

Gender approaches in climate compatible development: Lessons from India



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Part of a global study commissioned by the Climate Development Knowledge Network (CDKN) and carried out by Practical Action Consulting (PAC), together with the Institute of Development Studies (IDS) in Latin America (Peru), Eastern Africa (Kenya) and South Asia (India).

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Acronyms and abbreviations

ACCCRN	Asian Cities Climate Change Resilience Network
CDKN	Climate Development Knowledge Network
COP	Conference of Parties
DDMA	District Disaster Management Authority
DDMP	District Disaster Management Plan
DRDA	District Rural Development Agency
GEAG	Gorakhpur Environmental Action Group
HIG	High-Income Group
IDS	Institute of Development Studies
LIG	Low-Income Group
MIG	Middle-Income Group
NAPCC	National Action Plan on Climate Change
NGO	Non-governmental organisation
PAC	Practical Action Consulting
SAPCC	State Action Plan on Climate Change
UNDP	United Nations Development Programme

Foreword

Women's economic contribution to India's rapid economic growth is now being recognised and supported by the Government of India through concrete policy and financial measures. May it be in the Mahatma Gandhi National Rural Employment Guarantee Act, where the poor and women are key beneficiaries as well as builders of assets for climate change adaptation, or through the Skill India Mission, where young girls in rural and urban low income families are being brought in to the mainstream to learn new and marketable skills, or Start Up India, where women are being encouraged to start new and innovative business ventures that not only generate profit for them and their families but also spread prosperity in their communities. In all these initiatives, the role and contribution of women is seen as central, as well as essential.

Women's economic contribution to India's climate compatible development is recognised and encouraged. At the 21st Conference of Parties (COP21) in Paris, the Government of India with the United Nations Development Programme (UNDP) not only listed a wide range of initiatives to showcase women's centrality in implementing of Intended Nationally Determined Contributions (INDCs) but also innovative and new thinking coming out of poor women's lives towards changes in lifestyle. Shri Prakash Javadekar, Minister of State (IC) for Environment, Forests and Climate Change for the Government of India has time and again repeated that reducing poverty and building resilience is everybody's business and in this effort, the contribution of India's women is and will remain central.

This report is set in this context. It underlines three key ideas: 1) that women are natural and easy brokers of learning around adaptation and emissions; 2) women offer far better value for money in adaptation and resilience building measures; and 3) women build the trust that is essential to move from the current pattern of growth to new or green growth. As highlighted by Nivedita Mani of Gorakhpur Environmental Action Group (GEAG), reducing emissions is not a technical or economic issue but an issue central to women and their lives.

As this report highlights, women take adaptation measures on their own and with the support of public and civil society initiatives, deal with uncertainty around such measures and work towards transformation of economic activities that shape adaptation. This may be through drawing a loan to buy a solar lantern in Kashmir or building a water harvesting structure in Kutch. Women are entrepreneurial and better at building sustainable organisations in India. We not only see this in this report but also in a large number of subnational initiatives by CDKN addressing ecology, growth and democracy where it matters the most: in the lives of poor women. Given a chance, women turn the capacity gap into opportunities to build capacities for resilience.

This report takes us away from what Aditi Kapoor, India's leading gender and adaptation activist warns of: a climate economics of inequality where women not only benefit less from economic growth but also less from ecological progress. Three key areas of inequality require direct and urgent attention from policy-makers, as well as those designing or running large projects in India: 1) the role of women in building urban resilience, not only in the 100 Smart Cities programme but a wide range of other towns in India; 2) the role of women in green and clean small businesses; and 3) the role of women in solar and mixed grid renewable energy promotion. These are the areas where more learning by doing is essential in India.

This report is of regional relevance. What is being done in India is not only important to India's women but also to women throughout the rest of Asia. For example, the lessons learned in 2014, under the leadership of Anjali Jaiswal of Natural Resources Defense Council (NRDC), by the poor and women in Ahmedabad city about how to protect their health and livelihoods from heat waves have now been picked up by women in Karachi, under the leadership of Hina Lotia of Lead Pakistan.

CDKN India is committed to building on its experience, learning and networking from the past six years to transform lives of more and more women with green prosperity. This will be done by integrating women's leadership in implementation of INDCs.

Mihir R. Bhatt

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Summary

Climate change is increasingly recognised as a global crisis, but solutions have so far focused on scientific and economic options, rather than on the human and gender dimensions. Despite the fact that marginalised and poor people, including women, are affected first and hardest by climate change, evidence indicates that women's views, needs and participation are excluded from the design and planning of climate change responses, including major policies. Moreover, women are often perceived primarily as victims, and not as equal contributors of knowledge and skills in disaster risk, adaptation and mitigation strategies.

Most research into gender and climate change has been carried out in rural contexts. Significant knowledge gaps exist on the relationship between these two issues in urban settings. With the aim of contributing new evidence to this arena, the current study explores the advantages and challenges of integrating gender dimensions into climate compatible development strategies. It focuses on a project launched by the Asian Cities Climate Change Resilience Network (ACCCRN) in India. This particular initiative was implemented over seven years by the Gorakhpur Environment Action Group (GEAG) in Mahewa ward, Gorakhpur, Uttar Pradesh. Although it was not designed to have an explicit gender-based approach, the ACCCRN project integrated a gender perspective during planning and implementation through the establishment of committees, participatory vulnerability analysis and interventions in resilience planning, water and sanitation, climate-resilient agriculture, health, climate-resilient buildings and promotion of livelihood activities for women.

Main findings

What does a gender-sensitive approach to climate compatible development mean in the urban context?

Urban scenarios in India are very complex, with many social dimensions in terms of caste, gender and class. A gender-sensitive approach to climate compatible development is thus fundamentally different in cities, compared with one in rural areas. Urban residents demonstrate different vulnerabilities and capacities for facing the impacts of climate change than people living in rural areas. The main differences are: weaker social cohesion, meaning women and marginalised people are more dependent on external help in times of need; a greater likelihood of flooding and waterlogging due to poor infrastructure and basic services; higher levels of apathy among residents towards the condition of infrastructure, service delivery and the impacts of climate change; and a greater likelihood of food insecurity. GEAG, which implemented the ACCCRN project, adapted project activities to address these differences. The project design also took into account other practical considerations, such as the extra time required for building trust and confidence, working through community volunteers and arranging meetings to suit men and women's availability. GEAG adapted popular participatory methods developed in the context of rural settings to suit the specificities of Mahewa ward. A case in point was a decision taken to carry out Participatory Urban Appraisals (PUA) through several smaller meetings, so as to understand the diversity of characteristics and issues involved.



According to the evidence, how relevant is gender-sensitive programming in climate compatible development to promoting and achieving people's empowerment?

The active contribution of men and women in building resilience meant that practical issues had to be addressed across multiple areas affected by climate change. Women's participation, in particular, made a substantial contribution to impact and sustainability, including how well committees functioned, access to potable water and public services and the uptake of climate-resilient agricultural techniques. Indeed, ACCCRN project members felt that: *"Had women not participated actively, the project outcomes would have been considerably less, maybe around 10–20% of what was achieved. It is largely because of women (and also men) that the project has been sustainable so far, as well as effective in resilience-building."* Furthermore, women often prioritised low-income, marginalised groups as beneficiaries of project interventions. This approach succeeded in building people's resilience and their capacities to absorb shocks and stresses brought about by a changing climate and extreme weather events. Greater degrees of transformation appear to be achieved when women are involved as agents, rather than as mere recipients. Such an approach involves creating spaces for women to share their experiences and perspectives and to contribute to decision-making processes, both at local and higher levels, where women's voices tend to become lost in patriarchal governance structures. In the absence of a gender-based approach to project planning, evidence and learning around these impacts is inevitably 'lost' and it becomes more challenging to foster people's empowerment. This can lead to the false conclusion that gender-based approaches are an optional (and burdensome) extra, rather than a key strategy for achieving greater impact and sustainability of climate compatible development in urban settings.

Does a gender-sensitive approach enable better climate compatible development outcomes and if so, in what way?

The ACCCRN project adopted various measures to respond to women's vulnerability to climate change. In doing so, it achieved positive results in the following areas: training and information sharing on the subjects of health and water, improved access to potable water and increased immunisation rates among children; food and nutrition insecurity was addressed through climate-resilient agriculture; and alternative livelihood strategies improved income-generating opportunities for women. Where women played a role in deciding how to use this income, the money was spent on education, health and food. Opportunities to train with people from other neighbourhoods gave women and men a chance to overcome shyness and gain confidence, thereby contributing to the sustainability of interventions. Mixed meetings and fora helped men and women of different castes and classes to become more aware of the challenges they face and to take joint decisions. These participatory consultations brought out the diverse needs and priorities of community members, as well as a range of skills that were used to contribute to climate compatible development. Had the gender-sensitive approach been integrated from the planning right through to the evaluation stages, the impacts could have been longer lasting, more effective and wider ranging. For example, women's participation beyond the community level was limited, and this probably prevented their experiences and perceptions from penetrating higher levels of decision-making power. Women's input in these arenas will be needed if gender is to figure more prominently in policy and practice.

What socioeconomic, political and cultural factors constrain or favour gender-sensitive approaches in the context of climate compatible development, and the ability of men and women to tackle climate related risks in urban contexts?

In India, gender mainstreaming is not considered imperative in the process of developing climate compatible development mechanisms, especially when working on new issues or in unfamiliar settings. The popular belief is that when using a gender-based approach, it takes longer to understand the issues at hand and develop appropriate interventions. As a result, there may be a lack of willingness to 'go the extra mile'. A direct consequence of this attitude is that the focus on integrating gender issues explicitly into projects tends to come from donor organisations. Men, and particularly women, face many cultural and social barriers that challenge their ability to tackle climate related risk, such as strong patriarchal structures, which dictate the roles they should play. While these barriers prevented many women from participating in the ACCCRN project, a few individuals were proactive, grew in confidence and took on leadership roles. Support and encouragement by facilitators, as well as attempts to build awareness among men, women and decision-makers about how people, including women and children, are affected by climate change, helped many women contribute to local planning processes.

Key recommendations

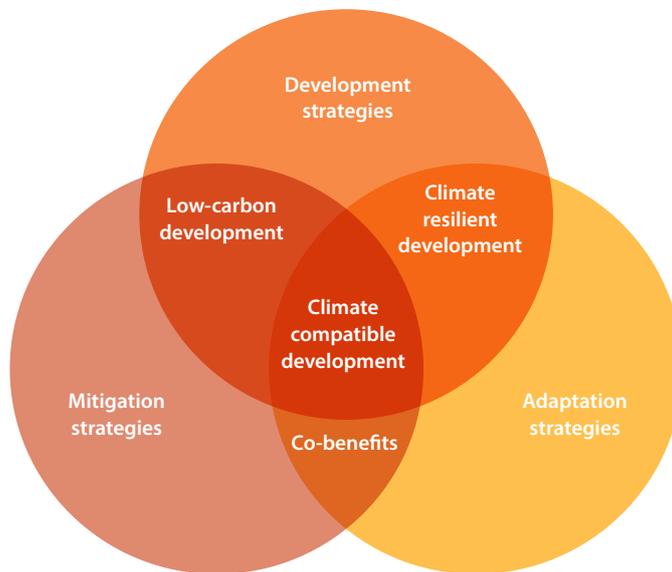
- Participatory planning and monitoring can provide a space for women to contribute to decision-making processes and are crucial to improving the effectiveness and accountability of climate compatible development actions. In Uttar Pradesh, the 74th Constitutional Amendment, which mandates the involvement of citizens in local urban planning, should be fully operationalised in order to facilitate the institutionalisation of gender-based approaches and resilient micro-planning within government schemes.
- Government policy and programmes relating to climate compatible development must integrate women's perspectives when designing and implementing livelihood support strategies. Areas closely associated with women's roles and responsibilities – such as education, food and health – require closer attention and more funding to help urban dwellers achieve better living standards and adapt to changing weather patterns.
- Supporting women to achieve greater economic empowerment at an individual level is critical in order to maximise benefits from climate compatible development initiatives. This approach will place women in a stronger position to make decisions about investments in areas exposed to climate change, thereby building household resilience. Such support will involve activities aimed at transforming gender relations by building awareness and confidence among women, men, elders and society in general around equality and empowerment.
- Research and projects must systematically collect gender-disaggregated data, analyse differentiated needs and vulnerability and develop gender-equality indicators. This data can help organisations to assess the realities of gender inequality, understand the practicalities of mainstreaming gender and report progress towards climate compatible development and gender equity goals.
- Special efforts should be made to build networks and strengthen social cohesion in urban areas where interactions among neighbours appear limited, and dependency on outside help is greater. This can help to reduce the vulnerability of women and marginalised groups to the impacts of climate change and disaster events.
- Donors must explicitly push for the integration of gender-based approaches in interventions, identifying willing actors who are capable of promoting gender equality, creating coalitions of the willing and supporting these actors. Likewise, donors should take a proactive role in promoting knowledge-sharing and exchange around these issues, helping to improve dissemination of practical tools and training to support adequate design, planning, implementation and monitoring of climate compatible development and gender equity outcomes. Finally, advocacy efforts are needed at policy level, where donors can exert influence by making funds available for gender-sensitive climate compatible development pilot projects, research and scaling up.

1. Introduction

1.1 Gender equality and climate compatible development

“Climate compatible development is about transforming development pathways to face the climate problem head-on. It moves beyond the traditional separation of adaptation, mitigation and development strategies. Climate compatible development processes adopt strategies and goals that integrate the threats and opportunities of a changing climate to lower CO₂ emissions, build resilience and promote development simultaneously”
(Mitchell and Maxwell, 2010).

Figure 1. Climate compatible development



Source: Mitchell and Maxwell (2010)¹.

Although climate change is increasingly recognised as a global crisis, responses have so far focused on scientific and economic solutions, rather than on the human and gender dimensions.² Likewise, climate change knowledge is generally driven by narratives that do not necessarily consider sociocultural dimensions.³ Yet climate change most severely affects marginalised and poor sections of society, including women who have been historically, socially and economically marginalised.⁴

Evidence indicates that women’s views, needs and participation are often excluded from the design, planning and policy of climate change responses.^{5,6} Moreover, women are frequently perceived primarily as victims and not as positive agents of change in adaptation and mitigation efforts. Yet, their skills and knowledge position them well to develop strategies for adapting to changing environmental realities.⁷ The call of the hour is to devise strategies for environmentally compatible inclusive growth which address the concerns of marginalised sections of society, including women.⁸

While international frameworks are gradually turning to be more aware of gender issues, all too often gender is simply 'added' to existing policies and agreements, without addressing the fundamental changes required to foster gender equality. At the same time, with the majority of climate change and gender research focusing exclusively on rural areas, very little is known about the interplay between these issues in urban settings.^{9,10} It is during the course of this research that the integration of gender-sensitive approaches into climate policies at urban levels has begun to be documented in the latest report from Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), in collaboration with United Nations Human Settlements Programme (UN-Habitat) and GenderCC-Women for Climate Justice.¹¹ The report makes a powerful case for cities to pursue gender-sensitive approaches in urban development and provides practical recommendations to support gender-sensitive climate policies. Acknowledging the findings and framework from the GIZ handbook, the present report aims to contextualise the integration of gender equality in climate-related initiatives, in urban settings. In doing so, it seeks to achieve a better understanding of drivers to use of a gender perspective – and obstacles to adopting such a pathway.

More nuanced gender analysis of climate compatible development projects in specific urban settings can provide compelling evidence of the benefits of gender-based approaches to climate compatible development. Furthermore, analysis on gender and climate change needs to be translated into useable insights or policy and practice acknowledging the diversity of urban contexts.¹²

To help address these gaps, the Climate and Development Knowledge Network (CDKN) commissioned Practical Action Consulting (PAC) UK, together with the Institute of Development Studies (IDS) and three PAC offices in Latin America (Peru), East Africa (Kenya) and South Asia (India), to manage the research project 'Gender equality and climate compatible development: drivers and challenges to people's empowerment'.

1.2 Study objectives and research questions

This research aims to explore the advantages and challenges of integrating a gender dimension into climate compatible development strategies in urban settings, in order to achieve development results that are sustainable and equitable.

The study is guided by four global research questions developed as the result of an Overseas Development Institute (ODI) literature review conducted in 2014.¹³ These questions, listed below, are supported by sub-questions, which reflect the country and site-specific context, as further illustrated in Chapter 3.

- 1.** What does a gender-sensitive approach to climate compatible development mean in different urban contexts?
- 2.** What is the evidence of the relevance of gender-sensitive programming in climate compatible development to promote and achieve people's empowerment?
- 3.** What socioeconomic, political and cultural factors constrain or favour gender-sensitive approaches in the context of climate compatible development?
- 4.** Does a gender-sensitive approach enable better climate compatible development outcomes and, if so, in what way?

The report draws on a conceptual framework that resulted from discussions with the research teams and wider debate with scholars working on the subject (Box 1). This was used as a guide to assess the gender-based approaches adopted by the case studies.

Box 1. Gender approach typology

Gender-blind – Project description/proposal does not refer to any particular gender aspects or differences between men and women.

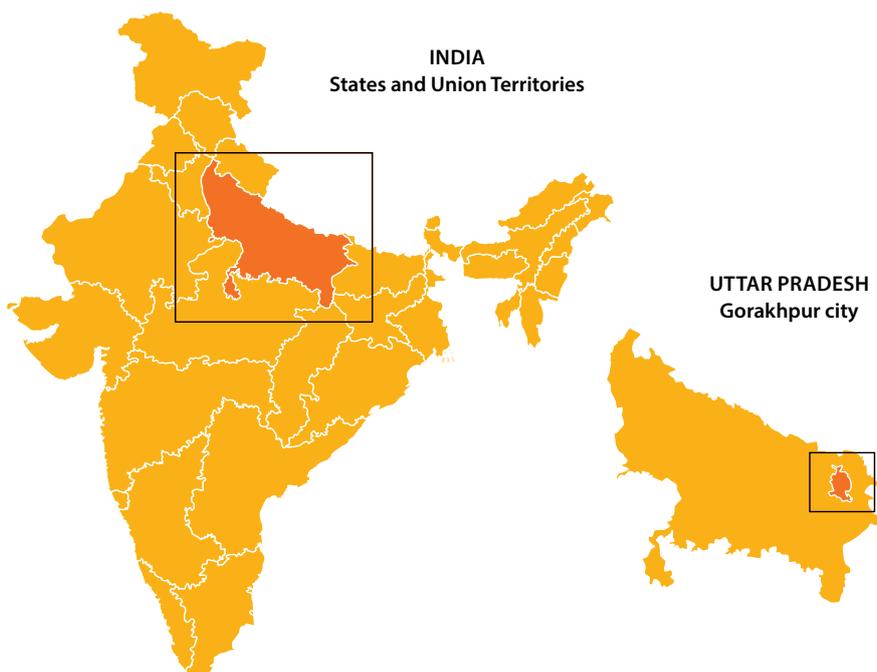
Gender-aware – Project description shows an awareness of gender issues by mentioning differences that need to be taken into consideration, but actual activities do not follow a gender approach consistently from design to implementation to monitoring and evaluation.

Gender-sensitive – Project follows a gender-sensitive methodology (gender analysis, gender-disaggregated data are collected, gender-sensitive indicators in monitoring and evaluation, etc.) and aims to promote gender equality.

Gender-transformative – Project follows a gender-sensitive methodology, aims to promote gender equality and also to foster change and challenge gender discriminatory norms and/or root causes of vulnerability to climate change and of unsustainable development (in other words, the project wants to help address the underlying causes of environmental or development issues)

The present study documents the urban context of Gorakhpur, located in Uttar Pradesh, India. In particular, it examines the Asian Cities Climate Change Resilience Network (ACCCRN) project, a seven-year (2007–2014) initiative supported by The Rockefeller Foundation and implemented by Gorakhpur Environment Action Group (GEAG) in Mahewa ward, Gorakhpur city (Figure 2). The project included interventions in water and sanitation, decentralised drainage systems, climate-resilient agriculture, community health, risk-resilient buildings and schools, and the promotion of livelihood activities for women, as well as the identification of climate thresholds and hazards.

Figure 2. Gorakhpur, Uttar Pradesh, India



2. The Indian context

2.1 Climate change and vulnerable cities in India

In India, climate change is increasing the probability, frequency and intensity of extreme events, as well as spurring the emergence of new hazards and vulnerabilities with differential spatial and socioeconomic impacts. Monsoon seasons have become unpredictable and this is having a severe impact on rainfed agriculture. The majority of Indian people depend on climate-sensitive sectors such as agriculture, forestry and fisheries for food and livelihoods. As such, the impacts of climate change are expected to reduce the resilience and coping capacities of poor and vulnerable communities even further.

Between one quarter and one half of the urban population in India is poor.¹⁵ Large differentials exist within any urban population, not only in terms of the impacts of climate change, but also in relation to the potential to cope with these impacts and to recover afterwards – and this is influenced by age, gender and other factors.¹⁶ According to the Planning Commission of India,¹⁷ secondary cities in India (also known as Tier II cities, based on their population) are especially vulnerable to the impacts of climate change, because they are becoming hubs of livelihood opportunities, attracting rapid economic growth and high levels of migration from neighbouring areas. However, these cities are unprepared for the challenges posed by climate change, in combination with such socioeconomic trends. Urban poor are forced to live in slums built on marginal lands and often lack access to basic services, thereby increasing their vulnerability to the impacts of climate change and disaster events, such as heavy rain, waterlogging and floods.¹⁸

The city of Gorakhpur is one of the largest urban settlements in Eastern Uttar Pradesh and a major socioeconomic, commercial and cultural centre. It is a low-lying area located in the foothills of the Himalayas at the Indo-Nepal border on the confluence of the Rohini and Rapti rivers, both tributaries of the River Ganges. The city is divided into 70 wards. Unplanned urban development has led to serious challenges for Gorakhpur, including poor infrastructure and lack of effective solid waste management, with drains choked with garbage and sewage. Furthermore, the city is prone to frequent flooding, waterlogging and other water-related problems caused by extreme precipitation and topographical attributes. The combination of these factors has a negative impact on city residents' health, economic livelihoods and access to adequate shelter, water and sanitation, solid waste management and other resources.¹⁹

Gorakhpur district is home to a largely agrarian society. Small-scale and marginal farmers, who represent more than 90% of the total farming community,²⁰ are particularly disadvantaged due to their smaller and fragmented landholdings, as well as their reduced capacity to deal with climate-related uncertainties.²¹ A somewhat unfavourable policy environment, which promotes mostly top-down approaches to urban planning, combined with inadequate resources and limited access to government schemes, adds to vulnerability, resulting in food insecurity and high levels of frustration among farmers. Climate change drives some of them to move to urban centres, resulting in so-called distressed migration.²² The rapid influx of people from nearby rural areas to Gorakhpur city has exerted immense pressure on its infrastructure capacity, which has not kept pace with population growth. Residents of Mahewa ward have faced repeated disasters over the past three decades, such as severe storms in 1984, a month-long cold wave in 1992, floods in 1998 and again in 2001. Climatic changes are expected to exacerbate existing challenges directly and indirectly through increases in temperature and humidity, as well as shifts in the variability and intensity of extreme weather events.²³

2.2 Gender inequality in India

Indian society is segregated in multiple ways, by caste/class, gender, wealth, poverty and religion. The complex caste system in India stratifies the population into so called upper and lower castes. Some groups are ostracised as 'untouchables',²⁴ while Other Backward Castes (OBC) is a collective term used by the Indian Government to classify socially and educationally disadvantaged castes. An entrenched patriarchy and gender divisions, which value boys over girls and keep men and women and boys and girls apart, coupled with child marriage, contribute to the creation of a society in which sexual abuse and exploitation of women, particularly 'untouchable' women, is an accepted part of everyday life.²⁵

India has performed poorly in removing gender-based disparities, ranking 114 out of 142 countries according to the World Economic Forum's 2014 Gender Gap Index.²⁶ In 2015, only 12.2% of parliamentary seats were held by women and just over one quarter of adult women (27%) received some sort of secondary education, compared with 56.6% of their male counterparts.²⁷ Female participation in the labour market is 27%, compared with 79.9% for men²⁸ and in Uttar Pradesh, women's wages are 20% lower than those of men.²⁹

The sex ratio in Uttar Pradesh is low, with a figure of 908 women per 1,000 men in 2011.³⁰ In India, this figure indicates discrimination against women, who are considered more of a burden to their families. A low sex ratio is attributed to practices such as selective abortions (female foeticide), female infanticide and female child mortality, due to girls being neglected.^{31, 32, 33}

In Uttar Pradesh, the 2006 Gender Development Index value of 0.509 was lower than the Human Development Index value at 0.3808, indicating the persistence of gender inequalities in access to basic needs such as health and education, as well as in political participation and economic activity. While the absolute levels of literacy and health of women and girls in Uttar Pradesh has improved over the years, other social and cultural gender disparities persist, such as the increase in dowry.³⁴ In almost all these respects, Eastern Uttar Pradesh (where Gorakhpur is located) fares worse than average.³⁵ Remnants of feudalism and strong patriarchal norms still exert an influence on people's lives, especially those of women who are relegated to secondary status.

2.3 Policy responses

The 2008 National Action Plan on Climate Change (NAPCC) drawn up by the Government of India³⁶ fails to recognise the gender dimensions of climate change, either explicitly or implicitly. The national plan is currently being translated into State Action Plans on Climate Change (SAPCC). As a result of the policy research and advocacy on gender and climate change pursued by CDKN³⁷ and other organisations, the Federal Ministry of Environment and Forests (responsible for climate change in public policy and programming) has advised State Governments to address gender concerns in State Action Plans on Climate Change, ensuring adequate participation of men and women in the implementation process. As a result, State Governments are now beginning to reflect greater gender sensitivity in their SAPCCs. For example, the Uttar Pradesh Climate Change Action Plan discusses links between gender and climate adaptation and mitigation. Against this backdrop, the present study provides timely and important information, which it is hoped will be used to foster more inclusive climate compatible development processes in Gorakhpur and beyond.

3. Research methodology

3.1 Case study selection

The case study was selected based on the following requirements set out by the research project management team. These stipulated that it must be a project:

- that is already completed, or which has been implemented for at least 2–3 years
- that is/was implemented in urban areas
- that has dealt with climate compatible development (adaptation, mitigation or disaster risk reduction)
- that has addressed issues of gender at all stages.

An initial assessment of project documents and interaction with the implementing agencies of the ACCCRN project indicated that although this project did not specifically address gender concerns in the design and planning stage, gender issues were integrated during implementation. Having worked towards building local-level resilience to climate change in urban areas by bringing citizens and governing institutions together, it was agreed that the project demonstrated the potential to offer interesting insights.

3.1.1 *The Asian Cities Climate Change Resilience Network (ACCCRN) project*

Implemented between 2007 and 2014, the ACCCRN project was carried out in Gorakhpur by GEAG in three phases, as shown in Box 2.

Box 2. ACCCRN project overview

Phase I (2008–2009):

- Scoping and selection of Gorakhpur city.

Phase II (2009–2010):

- Engagement with local partners to introduce climate change issues and develop context-specific climate resilience strategies.
- Vulnerability assessments of agents, systems and institutions to understand their interconnectedness and the impacts of climate change on each.
- Development of the City Resilience Strategy involving Gorakhpur residents in planning at the neighbourhood, ward and city level.

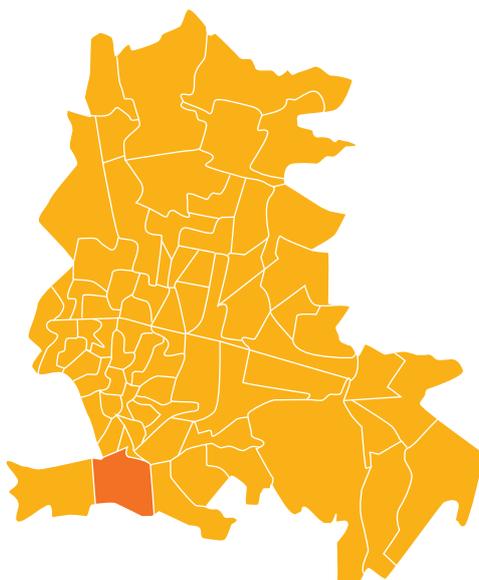
Phase III (2011–2014):

- Community-level institutions formed at the neighbourhood, thematic and ward level.
- Pilot interventions implemented in Mahewa ward, including:
 - solid waste management and water quality monitoring
 - installing decentralised drainage systems
 - promoting climate-resilient agriculture, specifically production models for waterlogged conditions, together with farm planning and effective linkages with institutions. Included selection of model farmers (many women) to adopt climate-resilient farming systems on small plots, and supporting them to leverage funds and technologies
 - community health awareness campaigns, immunisation, provision of safe drinking water and construction of toilets
 - design and construction of low-cost risk-resilient buildings, schools and community toilets
 - promotion of livelihood activities for women, including microfinance, micro-entrepreneurship, and skill development
 - climate threshold determination, including the production of inundation and hazard maps, collection and interpretation of climate data and global positioning system (GPS) surveys.

3.2 Case study site

Mahewa ward, shown in Figure 3, is home to 1.27% of the total city population and is located in a low-lying area, which is prone to severe waterlogging from August to October each year. Mahewa is characterised by socioeconomically challenged households, with extremely poor infrastructure and very limited access to basic services. Some 64% of households do not have access to a piped potable water supply and half of the population lacks access to sanitation, health and energy services.

Figure 3. Gorakhpur city wards. Mahewa ward in red



The majority of families living in Mahewa ward belong to the low-income group and so-called lower and other disadvantaged castes. Literacy levels are low at 45.5% and female literacy is much lower at 22.4%. About 80% of household members work as daily wage labourers, domestic help, vendors and hawkers (street vendors). Approximately 14% of the ward's total area is used for agricultural production, carried out by small-scale and marginal farmers, whose vegetables are often submerged by floods. About 70% of farming activities are conducted by women.³⁸

Mahewa ward has long been used as a dumping ground by the city for solid waste and night soil (human faeces disposed of manually). As a low-lying area, waterlogging and flooding are fairly common in this ward and have caused chemicals used for waste disposal to leak, contaminating the ground water and soil.

The local resilience planning model promoted by the ACCCRN project has since been shared among other wards of Gorakhpur city and the approach to mainstreaming climate change concerns in development planning processes is being adopted through the establishment of a Climate Cell in Gorakhpur Municipal Corporation. The experiences and lessons learned from Mahewa are being shared widely at city level through thematic and steering committee meetings. In addition, experiences from the ACCCRN project in Mahewa have been adopted by the District Disaster Management Authority (DDMA) as a live model in climate change adaptation and disaster risk reduction. GEAG is now scaling up these experiences to three other cities in India: Jorhat in Assam, Saharsa in Bihar and Bashirhat in West Bengal.

3.3 Research questions

This study set out to answer four broad questions and 14 sub-questions as outlined in Table 1.

Table 1. Research questions as defined by the ODI literature review³⁹

Research questions	Sub-questions
1. What does a gender-sensitive approach to climate compatible development mean in different urban contexts?	1a. What roles do men and women play in urban livelihood strategies, and how are these changing in the context of climate change?
	1b. What differences can be found in rural and urban areas with respect to how gender intersects with climate change?
	1c. How does gender-sensitive programming differ in urban and rural areas?
	1d. Can findings and theories about gender and climate change rooted primarily in studies in rural areas be applicable in urban areas as well?
2. What is the evidence of the relevance of gender-sensitive programming in climate compatible development to promote and achieve people's empowerment?	2a. What evidence of the usefulness of gender-sensitive programming in climate compatible development can be identified?
	2b. How is knowledge about the differential nature of vulnerability to climate change being applied in practice?
	2c. To what extent is the need for deep societal transformation with respect to gender roles, women's rights, etc. recognised by the project? And how is it taken into account?
	2d. To what extent are climate change projects that seek to integrate gender taking gender expertise into account? What are the sources that are being drawn on to inform project design? To what extent are the recommendations from gender and development literature being considered?

<p>3. What socioeconomic, political and cultural factors constrain or favour:</p> <ul style="list-style-type: none"> - gender-sensitive approaches in the context of climate compatible development? - the ability of men and women to tackle climate-related risks in urban contexts? <p>How do we use these insights to support gender-responsive climate compatible development policies and actions?</p>	<p>3a. At what level should gender, climate change and development be addressed? Who is responsible for taking this on?</p> <p>3b. Are there hidden agendas behind the approaches taken or not taken by UN agencies, NGOs or other groups?</p> <p>3c. What are the existing barriers to effective participation of local communities, particularly women, in decision-making in activities around disaster risk reduction, post-disaster recovery, adaptation and mitigation in urban settings?</p>
<p>4. Does a gender-sensitive approach enable better climate compatible development outcomes and if so, in what way?</p>	<p>4a. Do the findings regarding women and men and their distinct experiences and perceptions of climate change get translated into policy, institutions and projects?</p> <p>4b. How do we ensure that the knowledge, information, skills, expertise and experience of urban women and men can contribute to climate compatible development goals?</p> <p>4c. What concrete compensatory/corrective measures have been adopted and/or institutionalised to respond to women's frequently greater vulnerability to climate change? At what level/scale (local to national), and at which scales do the drivers appear to be influencing these developments?</p>

3.4 Observations on the research questions

The research process involved working closely with GEAG staff, ACCCRN project beneficiaries, beneficiaries, PAC, as well as CDKN and IDS advisors. With the exception of the team leader, all research team members were GEAG staff associated with the ACCCRN project.

In order to gain an in-depth understanding of the gender dimensions of the ACCCRN project, it was crucial to carry out the field level exercises with a gender-sensitive approach. As such, interviews and questionnaires were designed keeping men and women in mind and focus group discussions (FGD) were carried out with single and mixed sex groups. Care was taken to encourage women to share their perceptions and experiences (since they generally demonstrate more reluctance to do so) and to include married and single women, as well as female heads of households in the sample.

Practitioners from GEAG who took part in the research have worked extensively on climate change issues in rural areas, often using a gender-based approach. Their experience enabled the team to explore the similarities and differences between rural and urban contexts in depth. However, it proved to be more difficult to compare rural and urban challenges and opportunities in the case of communities in Mahewa ward, since the majority of inhabitants moved here from other areas many years ago. Residents talked about experiences of climate change and the impacts they had experienced in rural areas some 15–20 years previously. People who have moved more recently from rural areas, and who might have provided different accounts of recent environmental changes, were located in different wards and were therefore not involved in this study.

3.5 Data collection methods

Data was collected from both secondary and primary sources. Secondary data was collected through a desktop review of national and international policy documents and publications, as well as from ACCCRN project documents (background documents, monitoring and evaluation reports etc.) and research papers based on the project.

Primary data was collected through observations, field visits, workshops with the project management team (PAC and CDKN), local stakeholders involved in the ACCCRN project and the ACCCRN project planning and implementation team within GEAG.

Focus group discussions (FGDs) (Figure 4) and semi-structured interviews were used to capture the experiences and perspectives of Mahewa ward community members. During the FGDs, participatory appraisal techniques based on the participatory rural appraisal framework^{40,41,42} were used. These involved exercises such as listing, matrix ranking, mapping and drawing Venn, pie and causal loop diagrams. Semi-structured interviews were conducted via face-to-face meetings, Skype and telephone calls, as well as through email exchanges. Questionnaire and interview templates were translated into Hindi and proceedings were documented using photographs, as well as voice recordings.

Figure 4. Focus group discussions with women



A complete list of data collection sources and methods is provided in Annex 1. For ease of reference, these sources are cited numerically throughout the data analysis in Chapter 4.

3.6 Sampling

3.6.1 Criteria for selection of neighbourhood sites in Mahewa ward

Neighbourhood clusters across Mahewa ward were categorised on the basis of their physical exposure and vulnerability to extreme weather events (i.e. relief, slope, gradient, drainage, location of the bund (embankments) and other risks, such as waterlogging and flooding). Basic service provision was another criterion, with some sites benefitting more than others from better access to services. Finally, inhabitants' level of income also constituted a criterion, so as to compare neighbourhoods comprising mainly middle-income groups (MIG) and high-income groups (HIG), with other wards whose residents are primarily drawn from low-income groups (LIG).

Based on these criteria, the three neighbourhood clusters of Chakra, Chota Mahewa and New Mahewa were selected for field level data collection as part of this research study, with some additional representation from the other three neighbourhood clusters (Figure 5).

Figure 5. Mahewa ward data collection sites: Chakra, Chota Mahewa and New Mahewa



3.6.2 Criteria for selection of informants

A sample of 98 male and 102 female informants was selected as shown in Table 2. The majority were community members, chosen in order to provide a representative range of socioeconomic characteristics from across the six neighbourhood clusters. In total, 72 male and 75 female residents were consulted during mixed and single sex focus group discussions. Criteria taken into consideration included gender, income, livelihood, economic class, caste, occupation, level of participation in the ACCCRN project, committee members and non-committee members. Care was taken to ensure that the sample included married and single women, as well as female heads of household. The informants also included representatives from GEAG, the ACCCRN project and other local stakeholders (26 men and 27 women), who were consulted through semi-structured interviews, one-to-one and group discussions. The majority of informants were aged between 30 and 55 years.

Table 2. Sex disaggregated data of the study sample per data collection method

Data collection method	Number of participants	
	Men	Women
FGD Women only	0	36
FGD Men only	35	0
FGD Mixed	37	39
Semi-structured interviews	9	12
One-to-one discussions	5	2
Group discussions	12	13
TOTAL	98	102

3.7 Data collection process

Data collection involved the following six stages:

1. Research questions were discussed and defined with the research project team, including identification of data collection methods and sources of information for each sub-question. Workshops with the team were fundamental for sharing the objectives of the study, and for understanding the perspectives and experiences of the research team relating to gender.
2. A literature review of project documents was conducted, with the aim of:
 - a. understanding the process, phases, activities and outcomes
 - b. identifying activities that included community consultations, participation levels and gender composition of attendees in meetings, committees, monitoring, decision-making and other activities
 - c. capturing the gaps to be explored further by research to understand the gender dimensions in different aspects of the project.
3. In-depth discussions were held with GEAG staff involved in the planning and implementation of the ACCCRN project, in order to:
 - a. understand the gender dimension of different actions identified through the literature review
 - b. understand the existence or absence of a gender-based approach adopted during implementation of minor actions, approaches and methods, not captured in detail in the project documents.
4. Semi-structured interviews were conducted with local stakeholders who participated in different activities of the ACCCRN project, at city level or as part of various committees and fora, such as doctors, journalists, researchers and urban planners.
5. Field visits and discussions were held with the ACCCRN project implementation team, to gather information about Mahewa ward, different neighbourhood clusters, caste, class and the religious composition of the population, as well as information about the impact of changing seasons.

6. Community level data was collected in Chakra, Chota Mahewa and New Mahewa. In total, 23 focus group discussions and 30 semi-structured interviews were carried out with some 200 informants.

3.8 Data analysis

Data collected at all stages described above was translated from Hindi into English and sorted by neighbourhood cluster. Within each cluster, data was compiled before and after the ACCCRN project, thematically, and disaggregated by caste and class (wherever information was available), to answer the four research questions. This data was analysed using the gender typology provided by CDKN (see Box 1), and taking into account other gender-based approaches where necessary.

3.9 Challenges

There is a thin line between 'review' and 'evaluation'. In order to review the case study approach, it was important to capture evidence of the impact of the presence or absence of a gender-based approach on the project outcomes, as well as on gender equality more generally. In-depth probing during interviews and team discussions sometimes gave the impression that a 'critical evaluation' was being carried out with respect to the objectives, strategy and activities of the ACCCRN project. At times, this put the implementation team on the defensive, increasing the possibility of 'over analysis' of the situation.

Similarly, the analysis of a gender-based approach taken by a technically sound, in-depth and long-term project, carried out by a well-established organisation – which is also considered a 'gender resource' centre in the region – was bound to be a considerable challenge. There was a high possibility of the critique on gender not being well received. For this reason, the team leader took care to ensure that the nature and objectives of the research were well understood and appreciated.

On the one hand, the project documents did not capture the 'gender aspect', yet on the other hand the team did adopt gender-aware and sensitive attitudes during the third phase of implementation. Several discussions were held with the team to understand the approach, the reasons behind it, factors that influenced it, the outcome and impacts, and so on. In order to obtain a realistic picture, information had to be gathered from several sources, so as to minimise the possibility of subjective interpretation or opinion. This required carrying out field level exercises to validate these perceptions and understand what the communities felt, so as to understand the outcomes and impacts of the ACCCRN project, beyond what was documented or stated by the implementing team. Such exercises made the entire process very challenging, given the time available. Nevertheless, the endeavour proved worthwhile, since understanding the outcomes and impacts of the ACCCRN project was crucial in order to assess the sustainability of local-level resilience building, from the gender perspective as well as the impacts on gender equality.

Given that the project was implemented over seven years, it was also challenging to do justice to the ACCCRN initiative and examine all aspects within the available time frame. There is certainly a case for carrying out an in-depth study.

4. Data analysis

4.1 The urban context and the impacts of climate change

4.1.1 The roles of men and women in urban livelihood strategies, and how these are changing in the context of climate change

Division of labour and responsibilities

The majority of the population in Mahewa ward is self-employed. About 80% of households work as daily wage labourers, domestic help, vendors and hawkers (street vendors). Almost 20 years ago, the main livelihood of the people of Mahewa ward (especially in the Chota Mahewa cluster) was related to agriculture and horticulture, primarily guava cultivation. Still practiced today in various neighbourhood clusters (Chakra, New Mahewa, Chota Mahewa and Bada Mahewa), activities linked to agriculture and horticulture have decreased over the years. The total amount of arable land available has significantly declined to a current figure of just 14%, due to people having sold land to private contractors.

Men's work is primarily located outside the house, while women's work is mainly confined to the home and a few livelihood activities. With strong patriarchal structures in place, examples of men contributing to household chores or other responsibilities traditionally assigned to women are few and far between, as reported by all women respondents. One woman from Chota Mahewa commented: *"Men leave the house without having eaten if there is some delay in cooking because of, say, a crying child. But they do not pay attention to the crying child and they just leave the woman to do the cooking. According to men, attending the child is a woman's job."*

Men indicated that they help out with certain activities, but that most of the work relating to agriculture and horticulture is done by women. Women reported having many responsibilities that involve 'three times as much' work as men.⁴³ In one focus group discussion, a woman observed: *"The only time they (women) are not working is when they are sleeping."*

Nowadays, men generally earn a living as rickshaw pullers, daily wage labourers or by selling fish, vegetables and fruits, such as guava. They also work as electricians, masons, fishermen, boatmen, rag pickers or are employed in other daily wage-paying jobs. In New Mahewa, men work as teachers, or in malls and shops. Women also work as teachers and in malls in New Mahewa. The majority of women in the ward are engaged in household chores – such as fetching water and fuel wood, and disposing of household waste – and in livelihood activities related to agriculture and guava cultivation. Women are also engaged in income generation for the family through agricultural labour, cleaning jobs in houses and making and selling craft items. While these livelihood activities are generally carried out year-round for a few days every month, women are continually involved in getting rations and selling home-grown fruit and vegetables. According to the focus group discussion participants, 10% of women are also engaged in the production and sale of liquor in all three neighbourhood clusters.

Agricultural work is generally the responsibility of women (about 70% of farming activities are carried out by women) and involves taking care of vegetables, from preparation of the seedbed through to twice-yearly harvests and sale in local markets. Work related to guava cultivation is very demanding during the rainy season and this adds to women's workload. In the words of one woman: *"The workload is so high during the guava season, as we carry out picking, cleaning, selling, that we do not even have time to eat."* (source: 1).

The impacts of climate change on urban livelihoods in Mahewa ward

Both men and women showed awareness of changes in rainfall and other weather patterns. During focus group discussions, male and female residents acknowledged that the ACCCRN project helped to bring about this awareness. In general, men were able to provide more details and remembered previous years more than women. Men and women in all the focus group discussions reported that climate change is affecting rainfall (frequency, amount, duration), increasing temperatures in summer, increasing humidity levels during the monsoons and sharply increasing temperatures during winters. One woman in Chakra remarked: *“Earlier, it used to rain very heavily between the months of August and September and this would cause problems in earning money and getting food. However, now it starts to rain from July onwards.”*

Discussions across the three wards revealed that people have grown to live with and accept floods and waterlogged situations that seriously affect their lives for three to four months each year. Several extreme weather events (storms in 1984, a cold wave in 1992 and floods in 1998 and 2001) affected all communities in the Mahewa ward, with different effects felt by men and women.

Changes in climate have had an impact on various aspects of urban livelihoods in Mahewa ward. Overall, women’s workload appears to be increasing significantly, as reported by residents. This is due to several factors: fruit and vegetable production has become more demanding, family members fall ill more often, it takes more time to find fuel and drinking water, and women must undertake more frequent repairs and maintenance to the household, among other traditional chores. As for men, it appears that they are often left without a job, as a result of extreme weather conditions. According to women, men’s workload actually declines when the ward is waterlogged. Wage labourers, such as rickshaw, cart and trolley pullers, manual labourers, masons, cleaners and fruit and vegetable sellers reported being affected by extreme weather conditions because they were not able to go out and work, or because it was difficult to find customers during heat and cold waves. These conditions have led to significant material and financial losses.

During disasters, the workload of women was perceived to increase significantly, due to the need to carry out additional activities, such as taking care of or repairing family property and belongings, looking after family members and providing food and water. It was reported that daughters’ workloads also increased, as they helped their mothers in these roles. Children’s education can be affected for months at a time when access routes are flooded, or schools close down because they become submerged by water.

Agricultural production

According to residents, climate change and disasters (such as floods in 1998, which swept away agricultural lands) have had a negative impact on agricultural production, particularly affecting women’s livelihoods. Many women in the ward reported that the nature of their work changes according to the different seasons, especially during monsoons when the area becomes waterlogged and crops are submerged by floods.

During the three months of monsoon and in waterlogged conditions, it becomes very difficult to produce seeds, fruit and vegetables, due to variations in the onset of the dry and rainy seasons. This causes crops to shrivel and rot, fail to ripen or drop prematurely, and this leads to a decline in production levels. Other climate-related changes that are perceived to affect agricultural production include extremely intense summer heat, erratic rainfall patterns and lower precipitation levels, leading to reduced soil moisture. This adds to the workload of women, who have to walk long distances to the river to fetch water for irrigation.



Over the past few years, floodwaters have receded more slowly than before, with the result that waterlogged conditions prevail for long periods, causing delays in the ripening of guavas. Previously, floodwaters would rise and recede each year, leaving a deposit of nutritious silt that would help to ripen the guavas and vegetables, increasing productivity in the process. However, this no longer happens. According to residents, there has been an absence of 'natural flooding' over the past two years, resulting in the lowering of water tables and reduced soil moisture, increasing women's workload as a result. According to women from Chota Mahewa:

"Weather now is not what it used to be like. Earlier, floods would come and go away and therefore there was never scarcity of water for farming."

Energy access

According to the Baseline Survey Report undertaken by the research team, at least 44% of households did not have access to electricity. Even households connected to an electricity supply suffered irregular and intermittent services, as a result of load shedding. Women were the worst affected by inadequate energy supplies, since they spend most of their time at home and are responsible for fetching alternative sources of fuel. The scarcity of fuel wood and dry leaves used for cooking in the rainy season, and for heating in winter, adds to women's workloads because they have to fetch these materials from fields and orchards. This is particularly true for low-income families. The occurrence of more wet and rainy seasons, as well as colder winters – all caused by climate change – has led to a further increase in women's workloads.

Health and sanitation

Waterlogging and poor basic services have contributed to health problems such as scabies, skin disorders, fever, stomach infections and bleeding. There was hardly any system for collecting and disposing of solid waste anywhere in the ward and according to residents and GEAG staff, the Municipal Corporation provided irregular and inadequate services. In the absence of toilets and drainage, broken pipelines and mass defecation in the open caused mosquitoes and flies to breed in and around stagnant water, resulting in a state of filth that was dangerous to health.

Most Mahewa ward residents did not have personal toilets, and community toilets were either lacking or in poor condition. Since open defecation is the norm, going to the toilet poses a major problem for women. Finding a private place during the daytime is a difficult task in itself, as is wading through the water to reach a secure and convenient spot, especially very early in the morning or after dark. During a mixed focus group discussion in Chota Mahewa, women agreed that: *"During the waterlogged conditions, women have great difficulty going to the toilet. They are really scared while squatting, as big worms (leeches) stick to their feet."* This situation causes considerable inconvenience, particularly for women, since men can answer the call of nature anywhere, even during the day. As a coping strategy, women in Chakra and Chota Mahewa explained that they eat and drink less, especially when the area is waterlogged. This probably produces ill effects on their health. Indeed, most women reported keeping *upwas* (observing a fast) during the day. Women in Chota Mahewa recalled that: *"During the floods of 2001, Gadhela worms swarmed the accumulated water in great numbers, polluting it and as a result it smelled awful. Many people were infected with cholera during that period."*

Cholera, in particular, has been rampant in the past. Skin diseases, encephalitis and water-borne and vector-borne diseases were also widely reported among both men and women. Hepatitis and jaundice were widespread in the area, according to all focus group discussion participants. During the focus group discussions in Chakra, one of the male residents recalled the severe

cold wave of 1992: *“The cold wave was so severe that it even killed snakes and insects. People even resorted to burning clothes for heating, but even that didn’t save people from dying of cold.”*

Family health was adversely affected, with contaminated water used for drinking and increased dirt due to clogged drains, broken drain pipes and stray animals. In the absence of suitable drainage and solid waste systems, waste and dirt would be lying all around, resulting in a sharp increase in the number of mosquitoes and worms and giving rise to more incidences of vector-borne and water-borne diseases.

At the same time, houses become very hot and humid in summer, due to poor, substandard design and materials, and also because they are situated close together, in cramped conditions. Increased humidity over the past few years has led to great discomfort, exacerbating the impact of increased temperatures. Erratic electricity supplies aggravate the difficulties for local residents. Since women spend more time inside their homes than men, they are more exposed to discomfort, germs and diseases. Similarly, women reported that cooking inside the house heats their homes *‘like an oven’*. A few women in New Mahewa and Chakra said that had it been not for their family, they would not have cooked at all during the hot and humid weather. During focus group discussions, men and women both reported that men generally ‘catch loo’ (a local expression to indicate suffering from heatstroke), as a result of working out in the open. They also suffer from stomach indigestion and are exposed to water-borne and vector-borne diseases, in common with women and children. These findings strongly support the outcomes of CDKN-funded research into the threats posed by rising temperatures to urban slum communities in India.⁴⁴

Networks and social cohesion

The existence of and access to external support systems (friends, kinship etc.) was low among ward residents. Women reported hardly knowing anyone except for a few families living close by. Social cohesion was also reportedly low, since most of the communities had migrated to Mahewa ward from other areas. This is especially the case with New Mahewa, to which people moved 10 to 15 years ago, with the result that they do not have strong ties with each other (sources: 28, 33, 31, 39). Given their workload, women considered taking time to socialise with neighbours as problematic. This is especially true in times of critical situations, such as monsoons, waterlogging, floods and intense summers and winters. At the same time, lack of support and strong social networks makes people, especially women and marginalised groups, more vulnerable and dependent on external help.

When houses are flooded, people move away, sometimes for as long as two months (as happened during the severe floods of 1998), fleeing to embankments where families live in tents. According to male and female focus group discussion participants and the ACCCRN implementation team, women experience great difficulty sleeping in these conditions. Lack of food, loss of livelihood, family illness and other difficulties all increase women’s feeling of stress and insecurity. In some cases, women and children would stay in their maternal homes, or with relatives for a prolonged period. However, women also demonstrated resilience in the face of such events. For example, one woman in Chota Mahewa remarked: *“In one of the floods, a huge ditch got created in front of my house and I head-loaded river sand and filled up the ditch all by myself.”*

Women’s relations with each other are certainly stronger than before. With increasing incidences of flooding and waterlogging, women’s informal networks have been consolidated. In addition, these crises have brought women and men closer together, as was reported to have happened during the disasters of 1992, 1998 and 2001. In times of emergency, when people have had to leave their houses and live elsewhere for months at a

time, families in the neighbourhood have taken turns to look after each other's houses. This is a clear reflection of people coming together at a time of crisis.

According to residents, especially women, social cohesion is extremely important in helping communities to adapt to changing climatic conditions and associated problems.

Food and nutrition security

The availability of and access to food, especially sufficient and quality food at all times, has been severely jeopardised by climate change and climate variability. Agricultural production levels have declined due to continuous waterlogging and food and rations have been destroyed by heavy rains, humidity, pests and insects. Income-generating opportunities are interrupted during extreme events. Women suffer the most from these impacts on food production, given that they eat 'the last and the least', according to cultural norms. Women residents reported that some of them become too weak to breastfeed their children, and this can eventually translate into infant malnourishment. A local doctor confirmed this assertion, According to women in Chota Mahewa: *"In the 1998 floods, we lost our livelihood and we did not get any support from the government when we needed it the most. It was only after 3–4 months that we got rations for 15 days from the government."*

Patriarchal structures and restricted social norms

The patriarchal structure is evident in Mahewa ward and is more prominent in so-called upper class and upper caste sections of society, especially amongst communities living in New Mahewa. Women are supposed to adhere to strict norms and rules laid down to maintain their perceived high status. However, these structures inflict serious limitations. For example, so-called high status women are not as free to participate in meetings, or to leave their houses, and are required to observe religious rituals and customs (which are stricter for women), compared with women in the so-called lower class and lower caste groups. These gender-based differences are evident among girls and boys too, in their day-to-day roles, responsibilities and mobility (sources: 1, 2, 3, 6, 7, 9, 28).

During waterlogged conditions and floods, women's mobility is restricted due to social customs, which makes them more dependent on men, especially when they have small children to look after. Such norms include the idea that women should not go out alone, that they should take care of children and other family members who are sick, and most importantly, that the house and family should come first. According to many women consulted for this study, if they go out (to attend meetings etc.) and are unable to attend to their other responsibilities as a result, men sometimes inflict physical violence on them as punishment. A number of women reported that: *"Sometimes our husbands beat us up if we do not work."* (source: 1).

Such social structures and existing gender relations shape women's limited access to and control over resources such as land, financial credit, information and knowledge, as well as to capacity-building in Mahewa ward. This situation is even more acute in families where land and property belong to the men (sources: 28, 30, 34, 36, 39). Nearly all women interviewed reported that they did not have control of household finances. Even in cases where women keep some of the money earned through selling vegetables and guavas, important spending decisions are generally taken by men. Only in a few cases did women in Chota Mahewa and Chakra report having some control over economic decision-making, while just one man confirmed during the focus group discussion that he allowed his wife to have some say in how household income was spent. Overall, only 60% of the orchards in Mahewa belong to the residents and are generally farmed under contract (*hunda*), after paying a fixed amount to the owner.



While patriarchal and discriminatory norms affect women's access to and control over decision-making processes, women are largely given responsibility to manage the household's finances. *Hunda* is generally taken out by women, because they are considered more trustworthy than men, as reported by female and male residents of Chakra, as well as ACCCRN team members.

As a result of loss of livelihood options, food, opportunities and jobs, as well as damage and loss of property and assets, many families are forced to take out loans as a coping mechanism. Women generally shoulder the responsibility for taking out and paying back loans, as well as for borrowing from family, neighbours and friends or sometimes pawning their jewellery as a last resort. This causes a great deal of stress and tension, together with shame in the event that loan repayments cannot be met. As with the *hunda*, men are not given financial loans as they are generally not considered sufficiently responsible or trustworthy, partly because of widespread alcohol abuse, an assertion reaffirmed by all women who took part in both focus and mixed group discussions. During the mixed focus group discussions in Chota Mahewa, several women remarked sarcastically: *"Men take out loans only to drink liquor!"* Social strains in such situations aggravate stress levels within the family, sometimes resulting in domestic violence. One of the women from Chakra observed: *"When we have to take out a loan and we are not able to return borrowed money, then it builds up tension within the family and tension sometimes results in violence."* Another woman in Chota Mahewa explained: *"I borrowed money from my maternal relatives almost 10 years ago for my daughter's wedding, but I couldn't return it because of a lot of problems. When I asked my husband to return the money, he said that since I had taken out the loan, I should be giving it back."*

Extreme weather events (such as heavy rainfall, soaring temperatures, and severe winters) were reported in all focus group discussions and interviews, as affecting men's income-generating possibilities, causing tension and anxiety. For example, waterlogged roads prevent men from getting to work. Instead, they stay at home or look for alternative options. Several men in Chota Mahewa commented: *"At the time of floods, we do not get any work and have to survive by selling jewellery."* Some female participants in focus group discussions remarked that: *"They (men) just drink when they do not go to work"*, highlighting more complex and indirect social impacts arising from, and being compounded by, the occurrence of natural hazards. Although men usually help with livestock keeping, for much of the rest of the time they tend to go out to search for work or turn to drinking. *"What do men do? They either leave the house after having eaten, or they get drunk and go to sleep"*, said women during a focus group discussion in Chakra.

Alcoholism is a pervasive and widespread social problem, especially in Chota Mahewa, Bada Mahewa and Chakra. The number of widows in Chota Mahewa, Chakra and Bada Mahewa is relatively high, and the primary cause of death of women's husbands was reported to be excessive alcohol consumption, according to both interviewees and the project documents.⁴⁵ A contributing factor to the high levels of alcoholism is the fact that local liquor is easily and cheaply available.

However, the extent to which men spend more time at home, and resort in greater measure to alcohol consumption due to increased flooding events, is an area that requires further investigation. Similarly, more research is needed to explore the correlation between disasters, changing weather patterns and the degree to which they increase the level of gender-based violence at household and community level.

4.1.2 Differences in rural and urban areas with respect to how gender intersects with climate change

The responses to the question of whether there are rural-urban differences are based on GEAG and the lead researcher's first-hand experience working in rural and urban areas of Uttar Pradesh and beyond, as well as on key literature on the issues.^{46,47,48,49}

Different sources of livelihoods

In India, the rural economy is fairly homogenous, with activities based on land and agriculture constituting the primary sources of livelihood and women taking a leading role. As land and other related resources are affected by climate change (crops destroyed, forests degraded, livestock damaged, poor family health), and land reforms deny women land rights across India,⁵⁰ rural women's workload, stress and tension levels all increase. For example, ensuring a sufficient supply of food and water for family members and livestock is primarily women's responsibility. The impacts of climate change on agriculture pose serious challenges for the majority of the rural population, with increasing input costs, reduced agricultural productivity and decreased net gains. This is particularly true where a cash crop, monoculture model promoting high-yielding varieties of grains is being followed. This affects food and nutrition security (more so, that of women) and increases dependence on markets.

In urban areas, sources of livelihood are more diverse, which makes the impacts of climate change more complex to understand. Both men and women are associated with different livelihood and income-generating strategies, as described previously, and many women living in Mahewa are also engaged in agriculture. In rural areas, where plots of arable land are larger, women grow grains, vegetables, spices and lentils. However, in Mahewa, limited plot size means women mostly grow vegetables. Another difference is that in villages and rural areas, cultivation is primarily used for household consumption, whereas in Mahewa ward, fruit and vegetables are mostly sold at market, with some production retained for household consumption. This situation has an impact on the food security of many families, since they are highly dependent on markets for food, and access may be negatively affected during flooding.

Social cohesion and the role of class

In rural villages around Gorakhpur, people know each other and many of them are relatives. Rural women's interaction with each other helps to increase their awareness of new things happening around them. This creates greater social cohesion compared with urban areas such as Mahewa ward, where people who migrated from the countryside or elsewhere have settled at different times. The result in these urban settings is that many residents do not have a sense of belonging, and interaction among neighbours and communities is negligible. This is particularly true in the case of women, whose heavy workload and restricted mobility prevents them from getting to know people beyond a few families living in the neighbourhood. Contributing factors are their own shyness and lack of confidence. At a cultural level, women are looked down on if they interact with strangers or leave the house on a regular basis.

Unlike in rural areas, where women work around the house, in agricultural fields, forests and at water sources, women in urban areas do not venture out unless necessary, to collect provisions or earn money through small jobs. As such, urban women, as observed in Mahewa, are generally confined to the household. A lack of support and strong networks in urban areas increases women's vulnerability compared with that of men, both at the time of crisis and during regular flooding and waterlogging.

In urban areas such as Mahewa ward, discrimination levels are relatively high and are based more on economic class than on caste. “*Class division is stark at the city level,*” observed one of the ACCCRN team members. In rural areas, caste is a more decisive factor. However, since families have longstanding links through living in the same village or vicinity – often sharing agricultural work and other livelihoods for generations – people meet and interact frequently, and in times of emergency, people from different castes come together despite social gaps.

The research team found that, in Mahewa ward, it is easier to bring together women and men of different castes than of different classes. For example, the ACCCRN team had great difficulty in persuading women to attend meetings in New Mahewa cluster, where mostly high-income and middle-income families live and where class consciousness is more acute. Committees in New Mahewa were attended mostly by men and they too resisted attending meetings when they involved men and women from other low-income neighbourhood clusters.

Common property and resources

In most rural areas of India, including that around Gorakhpur, communities have a right and access to common property resources, such as grazing land, irrigation systems, fishing grounds and water. Management of these resources is generally conducted by men, either informally or formally. Gradually, women are beginning to participate in these processes, mainly through the efforts of non-governmental organisations (NGOs), and quotas for women in local self-governance bodies (of between 33% and 55% of seats). Since rural women are closely associated with these resources through their daily responsibilities, it is easier for them to understand the impact of climate change and the need to come together and develop coping mechanisms.

In Mahewa ward (and in urban areas more generally), common property resources do not usually exist. Unlike in rural areas, basic services are managed by government agencies, with hardly any involvement of local communities, especially women and marginalised groups, in planning or decision-making. In Mahewa ward, this situation appears to have created a kind of indifference among residents towards the condition of infrastructure, service delivery and the impact of climate change.

According to the ACCCRN implementation team, since livelihoods and social composition are diverse in urban areas, the possibility of initiatives and interventions being sustainable is low, compared with rural areas. There is scant sense of belonging among residents in Mahewa ward, probably because people have migrated from elsewhere. ACCCRN team members observed that taxpaying residents regard basic services with apathy and contribute very little to maintaining the local area. This contrasts with rural areas, where a sense of social responsibility tends to be far more pronounced.

Infrastructure and services

Infrastructure and basic services in Mahewa ward are affected during extreme events and by changing weather patterns. With very little access to service providers and decision-making platforms, the combination of climate change and a lack of regular service provision has serious implications for community members, especially women. In rural areas, basic services are generally poor and service provision can be erratic in different seasons. Again, the impacts are felt first and most strongly by women, since their workload increases as they struggle to meet the basic needs of their families.

Private toilets are not common in villages and this certainly creates problems for women, since they have to look for a secluded place and it is often risky to go out after dark. Yet in comparison to urban areas, the situation is not as difficult, because large spaces are available close to home and there is therefore more privacy in rural areas. Moreover, the situation is currently changing in some rural areas, with many government schemes are promoting construction of toilets. Different factors in urban settings also affect women adversely, such as cramped, humid and very hot conditions within the home during different seasons. Temporary migration (to embankments) reduces privacy and increases insecure conditions for women in particular.

Adaptation mechanisms

According to the ACCCRN implementation team, community-driven adaptation mechanisms are more effective and longer lasting in rural areas than in urban areas, due to people's familiarity with the surroundings and their close connection with natural resources, such as forests, water, livestock and land. For example, adaptation strategies such as mixed cropping or growing varieties that can cope with prolonged heat stress are based on traditional knowledge and awareness of surroundings. However, in urban areas it is sometimes difficult for people to decide what will work and what will not, largely because most of them have moved there from rural areas. Women play a critical role in adaptation strategies in rural areas due to their first-hand experience of the environment and their traditional knowledge, which has been handed down over generations.

In urban areas, women generally lack these advantages, since their knowledge of the surroundings is not so firmly established. However, women in Mahewa ward have demonstrated considerable initiative and resourcefulness in developing appropriate adaptation and risk reduction strategies and appear to shoulder most of the responsibility in this regard.

The majority of adaptation mechanisms in Mahewa ward seem to have been developed to cope with floods and waterlogged situations. For most of the households, adaptation methods have evolved over the past few years and women are perceived to contribute more in terms of their ideas, organisation and resourcefulness. Women use their local knowledge to cope with times of crisis and adapt to the changing situation. For example, mud plastering (*mittichapna*) and household repairs are done by women. Other mechanisms involve constructing a raised platform or plinth outside the cement *pucca* house, increasing the depth of hand pumps and raising the height of doors. Following the floods of 1998, all houses are now built on slightly raised ground (sources: 7, 32). Low-income households prefer to build non-cement or *kutch*a houses, because they are cheaper to rebuild and repair when damaged by waterlogging or floods. Since Mahewa ward is a low-lying area, construction costs are higher than in other parts of Gorakhpur.

Among mechanisms adopted to prevent damage and loss of material or grains are attic storage, construction of a new first floor and raising the height of shelves. Other strategies used by women include stocking up on essential items, such as foodstuffs, fuel wood and kerosene, in advance of floods and waterlogging periods. Men also resort to alternative sources of livelihood, such as rowing boats in Chota Mahewa.

During the focus group discussions, women observed that men only contribute in terms of money, together with limited sporadic help. The laborious and time-consuming work, such as collecting mud from the river to raise a small boundary in front of the house, is mostly done by women.

Post-disaster recovery

Discussions with the ACCCRN team revealed that extreme events in urban settings receive rapid and extensive coverage in the media, thereby generating social pressure for government action and accountability. Post-disaster assistance (generally deployed from nearby urban centres) usually takes longer to arrive at rural areas and can sometimes be delayed by blockages or damage to transport (and other) infrastructure. This could be one reason that rural communities resort to coping strategies more frequently than urban areas, where a more rapid response means people do not generally have to employ such means, except for those belonging to low-income groups. At the same time, ACCCRN team members have found that with high social cohesion, recovery within rural societies is faster, and this makes people less vulnerable, especially women who have strong networks and associations. This is in marked contrast to urban areas, including Mahewa ward, where weak social cohesion accentuates vulnerability and dependence on external help (as opposed to internal support from within the community).

Food insecurity

The ACCCRN implementation team felt that in rural areas, the likelihood of food insecurity, especially as a result of climate change, is lower because more people practise agriculture and levels of social cohesion are high. In addition, there are a variety of sources for accessing food and families generally have some stocks stored. Moreover, rural women are knowledgeable about non-cultivable plants, which can be accessed for food in times of need. According to the ACCCRN team, instances of people dying of hunger are rarer in rural areas, with the exception of extreme cases, where large areas are flooded or affected by some other disaster for days at a stretch. By contrast, food insecurity may be quite high in urban areas. During floods and storms in Mahewa ward, for example, people reported going without food for several days (sources: 1, 2, 28, 39, 46, 47).

4.1.3 How gender-sensitive programming differs in urban and rural areas

Community-based data collection methods

The patterns of livelihoods and social heterogeneity found in urban settings lead to challenges in running participatory methods for data collection and decision-making. GEAG staff involved in the ACCCRN project – primarily those who were more attuned to working in rural areas – were required to make rapid adjustments, quickly identifying the specificities of urban areas, learning, innovating and adapting their methods to suit this new operational environment.

Building trust and eliciting interest amongst urban residents through informal interactions, household surveys and community volunteers

Since this was the first time that any organisation had intervened in Mahewa, residents' suspicions and doubts were strong. At the same time, the GEAG team noticed that people's curiosity and knowledge levels about their neighbours seemed low in Mahewa and reported inhabitants' apathy towards interventions such as the ACCCRN project. This does not tend to be the case in rural areas, where people are generally eager to find out more about schemes.

Gradual, informal interactions enabled GEAG to build up a rapport with people. Household surveys were conducted to get to know each and every family, and to provide people with the opportunity to meet the project team and ask questions. By contrast, in rural areas, informal interactions and one to two participatory rural appraisals are usually sufficient to gain people's trust and confidence in new projects.



Recruiting volunteers, 60% of them women, from among the ward residents enabled the implementation team to get to know the community, its issues and problems, by building one-to-one relationships. This proximity also helped to build trust in the project among residents. A local office was opened in the ward. This gave people an opportunity to visit, have discussions, learn more about the initiative and increase their awareness about the issues and impacts, according to members of the GEAG team.

Understanding urban diversity through participatory urban appraisals

Participatory urban appraisals were used to bring men and women together, for the first time in many cases, so as to appraise their situation, make an analysis, identify solutions and agree on sharing responsibilities. A few changes were made to how participatory appraisals are generally conducted in rural areas. In these settings, one or two participatory rural appraisals, spread across a wide cross-section of the population, is generally considered sufficient for data generation and developing an understanding of the main characteristics and context. However, the diversity found in an urban setting means that more and smaller samples may need to be selected. As a result, several smaller participatory urban appraisals were carried out, an exercise that required considerable time to complete. Lack of existing information about Mahewa ward residents made household surveys and door-to-door interviews indispensable for the ACCCRN project, as a basis for understanding the community's heterogeneity.

In addition, participatory rural appraisals are generally conducted separately for men and women, since the latter often have inhibitions about speaking out in front of men, as observed by the GEAG team. In Mahewa ward, these inhibitions appeared to be less evident, and mixed focus group discussions were held, in which women voiced their opinions.

Organising meetings around urban residents' availability

In rural areas, since women's workload is extremely high and they spend a great deal of time outside the home, community meetings and training sessions take place only when women have time and are planned accordingly. Even for individual meetings, rural women need to be informed well in advance. In urban areas, timings and venue can be flexible, since women, if not working outside, are generally at home. Nevertheless, women tend to be busy in the mornings and evenings and meeting times are planned accordingly. Even a day's notice is sufficient in many cases.

Facilitating community mobilisation through meetings and focus group discussions

Discussions with the ACCCRN project implementation team revealed that in rural areas, men and women know each other and meet quite often in fields, forests and pastures, as well as at water sources. This interaction is high in comparison with urban areas, where such opportunities and exchanges are less frequent. In rural areas, therefore, community mobilisation – bringing community members together for meetings, workshops, training and advocacy – is generally more straightforward than in urban areas. The predictability of rural life, compared with urban life may be another contributing factor. For this reason, the ACCCRN project adopted various strategies to mobilise communities in Mahewa ward, including holding mixed focus group discussions, where men and women could hear about each other's experiences, discuss possible strategies and work out solutions together.

4.1.4 Can findings and theories about gender and climate change rooted primarily in rural studies be applicable in urban areas as well?

Despite some similarities at household and community level with respect to gender gaps and gender relations, theories of gender and climate change informed by rural areas may not

be entirely applicable in urban areas. Gender gaps exist in both contexts, but have different nuances. While women in urban areas have better access to resources, such as health services, markets, finance, mobile telephones and other communication technologies, their dependence on external services to provide food, energy and water for their family is greater. In rural contexts, women remain predominantly responsible for water, fuel wood collection and food production, so have better access to these resources. This shapes their knowledge of the environment and influences their status.

Male migration is a significant consequence of climate change and extreme events in rural areas, and this increases women's vulnerability, since they are often left behind without ownership over productive resources, such as land, livestock and property. While theories of gender and climate change acknowledge this reality, the perspectives and experiences of urban dwellers who have migrated from the countryside, and who constitute the majority of inhabitants in slum areas who are most affected by urbanisation, poverty and climate change, are less well represented. As in rural areas, women in urban areas are considered among the most vulnerable groups. However, urban women face a different set of problems, as emerged during the ACCCRN project.

Adapting the focus of interventions to meet urban dwellers' needs

Since urban communities have different requirements, the focus of interventions will also differ. For instance, unlike GEAG's rural agricultural programmes, where securing market access for farmers was a major thrust, this was not a big issue for farmers in Mahewa ward, because markets are close by and the number of people practising agriculture is fairly small. The ACCCRN project revealed that farmers in Mahewa needed other kinds of inputs, such as information and training on techniques for dealing with waterlogged conditions, including mixed and multi-tier cropping and organic methods, such as composting and biopesticides.

According to GEAG and ACCCRN project planners, men in both urban and rural areas are generally more market-oriented, while women are more interested in food quality, health and nutrition, and the welfare of family and children. It is therefore imperative to involve women in climate change initiatives.

The ACCCRN implementation team felt that while in rural areas, people's expectations are quite low, in urban areas people demand very high and quick returns. One of the team members with experience in carrying out participatory appraisals in both scenarios remarked that: *"It is not easy to motivate women, let alone men, in urban areas to keep coming to meetings and discussions. They need something tangible to attract them."* As such, livelihood and income-generating activities were popular and achieved a strong impact in Mahewa ward. The ACCCRN project also identified infrastructure and basic services as a key intervention area in Mahewa ward, given the impact of flooding on water supply, sanitation and solid waste management. By contrast, awareness-raising activities tended to be popular in rural areas.

Adapting to institutional differences

In rural areas of India, government policy is less sectoral and government schemes and programmes are routed through a single office, the District Magistrate/District Rural Development Agency (DRDA), under which separate departments deal with different issues, such as forests, water and horticulture. In the urban context, various agencies undertake development work within different sectoral departments. As one senior GEAG team member remarked: *"Even in one sector, say for example water, there are so many departments and agencies working and taking care of different aspects that it makes working in urban areas extremely*

complex." As a result, GEAG had to be not just multidisciplinary, but transdisciplinary in its approach to delivering the ACCCRN project. One example is the multidisciplinary committees set up by the project, comprising representatives from different departments, institutions and agencies. However, these were mostly made up of men.

Adapting to different behaviours

GEAG staff commented that people are generally suspicious of development projects in urban areas, and not easily convinced that they should become involved. This is more true of men than of women, especially in high-income and middle-income groups. Such a tendency may be for various reasons, such as lack of trust towards NGOs and governments, or the belief that meetings are held to collect information, carry out paperwork and meet targets, without any tangible or significant benefit for the community itself. A senior representative of the ACCCRN project and study team member said that this was the case in Mahewa ward where, *"We had to spend a good amount of time bringing down the levels of doubts and suspicions in the minds of people, especially men."* Compared with men, women living in urban areas are more willing to learn, listen, initiate changes and find solutions. Women are less likely to give up or lose interest, unlike men who often leave initiatives halfway through. According to GEAG team members, unlike men, women have a risk-taking attitude. They like to explore, and even experiment.

In rural areas, people are more curious and willing to take risks and initiate changes. This is especially true of women, as mentioned by one of the ACCCRN project stakeholders based on GEAG's long experience of working in rural areas in Gorakhpur district with women on climate change issues: *"Women are willing to adapt, learn, and are also sensitive and above all, willing to experiment, while men are generally indifferent."*

Although participation levels in urban areas remain relatively low unless special efforts are made, participation levels increase in rural areas after one or two meetings, and are normally high to begin with. Likewise, rural people's curiosity makes the task of facilitation easier (sources: 29, 31, 32, 33). It is more challenging to talk to women in urban areas and encourage them to participate if they are not interested. They are more likely to engage if the issue concerns their livelihoods, and/or if they realise that they will benefit in some way through the intervention. *"Once convinced, there is no looking back,"* observed one CDKN team member.

4.2 How a gender-sensitive approach to climate compatible development can drive people's empowerment

4.2.1 GEAG's approach

Assessing the ACCCRN project against the typology of gender-based approaches provided by CDKN (see page 7), it was observed that the project evolved from being gender-blind to gender-aware and had become gender-sensitive by the third phase of implementation. The gender profile of the team was reasonably balanced, with three male and two female members.

Lack of gender-awareness in project design

A review of key project documents and discussions with the GEAG team revealed that the initial objectives, planning or monitoring and evaluation did not consider the gender dimension of climate compatible development. The Baseline Survey Report, in common with other ACCCRN reports, is gender-blind, aside from sporadic sex disaggregated data on demography.⁵³ Other documents reveal that the project was not analysed with a gender-



based approach. Some project reports do refer to the importance and relevance of gender dimensions. For example, there is a mention in the Baseline Survey Report that the *'utmost care has been taken to perceive the impact and responses gender wise'*. Similarly, the project booklet *Bringing the Periphery to the Center*⁵⁴ assures that *'gender is a cross-cutting theme throughout the project and in all activities'*.

Indicators developed to monitor progress are gender-blind, except for one relating to women's access to toilets. As for the indicator on economic empowerment, household access to finance is measured, but not women's access to finance, or possession of bank accounts, which is limited in comparison to men.

Since this was the first time that GEAG had ventured into climate compatible development in urban areas, the focus of the project was more on understanding urban issues in general, as expressed by one of the senior members of the project planning team. In the absence of any previous understanding of socioeconomic, political and cultural issues in Mahewa ward, or of how they interlink with each other and with different actors, GEAG approached the project in a gender neutral manner.

From gender-aware to gender 'efficient' planning

Given the organisation's previous experience of working on climate change and gender issues in rural areas, GEAG staff were aware of gender-differentiated needs and problems. Participatory planning and bottom-up approaches used during Phase II involved the community (men and women) in diagnosing their problems and agreeing on strategies to address challenges through a consensus approach to decision-making, in association with the local planning authorities. Furthermore, participatory urban appraisals were conducted at city level, with both women and men.

The participatory urban appraisals were conducted at the start of Phase III with Mahewa ward residents (both men and women) and data was collected and compiled manually in a 'gender-aware' manner, as mentioned by GEAG research team members, who used their previous experience on these issues. Participatory urban appraisals revealed that women had more responsibilities associated with areas sensitive to climate change, such as water supply, cleanliness, solid waste, family health and agriculture. It followed that the project should aim to address these practical needs, for example, by raising women's awareness and capacity on issues such as immunisation, water quality, techniques to increase agricultural production and alternative livelihood options. However, the GEAG team indicates that 'gender-transformative' interventions, which would have been required to reduce women's vulnerability and promote sustainability, were not discussed or included in the project. Instead, the ACCCRN project focused on supporting women in performing their traditional roles more effectively, with a greater emphasis laid on their reproductive (care-giving) – rather than productive – functions. This approach could be more accurately described as 'gender efficiency', as opposed to 'gender-sensitive'.⁵⁵

During Phase II of implementation, men and women were involved in all city level consultative meetings. However, representation of women was much lower compared with that of men. This was probably a result of the gender-blind approach adopted in project design (i.e. women's participation was not explicitly sought), coupled with the fact that very few women hold decision-making roles in the institutions (public and private) and technical disciplines involved in the project. The impact was that gender dimensions were neither captured nor debated at city level.

Gender-sensitive implementation

During Phases II and III, the ACCCRN project implementation team evolved to incorporate GEAG staff with good knowledge, understanding and experience of working on gender and climate change (as well as gender and other issues) in rural areas. These staff members knew from previous experience that men and women have different needs and experiences. According to the ACCCRN project coordinator, care was taken to include experts (two women) in participatory processes involving women and men to carry out these exercises in the second and third phases.

Information and communications materials were developed by the ACCCRN team, bearing in mind the characteristics and interests of men, women and marginalised groups. This was achieved by using tools that included film, posters, demonstrations, puppet shows, mobile exhibitions, songs and rallies, which could be well understood even by illiterate community members, especially women. Timing of these activities was organised to fit in with the daily responsibilities of both men and women, while on occasions, women were informed about activities separately. These strategies helped women and men to become involved, understand and make active contributions to the process. While the content was perhaps more relevant to women, since it focused on areas that are traditionally their responsibility, little information appears to have been included about people's rights or government accountability. This approach to information and communications materials could be considered 'gender-sensitive' to a certain extent, since it aimed to raise women's and men's awareness and address their practical needs and problems.

Overall, women's participation at the start of Phase III appears to have mainly been the result of the fact that women are at home a great deal more than men, either undertaking their household responsibilities or earning an income close by. Compared with men, women's time was generally more flexible and they could adjust their responsibilities to attend meetings during the day. This encouraged the GEAG team to create space for women to come out and contribute actively to the process with their experiences and views, and by expressing their needs. Guaranteeing women's participation was not a deliberate objective of the ACCCRN project, since the approach was simply to involve the 'community' and there was an absence of sex disaggregated targets for participation. The team made efforts to encourage women to advocate the processes and techniques promoted in the project at various levels. For example, women were encouraged to explain the newly learned techniques used in agriculture and solid waste management to people from other wards. Media clippings highlighted model women farmers and a few women were invited by local television stations to talk about the techniques they had learned and the outcomes. All these spaces were created by GEAG for women to share their experiences.

Overall, and since gender was not an explicit objective of the ACCCRN project, gender expertise was not sought in project design, planning or monitoring, nor was gender and development literature referenced in project documents. However, GEAG has been working on issues relating to women and the environment since 1981. GEAG also has a Gender Policy and General Committee on Gender, which holds meetings once a year. In addition, it is mandatory at organisational level to have at least 70% women participating in any project activity. Therefore, during all stages of implementation, the ACCCRN project team was made up of members who had good knowledge, understanding and experience of working on gender and climate change, as well as on other issues with a gender perspective. Furthermore, in-house gender expertise was specifically sought for conducting participatory rural appraisals and interviews, and the gender profile of the ACCCRN team was quite balanced, with three male and two female members. Other team members had a good understanding and

experience of gender issues and they facilitated the project processes in a gender-aware, and at times gender-sensitive manner, albeit more with a gender 'efficiency' approach.

How knowledge about the differential nature of vulnerability to climate change was applied in practice

As emerged during discussions with the GEAG team, stakeholders and various participatory exercises with the community, women are vulnerable in urban areas due to their socioeconomic, cultural and political situation. Closely associated with issues such as water, waste and health, women have understandably been more interested in finding solutions to emerging challenges in these areas, compared with other sectors of society. Focus group discussions held with women and men as part of this study revealed the perception that women bear the brunt of climate change impacts due to their vulnerable position. At the same time, it was quite clear that women's involvement with these issues, along with their willingness to learn, means they have a better understanding of the problems, needs and possible solutions, including the finer details. By contrast, the technical aspects of the interventions are better understood by men, according to GEAG staff.

Based on the GEAG team's existing experience of gender and the differential nature of vulnerability, methods were adopted for producing and disseminating information, as well as for holding workshops and training sessions. These activities were designed with their particular participants in mind, whether men or women, taking into account factors such as low literacy levels and issues likely to be of interest.

Given women's greater involvement in various activities, and the gender-aware/sensitive facilitation of the ACCCRN project, women's issues, ideas, problems and experiences were both expressed and addressed. Considerable efforts were made to raise their awareness, as well as to strengthen their capacity to absorb shocks and stresses connected with climate change, health, agriculture and other challenges. Micro plans were developed together with women to identify possible interventions at individual, household, neighbourhood and ward levels. As a result, project interventions addressed the direct (and differential) needs of men and women, albeit at a more practical level (a reflection of the gender 'efficiency' approach mentioned previously).

Had gender been integrated in the design of the ACCCRN project, as well as in participatory urban appraisals and other consultations, the gender dimension of vulnerabilities could have emerged more clearly and would have provided the opportunity for them to be addressed more comprehensively. Long-term empowerment was not proactively pursued by the project, and as such, women's vulnerability was not addressed in its entirety. For example, women's access to and control over resources, such as economic decision-making, is still limited.

The extent to which the need for deep societal transformation with respect to gender roles, women's rights, etc. was recognised by the project

Since the ACCCRN project evolved from gender-blindness at planning stage, before progressing to a gender-aware and then gender-sensitive approach in the third phase of implementation, opportunities for planning and programming to bring about transformation of gender roles and relations were few and far between.

In India, as in many other countries, special focus and efforts are required to encourage women's participation, in order to enable them to overcome structural differences in the social positions of women and men. Against this backdrop, encouraging and making space for women's

participation – though not an explicit strategy of the ACCCRN project – could be considered as contributing to ‘gender transformation’ in the case of a few women, since it went at least some way towards addressing one of the many root causes of vulnerability: their exclusion.

It is certainly true that some women’s confidence grew as they participated more actively in the ACCCRN project. A few women leaders have emerged as a result of the ACCCRN project. Prominent examples include a group of women model farmers, chosen as part of the work on climate-resilient agriculture. Some of the women have trained other women in their own and other wards in the techniques and benefits of climate-resilient agriculture. This has earned them a reputation as model farmers and has led to coverage in electronic and print media. Now that some women have started earning, become trainers and are advocating the importance of climate-resilient agricultural techniques, a number of men are beginning to see them in a new light. Women report that *“Men now give women more respect, consult us, listen to us and appreciate our help in times of emergency”* (sources: 30, 36, 48, 49).

According to the GEAG team, these were often women who demonstrated higher levels of confidence from the outset, showing an eagerness to learn. Often they benefitted from a supportive family, especially the men in the household. In some cases, these factors enabled women to overcome social barriers – including their own shyness and hesitation – at individual and household levels. With women acquiring skills in new agricultural techniques and earning higher incomes, gender relations in some households changed to a degree, although not entirely. In some households in Chakra, women reported that the decision to rent land on a *hunda* or contract basis is now taken jointly. In other cases, women have felt empowered to play a more leading role. Examples include Kamala (who has taken on more land/orchards on *hunda*), Anuradha (very good at liaising with government officers and with fellow residents) and Indravati (who donated land for composting and solid waste management). In Indravati’s own words:

“Respect amongst men for me has gone up and I have even taken the decision to give my land (land is in my husband’s name) for solid waste treatment.”

It could be assumed that in these few cases the ACCCRN project facilitated changes in gender relations, although there is limited evidence to examine the scope of these changes. On the other hand, the GEAG team confirmed that since gender equality was not part of the project design, no specific efforts were made on a regular basis to support women and men facing constraints to participate in meetings and other processes.

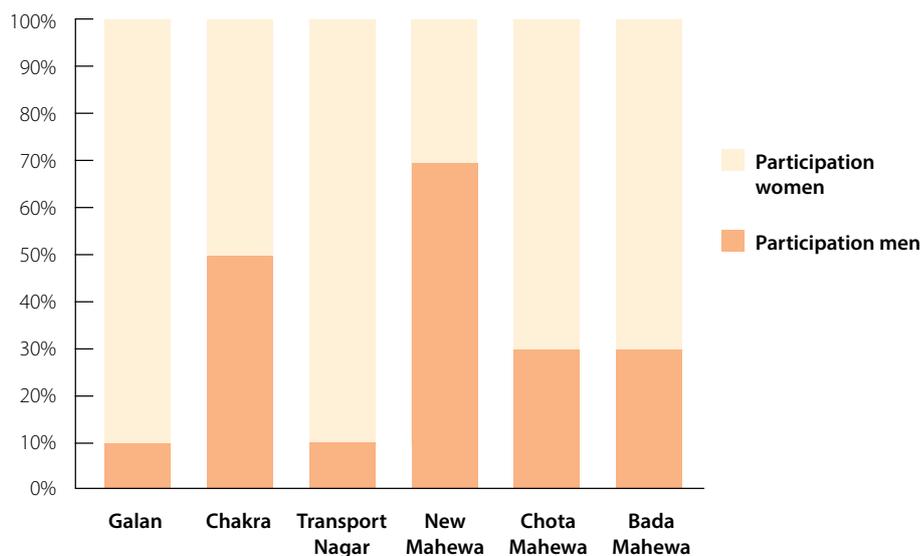
Moreover, neither alcoholism nor abuse and violence towards women at the hands of men were addressed by the project, although these issues touch upon every aspect of women’s lives, both directly and indirectly (for example, by adding to their responsibilities, food insecurity, indebtedness, vulnerability to sexual harassment and also by causing considerable tension and stress). According to one senior ACCCRN project member, these issues were deliberately not addressed for various strategic and political reasons. In addition to the fact that gender was generally considered a distraction from the main agenda, the organisation preferred an indirect approach, asserting that the gradual empowerment of women would lead them to address issues of alcoholism, abuse and violence on their own, as stated by ACCCRN team members. As well as being a highly sensitive issue, local liquor production and sale is a source of revenue for many residents, especially in Chakra ward. Many women are themselves engaged in this business. Attempting to address alcoholism might have disrupted the only source of income of many families, although it could be said that discussing and exploring alternative livelihood activities could possibly have begun to address this problem.

4.2.2 The usefulness of participatory approaches

Since the programming of activities did not adopt an explicit gender-based approach, the involvement of women in project processes and fora by project planners was by default based on the awareness and experience of team members. One of the GEAG team members explained that *"As gender was not the mandate, we needed to involve the community, but not specifically gender. We were not told to have a minimum number of men and/or women in the meetings or committees. However, since we had already been working on gender issues, we considered it important to involve both men and women."*

Both women and men were involved in conducting situation analyses, identifying their problems and needs, reflecting on the underlying causes of challenges and the relationship with other sectors, as well as coming up with possible solutions and priorities for the resilience plans. At least six participatory urban appraisals (Figure 6) and approximately 1,000 household surveys were conducted for the baseline exercise during this phase. Mixed group participatory rural appraisals and focus group discussions were used to collect this data, involving techniques such as transect walks, trend diagrams, social mapping, preference ranking and scoring, matrix and chapati diagrams, causal loops, seasonality of problems and problem trees.

Figure 6. Participation of men and women in participatory urban appraisals



Household surveys carried out for the baseline survey were gender neutral. They targeted the heads of households, most of whom happened to be men. However, GEAG team members indicated that since men were not available at home, most of the interviews actually took place with women. Of the 1,000 questionnaires completed, 60% of the interviews were carried out with women. Strong participation by men and women in participatory urban appraisals and community consultations helped the ACCCRN team to build up a rapport with the community and gain people's trust.

The situation was different in other neighbourhoods, where the team had to adjust its methods for involving men and women. For example, in New Mahewa, initial discussions with women were deliberately carried out in the presence of men, in order to gain the trust and confidence of all residents.

During the daytime, most men from Mahewa ward were away, either at work or possibly because they were suspicious of the project or lacked interest in it. With some encouragement from ACCCRN team members, women gradually started to attend project meetings in higher numbers than men.

Spaces were created for women and men to participate more formally through community-based committees at neighbourhood cluster, thematic and ward level. These committees developed resilience plans, including activities such as training and workshops, discussions, exposure trips and meetings with government departments.

In all the Neighbourhood Committees, except for New Mahewa and Galan wards, women outnumbered men (Table 3) (sources: 28, 34).

Table 3. Men and women members of ACCCRN Neighbourhood Committees

Neighbourhood Committee	Number of members	
	Men	Women
Transport Nagar	1	12
New Mahewa	10	1
Chota Mahewa	0	10
Galan	6	5
Chakra	3	7
Bada Mahewa	3	7
TOTAL	23	42

Common interest groups had a more balanced gender profile, with 23 men and 18 women in total (Table 4).

Table 4. Men and women members of ACCCRN common interest groups

Common interest groups	Number of members	
	Men	Women
Agriculture	5	5
Water and sanitation	5	5
Health	6	5
Drainage	7	3
TOTAL	23	18

At ward level, the balance was tilted towards men, with the Ward Committee comprising three women and ten men (sources: 28, 34, 36). Many of the Ward Committees are still very active and the percentage of women participating is almost 70% (sources: 30, 36, 39).

During Phase II of the ACCCRN project, although men and women were involved in all city level committees, representation of women was much lower compared with that of men, probably reflecting the smaller numbers of women in decision-making roles within the

institutions and disciplines invited to participate. For example, all 18 members of the ACCCRN City Steering Committee were male. Likewise, the city level Thematic Committees involved few women representatives compared with men (Table 5). Those men and women who did participate shared their disciplinary expertise, rather than any gender perspective *per se*, and it may be inferred that with such low female representation, the city level committees lacked women's perspectives in general.

Table 5. Men and women members of ACCCRN city level Thematic Committees

Thematic Committee	Number of members	
	Men	Women
Climate-resilient agriculture	20	1
Water and sanitation	20	1
Health and hygiene	16	1
Decentralised drainage	13	0
Livelihood	11	3
Climate resilience building	17	0
TOTAL	97	6

Members of Neighbourhood Committees, Thematic Committees and Ward Committees from Mahewa ward are not represented in city level committees. Although they all had good representation of women, it appears that these were mostly unable to learn, share and contribute to analysis and decision-making at higher levels. According to one of the stakeholders, committees at city level were made up of people who were more 'thinkers' than 'doers', and lower class people, especially women, were hardly represented. This probably also prevented many of the gender-sensitive approaches that evolved at ward level from being shared and scaled up.

Caste and class were not considered important criteria in the selection of committee members. Selection was guided more by considerations of whether members were active and if they had some leadership qualities and capacity to share their problems (sources: 35, 36). Gender was also not an important criterion, though with more women playing an active and interested role in the Neighbourhood Committees, they ended up being part of thematic committees as well.

4.2.3 Women's participation contributed to impact and sustainability

ACCCRN project members felt that, "Had women not participated actively, the outcomes would have been considerably less, maybe around 10–20% of what was achieved. It is largely because of women (and also men) that the project has been sustainable so far, as well as effective in resilience building." The impact of women's participation can be observed across several project intervention areas:

Committee functioning

Exclusion from decision-making processes plays a key role in women's vulnerability to climate change, and in their vulnerability in a more general sense. The ACCCRN project fora established at ward level provided a platform for women and men to interact, exchange

and make decisions. With very high participation levels, particularly among women, many of the committees are still running and appear to be responsive and accountable to people's needs and priorities.

According to most ACCCRN team members, the gender-sensitiveness of implementation during Phase III was instrumental in the ongoing functioning of committees. Between 50 and 60% of the Neighbourhood Committees (except for those in New Mahewa) still hold regular meetings, and of the members still active in these committees, at least 70% are women.

In New Mahewa ward and at city level, where women's participation was either very low or non-existent, many of the committees have stopped functioning and the sustainability of interventions has also been negatively affected. The current condition of many of the interventions in New Mahewa is poor and monitoring is lacking. According to one GEAG team member, one of the main causes of this situation is the lack of active involvement of women. And in contrast with other Neighbourhood Committees, men have neither the time nor inclination to take part. ACCCRN project team members report that City Steering Committee meetings, which had no women participants, are no longer taking place (sources: 30, 39).

Improved water and sanitation

Overall, water and sanitation systems adopted in Mahewa ward have proved quite effective. Interventions such as water tap connections and raised hand pumps are still in use and women are now using toilets. According to GEAG, these interventions have saved women's time by at least 50–60%. One example is that of Saraswati Devi who had been suffering from skin problems for a long time. Ever since she started using good quality water, her skin has improved and she has inspired 80 families to have water connections installed in their homes. Another woman used her jewellery to take out a loan for toilet construction (sources: 28, 29, 30). Doctors confirm that water-related health problems have declined since people started using improved systems (sources: 46, 45). Gorakhpur City Government was responsible for installing the new water connections, largely as a result of advocacy efforts made by GEAG and local residents through the ACCCRN project.

Box 3. Other impacts of the ACCCRN project on people's access to basic services

Health

As a result of ACCCRN project interventions, immunisation of children increased as mothers became more aware of health issues. Cases of encephalitis have declined and there has not been a single case of an encephalitis diagnosis among children for the past three years. Incidences of diarrhoea have also fallen sharply, especially during monsoon seasons. Auxiliary Nurse Midwifery services have become more regular and their accountability has improved (sources: 36, 45).

Education

A new school was built in Chakra with climate-resilient features, including a raised platform to protect the structure from floods and waterlogging. Women have been particularly active in taking this initiative forward and keeping it running. The school is open year-round and has very high attendance levels. As a result of their involvement in this initiative, women's attitude to education has changed. Girls' enrolment and attendance is now more than 50%, in contrast with earlier times, when girls hardly attended school at all (sources: 25, 26, 27, 30).

Housing

Climate-resilient houses constructed using local materials and a climate friendly design (such as adequate ventilation) has helped residents survive extreme weather better than conventional cement houses. The selection of beneficiaries was done in a participatory manner, with women actively participating. The ACCCRN implementation team felt that the most deserving family (a homeless family with a young daughter) was selected because women made the choice collectively. They were not sure that this would have happened had women not participated in the selection process (sources: 5, 35).

Women played a key role in drain construction and in deciding the beneficiaries of climate-resilient buildings, including choosing sites and materials, overseeing the masons and material delivery, participating in water testing and organising community members' contribution through voluntary labour or donations.

Due in large part to women's participation in training initiatives, at least 70% of households now have access to potable water, while other households have started using water filters or are storing purified water (sources: 5, 25, 26, 27, 30). According to focus group discussions, participants and talks with the GEAG team, women's involvement has also led to lessons learned being implemented at household and community level, resulting in improved health for all and reduced time spent on collecting water and draining floodwater from homes, particularly for women.

Most of the water, drainage and sanitation systems are still being taken care of by committee members and other residents. This was evident during field visits when the study team spoke to prominent women Anuradha and Ishrawati, who had recently met officials from the Municipal Corporation to complain about irregular services. Media coverage also reflects the sustained outcomes of the ACCCRN project. With women's and men's continued participation in monitoring processes, committees, institutions and systems are still functioning. For the past three years, despite monsoons and erratic rainfall, there has been a considerable decline in waterlogging (sources: 26, 30, 32, 37). The water and sanitation system is now being adopted in other wards, such as Rustampur, as well as in two additional ones. To this day, women monitor the drains to ensure that no dirt or waste creates blockages (sources: 28 to 39).

Climate-resilient agriculture

Climate-resilient agriculture strategies introduced by the project included integrated pest management, sack farming (during rainy seasons), low polytunnel houses for growing vegetables, mixed cropping and seed cultivation techniques suitable for waterlogged conditions. Capacity-building efforts predominantly focused on women, since they are mostly responsible for agricultural production in Mahewa ward. As a result, women's skills improved and their awareness of government schemes and programmes was raised. Women associated closely with farming were also involved in the process of identifying model farmers, interacting with agricultural departments and scientists and sharing their needs and problems. As a result, women are now able to practise agriculture during the rainy season, between June and October. According to female residents and ACCCRN implementation team members, increased income in many households is being partly spent on educating daughters and improving family living standards. Similar changes are being observed in almost all neighbourhood clusters. During a focus group discussion, one woman spoke about changes in attitudes: *"Prior to the ACCCRN project, more attention was given to boys' education and health. Now, however, we are using money to also educate our*

daughters and improve their health. We are also planning on putting money in the bank to be used in a year or two on repairing the house."

Discussions with GEAG staff reveal that soil quality and people's health have benefitted from moves to replace chemicals with organic techniques and inputs. Mixed cropping has also helped to bring about a slight improvement in food security, especially now that many vegetables are available the whole year round. These are also used for household consumption, while overall dependence on markets has declined (sources: 28 to 43). According to women residents and the ACCCRN team, women now have more access and control over food and its usage.

From the same talks with GEAG staff it also emerged that these improvements in income and living conditions have probably dissuaded people from selling off their land, and women have been integral to this process, despite not being land owners themselves. It is significant that the amount of land cultivated for agriculture has not declined over the past few years, in contrast to previous trends.

According to some men from the community, when women go to officials with complaints, they now receive a better response. In addition, some men feel that women are now able to present problems connected with water and other basic services, including health, more effectively, as they are the ones who face these challenges directly (sources: 21, 24, 28, 36, 43, 45).

Awareness and confidence

Prior to the ACCCRN project, people had low awareness levels on issues relating to health, hygiene, sanitation, diseases and water quality. This was true for both men and women, but more so for women. At the same time, awareness levels of people's rights to basic services provided by the Municipal Corporation and other government agencies were very low among both men and women. Awareness was also found to be low with regards to climate change and impacts, its projections and other related issues, as reported by the ACCCRN project team.

Although women perform most of the agricultural work, they had very limited knowledge and information on government schemes, techniques and methods to improve the quality and quantity of produce, especially during waterlogged and flood situations.

At the same time, confidence levels and self-esteem among women and men was lacking, especially in the case of women. This perspective was shared by several women during interviews. For example, Anuradha and Indravati told us that prior to the ACCCRN project, they would hesitate before wandering more than a few houses' distance from their homes, but now they have the confidence to approach the Ward Corporator, government officials and other families in different neighbourhood clusters. Women also reported valuing their work more highly since the ACCCRN project, which, they say, has inspired respect for them from other community members.

Despite the social and cultural barriers (see Section 4.4), women were proactive members of the committees, initially taking part out of interest because a few men went, and then gradually participating more fully as a result of encouragement and support from facilitators. Some of the women became more vocal and outgoing. When they gradually acquired a level of confidence and awareness, women understood the importance of the issues and were eager to identify solutions.

According to ACCCRN implementation team members, ward residents, especially men, showed a general sense of indifference towards the state of affairs prior to the project. For example, men and women considered the provision and regular delivery of basic services to be the responsibility of the Municipal Corporation and other government agencies, and did not take proactive steps to demand better access. Similarly, residents (especially men) were not interested in learning and shied away from taking responsibilities to improve their situation and address their problems. Team members also felt that women were more open and had a greater sense of responsibility, once any doubts they had about the project had been removed.

Discussions held during the ACCCRN project have helped some men to realise that women's workloads are very high, especially during extreme weather events. This shift was seen more clearly in Chakra and Chota Mahewa, and less so in New Mahewa. Nevertheless, men's general awareness of problems affecting women's lives remains low, according to the ACCCRN team.

According to men and women taking part in all focus group discussions and interviews, levels of awareness and understanding have risen among both men and women, but particularly among women, of their right to access regular, quality basic services from government agencies. They also have greater knowledge about health issues (causes, prevention and treatment) and climate change projections and impacts. According to one man in Chakra: *"Earlier, women would wait for us to take them to the bank to open their account, or to go to the dispensary or the immunisation centre or even to get ID cards made. However, now they do it on their own or go with another woman who is informed about these things. Sometimes women go together to the government department dealing with water and sanitation issues when we face problems."*

Overall, women's participation in the project has improved their confidence and self-respect, with some women reportedly having earned greater respect from their relatives and community members in the process.

Household economy and control over resources

Some of the new livelihood activities (stitching and sewing, producing incense sticks) introduced during the ACCCRN project specifically targeted women.

Livelihood interventions primarily focused on women of lower-income groups in the neighbourhood cluster of Galan. During participatory urban appraisals, women spoke of problems linked to their lack of employment, difficulties in accessing markets and mobility restrictions. It was therefore decided to arrange training sessions for women in different livelihood strategies, such as stitching and sewing, making incense sticks and other local craft items. These activities did not require women to move too far from their home. Prior to the ACCCRN project, women had to go to the market to purchase raw materials and sell their produce, and needed to negotiate to obtain a good price. They complained of experiencing difficulty in identifying the sellers and negotiating rates with them, and that their husbands objected and would sometimes even beat them up for stepping out of their houses. One woman commented: *"My husband used to get suspicious when I went to the market to deal with buyers or sellers of raw material. He thought I would be spoilt in the company of others. Sometimes when I arrived home late he would raise his hand and become violent."* As a result, it was decided at project meetings that buyers would come to the sellers and pay them a fixed price, to be established informally by families involved in the sector over joint discussions (they live close to each other). There is no formal mechanism for setting prices.



However, despite making a significant contribution to addressing women's immediate need to earn money and improving the financial condition of many families, the absence of a gender-sensitive approach meant that the project did not ensure that income was used and spent by women. Indeed, most of the major household financial decisions continue to be taken by men, as reported by respondents in all focus group discussions and interviews. For example, women engaged in guava production in Chakra observed that: *"Though men don't stop us from going to the market to sell guavas, they take away 25% to 50% of the money that we earn through selling."* In those households where women play a role in deciding how to use their income, the money is spent on education, health and food, and is reported as bringing happiness and well-being to the family. On the other hand, men typically spend money on alcohol and food, an assertion made in all focus group discussions and in one discussion with the GEAG team.

ACCCRN team members reported that they held a few separate meetings with men, in an attempt to change their behaviour and attitudes towards women. They said that their efforts were successful to some extent, specifically for families living in one of the neighbourhood clusters.

With increased income and improved opportunities, the pressure to take out a loan to cover losses caused by monsoons and flooding has been considerably reduced, for the first time in many years. This has helped to reduce stress and tension, especially for women, since they are generally responsible for taking out loans and for paying them back (sources: 25, 26, 27).

Political interest and participation

People's participation in decision-making processes regarding urban planning is almost non-existent in India, despite the 74th amendment of the constitution, which mandates the involvement of citizens in these processes. Unlike *gram panchayats* (local rural self-governance bodies mandated by the 73rd amendment), local Municipal Corporations have rarely encouraged people's participation, or planning that uses bottom-up approaches. In this sense, the ACCCRN project was groundbreaking, since for the first time, men and women were given a chance to participate in a practical manner in all stages of the project. These processes had the added benefit of exposing residents to scientific projections on climate change and the outcomes of other research and studies. Such awareness-raising, along with capacity-building, has enabled men and women in Mahewa ward to contribute to the design and implementation of climate resilience plans in an informed manner.

According to GEAG, two women from Mahewa ward stood for Municipal Corporation elections for the first time as a result of confidence and capacity gained through the ACCCRN project, although they did not win the seats. These women were encouraged by other women in the community who felt that their election would help efforts to improve basic service provision in the ward.

Moreover, while women had already been exercising their right to vote, their decisions were generally influenced by the views of their husbands. This time, women from a few neighbourhood clusters collectively voted in favour of the Ward Corporator, who had offered them substantial support during the ACCCRN project in getting plans implemented and monitored. With the backing of women (almost 70%) and some men, this candidate for the Municipal Corporation almost won – a first in the history of the ward or anywhere else in the informal settlements of Gorakhpur.

4.2.3 Yet participation is not enough!

Women's representation and participation in ward level committees, training sessions and workshops, and during other stages of the project, was relatively high, with a few women emerging as leaders in their own right. However, the stronger participation of women in community meetings did not necessarily lead to empowerment or transformation of gender relations. For example, no great change has been seen in the situation of women in New Mahewa, who still appear to be reluctant to speak out. These women had difficulty speaking in mixed group focus group discussions during data collection for this study, when men dominated discussions. Even in the training sessions on health and water quality, girls participated more than women. With the exception of one woman, all members of the Neighbourhood Committee in New Mahewa were men. In contrast with other clusters, the collection of community funds was low in New Mahewa, and management of plans to improve water supply, solid waste management and other services was deemed poor (source: 28, 32, 34). The situation is different in Chakra and Chota Mahewa, where women appeared quite vocal and the support of men is stronger (sources: 29, 34, 36).

There are certainly some questions and doubts regarding the sustainability of the initiatives and their outcomes. With little focus on the gender-based approach, scant change is visible in gender relations at household or community levels, least of all at city level. Moreover, there has been hardly any discussion, either during or after the project, about women's rights and their role in decision-making processes and fora (at all levels), not just as a way of addressing women's vulnerability, but also to create space for them to contribute their strengths and experiences. Furthermore, there are hardly any instances of men becoming involved in productive (in and around the house) and childcare activities. ACCCRN project members reported the strong possibility that: *"Had gender been the strong focal point of the project, at least 70–80% of the committees would have continued to be functional and most of the systems and institutions would still be active."* This indicates potential problems for sustainability of climate compatible development outcomes in the future. Although one project cannot expect to bring about social transformation by itself, the ACCCRN project has certainly initiated changes, which would now benefit from further analysis and interventions using a gender-transformative approach.

4.2.4 The importance of monitoring and evaluation

The absence of a gender-sensitive approach meant the ACCCRN team was unable to ascertain progress made with respect to gender transformation, women's strengths and capacities and their participation in decision-making bodies and processes, through regular monitoring and evaluation with appropriate indicators and sex disaggregated data collection. Although this study has been able to capture these elements and impacts to some degree, a more rigorous approach from the moment the baseline is developed would provide more accurate evidence.

4.3 How a gender-sensitive approach could enable better climate compatible development outcomes

4.3.1 How the ACCCRN project findings regarding women and men and their distinct experiences and perceptions of climate change are translated into policy, institutions and projects

ACCCRN project perceptions, results and experiences regarding men and women were shared on different platforms. However, since gender was not a focus of the project and documents and reports do not emphasise this aspect, advocacy and information sharing efforts did not initially mention gender issues. Discussions with ACCCRN project planners and GEAG team members confirmed this observation.

Several initiatives are being developed based on the ACCCRN experience. However, only a few of them integrate a gender-based approach, apparently at the request of CDKN or GEAG. Some of the most noteworthy initiatives include:

The District Disaster Management Plan of Gorakhpur

The District Disaster Management Plan (DDMP) of Gorakhpur has adopted Mahewa ward as a model for its Urban Disaster Risk Reduction initiative. The purpose of the DDMP is to mainstream climate change into disaster risk management (DRM) plans at district level. GEAG was approached by the Gorakhpur District Disaster Management Authority (DDMA) to provide inputs. According to the GEAG team members involved, gender was not one of the focal areas of their support and the gender perspective was not integrated into the DDMP. A senior GEAG staff member reported that, with low levels of exposure to, and awareness of gender issues among government officials, little importance was attached to the gender-based approach. It has been suggested by CDKN that the DDMP prepared for Gorakhpur should be evaluated from a gender perspective.

The District Disaster Management Plan of Almora and Puri

GEAG has also taken up a CDKN-supported project to evaluate the DDMP of Almora and Puri, and make the plan more climate-sensitive. The gender dimension was added to this plan at the insistence of CDKN. This, and the previous example, highlights how donors and external organisations can act as drivers for certain agendas, such as gender equality, to be addressed by recipients of their funding.

Disaster Management Plans in Bihar

According to a senior member of the GEAG team, the importance and relevance of a gender-based approach to disaster risk reduction became more evident once the gender analysis of the Gorakhpur DDMP was carried out. This exercise increased the capacity of GEAG team members, resulting in gender being integrated into Disaster Management Plans in four districts of Bihar. GEAG team members with a good understanding of gender and participatory approaches are providing support to these processes.

State level advocacy efforts

Various advocacy efforts have been initiated by GEAG at state (Uttar Pradesh) level, with the involvement of the State Disaster Management Authority and the Uttar Pradesh Academy of Administration and Management. The aim is to encourage state climate policy to place



more emphasis on the urban context. However, according to GEAG staff, these efforts do not include an explicit gender perspective.

One major achievement has been that in a state that has only nascent policy architecture to deal with the impacts of climate change, the State Climate Change Authority is in the process of being established. This is largely thanks to advocacy efforts by GEAG, based on the outcomes and results of the ACCCRN project. The aim of the State Climate Change Authority is to ensure the mainstreaming of climate change into plans and policies. However, in common with other state and district level initiatives emerging as an outcome of the ACCCRN project, gender is not an explicit focus area.

ACCCRN learning on climate-resilient agriculture scaled up for the Peri-Urban Agriculture project

The Peri-Urban Agriculture project has been launched by GEAG under ACCCRN, to build on insights gained through climate-resilient agriculture activities by scaling them up in an area adjacent to Gorakhpur. This initiative is being carried out with more of a 'women centric' approach, since it focuses mainly on agriculture, with which women are closely associated. Climate-resilient agriculture techniques have been shared with other wards by some of the model women farmers. Indeed, one of the women has trained several men and women farmers over the past three years.

Opportunities for replicating solid waste management interventions

Gorakhpur City Government had suggested replicating a similar programme to that of the ACCCRN initiative on solid waste management in three new wards of the city: Surajkund, Shastri Nagar and Rapti Nagar. However, according to an ACCCRN and GEAG team member, these have not been initiated to date. Solid waste management systems and methods from the ACCCRN project have been already replicated in Husupur ward.

Creation of a Climate Change Cell with women members

A Climate Change Cell has been created in Gorakhpur Municipal Corporation and women are being accepted as members (currently there are two women and seven men). Although only two women have become part of the Climate Change Cell to date, this is a considerable achievement since Gorakhpur is probably one of the few cities in Uttar Pradesh to have set up a Climate Change Cell in a local government body. Furthermore, women did not originally form part of the cell. According to a senior GEAG team member and Climate Change Cell member, it is likely that GEAG participation led to women's inclusion. The inception workshop for the present study is also said to have contributed to this move, as a result of discussions on the importance and relevance of gender among the stakeholders who attended, who included the head of the Municipal Corporation – the Mayor.

Media coverage

Electronic and print media have given good coverage to developments and results of the ACCCRN project interventions in Mahewa ward. They have covered the stories of women model farmers, such as Indravati and Jhimki Devi, as well as women committee members such as Anuradha, who have been featured several times. Other success stories have focused more on resilience-building and reduced vulnerability, though without a gender perspective. Presentations of the ACCCRN project have also been made at various national and international platforms.

4.3.2 Compensatory/corrective measures that were adopted and/or institutionalised to respond to women's frequently greater vulnerability to climate change

For the ACCCRN project, several measures were adopted to respond to women's vulnerability to climate change.

Awareness- and capacity-building

Training and information sharing was carried out targeting various areas that are primarily women's responsibility, and which are directly affected by climate change, thereby increasing women's vulnerability (and their families). These included:

- Climate-resilient agriculture techniques aimed at improving food and nutrition security, in particular identifying women model farmers to motivate others (men and women) to take up the new practices, increasing awareness of government schemes and programmes for accessing inputs etc., and encouraging women to share their experiences at ward and city level.
- Since women's livelihood options were negatively affected by flooding and waterlogging, training was provided in alternative income-generating activities, particularly among low-income groups. While this gave women the opportunity to increase household income, most economic decision-making remains in the hands of men.
- Women and their families were exposed to illness and other discomfort as a result of poor solid waste management and water supply. Training and awareness-raising was provided on these issues with impressive results (see page 38).

Creating space for sharing of knowledge and skills

Opportunities to train with other neighbourhood clusters and wards have given women and men a chance to get to know other people and to overcome shyness and gain confidence. This new self-esteem has helped women, in particular, to continue with many of the actions that form part of the resilience planning element of the ACCCRN project.

Women who received publicity through the media and won awards have inspired other women to overcome barriers and take bold actions. These include participating in rallies, taking their complaints to government officials and even becoming more politically active.

According to ACCCRN team members, the involvement of men and women together in discussions (during ACCCRN project participatory rural appraisals, meetings and committee meetings) has helped to raise awareness for the first time among men, of problems and issues relating to women. During focus group discussions, some men showed that they sympathise with women and their workload and other problems, but aside from a few examples, men have generally not taken it upon themselves to transform gender relations at household level. One woman in the research team remarked: "*Had men been aware of our situation and problems, maybe our life would have been different.*"

Improving access to basic services

According to the GEAG Baseline Survey Report, only 54.8% of households had private toilets at the start of the ACCCRN project. This affected workloads and vulnerability, mostly for women and girls, due to illness and discomfort, as well additional time required to care for sick relatives (see page 18). After the project interventions, the number of households with private toilets rose to 70%, a result largely attributed to women's active participation

in training. Community toilets were repaired using climate-resilient design. This reduced discomfort, inconvenience, and also the time women spend on accessing the toilet themselves, as well as accompanying children (sources: 28, 30).

Building networks and social cohesion

The ACCCRN project recognised that the absence of social networks and ties in Mahewa ward increased the vulnerability of women and other marginalised groups to the impacts of climate change and disaster events (see page 21). The ACCCRN project created opportunities for interaction and these were observed to have strengthened community networks and cohesion.

4.3.3 How we can ensure that the knowledge, information, skills, expertise and experience of urban women and men can contribute to climate compatible development goals

The ACCCRN project teaches us that the following mechanisms can be used to ensure that the knowledge and skills of urban women and men contribute to climate compatible development goals:

Participatory consultations

Participatory consultations create spaces for women and men to share their experiences with one another. The venue and timing should be set keeping men and women's other commitments in mind. Likewise, more formal community-based institutions and systems should ensure representation and participation of all classes and castes, as well as a balance between men and women.

Enabling environment

An enabling environment needs to be created to facilitate women's participation, especially those who are at a disadvantage in terms of caste and class. Sometimes, separate meetings are required to allow the needs and experiences of different sections of society to emerge, as demonstrated by the data collection approach adopted by the study team during the focus group discussions (see Chapter 2).

Explore perceptions and experiences of different sections of society

Project developers should take care to bring out the perceptions and experiences of different sections of society (genders, castes and classes) when designing climate compatible development initiatives, in order to understand diverse needs and priorities, and to capitalise on the range of skills and experiences that male and female community members have to offer.

Tap into local knowledge

Adopting a transdisciplinary approach that included an appreciation of local, traditional knowledge and experiences, as well as scientific data, enabled the project team to understand the differential vulnerability, interests and skills of ward residents (of different genders, economic classes and castes). This facilitated the development of appropriate and effective local resilience plans.

Acknowledging and promoting women's contribution to agriculture by selecting model female farmers, the ACCCRN project was able to showcase women's knowledge and expertise on farming-related activities.

Promote women's participation in higher decision-making levels

Care should be taken not to perpetuate gender disparities, especially at higher levels of decision-making. In the ACCCRN project, women were encouraged to take up productive and community roles at neighbourhood level, while their participation at ward and city level was much lower. This probably prevented women's experiences and perceptions from penetrating these higher levels of decision-making power, something that will be needed if gender is to figure more prominently in policy and practice. Other factors that prevented women's perspectives from being taken into account at higher levels included a lack of advocacy efforts around these issues, together with pervasive social norms and cultural barriers, described in Section 4.4.

Increase awareness to reduce social barriers

Increasing awareness and understanding around men and women's immediate practical (water, health etc.) and strategic (awareness, confidence etc.) needs can improve gender-awareness and initiate the empowering process. The ACCCRN project demonstrates that when conducted in a participatory manner, these measures can help women and men to gain confidence, overcome social and cultural barriers, and ensure more sustainable, responsive and accountable systems and governance.

Social and cultural barriers faced by women were overcome to an extent through continuous interactions with other women. For example, ACCCRN project volunteers (of whom more than 50% were women) encouraged other women to leave their houses and to speak out and share their experiences and perceptions. This process could have been supported by raising awareness among men and women on issues influencing members of both sexes, and the barriers affecting their participation in the ACCCRN project and wider society.

4.4 Factors that constrain or favour gender-sensitive approaches in the context of climate compatible development, and the ability of men and women to tackle climate related risks in urban contexts

4.4.1 Existing barriers to effective participation of local communities, particularly women, in decision-making in activities around climate compatible development in urban settings

Gender is a sensitive issue in India and is even considered in development circles to be a *bavander* (something that causes chaos). Gender issues become more difficult to explore in a state such as Uttar Pradesh, where patriarchal notions are still very strong. It is therefore a challenge to convince local stakeholders and communities of the importance and relevance of gender, especially in connection with a relatively new issue such as climate change.

Women showed higher participation levels than men in Neighbourhood Committees, Thematic Committees and Ward Committees, as well as in project activities in general. Notwithstanding, strong patriarchal structures meant that many women faced barriers at community and personal levels, which prevented them from participating in ACCCRN project activities and fora. The most common barriers cited were cultural and social.

Social and cultural barriers are predominant

Cultural barriers, such as restricted mobility outside homes (more common in higher classes found in New Mahewa, and among certain religious communities), eating least and last, putting the family first in everything and not giving due importance to one's own health, all affect women's awareness, health and confidence levels, eventually having an impact on their level of participation in meetings. It was culturally more acceptable for men to take time out to participate in meetings. According to one of the men in Chakra: *"This is the tradition. It's women's work to carry out household chores and she has to do it all!"*

In New Mahewa in particular, men were not happy to see women participating in project meetings. Women reported that they received no encouragement from men, who think: *"What is the need for women to step out and participate, when men are there?"* Furthermore, men displayed an attitude of always being right. As one man remarked: *"There is no participation or involvement of women in household meetings. If there is a problem then we (men) decide amongst ourselves and then let other members in the family know who has to do to what."* Women in neighbourhood clusters faced similar problems, including their husbands shouting at them for being away and not carrying out household duties, and neighbours calling them names. One of the men in Chakra explained: *"If women go out of the house and participate in meetings, then the neighbours would look down upon us."* According to one of the women in Chota Mahewa: *"If women come forward and take decisions, and step out (of home), then society would not find her (behaviour) appropriate."*

Some women even mentioned being beaten up if they went against the decisions of their husbands with regards to contributing and participating in project processes. In Chakra, an area with high rates of alcoholism, men were less supportive of women's participation, as well as of the ACCCRN project in general, since this involved women leaving their work to attend meetings (sources: 30, 39).

Participation levels of women in cultural and religious activities are also relatively high. These activities occupy a considerable amount of their time and attention, thereby reducing the time available for taking part in the ACCCRN project.

Conversely, cultural stereotypes prevent men from contributing to household chores, which could reduce women's drudgery and workload. Men also face cultural barriers, which prevented them from participating in the ACCCRN project. They are expected to earn a daily wage and were therefore less available to attend the daytime meetings. Team members did try to organise meetings during the evening. However, they were cautioned against this due to the possibility of an unpleasant or hostile environment caused by excessive drinking.

Although women are involved in income generation, they rarely have access to or control over money. This has prevented women from making decisions about adopting coping methods that require a large capital outlay. Instead, women resort to low-cost, locally available mechanisms, such as *mittichhapna* (plastering with mud) and making repairs where possible. This builds resilience to a limit, but not beyond.

Other social barriers faced by women include a heavy workload, consisting of various tasks and responsibilities which 'should' come first for women, before they engage in productive and community roles.



Low confidence and self-esteem can discourage participation

At the individual level, women in general demonstrated low levels of confidence, to such an extent that their shyness and hesitation to speak prevented them from participating in public meetings. Even a slight discouragement by men in such a situation would dissuade them from participating in meetings. This has prevented women from playing a proactive role in Ward Committee meetings, where opportunities for sharing with other wards, meeting City Steering Committee members and government departments existed. ACCCRN team members also considered it difficult for women to take the time to participate in meetings outside their ward.

Political barriers can also limit participation

Men and women in Mahewa ward commented that political leaders did not initially encourage women's participation in a very proactive manner. However, they gradually started welcoming both women and men who approached them with their problems and suggestions, and also began to pay attention to women's problems, especially when they started becoming actively involved and being more vocal. But no special efforts were made by political leaders, or people in higher positions, to encourage women's sustained participation. Nor did the local Ward Corporator do much to encourage women's participation. As a result of these barriers, women were able to spend some time taking part in discussions at neighbourhood and community level, but their participation at ward level was more limited. In certain cases, the ACCCRN team helped to overcome these barriers by meeting male relatives and other decision-makers who posed challenges to women's participation.

Health constraints

Women and men's health also posed a challenge to their effective participation, especially during monsoons, when workload increases as men, and especially women try to cope with the impacts. On many occasions, ill health related to extreme weather prevented men and women from participating.

4.4.2 At what level should gender, climate change and development be addressed, and who is responsible for taking this on?

GEAG team members feel that gender, climate change and development need to be addressed at all levels, from household, to community and up to government tiers (local/state and higher). These issues also need to be addressed at individual level (by both men and women), due to the barriers imposed by people's own social conditioning. For example, some of the women felt the need to raise awareness among men on the gender impacts of climate change, including their increased workload. *"We wish men could understand our problems,"* they said.

All stakeholders associated with the ACCCRN project felt that projects and programmes implemented by government and non-governmental bodies should integrate women's perspectives, since women are more closely associated with many areas directly affected by climate change. Women stakeholders expressed the need to mainstream gender perspectives in programmes and policies. While many felt that the household level is more important for mainstreaming gender issues, a few felt that the process should be initiated top-down through policy. Many women felt that gender needs to be addressed simultaneously at different levels. However, views were not the same among all those interviewed. According to a government representative, *"Women are not educated enough, hence gender is not important."*

Women need to participate more at the local level particularly at household level. Men can contribute more at community and higher levels because of their mobility and ability to articulate. There are issues more important than gender. Gender as an issue may not be relevant everywhere."

According to a former town planner, "Gender has just been introduced into structural planning, but there is a long, long way to go still. Lack of understanding, capacity and even inclination has prevented any planning from this perspective."

One of the stakeholders associated with an organisation working on gender was of the view that gender sensitisation of people from different disciplines and within government departments needs to take place since *"they are the policy-makers, and otherwise this perspective will not get mainstreamed, even if women are represented in cells and committees. At the household and community level, sensitisation and empowering processes need to be taken up to address this issue."*

4.4.3 Are there hidden agendas behind the approaches taken or not taken by UN agencies, NGOs or other groups?

Gender was not a mandatory requirement by the donor – The Rockefeller Foundation – so answering this question posed a challenge to the research team. Aside from GEAG management, it was not possible to interview anyone else who could shed light on this issue. The research team was unable to identify any other initiative on climate change in urban settings with a gender-based approach; as a result, it was difficult to gain a wider perspective in response to this question. Time constraints also prevented the team from approaching organisations further afield which were working on related issues.

It is widely believed among practitioners in India that carrying out policy and practice initiatives using a gender-sensitive manner takes longer. The study team's experience indicated that pursuing 'gender' is considered a contentious issue by many NGOs, government bodies and agencies. According to them, it unsettles the peace at home, as women start becoming aware of their rights and discussing them. This, they believe, shifts the focus from the issue at hand, so the whole process takes longer and requires a highly targeted approach to achieve the same outcomes.

Nevertheless, gender is being integrated into some future projects based on the experience of the ACCCRN project at the insistence of GEAG and CDKN (see Section 4.3.1). CDKN has recently started to mainstream greater attention to gender equality in climate programming. CDKN is funded by the UK government through the Department for International Development, which has a gender policy and has pushed for the integration of gender equality in relation to climate change over the past few years.

5. Conclusions

With very few initiatives in urban areas addressing climate change and gender inequality in the Indian context, there is an urgent need to raise awareness of the benefits of the gender-based approach to the sustainability and outcomes of climate compatible development. It is hoped that the conclusions and recommendations of this study will go some way towards doing so in India and beyond.

What does a gender-sensitive approach to climate compatible development mean in different urban contexts?

Based on the analysis of the ACCCRN project in Mahewa ward, it is evident that a gender-sensitive approach to climate compatible development is fundamentally different in cities compared with rural areas.

Firstly, urban scenarios are different from rural areas and highly complex, with many social dimensions and layers in terms of caste, gender and class differences, among others. Residents of Mahewa ward display different vulnerabilities and capacities to face the impacts of climate change than people living in rural areas. The principal differences observed are:

- People's knowledge of their surroundings is not as profound or long-standing in Mahewa ward, because most of the residents migrated to Mahewa a few years ago. Nevertheless, the close association of women with key areas affected by climate change means that, as in rural areas, they can make valuable contributions to identifying suitable climate compatible development mechanisms.
- In rural areas, social cohesion is higher, with people connected through generations, residing in the same place and having good working relationships within the community. This makes them less vulnerable to impacts of extreme events and climate change, especially women, who rely on strong networks and association. However, in urban Mahewa, social links are weaker, resulting in women and marginalised people being more dependent on external help in times of need.
- In Mahewa, the likelihood of flooding and waterlogging is much higher than in rural areas, due to poor infrastructure and basic services.
- The possibility of families in urban areas such as Mahewa ward being affected by food insecurity – due to climate change or disaster events – is higher than in rural areas because (a) very few people practise agriculture in urban areas such as Mahewa ward. Therefore most people are entirely dependent on markets for their daily food supply. In times of need, when markets become inaccessible, the likelihood of food insecurity increases. (b) urban agriculture involves a narrower variety of crops due to limited plot size, so vulnerability to losses can be higher (c) urban households store fewer rations, and (d) urban households have weaker social links with neighbours. So in times of food shortage, they cannot depend on other residents for help.
- Unlike in rural areas, basic services are managed by government agencies, with hardly any involvement of local communities. Women and marginalised groups are especially unlikely to be involved in planning or decision-making. In Mahewa ward, this was found to create a certain level of apathy among residents towards the condition of infrastructure, service delivery and the impacts of climate change. This contrasts with rural areas, where the sense of social responsibility tends to be much higher.

- Other factors in urban settings that affect women adversely compared with rural areas include cramped, humid and very hot conditions within the home during different seasons, and temporary migration (for example, to embankments) which reduces privacy and increases insecure conditions.

GEAG had to adapt the project activities to address these differences. They had to take into account other practical considerations, such as people's suspicions and doubts about the project. This required more time for building trust and confidence, working through community volunteers and adapting meeting times to suit men and women's availability at certain times of the day.

GEAG also adapted popular participatory methods developed in the context of rural settings to suit the specificities of Mahewa ward. This approach included undertaking participatory urban appraisals through several small meetings, to understand the diverse characteristics and issues involved, rather than holding large meetings, as is standard practice in rural areas. Inhibitions felt by rural women about speaking openly in front of men appeared to be less evident in Mahewa ward and mixed focus group discussions were held in which women voiced their opinions. This had the added benefit of raising awareness among men about women's concerns and experiences.

What is the evidence of the relevance of gender-sensitive programming in climate compatible development to promote and achieve people's empowerment?

In the ACCCRN project, the active contribution of men and women in resilience planning through bottom-up, participatory and transdisciplinary approaches meant that practical issues were addressed across multiple areas affected by climate change. This approach succeeded in building people's resilience and their capacities to absorb shocks and stresses brought about by changing climate and extreme weather events. The result was effective and sustainable resilience planning, especially for activities and interventions where women's participation is ongoing. The project also demonstrates that a gender-aware or gender-sensitive approach can sometimes result in some level of gender transformation, which was observed in a few households where women gained more respect from relatives and had a greater say in economic decision-making.

In the absence of an explicit gender-based approach, the involvement of team members with gender expertise can, even if in an unplanned manner, lead to successful, if limited, outcomes in terms of gender equity. Even so, if a gender-based approach to project planning is lacking – and with it adequate monitoring and evaluation mechanisms – evidence and learning around these benefits is inevitably 'lost', and it becomes more challenging to demonstrate the importance of gender mainstreaming in addressing climate compatible development and promoting people's empowerment. This can lead to the false conclusion that gender-based approaches are an optional (and burdensome) extra, rather than a key strategy for achieving greater impact and sustainability of climate compatible development in urban settings.

Findings from this study suggest that improving women's access to basic services or new livelihoods opportunities in urban areas can – but does not necessarily – translate into empowerment outcomes. Income-generating activities have given women the opportunity to play a productive role and improve the financial situation of their household. Nevertheless, economic decision-making remains largely in the hands of men and this prevents women from making investments according to their needs and priorities, which may largely reflect those areas of life, services and resources that are being directly impacted by climate change.

Greater transformation appears to come about when women are involved as agents rather than as mere recipients. There is therefore a strong case for encouraging and creating spaces for women to voice their experiences and perspectives and to contribute to decision-making processes at local level, as well as at higher levels, where women's voices tend to become lost in patriarchal governance structures. The ACCCRN project demonstrates that such an approach can positively affect women's confidence levels, and that when given the chance, many women become actively involved despite the social and cultural barriers they face. Facilitating interactions between men and women can serve to raise men's awareness about, and appreciation for, the challenges faced by women (and vice versa) – a vital element of any initiative that seeks to address gender inequality.

Does a gender-sensitive approach enable better climate compatible development outcomes and if so, in what way?

The ACCCRN project shows that a gender-sensitive approach can strengthen climate compatible development outcomes to some degree. Measures were adopted to respond to women's vulnerability to climate change. Training and information sharing with women was carried out in areas such as health and water, which are primarily considered women's responsibility and are directly affected by climate change. While food and nutrition security was addressed by introducing climate-resilient agriculture techniques, increased livelihood avenues improved income-generating opportunities for women and contributed to enhancing household finances. Similarly, the improved delivery of basic facilities and services has increased access to potable water and sanitation. Health training has led to higher rates of immunisation for children.

In addition, it was observed that women's participation in the project contributed substantially to the functioning, impact and sustainability of the ACCCRN initiative across numerous areas, including committee functioning, access to potable water and the uptake of climate-resilient agricultural techniques. Committees with high levels of participation by women are still functioning, whereas male dominated committees appear to have fizzled out. When women were involved in making decisions about the beneficiaries of certain interventions, they often prioritised low-income, marginalised groups. In those households where women play a role in deciding how to use income, the money has been spent on education, health and food, and is reported to have brought happiness and well-being to the family. Integrating women's traditional knowledge has also emerged as an important element in enabling better climate compatible development outcomes, since women's close association with areas of life directly affected by climate change means they are particularly inventive and resourceful when identifying possible adaptation, disaster risk and mitigation strategies.

Opportunities to train together with other neighbourhood clusters and wards have given both women and men a chance to get to know other people and to overcome shyness and gain confidence, a factor that has contributed to the sustainability of interventions. Mixed meetings and fora at ward level have helped men and women of different castes and classes to become aware of the challenges they face and take joint decisions. Such participatory consultations, held at venues and timings suited to men and women's availability, brought out their diverse needs and priorities and the range of skills that were used to contribute to climate compatible development. Separate meetings (for men and women) were also held to help women share their perspectives freely. Had the gender-sensitive approach been integrated from planning to evaluation stages, it is reasonable to assume that the impacts might have been longer lasting, more effective and wider ranging. For example, women's participation at ward and city levels was limited, and this probably prevented their

experiences and perceptions from penetrating higher levels of decision-making power, something that will be needed if gender is to figure more prominently in policy and practice.

ACCCRN project perceptions, results and experiences regarding men and women have been shared on different platforms (local, state, national and international). State level advocacy efforts, as well as best practices drawn from the ACCCRN project, are being shared and in some cases replicated in other wards. However, without an explicit gender-based approach and a gender equality objective in the project, advocacy efforts at state level aimed at sharing the outcomes of the ACCCRN projects and scaling up best resilience practices in other wards will not integrate a gender perspective. Inspirational case studies of a few women and men have been publicised in electronic and print media, but the focus has been more on successful climate compatible development outcomes than on gender equality.

Several initiatives at state level have been taken up as a result of the ACCCRN project, with gender integrated at the insistence of the donor, CDKN. The creation of a Climate Cell within Gorakhpur Municipal Corporation is a considerable achievement, and Gorakhpur is probably one of the few cities in Uttar Pradesh to have such an agency within a local government body. Of the nine members, two are women, which is unusual for local government.

What socioeconomic, political and cultural factors constrain or favour gender sensitive approaches in the context of climate compatible development, and the ability of men and women to tackle climate related risks in urban contexts?

In India, gender mainstreaming is not considered to be imperative in the process of developing effective and sustainable climate compatible development mechanisms, especially when the intervention focuses on issues or areas that are 'new' to the implementers. In the absence of any previous knowledge and understanding of social, economic, and cultural nuances and the interlinkages with different actors, 'gender' is typically sidelined, to be taken up 'later on'. Furthermore, the popular belief in India is that when using a gender-based approach, it takes longer to understand the issues at hand and develop appropriate interventions. As a result, there may be a lack of willingness to make the extra effort. This indicates an urgent need to raise awareness of the benefits of a gender-based approach to the sustainability and outcomes of climate compatible development. It is hoped that this study can go some way to achieving that end. Given this state of affairs, it is hardly surprising that the emphasis on explicitly integrating gender issues into projects tends to come from donor organisations. Although this was not the case with the ACCCRN project, other donors such as CDKN are funding various climate compatible development initiatives with this requirement.

Some of the informants of this research felt that gender, climate change and development need to be addressed simultaneously at all tiers, from household, to community and government (local/state and higher) level, in order to tackle the structural causes of poverty and vulnerability. A few people felt that these issues also need to be addressed at individual level (by both men and women), because of the barriers imposed by people's own social conditioning. Many individuals, institutions and organisations believe a lack of literacy, mobility and articulation among women to be a handicap to their participation in interventions at community level and beyond. Both awareness-raising and empowering processes are therefore important elements of any climate compatible development initiative aimed at improving gender equity.

In the case of Gorakhpur, men and particularly women face many cultural and social barriers that challenge their ability to tackle climate related risk. These include strong patriarchal structures that dictate the roles that men and women should play. Such attitudes were

more visible in higher classes and among certain religious communities. While these barriers prevented many women from participating in the ACCCRN project, a few women were very proactive, grew in confidence and took on leadership roles. Support and encouragement by facilitators, as well as attempts to build awareness amongst men and other decision-makers about how women are affected by climate change, helped a number of women to speak out, gain awareness and confidence and contribute to local planning processes. Similarly, ACCCRN project volunteers (of whom more than 60% were women) encouraged other women to leave their houses, speak out and share their experiences and perceptions. This process could have been supported by raising awareness amongst men and women on issues influencing men and women, and the barriers affecting their participation in the ACCCRN project and wider society.

Finally, in Gorakhpur, men and women's involvement in the management of basic services such as water, sanitation, drainage and solid waste, is limited. These services are provided (inadequately in most cases) by the Municipal Corporation and other agencies. Currently, women and men do not play any role in managing or overseeing the delivery of basic services or contribute by sharing perspectives and experiences. This may be because the 74th Constitutional Amendment, which requires community participation in development efforts, is yet to be fully adopted by the State of Uttar Pradesh. The situation represents a major obstacle to institutionalising gender-based approaches and resilience micro-planning within government schemes, given their inherently participatory nature.

6. Recommendations

With limited initiatives addressing climate change through a gender-sensitive approach in urban areas, the ACCCRN project provides many insights, as well as practical examples and tools with which to address these areas in an integrated manner. Lessons should be considered, taken up, replicated and adapted by other urban interventions in adaptation, mitigation and disaster risk reduction. The research findings also indicate various areas where further action could be taken to strengthen efforts aimed at integrating gender-sensitive approaches in climate compatible development actions and policies.

GEAG/ACCRN

- i.** Gender-sensitive approaches adopted during the pilot intervention phase in Mahewa ward, and their impacts, should be shared in discussions, through documentation, media coverage and advocacy efforts with men and women residents of Mahewa ward, local stakeholders, the Municipal Corporation and government departments, as well as with district, state and national level agencies and organisations working on climate compatible development issues.
- ii.** Efforts to mainstream gender into ongoing and future processes and mechanisms in the ACCCRN project specifically, and in all projects and programmes more generally, would add to the effectiveness and sustainability of outcomes and processes of empowerment. As a renowned organisation at district, state and national level, GEAG is well placed to set a leading example by making a strong organisational commitment to gender equality. Within the ACCCRN project, this approach should involve staging gender sensitisation workshops at all levels and integrating gender-sensitive strategies at the ward and city level through the establishment of gender balanced committees, at the very least. Other elements that would enhance mainstreaming efforts include integrating differential vulnerability analysis and gender equality indicators into project design and management (see item xii below).
- iii.** There is a case for advocating for the mainstreaming of a gender-based approach into ward, corporation, district and state level interventions that seek to scale up elements of the ACCCRN project. These include initiatives that are planned, or already under way, relating to district plans, climate-resilient agriculture and solid waste management, and the newly established Climate Change Cell.
- iv.** Having worked extensively and intensively on gender and climate change in rural areas, and with a significant urban experience now behind them, GEAG can successfully bring out the nuances of both urban and rural scenarios. This may help in the development of practical, realistic and effective strategies to address issues relating to climate change and disaster management in urban areas on a wider scale, including:
 - a.** recommending changes to gender programming in urban areas, such as how to use participatory urban appraisals or setting appropriate objectives
 - b.** developing new theories around gender and climate change for successful climate compatible development outcomes in urban areas, which until now have largely been based on research conducted in rural areas.
- v.** A few women who emerged in leadership roles have brought about some change in gender roles in different spheres. They should be supported further to strengthen this process of empowerment and set an example for others to follow.

National and state level policy-makers

- vi.** In societies where patriarchal attitudes are strong, proactive efforts are required to create an enabling environment where women can feel confident and fully participate in decision-making processes. Community-based participatory planning and monitoring can provide this space and is crucial to improving the effectiveness and accountability of climate compatible development actions. In Uttar Pradesh, the 74th Constitutional Amendment should be fully operationalised, so as to facilitate the institutionalisation of gender-based approaches and resilience micro-planning within government schemes.
- vii.** Government policy and programmes relating to climate compatible development – including National and State Action Plans on Climate Change – must integrate women’s perspectives when designing and implementing livelihood support strategies.
- viii.** Areas that are closely associated with women’s roles and responsibilities – such as education and health – require more funding to help urban dwellers achieve better living standards and adapt to changing weather patterns.
- ix.** Another key area for maximising benefits from climate compatible development initiatives is supporting women to achieve greater economic empowerment at an individual level. This would place them in a stronger position to make decisions about investments in key areas exposed to climate change, thereby building family resilience. Such an approach will involve conducting activities aimed at transforming gender relations by building awareness and confidence among women, men, elders and society in general around equality and empowerment.

Academia/practitioners/civil society

- x.** The impact of climate change and disasters on men and women from different socioeconomic segments of urban societies should be studied in greater detail and depth to understand the nuances and to support the development of effective and sustainable strategies for climate compatible development and gender equality.
- xi.** Further research is required into the social implications of climate change in urban areas, targeting issues such as alcohol consumption and domestic violence. Likewise, further research is required to understand how food security of urban populations is affected by climate change.
- xii.** Research or projects must systematically collect gender-disaggregated data, analyse differentiated needs and vulnerabilities and develop gender equality indicators. This data can also help organisations to monitor and report progress towards climate change and gender equity objectives.
- xiii.** Efforts should be made to ensure that women are involved in awareness- and capacity-building workshops on climate compatible development, given their close association with salient issues. Improving women’s awareness levels and capacities can increase the resilience of the entire family, as well as strengthen the impact and sustainability of interventions.

- xiv.** Given the heterogeneous nature of urban societies, with different castes, classes and genders demonstrating different needs, priorities and skills, project developers should pay closer attention to the perceptions and experiences of different sections of society when designing climate compatible development initiatives.
- xv.** Special efforts need to be made to build networks and strengthen social cohesion in urban areas where interactions amongst neighbours appear limited.
- xvi.** There is a need for better adaptation of the focus and strategies of interventions and policies to urban contexts, vulnerabilities and capacities. For example, while in urban areas fast, high and tangible returns are required to mobilise people, in rural areas even awareness- and capacity-building interventions can motivate residents' participation and commitment.

Donors

- xvii.** Given the general perception that adding a gender equality objective to any project creates a heavier workload and produces little additional benefit, there is a clear need for donors to be explicit in pushing for the integration of gender-based approaches in interventions. This should involve identifying actors willing and capable of promoting gender equality, creating coalitions of willing individuals and offering them support.
- xviii.** Likewise, donors should take a proactive role in promoting knowledge sharing and exchange around these issues, including improving dissemination of practical tools and training to support the adequate design, planning, implementation and monitoring of climate compatible development and gender equity outcomes.
- xix.** Advocacy efforts are also needed at policy level, where donors can exert influence by making funds available for gender-sensitive climate compatible development pilot projects, research and scaling up.

Annex 1. Sources of evidence

Reference	Type of exercise	Target group/ individual	Sex disaggregated data	Location	Issues
1	FGD	Women	11 women	Chakra	Roles and responsibilities, livelihoods, adaptation, climate change and its impact, barriers
2	FGD	Women	13 women	Chota Mahewa	
3	FGD	Women	12 women	New Mahewa	
4	FGD	Men	13 men	Chakra	
5	FGD	Men	11 men	Chota Mahewa	
6	FGD	Men	11 men	New Mahewa	
7	FGD	Men and women	6 men, 6 women	Chota Mahewa	
8	FGD	Men and women	5 men, 7 women	Chakra	
9	FGD	Men and women	8 men, 7 women	New Mahewa	
10	Interview	Woman	1 woman	Chakra	
11	Interview	Man	1 man	Chakra	
12	Interview	Woman	1 woman	Chakra	
13	Interview	Man	1 man	Chakra	
14	Interview	Single woman	1 man	Chakra	
15	Interview	Man	1 man	New Mahewa	
16	Interview	Woman	1 woman	New Mahewa	
17	Interview	Man	1 man	New Mahewa	
18	Interview	Woman	1 woman	New Mahewa	
19	Interview	Single woman	1 woman	New Mahewa	
20	Interview	Single woman	1 woman	Chota Mahewa	
21	Interview	Woman	1 woman	Chota Mahewa	
22	Interview	Woman	1 woman	Chota Mahewa	
23	Interview	Man	1 man	Chota Mahewa	
24	Interview	Man	1 man	Chota Mahewa	
25	FGD	Mixed	6 men, 5 women	Chakra	Outcomes and impacts
26	FGD	Mixed	9 men, 5 women	New Mahewa	
27	FGD	Mixed	3 men, 9 women	Chota Mahewa	
28	Group discussion	GEAG and ACCCRN team members	3 men, 3 women	Gorakhpur	ACCCRN project, roles and responsibilities of the team, their background, gender focus in ACCCRN, phases and consultations

Reference	Type of exercise	Target group/ individual	Sex disaggregated data	Location	Issues
29	Group discussion	2 GEAG and ACCCRN team members	1 man, 1 woman	Gorakhpur	Their two respective wards, impacts, composition of committees, rural and urban features
30	Group discussion	GEAG and ACCCRN team members	3 men, 3 women	Gorakhpur	Outcomes and impacts
31	Group discussion	GEAG and ACCCRN team members	3 men, 3 women	Gorakhpur	Gender programming in rural and urban areas
32	Group discussion	GEAG and ACCCRN team members	1 man, 3 women	Gorakhpur	Issues in ACCCRN project, causes and factors for problems, expected outcomes
33	Group discussion	ACCCRN and GEAG team members	3 men, 3 women	Gorakhpur	Rural and urban difference in context of climate change and impact
34	Discussion	ACCCRN and CDKN team member	1 man, 1 woman	Gorakhpur	Decision-making and barriers for women and men
35	One-to-one Discussion	ACCCRN and CDKN team member	1 man	Gorakhpur	Approaches during the entire project – impacts, rural and urban features
36	Skype call discussion	ACCCRN and CDKN team member	1 man	Uttarakhand, UK	Process adopted during the entire project, interaction and approaches, composition of different committees
37	Skype call discussion	ACCCRN and CDKN team member	1 man	Uttarakhand, UK	Advocacy post-ACCCRN project
38	Skype call discussion	ACCCRN and CDKN team member	1 man	Uttarakhand, UK	Advocacy post-project
39	Skype call discussion	ACCCRN, CDKN team member	1 man, 1 woman	Uttarakhand, UK	Mahewa implementation, impacts, composition of organisations, rural and urban features
40	One-to-one interview	Senior member GEAG	1 woman	Gorakhpur	History of the organisation, projects on climate change and rural areas, documentation of ACCCRN project
41	Phone call	ACCCRN and CDKN team member	1 woman	Mahewa	Case studies
42	Phone call	ACCCRN and CDKN team member	1 man	Mahewa	

Reference	Type of exercise	Target group/ individual	Sex disaggregated data	Location	Issues
43	One-to-one interview	Project planner, senior member, GEAG	1 man	Gorakhpur	Planning, programming of ACCCRN , future projects
44	Phone call interview	Government official	1 man	Gorakhpur	Town planning, gender, land use planning, ACCCRN project city level meetings
45	One-to-one interview	Journalist	1 man	Gorakhpur	Gender in city level activities - Paryavaranmanch, Gorakhpur, ACCCRN project, impact on Mahewa ward
46	One-to-one interview	Doctor	1 woman	Gorakhpur	ACCCRN supporter, city steering committee, meetings, gender component, health issues with men and women, health camps
47	One-to-one interview	Academic	1 woman	Gorakhpur	ACCCRN supporter, city steering committee member, member of Climate Change Cell, issues with women in Gorakhpur
48	One-to-one interview	One-to-one interview	1 woman	Gorakhpur	Situation prior to ACCCRN, changes at community, individual level, outcomes and impact, barriers to decision-making
49	One-to-one interview	One-to-one interview	1 woman	Gorakhpur	

Endnotes

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