00	3.61	6.19	2.13	0.00
Methods to purify water: Boiling when dirty	1.55	2.06	2.13	0.00	5.15	3.09	0.00	14.00
Methods to purify water: Straining with Cloth	32.47	10.31	34.04	74.00	21.65	1.03	53.19	32.00
Methods to purify water: Nothing	48.45	71.13	38.30	14.00	57.73	88.66	29.79	24.00

TABLE 3: Vector-borne diseases: Same Households

Vector-Borne Diseases								
	Endline	Ahmedabad	Jaipur	Bhopal	Longitudinal	Ahmedaba	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Water gets contaminated due to mixing with sewage water: All throughout the year	12.89	5.15	42.55	0.00	12.89	17.53	8.51	8.00
Water gets contaminated due to mixing with sewage water: Only in Monsoons	20.10	18.56	6.38	36.00	6.70	8.25	4.26	6.00
Diarrhoea in children below 5 years	2.06	3.09	0.00	2.00	7.22	3.09	6.38	16.00
Jaundice in the last 6 months in the family	4.64	3.09	8.51	4.00	6.19	1.03	10.64	12.00
Typhoid in the last 6 months in the family	4.12	1.03	10.64	4.00	10.82	5.15	14.89	18.00
Malaria in the last 6 months in the family	3.61	3.09	8.51	0.00	5.67	6.19	10.64	0.00
Chikungunya in the last 6 months in the family	6.19	3.09	19.15	0.00	4.64	2.06	10.64	4.00
Dengue in the last 6 months in the family	1.55	0.00	4.26	2.00	3.61	1.03	12.77	0.00
Heat Related Diseases in the last 6 months in the family	4.64	1.03	17.02	0.00	12.89	0.00	27.66	24.00
Problem of Mosquitoes: Only Night	15.98	16.49	8.51	22.00	20.10	1.03	42.55	36.00
Problem of Mosquitoes: Day and Night	78.87	75.26	89.36	76.00	60.31	64.95	53.19	58.00
Problem of Mosquitoes: No problem	5.15	8.25	2.13	2.00	19.59	34.02	4.26	6.00
Prevention from mosquitoes: Used Kerosene/Oil	3.61	4.12	4.26	2.00	4.64	0.00	12.77	6.00
Prevention from mosquitoes: Mosquito nets	6.70	6.19	10.64	4.00	7.22	7.22	6.38	8.00
Prevention from mosquitoes: Screen to block access of mosquitoes	18.04	27.84	10.64	6.00	3.61	0.00	4.26	10.00
Prevention from mosquitoes: Nothing	66.49	57.73	68.09	82.00	77.32	92.78	74.47	50.00
Prevention of mosquitoes: More than 1 technique	5.15	4.12	6.38	6.00	7.22	0.00	2.13	26.00
Mosquito Repellant- Heard	45.36	36.08	40.43	68.00	28.87	23.71	27.66	40.00
Mosquito Repellant- Implemented	12.37	24.74	0.00	0.00	9.28	7.22	6.38	16.00
Neem oil based mosquito repellant refills- Heard	40.72	18.56	44.68	80.00	18.56	1.03	34.04	38.00
Neem oil based mosquito repellant refills- Implemented	12.89	23.71	0.00	4.00	4.64	0.00	10.64	8.00
Mosquito traps made of plastic bottles- Heard	37.11	36.08	8.51	66.00	12.89	1.03	14.89	34.00
Mosquito traps made of plastic bottles- Implemented	0.00	0.00	0.00	0.00	3.61	0.00	0.00	14.00
Smoke based neem repellants- Heard	58.76	50.52	48.94	84.00	23.71	6.19	42.55	40.00
Smoke based neem repellants- Implemented	21.13	31.96	4.26	16.00	15.98	0.00	29.79	34.00
Community Approached local health dept-Yes	6.19	5.15	14.89	0.00	4.64	0.00	10.64	8.00
Community Approached local health dept-Yes, but no reply	11.86	18.56	10.64	0.00	6.19	1.03	17.02	6.00

TABLE 4: Flooding: Same Households

Flooding								
	Endline	Ahmedabad	Jaipur	Bhopal	Longitudinal	Ahmedaba	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Lost work due to flooding	6.19	3.09	4.26	14.00	3.09	0.00	8.51	4.00
Children missed school because of flooding	8.76	7.22	19.15	2.00	4.64	0.00	2.13	16.00
Lost property due to flooding	6.19	1.03	2.13	20.00	1.55	0.00	2.13	4.00
Community members taking action on their own to prevent flooding	3.61	4.12	4.26	2.00	0.52	0.00	0.00	2.00

Table 5: Community Awareness: Same Households

Communtiy Awareness								
	Endline	Ahmedabad	Jaipur	Bhopal	Longitudinal	Ahmedaba	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Participation in CBO meetings	62.37	59.79	57.45	72.00	56.19	69.07	34.04	52.00
Climate change awareness: Know anything about CC	61.86	59.79	36.17	90.00	50.00	52.58	36.17	58.00
Cause of CC: Act of God	14.95	5.15	48.94	2.00	2.58	2.06	2.13	4.00

TABLE 6: Activities conducted in one year: Same Households

Activities conducted in last 1 year								
	Endline	Ahmedabad	Jaipur	Bhopal	Longitudinal	Ahmedaba	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Video show- Conducted	23.71	13.40	36.17	32.00	34.02	48.45	36.17	4.00
Video show- Participated	45.88	57.73	23.40	44.00	30.41	42.27	21.28	16.00
Folk Media- Conducted	30.93	13.40	40.43	56.00	34.54	50.52	31.91	6.00
Folk Media- Participated	28.87	36.08	17.02	26.00	28.35	40.21	25.53	8.00
Snake and Ladders game- Conducted	19.07	19.59	17.02	20.00	43.81	65.98	34.04	10.00
Snake and Ladders game- Participated	48.45	50.52	25.53	66.00	22.16	24.74	19.15	20.00
Group Vulnerability Assessment Exercise-Conducted	28.87	26.80	8.51	52.00	26.80	35.05	25.53	12.00
Group Vulnerability Assessment Exercise-Participated	21.65	37.11	6.38	6.00	34.02	56.70	12.77	10.00
Resilience Planing Exercise- Conducted	22.16	14.43	6.38	52.00	26.80	38.14	19.15	12.00
Resilience Planing Exercise- Participated	2.06	2.06	0.00	4.00	32.47	53.61	14.89	8.00
Tree Plantation Drive- Conducted	19.07	19.59	29.79	8.00	21.13	20.62	31.91	12.00
Tree Plantation Drive- Participated	28.35	7.22	14.89	82.00	10.82	3.09	23.40	14.00
Drainage Cleaning Drive- Conducted	32.47	42.27	12.77	32.00	24.23	27.84	29.79	12.00
Drainage Cleaning Drive- Participated	17.53	11.34	4.26	42.00	3.09	0.00	12.77	0.00
Child Doctor Drive-Conducted	32.47	10.31	29.79	78.00	58.25	86.60	46.81	14.00
Child Doctor Drive- Participated	10.82	17.53	4.26	4.00	6.70	4.12	10.64	8.00
Water testing Drive- Conducted	27.32	26.80	29.79	26.00	54.12	84.54	40.43	8.00
Water testing Drive- Participated	43.30	51.55	19.15	50.00	7.73	3.09	12.77	12.00
Temperature Monitoring-Conducted	31.44	29.90	36.17	30.00	29.38	27.84	42.55	20.00
Temperature Monitoring-Participated	15.98	6.19	6.38	44.00	6.70	7.22	10.64	2.00
Weekly water testing system-Conducted	35.57	26.80	34.04	54.00	54.64	86.60	25.53	20.00
Weekly water testing system- Participated	26.80	43.30	14.89	6.00	3.61	2.06	8.51	2.00
Water Logging Drive-Conducted	23.71	14.43	17.02	48.00	45.36	72.16	25.53	12.00
Water Logging Drive-Participated	9.28	5.15	4.26	22.00	3.09	2.06	8.51	0.00

II. DATA TABLES FOR OVERALL SURVEYED HOUSEHOLDS IN ENDLINE AND LONGITUDINAL STUDY

TABLE 7: Technologies combating heat stress: Overall surveyed Households

Heat Stress								
	Longitudinal	Ahmedabad	Bhopal	Jaipur	Endline	Ahmedabad	Bhopal	Jaipur
	%	%	%	%	%	%	%	%
Green Roofs- Heard	28.25	16.50	48.00	32.00	48.24	38.51	67.50	47.06
Green Roofs- Implemented	2.75	1.00	1.00	8.00	0.32	0.68	0.00	0.00
Solar Reflective paint-Heard	49.00	50.50	48.00	47.00	50.48	48.65	81.25	24.71
Solar Reflective paint-Implemented	2.75	2.00	4.00	3.00	1.60	2.03	0.00	2.35
Mod-Roof-Heard	23.75	23.00	32.00	17.00	40.58	52.03	57.50	4.71
Mod-Roof-Implemented	0.25	0.50	0.00	0.00	0.32	0.68	0.00	0.00
Air-lite Ventilation-Heard	15.00	2.50	41.00	14.00	35.46	25.68	68.75	21.18
Air-lite Ventilation-Implemented	0.75	1.00	1.00	0.00	1.92	1.35	0.00	4.71
Thermocol-based False Ceiling-Heard	28.25	30.00	39.00	14.00	43.45	40.54	86.25	8.24
Thermocol-based False Ceiling-Implemented	2.00	0.50	7.00	0.00	0.64	1.35	0.00	0.00
More windows for Cross Ventilation-Heard	56.50	71.00	54.00	30.00	61.02	56.08	93.75	38.82
More windows for Cross Ventilation-Implemented	3.00	0.50	8.00	3.00	16.61	31.08	0.00	7.06

TABLE 8: Water Availability and Quality: Overall surveyed Households

Water Availability and Quality								
	Longitudinal	Ahmedabad	Jaipur	Bhopal	Endline	Ahmedabad	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Quantity of water in summers adequacy	55.25	60.50	63.00	37.00	76.68	70.27	93.75	71.76
Not purchased water in the last year	82.75	97.00	92.00	45.00	80.51	84.46	98.75	56.47
Loss of work due to water stress	10.75	0.00	14.00	29.00	3.83	4.05	1.25	5.88
Knowledge about water harvesting and conservation methods	21.50	9.50	59.00	8.00	27.80	3.38	92.50	9.41
Rain Water Harvesting- Heard	35.50	17.00	58.00	50.00	60.06	45.27	91.25	56.47
Water Metres- Heard	50.00	63.50	47.00	26.00	63.58	48.65	93.75	61.18
Water Metres- Implemented	16.75	0.50	25.00	41.00	1.60	0.00	1.25	4.71
Sprinkler Taps- Heard	24.00	4.00	49.00	39.00	43.77	29.73	72.50	41.18
Sprinkler Taps- Implemented	17.50	1.00	22.00	46.00	1.28	0.68	0.00	3.53
Quality of water good (taste/odour/color)	73.00	76.00	96.00	44.00	72.84	77.03	98.75	41.18
Water testing in one last year	17.75	4.50	39.00	23.00	53.99	45.27	78.75	45.88
Methods to purify water: Water purifier	1.25	0.5	2	2	3.51	2.70	0.00	8.24
Methods to purify water: Purification drops	0.50	0	2	0	3.19	2.03	8.75	0.00
Methods to purify water: Alum	2.25	0	6	3	0.96	0.00	0.00	3.53
Methods to purify water: Boiling Everyday	2.50	4	0	2	5.43	8.11	0.00	5.88
Methods to purify water: Boiling when dirty	5.00	3.5	12	1	2.24	3.38	0.00	2.35
Methods to purify water: Straining with Cloth	22.00	1.5	38	47	35.78	14.86	75.00	35.29
Methods to purify water: Nothing	59.25	90.5	17	39	48.88	68.92	16.25	44.71
Methods to purify water: More than 1 tehnique	7.25	0	23	6	-	-	-	-

TABLE 8: Vector-Borne Diseases: Overall surveyed Households

Vector-Borne Diseases								
	Longitudinal	Ahmedabad	Jaipur	Bhopal	Endline	Ahmedabad	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Water gets contaminated due to mixing with sewage water: All throughout the year	10.75	15.00	7.00	7.00	12.46	4.05	0.00	38.82
Water gets contaminated due to mixing with sewage water: Only in Monsoons	6.25	6.50	6.00	6.00	17.25	15.54	30.00	8.24
Diarrhoea in children below 5 years	6.75	3.50	15.00	5.00	3.51	2.70	1.25	7.06
Jaundice in the last 6 months in the family	6.50	2.00	10.00	12.00	5.75	4.73	3.75	9.41
Typhoid in the last 6 months in the family	10.00	3.50	17.00	16.00	4.15	3.38	2.50	7.06
Malaria in the last 6 months in the family	6.00	4.50	1.00	14.00	4.15	3.38	1.25	8.24
Chikungunya in the last 6 months in the family	3.50	2.50	3.00	6.00	4.47	2.03	0.00	12.94
Dengue in the last 6 months in the family	4.75	1.00	3.00	14.00	1.28	0.00	1.25	3.53
Heat Related Diseases in the last 6 months in the family	14.25	1.50	27.00	27.00	4.47	2.03	0.00	12.94
Problem of Mosquitoes: Only Night	21.25	0.5	40	44	17.89	20.95	22.50	8.24
Problem of Mosquitoes: Day and Night	58.50	64.5	53	52	75.72	68.92	76.25	87.06
Problem of Mosquitoes: No problem	19.75	35	6	3	6.07	10.14	1.25	3.53
Problem of Mosquitoes: Only Day	0.50	0	1	1	0.32	0.00	0.00	1.18
Prevention from mosquitoes: Used Kerosene/Oil	4.75	0.00	7.00	12.00	2.56	2.70	2.50	2.35
Prevention from mosquitoes: Mosquito nets	6.00	4.50	11.00	4.00	7.67	4.05	3.75	17.65
Prevention from mosquitoes: Screen to block access of mosquitoes	3.75	0.00	11.00	4.00	19.17	32.43	7.50	7.06
Prevention from mosquitoes: Nothing	79.25	95.50	52.00	74.00	66.77	57.43	82.50	68.24
Prevention of mosquitoes: More than 1 technique	6.25	0.00	19.00	6.00	3.83	3.38	3.75	4.71
Mosquito Repellant- Heard	29.50	23.00	42.00	30.00	39.62	29.73	61.25	36.47
Mosquito Repellant- Implemented	9.00	7.00	13.00	9.00	12.46	26.35	0.00	0.00
Neem oil based mosquito repellant refills- Heard	17.75	1.00	35.00	34.00	38.66	17.57	73.75	42.35
Neem oil based mosquito repellant refills- Implemented	4.00	0.00	8.00	8.00	14.70	29.05	3.75	0.00
Mosquito traps made of plastic bottles- Heard	11.25	1.00	31.00	12.00	33.23	33.11	60.00	8.24
Mosquito traps made of plastic bottles- Implemented	2.25	0.00	8.00	1.00	0.32	0.68	0.00	0.00
Smoke based neem repellants- Heard	23.75	4.00	39.00	48.00	62.94	59.46	82.50	50.59
Smoke based neem repellants- Implemented	14.00	0.00	27.00	29.00	16.29	24.32	16.25	2.35
Community Approached local health dept-Yes	3.50	0.00	6.00	8.00	6.39	5.41	0.00	14.12
Community Approached local health dept-Yes, but no reply	5.50	1.00	3.00	17.00	13.10	16.22	0.00	20.00

TABLE 10: Flooding: Overall surveyed Households

Flooding								
	Longitudinal	Ahmedabad	Jaipur	Bhopal	Endline	Ahmedabad	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Lost work due to flooding	3.25	0.50	3.00	9.00	4.79	2.70	8.75	4.71
Children missed school because of flooding	3.50	0.50	11.00	2.00	6.71	4.73	1.25	15.29
Lost property due to flooding	1.50	0.50	4.00	1.00	6.07	0.68	18.75	3.53
Community members taking action on their own to prevent flooding	1.00	0.00	3.00	1.00	2.24	2.70	1.25	2.35

TABLE 11: Community Awareness: Overall surveyed Households

Communtiy Awareness								
	Longitudinal	Ahmedabad	Jaipur	Bhopal	Endline	Ahmedabad	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Participation in CBO meetings	54.75	72.50	44.00	30.00	59.11	57.43	66.25	55.29
Climate change awareness: Know anything about CC	46.25	48.50	57.00	31.00	57.83	56.76	90.00	29.41
Cause of CC: Act of God	3.25	2.50	7.00	1.00	13.42	6.08	3.75	35.29

TABLE 12: Activity conducted in last 1 year: Overall surveyed Households

Activities conducted in last 1 year								
	Longitudinal	Ahmedabad	Jaipur	Bhopal	Endline	Ahmedabad	Jaipur	Bhopal
	%	%	%	%	%	%	%	%
Video show- Conducted	34.25	49.50	6.00	32.00	24.28	11.49	38.75	32.94
Video show- Participated	28.75	43.00	13.00	16.00	39.94	56.76	36.25	14.12
Folk Media- Conducted	34.00	52.00	6.00	26.00	30.99	12.84	57.50	37.65
Folk Media- Participated	27.50	40.50	7.00	22.00	26.52	38.51	21.25	10.59
Snake and Ladders game- Conducted	46.50	72.50	9.00	32.00	21.09	17.57	26.25	22.35
Snake and Ladders game- Participated	17.50	19.50	19.00	12.00	43.13	50.00	60.00	15.29
Group Vulnerability Assessment Exercise-Conducted	25.00	34.00	10.00	22.00	29.07	25.00	56.25	10.59
Group Vulnerability Assessment Exercise-Participated	33.25	59.00	8.00	7.00	20.13	37.16	6.25	3.53
Resilience Planing Exercise- Conducted	26.00	37.00	11.00	19.00	21.73	14.86	52.50	4.71
Resilience Planing Exercise- Participated	31.25	55.50	6.00	8.00	1.92	1.35	3.75	1.18
Tree Plantation Drive- Conducted	18.25	18.00	10.00	27.00	18.85	16.89	11.25	29.41
Tree Plantation Drive- Participated	9.25	3.00	12.00	19.00	24.92	6.76	75.00	9.41
Drainage Cleaning Drive- Conducted	21.00	23.50	12.00	25.00	33.23	45.27	30.00	15.29
Drainage Cleaning Drive- Participated	2.00	0.00	1.00	7.00	15.65	8.78	42.50	2.35
Child Doctor Drive-Conducted	57.25	90.00	11.00	38.00	31.31	9.46	77.50	25.88
Child Doctor Drive- Participated	5.00	2.50	7.00	8.00	10.86	18.92	2.50	4.71
Water testing Drive- Conducted	55.25	88.00	10.00	35.00	26.52	24.32	27.50	29.41
Water testing Drive- Participated	5.50	2.50	8.00	9.00	41.21	53.38	50.00	11.76
Temperature Monitoring-Conducted	27.50	31.50	15.00	32.00	32.59	28.38	38.75	34.12
Temperature Monitoring-Participated	4.25	4.00	1.00	8.00	12.78	6.08	35.00	3.53
Weekly water testing system-Conducted	53.25	89.00	16.00	19.00	33.23	22.97	53.75	31.76
Weekly water testing system- Participated	2.75	1.50	1.00	7.00	24.92	45.95	3.75	8.24
Water Logging Drive-Conducted	45.50	77.50	9.00	18.00	23.96	13.51	48.75	18.82
Water Logging Drive-Participated	2.25	1.00	1.00	6.00	7.99	6.08	17.50	2.35

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