Climate Justice for Informal Workers

An Action Research in Jaipur, Rajasthan

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ActionAid Association (India)

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Foreword

For millions of people, climate change is no longer an abstract environmental concern but a lived reality that shapes everyday survival. Rising temperatures, erratic rainfall, extreme weather events, and ecological degradation are disrupting livelihoods, threatening food systems, and deepening existing social and economic inequalities.

For communities already situated at the margins of economic and social power, the climate crisis is intensifying long-standing inequalities and creating new forms of vulnerability. Among those most affected are informal workers—women and men whose labour sustains the functioning of our cities, yet whose lives and livelihoods remain largely invisible in public policy.

This report, *Climate Justice for Informal Workers: An Action Research in Jaipur, Rajasthan,* brings into focus the experiences of workers whose daily survival is increasingly impacted by climate change and deteriorating urban conditions. Construction workers labour under intensifying heat, sanitation workers and waste pickers operate in hazardous environments, and street vendors struggle to maintain livelihoods amidst unpredictable weather disruptions. For many of these workers, climate change is not an abstract scientific phenomenon; it is felt in reduced workdays, declining incomes, worsening health risks, and growing insecurity in housing and living conditions.

The findings presented in this report are grounded in surveys and focus group discussions with informal workers across Jaipur. They reveal how climate change is amplifying structural vulnerabilities linked to poverty, caste-based occupational segregation, gender inequality, and precarious urban livelihoods. At the same time, the report highlights the urgent need to move beyond narrow approaches to climate adaptation that focus only on infrastructure or hazard management. Instead, it calls for a framework rooted in climate justice—one that recognises the rights, knowledge, and leadership of those most affected by the crisis.

This study forms part of ActionAid Association's wider efforts to examine the intersection of climate change, livelihoods, and social justice across diverse sectors of work. In recent years, ActionAid has documented how climate disruptions are reshaping traditional and informal livelihoods across India. Studies with pastoralist communities have shown how erratic rainfall, prolonged droughts, and shrinking grazing commons threaten pastoral mobility and ecological stewardship. Research with migrant sugarcane workers has highlighted how rising temperatures, water scarcity, and agrarian distress intensify already harsh labour conditions and health risks. Similar concerns have emerged in studies on brick kiln workers in Punjab and construction workers in Delhi, where extreme heat, air pollution, and irregular weather patterns are increasingly undermining workers' health, productivity, and income security. Together, these experiences underscore how the climate crisis is deepening vulnerability among workers who contribute the least to its causes.

Across these diverse contexts, the pattern is strikingly similar. Climate change is not acting in isolation; it is interacting with existing social inequalities to push already vulnerable communities into deeper cycles of insecurity. Those who contribute the least to global emissions are often those who face the most severe consequences. Addressing this imbalance is at the heart of the climate justice perspective.

In urban India, informal workers represent the backbone of city economies. They build our homes and roads, manage waste and sanitation systems, deliver essential services, and sustain local markets. Yet their work is frequently carried out without adequate labour protections, social security, or recognition in urban planning processes. As this report demonstrates, climate change is intensifying these challenges, exposing workers to extreme heat, unstable incomes, health hazards, and insecure housing.

Responding to these challenges requires a new policy approach that integrates climate action with social protection, labour rights, and inclusive urban governance. Climate adaptation strategies must prioritise the health, safety, and livelihoods of workers who are most exposed to environmental risks. At the same time, the transition toward

climate-resilient and low-carbon economies must ensure that informal workers are not left behind but instead supported through pathways toward safer, more sustainable livelihoods.

This report therefore makes an important contribution to ongoing policy debates on climate resilience, labour rights, and urban development. By centring the voices and experiences of informal workers in Jaipur, it offers valuable insights for policymakers, civil society organisations, urban planners, and labour rights advocates seeking to build more equitable and climate-resilient cities.

We hope that the findings and recommendations presented here will contribute to strengthening public dialogue and inspire collective action to ensure that climate policies are grounded in justice, dignity, and the lived realities of those most affected.

Climate justice ultimately depends on recognising communities not as passive victims of the climate crisis but as agents of transformation. The leadership of workers, women, and marginalised communities—expressed through their collectives, unions, and movements—holds the power to reshape development pathways. By harnessing these collective energies and placing people's rights and ecological sustainability at the centre of governance, it becomes possible to build cities and societies that are resilient, equitable, and grounded in justice.

I look forward to receiving comments and suggestions.

In solidarity,

Sandeep Chachra
Executive Director
ActionAid Association

Acknowledgements

This action research on "Climate Justice for Informal Workers: An Action Research in Jaipur, Rajasthan" would not have been possible without the support, participation, and collective efforts of many individuals and workers' collectives.

First and foremost, we extend our deepest gratitude to the informal workers of Jaipur—construction workers, sanitation workers, waste pickers, street vendors, and daily wage labourers—who generously shared their time, experiences, and insights. Their willingness to speak about the everyday realities of working and living under increasingly harsh climatic conditions forms the foundation of this research. Their voices, struggles, and resilience are at the heart of this report and continue to guide the broader movement for climate justice.

We sincerely acknowledge the contributions of community leaders, worker collectives, and grassroots organisations who helped mobilise workers, facilitate discussions, and create safe spaces for dialogue in informal settlements across Jaipur. The focus group discussions and community interactions conducted as part of this research would not have been possible without their active support and trust.

We would also like to thank the dedicated research team: Ms. Sion Kongari, State Head; Ms. Navjyoti Ranawat; and Mr. Mulchand Sharma, Centre Coordinator, ActionAid Association, along with the field investigators Ms. Amna Banu, Ms. Annu Kanwar, Mr. Baitul, Mr. Deepak Verma, Ms. Kamini, Ms. Lavina, Ms. Nilam, Ms. Sangeeta, Mr. Sunder Singh, and Ms. Urmila, who conducted surveys and community consultations across multiple informal settlements. Their commitment to documenting the lived realities of workers—often under challenging field conditions—ensured that the research captured both the depth and diversity of experiences related to climate change.

Special appreciation goes to Mr. Sandeep Chachra, Executive Director, ActionAid Association, whose guidance, critical feedback, and institutional support made this action research possible. His continued

efforts to link evidence, community voices, and policy advocacy have been central to advancing the discourse on climate justice and workers' rights.

We also acknowledge the contribution of Mr. Tikendra Pawar, urban rights advocate and policy expert, who provided valuable inputs during the research process and helped strengthen the analytical framework of the study.

We also thank Mr. Joseph Mathai, Senior Manager – Communications, for his support in editing and designing this report.

We gratefully for the support of the Asia-Pacific Network for Global Change Research (APN) for enabling and supporting this valuable grounded research on climate justice and informal workers.

Finally, we hope that the insights emerging from this research will contribute to strengthening public dialogue, policy engagement, and collective action to ensure that climate responses in India are grounded in justice, dignity, and the lived realities of informal workers

Chapter 1

Introduction

Climate Justice and Informal Workers

Climate justice recognizes that climate change is not only an environmental crisis but also a profound social and economic challenge. Its impacts are not felt equally marginalized and vulnerable communities, especially informal workers, are disproportionately affected. In states like Rajasthan, where extreme weather events such as heatwaves, droughts, and erratic rainfall are becoming more frequent, the effects on informal workers—including construction labourers, sanitation workers, rag pickers, and daily wage earners—are especially severe.

These workers often labour in hazardous outdoor environments without access to basic protective measures like shade, drinking water, or rest breaks. Prolonged exposure to high temperatures increases the risk of heatstroke, dehydration, and exhaustion. During heavy rains or floods, sanitation workers and rag pickers face heightened health risks from poor drainage, toxic waste exposure, and unhygienic conditions. Yet, despite these dangers, they often lack access to healthcare, social security, paid leave, or financial compensation when climate-related events disrupt their livelihoods. The consequences of climate change go beyond physical discomfort. They undermine economic stability. Unpredictable weather can halt construction work, interrupt waste collection routines, or prevent street vendors from operating—leading to job losses and irregular incomes. With no financial safety nets or formal contracts, informal workers are pushed further into poverty, unable to recover from setbacks caused by climate-related disruptions.

According to the International Labour Organization (ILO, 2019), if current warming trends continue, the world could lose up to 2.2% of total working hours by 2030—equivalent to 80 million full-time jobs and an economic loss of US$ 2,400 billion. In Southern Asia alone, an estimated 5.3% of total working hours could be lost, translating to roughly 43 million full-time jobs. In India, between 2001 and 2020, around 259 billion labour hours were lost each year due to heat and

humidity—costing the economy approximately ₹46 lakh crore annually. The ILO also projects that by 2030, India could lose up to 5.8% of total labour hours to heat stress, with informal workers facing the brunt due to their heavy dependence on physical labour.

This growing crisis deepens existing inequalities. Informal workers, who make up nearly 90% of India's workforce, have little to no influence in decision-making about climate action. They are often excluded from urban planning, housing schemes, healthcare programs, and climate adaptation initiatives. Their homes, often located in slum areas, lack proper insulation, drainage, or access to clean water, leaving them more exposed during extreme weather events. Without support, their ability to adapt and recover is severely limited.

Climate justice is therefore essential not just for reducing emissions or building infrastructure, but for protecting the lives, livelihoods, and dignity of those most at risk—particularly informal workers. In India, especially in climate-vulnerable regions like Rajasthan, construction workers, sanitation workers, daily wage earners, and rag pickers are among the most affected by rising temperatures, unpredictable rainfall, and extreme weather events. These workers often operate in outdoor or hazardous environments with little to no protection, leaving them exposed to serious health risks such as heatstroke, dehydration, and respiratory problems. Yet, they lack access to basic services such as healthcare, social security, and safe working conditions. Therefore, climate justice must focus on inclusive and equitable policy frameworks that specifically address the vulnerabilities of informal workers.

First, it is critical to ensure informal workers have access to healthcare services, protective equipment, and infrastructure to deal with extreme heat—such as shaded rest areas, clean drinking water, and public toilets near work sites. Many of these workers also lack legal protections, such as paid leave, accident insurance, and minimum wages. Social protection schemes must be extended to cover them, with provisions for compensation when their work is disrupted by climate-related events like floods or pollution bans. Legal reforms must ensure enforcement of labour laws and workplace rights, regardless of employment contracts.

Equally important is the representation of informal workers in climate policy and planning. Their voices and experiences must be included in decision-making processes around urban resilience and climate adaptation. Worker unions and community organisations should be actively involved in shaping local and national climate policies to ensure that solutions are rooted in ground realities. Additionally, housing and basic infrastructure must be improved in informal settlements, which are particularly vulnerable to flooding, heatwaves, and air pollution. Investments should be made in climate-resilient housing and essential services such as water supply, sanitation, electricity, and drainage systems. Targeted financial support is another key component of climate justice. Informal workers must be registered in welfare programs like the E-Shram portal or the Building and Construction Workers' Welfare Board, ensuring access to emergency cash transfers, health insurance, and old-age pensions. Many workers lose income during climate disruptions, and without financial buffers, they fall deeper into poverty. Governments must provide livelihood recovery schemes, facilitate access to credit, and promote alternative income-generating opportunities through training and skill development.

In essence, climate justice is about recognising and responding to the unequal burden climate change places on those least responsible for causing it. By building systems that support health, safety, legal rights, housing, and income security for informal workers, we move closer to a just and inclusive approach to climate action. These workers form the backbone of our economy—ensuring their protection is not only a matter of justice but a necessary step toward sustainable and resilient development. Climate justice for informal workers is not optional—it is urgent and necessary. These workers form the backbone of our cities and economies. Yet, they remain at the frontlines of climate impacts with the least protection. By focusing on healthcare, safety, legal rights, housing, and financial support, we can ensure that climate action is also a matter of justice and equity. Without these inclusive policies, climate change will continue to deepen social inequalities. But with them, we can move toward a future that is not only climate-resilient, but also fair and humane.

Differential Impact of Climate Change on Informal Worker

Understanding the relationship between climate change and informal workers reveals critical challenges that must be addressed through just and inclusive policy frameworks. First, many informal livelihoods—such as those in agriculture, construction, waste collection, and street vending—depend directly or indirectly on the services provided by healthy ecosystems. These include access to freshwater, clean air, storm protection, and a stable climate. Climate change disrupts these services, affecting the viability of such jobs. For example, increased heat and water scarcity directly reduce productivity and earning potential, especially for those working outdoors without protective infrastructure.

Second, good working conditions require a stable and safe environment—moderate temperatures, clean air, and predictable rainfall. Climate change has made such conditions increasingly rare. Rising temperatures, erratic rainfall, and air pollution make outdoor and manual labour hazardous, especially for informal workers who lack access to regulated workspaces, safety gear, or cooling facilities. These conditions not only reduce their ability to work safely and efficiently but also contribute to the spread of informal and precarious employment, climate-induced migration, and widespread job insecurity.

Finally, the impacts of climate change disproportionately affect already marginalized and vulnerable groups—including women, migrant labourers, tribal communities, people living in poverty, and those with disabilities—many of whom are concentrated in the informal sector. These workers often lack access to healthcare, legal protections, and social safety nets, making them less equipped to cope with climate shocks. As a result, climate change not only threatens livelihoods but also deepens existing social and economic inequalities. Addressing the climate crisis, therefore, must include protecting and empowering informal workers as a central component of climate justice.

Overview of Climate Change Impact on Rajasthan

Rajasthan is highly vulnerable to climate change because of its arid and semi-arid landscape, unpredictable rainfall, and mounting

environmental pressures. Rising temperatures, frequent and prolonged droughts, and worsening water scarcity are making life increasingly difficult for communities that depend on agriculture, livestock, and informal urban jobs. The state has seen a notable increase in average temperatures, with cities like Jaipur, Jodhpur, and Bikaner frequently experiencing extreme heatwaves. In urban areas, the heat island effect has intensified these conditions, placing slum residents and outdoor workers at greater risk of heat-related illnesses and health emergencies.

Unpredictable rainfall patterns in Rajasthan have triggered both droughts and flash floods, resulting in a growing and complex water crisis. While districts like Banswara are facing a sharp drop in rainfall, others such as Jhalawar are experiencing intense downpours that overwhelm drainage systems and lead to frequent urban flooding. At the same time, groundwater levels are steadily declining across the state, threatening access to drinking water and irrigation—especially in already water-scarce cities like Jaipur, Udaipur, and Jodhpur. Rajasthan's heavy reliance on groundwater is proving unsustainable, as over-extraction continues to severely deplete reserves, impacting both rural and urban communities.

The Rajasthan State Action Plan on Climate Change (RSAPCC) identifies the state's specific climate-related risks, vulnerabilities, and impacts, while also presenting opportunities for adaptation and mitigation at both the state and local levels. Risk assessments conducted across state, regional, and district levels reveal a significant and accelerating decline in groundwater levels, particularly in the northeastern districts—pointing to rapid groundwater depletion. Given its arid and semi-arid geography, Rajasthan is especially prone to droughts, and recent analyses indicate a growing number of drought months in many parts of the state. Although future projections suggest a possible increase in water availability in southeastern Rajasthan, most other regions are likely to face either stagnant or declining water availability. This highlights a serious concern over regional water scarcity, which may worsen due to a combination of reduced rainfall and excessive groundwater extraction. As climate patterns in the 21st century show no clear trends, localized and region-specific water management strategies will be essential for building long-term climate resilience in Rajasthan.

Desertification poses a growing threat in Rajasthan, as rising temperatures and unpredictable rainfall are accelerating the spread of the Thar Desert. Reactivated sand dunes are encroaching on fertile land, reducing agricultural productivity and forcing many rural families to migrate in search of work. The state's fragile ecosystem is further strained by biodiversity loss, more frequent forest fires, and habitat destruction—endangering both wildlife and forest-dependent communities. Climate change is also driving a rise in health-related issues, including malnutrition, vector-borne diseases such as dengue and malaria, and respiratory problems linked to deteriorating air quality. These challenges are especially severe for the urban poor living in informal settlements, where inadequate housing, lack of clean water, and limited healthcare access make them highly vulnerable.

Current Vulnerability of Informal Workers in Jaipur

Jaipur city is undergoing rapid urban transformation, driven by continuous construction to meet the rising demands of real estate development. Between 2023 and October 2024, Jaipur recorded the highest real estate price increase among Tier-2 cities, with a 65% rise—from ₹4,240 to ₹6,979 per square foot. This construction boom is heavily dependent on a large informal workforce, primarily composed of migrant workers from within Rajasthan (Ajmer, Bhilwara, Tonk) and other states like Bihar, West Bengal, Madhya Pradesh, and Chhattisgarh. These workers are mainly hired for unskilled or semi-skilled tasks and are typically paid low wages. It is estimated that they make up around 80% of Jaipur's total construction workforce.

Despite the sector's growth, workers face insecure and exploitative conditions. As of March 2022, more than 1.18 crore unorganised workers were registered on the e-SHRAM portal in Rajasthan, with Jaipur being a key contributor. A study from 2014 highlighted that 957 out of 1,000 casual workers in Jaipur lacked any form of employment security, and 988 were not eligible for paid leave. These figures indicate that while the city's expansion creates job opportunities, the informal nature of employment in construction leaves workers without social security, fair wages, or legal protections—making them highly vulnerable, especially under climate stress.

Jaipur's fast-paced urbanisation has also led to the expansion of informal settlements or *kacchi bastis*, populated mainly by rural migrants working in the informal sector. These settlements often lack planned infrastructure, reliable public services, or legal recognition. Residents face poor housing conditions, limited access to clean water, sanitation, healthcare, and are excluded from formal urban development programs. As a result, they remain at the margins of both social protection and climate resilience efforts.

Sanitation Workers: At the Frontline But Overlooked

Sanitation workers, including rag pickers, play a vital role in maintaining public hygiene in Jaipur but face hazardous working conditions. In October 2023, the Rajasthan government approved the recruitment of 11,772 sanitation workers across 187 urban local bodies to strengthen municipal services. However, a study by Chintan Environmental Research and Action Group found that 97% of sanitation workers are exposed to air pollution during work, and 86% show signs of abnormal lung function. Most sanitation workers belong to historically marginalised communities—Scheduled Castes (68.9%), Scheduled Tribes (8.3%), and Other Backward Classes (14.7%).

Many workers continue to be engaged in manual scavenging, despite the practice being banned by law. They often operate without protective equipment, leading to a high risk of infections, respiratory illnesses, and other chronic health problems. The social stigma associated with sanitation work further isolates them from mainstream opportunities, perpetuating cycles of poverty and exclusion. Improving their working conditions, enforcing labour laws, banning hazardous practices, and implementing programs to combat stigma are urgent needs for both health and dignity.

Policy Gaps and Climate Injustice

Rajasthan has formulated a range of policies across sectors such as water, urban development, transport, housing, and environment, many of which acknowledge the importance of sustainability and disaster risk reduction. Notable examples include the Rajasthan Urban Development Policy and the Rajasthan Urban Housing and

Habitat Policy (2017), both of which incorporate references to climate resilience. Similarly, the Rajasthan State Highway Investment Program (2019) integrates a vulnerability assessment related to climate hazards, signalling some recognition of the need to account for climate risks in infrastructure planning.

However, such examples remain the exception rather than the rule. In most state-level policy documents and implementation frameworks, climate change is mentioned in broad, generic terms, without any meaningful focus on the specific, localised risks faced by informal workers, slum residents, or other economically and socially marginalised urban populations. This gap is particularly striking given that district- and city-level studies—including in Jaipur—have already generated detailed evidence on climate vulnerabilities, extreme heat exposure, water scarcity, and flood risks. Yet, this evidence is rarely translated into concrete, worker-centric adaptation or mitigation strategies.

For example, while policies may discuss urban flooding or heat stress in abstract terms, they seldom address how these hazards translate into lost wages for construction workers, heightened disease risks for sanitation workers, or increased unpaid labour burdens for women in water-scarce settlements. The absence of such specificity means that adaptation measures often prioritise physical infrastructure over social infrastructure—leaving occupational safety, income protection, and housing security largely unaddressed.

Given the dynamic and escalating nature of climate change, this policy disconnect carries significant risks. Without regularly updated, disaggregated risk assessments and responsive planning mechanisms that integrate caste, gender, and livelihood dimensions, adaptation efforts will continue to overlook those most affected. Embedding these perspectives into sectoral policies—not just at the state level but in municipal action plans—would make climate resilience strategies more equitable, actionable, and grounded in the lived realities of Rajasthan's urban poor and informal workers.

Organizations of Informal Workers and Their Role in Advancing Climate Justice

Informal worker collectives, unions, and campaigns like groups representing construction workers, sanitation workers, and waste pickers have mobilised for fair wages, safer working conditions, and access to welfare schemes, while national campaigns like those led by the National Hawkers Federation, Self-Employed Women's Association (SEWA), and various sector-specific federations have been pushing for legal recognition, social security, and disaster relief for informal workers. They play a vital role in representing some of the most climate-vulnerable populations, yet they face significant challenges in sustaining their work. Many operate with limited financial resources and rely heavily on voluntary leadership, which constrains their ability to engage consistently with climate policy processes. Membership is often fragmented along sectoral, caste, or gender lines, making it difficult to build unified platforms that can address the shared, cross-cutting impacts of climate change on informal livelihoods. Political recognition remains limited—while some collectives have secured spaces in welfare boards or municipal consultations, their climate-related demands are frequently sidelined in favour of short-term welfare measures or sector-specific grievances.

Structural barriers further weaken their reach. Caste discrimination can affect who feels welcome or safe to participate in union activities, and migrant workers—especially women—often lack the time, documents, or social networks needed to join formal associations. Legal frameworks for informal worker representation are weak, and climate adaptation planning in Rajasthan has yet to systematically involve these organisations, meaning their firsthand knowledge of local vulnerabilities and coping strategies remains underutilised.

Despite these challenges, these collectives are critical actors in advancing climate justice. They connect climate impacts—such as heat stress, flooding, and water scarcity—to broader struggles for safe work, secure housing, fair wages, and social protection. They have the trust and networks needed to mobilise workers quickly in response to extreme weather, and they are uniquely positioned to push for policies that reflect the intersecting realities of caste, gender, and occupation.

By integrating their voices into climate planning and policy, the state could create adaptation strategies that are not only technically sound but also socially just ensuring that those most affected by climate change are at the centre of decision-making.

This research was undertaken with the objective of helping informal workers and their organisations have a better understanding of the impact of climate change on their lines, have an idea of the collective wisdom of informal workers of the road towards climate justice for informal workers, and how that is an essential part of socially and ecologically just futures for all.

Chapter 2

Study Methodology

Scope, Aims and Methodology

The study titled *"Climate Justice for Informal Workers"* seeks to thoroughly examine how extreme weather events are impacting the livelihoods of informal workers in Jaipur city of Rajasthan. The core objective is to systematically document the specific losses and damages endured by this community, whose lives and livelihoods depend on informal labour such as construction, sanitation, and daily wage work. Additionally, the study will identify the key vulnerabilities and adaptation challenges faced by different categories of informal workers

This study aims to provide a deep and holistic understanding of how climate change is influencing not just the physical aspects of informal work, but also the broader socio-economic realities of those involved. Special attention will be given to evaluating how changing weather patterns—particularly increased heatwave and erratic rainfall—are affecting various aspects of their daily lives, including productivity, income levels, occupational safety, health, and access to transportation. Through this lens, the study will offer a critical assessment of both the immediate and long-term implications of climate variability on this vulnerable workforce.

This section describes the methodology used in conducting the study entitled: *"Climate Justice for Informal Workers: An Action Research in Jaipur, Rajasthan."* The study design, sample selection, data collection methods, data analysis, and ethical considerations are discussed in this section.

Study Design

This study adopted a mixed-methods approach, combining quantitative and qualitative data collection strategies. Quantitative data were gathered through a structured questionnaire administered to 402 informal workers. To supplement this, qualitative insights were drawn from in-depth group discussions held with 10 groups of informal

workers, where open-ended questions facilitated the exploration of personal experiences and perceptions. The research focused on documenting environmental changes and the community's adaptive responses to climate change. By integrating these methods, the study was able to collect both supportive and diverse data, offering a well-rounded understanding of the issues examined.

Sample Selection

The sample was selected from informal workers who had faced the effects of climate change while working in Jaipur. The selection process involved a random sample of 402 respondents who were given a detailed and structured questionnaire. The research team conducted 10 group discussions and selected participants based on their experiences with the impact of climate change to ensure diversity in the sample. The sample was drawn from 10 informal settlements in Jaipur City.

The sample selection was designed to ensure the inclusion of a diverse group of informal workers, particularly construction workers, sanitation workers and daily wage workers of Jaipur. This approach enhanced the generalizability of the research findings to the communities involved. As a result, the study produced insights that are relevant and applicable to the broader population of informal workers, providing valuable input for shaping policies and guiding decision-making processes.

Data Collection Methods

Survey Method

A survey method was used to collect the quantitative data from informal workers using a structured questionnaire that was administered to a sample of 402 respondents across 10 urban settlements. It was designed to cover a range of topics, including the impact of climate change on the informal workers, the losses and damages incurred by these workers and their community members and suggestions policies changes. To ensure accuracy and quality of data, the survey was conducted in person through face-to-face interviews. This approach allowed for the collection of detailed and comprehensive data directly from construction workers, sanitation workers, rag pickers and daily wage workers with the opportunity for clarification and/or expansion

on responses if required. The use of a structured questionnaire also ensured consistency and reliability of data across the samples.

Focus Group Discussions

The focus group discussions held with informal workers across ten urban settlements played a vital role in the study. Guided by trained facilitators, these sessions were designed to foster productive and meaningful dialogue. Their primary aim was to capture the lived experiences of informal workers and their communities in relation to climate change, and to uncover the challenges they face. The recommendations presented in the research report were grounded in the key insights drawn from these discussions.

A rigorous data analysis process was employed to accurately identify significant findings and address the research questions. Quantitative data, collected through surveys, were analysed using descriptive statistics such as means and frequencies to identify trends and patterns across variables. Qualitative data, gathered through group discussions and case studies, were analysed using content analysis to uncover recurring themes and insights.

The combination of quantitative and qualitative analyses enabled a well-rounded understanding of the issue. Key findings were then presented using charts and other visual tools to enhance clarity and support effective communication of the results.

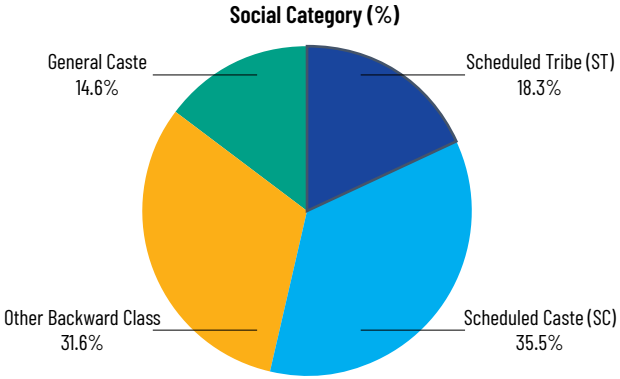
Ethical Considerations

All participants were informed about the nature of the study, their rights to confidentiality and privacy, and their right to withdraw from the study at any time. The research team ensured that the data was kept secure and that the participants were not put at any risk. The research team also obtained the necessary ethical clearance before conducting the study in tandem with the ethical guidelines of ActionAid Association.

Socio-Economic Profile of the Respondents

The social categorization of the surveyed respondents indicates that Scheduled Castes (SC) form the largest segment 35.5% of the

population, followed closely by Other Backward Classes (OBC) at 31.6% as sanitation, construction and daily wage workers in the Jaipur City. The representation of Scheduled Tribes (ST) is lower at 18.3%, while General Caste households account for 14.6%. These findings suggest that historically marginalized communities disproportionately reside in urban slums, reinforcing patterns of socio-economic exclusion. The concentration of Scheduled Castes and Other Backward Classes in informal labour markets aligns with historical patterns of restricted economic mobility and limited access to quality education and healthcare. Consequently, climate change-related adversities disproportionately impact these communities, as they are more likely to be employed in hazardous occupations and reside in vulnerable housing conditions.



The data on occupational distribution among surveyed households indicates a heavy reliance on daily wage labour, with 60.90% of households engaged in informal work. This is followed by construction work, which accounts for 23.06% of the employment share. Domestic work forms 11.03% of the livelihood base, while other occupations such as rickshaw and auto driving (10.03%), waste picking (5.01%), and street vending (5.26%) represent smaller portions of the workforce.

These figures show that the respondents who constitute staggering majorities of working people, are the worst hit. With minimal job security, irregular incomes, very few, if any, employment contracts, unsafe and difficult working conditions and lack of social protections, workers are exposed to high levels of vulnerabilities

Chapter 3

Key Findings

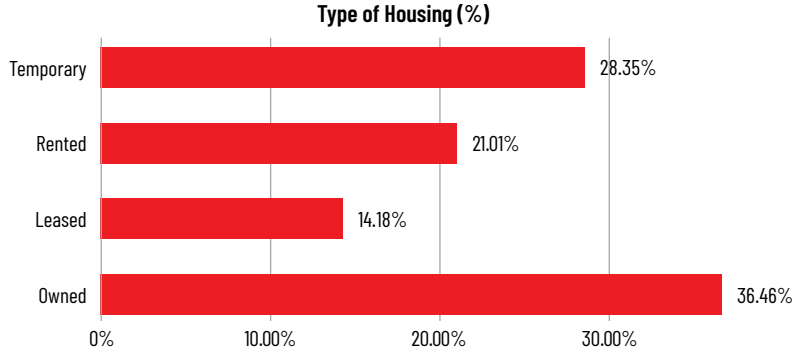
A. Economic Vulnerability and Limited Social Protection

Access to Housing, Water, Sanitation and Hygiene Facilities

Housing

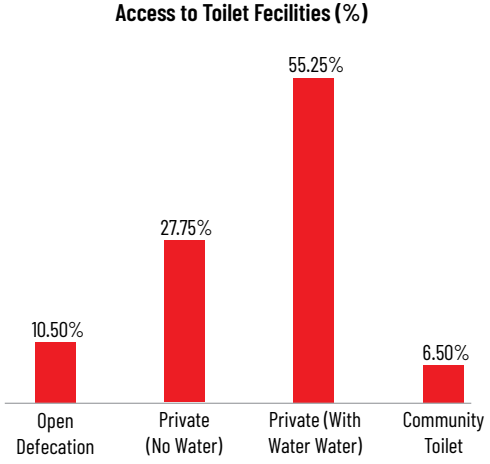
This study categorizes the housing conditions of informal workers in Jaipur into four main types: temporary shelters (such as those located on pavements, near railway tracks, under flyovers, or on public and private land), rented housing, leased housing, and permanent housing. The findings reveal serious structural challenges in the living conditions of informal workers. While 36.46% of surveyed households reported owning their homes, a significant 28.35% live in temporary shelters in informal settlements. These types of dwellings, often found in open or vulnerable urban spaces, are a common choice for workers as they allow them to stay close to their communities. However, these arrangements also come with risks—frequent evictions, lack of legal security, and limited access to essential services like clean water, sanitation, and electricity—further deepening their social and economic vulnerability.

Around 21% of informal workers rent rooms in slum areas, where they face frequent, unregulated rent hikes and have to live with poor infrastructure and basic services. Another 14.18% live in leased accommodations. These housing environments are often located in high-risk areas—such as waterlogged zones, unstable slopes, or poorly ventilated buildings that trap heat—making residents especially vulnerable to climate-related hazards. Floods, storms, landslides, and heatwaves pose serious threats, as the construction quality in these settlements is usually weak. Homes are easily damaged or destroyed during extreme weather events, leading to displacement and loss of belongings. With little or no savings, and without access to insurance or other financial support, informal workers struggle to recover. These repeated setbacks push families deeper into poverty and make it harder for them to rebuild their lives after each disaster.



Sanitation

The lack of dignified housing for informal workers is made worse by inadequate access to clean water, sanitation, and hygiene (WASH) facilities. Although public toilets have been installed under various urban schemes, they are often insufficient in densely populated areas. For many low-paid informal workers, even when facilities are available, the cost of using them can be a barrier. Women and girls are especially affected by poor sanitation conditions, facing greater risks of harassment, insecurity, and sexual abuse due to the lack of safe and private facilities.



Sanitation Access Among Informal Workers

The survey found that 89.5% of informal workers had access to some form of sanitation facility, including toilets and bathrooms. These facilities were either private or shared. Around 83% of workers used private toilets, but conditions varied—27.75% of these did not have running water and required users to carry water, while 55.25% had access to water within or near their living spaces. About 6.5% of workers relied on community toilets. However, 10.5% of informal workers—mainly rag pickers—still practiced open defecation, highlighting critical gaps in access to basic sanitation.

Water Access

Survey findings revealed that 4.9% of homeowners had installed borewells at their own expense to meet water needs. A majority—about 60.35%—relied on private taps and stored water in large containers. Another 12.47% of respondents used water from private tankers, which was typically untreated and unfiltered, raising concerns about water quality. Around 15.7% depended on community taps for drinking and household use.

Among migrant families, the responsibility for collecting and storing water fell mostly on women. While men and children did contribute, women shared that they were primarily expected to manage water collection. In many informal settlements and open spaces, women reported waking up as early as 4:30 a.m. daily to collect water, access sanitation facilities, and prepare meals—often resulting in workdays extending up to 17 hours.

Electricity Access

Survey data revealed that 90% of informal workers had access to electricity. In most cases, the cost of electricity was either included in their rent or paid separately—either directly to the landlord or by the residents themselves, especially for those who owned their homes. The majority of the study locations were connected to electricity through private service providers. However, 10.5% of the workers—primarily waste pickers—still lacked access to electricity, highlighting a critical gap in basic services for the most marginalized.

"In our basti, we live in darkness once the sun goes down," says Jumma Devi, 45, a waste picker from Madaram Pura near Muhana Mandi. "There's no electricity, so in the summer heat it feels like we are trapped inside a burning box. We sit outside under the streetlight far away, just to catch a little air. People talk about development, but we are still waiting for the first light bulb in our homes."

Access to clean water, proper sanitation, and hygiene (WASH) facilities remains extremely limited—or entirely unavailable—for many informal workers, especially those living in slums or working on the streets. This lack of basic services increases their risk of illness, as rising temperatures and water scarcity contribute to the spread of waterborne and vector-borne diseases such as cholera, dengue, and diarrhoea. Without dependable access to clean water, maintaining basic hygiene becomes a major challenge, particularly during heatwaves or other climate-related events. In times of disaster, WASH infrastructure is often the first to fail, intensifying public health crises. Poor health not only affects workers' well-being but also reduces their productivity and ability to earn a livelihood. This economic instability leaves them with little capacity to cope with or adapt to the escalating effects of climate change.

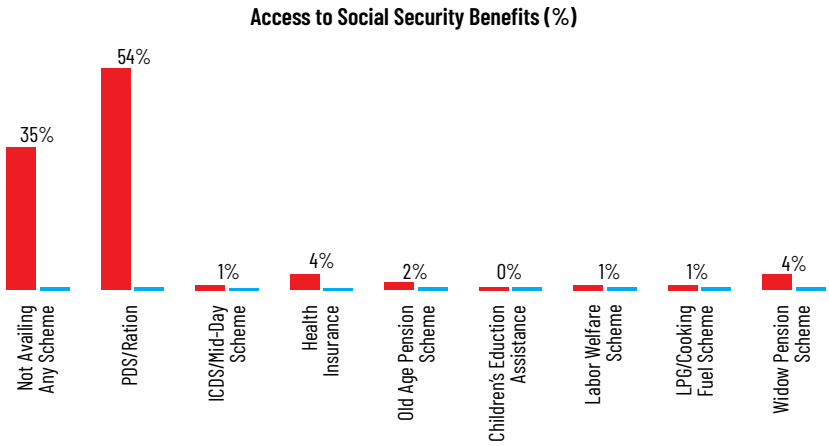
The challenges faced by informal workers are deeply interconnected and compounding. They often deal with unpredictable incomes, lack of social protection, inadequate living conditions, and high exposure to environmental risks—all at the same time. These overlapping stressors significantly reduce their ability to adapt to climate change. With limited resources, informal workers are often unable to invest in more resilient housing or better sanitation, leaving them increasingly vulnerable to every new climate-related event. Each disaster not only damages their immediate environment but also erodes their already limited capacity to cope, creating a cycle of deepening vulnerability.

In Girdharipura Block B, Shanti Devi, 55, wades through knee-deep sewage after every rain. "We have given written complaints, but nothing changes. The water stays for days, and children fall sick. They say it's because the drains are old, but they've been old for twenty years—how much older must they get before they are fixed?"

Access to Social Protection Schemes

The data reveals major gaps in social security coverage for informal workers. Although 54% of households receive support through the Public Distribution System (PDS), a significant 34.75% of respondents reported not accessing any government welfare schemes. Participation in key programs remains extremely low—only 3.5% are covered under health insurance, 8.23% receive widow pensions, and just 7.73% benefit from LPG subsidy schemes. These figures suggest persistent barriers such as lack of awareness, documentation challenges, or exclusion from eligibility criteria, leaving many informal workers without essential support.

Spending on food is alarmingly high among various groups of informal workers in Jaipur, especially those living in open spaces. Among them, family-based Denotified Tribe (DNT) waste pickers spend an average of 53% of their monthly income on food. They typically buy essentials such as wheat, oil, spices, and vegetables from local shopkeepers, spending around ₹2,000 per week. This high expenditure is partly due to their low and unstable incomes, especially when compared to skilled workers and other caste or occupational groups. Similarly, informal workers living in rented accommodations—particularly those from Scheduled Tribes (ST), Scheduled Castes (SC), and some Other Backward Classes (OBC) working in construction—spend about 49% of



their monthly income on food. These workers often rely on the same local shopkeepers not just for daily rations, but also for informal credit and other forms of support, such as help with police interactions or access to phone charging, making these shopkeepers a vital part of their everyday survival network.

Healthcare

Construction and sanitation workers often operate in hazardous environments, while also facing inadequate nutrition and irregular access to clean drinking water and sanitation facilities. These conditions put their health at constant risk.

Kamal Valmiki, 32, works in the choking, dangerous sewers of Shastri Nagar's 66 Quarters. "Every day I go down into the filth without any safety gear. I know it's risky, but what else will feed my children? I get sick often, but taking a day off means losing a day's wage. No one sees what we go through—only when someone dies, there's a little noise, and then silence again."

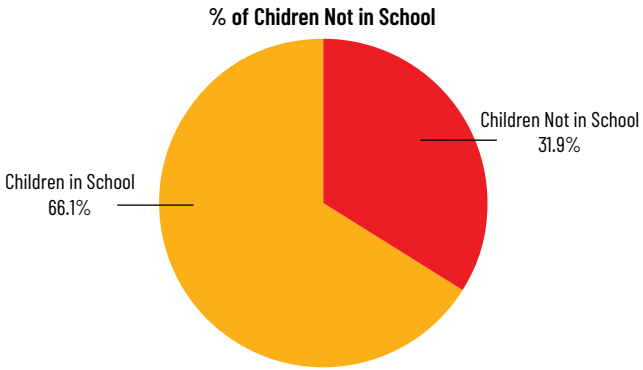
Moreover, due to the lack of accountability from both the state and employers, worksite accidents are frequent—especially in sectors like construction, factories, and handloading. Despite being exposed to serious health risks, only 4% of the surveyed workers reported having any form of health insurance. The majority remain unprotected against a wide range of illnesses and injuries, including falls at worksites and burns or cuts caused by old or faulty machinery.

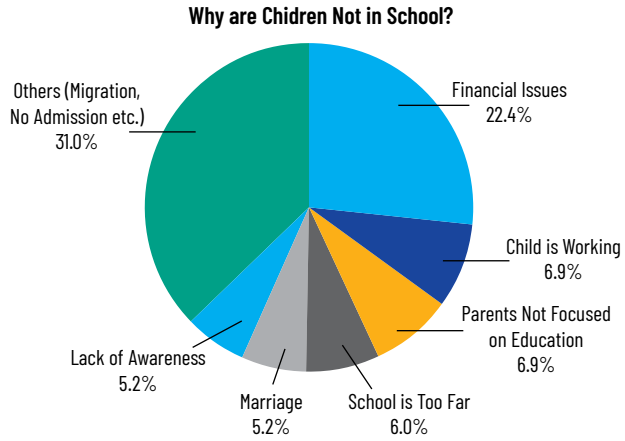
Education of Children of Informal Workers

The survey revealed that 30.9 percent of these children do not attend any form of school. Among them, 6.9 percent are engaged in informal work such as stone sticking, waste picking, and bangle making to support their family income. Additionally, 6.0 percent of informal workers cited the absence of government schools in their vicinity as a major barrier to accessing education. Another 6.0 percent of children have dropped out of school due to financial hardships faced by their families.

Furthermore, migrant workers reported that the lack of proper identity and residence documents acts as a major barrier in admitting their children to government schools. Without these documents, children are often denied enrolment, leaving them with limited opportunities for formal education and pushing them towards labour or remaining out of school entirely.

Sonu, 35, a migrant woman worker from Baba Ramdev Nagar, Gujjar Ki Thadi, shared that her son was denied admission because they lack the necessary documents. Despite working daily wage jobs, she cannot arrange the required papers. "They say education is a right—then why is it locked behind paperwork we cannot get?"





B. Poverty, Debt, and Financial Exclusion

Income distribution data paints a stark picture of the financial fragility within Jaipur's slum households. An overwhelming 76.33% of families subsist on monthly incomes between ₹5,000 and ₹15,000, while nearly one in ten (8.82%) survive on less than ₹5,000 a month. At these income levels, even basic necessities such as nutritious food, quality healthcare, secure housing, and education for children become difficult to afford, leaving families trapped in a cycle of poverty with little capacity to cope with unexpected expenses or climate-related disruptions.

Debt is widespread and often substantial—64.46% of households are indebted, with nearly half (44.34%) carrying loans exceeding ₹20,000. The largest share of borrowing (38.17%) is for house construction or repair, reflecting how inadequate and climate-vulnerable housing forces families into long-term financial strain. Other significant debt drivers include healthcare costs (12.03%), which can spike during heatwaves or disease outbreaks, and marriage-related expenses (10.37%), which place additional social and cultural pressure on already stretched budgets.

The nature of borrowing underscores a pattern of financial exclusion. More than half (53%) of all loans are accessed through informal channels—friends and relatives (13.18%) or moneylenders (12.69%)—where interest rates are often high and repayment conditions precarious. By contrast, only 2.74% of loans come from banks, revealing the barriers slum residents face in meeting collateral requirements, navigating bureaucratic processes, or establishing formal credit histories. This exclusion from affordable, formal credit systems limits opportunities for households to invest in income-generating assets, diversify livelihoods, or recover from economic shocks—whether caused by illness, job loss, or climate events such as floods and heatwaves.

Patterns of asset ownership further illustrate the precariousness of life in these settlements. While mobile phone ownership is nearly universal (97.97%), enabling basic communication and some access to digital information, other amenities are far less common. Only 64.47%

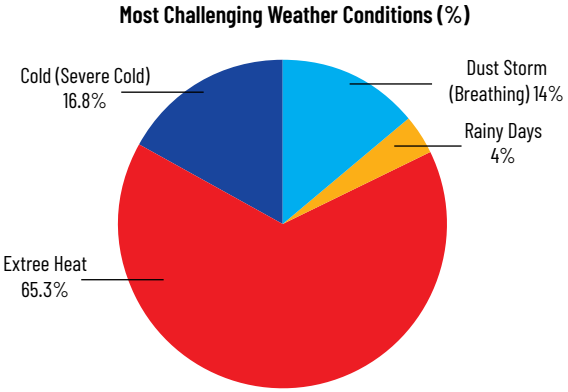
of households own a television, and just 38.07% have a refrigerator, limiting food preservation in extreme heat. Motorcycles or scooters are owned by 39.59% of households, but only 2.28% have air conditioners—highlighting the unaffordability of effective cooling solutions in a city increasingly experiencing dangerous summer temperatures. Car ownership is almost negligible (0.25%), reflecting the narrow economic base of these communities.

Taken together, these patterns reveal a reality where low and unstable incomes, high debt burdens, and exclusion from formal finance combine to keep slum households on the edge of economic survival. This financial instability not only constrains their ability to adapt to climate change but actively deepens their vulnerability—limiting investment in resilient housing, emergency savings, and protective assets. Without targeted interventions to expand access to affordable credit, improve housing security, and strengthen income stability, these households will remain highly exposed to both everyday hardships and the intensifying risks of climate change.

C. Impact of Climate Change

Impact of heat wave on life and livelihood

This study examines the responses of informal workers—including construction workers, sanitation workers, waste pickers, and daily wage earners—to understand how climate change is impacting their lives and livelihoods. Respondents shared a range of experiences, revealing that climate change has had significant and multifaceted effects on their work. Among the various climate-related challenges, extreme weather events emerged as the most prominent threat. Extreme heat was reported as the most severe issue, cited by 65.3% of respondents, indicating that high temperatures pose a serious and widespread hardship. This was followed by extreme cold, mentioned by 16.8% of workers, highlighting that cold weather—while problematic—affects fewer people compared to heat. Dust storms were identified by 14.0% of respondents, raising concerns about worsening air quality and respiratory risks. Overall, the data shows that extreme heat, cold, and dust storms are the most pressing climate-related challenges, with heatwaves standing out as the most dominant and distressing factor for informal workers.



This finding is consistent with long-term data showing that over the past decade, more than 88% of respondents have experienced a rise in maximum daily temperatures, more frequent extreme heat days, and longer hot seasons. These rising temperatures are not just uncomfortable—they pose serious health risks, especially for informal workers who often live in poorly insulated homes without cooling systems or reliable electricity. Prolonged exposure to extreme heat has led to cases of heat exhaustion, dehydration, and even increased mortality, particularly among vulnerable groups like the elderly and children.

For some, the heat kills without warning. Nenuram, 55, from Baba Ramdev Nagar, is no longer alive to tell his story, but his wife recalls: *"He came home from work dizzy, saying the sun was burning his chest. Before we could reach the hospital, he stopped breathing. They called it dehydration. I call it being worked to death in 50 degrees, with no water breaks, no shade."*

Loss of Labour Hours due to extreme weather events

Extreme weather events—such as heatwaves, heavy rainfall, and intense temperature fluctuations—significantly reduce the productivity and efficiency of informal workers, especially those in physically demanding jobs like rickshaw pulling, construction, and street vending. The study shows that the most common duration of work loss due to climate events is between 31 to 60 days, affecting 27% of respondents. This

means that a large share of informal workers lose about one to two months of work annually because of extreme weather. The next most reported category is 21 to 30 days of lost work, accounting for 19%. Shorter-term disruptions lasting 1–10 days and longer ones lasting 61–90 days each account for 18% of the cases, while losses of 11–20 days affect 15% of workers.

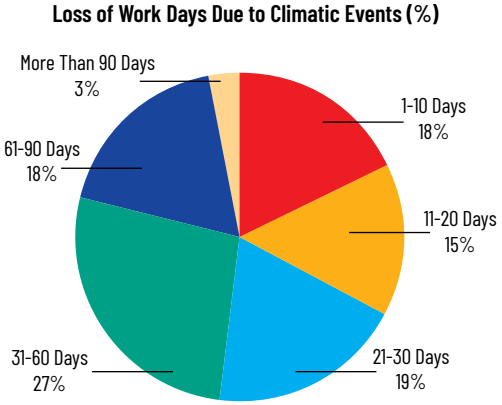
Overall, medium-term disruptions—lasting 21 to 60 days—are the most frequent, representing nearly half (46%) of all reported cases. Short-term losses (1 to 20 days) are also significant, making up one-third (33%) of total cases. While long-term work losses (over 60 days) are less common, they still account for more than one-fifth (21%) of the total.

Compounding these losses is the widespread problem of wage theft—where workers are denied payment for completed work, face unexplained deductions, or experience delayed wages.

Jamna Rawat, 48, from Gurjar ki Thadi, describes life in a crowded labour settlement. "There are so many of us here, all working as daily labourers. We wake up before sunrise to find work, but sometimes the contractor cheats us—says the payment will come later, and then it never does. If we protest, we don't get called again."

For many informal workers, extreme weather does not just mean fewer working days; it also creates power imbalances that make them more vulnerable to exploitation. Employers, citing climate-related disruptions, may refuse to pay for partial workdays, cancel agreed-upon shifts without compensation, or delay payments indefinitely. This double blow—loss of labour hours and loss of wages—intensifies household insecurity, forcing workers into debt or pushing them to accept unsafe and exploitative work conditions.

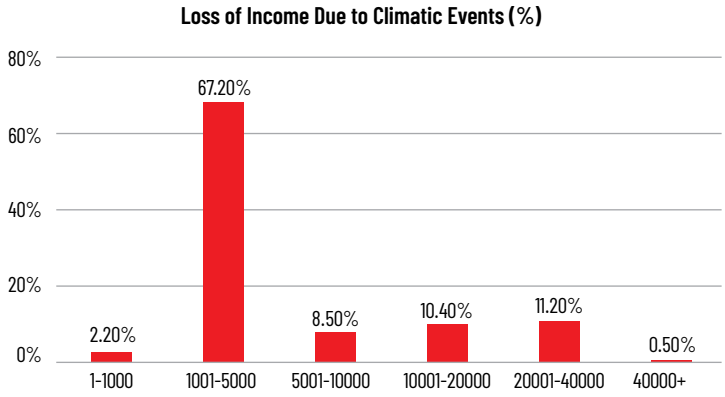
These patterns underscore the urgent need for contingency planning, legal safeguards, and social protection measures that account not only for climate-related interruptions lasting one to two months but also for the heightened risk of wage theft during such periods. Risk mitigation strategies must focus on building resilience to these moderate-term



disruptions while ensuring that workers' rights to timely and fair payment are upheld. Without addressing both income loss and wage theft, climate shocks will continue to deepen existing social and economic inequalities, particularly among already marginalised communities.

Loss of income due to climatic events

The most striking finding is that workers earning between ₹1,001 and ₹5,000 account for 67.2% of reported income losses, indicating that this group is especially vulnerable to climate disruptions. In contrast, income brackets such as ₹5,001–₹10,000 (8.5%) and ₹10,001–₹20,000

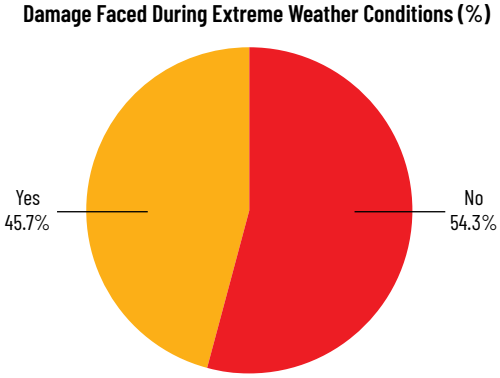


(10.4%) show considerably lower, yet relatively similar, levels of impact. This pattern highlights that lower-middle-income workers are disproportionately affected by climate-related income shocks, whereas those earning above ₹40,000 experience minimal financial disruption—likely due to better access to savings, insurance, or diversified income sources. These insights point to the urgent need for climate resilience policies that specifically target low- and lower-middle-income groups through measures like income protection, insurance schemes, disaster relief, and improved infrastructure.

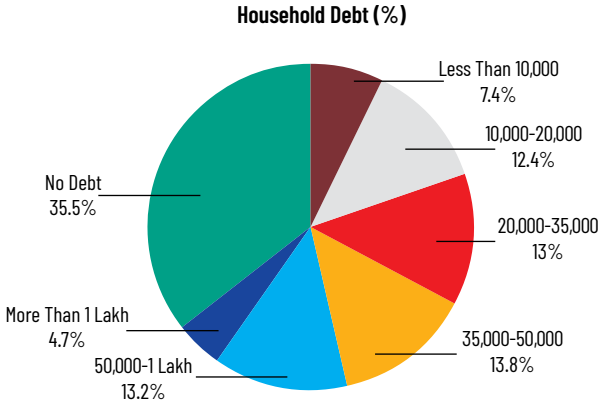
Climate events-Induced Economic Burden on workers

The data highlights the harsh impact of climate-related events on households in Jaipur's urban slums. Almost half of the respondents (45.68%) reported damage to their homes due to extreme weather, indicating that such events are not rare but a recurring threat for vulnerable communities. Among those affected, 62.33% experienced partial damage, while a troubling 32.29% reported complete destruction—mainly in homes constructed with plastic sheets or tarpaulin. These findings underscore the acute vulnerability of slum dwellers living in fragile, temporary shelters that offer little protection against the growing intensity of climate events

The financial strain of rebuilding after climate-related damage adds another layer of hardship for affected families. Most respondents



who spent on reconstruction reported moderate expenses between ₹10,000 and ₹50,000, indicating that small-scale repairs were the most common. However, 13.2% of respondents faced much higher costs—over ₹50,000—with some even spending more than ₹1,00,000, pointing to cases of severe or total destruction. For informal workers with little financial security, such expenses are a major burden. These high costs often force families into debt or leave them living in unsafe and unstable conditions for extended periods, deepening their vulnerability to future climate events.



Escalating Costs and the Burden of Debt

Extreme weather events significantly increase household expenses, with 83.8% of respondents reporting a rise in food costs and 60.7% facing higher healthcare expenses. To cope with these financial pressures, 61.34% of respondents were forced to borrow money after experiencing a disaster. Most of this borrowing came from informal sources—17.16% turned to traditional moneylenders and 14.93% to friends or relatives—highlighting limited access to formal financial systems. Only 2.24% were able to secure loans from banks, revealing major barriers to institutional credit.

The reasons for borrowing reflect the severity of the crisis. About 24% of loans were used for house repairs or reconstruction, showing widespread structural damage from climate-related events.

Mukesh Kumar, 37, a welder from Sitaram Nagar, speaks of debt as a shadow that never leaves. *"When the roof of my house started leaking, I had to borrow money. I thought I'd repay it in a few months, but the rains kept coming and the work was irregular. Now the interest grows faster than my earnings. It feels like we work only to pay the lender."*

Another 11.5% borrowed to cover medical expenses, and 8.5% needed loans just to afford basic daily necessities. Together, this data reveals how climate disasters not only damage homes and health but also push vulnerable families deeper into financial hardship, making long-term recovery even more difficult.

Food and Health Insecurity

Over half of the respondents (55.89%) reported having to reduce their food intake due to financial stress, pointing to a growing crisis of food insecurity among informal workers. Particularly concerning is the impact on infants—50.69% of households stated that their children's nutrition had suffered. This highlights a serious risk of malnutrition and long-term health complications for children in these vulnerable families.

Healthcare access is also deeply affected. Nearly three-quarters of respondents (74.39%) said their ability to purchase necessary medication had been compromised. Climate-related disasters, combined with limited healthcare infrastructure and rising medical costs, are worsening existing vulnerabilities and increasing the risk of illness and mortality in already marginalized communities.

Lada Devi, 65, from Baba Ramdev Nagar, knows the cruelty of falling sick without savings. *"When my husband got ill, there was no help—no hospital that would treat us for free, no scheme that came to our door. I had to borrow from neighbours and moneylenders. I still owe money. They say the government has relief schemes, but for us, they are just words."*

The data also suggests that climate change is shifting seasonal labor patterns, with 41% of respondents indicating that their children missed school due to weather-related disruptions. This demonstrates how environmental instability is contributing to an intergenerational cycle of

economic hardship and lost educational opportunities.

Water Scarcity and Gendered Burdens

Water scarcity is a growing concern in Jaipur's urban slums, with 45.48% of respondents reporting an increase in the time required to fetch water. Women shoulder most of this burden, as 75.44% of households indicated that female members are primarily responsible for water collection. Climate change is worsening the situation—extreme heatwaves and rising population pressures are increasing demand, while unreliable supply systems and distant water sources compound the daily hardship.

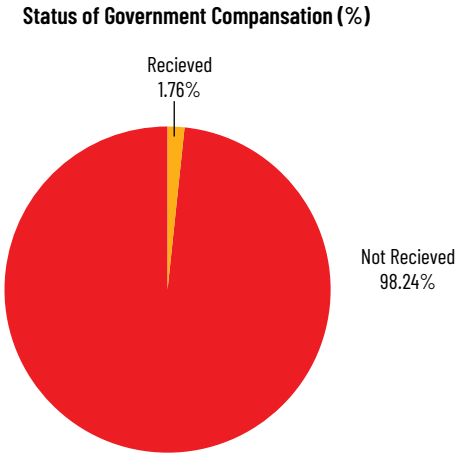
The burden on women intensifies during floods and waterlogging, when caregiving responsibilities multiply—nursing sick children, caring for the elderly, and managing household sanitation in unsafe and unhygienic conditions. Menstruating women face heightened challenges due to inadequate privacy, poor sanitation facilities, and disrupted access to clean water, while pregnant women are disproportionately affected by the physical strain of fetching water and navigating flooded or unsafe terrain.

Despite these hardships, women are not only passive sufferers but active problem-solvers. Many adopt coping strategies such as pooling resources with neighbours, creating informal water-sharing networks, storing rainwater, or coordinating collective water-fetching schedules. However, these women-led strategies often go unrecognised in formal policy or programme design, leaving their contributions invisible in official narratives.

Manju Rana, 36, from Baba Ramdev Nagar, has learnt to fight nature's wrath with small acts. *"When we hear of a storm or flood, we tie up our things high, collect drinking water, and prepare food in advance. We've learned this ourselves—no one taught us. We survive because we look out for each other."*

Government Support

The most striking finding is the glaring inadequacy of government support—only 1.76% of respondents (6 individuals) reported receiving any compensation, while an overwhelming 98.24% (335 individuals) did not. This significant gap between the incidence of damage and the distribution of relief highlights systemic inefficiencies in government aid mechanisms, leaving the vast majority of affected households to cope on their own.



Causes of Climate-Related Problems in the Region

Survey respondents identified several key contributors to climate-related challenges in Jaipur's urban slums. Among these, deforestation emerged as the most significant factor, with 28.18% of respondents citing it as a major concern. The rapid pace of urban expansion has led to the widespread loss of tree cover, which not only affects air quality but also reduces the environment's natural resilience to climate extremes. Trees play a vital role in regulating temperature, preventing soil erosion, and sustaining the water cycle. Their removal severely disrupts the ecological balance in urban areas.

In Jhalana Doongri, Ramswaroop Mahawar, 45, mourns the forest that once shielded his basti. *"When I was a boy, the trees kept the summers*

cooler and the rains steady. Now, it's just heat and dust. We lose work days because it's too hot, but the contractor still cuts our pay."

Another major concern highlighted by respondents was poor waste management, cited by 19.20% of participants. Inadequate systems for waste collection and disposal lead to widespread littering, pollution, and the spread of disease. Additionally, overpopulation—identified by 16.96% of respondents—intensifies the pressure on already limited resources and infrastructure, accelerating environmental degradation. High population densities in slums make it more difficult to implement sustainable practices and often result in overcrowded, unhygienic living conditions, further increasing community vulnerability to the impacts of climate change.

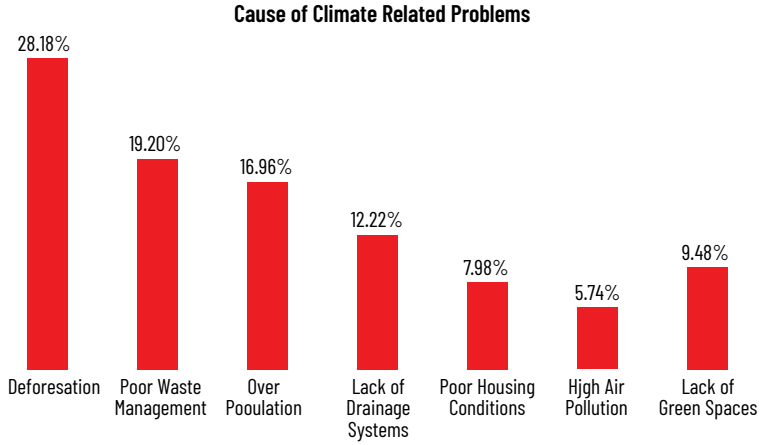
Mobina, 38, from Baba Ramdev Nagar, walks through piles of garbage every day to collect waste. *"We live in the filth we pick. The smell, the flies, the sickness—it's all part of life here. They send trucks to clean other colonies, but here, we are invisible."*

The survey also highlighted the absence of proper drainage systems (12.22%) and substandard housing conditions (7.98%) as major concerns in Jaipur's urban slums. Without effective drainage, even light to moderate rainfall can result in waterlogging and flooding, damaging homes, spreading disease, and disrupting daily routines. In addition, poorly built houses offer little protection against extreme weather such as heatwaves, heavy rains, or storms, putting residents at constant risk. These findings emphasize the urgent need for climate-resilient infrastructure to reduce the impact of environmental hazards.

Other key issues identified by respondents include high levels of air pollution (5.74%) and a lack of green spaces (9.48%). Air pollution—caused by vehicle emissions, industrial activity, and open waste burning—contributes to widespread respiratory problems and lowers the overall quality of life. The shortage of green areas means communities have limited access to natural cooling, recreational space, and mental well-being benefits. This lack further compounds the harsh living conditions in already vulnerable settlements.

Gulab Kanwar, 50, from Crusher Basti, sums up the slow violence of environmental loss. *"We had trees once, and shade. Now there's only concrete and dust. The heat burns our skin, and the air feels heavy. We work because we must, but every summer feels longer and harder to survive."*

Together, these findings point to the critical need for integrated urban planning that prioritizes sustainable infrastructure, effective waste management, and the restoration of green cover. Addressing these structural issues is essential for protecting public health and improving the climate resilience of Jaipur's low-income urban communities.



Lack of Preparedness and Systemic Barriers

A large portion of respondents (43.41%) reported that they were unprepared for future climate-related disasters. The reasons for this lack of preparedness are closely tied to deep-rooted socio-economic challenges. Economic instability was identified as the most critical barrier by 35% of respondents—many families lack savings or steady incomes, making it difficult to invest in disaster-proof housing or emergency supplies. Another 25% pointed to inadequate infrastructure, which leaves communities especially vulnerable during extreme weather events. Additionally, 15% of respondents cited a lack of awareness and disaster preparedness training, limiting their ability to take preventive action.

Only 5% expressed any expectation of government support, indicating a growing sense of self-reliance; however, without access to proper resources, self-preparation remains out of reach for many.

D. Intersecting Inequalities: Caste, Gender, and Climate Risk

Climate change is deepening pre-existing social hierarchies in Jaipur's urban informal sector, where caste and gender significantly shape exposure to risk, access to resources, and the likelihood of being excluded from relief and policy benefits.

Caste-linked Vulnerabilities and Exclusion

The survey data reveals that Scheduled Castes (SC) and Other Backward Classes (OBC) together make up over two-thirds of Jaipur's informal worker population, with Scheduled Tribes (ST) forming another significant share. This demographic distribution is not accidental—it reflects a long history of occupational segregation, systemic exclusion from formal sector opportunities, and limited access to land, education, and social mobility. Historically marginalised communities are overrepresented in some of the most hazardous and climate-exposed occupations, including sanitation work, construction labour, and waste picking. These jobs not only lack legal protections such as written contracts, paid leave, or workplace insurance, but also require prolonged exposure to extreme outdoor conditions without safety measures.

Sanitation work is particularly revealing of this caste-climate intersection. An overwhelming 68.9% of sanitation workers in the survey are from SC households, a pattern rooted in caste-based occupational assignments. They often clean sewers, drains, and streets without protective gear, placing them in direct contact with toxic waste, pathogens, and floodwater during the monsoon season. In heatwaves, the lack of shade, drinking water, and rest breaks creates additional health risks such as dehydration, heatstroke, and long-term respiratory illnesses. The social stigma attached to sanitation and waste work reinforces their exclusion from alternative livelihoods, trapping families across generations in the same climate-vulnerable occupations.

Housing insecurity compounds this vulnerability. Many SC, OBC, and ST workers live in informal settlements located in low-lying flood-prone areas, near open drains, or in poorly ventilated structures that trap heat. These locations are often the first to be affected by extreme weather events, and the last to receive relief or infrastructure upgrades. Limited political representation and discrimination in service delivery mean that even when schemes exist—such as urban housing projects or slum redevelopment—colonies with high concentrations of SC/ST residents are often overlooked, underfunded, or deprioritised.

Current policy frameworks and urban climate resilience plans tend to treat "informal workers" as a homogenous category, without acknowledging how caste stratification shapes differential access to resources, relief, and recovery. For example, housing schemes rarely prioritise upgrading settlements predominantly inhabited by SC/ST workers, even though these areas face the most severe drainage failures, chronic waterlogging, and heat stress. In the absence of caste-sensitive targeting, adaptation efforts risk reproducing existing inequalities—protecting better-off communities first, while leaving historically marginalised groups to bear the brunt of both environmental hazards and social exclusion.

Gendered Dimensions of Vulnerabilities and Exclusion

Women in informal settlements bear a disproportionate share of climate-related burdens, which intersect across health, housing, debt, and unpaid care work, amplifying existing gender inequalities. These burdens are not just the by-products of climate change—they are the result of structural gaps in urban planning, labour protections, and social policy that fail to account for the specific needs and roles of women in low-income communities.

In health, extreme heat, poor sanitation, and water scarcity create heightened risks for menstruating and pregnant women. Without access to private, safe, and hygienic facilities, menstrual hygiene management becomes particularly challenging during heatwaves or floods, leading to discomfort, infections, and absenteeism from work. Pregnant women often have to fetch water or walk long distances to reach work in high temperatures, increasing risks of dehydration, miscarriage, and other complications. For women sanitation workers—many of whom belong

to historically marginalised castes—the absence of gender-segregated toilets at worksites forces them to choose between compromising their dignity or avoiding fluid intake altogether to limit toilet use, which in turn worsens health risks during long shifts in the heat.

Housing insecurity compounds these risks. Women-headed households, often without formal property rights or official documents, face significant barriers in accessing post-disaster housing relief or loans for home repairs. Even when compensation schemes exist, patriarchal inheritance norms and male-dominated local governance structures mean that claims made by women are more likely to be delayed or rejected. During floods, women not only lose material possessions but also bear the unpaid labour of cleaning homes, salvaging goods, and managing household sanitation in unsafe conditions—while also caring for sick children, elderly relatives, or disabled family members. This "invisible labour" is rarely accounted for in damage assessments or disaster recovery planning, effectively erasing the scale of women's contributions from official records.

Debt adds another layer of gendered vulnerability. Women in daily wage work—particularly those in domestic labour, waste picking, or home-based piece work—are often paid less than men and have fewer savings. When extreme weather damages homes or disrupts earnings, they frequently resort to high-interest informal loans to cover medical expenses, house repairs, or basic needs. Unlike men, women are less likely to secure bank loans due to lack of collateral, limited mobility, and discriminatory lending norms, locking them into cycles of debt dependency on local moneylenders.

Water scarcity illustrates the starkest gender divide. Survey data shows that in 75.44% of households, women are primarily responsible for fetching water—a role that climate change has made more physically demanding and time-consuming. Heatwaves dry up nearby sources, forcing women to walk farther, often during early morning hours or late at night to avoid the heat, while floods increase demand for water for cleaning, cooking, and sanitation. These tasks, combined with caregiving duties, can stretch women's workdays to 15–17 hours, much of it unpaid.

Despite these heavy responsibilities, women are also at the forefront of adaptation and resilience. They organise neighbourhood water-sharing networks, store rainwater in makeshift tanks, and coordinate collective collection schedules to reduce the time and energy spent fetching water. They also develop early-warning systems within their communities—such as monitoring weather alerts or pooling resources ahead of a flood. Yet, these women-led coping mechanisms are rarely acknowledged in policy frameworks, meaning they receive neither financial support nor formal recognition. The absence of gender-responsive planning not only undervalues women's labour but also wastes an opportunity to scale up proven, community-led climate adaptation practices.

If climate justice in Jaipur is to be meaningful, it must move beyond treating women as a vulnerable category and instead position them as central actors in adaptation and resilience building. This requires targeted investments in gender-segregated sanitation facilities, maternity and menstrual health support, debt relief mechanisms for women informal workers, and recognition of women's community-based strategies in official climate action plans

Policy Failures in Addressing Intersecting Risks

Current policy responses in Rajasthan tend to treat "informal workers" as a single, homogenous category, without recognising how the intersecting realities of caste, gender, and migration status shape both vulnerability and access to benefits. This flattening of diverse experiences obscures the fact that certain groups—particularly Dalits, Adivasis, and migrant women—face systemic barriers that leave them less able to adapt to or recover from climate shocks.

Relief delivery, for example, is often mediated through local political actors, ward committees, or community leaders who may be influenced by entrenched caste hierarchies. In such systems, Dalit and Adivasi communities can be deprioritised or excluded altogether, even when they live in the most climate-exposed areas. Documentation requirements create another exclusionary barrier: migrant women, in particular, frequently lack proof of residence or land titles due to their mobility, informal housing arrangements, or patriarchal property

norms. Without these documents, they are automatically disqualified from housing schemes, disaster compensation, or social protection programs—no matter how urgent their need.

Occupational safety measures also fail to reflect the specific needs of women in hazardous, caste-bound jobs such as sanitation work, waste picking, or construction. Policies rarely require gender-segregated toilets at worksites, menstrual hygiene facilities, or personal protective equipment designed for women's bodies. This absence not only undermines women's health and dignity but can also reduce their earning capacity during peak climate stress periods, when these facilities are most needed.

A truly inclusive climate justice framework must embed caste-responsive housing and infrastructure upgrades that prioritise SC/ST-dominated settlements for improved drainage, heat-resilient housing, flood protection, and accessible public spaces, with all interventions planned in consultation with residents to address specific local vulnerabilities. It must also ensure gender-responsive occupational safety through measures such as mandatory menstrual hygiene facilities, access to safe drinking water, shaded rest areas, protective gear designed for women, and affordable childcare at or near worksites—especially during heatwaves or flood seasons. Expanding debt relief and affordable credit access tailored for women informal workers and caste-marginalised households is equally critical, particularly after climate disasters when reliance on high-interest informal loans pushes families deeper into poverty; this should include simplified loan processes and reduced collateral requirements. Finally, women's community-led adaptation strategies—such as water-sharing networks, flood preparedness groups, and neighbourhood clean-up systems—must be formally recognised and resourced in official climate action plans, with funding and technical support to scale their impact.

Applying both caste and gender lenses to climate vulnerability shifts the focus from surface-level hazard management to the deeper, structural inequities that determine who suffers most and who recovers fastest. It also reframes adaptation as a social justice project, where building resilience means dismantling the power imbalances that have

historically left Dalit, Adivasi, and women informal workers on the frontlines of risk without the tools to protect themselves. Without this intersectional approach, climate policy in Rajasthan risks reinforcing the very inequalities it seeks to address, delivering protection to those already better off while leaving the most marginalised to weather the storm alone.

Chapter 4

Conclusion and Key Recommendations

The survey and focus group discussions reveal that informal workers in Jaipur are living at the sharpest edge of the climate crisis. Their vulnerability is not accidental; it is shaped by the intersection of insecure housing, fragile urban infrastructure, and the near absence of social protection. Many workers live in temporary shelters or informal settlements located in areas most exposed to climate risks—low-lying flood-prone neighbourhoods, heat-trapping urban corridors, or poorly serviced urban peripheries. When extreme weather strikes—whether in the form of prolonged heatwaves, sudden storms, dust storms, or urban flooding—it is these fragile homes that collapse first and these precarious livelihoods that are disrupted most severely, pushing already vulnerable families deeper into cycles of loss and uncertainty.

Survey findings further reveal that climate change is already reshaping the everyday realities of work. Respondents described rising temperatures, erratic rainfall, and increasingly unpredictable weather patterns that directly disrupt their livelihoods. Many reported working under unbearable heat that reduces their capacity to work full hours and directly cuts into their daily earnings. Irregular monsoon rains, sudden storms, and dust-laden winds frequently halt construction activities, disrupt waste collection and street vending, and make outdoor work dangerous. These climate-induced disruptions are not simply inconveniences—they erode productivity, shorten working days, and lead to recurring income losses.

The economic consequences are profound. As earnings decline and household expenses continue to rise, many workers find themselves pushed into cycles of debt and financial insecurity. Climate shocks often coincide with heightened health risks, including heat exhaustion, dehydration, respiratory illnesses linked to dust and air pollution, and the spread of vector-borne diseases under changing weather conditions. For workers already located at the margins of urban economies, these

pressures compound existing structural disadvantages linked to caste, gender, and migration status.

Daily living conditions further intensify these vulnerabilities. Limited access to water, sanitation, and hygiene (WASH) facilities makes coping with extreme weather even more difficult. Women workers in particular face heightened risks to their health, safety, and dignity when basic sanitation services are unavailable. At the same time, rising rents, the constant threat of eviction, and the lack of savings, insurance, or institutional support mean that even a single climate shock can wipe out fragile household economies. Climate change, in this sense, does not merely introduce new risks—it multiplies and deepens the socio-economic vulnerabilities that informal workers already confront.

In this context, climate justice must be understood not merely as a technical agenda of emission reduction or climate-resilient infrastructure. It is fundamentally about protecting the lives, livelihoods, and dignity of those who are most exposed to climate hazards and least equipped to recover from them. In cities such as Jaipur, this means placing informal workers—construction labourers, sanitation workers, waste pickers, street vendors, domestic workers, and other climate-exposed occupations—at the centre of climate policy and urban planning. For these workers, adaptation cannot remain an abstract policy concept; it must translate into tangible protections, rights, and resources that directly respond to the realities of their work and living conditions.

At the same time, climate action must also be framed through the lens of a Just Transition. As cities move toward climate resilience and low-carbon development, the transition must ensure that informal workers—particularly those from caste-marginalised communities, migrant households, and women-headed families—are not further excluded from economic opportunity. Instead, climate policy should actively safeguard their livelihoods while creating new pathways toward safer and more sustainable employment.

A Just Transition framework would therefore include measures such as protecting incomes during climate shocks, expanding access to healthcare and social security, creating opportunities for skill

development in green and climate-resilient sectors, upgrading housing and working environments to withstand heat and flooding, and ensuring that worker collectives and unions are directly involved in planning processes.

Without such targeted and participatory measures, the climate crisis will not only persist but deepen existing inequalities. It risks reinforcing caste-based occupational segregation, widening gender disparities in both paid and unpaid labour, and perpetuating cycles of debt, displacement, and exclusion among the urban poor. Climate justice in this context is therefore not simply about managing environmental hazards—it is about transforming the structures of inequality that place entire sections of Jaipur's workforce on the frontlines of climate risk while denying them the means to protect themselves.

Only by centring the rights, voices, and wellbeing of informal workers can cities begin to build a genuinely just and resilient urban future.

Policy Directions for a Just Transition in Jaipur

The findings of this study point toward the urgent need for an integrated policy framework that addresses the immediate health and safety needs of informal workers while also building long-term resilience.

A Just Transition approach for Jaipur and Rajasthan would involve:

- Protecting livelihoods during climate shocks through income protection schemes, accessible healthcare services, and legal safeguards for workers in high-risk sectors such as construction, sanitation, waste picking, and street vending.
- Creating pathways into green and climate-resilient employment through targeted skill development programmes—particularly for women and SC/ST communities—in sectors such as solar installation, sustainable construction, water management, recycling, and urban ecological restoration.
- Expanding universal social protection—including pensions, maternity benefits, accident insurance, and health coverage—to provide a safety net during climate-induced economic disruptions.

- Upgrading housing and work environments to be heat-resilient and flood-resistant while ensuring access to safe water, sanitation, and occupational safety infrastructure tailored to gender and sector-specific needs.
- Ensuring worker voice in climate governance by including informal worker collectives, unions, and women's groups in climate planning and decision-making processes.

Recommendations

To translate these principles into action, the report proposes a set of specific recommendations across nine thematic areas.

The recommendations outlined above provide a broad framework for advancing a Just Transition for informal workers in Jaipur and Rajasthan, ensuring that climate action is both environmentally sustainable and socially equitable. While these principles set the overall direction, the report also presents specific, actionable recommendations organised under nine thematic areas

1. Immediate Health and Safety Needs

Informal workers in Jaipur—especially those working outdoors or in hazardous environments—face heightened health risks due to extreme heat, dust storms, and poor air quality. Addressing their immediate health and safety concerns is critical:

1.1 Climate Impact Assessments: Conduct area-specific assessments to understand how rising temperatures, air pollution, and erratic weather are affecting the health, productivity, and working conditions of construction workers, sanitation workers, ragpickers, and daily wage labourers.

1.2 Heat Stress Mitigation: Set up cooling stations, shaded rest zones, and provide drinking water at construction sites, waste collection points, and daily wage markets to reduce the risk of heat-related illnesses.

1.3 Healthcare Access and Awareness: Ensure that informal workers have access to affordable and informed healthcare services,

including mobile health units and awareness sessions on managing climate-related illnesses like heatstroke, dehydration, and respiratory issues.

2. Income Security and Employment Stability

Unpredictable weather and heatwaves are reducing available work hours, directly affecting the earnings of daily wage and informal workers. The following steps can enhance financial resilience:

2.1 Employment Guarantee Programs: Expand urban employment schemes to include informal workers, ensuring guaranteed workdays during periods when regular employment is disrupted due to climate conditions.

2.2 Minimum Income Support: Introduce a guaranteed minimum income scheme for informal workers during climate emergencies, such as bans on construction work during high pollution periods or heatwaves.

2.3 Flexible Work Options: Encourage employers and contractors to adopt flexible work hours or night shifts during extreme heat days to reduce health risks.

2.4 Compensation for Loss and Damage: Set up systems for quick financial compensation when workers lose income due to climate-related work suspensions or health crises.

3. Legal Rights and Protections

Ensuring legal safeguards is crucial to protect informal workers from exploitation and to uphold their rights in the face of climate adversity:

3.1 Climate-Responsive Labour Policy: Integrate climate risk into state labour laws and urban employment policies, especially to address the unique vulnerabilities of informal urban workers.

3.2 Strengthened Legal Protections: Guarantee workers' rights to safe working conditions, fair wages, and social protection, with strict enforcement mechanisms.

3.3 Legal Aid and Advocacy: Provide accessible legal aid for informal workers to seek justice for wage theft, unsafe working conditions, or denial of compensation linked to climate impacts.

4. Building Long-Term Resilience

To protect livelihoods over time, Jaipur must invest in long-term resilience strategies tailored to urban informal workers:

4. Adaptation and Resilience Funding: Allocate public funds specifically for projects that reduce the vulnerability of informal workers to extreme heat, floods, and air pollution.

4.2 Urban Infrastructure Improvements: Invest in shaded work shelters, safe storage for waste pickers, and heat-resilient housing in worker colonies.

4.3 Training and Capacity Building: Offer training on alternative livelihoods, waste segregation, sustainable construction practices, and climate risk preparedness.

5. Fair Labour Practices

Improving working conditions and ensuring fairness in pay and scheduling are vital:

5.1 Standardised Wages: Set and enforce minimum wages that account for added health risks and reduced productivity during climate extremes.

5.2 Regulated Working Hours: Restrict work during peak heat hours and ensure proper breaks, with climate-sensitive overtime compensation.

5.3 Leave Entitlements: Establish paid sick leave and emergency leave provisions for climate-related illnesses and disruptions.

5.4 Grievance Redressal: Create dedicated complaint mechanisms at the ward and labour department level to address climate-linked grievances.

5.5 Skill Development for Safer Livelihoods: Offer informal workers opportunities to move into less climate-sensitive jobs through skill-building programs (e.g., plumbing, solar installation, recycling entrepreneurship).

5.6 Debt Relief Support: Provide informal workers access to debt counselling and emergency financial assistance when climate-related shocks prevent them from earning.

6. Improving Working Conditions and Safety

Urban informal workers often operate in unsafe environments. These measures can significantly reduce risks:

6.1 Provision of Protective Gear: Provide helmets, gloves, safety boots, reflective vests, and pollution masks to workers, especially those in sanitation and construction.

6.2 Access to Medical Services: Establish low-cost clinics near labour sites to offer quick medical attention, including for injuries and climate-related conditions.

6.3 Insurance Coverage: Ensure all informal workers are covered by accidental and health insurance, including provisions for heatstroke and respiratory illnesses.

6.4 Basic Amenities at Worksites: Ensure clean toilets, drinking water, sanitation, lighting, and resting spaces at all major construction and sanitation worksites.

6.5 Awareness Programs: Conduct regular training on occupational safety, climate change impacts, first aid, and workers' legal rights.

6.6 Labour Law Enforcement: Appoint local inspectors to ensure compliance with health and safety standards at informal work locations. Penalize non-compliant employers and contractors.

7. Inclusive and Participatory Policymaking

Policy must reflect the lived realities of informal workers:

7.1 Stakeholder Involvement: Engage construction workers, waste pickers, daily wage earners, and sanitation workers in designing climate and labour policies.

7.2 Inclusion of Marginalised Groups: Prioritise women, migrants, and minority groups in policy interventions, ensuring their access to resources and decision-making forums.

7.3 Worker Representation in Governance: Form city-level advisory councils with representation from informal worker collectives to guide local climate and labour responses.

8. Expanding Social Security and Registration

Access to state social protection remains low among Jaipur's informal workforce. Urgent reforms include:

8.1 Mandatory Worker Registration: Ensure all informal workers are registered under the E-Shram platform and local labour welfare boards to receive entitlements.

8.2 BOCW Act Implementation: Fast-track registration of construction workers under the Building and Other Construction Workers Act, 1996, with offline and community-based options.

8.3 Local Help Desks: Establish help desks at labour chowks and market centres to assist with documentation, grievance redress, and access to schemes.

9. Gender Equity and Women's Empowerment

Women informal workers face greater vulnerabilities and need targeted support:

9.1 Sanitation Facilities: Provide clean and gender-segregated toilets at all work sites, with adequate menstrual hygiene products.

9.2 Crèche Facilities: Set up childcare facilities at or near worksites to support working mothers.

9.3 Maternity Support: Ensure access to paid maternity leave and nutrition support for pregnant and lactating women workers.

9.4 Protection from Sexual Harassment: Operationalize Local Committees as per the Sexual Harassment of Women at Workplace Act, 2013, and conduct awareness drives.

9.5 Equal Pay and Recognition: Enforce equal wages for women workers and challenge the perception of women's work as unskilled.

9.6 Abolish Discriminatory Hiring Practices: Ensure women can register and be hired independently, regardless of their marital status or male accompaniment.

9.7 Individual Wage Payments: Ensure women workers receive wages in their own names to promote financial independence.

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