

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

Refined Problem Statement

The Central Theme

Mahila Housing SEWA Trust (MHT) aims to build capacities of women from slum communities, in seven cities of South Asia, to take lead in resilience action against heat stress, extreme precipitation events, water scarcity and contamination and vector borne diseases, in an integrated manner. These climate risks not only contribute to but also exacerbate existing inequalities, worsening poverty and triggering new vulnerabilities for the poor (World Bank, 2010). For South Asia, this translates to around 190.7 million people living in slums and informal settlements (www.un.org).

Target Region and Sectors

The project will be implemented in 7 cities of South Asia - Ahmedabad, Jaipur, Bhopal, Ranchi, Bhubaneswar (India), Kathmandu (Nepal) and Dhaka (Bangladesh). The region has witnessed numerous climate related events in the recent past: in 2010, Ahmedabad temperature reached a high of 46.8°C causing 1344 excess deaths likely caused by the heat wave (Azhar et al, 2014); the 2014 extreme precipitation events in India, Pakistan, Nepal and Bangladesh left more than 700 people dead and displaced millions (news reports). The region is already water stressed with per capita water availability of less than 2500m³ (ESCAP, 2013) and there is well documented evidence of the same being exacerbated due to Climate Change (IPCC, 2015, World Bank, 2013). Water stress and flooding will have direct manifestations on water quality leading to increased incidence of water borne diseases. Pandey (2010) has projected an increase of 6 percent in diarrhea cases. Rise in temperature, humidity and unhygienic water management practices will further increase malaria cases by 5 percent by 2030 (Pandey, 2010) and India is already witnessing a rise in cases of dengue (NVBDCP, 2014).

Target Communities and Vulnerability drivers

The dense urban population in South Asia is particularly susceptible to negative climatic changes, especially heat extremes, flooding, and diseases (World Bank 2013) and the most vulnerable are those living in informal settlements (IPCC, 2013) due to a number of factors:

A) Geographical Exposure: being located mostly in environmentally vulnerable areas- low lying lands more prone to floods/inundation or high elevations with low ground water levels. Land tenure insecurity further hampers capital investment in these habitations.

B) Occupational Exposure: dependent on occupations which require heavy physical labour; outdoor working like construction, street vending and/or informal livelihoods like seasonal vending, home-based work, that may be directly impacted by disasters.

C) Infrastructure Deprivation: living in settlements that typically lack adequate drainage, energy and communications systems where the impact of an event such as flooding or drought will be felt more sharply than elsewhere. Low quality of their

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

housing, with limited ventilation, inadequate cooling facilities make them more vulnerable to climate vagaries like heat stress.

D) Financial Susceptibility: having paucity of income resources and access to credit and insurance; are often forced to exhaust limited savings or assets in order to respond.

E) Social Marginalization: having least fall back options, limited resources and access to information, inhibited recognition as a city resident. Slums and informal settlements are often excluded, for instance, from early warning systems or flood prevention infrastructure.

F) Gender Discrimination: given the gender roles in these societies, especially domestic responsibilities like water fetching, food security and care giving, women are even more vulnerable and bear the dual burden of these climate-related events. (UN Women Watch, 2009). (Table 1).

Table 1: Specifics of climate-related impacts and increased vulnerability of slum communities and women

Climate stress	Vulnerability drivers	Impact on slum communities	Additional burden on women
Extreme heat	Micro climatic conditions Poorly-ventilated dwellings No access to cooling spaces/trees Expensive Cooling technologies Outdoor work spaces	Increased mortality- elderly and children Increased Stress, Fatigue and Illness Reduced Productivity	Reduced Productivity Increased care giving role
Extreme precipitation (flooding and inundation)	Settlement in Low lying areas Flood prone construction (below road level) No storm water drainage No sewage lines or blocked/broken drainage Insecure Land Tenure	Loss of life and assets during floods Temporary relocation can lead to eviction Loss of assets- home, businesses and documents Loss of Livelihood Increased health risk due to water contamination	Higher risk to life Sexual harassment and lack of privacy at shelters Increased drudgery of accessing safe water Increased child protection role
Water scarcity and contamination	Less access to reliable water supply Dependence on groundwater (often shallow aquifer) No knowledge of quality parameters	Compromised water usage Use of unsafe water Incidence of water related diseases Financial burden	Increased drudgery of accessing safe water Sometimes girls may drop from school Loss of Productive hours
Vector Breeding	Open water bodies/ nallas Unhygienic water storage practices Low access to health care services	Increased morbidity and mortality Loss of wages Health expenditure	Increased care giving role Loss of Productive hours

Source: Inputs from Technical Experts; Focus Group Discussions with Communities and Consultation Workshop.

(Please see annexures 1 and 2 for more details on the problem identification with the technical experts and communities)

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

With a low livelihood base and limited fall-back options, their capacity to withstand climate stress and shocks is limited, leaving them to be caught in the “**poverty trap**”- they will become poorer due to climate change but not be able to make the required resilience investments because they are poor and long term solutions seem economically non-feasible (Sach, 2005). Even though they are often seen coping in their own ways, these strategies are not feasible in the long run and often put them in a negative situation. There is an urgent need to create solutions for positive and transformative action and develop a culture of resilience among these communities, particularly women. **The project will thus work directly with more than 1,25,000 people, particularly women, living in urban slums in South Asia, with the aim of influencing and upgrading the lives of more than 5.75 million slum dwellers.**

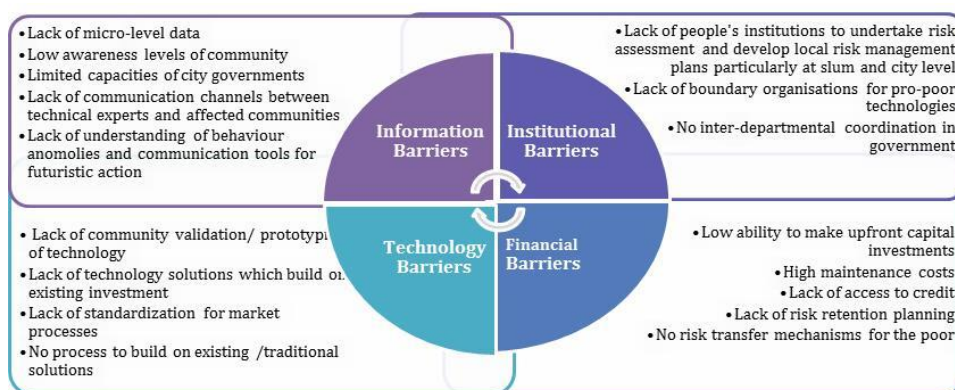
Defining Resilience for Urban Poor

The aim is to build the resilience capacity of the urban slum community, particularly women, to survive, adapt and progress in the face of stress, while maintaining their current level of livelihood and health status without distress or loss of assets. The capacities should be evolutionary in nature with an increase in risk retention capacities; improved access to basic services (like water, sanitation, adequate shelter and health) and a continued effort to transform to a threshold level of livelihood security. (adapted from UN Habitat and Rockefeller, 2014 and community discussions).

Challenges to Resilience

Achieving the above requires the target communities to be aware of the climatic risks and projections, conduct their own risk and vulnerability assessments, integrate the climate risk perspective, especially those linked with disaster preparedness, land/resource use and household level financial planning. However, slum communities, particularly women, face many information, technical, behavioral, institutional and financial challenges to building climate resilience. (Figure 1)

Figure 1: Barriers to community adaptation of resilience strategies



Information Barriers- Slum communities are faced with two kinds of knowledge barriers —the first is poor understanding of the potential risk of climate change due to lack of micro level data and access to climate related information and the other is limited skillsets for scientific assessment of risks and vulnerabilities (IIED and IIED, et al

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

2014; Rockefeller and Arup International, 2014). Additionally the skill gaps among local governments and climate scientists to work in participation with communities further hinder the participatory processes. Preston et al. (2011) has, through a review of 45 vulnerability mapping exercises, found that only 40% included stakeholder participation highlighting the technical, expertise, resource, and institutional challenges to implementing participatory processes.

Technology Adoption Barriers- While technology innovation is critical, a range of climate resilient solutions for heat resistance (ventilation designs, alternative materials, green landscaping,) and water management (rain water harvesting, small recharge measures, eco-system water planning, water testing kits, etc) are already available. However, they are not adopted by the communities due to a lack of awareness. Also they are often inaccessible and unsuitably prototyped to meet the specific needs of these communities (Nagrath, 2013). Often, the technology offered is not in sync with the existing infrastructure or the existing space constraints. Additionally, one also needs to understand that the poor prefer technology solutions which builds on their existing investments. Addressing this requires the involvement of communities with social scientists and technical experts to design effective and customised solutions.

Further, given their socio-economic context, the poor often have a short-term vision and depict very typical behavior anomalies when dealing with risk. The unpredictability of climate-related risks is more likely to bring out behavior anomalies such as loss aversion, status-quo bias and/or narrow framing. Thus mere information will not induce behavior change or adoption. There is a need to provide distinct incentives (not necessarily financial) for this (IFRC, 2010). This requires a study of the cultural as well as social dynamics, along with the behavior patterns of the poor- a very context specific approach. Also there is need for innovations in communication tools which can help translate a futuristic concept into today's priorities for inducing action.

Institutional Barriers- City planning is often not inclusive and slum dwellers in particular are not even considered as residents of the city and governments are less likely to invest in them (UNISDR, 2011). A very critical requirement to resilience is the developing of social capital or people's institutions across slums and cities, especially those which are inclusive of women and who have the capacity to generate pressure for changes within the government (Boonyabancha and Mitlin, 2012). At the same time, there is the need for city governments and local service providers to respond to the needs of urban poor, particularly slum communities. Many city governments, however, lack the capacities and inter-departmental coordination, to develop and implement pro-poor participatory climate resilience action plans (UMC and NIUA, 2008). IPCC (2014) also highlighted the critical partnership gaps between technical experts, local governments and slum communities to undertake participatory risk assessments and design joint technical solutions.

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

Financial Barriers- Resilient technologies are often expensive and require capital investments and incur high maintenance costs, making them inaccessible to the underprivileged communities. It is important to design financial products keeping in mind the needs of the urban poor and their informal status, including those for risk transfer like CAT Bonds and Weather Insurance.

Proposed Solution

MHT thus plans to create a unique socio-technical partnership between communities and technical experts as a part of the Global Resilience Challenge, to address all the above barriers. The potential of such community-based adaptation strategies has already been established (Archer and Boonyabancha, 2011; Carcellar et al, 2011, Mitlin, 2012). There is also evidence that communities which have successfully created urban adaptation plans have done so with extensive civic engagement and participation (Brown et al., 2012; Carmin et al., 2012; Portney, 2013; Rosenzweig et al., 2010). A critical strategy towards this would be of working with community based organisations (there is already established evidence of such work in other sectors. (IFRC, 2010; UNISDR, 2011; MHT, 2012)). Civic engagement, participatory inclusiveness and equity, combined with careful deliberation and persuasion, determine the legitimacy and effectiveness of action when policy choices are uncertain and complex (Corfee-Morlot et al., 2011; Creighton. 2005; Dietz et al., 2003; Dukes, et al, 2000; Lim et al., 2004).

Distinctive Features

The proposed community based resilience model will be women-led, integrated; evidence based, and will focus on innovative communication strategies to promote a culture of resilience action.

Women-led: Currently, the most vulnerable in the community and one with the least access to information and resources, women, will be empowered to become agents of change. Systems will be created for women to take lead in resilience action by building their capacities and providing them platforms to voice their concerns and priorities.

Integrated and Partnership based: The project will bring together multi-disciplinary expertise to look at holistic vulnerability assessments and solutions to climate stress with the livelihood of the poor at the core. Also recognizing that

Figure 2: Building Knowledge Partnerships



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

resilience action cannot happen in silos the project will bring together multiple knowledge stakeholders (Figure 2) on a single platform and create frameworks and tools to facilitate cross-transfer of knowledge.

Evidence based Technology and Communication for Change: The project will map and study the behavior change patterns of the poor and deploy innovative communication strategies to induce action. This would include among others like video and mobile messaging, the development of a climate vulnerability calculator for the poor, telemarketing tools, micro-data gathering through community based surveillance and site- specific modeling tools for future visualization. Also recognizing that action occurs only when awareness is accompanied by a reliable and effective intervention, the project would focus on undertaking field demonstrations of successful technologies.

Indigenous Knowledge: Often, the communities themselves have made efforts at adaptation traditional knowledge and local practices. These are low cost and site-specific but effective solutions can be easily adapted across the region. What is required is scientific validation and authentication of the utility of solutions to climate adaptation. One of the key innovations in the project would be to authenticate, document and disseminate such solutions.

*The most vital aspect of the project, however, lies in the fact that it targets the resilience building of one of the most vulnerable communities — **slum dwellers and women** — and that there is a firm focus on action resulting in a direct impact on the lives of more than 1,25,000 people in South Asia.*

THEORY OF CHANGE AND IMPACT PATHWAY

Our Vision

To ensure that women take a lead through collective action and innovations to create a culture of sustainable development and resilience among the urban poor in South Asia. Towards this, the project will demonstrate a successful model of women-led resilience action in each of the seven cities; documented and disseminated across the region to create an environment which in turn encourages other cities into adopting similar strategies.

Proposed Outcomes and Outreach

1. To increase the abilities of slum communities, particularly women, to identify, forecast and withstand certain levels of shocks and stress, while maintaining their standard of living and strive to achieve increased livelihood security.
2. To increase the sphere of influence of women leaders and slum communities within the city governance framework to enable policies and programs which include the concerns of the poor.

The project would directly impact the lives of more than 125,000 poor families living in urban slums in the 7 cities by strengthening their capacities to deal with climate risks and vulnerability. However, since the project would create replicable models in close collaboration with the city governments and build city level slum dwellers forums for negotiating for their rights, it is expected to have an indirect impact on more than 5.75 million slum dwellers in these 7 South Asian cities.

Intermediate Outcomes- Factors influencing the change

The sphere of influence of women will be increased by creating a women-led two-tier institutional mechanism for the poor in each city with technical back-up support at local level; established data- gathering and community-based surveillance systems/early warning systems and building the capacities of women leaders and communities to undertake risk assessments and develop resilience plans. The participatory risk assessment exercise will be accompanied by trainings of community and women leaders on technical solutions and use of innovative behavior change strategies to induce an incentive among the communities to adopt climate resilience measures. This would be backed-up by the provision of customized and affordable technology solutions and adequate financial mechanisms/products to enable the poor to procure the same.

The critical factors influencing the process would be:

- a) Creating a unique socio-technical institutional partnership between all knowledge stakeholders
- b) Devising Communication Strategies through close observation of poor's adoption behaviors and targeted at providing information with marketing strategies to create incentives and enable a positive attitude and behavioral change in the communities.

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

- c) Field demonstrations of technical and financial solutions both at an individual/household level and community level.

Theory of Change

MHT believes that if the urban poor are provided with the requisite knowledge to undertake vulnerability and risk assessments and are equipped with available resilient-technologies, they will be able to devise and implement locally relevant and pro-poor climate resilient solutions. If the poor are empowered to implement their own resilience plans, and institutional mechanisms representing their voices is in place, they will be able to better influence city planning and governance on pro-poor adaptation and resilience action.

Climate action for poor will happen only if the poor are self-organized for action. However, they can take action only if they are made aware of the risks and are provided simplified data through customized trainings and exposure through structured interactions with research/technical experts. There are suitable technology solutions available, which need to be jointly developed and validated, standardized, demonstrated and marketed with suitable financial support. Incentivizing is the key to convincing them to adopt the technology. The underprivileged communities will be able to effectively pressurize the government if they are organized into collectives, are equipped with technical knowledge and qualified support.

This will be sustainable and scalable only if the whole process is institutionalized. MHT believes that the most efficient model of resilience would be one which enables 'iterative adaptation' — a learning process through creation of highly-evolved, self-organized institutions. This requires pursuing an adaptive process that incorporates the ability to continue adapting. It builds in capacity to "learn" and progress towards greater efficiency and optimization. The challenge, however, is how one "engineers" such a process, the critical answer to which would be by "empowering local agents" to build an institution that ensures stability for the community at risk.

Impact pathway

Theories of resilience indicate that a community's capacity to respond to stress resiliently depends on their social capital (civic capacity). Resilience requires the building of networks and institutions that have legitimacy within the community and credibility for dealing with the issues at hand. Building on this theory, MHT proposes a women-led institutional mechanism where the communities at risk are encouraged to get together and develop their social capital. To enable this, the project aims to create a two-tier structure of community institutions with a women-led federation at city level and Community Action Groups (CAGs) at slum level. These CAGs will represent a large number of slum communities that facilitate collectivization to these leaders. Theories of technology transfer and social learning have revealed that the interaction amongst change agents and individuals within the communities who cope with change increases

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

the likelihood of the transfer taking place and being effectively incorporated into the community.

It is also expected that it would be this women's federation which would be the first to gear into action during disasters and for this, they need to be trained in surveillance and vulnerability assessments with a multi-disciplinary team of experts. The process of expert interaction will be facilitated through a direct, dialogic interaction as experts don't understand local conditions and communities often don't understand a technical opinion.

However, for the model to succeed, it is imperative that, along with the institutional mechanisms, the women demonstrate resilient action on ground. To ensure this, the CAGs and federation will provide support for planning and undertaking pilot projects and a demonstration of innovative resilient technologies on ground. To enable this, they would be trained to undertake participatory vulnerability assessments and develop resilience action plans. The process of planning for resilience within the community will help create and strengthen the existing capacity. As this will be done by the communities themselves, they will develop both internal and external capacity.

Achieving Scale

The project is already envisaging a high level of scale and direct outreach to the end-user communities. It would directly impact the lives of more than 125,000 poor families and is expected to have an indirect impact on more than 5.75 million slum dwellers in the seven cities of South Asia. The potential to scale, however, is across more than 50 million South Asian cities, and a vulnerable slum population of 190.7 million, which constitutes almost 35% of the urban population.

The strategies for scale would thus be two-fold:

a) Successful replication of the model across various cities/geographies in South Asia: This would be achieved by demonstrating the model across multiple geographies (in 7 cities of 3 countries) and by documenting and disseminating the same for policy influence. Since the project would work in close collaboration with the city governments and has partners who work closely with other cities and networks, the potential for scaling is high. The project partners already have a very strong grassroots base for scale, with the lead partner MHT being a part of the SEWA network (with more than two million female members in India) and WEIGO (with partners across the world).

b) Increasing the sphere of influence of the women within their families, communities and city governance: This would be achieved by creating/strengthening institutional mechanisms which are locally led and technically supported. Facilitate capacity building inputs not only on climate risks and technical solutions; but on community based surveillance, data-generation and evidence based

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

advocacy to increase the visibility of the women and other leaders at the local governance level.

MHT has already demonstrated such a model in the field of water and sanitation in Ahmedabad, wherein the women's federation Vikasini is now independently consulted by the city government to provide inputs on policies and programs like the City Sanitation Plan, Waste Management Plan, Building Codes, etc. Such women-led institutional models for policy influence and action have been demonstrated in rural areas and other sectors such as health, agriculture extension, microfinance, etc.

Sustainability and Policy Influencing

The community institutions created in the process will exist beyond the project duration. The proposed model is kept informal to avoid administrative hassles and keep operational costs low. To ensure the knowledge sustainability of the institutions, there is a provision to create a local multi-disciplinary technical team to provide the necessary expertise and backup. Furthermore, these institutions will also serve as a future platform for private incubators to test and validate new technology options, which will help continue the technical explorations.

The project partners have a strong base for policy influencing, with many of the civil society partners already working with other state/city governments for pro-poor policy influencing. They are also a part of various regional networks like CANSA, where the project findings are to be disseminated. Our research partner, IIPH, is already working with city governments on Heat Action Plans. Besides the private sector, partners are involved as consultants/implementers in government projects related to slum development, energy, water and sanitation.

Evidence and Impact of Climate Change on Urban Poor especially Women in South Asia

Heat Stress:

Extreme heat events aggravated by urbanization and the concomitant urban heat island effect (Stone 2012, 2015), resulting in cities being 5°-7° C warmer than the surrounding rural areas on summer nights (Vidal and Pathak, 2013- Ongoing study in Mumbai and Delhi). Health impacts of heat stress, although less documented, are known to be significant. (IPCC, 2014; Trans et al. 2013). In 2010, Ahmedabad's temperature reached a high of 46.8°C causing 1344 excess deaths likely caused by the heat wave. (Azhar et al. 2014). The urban poor living in heated concrete boxes, with no windows, ventilation, and no or little access to shade, fans, and other cooling technologies, are the most affected population group. Adding to this, is the exposure to heat due to occupational compulsions especially those requiring to work outdoors in construction, street vending, etc. Productivity of women home based workers, who mostly work in afternoons could also go down sometimes upto 50% in summers resulting in reduced household incomes and increased financial burden (FGDs).

Extreme Precipitation Events:

The region is also seeing increased frequency of extreme precipitation (IMD). The 2014 floods in South Asia left more than 700 people dead and displaced millions (news reports). Spatial analysis techniques have revealed that the urban poor who tend to live in low lying informal settlements are highly vulnerable to such disasters (Pillai et al 2010; Hoffman 2009; Lall and Deichmann, 2009). There is also documented evidence that women die exponential more than men during disasters due to socio-economic disadvantages (Neumayer & Pluempner, 2007)¹ and that they are likely to suffer more in the aftermath of disasters, e.g. adolescent girls facing sexual harassment (Bartlett, 2008).

Apart from floods, there is also the frequent inundation caused by heavy rainfall days, resulting in most slum dwellers facing loss of livelihood and assets due to inland flooding (Chatterjee 2010). Self-employed slum dweller typically do not have warehousing facilities or insurance against their assets. Floods and inundation can easily destroy the physical assets (machines, raw materials, etc) of these businesses as well as homes, leaving residents destitute. Women dominated sectors are more likely to be impacted by these and are often worst hit by climate related disasters (IUCN/WEDO, n.d).

¹ Of the 140,000 who died from the 1991 cyclone disasters in Bangladesh, 90% were women. Reasons for the disparity include women not having been taught to swim, clothing restricting mobility and cultural norms regarding the preservation of female honour causing many women to leave their homes too late because they waited for a male escort. The mortality factor even holds true for heat waves. During the 2003 European heat wave, the excess mortality for women was 75% higher than that for men of all ages.

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

The situation gets worse with mixing of sewage water with the flood water, which not only is a breeding ground for diseases in the short term, but also has long term health impacts if it infiltrates the water supply systems or upper shallow aquifers (if existent) (Groenwall et al., 2010). This occurs because the sanitation situation is often bad in slums due to insufficient sewage canals, missing toilets and lack of storm water drainage systems.

Water Scarcity:

Another well documented impact of Climate Change in South Asia is that of **water scarcity** (IPCC, 2015, World Bank, 2013). The region is already water stressed with per capita water availability of less than 2500m³ (ESCAP, 2013). In Central India, even the present water threat is very high (0.8–1) (Vorosmarty et al. 2010) and the occurrence of droughts would further exacerbate the water stress. Slums and informal settlements, are often not connected to public services like water supply systems and even if they are, this is often insufficient in terms of frequency, duration and stability (Sekhar et al. 2005; Karn and Harada, 2002) making them the most deprived from access to safe water. As women have the prime responsibility for water at household level, the declining water security adds to their drudgery of fetching and storing water.

Water and Vector Borne Diseases:

The immediate manifestation of water scarcity and inland flooding related water contamination is an increased incidence of water borne diseases like diarrhea and typhoid. These will be exacerbated due to climate change. Diarrhea, the major cause for child mortality, is projected to increase by 6 percent by 2030 (Pandey 2010). Typhoid, already endemic in India, with an annual incidence of 214.2 per 100,000 persons (Ochiai et al) is also expected to rise.

Rise in temperature and humidity coupled with open surface water bodies and unhygienic water storage practices will increase mosquito breeding and vector borne diseases like malaria, dengue and chikangunya. India already reports 2 million cases of malaria every year (Pandey 2010) and it has been projected that the relative risk of malaria in South Asia would increase by 5 percent in 2030 (174,000 additional incidents). There is also an increase in the number of dengue cases being registered annually over the last five years from 12,561 cases in 2008 to 75,808 cases in 2013 (NVBDCP, 2014). There is already well documented evidence that urban poor are more prone to diseases such as diarrhea, dengue, malaria, etc (Montgomery 2009, Harpham 2009, Mercaso et al 2007, Cattaneo et al 2007) and that they will be at greater risk of adverse health impacts of climate change (IPCC, 2007). As the health risks spreads, women's workload in caring for the sick will also increase. This will further limit the time they have available for income generation which, when coupled with the rising medical costs associated with family illness, increase the household financial burden and heighten the levels of poverty.

Inferences from Focus Group Discussions with Community Leaders

Climate Stressor	FGD inferences
Heat Stress	<p>Ahmedabad:</p> <ul style="list-style-type: none"> ○ Increased joint and back pain, more sweat during summer ○ Reduction in productivity during summer months by more than 50% <p>Jaipur:</p> <ul style="list-style-type: none"> ○ Heat extent is so much that people cannot stay at home and work under the shade of the tree during afternoons <p>Bhopal:</p> <ul style="list-style-type: none"> ○ Increased heat due to less of tress, more population as well as urbanization ○ Restlessness, high BP, fever due to increased temperature <p>Common Inferences:</p> <ul style="list-style-type: none"> ○ Low ventilation in the area due to increased number of houses and decreased distance between each of the houses ○ Increased electricity bills during summers
Water shortage	<p>Ahmedabad:</p> <ul style="list-style-type: none"> ○ Water supply for 2-3 hours a day ○ Availability of water is a major issue in some slums. Water needs to be collected from 1-2 km and women often fight for water <p>Jaipur:</p> <ul style="list-style-type: none"> ○ Salty water at most of the places with Fluoride contamination ○ Water quality is so bad the tress do not survive ○ Water is not good for drinking, has to be purchased. Water tanks cost approx 280/month ○ Water leakages, cause more contamination ○ Drying of local water sources in early summer in Ranchi <p>Ranchi:</p> <ul style="list-style-type: none"> ○ Drying of local water sources in early summer ○ At some places, river water/ nalashave been contaminated due to discharge of effluents from NIFFT (Mines etc) but the people have no option than to consume the same ○ Water available at a distance of 1-1.5 kms and there are early morning queues for water ○ Hand-pumps are available but are not in working conditions. They are not getting fixed even after regular complaints. <p>Bhopal:</p> <ul style="list-style-type: none"> ○ During summer, the level of water in the lake goes down which lowers water availability ○ Water level in the tube-wells etc goes down during summer, earlier

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

	<p>water was available at 20-25 feet only and now the level has gone down to more than 80-100 feet. In some areas, water is available at 250 feet</p> <ul style="list-style-type: none"> ○ Water available at HH level, so water wastage has increased
Inland flooding	<p>Ahmedabad:</p> <ul style="list-style-type: none"> ○ Inland flooding is a major issue in Ahmedabad which also sometimes cause to backlog of sewers ○ Heavy rainfall just for 1-2 hours causes inland flooding- knee level water and the level goes only after 3-4 hours <p>Jaipur:</p> <ul style="list-style-type: none"> ○ Overflowing drains cause flooding during heavy rains is the major issue, water enters homes also ○ Nayikithari (Jaipur) is a non-notified slum, which is situated near a large drain (nehar) wherein all the waste water from the entire city gets collected. Thus, flooding in the area is to such a great extent that 2-3 children drown every year. Marshy soil increases the risk of slipping into the drain. <p>Ranchi:</p> <ul style="list-style-type: none"> ○ Children cannot go to school due to water logging in the area <p>Bhopal:</p> <ul style="list-style-type: none"> ○ Heavy rainfall leads to inland flooding as the open spaces between lakes and the houses have all urbanized and the water is neither able to flow easily nor gets absorbed <p>Common inferences:</p> <ul style="list-style-type: none"> ○ Prolonged monsoons, almost throughout the year ○ Mixing of water lines with sewer lines ○ Drains get choked due to garbage (mostly plastics) in the drains and thus over flow during monsoons
Water & Vector borne diseases	<p>Ahmedabad:</p> <ul style="list-style-type: none"> ○ Sewer lines get choked and flooded, rats and mosquitoes come out of it. Fever, unconsciousness, vomiting conditions due to this <p>Jaipur:</p> <ul style="list-style-type: none"> ○ Foul odour, increase in mosquitoes, cough, fever during monsoons <p>Ranchi:</p> <ul style="list-style-type: none"> ○ Health issues/diseases (Cold, cough, fever) on a weekly basis which influences livelihood as well