

Women's Action towards Climate Resilience for Urban Poor in South Asia:

Midline Report



Presented to the Global Resilience Partnership

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Project Overview

The *Women's Action towards Managing Health Impacts of Climate Change Affecting the Urban Poor in South Asia* Project aims to build the resilience capacity of women from slum communities in seven cities of South Asia, to take the lead in action against four climate risks. These four climate stressors – heat waves, flooding and inundation, water scarcity, and increased incidence of water and vector borne diseases – often impact the poor most but are slower-onset and less apparent than climate disasters and extreme events. The project aims to create a model wherein women take a lead through collective action and technology incubation to devise locally relevant, pro-poor, and gender sensitive climate resilient solutions. This model will ultimately promote a culture of sustainable development and resilience among the urban poor in South Asia. Success for this project means a demonstration of how women-led initiatives have built the necessary social capital, policy influence, technical expertise, for poor urban communities to respond effectively to climate change, thereby sustaining their health and livelihood options.

Current Project Status

The project has a timeline of two years, in which a baseline assessment has already been completed, a midline assessment has just taken place, and an endline assessment will be conducted to evaluate the final, overall impact of the project. The baseline report included demographic data, as well as indicators used to calculate climate change vulnerability skills based on risk and susceptibility. The data from the baseline assessments and interviews provided a starting point for MHT to begin working with communities based on the two theories of change:

- 1) If the urban poor are provided with the requisite knowledge to undertake vulnerability and risk assessments, and are equipped with accessible resilient technologies, they will be able to devise and implement locally relevant and pro-poor climate resilient solutions.
- 2) 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.

MHT has had previous experience working with slum communities and providing access to basic resources. This project, however, requires more coordination, education, and facilitation in order to ensure long-term resilient solutions against climate change that are women-led and fully understood by communities. By employing various education, communication, technology transfer, leadership, and partnership-building methods, MHT has been able to experiment with which methods worked and which did not.

Methods

The midline assessment is based on interviews with community members and leaders, MHT staff, and technological experts conducted in April to July 2017. The interviews focused on specific ground observations on what has been successful in the project thus far. The interviews also provided information on areas of improvement and strategies for continuing progress throughout the rest of the project.

The interview questionnaire employed a Qualitative Comparative Analysis (QCA) approach, in which indicators are scaled to measure the progress of outcomes. The questions were focused on behavior change and perception of vulnerability to climate change. The data collected from these interviews was processed using SPSS and NVIVO software to enable both quantitative and qualitative analysis. This mixed methods approach identified trends in the interviews and related these trends to seven major propositions, as well as the two theories of change.

Conclusions on Midline Progress

First, leadership works best when it's developed and interacts at all levels. The project enables this by establishing groups from the community-level (Community Action Groups, or CAGs) to the city-level (Vikasinis, or women leaders from across the city who focus on collective and cross-cutting issues of concern). Observations showed that including adolescent girls and boys in CAGs provided a new dynamic in the groups, especially when it came to understanding technology quickly. Thus far in the project, most CAGs are led by only two to three active leaders. MHT intends to facilitate more robust and active CAG leadership in the next steps. CAG and Vikasini (city-level leaders), have taken slower formation in partnership cities aside from Ahmedabad. MHT intends to offer more workshops on awareness, communication, and multi-stakeholder partnerships, in order to maintain and intensify leadership development.

Second, empowering women leaders to communicate in a non-confrontational manner increases municipal support. Dialogue between governments and slum communities is often limited. Further, city agencies often do not understand the needs of the urban poor particularly well. MHT used positive media communication of the project's progress in order to spark government interest and collaboration. By teaching the Vikasini leadership skills, government formalities, and a non-confrontational approach, the women leaders were then able to approach officials confidently and persuasively. The non-confrontational approach increases the likelihood of approval of Vikasini government applications that provide aid to poor communities. MHT's facilitation of these connections has also aided in implementing government aid in communities.

Third, projects such as GRP require widespread community participation, and therefore, widespread leadership that must be nurtured over time. This project is larger in scale than any venture previously executed by MHT, requiring large-scale behavior change, technology transfer, and community action. The repetition of training and secondary technology transfer allows for a slow behavior change over time. Because of the short duration of the project, MHT is aware that it is more important to give communities the tools for long-term self-sufficiency and increased understanding that can be perfected over time than to push for short-term but smaller-scaled outcomes.

Fourth, systematic, repeated, and innovative communication tools are necessary to enable scientific and futuristic thinking in communities where most residents are used to thinking short-term. MHT has used new methods of communication in the various training sessions. Song singing, snake and

ladder games, and personal reflection significantly enhanced the orientation trainings on climate change. The most useful training sessions focused on the Community Based Vulnerability Assessment Toolkit (CBVAT), which allowed for direct demonstration, data collection, and tangible observations for and by the community members. Community water testing and vector borne disease drives proved to be effective as well. MHT overcame communication and language barriers by creating symbols to convey the ideas of climate change and resilience that are more comprehensive and contextual in the community culture.

Fifth, as stated in the previous paragraph, community-led data collection leads to an increased understanding on issues affecting them. This increased understanding ultimately leads to more resilient actions at the household level. Community-led data collection has the opportunity to provide micro-level data to communities, making it easier for Vikasini leaders to provide tangible results and needs to government officials. Data collection also helps identify which communities have a higher vulnerability to climate change stressors so that MHT, community leaders, and officials may help those that are most at risk.

Sixth, technologies must be cost-effective. The products need to be commercially available, culturally appealing, and technically supported after purchase. MHT researches and invests in technologies in order to provide options to poor communities, so they can then make their own decisions based on what is affordable and appealing to them. Technology provided as demonstration projects for free were not maintained and their purposes were not as well understood; community residents have more of a stake in the technology when they chose to invest in it. The less successful technologies included Mod Roofs (highly effective insulating roofing that remains culturally unappealing), Thermocol (a technology perceived to have harmful health effects), and AirLite Ventilation sheets (due to their higher long-term costs). Successful technologies included Tree Plantations and Green Roofs, Reflexive White Paint, Sprinkle Taps, Water Purifiers, and indigenous methods such as mosquito traps and lemongrass. The successful technologies have proven to be more affordable, offer direct benefits to the community members, and require less maintenance over time.

Finally, skilled facilitation is needed for effective interactions between communities and technical experts. While language barriers exist between these two groups, the more difficult barrier was their different mindsets and perspectives. The project sought to overcome this by means of a Systems Thinking workshop in which all technical experts associated with the project, from the various climate stressors, worked to develop and understand an integrated approach to climate resilience within slum communities. In this workshop they created a Causal Loop Diagram for each stressor and combined them to see how each stressor interacted with the other three. Additionally, the Technical Training workshops provide direct interaction between experts and CAG leaders. MHT's facilitation is needed in these sessions to encourage CAG members to speak up and ask questions.

Next Steps

The interviews conducted for the midline assessment were crucial to better understand how to move forward in the remainder of the project. From these seven main propositions and interview feedback, MHT is able to assess their strategies and parts of the project that will require more effort in order to achieve community resilience. For the remainder of the project, much more focus must be devoted to the Emergent Cities outside Ahmedabad. It was expected that the project would be

easier to implement in Ahmedabad due to MHT's active presence in the city, and therefore Ahmedabad serves as a model to the other partnership cities. CAG and Vikasini formation is especially slow in Emergent Cities, and MHT intends to provide more workshops and training to expedite their formation. In Ahmedabad, MHT hopes to intensify success by motivating more active CAG leaders, which ensures that secondary knowledge transfer is in the hands of more than two to three leaders. With respect to technology, MHT intends to continue to invest in technologies that have proven successful. Technical Training will also stress the advantages to communities' investments in resilience through technology, so that residents have greater capacity to assess affordability long-term. MHT has facilitated some technical expert visits in slum communities, and hopes to continue these visits for more direct expert-community interactions. The project will continue to be valuable for the seven partnership cities' urban poor populations, as well as local governments, and intends to leave the tools toward long-term, collaborative decision-making for climate change resilience.

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Introduction

The *Women's Action towards Managing Health Impacts of Climate Change Affecting the Urban Poor in South Asia* Project aims to build the resilience capacity of women from slum communities in seven cities of South Asia, to take the lead in action against four climate risks. These cities include Ahmedabad, Jaipur, Bhopal, Ranchi, Bhubaneswar, Dhaka, and Kathmandu. This report outlines the seven major propositions learned from the ongoing Global Resilience Project (GRP), led by the Mahila Housing SEWA Trust (MHT), and presents strategies to overcome shortcomings identified to date. These lessons, or propositions, emerged from mid-project interviews with MHT staff, technical experts, and community members.

Two theories of change represent the core of the GRP's goals: to enable slum communities, especially women, to learn about climate change resilience, to gain access to resources, and to create partnerships with technological experts and government officials for continuous pro-poor decision-making. Ultimately, MHT's has tested numerous methods through work with slum communities and further development of the GRP project, in hopes of developing a model that can be fully implemented in all seven cities and across South Asia.

The first theory of change states that if the urban poor are provided with the requisite knowledge to undertake vulnerability and risk assessments, and are equipped with accessible resilient technologies, they will be able to devise and implement locally relevant and pro-poor climate resilient solutions. This theory focuses on empowering communities and building their capacity to take action and create their own solutions. MHT facilitates knowledge transfer with the urban poor by providing educational workshops on climate change resilience, specifically on four climate change stressors: heat waves, flooding and inundation, water scarcity, and incidence of water and vector-borne diseases. The various methods for these workshops are further elaborated in the propositions, such as effective communication tools and how to ensure long-term resilience is realized. MHT also facilitates partnerships with technological experts, and researches which technologies are effective, usable, and desirable for slum communities. Through experimentation, demonstration, implementation, and reevaluation, MHT has been able to find which technologies are more easily understood and assimilated into the communities' culture. MHT has also begun creating resource groups of technological experts for each partnership city that community leaders can approach; however, these expert resources are not yet fully established in each city.

The second theory of change states that 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. The core of this theory is that communities should create their own solutions for long-term resiliency, while maintaining input in, support from, and communication with local government to reach a sustainable partnership. MHT aids this partnership by mobilizing and organizing women from communities, instructing them on leadership skills, and collecting them into Community Action Groups (CAG). A city-level federation, the Vikasini, is then made up of strong CAG leaders communicate directly with government officials and voice the needs of the poor. Throughout this introduction process and the beginning of building partnerships, MHT facilitates and mediates discussions between women leaders and officials.

This midline report poses seven propositions, or lessons learned, in order to better understand successful and unsuccessful methods of knowledge transfer, leadership development, behavior change, and government-community interactions. They are stated as follows:

1. Leadership works best when it is developed and interacts at all levels
2. Empowering women to advocate in a non-confrontational/collaborative manner increases municipal support to address these needs
3. Iterative projects such as GRP require widespread community participation and, consequently, widespread leadership that can be nurtured over time
4. Systematic, repeated, and innovative communication tools are necessary to enable scientific and futuristic thinking in communities whose members are used to thinking short-term
5. Community-led data collection leads to an increased understanding within the communities on issues affecting them, thereby leading to more resilient actions
6. Successful pro-poor technologies should be cost-effective: commercially available, culturally appealing, with proper services provided along with the purchase
7. Facilitation is needed for effective interactions between communities and technical experts

These propositions offer a wealth of knowledge on how to help the urban poor through ground observations, direct contact with community members, and extensive trial and error. While MHT's work in previous projects involved extensive work in providing basic services to slum communities, the GRP Project's emphasis on long-term and on-going creation of solutions to promote resilience against climate change requires more extensive partnership building across seven cities.

The seven propositions, discussed below, in addition to the theories of change, provide our current understanding and guidance as to how to create more sustainable, pro-poor solutions in developing countries.

1 Leadership works best when it's developed and interacts at all levels

1.1 How We Arrived at this Proposition

This proposition emerged out of MHT's major strength for the past two decades, which has been its expertise in empowering women from urban slums.

Since our inception in 1994, MHT has been working on promoting strong, women-led Community Based Organizations (CBOs) that are operated by the poor on behalf of the poor. The Community Based Organization (CBO) is a membership group which aims to cover all the families residing in a slum. For ease of engagement, bigger slums are often subdivided geographically to form multiple CBOs, each consisting of 200 to 250 families. Through this experience, we have found increasing each CBO's advocacy capacities makes it possible, particularly for women, to connect with Urban Local Bodies (ULBs) and other stakeholders. These connections procure better services for women and their families, including improved water, sanitation, and housing infrastructure under existing government schemes.

Creating a CBO is the first step of MHT's leadership building mission. To mobilize women living in slums, MHT organizes sensitization campaigns, hosts area meetings, shows videos on MHT's previous work, contacts individual households, and conducts slum profiling and household surveys. The formation of a CBO culminates in the CBO Listing Process, where we receive consent of CBO members to join our programs. For the second step, the CBO members are then encouraged to identify women leaders among themselves as members of the Community Action Group (CAG). The CAG is the executive committee of the CBO members and is formed to take action on their behalf. Each CAG develops as a team of 10 to 15 women leaders that get together to work for their own communities. For the GRP Project, MHT promotes adolescent girls as part of the CAGs as we believe youth leaders will bring new dynamic to the leadership group, especially when it comes to knowledge generation and knowledge transfer.

In the past 20 years, CAGs proved to be the key change agent in providing basic facilities to slum communities. They are a vital link that connects MHT's staff and community members, since CAG leaders have highly local knowledge about the community, and are part of the community network. Additionally, CAGs represent their own community very well in front of ULBs and rightfully request services based on existing government schemes. While CAGs interact with community members to identify issues, MHT offers ongoing support to identify specific officials CAGs should go to and to help CAGs with the necessary formalities so that they can properly interact with government officials. At the wake of successful installation of basic facilities, CAG leaders become more confident, their leadership skills receive a significant boost, and community members show more respect and willingness to cooperate.

By 2008, CAGs from all empowered slums had become a strong force at the slum level and were envisioning a larger role in further influencing city-level policies. With the understanding that there were numerous plans and programs being made for the poor and that they needed to have a voice and stake in the process, the agenda to collectivize CBOs into a city-level federation—named "Vikasini"—was conceptualized. The term "Vikasini" is a local feminine connotation meaning "carriers of development." There is no hierarchical structure and each Vikasini member is a CAG leader who represents one to two CBOs in addition to her own. Initially, Vikasini followed MHT's instruction and guidance when it interacted with local government bodies or tried to form its action plans. Gradually, Vikasini grew independent of MHT's support and together, these organized women leaders bridge the gap between the government and the urban slum dwellers, serving to give the urban poor a voice and command attention to policy design and implementation that directly affects these citizens' daily lives.

From CBOs to Vikasinis, our past experience has told us that leadership works best when it is developed and interacts at all levels. Leadership is developed at three levels: empowered CBO members at the household level, CAG actions at the community level, and Vikasini efforts at the city level. While CAG leaders can effectively represent their own communities through their direct interactions with CBO members, the Vikasini Federation represents the urban poor as a whole on the city level to inspire more large-scale pro-poor schemes. With respect to leadership interaction, MHT encourages the community leadership to interact with all levels and types of authorities and technical experts: from administrative agents such as ward councilors and municipal corporations, to technical experts such as junior engineers in the municipal corporations and technical experts from service providers. MHT observed that interacting with all levels of governmental agencies is a useful strategy. When lower level officials with whom communities have already built rapport are

promoted, the deep ties between the officials and the ground level will accelerate the communities' development agenda. Interacting with government officials, such as ward councilors, also increases the leadership skills of the women leaders, as they are able to observe higher-level government schemes, strategies to implement services for the poor, and leadership talents of elected officials.

We envision the GRP project as an extension of MHT's existing programs, and in order to build community based resilience as MHT anticipates to do in the GRP project, we believe the power of organized leaders should be the foundation of the GRP project.

1.2 How This Proposition Promotes Community-based Resilience

Currently in India and throughout South Asia, city-level actions are not well connected to ground-level implementation. Although resilience actions are promoted at the city level, local bodies and service providers often fail at the last-mile delivery. To bridge the gap and promote community-based resilience, both community members and government officials must make corresponding changes in actions, plans and budgets. Consequently, a multi-stakeholder perspective is needed to promote community-based resilience, and it is of vital interest to work on both the community level and the city level.

MHT and its partners can transfer the knowledge to CAG leaders who in turn spread the information to CBOs. At the same time, just as CAG leaders help the community get basic facilities, they can also represent the community to the Urban Local Bodies (ULBs), motivate the community to join the resilience action, and ultimately change the mindset and the behavior pattern of the community.

Consequently, for the GRP Project to build on MHT's biggest strength, MHT promotes a participatory learning process that goes hand-in-hand with its mobilization model, so that locally relevant knowledge can be generated: pro-poor solutions can be devised for the communities, by the communities. In this way, the GRP Project can be readily built on MHT's existing programs, and the success of the GRP Project hinges on the support and promotion of strong, women-led CBOs that are operated by the poor, on behalf of the poor.

However, the GRP Project has its own features to offer to MHT's existing programs.

The GRP Project is a knowledge-generating and awareness-raising program that does not provide tangible results within a short period of time. The lack of tangible results, the difficult technicalities, and the ultimate goal of knowledge generation requires more active, consistent participation from both the community and the community leadership. Prior to the GRP Project, MHT's focus on building the Vikasini Federation to interact with government officials and other parties who can provide services and raise the profile of the urban poor. As a result, although Vikasinis are all CAG leaders in their own communities, only 2 to 3 CAG leaders are active in each community. For the GRP Project, we need more robust CAG leadership than we previously asked from the community.

On the other hand, the GRP Project is larger in scale than any other previous MHT programs. It is present in seven cities, three different countries in South Asia, and it aims to build a multi-stakeholder partnership that establishes local resource groups in each city. Before the GRP Project, MHT had worked in Ahmedabad for more than two decades and had started to organize CBOs and CAGs in cities such as Jaipur (2010), Bhopal (2012), and Ranchi (2014). However, progress in new cities was slower than hoped. Formation of city-level Vikasini were either rudimentary or non-

existent. However, the advent of the GRP Project stimulated MHT to fast-track both the CAG forming process and the Vikasini-forming mission in what we call Emergent Cities, where networks at all levels are still emerging in contrast to the established networks in Ahmedabad.

Those two major differences create different scenarios and challenges that MHT has to face in its implementation of the GRP Project, especially on the leadership-building process at the city level.

For an Established City such as Ahmedabad, work is relatively easier because CAGs have already been formed, Vikasini Federation is very mature, and the technical experts are identified and present. Consequently, the mission in Ahmedabad is to intensify the GRP process for better results.

For Emergent Cities such as Jaipur, Bhopal, and Ranchi, although programs on water and sanitation have been taking place in Jaipur and Ranchi and the energy program has been carried forward in Bhopal, the formation of CAGs and Vikasini Federations has lagged. The success of CAGs and the Vikasini Federation in Ahmedabad is the result of 20 years of work and this process is not a finalized model that could be easily transferred. Consequently, one of the major tasks in Emergent Cities is to test the transferability of the MHT model in Emergent Cities and build a more generalizable model.

1.3 Strategies

Strategies as emerges from this proposition are twofold.

For leadership development, MHT continues doing what we do best: the empowerment and capacity building of women in urban slums. MHT's field facilitators will more fully enter into their working areas, mobilize the communities to form CBOs, promote active CBO members to form CAGs, and select potential Vikasini members from amongst CAG leaders. After CAGs are formed and community leaders are identified, MHT's field staff will provide additional training on climate risks and resilience actions using participatory training modules and innovative communication tools. In the meantime, whenever there are issues with water connection, power provision, or sewage lines, MHT's field staff will work with the communities and facilitate and encourage community leaders to go to the municipal corporation for solutions. Although short-term physical outcomes of these strategies will be the same as MHT's prior programs, such as new water connections and better drainage systems, the addition of the GRP project and its training modules is expected to bring a significant change in the way of thinking. Prior to the GRP training, CAG leaders were working to get water connection simply for the sake of water. Under the GRP training, we hope that CAG leaders can be aware of not just the necessity of water, but the necessity of *clean* water. After training, they will realize the long-term benefits of clean water and understand the detrimental health effects of using polluted water, and they will be able to identify their vulnerabilities against climate change and take corresponding resilience actions. In general, they will have a mindset of futuristic thinking.

For leadership interaction, strategies are based on the notion of a multi-stakeholder partnership. Prior to the GRP Project, no formal liaison between community members and technical experts had been established, and one of the GRP deliverables is to institutionalize such connection into what we call the multi-stakeholder partnership. MHT aims to provide larger platforms on which slum communities, government officials, and technical experts can have direct interactions. One of the strategies is the multi-stakeholder workshops held at every city, a networking event inviting community leaders, government officials, and technical experts to come together and share their respective visions and insights. Another strategy to facilitate direct interaction between slum

communities and technical experts is through Technical Training, where the technical experts will directly train community leaders and some community members on climate risks, and offer them strategies and advice to raise their own resilience. The ultimate goal of the multi-stakeholder partnership is to build a Local Resource Group in each locality composed of local technical experts with whom the slum communities can directly interact for technical solutions and consultation.

1.4 Ground Observation

1.4.1 Established Cities:

In Ahmedabad, the GRP Project was launched in 38 slums: some of the 38 slums are well-established slums, others are emergent slums where MHT just started working.

With regards to leadership development at the city-level, Vikasini is already formed. In established slums, CBOs have been listed and CAGs have been formed and nurtured; therefore, our major focus is to conduct GRP training. Experienced CAG members are capable of work, and MHT helped them identify climate risks in their areas and gave them training on those issues. Those CAG members will in turn go to relevant agencies to fix the issues. However, the challenge in established slums is to make the entire CAG, as well as a larger proportion of the CBO, become active again. Toward this goal, MHT brought adolescent girls to CAGs and received positive responses from the ground level. Although elder CAG leaders, due to their years of experience, understand MHT's model better and have personal experience with climate change, youth leaders respond faster and better to technical information and are able to conduct difficult tasks, such as writing applications and filling in forms. However, making every CAG member active remains a challenge. Based on observations made by field facilitators, no single strategy can make sure all the CAG members are active, and responses to different strategies vary from slum to slum. Specific responses will be discussed in detail in Proposition Three.

In emergent slums, CAGs and CBOs have been successfully formed. Different communication tools designed for the GRP Project have also accelerated this process. In these new slums, basic facilities are often not available and MHT's major task has been offering step-by-step support to newly formed CAGs so that women leaders can go to the local bodies and get basic facilities. This support is in line with the philosophy that the GRP Project is an extension that brings new insight to MHT's traditional projects of getting services for the urban poor. For new CAG leaders, interacting with government officials often requires MHT's company and instruction. There have been several incidents where new CAG leaders are instantly taken seriously by local officials once MHT's staff accompanied them in the office.

In both established and emergent slums, motivating CAG leaders to take immediate actions is relatively straightforward. Encouraging a more future-oriented mindset is more difficult. In South Asia, climate change is widely considered to be God's wish. When we talk about water or drainage, residents take interest and feel that they in partnership with MHT can do something to provide water connections or toilets. But residents are at first uninterested in larger patterns such as rain, water logging, and mosquitoes. However, after more participatory tools are put in use such as surveillance drives, women leaders become more engaged and willing to participate. Technical experts also played a significant role in facilitating a change of attitude: after Dr. Kohli, our technical partner specialized in vector-borne diseases, explained about larva through vector drives and Technical Training, CAG leaders showed increased interest and became more involved in the

project. By now, most established and emergent slums have assessed local conditions, started resilience action planning and started collaborating with the municipal corporations for implementation of specific projects.

In Ahmedabad, MHT has already established a relationship with both public and private sectors. On the ground level, experienced CAG leaders can often easily accomplish work at the local offices, while new CAG leaders need more intermediation from MHT. What we noticed in the process is again the necessity to interact with different levels of government officials. When CAG leaders do not get responses from the Ahmedabad Municipal Corporation (AMC), they instead go to their local councilors for solutions and vice versa, where usually one or the other will respond and solve the issues. At the city level, Ahmedabad's Vikasini is influential on resilience actions. For example, there was a heat action plan launched by AMC under its climate change project, and both MHT and Vikasini were invited to its launching, during which MHT and Vikasini shared their positive experience with white paints used to increase the reflectance of roofs and reduce indoor heat stress. After hearing the experience, AMC included white paints as part of its heat action plan and started organizing drives for white paints.

1.4.2 Emergent Cities:

As the GRP Project began, although the same training on collective action and capacity building has been given to all the local teams, local responses vary from city to city. Jaipur was expected to show more progress than Bhopal and Ranchi in capacity building, but in reality, Bhopal responded best to the training, Ranchi the second, with Jaipur as the least responsive. One of the reasons might be the constant changes in personnel in Jaipur's MHT local team, which leaves the local coordinator, head of the local team in each city other than Ahmedabad, the only person who is well informed about the entire GRP Project as well as MHT's modus operandi. In comparison, staff members in Bhopal and Ranchi teams are relatively stable, so more people in those teams are well-versed in MHT's operation and the concept of the GRP Project.

Despite the challenges, the GRP Project is proving to be a catalyst for forming CAGs as well as Vikasini in emergent cities, as multiple training modules that emerged in the GRP Project complement the capacity building mission of the GRP project. Although the GRP training is not oriented to leadership building, but to heighten awareness of CAG members on climate change, realization of their communities' vulnerability prompts female leaders to take actions against such vulnerability. Consequently, although no Vikasini Federations have been formed on the city level, a group of potential Vikasini board members have been selected in the emergent cities. This process took much less time than it did in Ahmedabad, largely thanks to the GRP training and its catalytic effect.

2 Empowering women to advocate in a non-confrontational/collaborative manner increases municipal support to address these needs

2.1 How We Arrived at this Proposition

MHT's work in the past twenty years is not only highlighting the squalid conditions in urban slums, but also finding possible solutions. We staunchly believe it is the right of every citizen to have access to basic services, but in addition to advocating for basic human rights of slum dwellers, we also take the pragmatic approach to go to the local governments and explore possible solutions.

Most state and local governments in India have recognized the importance of providing access to basic facilities and increasing resilience of the urban poor, and have been trying to address these issues through various schemes and provision of subsidies. The Government of India also initiated the Swachh Bharat Mission in 2014 to provide an impetus to cities and towns to undertake sanitation improvements. However, making these available to the urban poor, particularly those residing in slums and informal settlements, remains a major challenge.

Local bodies and contractors often find it hard to achieve the last mile delivery of services in slums and poor areas, primarily for three reasons. First, lack of accurate and updated information and spatial data makes it difficult to plan for and provide household level services. Second, information about government schemes and programs is rarely communicated to communities in a simple and an easily understandable format. The application procedures are complex, time consuming, and involve multiple players. And lastly, there are limited channels for effective dialogue between the government and slum dwellers.

Consequently, although the public sector is willing to help the urban poor, they are unable to do so because of the three reasons mentioned above. Recognizing both the willingness and the difficulty, MHT realizes it is much more efficient to help the government and the urban poor to resolve their mutually shared difficulties. As a result, MHT's core strategy is not to promote insurgent activism, but to empower women from underserved communities to collaborate with the institutional powers, so that a two-way collaboration can be facilitated. On the one hand, local bodies will be informed of the ground-level realities and thus more effectively deliver available services. On the other hand, women from urban slums can understand the bigger picture of municipal governance and thus gain a larger perspective, advocating for community concerns within a context of available resources.

On the community level, CAG training, and the subsequent support from MHT have not only helped these women leaders interact with local authorities to access basic services for their communities, but have also resulted in an increase in their self-esteem and confidence levels. Local officials are often surprised to see women leaders from slum communities so well-spoken and articulate about the issues in their communities, and so familiar with some government schemes, and, as a result, local officials are better able to deliver services into slum communities.

On the city level, nothing marks MHT's success in such approach better than the transformation of local governments' attitudes from treating the poor as "beneficiaries" to recognizing them as "partners" in the service delivery processes. Beginning with involvement in planning and research of pro-poor programs, Vikasini is now often invited by Ahmedabad Municipal Corporation (AMC) and other organizations to provide inputs in city level development and planning initiatives.

2.2 How This Proposition Promotes Community-based Resilience

Resilience cannot be achieved by one-sided action: building resilience only on the community level misses the necessity of having a larger, wider mechanism at work to raise the resilience of the urban poor, but devising only large mechanisms fails to complete the service delivery process. As mentioned in Proposition One, the GRP Project was implemented as an extension of MHT's existing programs, and it is the core value of MHT's existing programs that we work on both sides: the side of the communities and the side of the city-level governance. Specifically, to implement the GRP Project on the basis of MHT's existing programs, we incorporate

awareness of climate risks and the concept of resilience actions into our current efforts to build the capacity of women leaders, who will then take initiatives, interact with the authorities, fix problems such as lack of basic services, and ask for more input in city planning. Consequently, the success of the GRP Project hinges on both the successful capacity building of the community members and fruitful interactions with government officials. Towards the latter goal, based on our positive experience with a non-confrontational approach, it is important to keep this approach in order to collaborate with the government.

For our theories of change, the first theory depends on both the transfer of knowledge and successful resilience action on the community level. As we repeatedly emphasize, resilience is not achieved by one-sided action—the community leaders need to collaborate with the local authorities for successful implementation, and, more importantly, for thinking outside of their own community. The authorities, on the other hand, need to know the ground-level realities to devise better pro-poor policies and plans. Consequently, collaboration with the government is important for the successful realization of the first theory of change.

Collaboration is even more important for our second theory of change, which envisions an increased sphere of influence of the urban poor on city-level policy making and resilience actions. The entire base of this theory is to work with the government so that the government will listen to the urban poor and make corresponding changes in their policy making. Thus, it is critical that MHT and the federation of slum communities can work to procure more support from all levels of government agencies.

2.3 Strategies

MHT's support is twofold: MHT trains CAG leaders on the formalities and procedures necessary for working with government officials, and seeks to coalesce CAG leaders from different slum communities into a Vikasini Federation. An entire CAG training module focuses on Urban Local Boards (ULBs) and interacting with them, allowing CAG members to learn how to approach government officials collaboratively, not confrontationally. The Vikasini Federation of CAG leaders allows these interactions to take place between the urban poor as a whole and ULBs.

Since CAG members have already individually visited ULBs for their community-specific projects by the time the formation of Vikasini Federation is initiated, it is easier to reach out to ULBs as a federation when the individual members of the federation are already acquainted with the government officials.

As mentioned before, the GRP Project motivates MHT to fast-track the process of building women's leadership in urban slums in cities other than Ahmedabad. Consequently, one of the project deliverables of the GRP Project is to devise a transferable model of building female leadership in urban slums, so that such model can be widely applied.

In Emergent Cities, the prerequisite for more rapidly forming Vikasini is to more quickly form mature CBOs and CAGs. In order to speed up this process, MHT customizes the CAG training modules for the GRP Project—a qualified Vikasini first and foremost shows knowledge of issues beyond her own community, and in our CAG training module, a small part is dedicated to issues universally present in urban slums so that the trainees can go beyond a single issue of concern in

her community. In other words, we incorporate part of Vikasini training with CAG training, thus starting the Vikasini forming agenda a step earlier.

To reach out to municipal agencies, MHT made external communication with media to have more exposure and to propagate MHT's projects and efforts. It should be noted that MHT's external communication strategies are still in line with the non-confrontational approach. For example, if MHT gets hold of data that reflects bad water quality, such data will not be shared with journalists who might use the data to write an accusing article against the local governments. This withholding is not done to cover possible dereliction, but to seek collaboration with officials that can fix the problems. At the same time, we work with the media so that the presence of an organization such as MHT and its achievements will be known by the local governments. As a result of this strategy, government agencies have expressed increasing interest in working with MHT after media exposure.

2.4 Ground Observation

On the ground level, interviews with local facilitators reveal frequent interactions between government officials and CAG leaders. For some CAG leaders, initially, government officials did not pay attention to their work and often failed to show up for the time designated for appointments. Instead of telling them to react aggressively, MHT encourages CAG leaders to keep making appointments while getting either more signatures of community members on their application or more community members to show up at the office with them. Due to those leaders' persistence and their non-confrontational manners, government officials started taking them seriously and their applications were accepted and implemented. Among the 13 government officials interviewed for this Midline Assessment, all the interviewees expressed approval of MHT's approach and its goal. It is worth pointing out that five officials mentioned that the mistrust between slum communities and authorities is either a myth or gets dissolved by MHT's efforts. This resonates with MHT's collaborative philosophy that it is the bridge that needs to be built between government officials and slum communities.

On the city level, there are several incidents where MHT successfully won over local governments' support by sticking to the non-confrontational strategy.

In Ranchi, in 2014, we started studying water, sanitation, and housing of slum areas and started envisioning what kind of work we could do for that area. In 2015, we started our work on the ground level to form CBOs and help them get water, sanitation, and toilets. Slum dwellers there have small and impermanent houses, and no government schemes were available when we started the work. Therefore, MHT started giving residents loans under our Micro Finance project for restoration and repairing work. But once the government introduced Rajiv Awas Yojna (RAY) and "Clean India" initiatives in 2016, we stopped our Micro Finance projects and instead started working under those plans. In the end, the government started seeing MHT as a partner and MHT started working as part of the Programming Monitoring Committee for the government. As a part of this Committee, we are working to spread awareness among slums, help slum residents fill forms to secure possession of their houses, and help them to achieve payment, construction and guide them in their work. We are able to help slum residents benefit most from our work because we collaborate with the government plans and are recognized as a partner. We also do stage-wise

monitoring and quality check for the government, based on which the Municipal Corporation will release their next installment.

Another incident in Ranchi is our successful promotion of the rainwater harvesting system on the city level, and the reason for such success lies in our non-confrontational approach. Ranchi is a hilly area and its soil does not absorb water; as a result, the groundwater does not easily recharge and pumps cannot work. Ranchi has a lot of traditional water sources such as water wells, but they are not functional. When Ranchi Municipal Corporation (RMC) started the RAY initiative, MHT suggested that reviving those traditional water sources alongside RAY houses would be a good measure to get water supplies to the poor. At the beginning, our suggestion was rejected by RMC but we did not confront with the government; instead, we found one well next to some of the RAY houses, and we built a rainwater harvesting soft pit. We then connected neighborhood houses to the system so water from their terraces would be collected by the pit and could recharge the groundwater level. In the process, we invited officials from RMC and asked them to share their thoughts. On the day of inauguration, we invited those officials and the very next day they published news in newspaper praising MHT's efforts and finally agreed to install rainwater harvesting systems in every RAY house they plan to build.

Our external communication strategy also yielded success. In recent years, Bhopal has seen increasing cases of vector-borne diseases. While conducting vector surveillance drives in slums, MHT stuck to its non-confrontational media strategy: instead of telling media the widespread presence of mosquito larvae in the slums, we simply told local newspapers of our strategies and the positive responses we received. Such coverage caught the eyes of the City Malaria Department (CMD). It turned out that the Department genuinely wants to improve the status quo of widespread diseases but has been struggling for an entry point to monitor mosquito breeding sites on the slum level. MHT's stories offer just what they need and a successful collaboration between MHT and CMD thus started. The Department is now looking forward to partner with MHT to organize other community level health campaigns. MHT is able to achieve this friendly relationship due to its non-confrontational approach--we do not accuse or blame, we collaborate to find solutions.

3 Iterative projects such as GRP require widespread community participation and, consequently, widespread leadership that can be nurtured over time

3.1 How We Arrived at this Proposition

The GRP Project, in its essence, is very different from MHT's previous programs that provided basic amenities for urban slums. The GRP Project is a knowledge-generating and awareness-raising program that is iterative in nature, but does not provide tangible results within a short period of time. In previous MHT programs, we have provided information on government objectives; however, information spreading and knowledge forming are different. In the case of the GRP project, we want large-scale community-based resilience actions, which can only be achieved if a large number of community members have changed their attitudes toward climate risks. Consequently, MHT believes the lack of tangible results, the difficult technicalities, and the ultimate goal of large-scale behavior change requires more active, consistent participation from the community.

However, we also recognize directly interacting with *all* the community members is impractical. Although we will find ways to directly interact with community members on a large scale, we also need mediators who can spread the knowledge on a day-to-day, consistent basis; CAG leaders fit into this mediating role. Based on MHT's basic CBO/CAG model, knowledge transfer and technical training will first be given to CAG members, who will go back to their communities to spread information and complete the secondary knowledge transfer. Such secondary knowledge transfer can be done through daily conversations, and area meetings are also a convenient platform to spread information to CBO members. However, considering both the difficult technicalities and the short duration of the GRP Project, it is of vital interest to the success of the GRP Project that MHT has proper strategies to reinforce the existing mechanism that ensures the secondary knowledge transfer.

3.2 How This Proposition Promotes Community-based Resilience

Community-based resilience action, by its name, is rooted from the action of the entire community, not just a few members of it. MHT's entire theory of change is built upon a successful knowledge transfer to the urban poor, so that they are equipped with requisite knowledge to devise their own resilience actions and can further influence city-level planning and resilience-generating policies. Therefore, it is only natural that MHT envisions that the entire community start learning more about climate change-related risks, and change their behaviors accordingly to build more resilience against climate risks. We need to enable the community to be observant of their surroundings and to have corresponding strategies for different scenarios.

As mentioned above, for both pragmatic reasons and the idea that the GRP Project should be iterative in nature, MHT has to enlist more active community leaders to enable learning and to spread knowledge. In addition, well trained and promoted community leaders can continue leading communities without MHT's guidance and support. By increasing social capital of the marginalized communities, sustainable, long-term growth is promoted.

3.3 Strategies

MHT decided to build and promote leadership and participation beyond the scope of traditional MHT programs. In addition to promoting and training CAGs in slum communities, it is necessary to directly facilitate the community as well. The ambition to expand community leadership within the short duration of the GRP Project makes it hard to develop a fully mature leadership within each community, but MHT aims to provide the necessary information and the organizational structures so that a fledgling leadership can continue to grow even after the GRP Project is over. This notion reinforces MHT's idea that increasing social capitals of the communities can provide the communities with sustainable growth and therefore long-term change. However, again, challenges vary from locality to locality.

On the side of leadership expanding, in Established Cities such as Ahmedabad, there are CAGs that have been formed in many slum communities for a long time, which we call Established slums. In Established slums, although 9 to 11 women have been promoted to the CAG, only 2 to 3 of them have been especially active. The active members are the ones who have been building relationships with the municipal corporations, and they are the ones who actively assume the leadership in different projects. For the GRP Project, MHT needs more active women leaders than just 2 to 3 for each community. As mentioned in the previous sections under this proposition, an iterative

program such as GRP requires widespread leadership to stimulate widespread community participation. Consequently, MHT has to revitalize the dormant members within a CAG group so that the desired change of mindsets will take place more quickly during a shorter period of time within the community. In Emergent Cities, where MHT has just started working, the challenges of promoting widespread leadership stem from the fact that organizing effort in general is relatively weaker than in Established Cities.

To address both types of challenges, MHT devised several mechanisms to work with more community members and make existing community leaders more active.

First, the training modules given to the CAG leaders include a lot of participatory communication tools. These tools, which will be further elaborated in Proposition Four, are designed to make the trainees participate and learn at the same time. Consequently, all CAG leaders, active or inactive, have to participate in the training session. This is the first opportunity to make inactive members more active. Secondly, whatever communication tools and training are given to the CAG leaders, they have to give the same training to the community again. It is impossible to complete this task with only two to three CAG leaders, since community members as well as CAG leaders all have different time schedules. In order to cover the entire community with training, the same training must be offered at different time slots throughout the day and, consequently, requires different CAG leaders to facilitate different training sessions. This is the second chance for inactive CAG leaders to become active, since all CAG members have to take up responsibility.

Second, for the in-depth Technical Training on each of the four climate change-related stressors, due to its technical difficulties, MHT trains different CAG leaders on different stressors. This allows every CAG member to become a specialist at least on one of the four stressors, with several more active CAG members well versed in all four. Although the intention of this practice is to lower the difficulty of Technical Training, by giving specialized training to each CAG member, MHT also manages to make more CAG leaders stay active.

Third, MHT promotes adolescent girls to become new CAG members because MHT believes young people will have a positive impact on spreading knowledge regarding climate change and related stressors. This is a new strategy designed for the GRP, but MHT believes youth leaders are more sensitive to technical knowledge and will bring a new dynamic within the community. However, our leadership building is not only limited to adolescent girls—we are trying to recruit some adolescent boys as well.

On the side of community-level mobilization, MHT organizes two surveillance drives—vector-borne disease surveillance drives and water testing drives. For the vector surveillance drives, MHT promotes Child Doctors who visit each household's water containers, check the existence of mosquito larvae, and inform the households of the harmfulness of mosquito larvae in the water and how to prevent and kill larvae. For the water testing drives, while MHT staff are conducting the actual testing, CAG members will use it as an opportunity to pass on a portion of information to community members who are watching the testing process. The clear display of whether the water is safe or not strikes a lot of community members and incentivizes them to invest in water purifiers, or at least motivates them to learn more about their own vulnerability regarding the four climate-change stressors.

3.4 Ground Observation

Based on our mid-term interviews, few interviewees expressed either the necessity or the benefits of having widespread community participation or widespread leadership. Those who articulated a necessity are Program Managers and Local Coordinators. Consequently, we can only make observations based on indirect answers and evidence.

First, the promotion of adolescent girls is conducive to both increasing community participation and leadership participation. All the MHT field staff interviewed expressed fondness of their capability to deal with difficult paperwork and formalities, as well as their quick responses to technical training. Although mobilizing youth leaders as well as convincing their parents can be a hurdle, once adolescent girls are active, their parents will start recognizing MHT's work. This strategy also contributes to changing the attitude of the community. In some cases, the adolescent girls promoted are daughters or granddaughters of CAG leaders; therefore, their activeness will keep elder CAG leaders active as well.

Secondly, it remains a challenge to keep the entire CAG along with adolescent girls active at the same time. CAG leaders have regular daily jobs and other social engagements within the community to attend to and youth leaders have school, making it difficult to have all the CAG members active at the same time. Nevertheless, a small increase in the number of active leaders within a CAG is observed in some slums, where local facilitators can name from 4 to 7 women who are constantly active and getting work done for the community.

Thirdly, providing the community with tangible results, such as water connection and sewage lines, remains as an effective way to approach the communities. It is widely observed that once CAG leaders successfully approached the local bodies to get basic facilities, not only the entire CAG became more confident but people from the community started showing more support and interest in their work. In some communities, non-CAG community members will show up for some meetings because they realize MHT and CAG's work is for their benefits.

Last but not least, surveillance programs such as vector drives and water testing drives are very conducive to mobilizing the entire community. Multiple local facilitators reported the excitement of community members when community leaders announced a water testing drive was going to be conducted. This is a new practice for a lot of slums because previously, no organizations tested their water and a lot of community members are connected to the GRP Program though water testing drives. Some of them expressed interest to participate in the program, and most of them started realizing the importance of clean drinking water and started inquiring about water quality and water purifiers. For vector drives, Child Doctors are very active and largely reduce the presence of mosquito larvae in the community. Through those children, their families also start to realize the importance of health and disease prevention. The advantage of surveillance programs over the traditional MHT approach of getting basic services to get communities interested, as mentioned in the last paragraph, lies in its direct correlation with the climate risks. Consequently, surveillance programs are more in line with what MHT wants to achieve through the GRP Project: heightened awareness and increased knowledge.

4 Systematic, repeated and innovative communication tools are necessary to enable scientific and futuristic thinking in communities that are used to thinking short-term

4.1 How We Arrived at this Proposition

Based on our theories of change, the defining mission of the GRP Project is to successfully transfer knowledge about climate change and resilience to residents of slum communities. True resilience action is built on knowledge and awareness, and simply providing infrastructure and technological installations will not provide slum communities with sustainable growth and long-term resilience. Without knowledge, no observation nor understanding of changes in the surrounding environment will be possible. However, for people living in underserved communities who are financially, socially, and technologically marginalized, struggling to make ends meet already takes up their majority of time and energy. To contextualize a macro issue such as global warming and climate change against the backdrop of each individual slum, it is necessary to devise strategies to facilitate the knowledge transfer process.

Previously, MHT has tried to spread information regarding government plans, but scientific knowledge is completely different due to its technicalities and abstractness. Consequently, Proposition Four is tentative in nature: MHT envisions that to transfer scientific knowledge, we will have to repeatedly and progressively convey information regarding climate change and resilience actions without losing residents' interest. Toward this goal, we think it is necessary to devise innovative communication tools that are systematic, repeated, and slowly progressing in depth and difficulty. It should be noted that by "innovative" we do not necessarily mean measures that are never invented before, but measures that are innovative and new to MHT.

4.2 Strategies

Our primary strategies for implementing this proposition as well as for the GRP Project as a whole are the training modules and communication tools:

- 1) Orientation Training on Climate Change (also called the Basic Climate Change (BCC) training module) is a training session given by MHT to CAG members in each city. The trainees of the Basic Training Module will then go to their communities to spread information. As its name suggests, Orientation Training aims to introduce the concept of climate change and generate awareness of its impact on the urban poor, especially women. It's a step-by-step process composed of six sessions. The first two sessions are intended to stimulate interest and break the ice for the trainees. Through song singing and group activities, topics such as heat wave and inundation are brought up, and we ask trainees how vulnerable they think they are for specific stressors. Session 3 and session 4 are more intense and information-heavy, introducing concepts such as climate change and global warming and explaining their impacts on the entire humanity as well as everyday life. The last two sessions are more activity-oriented, with Session 5 introducing the game of snakes and ladders, where climate stressors are snakes to drag women down and resilience actions are ladders that help them up. Session 6 encourages personal reflection and introduces the concept of resilience actions and futuristic thinking. After CAG leaders are trained, they will take the BCC module to the community and start giving training sessions themselves.

- 2) Technical Training is conducted by technical experts. All the CAG members will be called together to join multiple training sessions in each city. In contrast to the brief introduction of the four climate stressors in Orientation Training, Technical Training offers more in-depth and comprehensive information on each topic. Technical experts give out interactive training on their areas of specialization, including water management, vector-borne disease, and knowledge regarding managing one's own health. Realizing the difficulty of Technical Training, instead of giving every one of the CAG undifferentiated Technical Training, we make each CAG member specialized in at least one climate change-related stressor among the four.
- 3) The Community Based Vulnerability Assessment Toolkit (CBVAT) is the next-step training module after Orientation Training and Technical Training, and it can be used to guide CAGs as the community leaders through the process of assessing their community's vulnerability against each of the four climate-change related stressors. It is a toolkit that has six sessions that span over six to eight weeks. A series of charts and tables are provided by the trainers to CAG members, guiding them to identify the stressor against which the community is most vulnerable. Under each climate change stressor, there is a list of impacts that stressor will have on the communities, and CAG members are asked to give a score to each impact on a scale from 1 to 10 to evaluate the severity with which such impact affects the community. In the end, the climate stressor that has the highest score will be identified as the highest priority for future action planning.
 - i) It is worth noting that in all the Established and Emergent Cities, CBVAT is conducted by either MHT's local facilitators or spearhead teams, the latter referring to Vikasinis who are working for MHT as part-time local facilitators. However, in Bhubaneswar, one of the Enabling Cities, where NGOs other than MHT can be enabled to use the models of change developed by MHT, MHT experimented with a different model and received positive response.
 - ii) In Bhubaneswar, instead of training the local staff on CBVAT, MHT and its partners invited two active CAG leaders from each slum and trained them on CBVAT and all the other tools. During the training, those who appeared especially active were recruited as facilitators. Those recruited CAG leaders thus formed two teams of facilitators and gave training to each slum; at the same time, whichever slum they visited and trained, there would already be two CAG leaders who had received training. This method succeeded in reaching to more community members within a shorter period of time in a city with no previous networks, and it also proved that sometimes it is efficient and effective to directly engage the community instead of resorting to a trickle-down process.
- 4) The Community Based Resilience Action Plan (CBRAP) is immediately subsequent to a completed CBVAT. The community as a whole will plan out their actions in addressing the identified stressor, listing the time required for action, the daily/weekly/monthly goals, the funding they need, and organizations whose additional help may be needed. These are actions they can take to either address the most urgent issues at hand, or intend to make a sustainable, long-term investment.

For each module, MHT starts by training MHT's city-level staff (staff located in each city). MHT program staff modify the training modules to better suit communities' needs based on the feedback from the city-level staff. After finalizing the training modules, MHT's central program staff

(who are responsible for training across all cities) will visit each city to inform the city staff of the changes and present the final version of the training modules. Program staff then conduct a training session directly with local CAG members. MHT's city-level staff participate in this training and then carry out further training for CAG members on their own. Whatever tools MHT staff uses to train CAG members, CAG members will bring the same tools to train CBO members under the ongoing support of MHT staff.

However, with each training module comes difficulties in conveying technical information not only to community members who have not had access to formal education, but also to our trainers and staff members. Consequently, it is crucial to devise the right kind of communication tools to translate technical information to easily accessible knowledge and thus implement the first theory of change—the knowledge transfer. Both the primary knowledge transfer between MHT trainers and community leaders, and the secondary knowledge transfer between community leaders and community members have to be achieved.

Earlier in the program, MHT did not have a designated team for knowledge management and communication tool development, which resulted in limited communication products on the ground level for knowledge transfer. A specialized GRP team within MHT was therefore formed and members were recruited from other MHT programs. MHT's communication partners such as the Center for Environmental Education (CEE), Mobile Vaani, Radio Nazariya, and Mr. Arman Oza guided the GRP team on communication strategies. CEE helped MHT visualize abstract concepts, Mobile Vaani sent a senior official to train MHT on how to use the application, Radio Nazariya helped MHT develop community radio, and Mr. Arman Oza brought the idea of behavior change into our designing philosophy. While these partners gave guidance, ultimately the GRP team is in charge of the development of specific tools and platforms.

We work closely with CAG members and community leaders to experiment with a variety of communication tools to make knowledge more accessible. These include:

- video screenings that introduce the concept of climate change resilience,
- pictures and posters explaining the reasons behind climate change,
- Snake & Ladder games that make people understand the long-term benefits of resilience planning,
- smartphone apps that provide a two-way communication tunnel for slum residents to make further inquiries about climate change and resilience actions,
- folk media such as street plays that can attract and mobilize a larger audience into action, and
- community-led surveillance programs where water testing and mosquito larvae monitoring are done to show people visibly the detriment of dirty water and the wide spread of vector-borne disease.

For all of the communication tools, we are promoting a participatory communication process. Community members do not just receive new information, but they participate in the learning process so that stronger impression and sharper awareness are made possible. Snakes & Ladders is a great example of the participatory learning process. While learning about how climate change can impact their lives, community members will play the Snake & Ladder games where the snakes are climate change stressors that will drag them down and ladders are resilience actions that will aid their journey through the game.

In some of the participatory learning processes, community members can receive the training at the same time as they put the newly-gained knowledge into practice, a process which MHT dubs as Ongoing Learning and Action Strategy. One of the significant applications of the Ongoing Learning and Action Strategy is the introduction of community-level drives and campaigns. The initiation of such drives is out of the observation that secondary knowledge transfer has not been taking place as MHT expected, that is, trained CAG members have not been actively spreading the information they received. We realize the capacity for such knowledge transfer is limited. While in our prior projects, CAG leaders can spread information about government strategies through daily conversations, the same transfer is harder when it comes to technical information related to climate risks. At the same time, MHT is sharply aware that the lack of short-term tangible outcomes might also contribute to this inactiveness in the secondary knowledge transfer. In order to directly transfer certain knowledge to community members, to provide a platform for CAGs to spread information, and to provide something visible and tangible, MHT organizes two surveillance drives—vector-borne disease surveillance drives and water testing drives. For the vector surveillance drives, MHT promotes Child Doctors who visit each household's water containers, check the existence of mosquito larvae, and inform the households of the harmfulness of mosquito larvae in the water and how to prevent and kill those larvae. For the water testing drives, while MHT staff are conducting the actual testing, CAG members use it as an opportunity to pass on a portion of information to community members who are watching the testing process. The visible results of the water testing drive offers a “tangible” outcome and solidifies the abstract concept of water quality. The results often motivate a lot of community members to invest in water purifiers and start enquiring more about their climate change-induced vulnerability.

In the design process of all the communication tools, we realize it is extremely important to make our tools and the knowledge we intend to transfer highly relatable to community members. There is a need to contextualize large topics such as climate change and global warming into the specific effects they have on community lives, which is illustrated in tools such as Snake & Ladder games and CBVAT. Originally, we planned to design our CBVAT to be a fast-paced session that's highly technical, involving data collection and in-depth analysis of the community problems. We soon realized this is not a workable approach since it is out of touch with the community, who is the single most important agent to facilitate resilience actions. CBVAT was then changed into its current form—a highly participatory, two-month session, with each session going over knowledge covered in the previous sessions, creating an iterative learning process.

One big challenge for designing communication tools lies in the language barrier. Hindi and other local languages used by slum dwellers have no counterparts of the English phrases such as “climate change” or “resilience.” Our communication partner CEE helped us design visual representation of those concepts. For example, in CBRAP where resilience action is to be planned, CEE designed a symbol of resilience depicting the four stressors: water scarcity, inundation, heat and vector-borne disease. The symbol also showed how the collective action of the community, which needs to be continuously supported by knowledge-enhancing and capacity-building processes to ensure sustainability, helps build a shield against these stressors. Along with the symbol, CEE also helped MHT visualize the concept of resilience. We showed community members pictures of a balloon and a sponge ball, and we showed the respective consequences after a shock, represented by a thumbtack, makes impact on the surface: the balloon, representing lack of resilience, instantly explodes, while the sponge ball remains intact.

4.3 Ground Observation

The training modules as well as communication tools received very positive responses on the ground level.

Among the training modules, CBVAT is listed most as the most useful training module, with BCC coming in second. Local facilitators explained that CBVAT is the most useful because it connected climate risk directly with community members, asks them to recall the changes in weather in the past 10 years and enables them to make connections between climate risks and how those stressors impact their daily life. One of the communication tools frequently mentioned in CBVAT is the Cotton Thread Game. The Cotton Thread Game is based on the Root Influence Diagram (see Proposition Seven) which lists the detailed interconnections between climate risks and different aspects of daily life. In the game, each trainee is assigned a specific variable in the Root Influence Diagram, and, mimicking the interconnection showed in the diagram, all the trainees are connected to each other with a cotton thread. Whenever a climate stressor worsened, the cotton thread will be pulled and every trainee can feel the pressure. The pressure thus makes the abstract and complicated interconnections easily comprehensible. Local facilitators reported that trainees showed more understanding of the importance of the GRP Project and are more prepared to enter the next phase of resilience actions.

Although the BCC module is not as frequently mentioned as the most useful training module, the most popular communication tools popped out of BCC module: Snake & Ladder games, video shows, posters, and Ramaben's story. The BCC module is the training module that starts the entire knowledge transfer process; therefore, BCC's emphasis is on sparking interest in the community, as well as convey some basic knowledge on climate change. Snake & Ladder games, video shows, posters, and Ramaben's story are all designed to achieve both goals. Snake & Ladder games were the most mentioned communication tool by local facilitators as it's very popular among CAG leaders and adolescent girls, who most of the time actively participate in this activity. However, although Snake & Ladder games can make trainees interested, some local facilitators are not sure about the educational effects of the game. Some local facilitators reported that once playing the game, the trainees' focus was diverted to the game itself, not the climate-change related knowledge it conveys. Video shows of an animated film introducing the concept of climate change and posters visualizing the cause of climate change were also well-received by the communities, as animation and images are intuitive and easily comprehensible, especially for women in urban slums who are educationally marginalized. Ramaben's story is another communication tool included in the BCC module that tells the story of a well-off woman living in the slum who, due to her lack of long-term planning and conscious resilience building, lost all that she had accumulated. A lot of trainees reflected that the story of Ramaben is highly relatable and prompts them to seek more knowledge on this topic.

Other successful communication tools included folk media and surveillance drives. Promoting Child Doctors for vector drives is very popular among children in the communities. One local facilitator pointed out that calling children "doctors" inspired them, and in the future they are eager to become "doctors" for the community. Water testing was often mentioned by local facilitators when asked to mention some useful tools and training. Community members were excited at the idea of water testing and were eager to see the results. Folk media was also extremely well-received by the communities, especially for children. Another advantage of folk media is that street plays can reach

to a larger number of community members directly, and such effect is reflected by the local facilitators.

Mobile Vani is one of the communication tools that received mixed responses from local facilitators. Some facilitators expressed fondness of this technology and praised adolescent girls' capability of quickly familiarizing themselves with Mobile Vani. Some facilitators pointed out that a lot of community members cannot afford a smartphone that supports the application and this communication tool is thus inapplicable in certain areas. In addition to financial reasons, some facilitators pointed out that the application needs a lot of improvement and some community members are not patient enough to listen to all the messages conveyed through Mobile Vani.

Technical Training usually receives good response from community members. However, facilitation is often required between community members and technical experts because certain scientific terms are difficult to translate into local languages. CBRAP is currently in progress and its outcome are thus not reflected in midterm interviews.

5 Community-led data collection leads to an increased understanding within the communities on issues affecting them, thereby leading to more resilient actions

5.1 How We Arrived at this Proposition

Based on our theory of change, in order to enable the communities to take resilient actions, MHT has to equip the community with requisite knowledge. One strategy is to enable communities to observe their surroundings so that corresponding resilience actions can be taken. Out of this we envision the community-based surveillance programs, where CAG leaders will be trained on real-time micro-level collection of data such as temperature, water quality, and precipitation, since city-level weather forecast data is often different from those in slums.

5.2 How This Proposition Promotes Community-based Resilience

Our data collection focuses on two aspects: weather and water. For weather data, we encourage communities to record temperature and humidity every day and rainfall whenever there is precipitation. We facilitate this data collection by providing rain gauges and temperature and humidity measuring devices for the community. For water data, we encourage the communities to test chlorine in the water with chloroscopes and record hours of water supply every day. For total dissolved solids and bacterial contamination in the water, we encourage the communities to test them once a week.

5.3 Strategies

However, we soon realized that community-led data collection is in itself a great opportunity for the community to learn more about their vulnerability and the detrimental impact of climate risks and stressors, and this learning process incentivizes the community to take action. We conducted water testing originally only as a way to collect data so that people can monitor their water quality; however, the visible result of water testing left a strong impression on the community members,

who then went to municipal corporations for solutions and talked to other community members about the water quality. It is with this observation that we developed water testing into a drive so that more community members can have this information. We witnessed a significant number of cases of behavior change: people started inquiring about water purifiers, installed them if financially possible, and, if not, started drinking boiled water.

Local facilitators gave very good feedback on data collection. Data collecting helps both MHT and communities identify issues in the community, whether they are heat-related or water-related. It is only after issues are identified that communities can take resilience actions against these issues. On the other hand, data collection helps CAG leaders to articulate themselves in front of government officials about the water quality, and using scientific language involving data also gives CAG leaders a confidence boost.

6 Successful pro-poor technologies should be cost-effective—they have to be commercially available, culturally appealing, with proper services provided along with the purchase.

6.1 How We Arrived at this Proposition

When MHT was trying to build the proposition regarding technologies, we realized there are a lot of technologies that are developed in response to climate change and to the necessity of taking resilience actions. However, they are either too costly for any slum communities to afford, or not compatible with the ground-level reality of urban slums, if not both.

Consequently, our proposition started with the statement that successful pro-poor technologies should be cost-effective. In the process of locating cost-effective technologies, we tried to further define what it means for a technology to be cost-effective: they have to be commercially available on the supply side to reduce the cost, they have to be culturally appealing so that the poor will indeed show interest and purchase it, and they should come to the underserved communities with certain technical support for installation and maintenance.

6.2 How This Proposition Promotes Community-based Resilience

Helping the urban poor to take resilience actions is the core mission of the GRP Project, and innovative technologies can achieve unprecedented results in raising community-based resilience within a short time. However, even though a lot of money worldwide goes to innovation every year, innovation is only useful if it's applicable for the people whom the innovation is supposed to help.

One of the key differences between the GRP Project and MHT's prior projects is that, for the GRP Project, we do not just impose solutions on the urban poor, we want them to receive knowledge and come up with their own solutions or take the initiatives to seek potential solutions. Instead of directly getting things done for slum communities, MHT wants to provide the urban poor with options, and communities themselves will make the decisions. Consequently, the options that we present to the urban poor should be affordable, or no slum dwellers will take action. Second, these options should be validated by the community, so that if they are adopting such technologies, they are doing it out of their own cost-benefit calculation, the formula of which reflects the community's learning and change.

6.3 Strategies

MHT's initial strategy is to locate several technology innovators and invest in the development of pro-poor innovations, and MHT will offer its insight and communities' feedback to enable pro-poor customization. MHT believes that by customizing their products, these innovators can open a large market for pro-poor technologies and thus make considerable profits while providing services for those who need them most. Consequently, MHT intended to only pay for the customization costs but not the cost of the entire product development. However, in addition to dissatisfaction with MHT's investment, a lot of innovators in India are not interested in getting into the market. As a result, MHT changed its strategy and started working with organizations and companies that are already connected to the market, as well as those who already have a product and have shown interest in going into the market. For MHT, it is important that an innovative product is available on the supply side. By being readily available, it will reduce costs for slum communities as well as create potential for a large-scale application of the innovative product. Cool Auto is one example that illustrates the importance for a technology to be available on the market. We installed Cool Auto in several rickshaws and received positive responses, but this technology was aborted in the end because we were not able to implement it at a larger scale. Later, MHT also started looking for solutions that have been available in the market for a long time such as water purifiers, reflective paint, and sprinkler taps.

No matter what technologies we locate, it is paramount that they are endorsed by the communities. To seek community validation, MHT organizes both exposure visits and field demonstrations. While exposure visits are organized trips to places where non-MHT efforts have installed technological solutions for the betterment of living conditions, field demonstrations refer to examples of the difference MHT-installed technologies have made to individual households. MHT visualizes a three-step process of adopting technologies: demonstration, validation, and finally adoption.

However, to motivate slum residents from watching technology demonstrations to adopting the demonstrated technology, subsidies and investment are necessary for the final implementation. Additionally, based on MHT's observation of households whose houses were selected as the site for technology demonstration, whenever a technology is installed for free, slum residents would not maintain the facility and give little care about the sustainable benefits a well-maintained installation would bring. This is why MHT, despite continuously subsidizing the community, requires a 10% contribution from households. At the same time, MHT negotiates with both private and public sectors to provide resources for slum communities. Public sectors usually provide saplings and seeds for MHT's Green Roof initiative and tree plantation drives. In Ranchi, MHT went to the government and asked them to install water harvesting systems for each public house built under the RAY program for slum dwellers. Private sectors, usually the manufacturers of technological solutions, will instead offer discounts for slum communities and provide technical support in installation. Other strategies to reduce the cost for the communities include installing one technology that can be shared among 2 to 3 households who will jointly carry the financial burden.

At the same time, MHT aims to bring communities' feedback to manufacturers and technical partners, so that more customized, pro-poor designs can be made. Such pro-poor customization is not solely for functional application. Some technologies can effectively solve the problems for households living in urban slums, but their design and appearance do not match with slum

residents' aesthetic standards and aspirations, as crude appearance reinforces the notion that the receivers of technologies are poor. Therefore, making technologies culturally appealing is also one of the major feedbacks from the community.

6.4 Ground Observation

Different technologies are implemented and installed on the ground, to various extents:

Tree Plantations and Green Roofing

Tree Plantations and Green Roofing are very widely implemented in many slums because the municipal corporations will usually provide saplings and seeds for free once an application is filed. Additionally, the notion of planting trees for your children or growing vegetables on your roof to both reduce heat and obtain food, is not radical or hard to accept for community members.

However, there are several issues present in those drives.

For tree planting, once the sapling is planted, cows and animals wandering in the community will often destroy the plant or eat it. Consequently, MHT is working with the communities to ask for fences from the municipal corporations to protect the saplings. Another problem is space for the plantation. In very congested slums, no space is available for tree planting. Although MHT suggests using pots and plastic containers to grow indoor plants to solve the issue, the observation reminds MHT of the particularity of each individual slum and the necessity to offer different options.

For Green Roofing, field facilitators usually observed positive responses from the community members, who are happy to have reduced heat and vegetables. However, as one Program Manager pointed out, the problem with Green Roofing is that while getting vegetables to eat incentivizes community members to grow vegetables on their roofs, attention is also diverted from building resilience against heat to having free food for the household. Most community members will list food as the major benefits of Green Roofing, instead of thinking about the long-term benefit of having plants on the roof to reduce heat.

6.4.1 Mod Roof

Mod Roof is a landmark technology used in the GRP Project. The households selected for the Mod Roof demonstration usually report 5 to 6 degrees of change in temperature and appreciate the fact that after installing Mod Roofs, they are able to stay in the house and continue working in hot afternoons. Mod Roof is also a technology where pro-poor customization is successful. The original Mod Roof was supposed to be slanted; however, based on communities' wish of having a flat roof that could be used as a platform for either storage or napping, Mod Roof tiles are customized according to communities' needs.

However, there are two problems with Mod Roof.

The first problem is affordability. Although ModRoof has cut the original price of 500 Rs. per square meter to 260 Rs. the area required to cover a typical house is usually around 10 square meters. Although most households are interested in the technology after the demonstration, they cannot afford to adopt the technology. Loans are provided to some families to install the technology, but financial stress is still a huge hurdle for Mod Roof to become widespread.

The second problem is the cultural appeal. Most households in slum communities prefer to have RCC slabs (reinforced concrete slabs) to replace their current tin roofs. In their mindset, concrete roofs symbolizes affluence and higher status. Although the money they have to pay for a complete installation of Mod Roof is in fact half the price of a full concrete roof, a lot of community members do not think it's worth it to make such a large investment for a roof that lacks appeal.

6.4.2 Thermocol Roof

There are several successful demonstrations and installations of the Thermocol Roof and a significant drop in temperature is observed widely. However, MHT came to learn from an expert that thermocol sheets will do harm to health in the long term. It offered a critical learning experience for MHT, showing that we need to learn more about the technology before demonstrating and installing it.

6.4.3 Reflexive White Paint

Compared to Mod Roof, white paint is more affordable and thus more widely adopted and it usually brings a drop of 4 to 5 degrees in temperature. Some field facilitators reported that convincing households to become a demonstration site takes a lot of effort. Community members usually come up with excuses saying their roofs are delicate and not suitable for such demonstrations, and they do not see the point of painting the roof white or do not believe such a simple application will make any difference. However, after experiencing the significant change in temperature, neighboring households started to inquire about this technology.

6.4.4 Airlite Ventilation Sheet

Ventilation sheets are sheets installed on the roof so that daylight and ventilation can come into the house, which often does not have windows. Households installed the technology usually expressed positive experiences, saying that it significantly reduces the electricity bill and offers some coolness. However, there are several drawbacks in addition to it being unaffordable for some families.

First, in order to install the ventilation sheet, old roofs have to be removed, which, due to their haphazard structure, are sometimes unable to be removed or will be totally destroyed when households try to install ventilation sheets.

Second, ventilation sheets are not long-lasting and need regular maintenance and replacement, which can increase the cost for the household. To address this issue, MHT only makes ventilation sheets into a dome shape, so that costs can be reduced for the households.

6.4.5 Sprinkle Taps

Sprinkle taps are MHT's attempt to find affordable, market-available solutions to help communities build their resilience and heighten their awareness. Although sprinkle taps are usually purchasable at 15 to 20 Rs., they significantly save water and can reduce the communities' water bills and economize their water usage. MHT has installed sprinkle taps in many communities and received positive responses.

6.4.6 Water Purifiers

Water purifiers are MHT's another attempt to find market-available technological solutions. Once the water testing drive was conducted, a lot of community members expressed interest in water

purifiers. Affordability is again a prevailing issue in the implementation phase. Water purifiers need frequent replacement and thus create a financial drain on households. For households that cannot install water purifiers, MHT encourages them to at least boil water before drinking it.

One incident observed on the ground is related to the cultural appeal of arsenic purifiers. Because they do not have a plastic case and appear rather crude, community members refuse to pay for them. It is once again in line with MHT's learning that pro-poor technological solutions need to fit the community's desires.

6.4.7 Mosquito Trap/All Out Mosquito Repellent

In the process of the GRP Project, MHT realized the usefulness of some indigenous technical solutions, such as homemade mosquito traps and lemongrass as a mosquito repellent. They are cheap and easy to make, and received positive responses from communities. For households that can afford more, MHT also recommends market-available All Out mosquito repellents. The success of indigenous technical solutions again stresses that the purpose of the GRP Project is not to dump solutions, but provide communities with technical options. More importantly, to raise the awareness that there are climate-change related issues directly impacting their lives that they need to solve to achieve long-term resilience against climate risks.

7 Facilitation is needed for effective interactions between communities and technical experts

7.1 How We Arrived at this Proposition

Technical experts play a significant role in our theories of change. They are the source of knowledge and the provider of innovative solutions that can be used by communities that decide to take resilience actions. In the designing phase of the GRP Project, MHT had already envisioned getting Vikasinis and technical experts to sit together and talk about issues in communities, offering their different perspectives. A multi-stakeholder workshop was held in Ahmedabad, Bhubaneswar, and Dhaka, and invited government officials, local technical experts and community leaders to come together and share their respective visions and insights regarding climate change and its impacts on slum communities. As a result of the workshop, technical experts started to have an idea of the communities' perspectives and community leaders realized the experts are people they can look up to and seek information from. Even though this initiation of mutual understanding started to break the ice between the two groups, MHT observed that facilitation was needed to ease the communication between technical experts and community members. Consequently, since the design phase of the GRP Project, MHT expected to put in a lot of work towards facilitation, and we realized the impediment between technical experts and communities is more than the lack of platform or language barriers. These two groups also have different mindsets and perspectives, which is a more difficult barrier to overcome.

Facilitation becomes even more important when put into the context of community-based resilience—MHT is not only facilitating between one technical expert and communities, but multiple technical experts at the same time. Experts on water management, hydrogeology and vector-borne diseases have entirely different angles to approach the issue of water quantity and water quality, but for the communities, they simply want access to water. Facilitation is thus not only needed between communities and technical experts, but among technical experts themselves.

7.2 Strategies

To facilitate among technical experts, MHT organized a three-day Systems Thinking Workshop last year in May, which invited all our technical partners to come up with an integrated approach for the GRP Project. As mentioned in the previous section, technical experts are often only able to see their own niche of expertise, and thus fail to figure out a comprehensive approach to raise the communities' vulnerability against all four climate stressors. The Systems Thinking workshop aimed to address this issue.

We first asked all the technical partners to create a Causal Loop Diagram (CLD) according to their own expertise. For example, experts on heat stress will start with the variable "heat" and then expand the diagram to connect "heat" to all the other variables that will be impacted by "heat," such as "productivity" and "illness." During the workshop, we started to merge all the CLDs into one diagram to make sure (1) addressing one stressor will not worsen the other three risks (2) to make the experts present aware of the importance of an integrated approach.

MHT facilitates between technical experts and slum communities by creating a multi-stakeholder partnership. This partnership aims to bridge the gap between technical expert and slum communities so that a cross-consultation resource group is created to devise pro-poor resilience plans in every city where the GRP Project is implemented. The ultimate goal of the multi-stakeholder partnership is to generate, in each of the seven cities, a resource group composed of technical experts from government agencies, academia, research institutes, and civil society, with whom the slum communities can directly go to for technical guidance and solutions. Only through organizing efforts and multilateral collaboration, can MHT and its partners offer slum communities the desired socio-technical support and empower underserved communities to take lead in implementing changes.

Although a mature network between MHT, slum communities, government officials and technical experts is established in Ahmedabad, local technical experts in each city will provide more locally relevant solutions and reduce the branch offices' reliance on the resources of the head office. In addition to Ahmedabad, Bhubaneswar, and Dhaka, MHT hosted multi-stakeholder workshops in the other four cities to start establishing a network among community leaders, government officials, and technical experts.

Another strategy to facilitate direct interaction between slum communities and technical experts is through Technical Training, where the technical experts will directly train community leaders and some community members on climate risks, and offer them strategies and advice to raise their own resilience. This process requires a lot of facilitation; MHT has to constantly encourage CAG leaders to speak and ask questions so that technical experts can understand their problems. Although most technical experts have not visited slum communities, MHT has been organizing such visits and encouraging community members to interact with technical experts. Through direct interaction with experts, community members can explain their problems in a way that the experts can understand so that they can provide the right solutions.

Facilitation is also reflected in MHT's role as a mediator in the process of knowledge and technology transfer. For knowledge transfer, MHT's knowledge management team is responsible for not only translating technical experts' words into local language, but also simplifying very complicated technical information in a way that all the key information remains, and is easier for community

members to understand. For technical transfer, for example, when experts are asking for high quality data to devise solutions, MHT will become the mediator between experts who need data and community members that collect data. MHT then asks what are the available toolkits, how to use these toolkits, what data is needed, and provides community members with requisite training. In this process, some technical experts start changing their attitudes from asking for rigid, clear data that fit the standard of the industry, to understanding the difficult realities on the ground level and trying to see what they could do with what communities have—such is the two-way learning that MHT envisions.

7.3 Ground Observation

Facilitation among technical experts has been successful. MHT managed to merge all the CLDs submitted by different technical experts into one common CLD. Originally, MHT planned to show the communities the finalized merged CLD, but it proved to be too complicated. MHT then simplified it into a Root Influence Diagram and designed the fifth tool in the CBVAT based on the Root Influence Diagram—one that encourages community members to make connections between different phenomena in their daily life.

MHT's technical partners specialized in vector diseases, water management, and public health have conducted Technical Training in all seven cities, calling CAG leaders and MHT's staff to the local office for training. Some of MHT's technical partners, such as Dr. Kohli and Dr. Vikas, also visited the slums to offer direct instruction.

Local facilitators reported overwhelmingly positive responses to training given by technical partners, praising technical experts' ability to clearly convey their expertise. Field visits given by technical partners also received positive responses from community members, as technical experts can sometimes demonstrate what to do on the spot and can answer questions directly. However, this direct communication requires facilitation because sometimes technical partners are confused by the terms used by local people. Some local facilitators, as well as program managers, also reported the need to have more direct interactions between technical experts and community members, because MHT's staff are unable to answer questions outside of training sessions. Those ground-level observations make it clear that interactions between communities and technical experts are very conducive to the community's understanding of difficult technicalities. During these visits, technical experts are also able to have the first-hand experience with ground-level realities. Dr. Vikas, when seeing the vegetable communities growing on their roofs, expressed interest and encouraged the communities to keep this practice.

Although multi-stakeholder events have already been held in every GRP city and efforts have been made to attract more technical experts, building local resource groups is still ongoing in every city. Even in Ahmedabad, institutionalizing the collaboration with technical experts is a new experience for MHT. Few technical experts outside of MHT's technical partnership have been working together with MHT on the GRP Project, although progress is being made. In Jaipur, our local team has succeeded in collaborating with the Members of the Legislative Assembly to devise technical solutions. As a result of our multi-stakeholder workshop, Vikasini leaders in Jaipur were invited on Women's Day by Mahila Shakti Ayivam Sashaktikaran Sanshtha, an NGO working on women's rights and empowerment, to share their perspectives on women's rights and safety issues at the city level. In Bhopal, RAWs India has established a working relationship with our team. RAWs organized six

technical visits to investigate the situations of waterlogging and water conservation, gave two-day training to our staff, and organized 20-day sanitation campaigns in the slums. Sintex Plastics Technology Limited started building the first bio-toilet in partnership with MHT. Our cooperation with the Malaria Department also brings their technical experts to work together with MHT. In Ranchi, local experts on water harvesting started working with MHT's technical team on water harvesting. MHT's branch office in Ranchi also successfully built a relationship with technical experts on solid waste management from the Srishti Organization.

Conclusions

The interviews conducted for the midline assessment were crucial to better understand how to move forward in the remainder of the project. From the seven main propositions and interview feedback, MHT has been able to assess their strategies and parts of the project that will require more effort in order to achieve community resilience. In order to meet the goals of the project, it is crucial to utilize these assessments because the remaining duration of the project is relatively short. MHT's efforts, however, have indeed established a tangible impact on these communities, their understanding of climate change, and their stake in government. MHT and other project partners have begun a cultural and technical shift in these communities that is likely to leave a lasting legacy for improving resilience.

Based on the midline assessment, much more focus must be devoted to Emergent Cities outside of Ahmedabad. MHT's historical presence in Ahmedabad is the result of twenty years of working with and empowering slum communities, a presence that cannot be matched in the other cities during this short project. While this was expected, CAG and Vikasini formation is significantly slower in Emergent Cities which makes the beginning steps for knowledge transfer and behavior change more difficult. By providing more workshops and training, MHT hopes to expedite their formation. Creating awareness and showing the importance of the impacts these communities will face is the key to gaining their support and action. Ahmedabad has active CAG members, however, they hope to intensify and increase these active members to nine or ten per group rather than two to three. This increase will ease the secondary knowledge transfer, in which CAG leaders take what they learn in training and hold similar sessions in their communities.

Technology transfer has been relatively successful, and MHT quickly discovered which technologies are more feasible and preferred in the communities. MHT staff will continue to research more cost-effective technologies to provide options for the poor, while also continuing investments in successful technologies. It is also important to note that more indigenous technological solutions, such as homemade mosquito traps and lemongrass, may emerge through increased interactions between technological experts and community members. Technical Training sessions will also need to continue to stress the advantages to investing in these technologies, so communities perceive it as more affordable in the long-term.

The GRP project has been effective and successful in its progress thus far, especially in Ahmedabad, the Model City. The more difficult task in the coming months of the project will be taking Ahmedabad's success, and adapting those models to fit Emergent Cities so that all seven partnership cities have taken major steps toward pro-poor, gender-sensitive, climate change resilience. Ideally, the project will have established enough of a model to be adapted to the urban poor of all South Asian countries. The effects of climate change will affect those most vulnerable,

and by enabling these communities to understand their options and make more conscious decisions, they will be better prepared to face long-term impacts. For the duration of the project, it will continue to be valuable for the seven partnership cities' urban poor populations, as well as local governments, and intends to leave the tools necessary toward long-term, collaborative decision-making for climate change resilience.