WRI INDIA

CONFERENCE PROCEEDING

Resilient, Equitable Housing, Opportunities and Urban Services (REHOUSE) India Convening

A SUMMARY OF EXPERT PERSPECTIVES

July 2, 2024 | India Habitat Centre, New Delhi, India | Compiled by: Purva Sharma, Smriti Singh, Hammad Zubair, and Lubaina Rangwala

BACKGROUND

WRI India and the WRI Ross Center for Sustainable Cities hosted a convening on July 2, 2024, in New Delhi for the Resilient, Equitable Housing, Opportunities and Urban Services (REHOUSE) initiative and partnership, focusing on strategies to enhance climate adaptation, financing, and access to adequate housing integrated with essential urban services for communities in informal settlements. This event brought together key stakeholders, including government officials, donors, representatives from think tanks, academics, and researchers and practitioners from nongovernmental organizations (NGOs), to discuss the urgent challenges posed by the urban services divide coupled with climate vulnerability, particularly in Indian cities.

During the convening, participants evaluated the current landscape of climate and housing policies, while identifying barriers to accessing climate and development finance. The panel discussions examined the current planning processes, tools, and data utilized in Indian cities, highlighting the climate risks and vulnerabilities that communities living in precarious informal settlements face. Various stakeholders presented innovative community-led practices and climate-resilient solutions, highlighting the opportunities and challenges in scaling them.

The carefully curated sessions included addresses by industry stakeholders and domain experts, as well as interactive discussions among participants.

CONTENTS

These conference proceedings reflect the presentations and discussions of participants and do not necessarily represent the views of WRI India or other participating institutions.

The key discussion themes included the following:

- Prioritize climate adaptation in vulnerable informal urban settlements through improved access to climate-resilient housing, integrated with essential infrastructure and services (energy, water, sanitation, and transport), and social protection schemes to help them withstand the impacts of climate change.
- Bridge the gap between community- and city-level data while ensuring that relevant data are accessible to communities and key stakeholders.
- Promote community participation, particularly of women, in decision-making; incorporate community perceptions and data into policy and planning processes.
- Develop innovative financing and de-risking mechanisms to strengthen the financial capacity of urban local bodies (ULBs) and scale climate-resilient solutions, and draw in private and international finance.
- Build capacity and foster collaboration among key stakeholders working on climate and development issues, including government departments, NGOs, and think tanks, to effectively implement strategies for climate-resilient housing and urban services at the community and city levels.

INTRODUCTION

REHOUSE is a strategic partnership between the WRI Ross Center for Sustainable Cities and Bangladesh Rehabilitation Assistance Committee (BRAC), Slum Dwellers International, Mahila Housing Trust (MHT), Habitat for Humanity International, and Build Change—development organizations working in the affordable housing domain. This partnership aims to bring climate-resilient urban housing and services to the forefront of political, development, and climate agendas, accelerating large-scale climate action.

Globally, over 1 billion urban dwellers lack access to reliable, safe, or affordable housing and to essential services such as running water, sanitation, electricity, and transportation. This "urban services divide" affects two out of three residents living in informal urban settlements in low-income countries (World Bank 2020). With the urban population projected to increase by another 2.5 billion by 2050, the urban services divide is both a development challenge and a roadblock to climate action. Without access to adequate housing and urban services, the impacts of extreme weather events would be exacerbated, leading to more damage and fatalities. Housing is an entry point that has the most direct impact on people's lives and livelihoods; yet, urban housing and informal settlements are rarely discussed in international climate forums and are not a priority in most countries' climate policies or commitments.

REHOUSE, along with its partners, strategically leverages national, subnational, and local engagements to prioritize access to climate-resilient housing and basic urban services within informal settlements. The initiative's strategic principles include climate-resilient housing, inclusive governance, transparent data, and adaptation financing for the urban poor, with the intention of supporting equitable, climate-resilient housing to reduce climate-related vulnerabilities in cities, expand opportunities for urban poor communities, and improve the quality of life for all.

Globally, REHOUSE is exploring building a comprehensive data platform for evaluating urban climate risks and vulnerabilities, fostering peer learning, and coordinating efforts to channel climate adaptation and development finance to vulnerable communities. Nationally, it influences climate and urbanization policies, funding programs, and urban infrastructure initiatives through strategic collaboration with national stakeholders. Locally, it supports citywide mapping of slums and pilots innovative housing and service delivery models, scaling them up through engagement with community groups, city agencies, and donors, leveraging partner expertise and capacity.

FIGURE 1 | REHOUSE India convening partners and participants

Photo credit: WRI India.

THE INDIA CONVENING

The REHOUSE initiative's India convening was hosted by WRI India and the WRI Ross Center for Sustainable Cities on July 2, 2024, in New Delhi. The convening brought together ecosystem partners—donors, government officials, academics, researchers, and planning and design professionals—to discuss the Indian housing policy landscape; challenges in accessing data, tools, and methodologies that may improve policy interventions; the lack of finance for climate-resilient housing solutions at scale; and the need to explore convergence in climate action and housing solutions for the urban poor.

The purpose of the workshop was to focus on advancing action to improve housing conditions, access to core urban services (water, sanitation, electricity, and transport), and climate resilience for communities living in informal urban settlements and other precarious housing, in India in particular and in the Global South in general. The following topics were discussed:

- Framing the climate risks in India and the vulnerabilities associated with the existing informality.
- The current policy landscape and a collective needs assessment to develop enabling policies and financing to strengthen climate adaptation for the urban poor through resilient housing and urban services.
- Understanding how informality is considered in the current planning processes, tools, and data that Indian cities and states use.
- Sharing of good practices in innovative community-led solutions and their potential to scale.
- Ways to integrate innovative practices and community-level data into existing policy and planning processes.
- The policy and practice landscape for climate adaptation and resilient housing integrated with services for the urban poor in India, and the opportunities and barriers in strengthening climate adaptation for informal settlements through climate-resilient housing and urban services.

Thirty participants from various organizations, including government agencies, think tanks, civil society, community-based NGOs, universities, and donors working on issues related to informal communities and settlements, attended the workshop.

SESSION SUMMARY

Introduction to the REHOUSE workshop and objectives

Opening remarks:

Jaya Dhindaw, WRI India Ross Center for Sustainable Cities

Anjali Mahendra, WRI Ross Center for Sustainable Cities (global office)

Lubaina Rangwala, WRI India Ross Center for Sustainable Cities

Keynote address:

Shishir Dash, Lead, Urban Habitat Tata Steel Foundation

The current policy landscape and a collective needs assessment

Panel discussion with invited government officials and technical experts on the critical role of national and state governments in developing enabling policies and financing to strengthen climate adaptation for the urban poor through resilient housing and urban services.

Moderator: Rejeet Mathews, WRI India

Panelists:

Victor Shinde, National Institute of Urban Affairs (NIUA)

Siraz Hirani, Mahila Housing Trust (MHT)

Amir Bazaz, Indian Institute for Human Settlements (IIHS)

Shikha Srivastava, Tata Trusts

Current planning processes, tools, and data that Indian cities and states use

Understanding how data inform integrated spatial planning, housing, and climate adaptation programs; how informality is (or is not) considered; application of approaches such as the City Hazard and Vulnerability Assessment framework.

Moderator: Robin King, WRI Ross Center for Sustainable Cities

Panelists:

Aswathy Anand, Program Associate, Urban Water Resilience, WRI India

Aditya Vir Bahadur, Red Cross Red Crescent Climate Centre (RCRC)

Rohit Magotra, Integrated Research and Action for Development (IRADe)

Darshini Mahadevia, Ahmedabad University

Innovative community–led practices and solutions

Sharing of experiences and good practices by stakeholders who are implementing solutions in Indian cities; focus on opportunities and limitations for scaling.

Moderator: Lubaina Rangwala, WRI India

Panelists:

Raji Gorana, MHT

Renu Khosla, Centre for Urban and Regional Excellence (CURE)

Dharmesh Patel, cBalance

Mukta Naik, Centre for Policy Research (CPR)

Siddharth Agarwal, The Urban Health Resource Centre (UHRC)

Integrating community practices and data

Opportunities and challenges for a national (or international) data platform that can inform urban policymakers/practitioners in India.

Moderator: Anjali Mahendra, WRI Ross Center for Sustainable Cities

Panelists:

1. Shahriar Mohammad Farhad, BRAC
2. Anita Miya, Aga Khan Agency for Habitat India (AKAH)
3. Gautam Bhan, Indian Institute for Human Settlements (IIHS)
4. Shamindra Nath Roy, WRI India

SESSION SUMMARIES

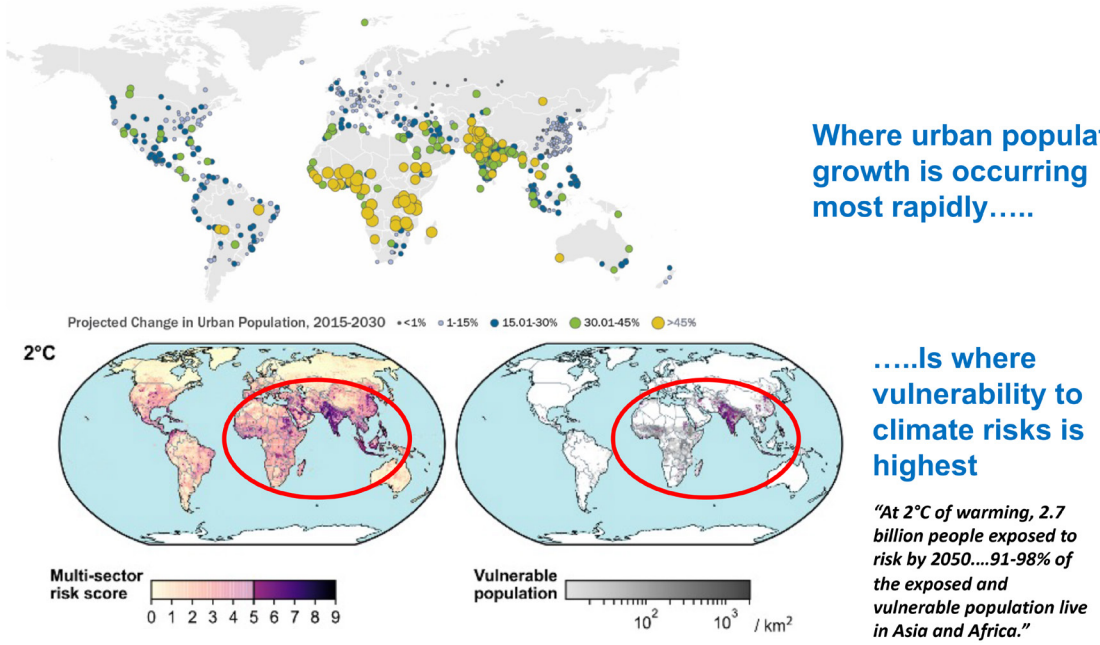
Opening remarks and keynote presentation

Anjali Mahendra, Director of Global Research, WRI Ross Center for Sustainable Cities, made the opening remarks, introducing the REHOUSE initiative, the motivation behind it, and its goals. She said that between 1.1 and 1.8 billion people currently live in informal settlements globally, and this number is expected to rise to 3 billion by 2050. At present, India has a large number of low-income residents living in slums—about 50 percent of the urban population, according to data from the World Bank, and even more in certain cities. India is highly vulnerable to hydro-meteorological disasters, with 80 percent of its population residing in districts prone to extreme climate events (Mohanty and Wadhawan 2021). The country has the second-largest population exposed to floods and the largest number of people living in extreme poverty at risk of flooding (Mohanty and Wadhawan 2021). Although the Union Budget 2024 allocated significant resources for mitigation, it has been criticized for insufficiently addressing adaptation needs (Global Center on Adaptation 2024). Mahendra emphasized the urgent need to integrate housing with essential services, such as water, sanitation, electricity, and drainage, in a way that reduces climate risks and increases resilience to extreme climate events.

With climate change worsening, more than 200 million people are projected to become climate migrants (Mani et. al 2018). Hence, the REHOUSE initiative aims to promote climate-resilient urban housing and services, elevate these issues in global forums, and influence policies and programs in priority countries. By 2030, the initiative aims to achieve the following: foster peer learning; establish a comprehensive data platform; scale up efforts to impact Nationally Determined Contributions (NDCs), national adaptation plans, and national urban policies; and increase the flow of finance to places of highest climate vulnerability. Locally, it aims to identify priority action areas, map vulnerabilities, pilot new models of resilient housing and service delivery, and strengthen city–community linkages.

The rapid growth in urban climate vulnerability is most pronounced in slums and informal settlements. In India, although the proportion of the population living in slums is decreasing, the absolute number is still growing. Mahendra gave an example from Chennai illustrating this issue, where a slum house with a metal roof experiences indoor temperatures exceeding 40°C, while the outdoor temperature is 35°C. Although there are many successful examples of slum upgrades achieved with urban service delivery, the primary challenge lies in scaling these solutions citywide and across cities in the country. The need for more comprehensive and widespread implementation remains a significant hurdle in addressing the multifaceted issues that informal settlements face.

FIGURE 2 | Multi-sector climate risk score with density of vulnerable population



Source: Slides compiled by WRI India authors.

FIGURE 3 | What is the REHOUSE partnership?

What is the REHOUSE partnership?

REHOUSE goal: Bring climate resillient urban housing and services in informal settlements to the forefront of the political, development, and climate agendas by working together to create a greater impact in cities and the most vulnerable communities within them.

Short-term objectives:
Establish partnership for REHOUSE program that encompasses global engagement on data and financing, Influences national policies and programs, and brings change in local areas through lessons drawn from the partners'own work.

Launch shared principles designed to guide decision-makers and stakeholders toward equitable and climate-smart cities at the COP side event and online via REHOUSE.org.

Create a repository of cases and resources on the REHOUSE website www.rehouse.org.

Source: Slides compiled by WRI India authors.

Lubaina Rangwala, Program Head, Urban Development, Sustainable Cities & Transport, WRI India, highlighted the interventions by WRI India to assess urban poor housing and habitats. In her presentation, she mentioned that the interventions were divided into four key areas: research and assessments, training and capacity-building, accelerators and challenges, and demonstration projects. She gave the example of a study from the Integrated Planning for Villages in the National Capital Territory (NCT) of Delhi (2019), where women were at the center in planning for inclusive urban development. This study examined how development plans could support urban villages and prevent them from being transformed into informal settlements, and explored effective planning methods.

Rangwala also discussed the WRI Urban Community Resilience Assessment (UCRA) tool, which identifies community-level capacity gaps to address vulnerabilities and aims to influence long-term strategic planning for community resilience. She emphasized that there is a critical need for capacity-building in affordable housing delivery, and a needs assessment has to be performed to identify specific requirements and gaps.

As an example of accelerators and challenges, Rangwala highlighted that the Ministry of Housing and Urban Affairs (MoHUA), through its housing schemes, seeks to mainstream promising technologies for affordable housing by incorporating global and indigenous practices. She explained that housing initiatives do not just construct houses; they also improve the surrounding environment. For example, in WRI India's Nurturing Neighborhoods Challenge, the focus is on enhancing public spaces for play and recreation. Several demonstration projects—such as the Australia India Water Sanitation Initiative (AIWASI) Community Development Plan (CDP) project in Delhi that focuses on water and sanitation—address specific needs in vulnerable neighborhoods. Several urban greening projects are being implemented in collaboration with organizations such as Youth for Unity and Voluntary Action (YUVA) and Tata Institute of Social Sciences (TISS) in Mumbai's low-income settlements of Lallubhai Compound and Cheetah Camp. In her concluding remarks, Rangwala highlighted that WRI India will be initiating a project that aims to engage communities in managing urban mangrove borders, buffer zones, and highly politicized spaces, emphasizing community stewardship.

Shishir Dash, Lead Urban Habitat, Tata Steel Foundation, Odisha, spoke about the significant challenges and accomplishments of the Odisha Liveable Habitat Mission or JAGA Mission. He emphasized the lack of concrete data on slum dwellers and pertinent information regarding the categorization of slums in Odisha's official statistics. Despite this data challenge, the JAGA Mission accurately enumerated the number of people living in slums across Odisha, overcoming the confusion caused by various slum categories and census methodologies.

Dash highlighted how the JAGA Mission achieved some of its objectives by focusing on the access to basic services and land tenure rights of slum dwellers in Odisha. He highlighted that the mission has impacted 2 million slum dwellers in less than a year, granting land rights to 39,000 renters, upgrading over 1,600 slums, and allocating land worth INR 75 billion to slum dwellers. Additionally, 25 percent of the urban budget is dedicated to the urban poor, facilitating piped water supply and individual household toilets (IHTs) to 275,000 households.

In urban Odisha, every fourth person resides in a slum, highlighting the scale of urban poverty and housing challenges. Approximately 66 percent lack formal land rights, and 5 percent have informal documentation. Though slums occupy less than 5 percent of the urban area, 25 percent of the state's urban population resides there. The JAGA initiative clearly understands the importance of slum dweller associations (SDAs) and creating livable habitats within slums, advocating for managing urban growth to prevent slum proliferation. Strong community participation, technological advancements such as geographic information system (GIS) mapping, and the integration of state and central schemes were crucial for the initiative's success.

FIGURE 4 | Shishir Dash, Lead Urban Habitat, Tata Steel Foundation, presenting the key findings from the JAGA Mission in Odisha

Photo credit: WRI India.

Under the JAGA Mission, efforts to improve living conditions and infrastructure in slums include in situ redevelopment and identifying land within urban areas. Climate-resilient infrastructure remains a priority, though integrating beneficiaries' perspectives into the design and implementation processes is challenging. Vulnerability assessments played a critical role. They were conducted using six indicators—exposure to extreme weather events, type of land, physical and spatial construction, access to basic services, type of housing, and number of economically weaker section (EWS) families—to prioritize interventions in slum communities. Dash pointed out that the key learnings from the JAGA Mission highlighted the importance of political and administrative willpower in scaling successful pilot programs such as JAGA. He emphasized the need to form collaborations and achieve convergence among governmental and nongovernmental partners for the successful implementation of slum rehabilitation projects. He also emphasized the importance of having the right data to quantify a problem and the use of technology to facilitate data collection.

KEY TAKEAWAYS

- Approximately one-fourth of urban Odisha's population resides in slums, highlighting the extensive scale of urban poverty and housing challenges in the region.
- The JAGA initiative successfully enumerated slum dwellers in Odisha despite challenges related to data availability and varying census methodologies for different types of slums.
- Within a short time frame, the JAGA Mission impacted 42 million slum dwellers in Odisha, achieving significant milestones such as granting land rights to 39,000 renters and allocating substantial land worth INR 75 billion to slum dwellers.
- Slums house a disproportionate 25 percent of the population despite occupying less than 5 percent of the urban area.
- The JAGA initiative underscores the importance of community participation through SDAs, advocating for and facilitating the successful granting of land rights to renters, with the state government playing a critical role in the provision of these land rights to slum communities. Community involvement, alongside technological advancements such as GIS mapping, expedited processes and ensured community ownership of infrastructure projects aimed at improving living conditions in slums.

The current policy landscape and a collective needs assessment

This session examined the pivotal role that national and state governments play in crafting and implementing policies and financial mechanisms to bolster resilient housing and climate adaptation efforts, particularly for the urban poor. With cities worldwide increasingly facing the brunt of climate change, it is the urban poor who often bear its most severe consequences due to their heightened vulnerability and limited resources. The panel brought together distinguished government representatives and leading technical experts to discuss the urgent need for resilient housing and robust urban services that can withstand climate impacts. The panelists explored strategies for securing financing, fostering public-private partnerships, and engaging communities in the development of resilient infrastructure. The session highlighted the actionable steps and collaborative efforts necessary to create sustainable, climate-resilient urban environments for all.

Rejeet Mathews, Program Director, Urban Development, WRI India, opened the session by emphasizing the importance of climate-resilient housing as a frontline defense against climate disasters, in addition to protecting lives and livelihoods. She said the session would address two main questions:

- How do national and state policies and planning frameworks currently enable climate-resilient housing and services for urban poor communities and what needs to change to accelerate action?
- How can finance be mobilized for climate-resilient housing and urban services as part of national, state, and city adaptation investments?

Victor Shinde, Head, Climate Centre for Cities, National Institute of Urban Affairs (NIUA), stressed the necessity of building climate- and environment-sensitive cities by looking at the requirements of vulnerable communities. He said that India's history of pro-poor policies has mainly been driven by economic and political imperatives. This is mainly because political parties consider slum dwellers as a vote bank; hence, the government has never conceptualized a robust policy intervention for informal communities and settlements. The focus of the government has been to initiate various programs and missions, such as the Pradhan Mantri Awas Yojana - Urban (PMAY-U) and National Urban Health Mission (NUHM), for vulnerable communities.

FIGURE 5 | Panelists discuss the current policy landscape and a collective needs assessment

Photo credit: WRI India.

Shinde explained that climate adaptation is being incorporated into the national framework through initiatives such as the Climate Smart Cities Assessment Frameworks. He pointed out that the challenge lies not in policy formulation but in its implementation, where many indeterminate variables come into play. Shinde provided examples, such as projects for aquifer and groundwater management, from the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) mission, highlighting innovative pilots and community benefits. He also discussed financing for climate-resilient housing, emphasizing the need for scaling ambitions and generating resources through public-private partnerships, while de-risking investments through mechanisms such as the hybrid annuity model. Shinde explained that this model is one of the initiatives that the Ministry of Jal Shakti introduced for the National Clean Ganga Mission. In this model, the government bears 40 percent of the investment cost and thus de-risks the cost that the private sector has to bear. According to Shinde, the hybrid annuity model has worked out efficiently, especially for water supply, sewerage, and sanitation-related infrastructure projects.

Siraz Hirani, Senior Programme Management Specialist, Mahila Housing Trust (MHT), Ahmedabad, emphasized that policy is about the intent of the initiative and the challenge lies in transforming policy into practice. He said that obstacles to accessing basic services in slums are due to the localized nature of climate adaptation practices and policy linkages with land titles. Hirani highlighted successful examples such as the Ahmedabad Municipality's approach to de-linking service provision from land titles. He also discussed the Pradhan Mantri Awas Yojana (PMAY) scheme's three verticals—redevelopment, beneficiary-led construction, and affordable housing—highlighting the need for climate resilience in housing projects. Hirani advocated for innovative collaborations with the private sector and the integration of climate action plans and community engagement strategies into livelihood programs like Jeevika. Hirani pointed out that climate financing for vulnerable communities must provide for adequate technical and financial support from the subnational/state level to the city level and consider the adaptive capacity of households and communities to local climate change. However, the challenge is to create an enabling policy environment so that vulnerable communities can access climate finance.

Shikha Srivastava, Head, Urban Poverty Alleviation, Tata Trust, New Delhi, focused on the implementation of policies, the need for convergence among different schemes, and the challenges faced by migrants, who are often the most vulnerable and underserved group. She emphasized the importance of data collection to inform flexible policies, and suggested that housing should be considered a state subject. Srivastava stressed the need for establishing partnerships and financing mechanisms at the city level, enhancing the capacities of ULBs, and building resilience through participatory governance.

Amir Bashir Bazaz, Lead Practice, India Institute for Human Settlements (IIHS), Bengaluru, said that employment opportunities for the poor, vulnerability and poverty reduction, and curbing inequality issues are the three important aspects of climate resilience policymaking, but they have never been the core issues in the climate framework thus far. The focus tends to be more on the technical aspects of dealing with climate risks and mitigation. He said that the convergence of adaptation, mitigation, and development tracks is vital. However, the major challenges are associated with stakeholders' coordination and data accuracy. Bazaz highlighted examples from Coimbatore and Siliguri to illustrate the complexities of addressing climate resilience in diverse urban contexts. He emphasized the need for creative problem-solving and innovative financial models to leverage public and private financing for climate resilience. Bazaz pointed out the gaps in institutional decision-making and highlighted the need for cities to gain greater agency in building resilience.

Anjali Mahendra, Director, Global Research, WRI Ross Center for Sustainable Cities, concluded the session by stressing the importance of conversations around NDCs, national policies on climate action, national financing for urban infrastructure, and the framing of a National Urbanization Policy. She questioned the viability of these routes in effectively improving the climate resilience of vulnerable communities in cities. As a response to Mahendra's remarks, Amir Bazaz from IIHS highlighted that the NDCs heavily emphasize emissions-related problems. At the household level, energy emissions are generally low and are not aggregated to how much they contribute. Hence, for the REHOUSE initiative, it would be important to look at national missions such as the National Mission for Sustainable Habitat (NMSH) and Pradhan Mantri Awas Yojana, whose key focus is on housing technology, green housing, and innovative financing mechanisms for housing. Linking housing for the poor to a global policy context might be difficult. Nevertheless, integrating housing for the vulnerable with the ongoing national missions, while taking cognizance of climate-related risks, could be one of the alternatives.

Victor Shinde from NIUA replied that there is still a need for dynamism around planning housing for vulnerable populations. One of the initiatives that NIUA has undertaken is revision of the Urban and Regional Development Plans Formulation and Implementation (URDPFI 2015) guidelines to incorporate climate-related indicators while planning and implementing housing projects. There is also a need to focus on lower-tier cities because most national missions such as NMSH focus on larger cities. Hence, contemporary thinking is needed to address the latest challenges and make policies more inclusive and robust.

KEY TAKEAWAYS

- Devolving more funds and building more capacities for ULBs and cities.
- Convergence of the adaptation and mitigation agendas, especially at the local level.
- The need for innovative and creative financing for building climate resilience for the vulnerable urban poor, including migrants; these financing mechanisms and planning processes need to be contextualized.
- The inclusion of private sector financing and de-risking these investments.
- The challenge is not merely a policy problem; it is primarily an implementation problem.

Current planning processes, tools, and data that Indian cities and states use

This session provided an in-depth analysis of the current planning processes, tools, and data that Indian cities and states use to address spatial planning, housing, and climate adaptation programs. It emphasized the critical role of data in informing integrated spatial planning and the development of resilient urban infrastructure. The discussion highlighted the inclusion (or the lack thereof) of informality in these planning processes. The panelists discussed the challenges and opportunities in integrating informal settlements into formal planning frameworks and ensuring that the needs of all urban residents, particularly the most vulnerable, were considered. The session started with the presentation of the Climate Hazard and Vulnerability Assessment (CHVA) framework developed by WRI India, including its applications in Indian cities, showcasing how such frameworks can help cities identify and prioritize areas at risk and develop targeted interventions to enhance resilience.

Robin King, Director, Knowledge Capture and Collaboration, WRI Ross Center for Sustainable Cities, moderated the session. After her opening remarks, she invited Sudeshna Chatterjee, Program Director, Cities Research, WRI India, to make a presentation on the CHVA framework.

FIGURE 6 | Robin King, WRI Ross Center for Sustainable Cities, moderating the session on the planning processes, tools, and data that Indian cities and states use

Photo credit: WRI India.

FIGURE 7 | Sudeshna Chatterjee, Program Director, Cities Research, WRI India, making a presentation on the Climate Hazard and Vulnerability Assessment framework

Photo credit: WRI India.

Sudeshna Chatterjee, Program Director, Cities Research, WRI India, made a presentation on the CHVA framework from the CHVA report that WRI had released in February 2024. Chatterjee pointed out that the CHVA report focuses on understanding differential vulnerability by examining social factors across various communities and locational factors that exacerbate exclusion and marginalization. She discussed the need for plans and policies to go beyond the calculation of loss and damage to reduce the routine burden of climate-related hazards. As a result, the CHVA emphasizes the vulnerability of the urban poor residing in underserved, high-risk, and inaccessible areas, which often include informal settlements. When climate action plans (CAPs) for cities are developed, planners and city officials can use the CHVA framework to assess the climate vulnerability of the most differentially vulnerable populations and infrastructure in the city. Additionally, the CHVA provides step-by-step guidance on how to conduct assessments within the governance context for Indian cities. After the presentation on the CHVA framework, Robin King introduced the first speaker for the session. The presentations of the session are summarized below.

Aswathy Anand, Program Associate, Urban Water Resilience, WRI India, presented a case study on water initiatives undertaken by WRI India under the Australia-India Water Security Initiative Community Demonstration Project (AIWASI CDP) project. She highlighted that before conducting a climate vulnerability assessment, the Urban Community Resilience Assessment (UCRA) tool was employed by WRI to help develop a community-led, water-sensitive urban design approach for vulnerable neighborhoods in Delhi. The UCRA tool was used to assess resettlement colonies, unauthorized settlements, and other communities in Delhi. The tool was adapted for this project in collaboration with MHT and the Australian partners to address challenges such as identifying vulnerable sites and understanding the nuances of disadvantage and vulnerability at the community scale. Focusing on two settlements in Delhi—Bakkarwala

Resettlement Colony and Mubarakpur Dabas, an urban village affected by agrarian displacement and the proliferation of unauthorized colonies on former farmlands—the initiative moved from city-level to community-level vulnerability assessments. It emphasized capturing lived experiences, creating spatial vulnerability maps, and documenting anecdotal evidence.

As part of this effort, MHT has developed a community-based vulnerability assessment tool and has also established two forums: a community forum and a city water forum. The overall learnings from the project helped in identifying the challenges in scaling assessments across different contexts and complexities arising from site-specific factors, such as the presence of water bodies and historical age differences of settlements.

Aditya V. Bahadur, Red Cross Red Crescent Climate Centre, New Delhi, emphasized the importance of designing a theoretically robust framework and gaining a comprehensive understanding of vulnerabilities from the context of the CHVA framework. He raised questions about scalability, the connection of the tool across different levels of government, and its temporal aspects. Bahadur noted that vulnerabilities and risks in cities are highly dynamic, requiring continuous assessment rather than just a snapshot. He said that the institutionalization of such tools must include risk analysis through quantitative data and balancing this analysis with subjective information to enrich top-down scientific approaches. Bahadur provided examples from Nepal and Bangladesh, where community-reported concerns, such as windstorms and heat, differed from expected hazards such as floods and cyclones. He questioned how suitable the tool is for urban areas and its functions in diagnostic, evaluative, and planning roles to assess, critique, and strategize responses to urban vulnerabilities and risks.

Rohit Magotra, Deputy Director, Integrated Research and Action for Development (IRADe), New Delhi, commented on the CHVA framework by highlighting that the framework would be helpful in addressing the dual challenges that cities face as both drivers and victims of climate change, by providing innovative solutions. He introduced the IRADe Rapid Vulnerability Assessment framework, which evaluates Hazard, Infrastructure, Governance, and Social vulnerabilities (HIGS) using 72 sub-indicators. This framework has been employed in 38 cities across the country. Beyond basic assessments, the framework explores how interconnected vulnerabilities interact and uses an index to identify low-hanging fruits for intervention. Magotra highlighted the dynamic nature of vulnerability within communities, captured through community vulnerability assessments. Key insights from this framework include the critical importance of infrastructure in reducing vulnerabilities and the role of civil society in driving micro-interventions. He provided examples such as constructing stormwater drains to mitigate flood risks and emphasized the challenge of integrating grassroots efforts into broader urban planning processes.

Darshini Mahadevia, Professor, School of Arts and Science, Ahmedabad University, talked about the multiplicity of urban plans focusing on transport, housing, and other aspects that are not aligned with one another. She provided examples such as the Rajiv Awas Yojana (RAY) initiative that aimed to create a slum-free housing and the shifts from programs such as the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) to the Atal Mission for Rejuvenation and Urban Transformation (AMRUT). However, the plans are difficult to implement due to funding uncertainties and the varying ratios of central government support versus market economics, resulting in fragmented execution.

She highlighted various types of action plans at both the state and city levels, developed by different cities or consulting firms. She emphasized the importance of integrating these frameworks into ongoing urban planning systems. Mahadevia also discussed emerging trends such as net zero plans and the challenge of addressing fluctuating hazards and community-specific vulnerabilities. She pointed out the lack of data, suggesting strategies such as linking enumeration blocks to property tax data and utilizing census data for planning purposes.

Robin King emphasized the importance of maps and mapping, which can be translated into actionable steps. She highlighted the need for incorporating community perceptions and an integrated data approach in vulnerability assessments.

FIGURE 8 | Panelists in the session on current planning processes, tools, and data that Indian cities and states use

Photo credit: WRI India.

KEY TAKEAWAYS

- The development of the CHVA framework was an outcome of the formulation of climate action plans by WRI, in line with India's commitment to a net zero economy. Because climate mitigation has been one of the agendas toward the net zero commitment, the framework was developed from the climate adaptation perspective with a focus on equity concerns.
- The framework uses population density, infrastructure metrics, and land surface temperature mapping as important tools for identifying the climate hotspots in a city. However, the analysis is limited to the city level. Peri-urban areas are not considered due to the limitation of data beyond city municipalities. Hence, modalities for aggregating data beyond city limits can help in getting a larger picture of the impacts of climate change in urban regions.
- The framework aims to integrate climate action planning with spatial planning and facilitate interdepartmental cross-collaboration between ULBs and parastatal agencies.
- Developing/upscaling the CHVA framework as a comprehensive tool for vulnerability assessment and combining it with the outputs of other frameworks and assessments are promising approaches.
- Mapping and spatial analysis of climate-related vulnerabilities are powerful tools for the preparation of urban plans/action plans that focus on climate adaptation and long-term climate resilience.
- Visualization of maps is important, but the incorporation of community perceptions and an integrated data approach in planning processes and policy practice are also required. In future, perception studies can be undertaken to evaluate how the views and concerns of local communities have been integrated into planning processes over the years.

Innovative community-led practices and solutions

This session focused on experiences and good practices shared by stakeholders who are implementing solutions in Indian cities, and identification of opportunities and limitations for scaling. The panelists made presentations to showcase the good practices in their respective work areas. Lubaina Rangwala, Program Head, Urban Development, WRI India, moderated the session. She explained that the purpose of this session was to learn from different community-based practices and understand how the climate impacts that vulnerable communities experience are shaping their housing and climate resilience needs, and the adaptation interventions.

Siddharth Agarwal, Urban Health Resource Centre (UHRC), described the challenging living conditions in slums, highlighting issues such as overcrowding, poor ventilation, and inadequate sanitation. He said that households in the lowest income quartile often face severe overcrowding and are more likely to share toilets. The precarious livelihoods of slum dwellers exacerbate their vulnerability, with many earning minimal wages and falling into debt traps. Climate risks, such as flooding and water scarcity, are significant, with only a small percentage of the poorest households having access to piped water. Community organizing plays a vital role in building resilience, with collective savings used for climate adaptation, education, and livelihood improvements. Capacity-building sessions help community groups navigate bureaucratic processes, leading to tangible improvements such as elevated plinths, greening initiatives, and better water management.

Renu Khosla, Centre for Urban and Regional Excellence (CURE), spoke about the transformative impact of community-led initiatives, using the example of a "simple sewer" system in Safeda Basti in Delhi that led to significant infrastructure improvements and economic empowerment for women. She highlighted the importance of co-creating data through community mapping and citizen science, emphasizing that when projects are scaled up, the personal touch and community relationships built over time should not be lost. Khosla stressed that community interventions must balance deep, localized work with broader scalability and that innovation often required governmental support to achieve large-scale impact.

FIGURE 9 | Renu Khosla, CURE, making a presentation during the session on innovative community-led practices and solutions

Photo credit: WRI India.

FIGURE 10 | Raji Gorana, Mahila Housing Trust, making a presentation during the session on innovative community-led practices and solutions

Photo credit: WRI India

Raji Gorana, MHT, Ahmedabad, reflected on the evolution of slum-upgrading projects since 1995, emphasizing the need for housing as well as infrastructure improvements. She pointed out that financial participation from the community fosters commitment and accountability. Gorana shared the example of Amalner in Maharashtra, where MHT first consulted with the community before planning infrastructure projects. She emphasized the importance of addressing both logistical and behavioral issues such as open defecation, and the role of NGOs in scaling solutions. Gorana also discussed the benefits of solarizing water treatment plants and the need for accurate, community-focused data collection.

Dharmesh Patel, cBalance, Mumbai, spoke about the fair conditioning campaign on how to bring thermal comfort to informal communities in India. Patel emphasized in his presentation that 60 percent of Indians reside in informal communities constructed of subpar materials, where heat stress is frequently disregarded. In India, 5–10 percent of the built environment is "formal." Because of the poor weatherization of the housing in informal settlements, the roofs become so hot that it is impossible to sleep before dusk. Women are disproportionately affected by heat stress. In six cities—Pune, Bengaluru, Mumbai, Delhi, Chennai, and Coimbatore—cBalance completed prototype installations of formal architecture in informal settlements as part of the fair conditioning program. Patel emphasized that the campaign contributed to the establishment of a women-centric political economy in India as well as the promotion of thermal comfort in informal housing. In order to foster women's cooperatives that can provide reasonably priced thermal comfort solutions and to develop a sustenance model, the campaign also promoted a local economy pilot that would establish one-stop shops, develop a manual of practices, and secure administrative and policy support from utility companies and municipalities.

Mukta Naik, Centre for Policy Research (CPR), New Delhi, highlighted the ongoing challenges of addressing existing and emerging issues in climate adaptation. She noted that although much action is happening at the community level, there is a persistent disconnect with bureaucratic processes. Naik stressed the importance of understanding and articulating community needs, especially for women, and criticized the lack of consideration of informality of tenure and income in new policies. She called for a redefinition of data collection practices and emphasized the need for urgency in addressing climate-related challenges, and also warned against the typical stalling of climate work due to a lack of data. This has typically been seen as a delaying tactic that climate and housing practitioners should watch out for and factor into their plans.

KEY TAKEAWAYS

- Capacity-building of stakeholders from different organizations, including the government, civil society, and think tanks, is crucial. This should include training them to navigate their way through bureaucratic processes to secure existing benefits and programs.
- Scaling up community-level practices will require deeper engagement to collect data at the local level and innovation to achieve large-scale impact.
- The involvement of women is vital in the decision-making process. The views expressed by communities are important to present a full social picture of the communities.
- Local fabrication using appropriate technology and eco-friendly materials is crucial, considering the diverse urban and rural contexts.

Integrating community practices and data

This session explored ways to integrate innovative practices and community-level data into existing urban planning processes, highlighting both opportunities and challenges. The panelists discussed the potential of leveraging new technologies such as Internet of Things (IoT) devices, mobile applications, and participatory mapping to gather real-time, granular data from communities. These data could provide valuable insights into local needs and conditions, enabling more responsive and tailored urban planning and climate adaptation strategies.

The discussion also underscored the importance of involving communities in data collection efforts to ensure that their voices and experiences were adequately represented. The panelists deliberated on the common aspirations for a national or international data platform that could centralize and standardize urban data, making it accessible to policymakers and practitioners across India. Such a platform would facilitate data sharing, collaboration, and dissemination of best practices, ultimately enhancing the effectiveness of urban planning and climate adaptation efforts. The session concluded by emphasizing the necessity of multi-stakeholder collaboration to overcome these challenges and achieve the shared goal of creating resilient and inclusive urban environments.

Anjali Mahendra, Director of Global Research, WRI Ross Center for Sustainable Cities, moderated this session. In her opening remarks, she emphasized that there were inconsistencies in data, and that strong efforts were needed to link community-level socioeconomic and vulnerability data with city-level data. She highlighted that as mentioned in the previous sessions, a substantial amount of data reflects practices on the ground. However, she said that we should be cognizant of the fact that the data produced through these platforms have so far not been institutionalized or mainstreamed with the government platform.

Shahriar Mohammad Farhad, BRAC, Dhaka, highlighted the challenges and opportunities associated with making data accessible and actionable for communities and government officials. He pointed out that highly technical data are often incomprehensible to laypeople and even to some officials, emphasizing the need for a translation mechanism between community-level data and government-level planning. Farhad questioned the value of collecting vast amounts of data if they remain unused for practical planning. He discussed the importance of identifying vulnerable populations through frameworks such as that of the Intergovernmental Panel on Climate Change (IPCC), using focus group discussions in the absence of a comprehensive census. By identifying and indexing the most vulnerable communities, BRAC was able to develop targeted intervention plans, which municipalities could use to secure donor funding. He proposed that mainstreaming such data-driven approaches at the municipal level could eventually influence national policies.

Anita Miya, Aga Khan Agency for Habitat India (AKAH), Mumbai, addressed the issues that communities transitioning from rural to urban settings face. She noted that these populations often find themselves in formal spaces without the cultural moorings they are used to, leading to problems in adapting to life in urban housing societies. Miya emphasized the importance of consulting communities during the development of housing projects to prevent future abandonment or redundancy. She advocated for improving basic services first and then integrating climate-related initiatives. Miya shared an example from Hyderabad where cool

roof technology was implemented successfully. She suggested that AKAH's tailor-made programs such as Ashiana, focusing on basic maintenance, and Abhilasha, aiming to create sustainable ecosystems within settlements, were effective models that could be replicated.

Gautam Bhan, IIHS, talked about the distinct roles of community-level data and top-down data, emphasizing that they should not be merged. "An ethical principle is not to ask communities to gather data for you. Why make communities bear the burden of fixing the big picture? Working at the community level means the loop should be closed at the community level. The data needed for the big picture is not the same as that needed for the community," he said.

Bhan further said, "The point of community data is moral legitimacy, to show that we are allowed to speak for them. We are making political points rather than analytical points. It is important to separate data's role in practice, which is revelatory and exploratory, from its role at the policy level, which is different. The scalar question is very important. There are people who move across scales, but data do not need to. This makes it possible for communities not to have to do everything. What used to be called a triple burden is now an advantage if we can wield data to navigate conflict and push things. For civil society, India's housing policy is in the wrong direction. Civil society should use the data we have to push for change. What does data give you – not merely analytical clarity, but the political ability to push an agenda."

Shamindra Nath Roy, WRI India, focused on the challenges of generalizing macro data and synchronizing it with specific local data. He used the example of septic tank flooding in Tier 2 and Tier 3 cities to illustrate the need for synchronization. He explained that the Census of India publishes housing facilities data every 10 years, but as the number of housing units increases, especially in the case of housing societies, it becomes difficult to capture the macro data for new housing units. Therefore, Roy proposed that ground truthing by macro data creators could bridge the gap between generalizability and specificity. He emphasized the importance of collaboration among practitioners, bureaucrats, and politicians to ensure that macro data reflected the local realities accurately. This triad, he suggested, is essential for effective policy implementation and planning.

KEY TAKEAWAYS

- The need for mechanisms to make technical data accessible and actionable for communities and government officials.
- The importance of consulting communities in the development of housing projects to ensure sustainability and relevance.
- Using community data for moral legitimacy and political leverage to drive policy changes while also ensuring that community data bring tangible benefits to the communities themselves.
- Bridging the gap between macro and micro data through ground truthing and collaboration among key stakeholders.

Hands-on workshop session

The objectives of the workshop were as follows:

1. Understand the policy and practice landscape for climate adaptation and resilient housing integrated with services for the urban poor in India, including the roles of the different actors.
2. Identify the opportunities and barriers in strengthening climate adaptation for vulnerable informal settlements through climate-resilient housing and urban services. The key takeaways from the workshop are listed below:

    i. Data architecture is crucial for decision-making. There is a need to understand the problem and what is being analyzed. For building a data architecture, there is a need to develop the right capacities among city-level officials for data capture. One of the important aspects of building a data architecture is gaining access to information that is publicly available; another is the need for real-time collection of data at the local, community level.

    ii. There are differences in understanding risk and vulnerability. In India, slum upgrades do not primarily consider adaptation. There is a need for layering adaptation into the larger advocacy for infrastructure services and using strategic arguments to advocate for these changes. Hence, a collaborative approach with the government can be suggested.

    iii. Housing is the infrastructure that is most vulnerable to climatic hazards and risks because most public housing and low-income housing are built without any building codes. There is a need to formulate building codes for public housing.

    iv. An important learning from the JAGA Mission is to prepare an action plan for data collection. There is a need for framing approaches, taking into consideration various actors to create a cohesive method for data collection and analysis.

    v. There is a need to expand urban social protection schemes for migrant workers and improve livelihood outcomes by providing more work opportunities.

    vi. It is necessary to create development practices at the local level for livelihood generation, involvement of women from informal communities, and generation of income for women through support activities such as working in creches and anganwadi centers, involving local councilors in the provision of water and sanitation services in slums, and demonstrating successful partnership models to gain government buy-in.

THE WAY FORWARD

WRI Ross Center for Sustainable Cities hosted two impactful convenings focused on the REHOUSE initiative in 2024, the first in India in July followed by the second in Kenya in August. Launched ahead of COP29, the REHOUSE initiative is currently in the fundraising phase and aims to accelerate progress toward more equitable and climate-ready cities. It seeks to improve access to data, finance, and climate-resilient housing integrated with basic services for vulnerable communities living in informal settlements and precarious housing. The two convenings aimed to scope out an actionable agenda in India and Africa, while identifying key actors, gaps, scalable innovative solutions, and opportunities for collaboration.

The discussions in India emphasized several critical gaps, particularly the urgent need to strengthen climate resilience for informal urban settlements that are also vulnerable to climate risks. The panelists highlighted that the absence of comprehensive data deterred effective planning and decision-making, while lack of community participation in policymaking resulted in solutions that do not adequately address community needs. Further, lack of collaboration among stakeholders often hinders climate adaptation efforts. There is also an urgent need for innovative financing solutions specifically designed to support climate resilience initiatives for the urban poor and migrant workers living in informal settlements and precarious housing. The attendees and presenters also shared many impactful examples of analyses, initiatives, and programs already underway in various communities and cities, from which much could be learned and scaled in other contexts.

Based on the insights gathered from various panel discussions and workshops, the following key recommendations emerged:

1. **Enhance climate resilience in vulnerable informal urban settlements** by improving access to climate-resilient housing integrated with essential infrastructure and services (energy, water, sanitation, and access to transport). This should include social protection schemes and livelihood opportunities designed to help these communities, including informal and migrant workers, become economically resilient to the impacts of climate change.
2. **Bridge data gaps** and connect community-level data with city-level data, ensuring that relevant data are accessible to communities and key stakeholders. This will enable informed decision-making and more effective urban planning processes.
3. **Promote community participation,** particularly of women, in decision-making processes in a way that brings tangible benefits for communities. Incorporating community perceptions and data into policy and planning will ensure that solutions are relevant, address the needs of those affected, and build upon community knowledge and experience.
4. **Identify innovative financing and de-risking solutions** to strengthen ULBs and scale climate-resilient solutions. For example, explore public-private partnerships that can mobilize resources for sustainable urban development and climate resilience initiatives.
5. **Build capacity and foster collaboration** among key stakeholders working on climate and development issues, including the government, the private sector, NGOs, researchers, and community organizations, to effectively implement housing and climate adaptation strategies.

For more information on the initiative and how to get involved, visit REHOUSE.org.

REFERENCES

Global Center on Adaptation. 2024. *State and Trends in Climate Adaptation Finance 2024*. The Netherlands and Cote d'Ivoire: Global Center on Adaptation. https://gca.org/wp-content/uploads/2024/04/State-and-Trends-in-Climate-Adaptation-Finance-2024.pdf.

Mani, M., S. Bandyopadhyay, S. Chonabayashi, A. Markandya, and T. Mosier. 2018. *South Asia's Hotspots: The Impact of Temperature and Precipitation Changes on Living Standards*. Washington, DC: World Bank. https://openknowledge.worldbank.org/server/api/core/bitstreams/15c3d2db-33f2-50a9-a011-3db01e57437d/content.

Mohanty, A., and S. Wadhawan. 2021. *Mapping India's Climate Vulnerability A District Level Assessment.* New Delhi: Council on Energy, Environment, and Water (CEEW). https://www.ceew.in/sites/default/files/ceew-study-on-climate-change-vulnerability-index-and-district-level-risk-assessment.pdf.

World Bank. 2020. "Climate Change Overview: Country Summary." *Climate Change Knowledge Portal for Development Practitioners and Policy Makers.* https://climateknowledgeportal.worldbank.org/country/india.

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FOR MORE INFORMATION

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ABOUT WRI INDIA

WRI India, an independent charity legally registered as the India Resources Trust, provides objective information and practical proposals to foster environmentally sound and socially equitable development. Our work focuses on building sustainable and livable cities and working toward a low carbon economy. Through research, analysis, and recommendations, WRI India puts ideas into action to build transformative solutions to protect the earth, promote livelihoods, and enhance human well-being. We are inspired by and associated with World Resources Institute (WRI), a global research organization. Know more: www.wri-india.org.

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