



# Slum blind

**The overlooked links between climate migration and informal settlements**

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Public discourse on migration is dominated by the arrival of refugees and asylum seekers in developed countries, but most migration does not cross international borders. Meanwhile, climate change discussions largely focus on promoting mitigation and adaptation where people currently live. This has contributed to a massive and growing blind spot in the form of climate-induced migration within developing countries, particularly toward the most vulnerable places at the receiving end of migration flows: urban informal settlements.

Urban informal settlements are at the crossroads of climate migration, climate adaptation and rapid urbanization. They are absorbing a large share of vulnerable climate migrants despite being the parts of the cities least equipped to respond. As migration increasingly becomes a form of climate adaptation, this process must be better supported with ambitious informal settlement upgrading. Otherwise, the most

vulnerable people can end up moving into – and not away from – risk. Failure to help host communities living in informal settlements offer more adequate housing options for migrants threatens to further marginalize these communities, exacerbating their vulnerability and preventing large-scale human development gains.

Therefore, Habitat for Humanity urges G7 members to prioritize informal settlement upgrading as an additional measure to address human mobility while increasing climate resilience. Better coordinating policies and investing in upgrades to informal settlements can contribute to building climate-resilient cities, ensuring welfare and growth for local and national economies. Doing so targets the most vulnerable while protecting the wealth and well-being of all. Doing so makes moral and economic sense.



## Introduction

# Why place urban informal settlements at the center?

### Most global migrants are hosted in the developing world.

Even though refugees and asylum seekers arriving in developed countries are most visible in the public eye, **most displaced people globally do not cross international borders**. According to UNHCR's 2022 report on global forced displacement, 58% of the people forced to leave their homes stay within their own country. Further, 70% of those who cross national borders are hosted by neighboring countries. As a result, 76% of forcibly displaced people worldwide are hosted in low- and middle-income countries (UNHCR, 2022). The impacts of climate migration are mostly localized in developing countries where both urbanization rates and climate vulnerability are highest, placing added burdens on the governments and communities.

### Climate change risk is and will be disproportionately concentrated in areas with low coping capacity.

As natural hazards and sudden-onset events grow more intense and frequent because of climate change, levels of risk will increase for people in all countries around the world. In the past 10 years, annual exposure to hazards has increased 9% globally, and 95% of that increase is climate-related. By 2050, more than 1.6 billion people will be exposed to severe and extreme droughts. This will include almost 20% of the African population (Throw et al., 2024). **Climate risk will remain unevenly distributed across the world**. Projections indicate that lower-income countries will be affected most, and 70% of countries with large increases in risk will not have the resources to cope. **Without more investment to reduce vulnerability and increase coping capacity, low-income countries will face significant human and economic losses, further delaying sustainable development.**

### Low-income urban areas are on the receiving end of most migration flows and climate risks.

**Migration has an urban face**. Most people who move from their homes either willingly or forcibly – and either across countries or within their own – move into urban areas. The U.N. estimates that 60% of international refugees and 80% of internally displaced people, or IDPs, settle in urban areas (UNHCR, 2016). “Cities are first responders in the inclusion of newcomers” (Amakrane et al., 2023). However, not all cities and not all parts of the city have the willingness and capacity to successfully host migrants. A closer look at destination areas confirms that urban informal settlements are often the areas of the city that are absorbing the most vulnerable migrants and offering flexible and affordable housing and livelihood options. However, these areas have low habitability standards and few social protections – often in conditions of high climate risk. This means the most vulnerable migrants often are moving away from known risks and into new types of risks.

**Climate risk has an urban face**. The world is now more urban than rural, and urbanization continues to increase. By 2050, 2 out of every 3 people in the world – 68% – are expected to live in cities. Ninety percent of this growth will happen in Asia and Africa, where 80% of the world's informal settlements are located. By 2050, it is expected that 21% of the world population – 2 billion people – will live in informal settlements. Global scientific consensus voiced by the Intergovernmental Panel on Climate Change, or IPCC, confirms that evidence “is unequivocal; climate impacts are felt disproportionately in urban communities, with the most economically and socially marginalized being most affected.” (Dodman et al., 2022). In the coming years, climate risk will increasingly be an urban issue, with informal settlements representing the epitome of compounded vulnerabilities.

## Challenges

# Climate migration hits the most vulnerable the hardest

### Climate migration has large gaps in data.

Migration has multiple causes, which means that isolating climate as the deciding reason for inducing a move is not straightforward (Boas et al., 2019), nor is it determining the degree to which that movement is voluntary or forced. Furthermore, the term “climate migrant” – or climate refugee, environmental migrant or similar – lacks an appropriate international definition (European Parliament, 2023). Recording movements of people of varying durations – long-term, short-term and returns – also is challenging. Despite the difficulties of the definition and measurement of all types of migration flows, ample evidence confirms that climate change is increasingly a driver of human mobility, particularly in developing countries and especially within country borders (Borderon et al., 2019; Rigaud et al., 2018; IDMC, 2022). With approximately 40% of the world’s population – about 3.5 billion people – already living in places highly vulnerable to climate change (IDMC, 2023), it is appropriate that climate migration has become a salient development and a policy issue.

The most robust calculations for climate migration to date come from the World Bank’s Groundswell Part II report, which projects that climate migration will accelerate between 2010 and 2050, potentially involving 216.1 million people and affecting the lowest-income and most rapidly urbanizing countries the most. Sub-Saharan Africa, South Asia and East Asia will have 71.1 million, 36.2 million and 36.2 million people displaced by slow-onset disasters, respectively (Clement et al., 2021). Research on the nexus between climate migration and urban informal settlements commissioned by Habitat for Humanity in 2024 (Kallergis et al., 2024) indicates that these numbers might be higher in both Sub-Saharan Africa and South Asia. Moreover, even the pessimistic forecasts might be conservative, given that the Groundswell projections do not include sudden-onset displacement data in the modeling (Jones and Sherbinin, 2022).



Dhaka, Bangladesh



Policy attention to climate migration is fueled by the increasing availability of climate forecasts and displacement projections that show the alarming scale of the issue. For example, the Institute for Peace and Development forecast in 2020 that 1.2 billion people will be at risk of displacement by 2050 because of severe ecological threats. In its 2023 report, the institute forecast that this number could rise to 2.8 billion people (IEP, 2020 and 2023). While large numbers raise the profile of the issue, they are also responsible for “reinforcing false narratives of security” (Boas et al., 2019) conducive to fear and racism (Achieme, 2022). **Instead of depicting climate migration as a looming crisis threatening the security of developed nations, it should be seen as an increasing component of mobility flows, mostly affecting developing countries that already face other socioeconomic challenges, including large informality shares and rapid rates of urbanization.**

### **Informal settlements housing urban migrants.**

Rapid urbanization continues globally, with 90% of future growth occurring in less-developed regions where informal settlements are prevalent (World Development Indicators, 2023; Marx, 2013; Satterthwaite, 2020; Dodman et al., 2022). UN-HABITAT estimates that at least 1.1 billion people are living in informal settlements worldwide and that these settlements will have 2 billion inhabitants by 2050. To this already challenging landscape, climate migration represents added burdens. Every second, two people are internally displaced, and 80% of them settle in urban areas. Pressures on cities in low-income countries are enormous, especially in secondary cities (Cities Alliance, 2022). High shares of informal settlements and informal employment place strains on local governments’ budgets to cope at the scale needed with inadequate housing, unreliable basic services, social infrastructure, and high exposure to environmental hazards.

According to the United Nations Intergovernmental Panel on Climate Change, or IPCC, “The most rapid growth in urban [climate] vulnerability has been in unplanned and informal settlements and in smaller to medium urban centers in low- and middle-income nations where adaptive capacity is limited.” (Dodman et al., 2022). Moving into informal settlements often presents increased exposure to new environmental hazards, compounded by inadequate housing, tenure insecurity,

overcrowding and lack of basic services (Adger et al., 2015). Both migrants and hosts experience high levels of climate vulnerability due to the precarious habitability conditions in informal settlements (Chu and Michael, 2019; Satterthwaite, 2020). Paradoxically, informal settlements are often the only areas with affordable housing in urban areas.

For example, in Africa, informal settlements are becoming the predominant place where urban migrants and the most vulnerable populations live. It is estimated that 5% of the African population will be on the move by 2050 (Amakrane et al., 2023), and the continent is experiencing the fastest urbanization rates. A cross-country study with more than 4,200 households in African coastal cities shows that informal settlements are internal migration hot spots within cities (Kallergis, 2022). In this study, flooding and water shortages were the dominant reasons that prompted households to move. Forty percent of respondents expressed plans to move to other cities or neighborhoods in their city but remain within the country, and 55% of respondents preferred in-situ improvements. This evidence confirms people’s desire to remain close to their origin and stresses the importance of informal settlement upgrading as part of climate mitigation and adaptation measures.

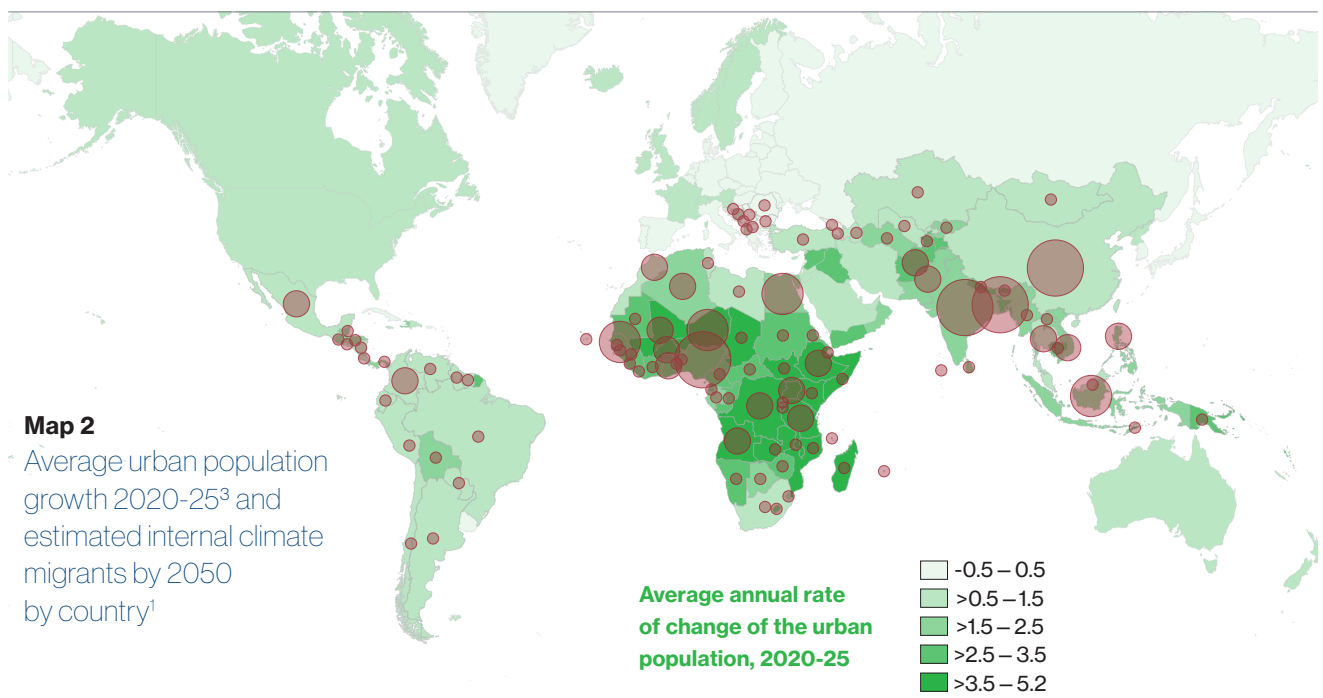
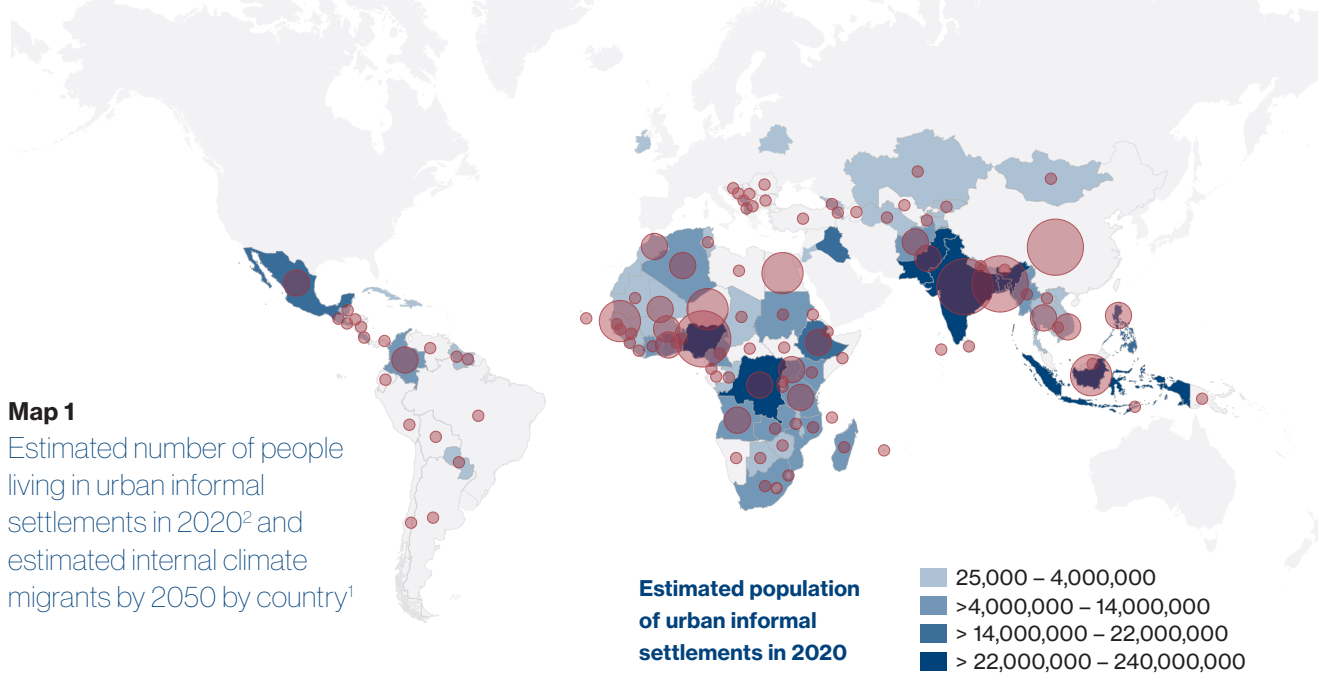
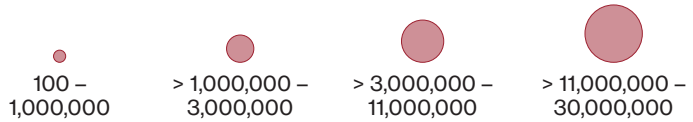
Even within the data constraints of both climate migration forecasting and global estimates of people living in informal settlements (Boanada et al., 2024), it is urgent to center climate migration attention on urban informality – to localize it. The set of maps on the following page is illuminating. **Map 1** shows that among the countries that currently have large populations living in urban informal settlements, those that will likely face the largest numbers of internal climate migrants by 2050 are India, Nigeria, Pakistan, Bangladesh, Indonesia and the Philippines. This indicates that applying a climate migration lens to local policies for upgrading consolidated informal settlements is needed most in these countries. **Map 2** shows that among the countries that are currently experiencing rapid urbanization, those that will likely face the largest numbers of internal climate migrants by 2050 are Niger, Uganda, Tanzania, Burkina Faso, Angola and Mali. This indicates that it is imperative for urban planning in these countries to integrate climate migration estimates.



# Countries with high rates of urban informality will see high numbers of internal climate migrants

**Map 1 and 2**

**Internal climate migrants forecast by 2050, pessimistic scenario, RCP 8.4 / SSP 4\***



**Sources**

<sup>1</sup> Climate migration forecasts by 2050 by Clement et al., 2021, updated by Kallergis et al., 2024.

<sup>2</sup> People living in informal settlements in 2020 by UN-HABITAT, 2023.

<sup>3</sup> Urban population growth from United Nations' World Urbanization Prospects, 2018.

\* Representative Concentration Pathways, RCP, and Shared Socioeconomic Pathways, SSP, are scenario types used jointly in climate modeling to project potential future climates. The pair RCP 8.5 / SSP 4 is generally used to describe the most pessimistic scenario in climate forecasting.



**Without ambitious interventions to upgrade informal settlements, the climate vulnerability of the poor will merely be displaced from one place to another, rather than sustainably addressed.**

### Climate migration models are “slum blind.”

Existing models of climate-induced displacement and migration hide the critical role that informal settlements play in mitigation and adaptation and as host communities. Both climate and population data used in the calculations underrepresent the contribution of slums and informal settlements.

Frameworks used by scientists to model climate underestimate the role urban areas play in affecting climate conditions, notably heat (Du et al., 2023). In part, this bias is because of the low spatial resolution of the models – grid cells are only as small as computational power allows – and because the heterogeneity of urban environments is overlooked (Zhao, 2024). A more urban focus is a high priority for the scientific community, and an IPCC special report on climate change and cities is already in the works and due to be released in 2027. However, the degree to which these efforts will integrate more accurate data on informal settlements, thus improving the global census-based estimates by UN-HABITAT, is yet to be seen.

In terms of future population estimates, it can be said that the population gravity model used by Groundswell is more attuned to rural push factors than to urban pull factors. Its baseline is calibrated by historical population movements derived from water availability and crop productivity (Jones and Sherbinin, 2022). The model then calculates the population potential of an area by assigning values to grid cells based on the accessibility of each area to large numbers of people as a proxy for “attractiveness for human settlement,” but compelling factors such as housing availability are not factored in.

More critically, it is unclear whether informal settlements are considered areas having a push or a pull factor in existing climate modeling. Such “slum-blindness” of climate migration modeling is problematic. **The reality that informal settlements are de facto large-scale providers of low-income housing alternatives should not be ignored**, or else the future models will label many of these areas as uninhabitable because of their high climate risk instead of hotspot migration destinations. Unless this is corrected, climate migration modeling will not capture large numbers of people moving into risk rather than away from it, leaving governments and policymakers ill-equipped to plan for a more resilient future.



Comunidade Nova Vida, Manaus, Brazil



## Opportunities

# Localizing efforts to leverage sustainable human development gains

Not only are the challenges – high poverty rates, climate risk, gender imbalances, health issues, informal employment, civic disempowerment – concentrated in urban informal settlements, but also the potential solutions: affordable housing options, mixed-use areas, walkability, large numbers of small businesses, more presence of grassroots organizations, and cultural identity. This dual character reinforces the opportunity of directing strategic investments to informal settlements as the places and populations that need them most and that will make the most out of them. Informal settlements are the physical face of climate migration and represent the greatest opportunity to localize actions more strategically. There, development efforts have multiple positive ripple effects.

From the above, Habitat for Humanity has identified key opportunities that require attention and investment if we are to collectively support populations migrating within and between countries because of climate change:

### **Investing in informal settlements where climate migrants settle is a critical opportunity to manage and reduce climate vulnerability.**

- Improvements in urban infrastructure (including public works, mitigation and adaptation infrastructure, natural ecosystems, and structural repairs) increase resilience to climate shocks and lead to healthier living conditions for residents of informal settlements, with spillover effects for other urban residents.
- Increasing access to basic services such as sanitation is not just desirable in terms of more

sustainable and healthier living environments for low-income urban residents but also in terms of economic efficiency and resilience to environmental risks (Dodman et al., 2022).

- If well-managed, shifts in population distribution derived from internal climate migration can become part of an effective adaptation strategy, allowing people to rise out of poverty, build resilient livelihoods and improve their living conditions (Clement et al., 2021). This entails raising the awareness and consistency of urban informality knowledge on global climate risk management (Cobbinah and Finn, 2023).
- Urban informal settlements play a substantial role in absorbing displaced populations and accommodating new residents faster, more affordably and with more flexibility than formal housing solutions. Helping them offer adequate and climate-resilient settlement solutions would more equitably distribute the benefits of upgrading.

### **Migration to cities is not a problem but rather an adaptation opportunity that needs to be appropriately managed and supported.**

- People move to informal settlements seeking economic and social opportunities and can create “win-win scenarios for both newcomers and residents, harnessing the many cultural, social, and economic benefits migrants bring” (C40-MMC, 2021).
- Successful integration of migration into urban planning, housing policy, risk management and adaptation plans requires planning to be done in inclusive ways, co-produced and co-designed with diverse and marginalized communities (Dodman et al., 2022).



- Approaches that support people living in urban poverty and informality, rather than simply efforts to control irregular migration, are more effective in economic, social and environmental terms for migrants and their host communities. This is because human mobility produces more positive economic returns in the long term than it is generally credited (Clemens, 2011).
  - As migration policies begin to urbanize, urban policies need to be aligned with them to effectively respond to internal climate migration. This entails taking advantage of expanded labor pools, increased remittances after climate shocks, and climate-adaptive urbanization (Huckstep and Clemens, 2023).
- Investing in informal settlements has significant human development impacts beyond reducing climate vulnerability.**
- Recent research commissioned by Habitat for Humanity calculated the impacts of investing at scale in slum upgrading, revealing substantial gains at the national and global levels. In terms of income, equitable access to adequate housing in informal settlements can generate a direct impact of as much as 10.5% economic growth, measured either as gross national income, or GNI, or gross domestic product, or GDP, per capita. This increase in the size of the economy is likely to be higher than the cost of securing adequate housing in many countries.
  - Regarding education outcomes, this modeling showed that the expected years of schooling in some countries may increase by as much as 28% because of access to adequate housing in informal settlements. Globally, as many as 41.6 million children and young people could be enrolled in primary and secondary education because of housing improvements in informal settlements – 16.1% of the children and young people currently missing education.
  - Life expectancy globally could grow up to 4%, adding 2.4 years of life on average around the world solely because of the direct effect of ensuring access to adequate housing in informal settlements. Globally, more than 738,000 preventable deaths could be avoided annually, a number that is higher than the impact of eradicating malaria worldwide (Frediani et al., 2023).



Parque das Tribos, Manaus, Brazil. Erosion from heavy rains caused this road to collapse. Lack of proper infrastructure and access to basic services are some of the issues the community faces every day.





Beguntilla informal settlement in Dhaka

### Case study

# What slum upgrading looks like on the ground

In densely populated Bangladesh, 2,000 people move to the capital, Dhaka, every day. Most migrate from rural areas because of natural disasters and climate change. The most vulnerable of these migrants often settle in one of the city's more than 5,000 informal settlements or slums, which offer deeply affordable – albeit inadequate – housing options.

Investments in slum upgrading help families and communities incrementally work toward an adequate place to live. When done at scale, they provide economic growth, income, health and education advantages.

Habitat for Humanity Bangladesh's efforts demonstrate how slum upgrading can be a valuable adaptation strategy in informal settlements.

- **Building resilience through housing improvements:** Houses made from lightweight materials, often by people without construction training, offer little protection from typhoons, floods and other climate-related hazards. Replacing broken corrugated sheets for the roof or walls or strengthening housing structures with bamboo frames reduces vulnerability to disasters. Meanwhile, the addition of double bubble insulation in the ceiling and windows for ventilation helps reduce indoor temperature – an increasing risk because of climate change.
- **Water, sanitation and hygiene investments:** Climate hazards such as floods may cause death, injury and disease. Constructing community toilets, bathhouses and water collection points prevents the spread of waste and protects water from



contamination. Installing proper footpaths with drainage systems eases the problem of waterlogging during the rainy season. Adding ramps facilitates access to community water, sanitation and hygiene facilities for wheelchair users.

- **Supporting security of tenure:** Land tenure, especially land documents, forms the foundation for the tools that cities use for management planning. The implementation of spatial planning, delivery of services, infrastructure and revenue are linked to land documentation (Habitat for Humanity, 2019). Partnerships between the government, civil society organizations and communities residing in informal settlements enhance access to land and move families' journey toward a more secure form of tenure. The Urban INGO Forum, a consortium of over 20 nongovernmental organizations, advocates for security of tenure for residents of informal settlements, inclusive master plans, and sufficient allocation of the state budget for affordable and climate-resilient housing.
- **Mapping needs of informal settlements:** By mapping urban informal settlements, a needs-based geographic information system, or GIS, map and database were developed to improve urban programming and delivery of services by various stakeholders. The geo-database contains information on demographics, land tenure, housing condition and disaster-related vulnerabilities. It also gives a snapshot of household income and expenditure, education, health and WASH facilities, waste management, security and social issues, electricity connectivity, and community infrastructure, which all contribute to resilience. In 2019, 25 international nongovernmental organizations and the Dhaka North City Corporation used the database and maps for programming, advocacy and policy initiatives to promote optimum resource allocation.

- **Participation by and empowerment of local communities:** Residents meaningfully contribute to slum upgrading by incrementally improving housing and constructing community facilities. They provide valuable knowledge during mapping exercises, particularly in identifying hazards and available community resources. Training informal settlement residents – including women – in home construction and maintenance ensures that the community can tap affordable skilled labor to incrementally improve the community while making their houses more climate-resilient.



Water collection point, Khulna: before



Water collection point, Khulna: after

# Calls to action

Habitat for Humanity commends the G7's acknowledgment in the Foreign Ministers' Statement in April 2024 that climate change is a multiplier of risk with a strong impact on human mobility and that further measures of climate adaptation are needed to counteract the drivers of involuntary displacement. However, further emphasis would be expected not only on climate change as a driver for migration to G7 countries but also as a restraint to resilient integration of migrants who are disproportionately hosted in developing countries.

Habitat for Humanity also celebrates the G7 acknowledgment in the Climate Ministers' Statement in April 2024 that cities play a crucial role as drivers localizing and accelerating progress toward the Sustainable Development Goals in a net-zero, climate-resilient and nature-positive fashion. However, further recognition is required of the larger sustainable development challenges in developing countries that are rapidly urbanizing and that have larger numbers of informal settlements in dire need of adequate housing and services.

As such, for G7 countries to successfully inject consistency and coherence in investment in areas of shared priority, Habitat for Humanity raises to G7 members these priority climate migration calls to action:

## 1. Ensure alignment and strategic localization of global investments into underserved urban areas.

The global funding landscape of official development assistance, or ODA, needs more alignment, coherence and accountability mechanisms. In this process, strategic localization of investments in underserved urban areas, especially support for upgrading informal settlements, can be transformational. For example, the G7 Partnership for Global Infrastructure and Investment, or PGII, has scaled up efforts to support developing countries in transformative initiatives related to climate,

health and gender equity, among others. PGII's US\$600 billion commitment can achieve a more significant and sustained benefit if it aligns with the improvement of living conditions in informal settlements that are vulnerable to climate risk. This would entail targeted support for public works, urban services, land security and upgrading of habitability standards. In the field of climate financing, access modalities of the "loss and damage" fund – yet to be operationalized – must prioritize improving the habitability standards of climate-vulnerable populations living in informal settlements. In sum, targeting support toward upgrading informal settlements where vulnerable climate migrants will relocate can ensure that infrastructure funding – grey – and climate funding – green – are transformational.

## 2. Incorporate human settlement upgrading into responses for climate migration.

The urban nature of climate migration requires national and local governments to incorporate urban plans, slum upgrading, housing programs and territorial development as critical components of nationally determined contributions, or NDCs, and national adaptation plans, or NAPs. The G7 countries can promote such integration within their domestic policies while supporting their incorporation in developing countries through concessional finance or grants for upgrading informal settlements where climate migrants are expected to relocate.

## 3. Promote investments in global data and climate modeling frameworks that are slum-aware, not slum-blind.

The G7 members have a role in pushing the scientific community to refine its understanding of the contribution of urban informal settlements to current climate modeling. Preliminary analysis of forecasting methodologies suggests that many hazard-prone



areas are not understood as places where slums and informal settlements are already consolidated and will continue to grow despite their compounded risks because they provide affordable and flexible informal housing and employment opportunities. Hence, it is imperative to accelerate efforts to improve global estimates of informal urbanization and to quantify the potential carrying capacity of informal settlements to absorb migrant flows. Meaningful

participation from affected communities in these efforts will guarantee that they are more effective in producing an evidence-informed policy that is “slum-aware” rather than “slum-blind.”



The Rio Negro, Manaus, Brazil



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