Loss and Damage in Informal Urban Settlements

Study Report

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Produced by
UNU EHS
MCII

Loss and Damage in Informal Urban Settlements

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List of abbreviations

AfD	Agence Française de Développement (French Development Agency)
ARC	African Risk Capacity
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Cooperation and Development)
BPBD	Badan Penanggulangan Bencana Daerah (Regional Disaster Management Agency)
CBO	Community-Based Organisation
CLT	Community Land Trust
COP	Conference of the Parties
CSO	Civil Society Organisation
DfID	Department for International Development (UK)
ELD	Economic Loss and Damage
FLLoCA	Financing Locally-Led Climate Action
GCF	Green Climate Fund
GEF	Global Environment Facility
IDB	Inter-American Development Bank
JMA	Jakarta Metropolitan Area
KIP	Kampung Improvement Program
KYC	Know Your City Campaign
L&D	Loss and Damage
LDF	Fund for Responding to Loss and Damage
LGBTQIA+	Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, Intersex, Asexual, and others
MSME	Micro, Small and Medium Sized Enterprises
NCICD	National Capital Integrated Coastal Development
NELD	Non-Economic Loss and Damage
NGO	Non-Governmental Organisation
NbS	Nature-based Solutions
PAM JAYA	Perusahaan Air Minum Jaya (Jakarta Drinking Water Company)
PRONA	Proyek Operasi Nasional Agraria
RW	Rukun Warga (Community Unit)
SEWA	Self-Employed Women's Association
SGP	Small Grants Programme
SMEs	Small and Medium-Sized Enterprises
SNLD	Santiago Network for Loss and Damage
UDHR	Universal Declaration of Human Rights
UIIF	Urban Infrastructure Insurance Facility
UNDRR	United Nations Office for Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
UCAP	Urban Climate Action Programme
WIM	Warsaw International Mechanism

1. Executive Summary

Currently, over 1.1 billion people live in informal settlements (UN Habitat 2023). Over the next 30 years, an additional two billion people are expected to reside in such settlements – equating to around 183,000 people more per day (UN 2023).

Many informal settlements and their dwellers are ill-prepared for climate-related hazards, such as floods, landslides, storms and heatwaves. When disaster strikes, they are frequently excluded from regular urban planning and disaster risk management processes, risk transfer measures, aid distribution and post-disaster reconstruction programmes which increases their vulnerability to future disasters. As a result of this severe lack of preparedness and the high exposure and vulnerability, informal settlement dwellers are threatened by severe losses and damages through climate-related disasters.

The term "loss and damage" was used for the first time in 2007 at UNFCCC negotiations and has been a contentious topic ever since. Losses and damages refer to „the adverse effects of climate change that are not or cannot be avoided by mitigation and adaptation efforts" (van der Geest and Warner 2020). Despite increasing mitigation and adaptation efforts aimed at averting and minimising future losses and damages, global warming is leading to an increase in climate-induced losses and damages worldwide (Lenton et al. 2023). It is therefore becoming increasingly important to put robust policies in place to address unavoidable and unavoided losses and damages. These losses and damages can be either "economic", i.e. impacts on items that are commonly traded in markets, or "non-economic", i.e. impacts on items which are difficult to value on a monetary scale, such as culture or biodiversity (van Schie et al. 2022).

As the institutional landscape for Loss and Damage (L&D) is still being built, the policies and modalities guaranteeing maximum support to the people are yet to be designed – including for the growing number of urban dwellers living in informality. The next few years will be crucial in ensuring that policies benefit those most in need and that climate justice is achieved.

This study assesses what Loss and Damage mean for the lives of urban dwellers and how they can best be mitigated, based on three informal settlements in São Paulo, Brazil, Jakarta, Indonesia, Nairobi, Kenya. It is intended to provide an overview of the major gaps in knowledge and action, serve as a starting point for local and urban actors, and inform international policy-making.

In each of the three analysed settlements, multiple hazards – mainly floods, droughts and heat waves – cause a variety of economic and non-economic losses and damages. Most of the losses and damages identified relate to adequate housing, health and well-being, and financial security – challenges that are already highly problematic in urban informal settlements without the threat posed by climate-related hazards. Losses and damages in these three areas can cascade into other losses and damages, such as to basic services and people's social and cultural life. All of them can further exacerbate pre-existing vulnerabilities in urban informal settlements, making people even more vulnerable to future impacts.

Losses and damages to adequate housing, health and well-being, and financial security can potentially be classified as human rights violations, as the right to adequate housing, sanitation, health and an adequate standard of living, for example, is recognised in several human rights treaties (UN General Assembly 1966, 1948). Dealing with L&D would hence benefit from integrating the principles of climate justice.

As local communities are already dealing with losses and damages, they have implemented

responses that often complement or even replace insufficient or lacking institutional responses. In most cases, both types exist in parallel instead of being linked. Locally-led action exists in many ways and is often the most important, if not the only, help during and after disaster events. It should be meaningfully integrated into formal governance and action, including the averting, minimisation and management of losses and damages. On top of that, informal urban settlements suffer from a serious lack of data, which means that losses and damages are not recognised. As a result, disaster impacts are poorly documented or not documented at all and no action is taken.

Losses and damages neither exist nor can be addressed in isolation. On the ground, the political distinction between adaptation and L&D is largely irrelevant. This is particularly true for highly vulnerable groups such as informal settlement dwellers. Informal settlement dwellers have to cope with structural vulnerability. Therefore, transformative approaches are needed that address the root causes of vulnerability and engage dwellers as agents of change, while at the same time compensating losses and damages.

So far, no funds have been made available to cope with losses and damages caused by climate change. Nevertheless, it is not necessary to spend funds on completely new activities to avert, minimise and remedy losses and damages on entirely new activities. Instead, gaps in the existing funding landscape must be closed.

Learning from the above, three different pathways have been identified to bring L&D finance to the local level. First, existing social protection approaches should be expanded and used to provide support during and after emergencies. Second, governments and donors must recognise the crucial role that communities and CSOs play and enable them to play an active role, including by providing them with access to funding. Third, tackling complex challenges like climate change requires multi-level governance involving CBOs and CSOs as a prerequisite for L&D funding to reach the local level effectively.

2. Introduction

2.1. Informal Urban Settlements

More than half of the global population resides in urban areas, by 2050 it will be 70 per cent. Approximately 1.1 billion people currently live in slums or slum-like conditions in cities, more than one third of them children. Although the proportion of the urban population living in slums has declined slightly, from 25.4 per cent in 2014 to 24.2 per cent in 2020, ongoing urbanisation and internal growth are leading to increasing absolute numbers (UN General Assembly 2023). In total, an estimated 2.8 billion people are affected by some form of housing inadequacy (UN Habitat 2023). That also includes slums and informal or squatter settlements. Slum households are households in which the inhabitants do not have access to an improved water source, improved sanitation facilities, a sufficient living area, and they suffer a lack of housing durability and/or security of tenure. Informal settlements, on the other hand, are characterised by the lack of security of tenure, with modalities ranging from squatting to informal rental housing. These neighbourhoods can be inhabited by urban residents of different income levels, affluent and poor. However, very often informal settlements also have characteristics of slums, such as lack of basic services and infrastructure (UN Habitat 2020b; UN Habitat 2020a). Informal settlements are not uniform, they do not have the exact same characteristics everywhere (Sandoval and Pablo Sarmiento 2019).

In cities in the Global South, 30-50 per cent of the urban population generally live in informality, although in some cases the proportion can be much higher (Rojas 2019). Over the next 30 years, an additional two billion people are expected to live in such settlements – around 183,000 people daily (UN 2023). By far the largest share will be accounted for by cities in low- and middle-income countries, especially in Asia and sub-Saharan Africa. This means that the main burden lies with cities and countries that are already struggling with major challenges, including climate change impacts and natural hazard-induced disasters as well as population growth through migration and conflict. In 2021 there were an estimated 89.3 million displaced people globally, all of whom will eventually need adequate housing. Countries experiencing or transitioning out of conflict appear to be worse off, with higher shares of poor and slum dwellers (UN Habitat 2023). This exacerbates major challenges that already exist in cities such as the housing crises, particularly the lack of affordable housing, and the lack of basic services such as water supply and transportation. As a result, the needs of urban residents are not met (UN General Assembly 2023).

The New Urban Agenda – a UN framework for sustainable and inclusive urban development adopted in 2016 – emphasises the need to improve unsafe living conditions rooted in informality and reduce informality overall (Sandoval and Pablo Sarmiento 2019; UN Habitat 2015). This aligns with Sustainable Development Goal (SDG) 11, which aims to make cities inclusive, safe, resilient, and sustainable. Previous upgrading attempts focused on incorporating informal settlements into formal urban planning frameworks, "premised on a legal dichotomy between formal and informal" (Ono and Kidokoro 2020). However, "informal" is not simply the opposite of "formal" (Sandoval and Pablo Sarmiento 2019). While land tenure is a huge challenge, formalisation alone would not be sufficient to overcome inadequate housing conditions. "Adequate" housing would include secure tenure, solid construction, safe materials, accessible design, affordable pricing, cultural relevance and nearby infrastructure and public services (UN Habitat 2023).

Low-income groups are pushed into locations that are prone to disasters (Sandoval and Pablo Sarmiento 2019), such as riverbanks or steep slopes. Many informal settlements and their dwellers are ill-prepared for climate change and related natural hazard-induced disasters.

They face particularly high risks of floods and landslides, but also of storms and heat waves, due to their lack of preparedness and high exposure and vulnerability. (Satterthwaite et al. 2020; Quesada-Román 2022). Additionally, the risk of cascading effects from disasters is higher, as the underlying risk factors are intertwined (Purwar et al. 2020). These factors include unresolved conflicts in the territory due to insufficient or absent policies and frameworks on land tenure and property rights, which exacerbate existing vulnerabilities to human rights violations and economic exploitation (Gould 2009; Sarmiento et al. 2020). When a disaster occurs, these dwellers, who are already in a situation of extreme fragility, face additional difficulties from lack of own resources and delayed post-disaster response. This affects their recovery (Purwar et al. 2020). "Households with land tenure or occupancy issues that are exposed to natural hazards are frequently excluded from aid distribution and post-disaster reconstruction programs which increases their vulnerability to future disasters" (Sarmiento et al. 2020:1). In addition, dwellers of informal settlements are more likely to work in informal employment outside of any social safety net (UN Habitat 2023). Hence, they not only face a double burden during and after disasters (Start Network 2024), but also their crucial role in local economies and in the provision of essential services is hardly recognised. (UN Habitat 2015; Sarmiento et al. 2019). At worst, the disaster losses of informal settlements and economies are not even captured due to the prevalent lack of locally relevant and accurate data. In fact, informal settlements are often not even recorded in censuses (Sandoval and Pablo Sarmiento 2019; Satterthwaite et al. 2020).

Informal settlements and their dwellers frequently face a lack of recognition by governments (UN Habitat 2015). They are frequently or consistently neglected or isolated from regular urban planning and disaster risk management processes and risk transfer measures (Sarmiento et al. 2020).

This includes involving the dwellers of informal settlements in decision-making, for instance by introducing participation processes (Sandoval and Pablo Sarmiento 2019). Their rights – including the right to infrastructure, basic services and to adequate housing – and needs are often not considered or compromised in political or legal discussions and technocratic approaches (Sarmiento et al. 2020). The exclusion of informal settlements from urban planning and policy then leads to a persistent lack of adequate and affordable housing and basic services. UN Habitat therefore emphasises the urgency of promoting a "housing at the center" approach as a fundamental human right and development priority (UN Habitat 2023). Urban authorities implementing rights-based policy and integrated governance create more prosperous and sustainable urban contexts than those that take no action (Sarmiento et al. 2019; UN Habitat 2015).

Existing urban upgrading programmes that combine housing quality and tenure, basic infrastructure and public services have great potential to improve the livelihoods of urban dwellers living in informality. However, there are limits to adaptation in urban informal settlements. Urban upgrading programmes will not be fully effective either due to the scale of the hazard, e.g. flooding at a watershed level, or due to the residual risk. That results in an urgent need to consider the losses and damages[1] of urban dwellers.

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[1] *Losses and damages refer to impacts in a given location, while the term "Loss and Damage" refers to global policy processes incl. the respective Fund*

2.2. Loss and Damage

Climate change increases the likelihood and severity of hazards. For instance, studies show that climate change has contributed to monsoon rainfall in Pakistan (Otto et al. 2023), drought in the Horn of Africa (Kimutai et al. 2024), and extreme heat in India (van Oldenborgh et al. 2018). These hazards are causing increasing losses and damages to populations around the globe, especially to already vulnerable and marginalised groups.

The growing threat of climate change is also accompanied by an expansion of the international climate policy arena. At the centre of this arena is the United Nations Framework Convention on Climate Change (UNFCCC), in which countries discuss and define policy responses to climate change (Lefstad and Paavola 2023). Discussions in this arena initially focussed on mitigating greenhouse gas emissions to limit climate change and later on adapting to the impacts of climate change (Schipper and Pelling 2006). However, despite more than five decades of international debate on these topics, the impacts of climate change on human and natural systems have only become more pronounced (Ripple et al. 2023). Increasing awareness of these impacts has contributed to a growing debate on how to deal with the consequences of climate change that could not or cannot be mitigated or adapted to. As a result, Loss and Damage has emerged as the third pillar of international climate policy, alongside mitigation and adaptation (Broberg and Martinez Romera 2021).

Loss and Damage, in contrast to mitigation and adaptation, largely focuses on the question of how to deal with the impacts following a climate-related disaster. Its establishment in the policy arena has stimulated further conceptualisation and research. For instance, a widely accepted dichotomy is the distinction between the so-called economic and non-economic losses and damages (e.g. McNamara et al. 2021; Serdeczny et al. 2016; van Schie et al. 2023a). Economic losses and damages can be understood as the impact on items that are commonly traded in markets, such as houses, crops or roads. Non-economic losses and damages are impacts on items not commonly traded in markets, such as cultural heritage or psychological health (UNFCCC 2013). Moreover, there is separate literature on dealing with losses and damages caused by slow-onset processes such as drought and rainfall variability (e.g. Bahinipati and Gupta 2022; Singh et al. 2021; van der Geest and van den Berg 2021). However, while there is a growing body of research on how losses and damages are experienced, there is less evidence on how best to address them and what institutional arrangements are needed to ensure that those most affected by climate change receive adequate support (Serdeczny and Lissner 2023).

Most international institutions governing Loss and Damage are still in their infancy. For the past decade, the Warsaw International Mechanism (WIM) has been the only body under the UNFCCC to actively work on Loss and Damage. While the WIM was established to address Loss and Damage associated with impacts of climate change (UNFCCC Secretariat 2014), it has mainly improved dialogue and knowledge on Loss and Damage (Johansson et al. 2022). Significant progress has recently been made in establishing a broader landscape of institutions for Loss and Damage. In 2018, the Santiago Network for Loss and Damage (SNLD) was established to catalyse technical assistance to developing countries for the implementation of relevant approaches that address Loss and Damage (UNFCCC 2020). At the 28th Conference of the Parties (COP) in 2023, significant progress was made towards setting up the SNLD (UNFCCC 2024). At the same COP, the Loss and Damage Fund (LDF) was operationalised to “provide finance for addressing a variety of challenges associated with the adverse effects of climate change” (UNFCCC Secretariat 2023:5). In addition to these developments at the global

level, national governments are beginning to address the concept of Loss and Damage and integrate it into their national policies (Calliari and Vanhala 2022).

As the institutional landscape for Loss and Damage is still in its formative years, the precise policies and modalities that will ensure that people are supported are yet to be designed. The next few years will be important to ensure that policies are designed which serve those most in need and achieve climate justice. To ensure this, it is crucial that current knowledge gaps are better analysed. One such knowledge gap concerns urban areas. Historically, the Loss and Damage discourse has largely focused on impacts in rural areas, and little attention was paid to those living in urban areas. In fact, there is little evidence on what Loss and Damage means for the lives of urban dwellers and how best to mitigate it (Singh et al. 2021). Existing approaches that deal with losses and damages are often limited to local and autonomous action, such as community-based saving groups or slumdweller federations which usually carry out community-led documentations and mappings. Hence, urban dwellers bear a huge potential to introduce Loss and Damage approaches (Satterthwaite et al. 2020) that support the most vulnerable. At the same time, there is little discussion about how to prevent mal-actions resulting from a lack of coordinated mitigation and adaptation (Hurlimann et al. 2021) as well as about new activities related to Loss and Damage. This also applies to actions that do not contribute to alleviating the root causes of vulnerability and perpetuate precarious conditions in informal urban settlements. However, while Loss and Damage is often associated with climate justice (Boyd et al. 2021), discussions about urban informality are largely absent from both Loss and Damage research and policy. In this context, Satterthwaite et al. (2020) emphasise the need to add a normative component to the Loss and Damage debate for informal urban dwellers, linking it to urban upgrading that is more than rudimentary.

In a previous policy brief, we showed how economic and non-economic losses and damages can arise in urban informal settlements (***Figure 1***), and emphasised the importance of accounting for urban informal settlements in Loss and Damage policy and finance (Mirwald et al. 2023). In this report, we further fill this knowledge gap by exploring the experiences and needs related to urban informality using evidence from informal urban settlements in three cities: Nairobi, São Paulo, and Jakarta. We first provide a contextual overview of each of these cities. We then discuss how economic and non-economic losses and damages are experienced in each city with a focus on human rights and rural-urban linkages. We then examine existing data and assessment approaches and their limitations. This is followed by a discussion on current and potential financing and reparation mechanisms for informal urban settlements. We conclude the report with lessons and recommendations for policy and research on Loss and Damage.

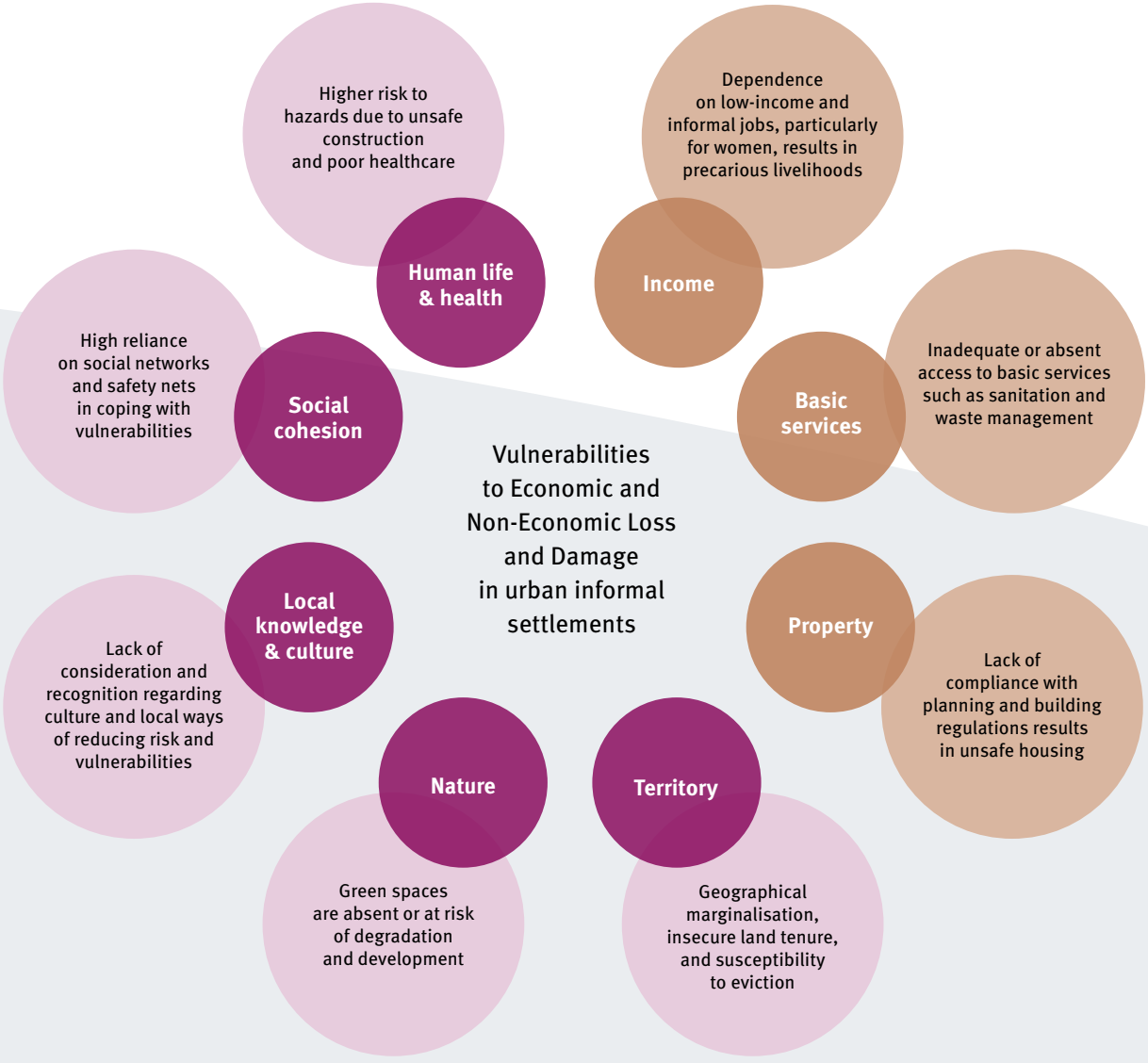

***Figure 1**: Examples of economic and non-economic Loss and Damage and vulnerabilities specific to urban informal settlements (Mirwald et al. 2023)*

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3. Objectives and Scope of the Study

This report seeks to fill knowledge gaps on climate-related losses and damages in informal urban settlements. Targeting Misereor Partner Organisations (MPOs), civil society organisations (CSOs), non-governmental organisations (NGOs), and community-based organisations (CBOs), the report aims to provide valuable insights and data that can serve as a basis for advocacy and campaigns. It informs on the potentials and limitations of including community-based and human right-based approaches into official Loss and Damage assessment methodologies and investigates whether there is a legal basis for classifying climate-related human rights violations as Loss and Damage.

Conclusively, it identifies possibilities for vulnerable groups of informal settlers to effectively access technical and financial resources that respond to losses and damages, in the hope that this contributes to more research that may help these communities and political decision makers address such challenges. By delving into these topics, the study seeks to equip these organisations with the necessary information to claim reparations and gain access to funding mechanisms for informal urban settlements. Additionally, it aims to contribute to the broader climate policy discourse, offering a foundation for further research and helping political decision-makers address these pressing challenges more effectively.

View into the side street of an informal settlement in Jakarta, Indonesia, Photo: Flitner/Misereor

3.1. Methodology

To achieve the outcomes highlighted above and close present knowledge gaps, the study adopts a qualitative research design.

Primary methods are used in this study including desk research and semi-structured interviews. Initial findings and recommendations were validated during an expert workshop. The analysis's first step was to gain an up-to-date overview of international loss and damage policies through a desk study. It mapped the situation in April 2023, knowing that it is a rapidly evolving field.

At the same time, three informal settlements were identified as case examples from different cities, countries, and regions. Selected settlements included Jardim Pantanal in São Paulo, Brazil, Kalibaru in Jakarta, Indonesia, and Kibera in Nairobi, Kenya (see ***Figure 2***). Thereby, the study sought to provide exemplary evidence of losses and damages in East Africa, Asia, and South America. Besides regional diversity, other decision criteria were vulnerability to climate-induced disasters and availability of entry points supported by Misereor Partner Organisations.

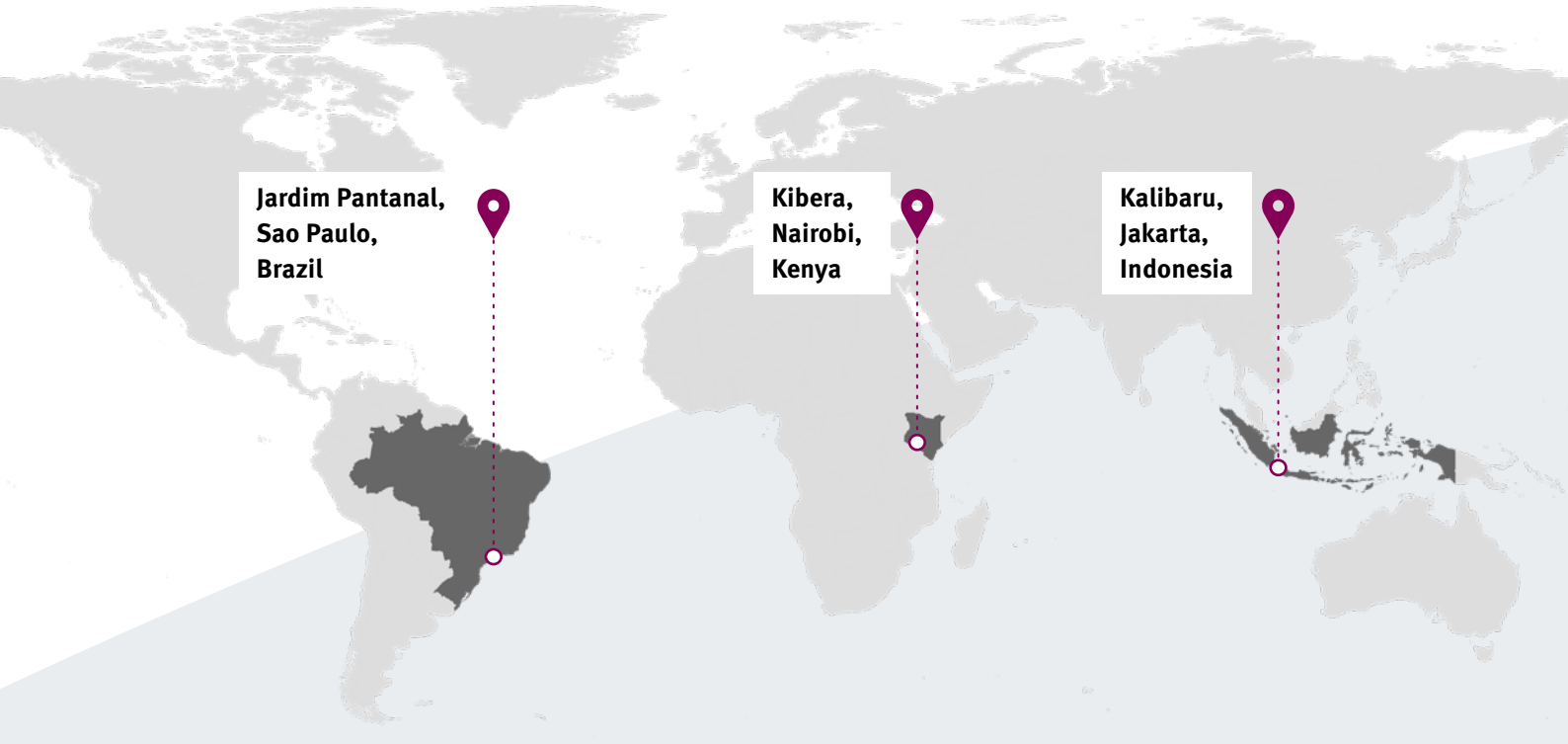

Figure 2: *Location of informal settlements analysed*

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The aim was to gain insights on economic and non-economic losses and damages faced by inhabitants of various urban informal settlements. This choice was aimed at capturing a wide variety of experiences and perceptions related to climate-induced economic and non-economic losses and damages from diverse stakeholders. Besides residents of the informal urban settlements, interviewees included civil society representatives, urban planners, and researchers familiar with the locations. In this report, Civil Society Organisations (CSO) include both Non-Governmental Organisations (NGOs) and Community-based Organisations (CBOs). In addition, local government representatives were interviewed in Jakarta to obtain a broader contextual overview that the participating researchers already had for the other two cities.

In addition to the 29 interviews conducted with 33 people in the different cities, a further 8 semi-structured interviews were carried out with 10 international experts (see ***Table 1***). These included researchers, policymakers and specialists on Loss and Damage, climate insurance, human rights, and urban resilience. The experts were selected based on their contributions to the field and relevance to the study objectives.

Location	**Number of interviews** *(in the case of group interviews, the number of interviewees is also indicated)*	**Gender m/f/d**	**Background**
Jakarta, Indonesia	13 interviews (16 people)	8 F, 8 M	• 5 NGO representatives • 2 local government representatives • 4 community members • 3 CBO representatives • 1 international expert • 1 Researcher
Nairobi, Kenya	8 interviews (8 people)	5 F, 3 M	• 4 NGO representatives • 4 CBO representatives
São Paulo, Brazil	8 interviews (9 people)	6 F, 3 M	• 7 NGO representatives • 2 researchers
International	8 interviews (10 people)	5 F, 5 M	• 1 insurance expert • 2 human rights experts • 2 experts on informal settlements and climate change • 5 experts on cities and climate change

Table 1: *Overview of interview partners*

Interviews were guided by a pre-developed questionnaire with overarching topics. For the interviews in the three cities, information was collected on the conditions and losses and damages in the respective informal settlement, existing assessment practices, issues of representation and decision-making and access to funding. The same question blocks were used for international experts, but adapted to a more global context. The guide was also adapted to the respective interview partner(s). Semi-structured interviews took place virtually or in-person, with one to three interviewers, and lasted between 45 to 75 minutes. Interviews were carried out in Portuguese, Bahasa Indonesia, Swahili or English, translated as needed and transcribed. The interviewers were already familiar with the respective cities and in some cases also with the specific locations.

Subsequently, findings from interviews on local and international scales were triangulated with data from literature to derive conclusions and recommendations. The findings of the interviews are presented in the subsequent chapters. Citations from these communications are presented in an anonymised way, as some interviewees asked not to be cited by name.

These findings and recommendations were presented and discussed in a virtual validation workshop in April 2024. In total, nine participants with diverse expertise in areas such as insurance, human rights, informal urban settlements, and climate change provided feedback on our project's findings and, in particular, on the recommendations derived from them. Their insights led to revisions that shaped the final report into its current form.

3.2. Limitations

Limitations of the chosen research approach include:

- **Data Accessibility and Reliability:** The study collected data from three informal settlements in three cities. While data was backed up with available studies and publications as much as possible, the generalisability of the findings may be affected due to the data-scarce environments in which the work was carried out and the limited number of settlements analysed.

- **Contextualization of Findings:** The different cultural backgrounds of the countries and cities analysed only allow a direct comparison to a certain extent, as opinions are expressed to varying degrees.

- **Scope of Study**: Focusing on three cities provided in-depth insights but also limited the broader applicability of our findings. Future studies should consider a wider array of locations for a more comprehensive understanding of global impacts.

- **Subjectivity and Bias**: As inherent in qualitative research, findings are influenced by the subjective interpretations of both participants and researchers. Future research could benefit from integrating quantitative methods to complement and triangulate our qualitative insights.

To overcome the limitations, further literature was sought to support, complement and contextualize the local findings. The comparison of the results from the three settlements shows overarching patterns, or the lack thereof, and thus allows cautious conclusions to be drawn about general challenges and needs. Beyond that, it also shows an acute need for further research to supplement the findings and inform Loss and Damage action.

4. Contextual Overview and Loss and Damage Assessment in Selected Cities

To understand and contextualize losses and damages detected in the selected informal urban settlements, this chapter provides a short overview of the national and urban contexts. First, a map is presented with information on the city scale of São Paulo, Nairobi, and Jakarta, showing the main identified hazards within these limits that belong to global data sets (GFDRR 2020). This may not reflect the reality of all urban informal settlements, since each of them has its own unique contextual and spatial characteristics.

The documentation of these conditions is limited to local scales, and typically, the data lacks sufficient disaggregation to allow for the identification of actual risks and appropriate measures. Community-based approaches that require specific collaborative assessments often fill the gaps left by the main public datasets. Therefore, another map showing the area of the informal settlement is presented that states the specific hazards identified during the interviews. Note that this might not be an exhaustive list of hazards occurring in the respective settlement.

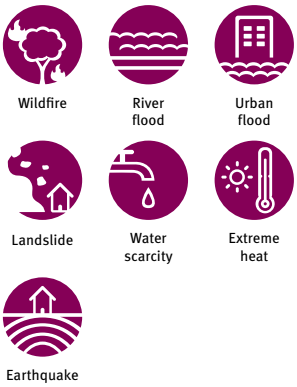
Flooding in April 2024 affected thousands of people in informal areas of Nairobi. This drone image shows demolitions in the informal settlement of Viwandani, Photo: Johnny Miller/unequalscenes.com

4.1. Jardim Pantanal, São Paulo (Brazil)

Brazil

São Paulo

Hazards



Brazil (country scale)	
Multi-hazard Average annual Loss (Million USD) [1]	3,679
Disaster Events due to Natural Hazards 2014-2024 [2] *(Biological, Climatological, Geophysical, Hydrological, Meteorological)*	77

São Paulo (city scale)	
Population (2022) [3]	11,451,999
Area Km² (2022) [3]	1,521
Disaster Events due to Natural Hazards 2014-2024 [2] *(Biological, Climatological, Geophysical, Hydrological, Meteorological)*	12
Total Affected population 2014-2024 [2] *(injured, affected and homeless)*	71,978

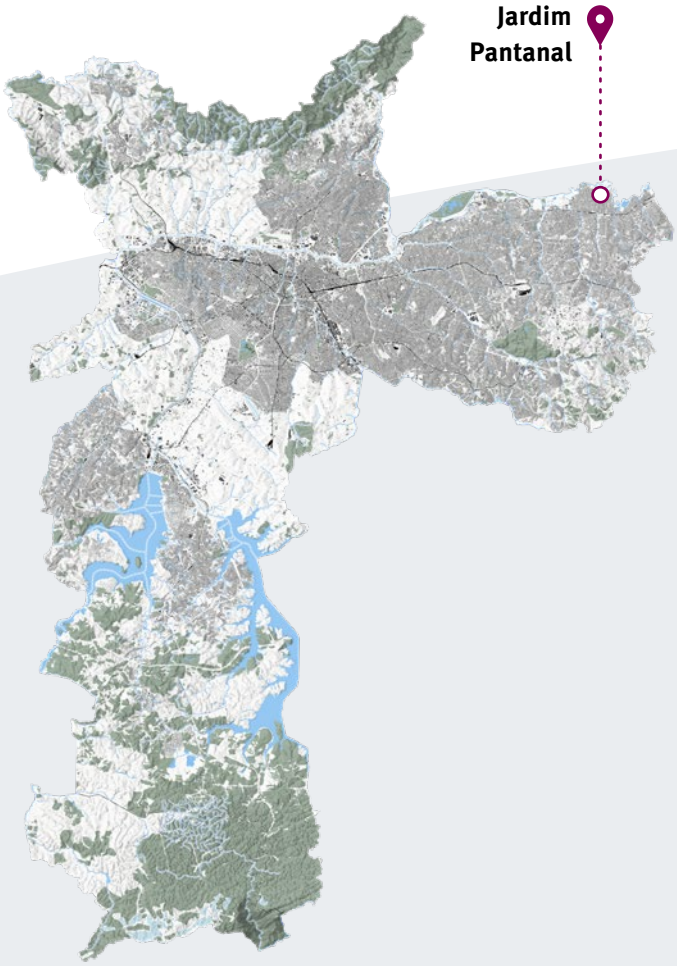


Figure 3: *Location of Jardim Pantanal in São Paulo (Brazil)*

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1. UNDRR (2015): Global Assessment Report on Disaster Risk Reduction. GAR Atlas. https://risk.preventionweb.net
2. EM-DAT, CRED / UC Louvain (2024): Global Database for Comprehensive Disaster Data. https://public.emdat.be
3. IBGE (2022): Sao Paulo Panorama. https://cidades.ibge.gov.br/brasil/sp/sao-paulo/panorama

*Maps elaborated with information from ArcGIS 2023 and Open Street Map 2024

The process of urbanisation in Brazil took place very quickly and is very much characterised by socioeconomic inequalities. In 1940, the urban population accounted for 31% of the total population (Maricato 2009). This figure rose to 88% in 2022 (World Bank Open Data 2024). Unable to access housing through the formal market and excluded from public policy, an impoverished population from rural areas, mainly from the poorer regions of Brazil, had no option but to live in informal settlements. These settlements are typically built in areas of risk and outside the formal market, such as steep slopes, flood-prone valleys, or contaminated sites (Vendrametto et al. 2021; Stiphany et al. 2022).

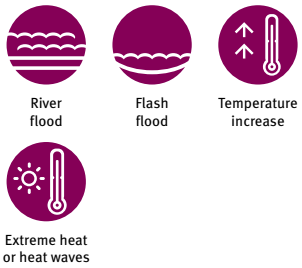
In São Paulo, Brazil's largest urban agglomeration with more than 11 million inhabitants, around 30% of the population is living in informality (Lejano and Del Bianco 2018). Informal settlements in the city are often characterised by a lack of infrastructure, overcrowded spaces, self-built and precarious housing, insecure land tenure, limited access to public services and insufficient infrastructure (Maricato 2009). Consequently, they are also disproportionately affected by the increasing impacts of climate-related disasters, such as landslides, storms, floods, and heatwaves (Nobre and Young 2011). Between 2030 and 2040, forecasts derived from the regional Eta-CPTEC 40 km model under the A1B scenario show a concerning picture for the Metropolitan Area of São Paulo. There is a clear trend towards increasing temperatures and precipitation levels. Researchers are highly confident in their assessment that these shifting conditions will increase several risks. These include heightened risks of river flooding and flash floods that exacerbate the incidence of water-borne diseases. Additionally, the likelihood of landslides in vulnerable settlements is anticipated to increase, posing significant threats to local communities (Nobre and Young 2011).

Jardim Pantanal is situated more than 20 km away from the city center in the Jardim Helena district in the São Miguel Paulista Subprefecture, one of the easternmost parts of the city. The area is designated as a Special Zone of Social Interest (Zona Especial de Interesse Social, ZEIS). This is a legal instrument used in urban planning in Brazil to delineate specific areas within the city where social housing projects shall be prioritised and the quality of life for low-income families enhanced. The riverbanks are identified as Special Zones of Environmental Protection (*Zona Especial de Proteção Ambiental, ZEPAM*) aimed at environmental preservation where construction activities are prohibited. Within this area, various types of housing coexist. There are formal but precarious houses, dwellings constructed within unauthorised subdivisions, and favela (informal settlements resulting from self-built and spontaneous occupation).

More than 10,000 people currently live in Jardim Pantanal. Over 70% of residents are women, more than 95% of households earn less than a minimum wage (approximately 275 USD per month), and 22% of the entire adult population lacks an income source. Public facilities are scarce in Jardim Pantanal, with only one daycare and two parks within the neighbourhood limits. Despite recent improvements in service provision, 25% of households still lack sanitation facilities. There is no drainage system, waste collection is insufficient, and most power connections are illegal (Gatti and Vendrametto 2022).

Jardim Pantanal

Hazards



In the interviews on Jardim Pantanal, river flood, flash flood and an increase of temperatures were identified as the most prevalent hazard. This is due to the proximity of a waterway and large built-up areas.

Population (2022) [1]	<10,000

***Figure 4**: Map of Jardim Pantanal*

© Schneide/Misereor post UNU-EHS
1. (Gatti and Vendrametto 2022)

Informal occupation of the area began in the 1980s along the banks of the Tietê River. The river pollution, coupled with the absence of drainage and sanitation infrastructure, the occupation of floodplains, and the alteration of original geomorphological characteristics through embankments contribute to the occurrence of regular floods and the resulting severe impacts on the community (Vendrametto et al. 2021). While these floods have been a recurring issue since the community's inception, residents feel they are worsening due to the combined effects of intensified urbanisation and climate change:

> *"Even as a teenager, I had to help my grandmother and other residents because the community was flooded. (...) It used to rain a lot all month long, so that the community would be flooded for two or three days. Now it's different, it rains for 20 minutes, so hard that it scares us, haunts us, and ends up causing a lot of disruption."*
>
> ***(NGO Representative in São Paulo)***

The floods submerge the community for days, disrupting service delivery, schooling, mobility, and leisure activities. They devastate homes, furniture, food supplies, and other belongings, including personal documents, mementos, and photographs. Consequently, residents are constantly engaged in repairing their houses, which imposes both economic and psychological burdens. The prevailing sense is one of instability and constant state of alert, which significantly impacts the mental well-being of residents. Moreover, physical health is also adversely affected by the floods, as people are prone to injuries or even fatal accidents. The contamination of water, and proliferation of rodents and mosquitoes lead to various diseases that overwhelm the health facilities that try to accommodate everyone.

In an effort to mitigate or avoid risks, many residents relocate within the settlement and construct new houses, often on newly constructed embankments. However, this adaptation strategy often results in maladaptation, which further increases the individual's vulnerability:

> *"We can already see that people are moving within the territory, for example an extremely vulnerable family living on the edge of the river that has flooded twice (...). They have lost everything. Now, they will move to an even more vulnerable area. As they have no experience [of previous floods on this site] yet, they do not know what it means to move to this even more vulnerable area."*
>
> ***(NGO Representative in São Paulo)***

According to the interviewees, rising temperatures and heatwaves pose a significant challenge for the population residing in overcrowded homes with limited resources to mitigate the heat. In March 2024, for example, the average maximum temperature was 29.7°C, marking a 1.7°C rise above the city's Climatological Normal of 28.0°C. The peak temperature of the month was verified during a heatwave, reaching 34.7°C. This sets a new milestone in the historical records for March, surpassing the previous high of 34.3°C recorded in 2012 (INMET 2024). Furthermore, periods of drought have become more severe and led to increased rates of respiratory diseases due to elevated levels of suspended dust in the air. In response, residents have begun installing water reservoirs in their homes to ensure stable water supply during the driest weeks. These adaptations highlight the community's efforts to cope with the evolving climate-induced risks, but they also show the urgent need for comprehensive measures to address the multifaceted impacts of climate change on public health and well-being:

> *"In any case, the periods of drought have been very intense and consequently there are heat peaks in winter and spring. These cause people in the street to get sick from the heat. There is no shade, no drinking water in the street, there's nowhere to wash your hands. The Tietê River is flowing right in front of you, so it's a very big contrast."*
>
> ***(NGO Representative in São Paulo)***

Extreme weather events and slow-onset disasters in Jardim Pantanal profoundly impact human lives, health, livelihoods, and assets. They amplify existing inequalities and trap vulnerable populations in a cycle of poverty. Individuals and communities struggle to recover and rebuild their lives, exacerbating their vulnerability.

Following a disaster, responses typically come from the affected families, neighbours and community-based organisations already established in the community. Instituto Alana and the Neighbours' Association (AMOJAP) play central roles in community organisation. Other groups and individuals also contribute, including community and religious leaders, political party-affiliated groups, and a local association of mothers commonly known as Mothers' Club, which also collects donations and advocates for the women's rights in the community. Post-disaster response primarily focuses on immediate aid and is rooted in solidarity. While the community often receives donations organised by local and external organisations, there is a lack of long-term assistance for recovery and development.

In an effort to address these challenges more systematically, Instituto Alana and the Institute of Architects of São Paulo (IAB-SP) facilitated the development of a participatory Neighborhood Plan. Developed between 2020 and 2021, this document is integrated into the municipal planning system of São Paulo. The plan emerged from several workshops with the community to identify key challenges and strengths and to design appropriate solutions. The plan features: the timeline and methodology used for its elaboration; a summarised assessment of the territory, including existing vulnerabilities; a community assessment on needs and aspirations for the territory; proposals regarding mobility, public spaces, and environment protection; the presentation of existing measures such as sanitation infrastructure works and land regularisation; an action plan and next steps (Gatti and Vendrametto 2022).

The elaboration of a participatory Neighborhood Plan also aligns with efforts for land regularisation aimed at securing land tenure for current residents. The plan underscores the importance of community engagement and the role of local organisations in upgrading the neighbourhood. It provides guidelines rooted in the Sustainable Development Goals across various aspects of the community, including water management, green spaces, land regularisation, and housing (Gatti and Vendrametto 2022). Moreover, it leverages existing and emerging initiatives to address local climate change and development challenges, fostering a more resilient and sustainable future for Jardim Pantanal.

4.2. Kibera, Nairobi (Kenya)

Kenya

Nairobi

Hazards

Kenya (country scale)	
Multi-hazard Average annual Loss (Million USD) [1]	120
Disaster Events due to Natural Hazards 2014-2024 [2] *(Biological, Climatological, Geophysical, Hydrological, Meteorological)*	30

Nairobi (city scale)	
Population (2023) [3]	4,750,056
Area Km² (2023) [3]	703
Disaster Events due to Natural Hazards 2014-2024 [2] *(Biological, Climatological, Geophysical, Hydrological, Meteorological)*	11
Total Affected population 2014-2024 [2] *(injured, affected and homeless)*	1,176,139

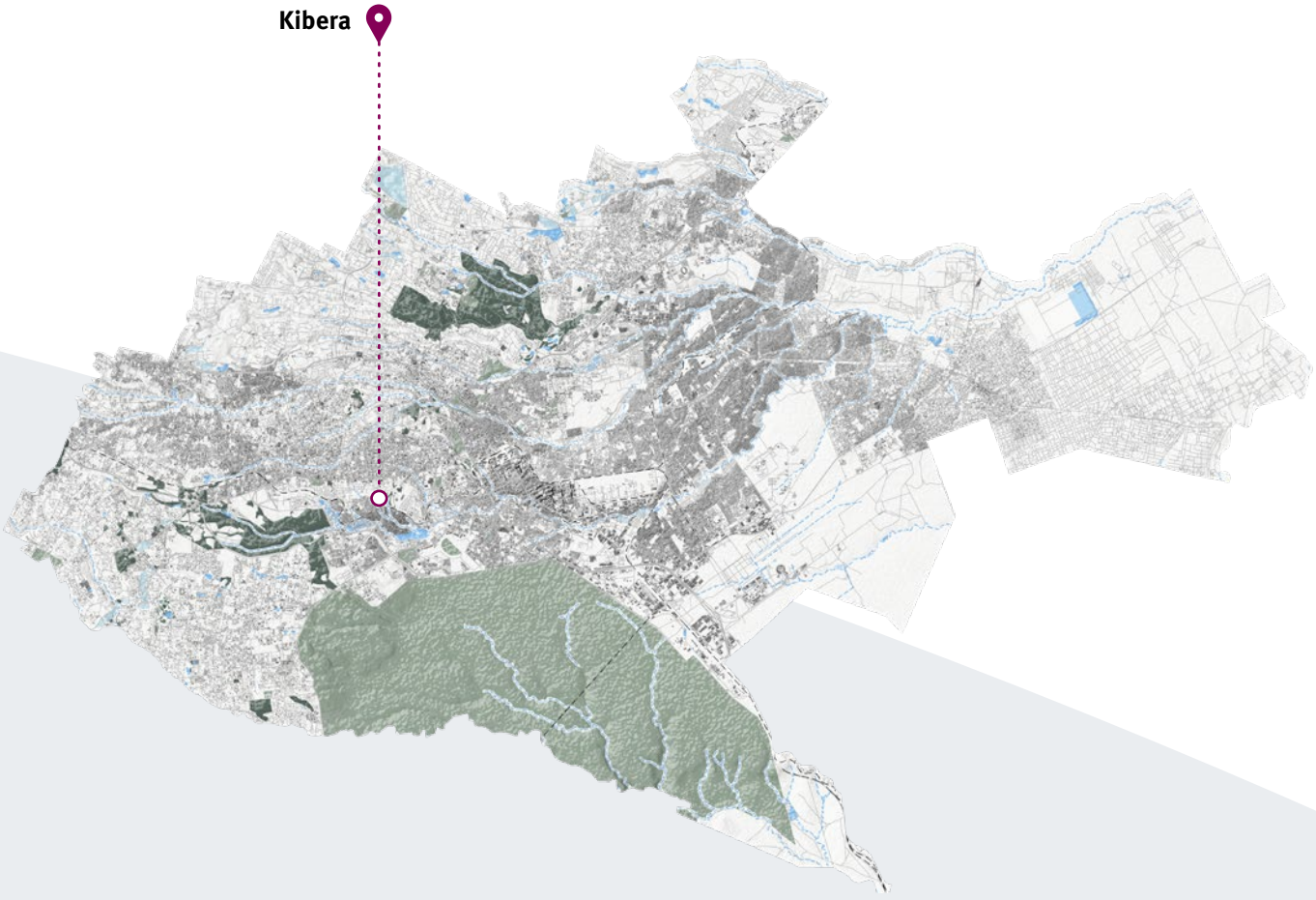


Figure 5: *Location of Kibera in Nairobi (Kenya)*

© Schneide/Misereor post UNU-EHS

1. UNDRR (2015): Global Assessment Report on Disaster Risk Reduction. GAR Atlas. https://risk.preventionweb.net
2. EM-DAT, CRED / UC Louvain (2024): Global Database for Comprehensive Disaster Data. https://public.emdat.be
3. Thomas Brinkhoff (2022). City Population. https://www.citypopulation.de/en/kenya/admin/nairobi/47__nairobi/

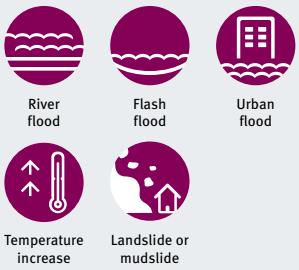
*Maps elaborated with information from ArcGIS 2023 and Oxxpen Street Map 2024

With over 4.3 million inhabitants (KNBS 2019) Kenya's capital Nairobi is not only the largest city in the country but also one of the most populated ones in East Africa. Nairobi is the economic hub of Kenya and accounts for over a quarter (27.5 per cent) of Kenya's total Gross Domestic Product (KNBS 2023). Of the total population in Kenya, the urban population is estimated to have grown from 7.7 per cent in 1960 to 28.5 per cent in 2021 (Eze et al. 2023). Rapid population growth in Nairobi, coupled with poor urban planning approaches, inadequate infrastructure, land tenure issues and insufficiently addressed housing needs, have contributed to the rise of informal settlements in the city since Kenya's independence in 1963 (Mwau et al. 2020). However, during the colonial era, land in Nairobi was appropriated without considering the local population and their land use practices, leading to the emergence of segregated settlements and informal urban processes (Anyamba 2011). To date, there is no provision for informal settlements in Kenya's Community Land Act. Approximately 60 per cent of Kenya's urban population lives in informal conditions and lacks essential services. With no legal status for informal settlements, inhabitants are prone to evictions by public authorities and private landowners. The limited action by the government to address rampant informalisation is due partly to a lack of political will stemming "from unsubstantiated fear that any policy that would foster informal settlements could lead to its further expansion" (Ono and Kidokoro 2020).

Kibera is the largest informal settlement in Nairobi both in terms of population size and density (UN Habitat 2020b). While varying figures for the total population of Kibera have been presented, many estimations range between 200,000 and 700,000 people (UN Habitat 2020b; Mitra et al. 2017). Kibera is about 5 kilometres from Nairobi's central business district and occupies approximately 2.25 square kilometres of land (Agayi and Serdaroğlu Sağ 2020). The settlement has limited public spaces, irregular and narrow street networks with fragmented lighting infrastructure which has led to a limited potential for social interaction and security problems (Filippi et al. 2020). Poverty and related food insecurity are widespread challenges in Kibera (Sverdlik 2021). The high population density beyond the settlement's ability makes Kibera highly vulnerable to various risks that affect its inhabitants' daily lives and livelihoods. Besides risks from growing heat but also epidemics (Kabiru et al. 2023), there is an intensifying risk of flooding in Kibera due to inadequate drainage facilities and locational reasons, such as people living along River Ngong and other water bodies (Sverdlik 2021; Juma et al. 2023). Floods are being recorded almost every year and have caused deaths, the destruction of property and spread of diseases (Mulligan et al. 2017).

Kibera

Hazards



During the interviews about Kibera, flash floods, river floods and increased temperatures were identified as the most prevalent weather-related hazards. This is because of people living along the river bank, built-up areas and inadequate drainage facilities.

Population estimation (2017-2020) [1] 200,000 - 700,000

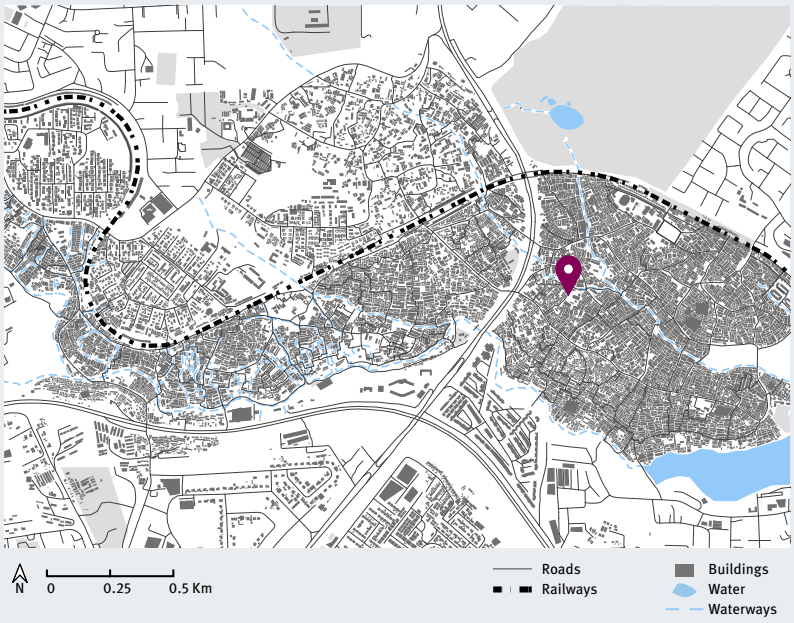


***Figure 6**: Map of Kibera*

© Schneide/Misereor post UNU-EHS
1. (UN Habitat 2020; Mitra et. al. 2017)

Heating urban climate and climate change are a huge threat in Kibera, with massive effects on people, their livelihoods and their cultures (Mulligan et al. 2017). Some of the losses and damages can be quantified economically, while others cannot. For instance, an intensification of extreme rainfall coupled with the observed drying trend and increases in seasonal rainfall are projected for Kenya, leaving already vulnerable societies with the challenge to prepare for a changing climate (Kimutai et al. 2022).

Floods regularly destroy road infrastructures and social amenities such as streelights, making mobility difficult. Flooding also submerges footbridges and increases the incidences of landslides in the area, which further exacerbates the losses and damages. In addition, the floods disrupt livelihood activities of the residents who mainly rely on the informal economy for sustenance. Small businesses and street vendors particularly suffer income losses from their economic activities.

> *"But aside from that, our infrastructure is destroyed, both the physical infrastructure and the social amenities, but mainly the physical infrastructure. Probably because of the poor construction of the infrastructure."*
>
> ***(NGO Representative in Nairobi)***

Increased frequency of climate-related hazards in Kibera has been reported to cause public health concerns. Due to poor drainage systems, large swathes of the informal settlement develop dirty stagnant water that is a breeding ground for various disease-causing organisms. Experts cite an observed increase in malaria incidence in Kibera during and after floods. Stagnated water combined with poor sanitation and sewerage infrastructure often result in severe outbreaks of water-borne diseases such as Cholera. Moreover, heatwaves and extended periods of drought create a conducive environment for the malaria-causing anopheles mosquito to thrive. Residents also experience great discomfort during heatwaves which sometimes results in fainting or death amongst the most vulnerable:

> *„ ...cases of malaria have increased. We never used to experience cholera. But in the informal settlements like Kibera, the number of malaria cases of malaria have been on the high."*
>
> ***(CBO Representative in Nairobi)***

Beyond increased disease incidence, climate-related hazards have been linked to increased societal pressures and tensions. In an area in Kibera that is already water-constrained, extended periods of heat-waves and high temperatures put more strain on community water resources, which leads to the increase of conflicts. Further, due to increased stress during these periods, residents experience mental health issues. Affected populations may also develop harm-causing coping mechanisms which increase the crime rate and drug use:

> *"So, by default, your life is completely affected and disrupted. And surviving alone is already almost impossible. And that's why you find that the crime rate is going up. More and more people are turning to drugs, you know, just for the sake of them to try to forget."*
>
> ***(NGO Representative in Nairobi)***

Climate-induced hazard events are great disruptors of people's lives in Kibera, leading to loss of life, property, and livelihoods. Increasing frequency and intensity thus contribute to making already vulnerable population groups even more susceptible to vicious cycles of loss. Further, the community is often left out of government-led development and upgrading schemes, including investment in key infrastructure. In many cases, the members of the community itself are usually the first responders during weather hazards. Self-organised local groups provide basic daily amenities and carry out awareness activities, which are often complemented by institutional responses.

4.3. Kalibaru, Jakarta (Indonesia)

Indonesia

Indonesia (country scale)	
Multi-hazard Average annual Loss (Million USD) [1]	9,218
Disaster Events due to Natural Hazards 2014-2024 [2] *(Biological, Climatological, Geophysical, Hydrological, Meteorological)*	180

Jakarta (city scale)	
Population (2020) [3]	1,778,981
Area Km² (2020) [3]	140
***Disaster Events due to Natural Hazards 2014-2024** [2] *(Biological, Climatological, Geophysical, Hydrological, Meteorological)*	16
***Total Affected population 2014-2024** [2] *(injured, affected and homeless)*	19,829,280

Jakarta Utara

Hazards

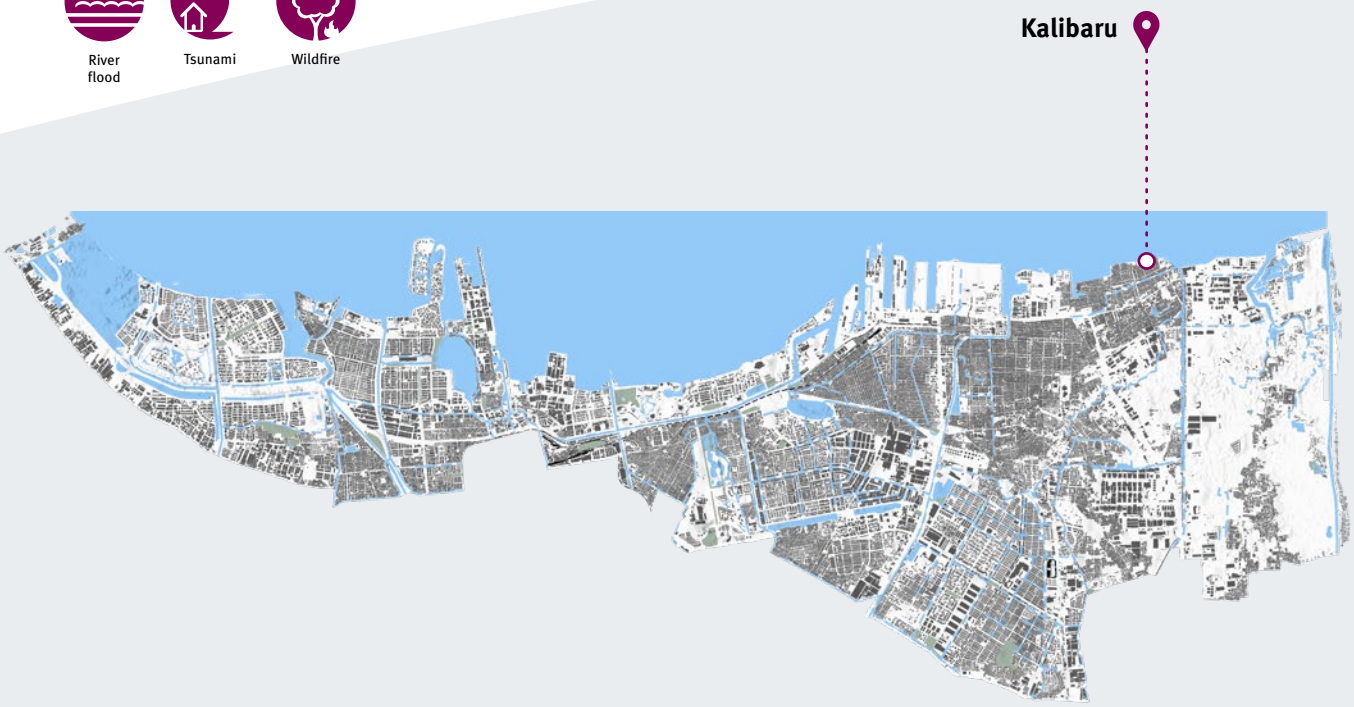


Figure 7: *Location of Kalibaru in Jakarta Utara (Indonesia)*

© Schneide/Misereor post UNU-EHS

1. UNDRR (2015): Global Assessment Report on Disaster Risk Reduction. GAR Atlas. https://risk.preventionweb.net
2. EM-DAT, CRED / UC Louvain (2024): Global Database for Comprehensive Disaster Data. https://public.emdat.be
3. Thomas Brinkhoff (2022). City Population. https://www.citypopulation.de/en/indonesia/jakarta/reg/admin/3175__kodya_jakarta_utara/

*Information for the whole Jakarta area

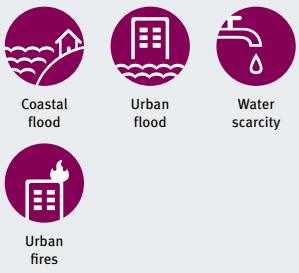
**Maps elaborated with information from ArcGIS 2023 and Open Street Map 2024

Jakarta is often cited as one of the most climate vulnerable cities in the world (Maplecroft 2021). The densely inhabited city is home to around 11.4 million inhabitants, the Jakarta Metropolitan Area (JMA) even exceeds 30 million (World Population Review 2024). The JMA is essentially a low lying coastal area and a large delta with 13 rivers whose highland sources experience heavy precipitation (Irawan et al. 2015; Yahya Surya et al. 2019). Thus, coastal and fluvial flooding is frequent, especially in the North Jakarta municipality, which is closest to the sea. The high density of the population, especially in informal settlements, makes the housing situation inadequate for many residents.

Kalibaru is a subdistrict in the municipality of North Jakarta. It has a population of 89,964 as of 2022, with a high density of 35,549 per km2 (BPS Kota Jakarta Utara 2023). Kalibaru directly faces the Jakarta Bay and many livelihoods depend on its proximity to the sea, particularly on fishing. Although this sector is becoming less popular as an employer, the fishing industry is still an important economic sector in Kalibaru. It houses a major fish auction site (TPI Kalibaru), the third biggest auction in North Jakarta (BPS Kota Jakarta Utara 2024). RW 01 or Rukun Warga 01 is one of the community units located directly on the shore. In the past it was also the most prone to climate hazards and is currently one of many areas feeling the direct impacts of the NCICD/Great Garuda seawall project.

Kalibaru

Hazards



Respondents confirmed regular coastal flooding events as well as urban floods due to high rain and clogged waterways. Water scarcity was also noted, as their main source of water were groundwater wells which dry up every year during the dry season. Lastly, a government respondent noted residential fires being a main concern.

Population (2023) [1]	90,000

***Figure 8**: Map of Kalibaru*

© Schneide/Misereor post UNU-EHS
1. (BPS Kota Jakarta Utara 2023)

The hazards of Kalibaru faced by the residents are flooding, abrasion, and extreme/erratic weather (Abidin et al. 2011; Takagi et al. 2016; Lestari et al. 2019). The threat of flooding stems from Kalibaru's geography. Historically, it was not always a residential area. Many of the participants from RW 1 reported that at one point in the 20th century, the Kalibaru area was a wetland/swamp which was drained later on. This explains the high environmental vulnerability of Kalibaru to inundation. Its proximity to the Jakarta Bay, especially RW 01 which sits directly on the shore, leaves it exposed to strong waves which are especially prevalent during the west-monsoon season. In the past, it was exposed to yearly abrasion which devastated the community and threatened its members with homelessness every year. This threat has subsided thanks to a seawall that has protected Kibera since 2019.

In the Indonesian context, informality is not necessarily seen as a barrier, as formality is not a prerequisite for gaining access to basic services. Even though many of Kalibaru's residents have no legal tenure over their land, they are still registered as official residents like most Indonesian kampungs (semi-urban villages). They are included in the public system, pay taxes and receive the benefits thereof (Obermayr 2023). It has long been known that informality in Kalibaru goes hand in hand with poverty. In 1993, Kalibaru was officially categorised as a desa tertinggal, or a "left behind" village by the Inpres Desa Tertinggal (IDT) programme under the Soeharto regime. Since then, Kalibaru's reputation as a left-behind area has led to the fact that the district has benefited from many more government programmes and research.

In contrast to the programme of the renowned KIP (Kampung Improvement Program), which focuses on housing, IDT focussed more on boosting the local economy by granting loans to small businesses (Booth 2003). However, as the focus is geared towards businesses rather than living conditions, researchers started to question whether the effects on people's well-being depicted are real. (Suryadarma and Yamauchi 2013). This is reflected in Kalibaru's current situation. On the one hand, many claim that the region is characterised by economic activity and that many people earn at least the minimum wage. On the other hand, however, the housing situation still does not meet the appropriate standards as defined by Habitat III (Obermayr 2023). As of 2021, Kalibaru is still housing 9 community units classified as slums with 9546 families (BPS Kota Jakarta Utara 2023).

Water and sanitation are the most pressing needs expressed in Kalibaru. These needs have not yet been met. In an interview with one of the NGO participants, they claimed that only 60% of the residents receive proper access from the regional government-owned water company, PAM JAYA. The remaining residents source their water from groundwater wells that they dig themselves. These provide access to water only for half of the year, during the rainy season. According to the respondents, the groundwater wells dry up in the dry season and the water quality deteriorates. The residents also describe saltwater intrusion:

> *"Everyone here uses groundwater wells, and during the hot season they dry out, the water is cloudy and kind of salty."*
>
> ***(NGO Representative in Jakarta)***

Although Jakarta isn't currently experiencing heatwaves, it is likely that the future rise in temperature will lead to further challenges of access to water (Darmanto et al. 2019). Even now, residents have limited access to water. Some studies also mention that the NCICD seawall will further induce seawater intrusion due to its masive size (Widodo 2017).

Extraction of groundwater also has the unfortunate side effect of land subsidence, which is the main cause of flooding (Abidin et al. 2011).

Kalibaru's traditional fishermen are another group that is particularly affected by ongoing developments such asthe seawall construction and climatic changes:

> *"When we talk about traditional fishing, then yes, we are very affected."*
>
> ***(NGO Representative in Jakarta)***

> *"The fishermen say that the baratan (west-monsoon) season has not yet started. The waves aren't high enough, the wind isn't strong enough. Even though Chinese New Year and Cap Go Meh [last day of the Chinese New Year] are already over."*
>
> ***(Community Member in Jakarta)***

The seawall blocks their access to the sea, on which their livelihood depends. Changing water flows have an impact on ecosystems and fishing grounds. The fishermen rely on indigenous knowledge of weather patterns, sea currents, and navigation when they set sail – all of which is impacted by the massive developments.

They rely on simple equipment and small boats. Weather conditions are unpredictable due to seasonal fluctuations. This has led to a shift in professions, and indigenous knowledge may be lost in the future.

5. Climate Change and Informality

Climate change and informality, particularly the impact of climate change on informal settlements, are evident in cities around the world, including Brazil, Indonesia, and Kenya. This chapter analyses the impact at the local level, based on case studies conducted, and supported by selected literature.

5.1. Economic and Non-Economic Loss and Damage in Informal Settlements

Across the three informal settlements, we found that people suffer economic and non-economic losses and damages to aspects that are critical to their livelihoods in a variety of ways. Instead of using a deductive approach and classifying losses and damages in pre-existing categories, such as those portrayed in ***Figure 1***, we used an inductive approach and categorised losses and damages according to the main themes raised by the participants. We found that most losses and damages relate to adequate housing, health and well-being, and financial security; three issues that are already highly problematic in urban informal settlements without the presence of climate-related hazards. We show how pre-existing vulnerabilities combine with climate-related hazards lead to losses and damages in these three areas. We also show that many of these losses and damages can cascade into others, which we have already portrayed in ***Figure 1***, such as to basic services and people's social and cultural life. All of these losses and damages can further exacerbate pre-existing vulnerabilities and make people more susceptible to future impacts (***Figure 9)***.

Many residences in San Juan de Lurigancho in Lima (Peru) are located on the hillsides on the outskirts of the city and are at risk of sliding downhill. Photo: Pohl/Misereor

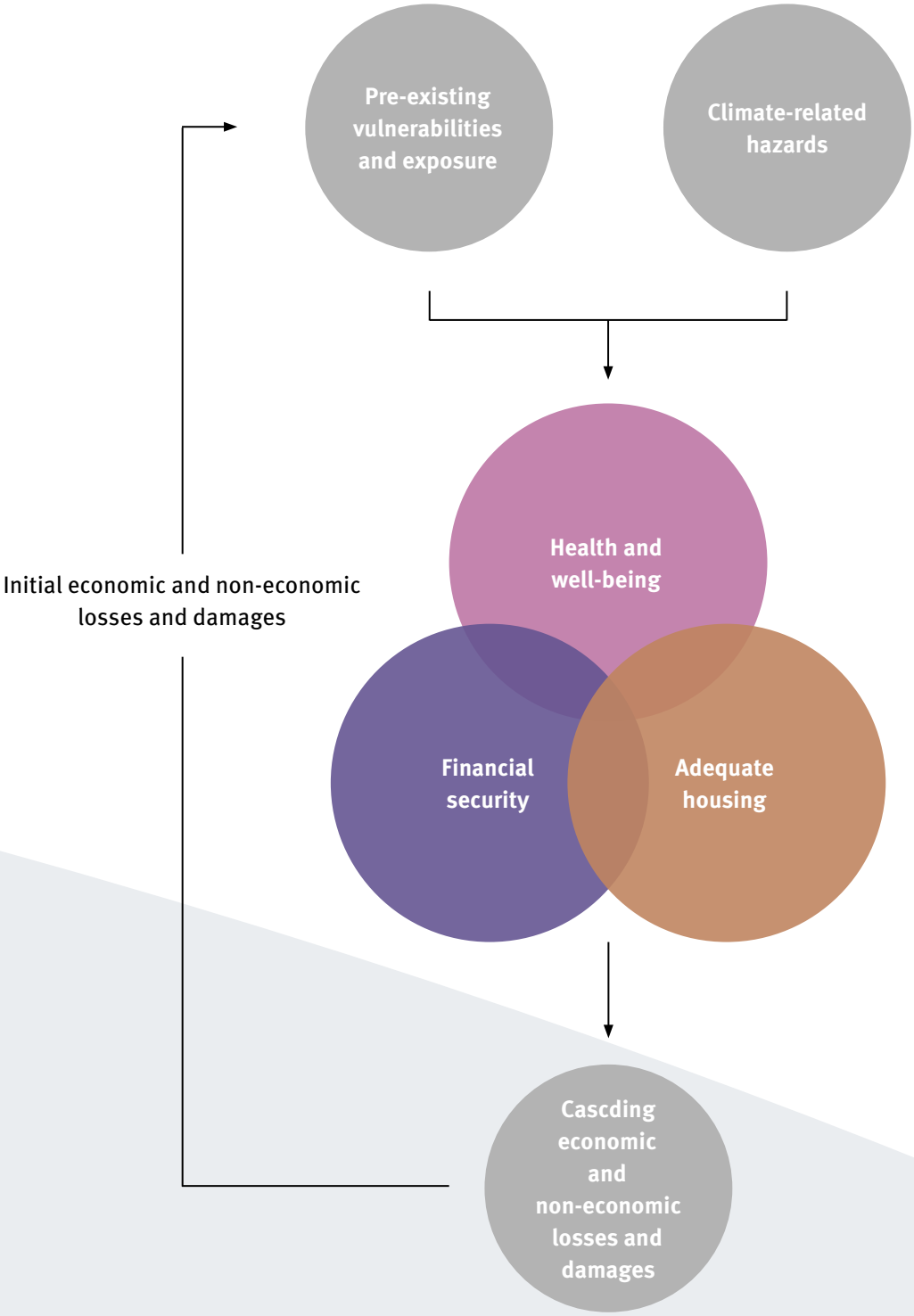


***Figure 9**: Schematic representation of how pre-existing vulnerabilities, exposure and climate-related hazards cause initial and cascading losses and damages in urban informal settlements*

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Adequate Housing

According to the United Nations, housing should not be reduced to a shelter or a roof over someone's head. The right to housing entails "the right to live somewhere in security, peace and dignity" (OHCHR 1991:2). Housing is the basis for access to many other rights, including water and health. The right to housing is only secured if adequate housing is provided, meaning land tenure security; adequacy of facilities; access to infrastructure; affordability; adequate space and living conditions; accessibility; facilitated access to job opportunities and services; construction adapted to the cultural identity.

Many of the climate-induced losses and damages faced by people living in precarious and informal settlements are linked to the fact that they are denied adequate housing conditions (Mazzucato and Farha 2023). Climate-related hazards such as floods, landslides and excessive rainfall can also lead to losses and damages to the houses. These occur, in part, because houses do not have strong foundations, are made of non-robust materials, and people have not been able to maintain them (Kikwasi and Mbuya 2019). Combined with these pre-existing problems, climate hazards can lead to various additional losses and damages related to housing. For instance, an NGO representative in São Paulo noted that:

> *"The house is precarious, it is raining through the roof, there are problems. When it rains a lot, people lose their mattresses, a leak ends up damaging their beds, food is lost. Another thing I had forgotten: Just before it starts raining, or as soon as it starts raining, before the river floods people's houses, rodents are the first to arrive. We have reports of rodents biting children, puncturing bags of rice and flour. There's a very serious problem in this respect. In the last flood last year, a resident was bitten by a snake, if I'm not mistaken, because a snake came out of the river and entered the person's house."*

The complete loss of houses due to floods or landslides also means the loss of personal possessions, which have a great personal significance beyond their market value: "You lose everything, photos, documents, everything that sometimes took you a lifetime to get" (NGO Representative in São Paulo). The loss of houses and personal possessions has also been recorded in other urban informal settlements around the globe (Dodman et al. 2019; Hardoy and Pandiella, 2012). A resident of Kalibaru, Jakarta, stated:

> *"Our house was washed away and destroyed every year. Every year. We were also always afraid of being carried away by the waves. Grandma... she died looking for bamboo. The bagan (light fishing stations) were destroyed during abrasion events, leaving plenty of bamboo floating. Grandma went to look for bamboo to rebuild the house but got pierced. We brought her to the hospital, but it was too late."*

The same resident reported that they once even had to sell the boat engine just to buy rice. The loss of a home can also lead to homelessness or people resettling elsewhere. Moreover, in São Paulo some interviewees mentioned that public authorities are misusing the risk of climate-related hazards as a justification to evict people from urban informal settlements. This practice has also been recorded in other informal settlements where people face disaster risk (Alvarez and Cardenas 2019; Chandran 2021; Valenzuela et al. 2020). Resettlements, whether voluntary or involuntary, often cause further negative impacts on people's livelihoods and community composition. For instance, governmental resettlement programmes in Jakarta have prevented fishermen from pursuing their work, which is crucial for their economic livelihood and cultural identity: "if you are a street vendor, you can move anywhere. If you're a fish trader, you have to be there" (NGO Representative in Jakarta). Moreover, governments do not always provide adequate support to enable people who have been displaced from their homes to regain their livelihoods.

Health and well-being

Often, informal settlers already face constant health risks due to a lack of adequate sanitation and clean water, overcrowding, and poor access to health services (Zerbo et al. 2020; Sverdlik 2011). The multitude of disasters across the three informal settlements can exacerbate these risks, for instance if diseases are caused as a result. Recurrent flooding and stagnant water cause waterborne diseases such as pneumonia and cholera (Dodman et al. 2019). In addition, flooding can render already inadequate sanitation services unusable, as drinking water cannot be provided and the water for bathing or drinking is contaminated. Heat also leads to an increase in diseases, such as malaria in Nairobi and dengue fever in São Paulo. Heat-related illnesses are also linked to the lack of shade and water in informal urban settlements. Illness not only affects physical health, but also means that people are unable to work or attend school. In addition to causing serious illness, these diseases can also be life-threatening (Satterthwaite et al. 2019). Loss of life can also result from direct physical impacts of climate-related hazards. In Nairobi, an NGO representative stated that

> *"Last year, we had floods around Kibera where people lost their livelihoods, their homes, and even their lives. So that is very common in this informal settlement."*

In addition to physical health, climate-related hazards can also cause significant mental health problems, and mental health already is a prominent issue in urban informal settlements (Oyekunle et al. 2023; Winter et al. 2020). In São Paulo, an NGO representative remarked:

> *"The other day, there was a TV report here in São Paulo in which the head of the family, in this case a woman, said that her son cries every time it rains. The family can no longer sleep when it rains, they keep an eye on the weather forecast, because if it's forecast to rain, it creates a state of absolute panic in the family, in the community. And then people can no longer sleep, they become extremely anxious."*

Indeed, every time a climate-related hazard occurs people may relive the trauma they experienced due to past disasters, and reliving trauma compromises their mental health. Moreover, participants spoke about how their mental health can be affected when they have to face losses and damages to aspects of their lives they value, such as their house, education, nature, and the opportunity for children to play outside.

Financial security

The various climate-related hazards also cause significant financial losses. Floods prevent people from running their businesses, customers from visiting shops and markets, and goods can be washed away. As an NGO representative from Nairobi mentioned:

> *"If an area is experiencing a heat wave and you do not really have a good cooling system, the vegetables you sell, usually go bad. So that means your capital is gone. So, you don't have anything shipped back to your family, and your business is done."*

An inside look in an informal settlement in São Paulo, Brazil, Photo: Kopp/Misereor

This example illustrates how the loss of vegetables due to a heat wave and inadequate cooling systems cascades into a loss of income. In fact, many of the losses and damages have affected people's financial security. Other examples of losses and damages that affect financial security include the cost of increased water consumption due to high temperatures, the cost of repeated repairs to homes after flooding or excessive rainfall, or medical expenses due to increased illness. As an CBO representative from Nairobi put it:

> *"Most of the times when it becomes very hot everywhere, people always want an extra glass of water or an extra bottle of water. In most settlements, they buy water. That means that if I have to buy a kilogram of sugar, I can probably only buy half a kilo for myself to be able to afford the extra number of cans of water."*

As an NGO representative in Jakarta said, these autonomous responses are "really creating expenses for the local communities, which trap them in [a] cycle of poverty". Additional financial strain also has an impact on other essential expenses, such as money previously earmarked for clothes, food or the education of people's children.

The observation that people living in urban informality suffer disproportionately high losses and damages in terms of housing, health, and income, and that these often have financial implications, shows how climate-related hazards exacerbate the poverty that is already prevalent in urban informal settlements (Sverdlik 2011). When these losses and damages occur, the limited adaptive capacity of people in urban informal settlements means they are forced to secure their livelihoods in ways that compromise other parts of life (van Schie et al. 2022). Consequently, people already living in precarity are trapped in "a downward slope of declining well-being and security" (Warner and van der Geest 2013:381).

Other economic and non-economic losses and damages

Some people noted the disappearance of grass, trees, and green spaces in general. However, in contrast to other assessments of losses and damages (e.g. McNamara et al. 2021; Nand et al. 2023; Westoby et al. 2022; van Schie et al. 2023a), reports of losses and damages to biodiversity and ecosystems were mostly absent from the interviews. This absence highlights the prominent issue of a lack of biodiversity and ecosystem services in urban informal settlements.

> *"And in that process, you realise that if we continue losing biodiversity at this pace, there soon will be no more vegetation [...]. And since more and more people are going to these informal settlements, more and more green spaces are disappearing. So, we don't have a lot of trees. We don't have grass."*
>
> ***(NGO Representative in Nairobi)***

Destroyed houses after heavy rainfall and mudslides from 2022 in Petrópolis, Rio de Janeiro, Brazil, Photo: Klause/Misereor

Other losses and damages included in other assessments—such as those related to cultural heritage, religion, local knowledge and social cohesion—were also hardly mentioned by participants and therefore mostly absent from this study. This is partly due to the limited scope of the research methodology, but also to the pressing issues of housing, health and financial insecurity in urban informal settlements.

5.2. Rural-urban Linkages in the Context of Loss and Damage

Challenges faced by people living in urban informal settlements are closely linked to wider rural-urban dynamics. The complex web of interdependencies between rural and urban areas becomes clear when one considers the cascading nature of losses and damages (Westoby et al. 2022). Losses and damages to agricultural productivity in rural areas have a direct impact on urban food security. The loss of agricultural productivity also causes economic hardship in rural areas, which could encourage rural-urban migration (van Schie et al. 2023a; Paprocki 2019). For instance, in South Africa, cities are facing a large increase in (the population of) informal urban settlements due to such migration (Mthiyane et al. 2022).

An international expert explained that rural-urban migrants *„cannot afford to pay for rent, or to live within the established suburbs. So, they set up a shack or they build themselves a house within the informal settlement"*.

The influx of people can exacerbate overcrowding in urban informal settlements, which in turn can exacerbate the existing vulnerabilities of urban informal settlements (Dodman et al. 2019). Respondents in Nairobi provided an insight into what happens when people move from rural areas move to urban informal settlements. They suddenly find themselves living in an area with water and sanitation problems and there is the risk that they will be displaced by flooding. Further, climate-related losses and damages can induce temporary urban emigration. Experts from Nairobi reveal that property losses following floods sometimes force a return to rural areas.

> *"So once a disaster has happened in an area, Red Cross will come in providing the beddings, the national government will tell people, move into higher grounds, and it ends there. These people that have been affected by floods, it's up to them to move in with their friends or go back to their village."*
>
> ***(CBO Representative in Nairobi)***

Cities provide job opportunities that might not be available in rural areas. Cities promise a supposedly more prosperous life than rural areas (Michaelsen and Haisken-DeNew 2015). Moving to an informal urban settlement however very often coincides with informal labour (Gundogan and Bicerli 2009):

> *"Informal workers return to their villages and hometowns for Eid. When they return, they bring more people with them, who move into their informal settlement. The Jakarta government is trying to reduce this."*
>
> ***(Researcher from Indonesia)***

A study on Brazil found that rural-urban migrants are more likely to be employed in informal jobs than non-migrants. Their income tends to be lower than the one of non-migrants, but higher than in the places of origin. In Brazil the wage premium was found to be 8 per cent. They are comparatively more frequent tenants than homeowners and live in houses that are on average of lower quality than those occupied by non-migrants. Nevertheless, rental prices are more than twice as high as in their rural communities of origin (Busso et al. 2021). Consequently, losses and damages in urban areas can hardly be borne by families back in the rural areas. At the same time, they are likely to be more affected by climatic events due to their comparatively precarious living conditions and informal work, which excludes them from many social benefits.

The loss of housing and economic resources in urban areas due to climatic events such as flooding has a ripple effect. It has an impact on rural communities as the poor urban dwellers have less capital available to send as remittances to their families in rural areas. As a consequence, the rural economy, which is partly dependant on this source of income stream, is affected (Mberu et al. 2013; Bartlett et al. 2009). These dynamics illustrate the interconnectedness of rural and urban vulnerability and the far-reaching effects of losses and damages that extend far beyond the actual location.

6. Advocating for Human rights in the Face of Loss and Damage

Claiming losses and damages requires that these losses must also be assessed, recorded and classified. Hence, there is a need for appropriate assessments. But behind this need, however, lie fundamental questions of rights and justice. In the case of Loss and Damage in informal urban settlements, human rights must also be considered, as basic services that are considered human rights are at risk.

6.1. Classification of Loss and Damage as Human Rights violations

The abovementioned losses and damages, which occur both in and are connected to urban informality, can potentially be classified as human right violations.

The right to adequate housing is recognised in international human rights law. For instance, the International Covenant on Economic, Social, and Cultural Rights (ICESCR), a multilateral treaty adopted by the United Nations General Assembly, recognises the right of everyone to an adequate standard of living, including adequate housing (UN General Assembly 1966). The right to adequate housing often includes legal security of tenure, protection against extreme climate conditions, easy access to safe water, adequate sanitation, and cultural adequacy (UN General Assembly 1948, 1966; UN Habitat 2007). All of which, as we described above, are being violated not only by climate-related hazards themselves, but also by public authorities misusing the risk of climate-related hazards as a justification to evict people and relocate them away from their socio-cultural livelihoods.

Health is also recognized as a fundamental human right in several international human rights instruments, including the Universal Declaration of Human Rights (UDHR), the first international agreement to set out fundamental human rights to be universally protected, and the ICESCR (UN General Assembly 1966, 1948). The latter includes „the right of everyone to the enjoyment of the highest attainable standard of physical and mental health“ (UN General Assembly 1966:4). We already described how both, physical and mental health of people living in urban informal settlements are significantly threatened by several climate-related hazards. In addition to the health issues themselves, climate change is hindering access to clean water and sanitation, which are basic human rights (OHCHR n.d.). Financial security as such is not explicitly listed as a human right. However, issues of financial insecurity and poverty are implicitly addressed in several human rights instruments and are often discussed in human rights terms (Campbell 2009). Moreover, financial security is necessary for the fulfilment of many human rights. For example, both the ICESR and the UDHR recognise the right of everyone to an adequate standard of living, including food, clothing, and housing (UN General Assembly 1966, 1948). As can be seen in the case of the three cities, financial security is necessary to achieve this standard of living, and climate-related hazards prevent people from enjoying this right.

Applying a human rights lens to the experiences the urban poor have due to increasing climate-related hazards demonstrates the synergies between human rights and Loss and Damage. This can be valuable in drawing attention to and addressing Loss and Damage (McNamara et al. 2023b). In the discourse for adopting a rights-based approach towards those that are the most vulnerable, the recent call for submissions by the Office of the United Nations High Commissioner for Human Rights is very pertinent. It explains how ‘the impact of loss and damage from the adverse effects of climate change on human rights’ has brought together a variety of perspectives with regard to the consideration of loss and damage through a human rights lens (OHCHR 2024).

Classifying losses and damages as a human rights violation involves identifying a perpetrator against whom legal action can be taken. Global warming is only one factor causing losses and damages in urban informal settlements. Hazards are natural phenomena that can be exacerbated by climate change, but there is still much debate as to whether hazards can be attributed to climate change (Noy et al. 2023; King et al. 2023). In addition, as seen in the three urban informal settlements, losses and damages often exacerbate structural societal problems such as poverty and inadequate public services.

Over the last ten years, the number of climate litigation cases has increased, including cases dealing with the impact of climate change on constitutional and human rights. And of the total cases (2,341) identified by the Sabin Centre for Climate Change Litigation Law, 67% were filed after 2015 (Setzer and Higham 2023), which coincides with the year of the Paris Agreement.

In September 2022 for example, the UN Human Rights Committee found that the Australian government was in breach of its human rights obligations by failing to help Torres Strait Islanders adapt to the impacts of climate change (OHCHR 2024). And several cases are currently underway, such as Chile and Colombia's request to the Inter-American Commission on Human Rights for an advisory opinion on the human rights impacts of climate change (ClientEarth 2024), and Vanuatu's request to the International Court of Justice for an advisory opinion on the obligations of states in relation to climate change (UN General Assembly 2023a). More recently, the European Court of Human Rights (ECHR) ruled that human rights are violated through climate inaction (ECHR 2024). This case (see ***Box 1***) sets an important legal precedent as it was the first of its kind heard and decided upon by the ECHR. While it is impractical for all those affected by losses and damages to resort to litigation, these cases highlight that losses and damages go beyond the damage to what people value and constitute a violation of human rights.

In 2016, a group of Swiss elderly women initiated legal proceedings against Switzerland for allegedly failing to implement actions that would steer the country towards national emissions reductions consistent with the goal to keep global temperatures under 2 degrees Celsius above pre-industrial levels. The group invoked human rights violations under Articles 10, 73, and 74 of the Swiss Constitution pertaining to the right to life, principles of sustainability, and environmental protection respectively, as well as Articles 2 and 8 of the European Court of Human Rights (ECHR). The claimants alleged that the government's limited actions would disproportionately expose them to the risk of heatwaves. The case was dismissed and efforts to appeal the decisions to both the Swiss Federal Administrative Court and the Swiss Supreme Court failed. In a final attempt, the group filed a case at the ECHR in 2020. On April 9th 2024, the ECHR ruled in favour of the group, stating that the Swiss Confederation had in fact failed to put in place sufficient mechanisms to meet its obligations under the convention on climate change.

***Box 1**: Verein KlimaSeniorinnen Schweiz and Others v. Switzerland*

6.2. Data and Assessment Approaches

People need to know what they lost to claim their rights. Likewise, governments on all levels, and other actor groups (such as humanitarians or CSOs) need accurate data to effectively respond to losses and damages and set the right priorities. Additionally, having the right data enables these actors to claim their rights, and demand additional (financial) support at different levels of government or international level. In short, you cannot address, claim and finance what you do not measure. It is thus highly important to consider informal settlements and the losses and damages they experience through assessment efforts. This can be done either by adapting existing approaches or designing new ones that are adapted to the respective pattern of losses and damages in these contexts. The assessment of losses and damages and associated costs is still an evolving field, and the existing assessment approaches have several limitations.

Challenges with measuring what cannot be measured

As highlighted earlier, there are inherent challenges in attributing losses and damages to climate change, as they are driven by multiple factors (King et al. 2023; Noy et al. 2023), and the complexity of urban environments implies a high level of uncertainty. Furthermore, some losses and damages are hard to measure, and to translate into monetary values:

> *"There are many things I can't measure. Either I'm going to estimate a value arbitrarily or I'm not going to be able to have an economic value around that loss. For example, how do I estimate post-traumatic stress? How do I estimate that a child missed a year of school because they couldn't go to school? How do I estimate that people got sicker from waterborne diseases? It's difficult to measure economically, because these aren't property losses. Or even how do I estimate the death of a family member?"*
>
> ***(NGO Representative in São Paulo)***

There are (albeit imperfect) methodologies for the monetary valuation of inherently non-economic goods, such as nature (Brander et al. 2024). The discussion on the valuation of ecosystem services has been controversial and heated. Proponents argue that pointing out the marketplace value is a way to remind people of what is being lost. It can serve as a tool to raise funds in strongly underfunded fields, such as biodiversity conservation. Critics warn that this strategy does not do justice to the deeper meaning of nature which is reduced to "a service provider fit to be incorporated into the global capital markets" (Conniff 2012). Additionally, this debate also shows the dominance of 'measurable' services like freshwater provision over other, less tangible ones such as recreational or spiritual values.

The discussion on the monetization of ecosystem services is just an example of all aspects of non-economic losses, such as human life (Keller et al. 2021), and health and well-being (Himmler et al. 2020). The discussion on the assessment of non-economic losses, as a basis for dealing with them is currently underway (DIE 2016).

Another challenge is related to how context-specific the understanding of Loss and Damage can be. Each assessment involves subjective values, especially in relation to NELD (Serdeczny et al. 2016). The importance of factors such as knowledge, heritage and identity is rooted in the values, beliefs, and priorities of communities impacted by climate-induced disasters. Therefore, the application of one-size-fits-all perspectives might neglect the complex dynamics of informal settlements and the factors relevant to their residents (van Schie et al. 2023c).

Finding a suitable arrangement for assessing non-economic losses and damages is crucially important for informal urban settlements. Many of the dweller's possessions might not have a high monetary value (e.g. based on the construction material and the quality of their housing), but a high intrinsic value, as their possessions are their (only) home and livelihood. The exclusion of NELDs from discussions on Loss and Damage means that many impacts are not considered, especially in the Global South, where economic losses from disasters are traditionally lower but losses of health and life much higher (UN 2021).

A similar challenge is the assessment of losses and damages in connection with slow- onset processes. In contrast to sudden onset events such as flooding, slow-onset processes are not immediately recognisable and do not have an immediate disruptive effect. Their gradual progression can obscure immediate impacts, which makes it difficult to measure changes (Singh et al. 2021). These are some of the established assessment approaches and challenges:

> *"As BPBD [Regional Disaster Management Agency] we use ECLAC (Economic Commission for Latin America and the Caribbean) as a basis to calculate loss and damage. We also use the Sendai Framework to do damage and disaster calculation. What we calculate, at this time, is still very specific in scope. It is physical damage and losses, financial ones, losses of property and personal assets."*
>
> ***(Local Government Representative in Jakarta)***

These deficits also apply to commonly used assessment methods. There are no official Loss and Damage assessment methodologies, e.g. under the UNFCCC or recommended by the WIM ExCom. The humanitarian and disaster management community have long been concerned with the assessment of damages and losses (note the different order of words which is typical in the emergency response community). After major disasters, methodologies such as the Damage and Loss Assessment methodology developed by the Economic Commission for Latin America and the Caribbean (ECLAC), and the Human Recovery Needs Assessment (HRNA) have been used to assess the immediate needs of an area or sector. Building upon those, international organisations have established the Post-Disaster Needs Assessment and Recovery Framework (PDNA/RF). These together serve to harmonise the assessment, analysis and prioritisation of damages, losses and needs by a range of stakeholders (United Nations agencies and programmes, the World Bank, donors, non-governmental organisations) in support of the national government. The process analyses disaster effects across four dimensions: (partial) destruction of infrastructure and physical assets (damage), disruption of production and services (losses) in priority sectors, impact on governance, and increased risks and vulnerabilities. It begins by establishing pre-disaster baselines (physical, economic, social and environmental assets) against which post-disaster conditions are compared. PDNAs rely on pre-existing and readily available data such as national accounts and statistics. If there is insufficient prior data, short surveys or expert estimations of pre-disaster values and losses are undertaken (World Bank 2013).

This methodology has several shortcomings with regard to informal settlements. Data is not readily available in these settings and experts are likely to assign arbitrary values to the damaged assets. Additionally, since many informal settlements operate outside formal governance structures but rely on social cohesion and interpersonal relationships, these impacts are insufficiently recognised. Many of the productivity losses occur in the informal sector. The methodology acknowledges its shortcoming in capturing informally generated value, and in including non-economic losses.

> *"The attempt to include an estimation of the impact on personal and household well-being in contexts where productive activity is undertaken through the informal sector, subsistence farming and unpaid family work continues to pose a challenge."*
>
> ***(World Bank 2013, p. 31)***

In an effort to bring together many separate databases and sources of information, the United Nations Office for Disaster Risk Reduction (UNDRR) is creating a new disaster losses and damages tracking system. This system will replace the previous Disaster Information Management System DesInventar (UNDRR 2023a). For this tracking system, the same challenges as outlined above apply. To improve the system with regards to the impacts of slowonset processes, UNDRR has convened an expert workshop to capture the current state of the art (UNDRR 2023b). Further research is necessary to adequately record losses and damages, especially of a non-economic nature, from slow-onset processes, and in informal contexts.

Existing assessment practices and their shortcomings

In the three countries studied, general data sets from national and sub-national governments are available, such as the Registrasi Sosial Ekonomi in Indonesia or the National Census in Brazil. However, the level of data disaggregation is not sufficient to understand the reality of each informal urban settlement or to assess risk at the household level. Although official approaches currently are not readily suitable for assessing losses and damages in informal urban settlements, communities, CSOs and local governments are engaging in a range of activities to collect data and assess disaster impacts, even though large gaps remain. In the cases of Jakarta, Nairobi and São Paulo, it was possible to identify existing practices that could contribute to the assessment of losses and damages. These practices are summarized in ***Table 2***. Most of the practices refer to the documentation of assets prior to a disaster. They are usually used for other purposes than climate action, prominently for in-situ upgrading programmes. Post-disaster efforts considered by interviewees usually focused on emergency aid and were not sufficiently documented. On top of that, assessments become more complex as people are often widely dispersed, often displaced from their original community, and have less access to means of communication or to adequate means of transport.

Informal settlement on the riverbank under a motorway bridge in Jakarta, Indonesia, Photo: Flitner/Misereor

Assessment practice	Description	Stakeholder involvement	Identified in
Infrastructure Mapping	Mapping of existing infrastructure	Community-based approach	Nairobi
Enumeration	Enumeration of dwellers	Community-based approach	Nairobi
Settlement profile	Collection of data regarding demographics, service availability and infrastructure	Community-based approach	Nairobi
Know Your City campaign	Systemic approach developed by Slum Dwellers International to survey dwellers, already tested in more than 30 countries	Community-based approach	Nairobi
8K TV	Documentation of disasters on social media	Expert-led	Nairobi
Red Cross profiles	Documentation of people receiving aid after a disaster	Expert-led	Nairobi
Map of flood-prone areas	Map of risk-prone areas along the river Ngong	Expert-led	Nairobi
Post-disaster impact assessment	Assessment of post-disaster impacts conducted by the government	Government-led	Jakarta
Before and after	Comparison of the situation before and after the implementation of river restoration projects by Mazinguira Yetu	Expert-led	Nairobi
Medical data	Data collection in medical camps	Expert-led	Nairobi
Municipal data	Municipal cadaster and statistics collected by the government	Government-led	São Paulo
Affective map of Jardim Pantanal	Developed with the community, through focal groups	Community-based approach	São Paulo
Cycloroute	Map of historical sites in Jardim Pantanal and connection through a cyclo route developed by cyclo activists	Community-based approach	São Paulo

Assessment practice	Description	Stakeholder involvement	Identi-fied in
Community flood map	Community effort to map flood-prone areas and register rainfall using a whatsapp group	Community-based approach	São Paulo
Use of date ob-tained by applying Informa-tion Access Law	The Information Access Law enables every citizen to request existing data from the government	Expert-led	São Paulo
Topograhic survey	Commissioned by a local NGO	Expert-led	São Paulo
3D model	Model developed by a local NGO using aerial photographies	Expert-led	São Paulo
People and memory	The elderly and traditional lead-ers usually know a lot about the settlement and can be used as source of information	Community-based approach	São Paulo
Legal guidance	Partnership with academia and research institutes to develop local studies and legal guidance for dwellers on property and land tenure	Expert-led	São Paulo
Impact assess-ment by civil defence	Evaluation of impacts after a disaster	Expert-led	São Paulo
Collective claims	Elaborated by public defenders, considering collective L&D	Expert-led	São Paulo
CadUnico	Individual registration for assis-tance from the social service	Government-led	São Paulo
Public databases	Maps and statistics provided by national agencies such as IBGE and IPEA	Government-led	São Paulo
Kenya DHS	Demographic sampling and health survey for the entire country	Government-led	Nairobi

***Table 2**: List of assessment practices observed in the case studies of Jakarta, Nairobi and São Paulo*

In informal urban settlements, the availability of local data is usually limited, or the available data are of poor quality. These aspects increase uncertainty and complicate the process of quantifying losses and damages. However, an assessment can often be based on data collected for different purposes and other sectoral programmes, such as housing, social work and public health. Registries for economic assistance and cadasters for land regularisation are examples of reliable sources that provide an overview of demographic and physical conditions. Another way to get around the lack of disaggregated data is to develop collective claims. There are already legal precedents for this, for example in cases where public defenders have claimed compensation for forced evictions. This is the case of the Observatory of Forced Evictions (Observatório das Remoções). The initiative was founded by researchers from LabCidade, LabHab (FAUUSP) and LabJuta (UFABC) to monitor evictions in the city of São Paulo. This tracking process helps to prevent and denounce forced evictions. It also provides support to informal settlement dwellers whose right to housing is violated (LabCidade 2016).

The experience with assessing risk or losses and damages at the neighbourhood level is still anecdotal and dependent on the efforts of specific local governments, CSOs or community associations. In the case studies presented, assessment practices are not embedded in local or national policies.

It is also important to note that datasets may describe the impact of climate-related disasters without mentioning climate change or losses and damages. An excellent example is the city of Durban, which conducted an extensive assessment after the impacts of the 2022 floods. The intention of the study was to appeal to the national government to fill the funding gap. While this study is a prime assessment of loss and damage, these terms are not used at all in the original files. The C40 Cities Climate Leadership Group recognised the potential of the data and submitted the case as an example for urban Loss and Damage to the UNFCCC (C40 Cities n.d.).

As discussed above, the main losses and damages in informal urban settlements are closely connected to the violation of basic human rights such as health, housing and livelihoods. Although it was not possible to identify systematic practices that use human rights approaches to identify losses and damages, some experiences establish important precedents, such as the Observatório das Remoções. A similar tracking strategy could be applied to climate-related displacement and loss and damage more generally.

Need for community based and sensitive approaches

Community-based approaches are potentially an efficient and inclusive way to collect data. A participatory process increases the chance that the values, knowledge and perspectives of the community will be properly recognised. Community-based approaches also provide access to more accurate data at the household level, based on mutual trust. They help to overcome challenges such as security concerns, lack of cooperation from residents and precarious infrastructure for data collection (Geekiyanage et al. 2021). Ethical considerations are essential when collecting data and conducting assessments, particularly in contexts where vulnerability is high. They ensure that data collection and assessments are carried out responsibly, transparently, and with the well-being of affected households as the primary consideration. One critical ethical consideration is the inclusion of minorities and disadvantaged groups so that their voices are heard and their needs are addressed in the data collection process.

While there is a wide body of participatory research methods (see e.g. Vaughn and Jacquez 2020), currently only a few methodologies focus specifically on assessing losses and damages in and with communities. These are discussed in the following.

Emergency accommodation for residents of the Mukuru kwa Njenga informal settlement in Nairobi (Kenya) after their forced eviction in November 2021, Photo: Dick/Misereor

ActionAid Community-Based L&D Assessment

ActionAid's methodology and tools for community-based loss and damage assessment are developed to be inclusive and participatory. They were designed to provide agency to communities in assessment practices and empower them to carry out assessments of economic and non-economic losses and damages experienced following natural hazards, catering mostly to rural areas. The design of the methodology particularly focused on the involvement of women and other marginalized groups. The community can then use gathered information to engage with government and other institutions in the design of response and resilience programmes (Anderson et al. 2019). The tool is a seven-step process of community-level loss and damage assessment:

- **Step 1**: **Mapping out risks -** This involves a participatory approach to mapping community risks and identifying underlying vulnerabilities based on their location. It also involves taking inventory of available community resources.

- **Step 2**: **Identifying calendars of change -** Since communities report changing weather cycles,this step identifies the weather patterns occurring over time. This information is vital for ana lysing changes in linked activities and events such as livelihoods and hazards.

- **Step 3**: **Identifying vulnerable households -** Based on various factors, this involves the creation of a hazard risk index that identifies the risks for the most vulnerable members of the community. In the event of a hazard, this can be used by community responders to help those affected quickly and effectively.

- **Step 4**: **Understanding the impacts of disasters and climate change -** This is a capacity enhancement and forward-looking approach to the methodology. By utilising the risks in dices, resource maps, and change calendars in the first three steps, the community can gain broad insight into the impacts of climate change and the changes expected in their lives and livelihoods.

- **Step 5**: **Complementing community assessment of climate change impacts with external expertise -** This step provides expert knowledge, for example on climate scenarios and available support and funding, to the community. Knowledge is gathered from experts through interviews that is then passed on to the community.

- **Step 6**: **Calculating and reporting loss and damage -** Knowledge gathered in steps 1 to 5 enables the community to assess the financial implications on households. Data is collected through questionnaires and focus group discussions to map out the extent of economic and non-economic losses. These findings are then compiled and disseminated to relevant stakeholders.

- **Step 7**: **Advocacy and lobbying -** This involves the community presenting the evidence collected to relevant duty-bearers, including local and national government agencies.

The United Nations University Approach to L&D Assessment

The United Nations University's approach to loss and damage assessment is designed specifically for local and community-level interventions. However, the authors also believe in its potential scale-up given sufficient resources and smart sampling techniques (van der Geest and Schindler 2017). The methodology involves collecting data for the following seven research domains:

1. climatic stressors, including sudden and slow-onset processes,
2. livelihood vulnerability to the impact of stressors, both at the household and community level,
3. preventive measures to deal with existing risks,
4. Loss and Damage from direct impacts of climatic events despite preventive measures (at the household and community level),
5. adaptation to climatic impacts, by both households and organisations,
6. coping mechanisms with regards to climate events,
7. Loss and Damage related to the adverse effects of preventive, coping, and adaptation measures.

The methodology also outlines research tools to be used in the process of data collection for the above domains, including: desk studies, household questionnaires, participatory rural appraisals, expert interviews, community stories of losses and damages, and participatory evaluation of climate change adaptation and disaster risk reduction initiatives. Finally, it outlines the resources required for such an assessment including human, material, and financial resources.

The value-based approach

Studies have advocated the use of values in identifying communities' losses and damages. By integrating local values, assessment practices can highlight intangible effects of climatic events notably absent in traditional assessments (van Schie et al. 2023a; van Schie et al. 2023b). Value-based assessments include several dimensions under the term "values" such as societal, human, cultural, and lived values. Van Schie et al. (2023c) undertook value-based L&D assessments in Bangladesh and Fiji. Data collection was mainly done through discussion groups and interviews which identified local values such as family, serenity, culture, mental health, religion, education, and health.

Community-based approaches go beyond the compilation of data and presentation of the existing conditions. They allow residents to take ownership of issues affecting their community and actively participate in finding solutions. This sense of ownership can lead to increased engagement and commitment to long-term improvements. Instead of considering informality solely as a problem to be eradicated, it is essential to engage with existing practices and different types and sources of data. The assessment process can be integrated into the process of development planning itself and contribute local capacities.

Residents of informal settlements are particularly vulnerable to the impact of the climate crisis, as here in Mathare Valley in Nairobi, Kenya, Photo: Schirmel/Misereor

Data collection: unintended consequences and benefits

The process of collecting data and assessing damages can help make a case for curative finance assistance. Yet, the engagement with local communities can present opportunities and challenges that go beyond the mere collection of data. In the case of Jardim Pantanal, dwellers were involved in awareness-raising activities in the framework of exploring the territory. In these trainings and workshops, residents were introduced to the concept of the ”right to the city” as a fundamental right to participate and shape the urban development, and how to use the information access law (Lei de Acesso à Informação - LAI). This example raises questions as to the use of data beyond the immediate need of Loss and Damage assessment. The availability of data can help strengthen citizenship and provide tools for the community to vocalise their needs.

Data collection and assessments can also have negative impacts. If data is not disaggregated by gender, it might obscure important information as to gender and intersectional characteristics of loss and risk.

Actions based on this distorted information can reinforce or even worsen existing situations. Additionally, data collection may create fear and anxiety within communities, especially when community members have the impression that the data collection process is linked to imminent disaster or eviction measures. Furthermore, it may create expectations for ensuing action. If households provide information about their vulnerabilities and needs, they may expect assistance or support in response to their documented challenges. Therefore, it is central to manage expectations and ensure that assessment practices are followed by meaningful action and support. Another downside is the risk that assessments are used to justify forced evictions, displacement, or discriminatory policies, further marginalising already vulnerable populations. This is particularly relevant for informal urban settlements where land tenure is not secured and dwellers often lack legal protection. A human rights-based approach that engages with the community and prioritises participation is a more just strategy to mitigate this risk.

6.3. The human rights-based approach in the context of Loss and Damage

Climate change-induced losses and damages have severe implications on human rights (McNamara et al. 2023a), particularly for vulnerable populations. This report has shown that it is possible for vulnerable groups, including informal settlement dwellers, to claim their rights in a judicial process. Collecting appropriate information on the community level can support such litigation efforts. Precedent cases are of crucial importance to help shape the legal system and raise awareness for the rights of as well as rights violations suffered by vulnerable groups. Nevertheless, a system based on litigation alone is neither efficient nor sustainable. Moreover, it is not easily accessible for informal settlement dwellers as legal procedures are resource-intense and lengthy endeavours.

Instead, the entire response to climate-induced losses and damages must strive to protect and enable the full enjoyment of human rights for those affected by climate change. The immense potential of a human rights-based approach lies in recognising those who are most adversely affected by climate-induced losses and damages (Jodoin et al. 2021). Moreover, it combines all three dimensions of addressing losses and damages: what is done, who benefits, and how the measures are implemented.

Action – "What needs to be done"

Experts have repeatedly stressed the importance of ensuring all Loss and Damage action is geared towards securing full enjoyment of human rights and avoiding any negative externalities. Any activities, including those financed internationally, must be designed and implemented to ensure human rights are upheld while considering three fundamental principles: inclusivity, "no-further-harm", and equal participation.

Procedure – "How to do it"

Furthermore, adopting a human rights-based approach requires the effective participation and inclusion of the communities and populations directly affected in the design and implementation of interventions or actions regarding Loss and Damage (Toussaint and Martínez Blanco 2020). Hence, the approach is also seen as an instrument of democracy that gives power to the marginalised. Experts interviewed for this report have reiterated that a human rights-based approach helps not only to raise awareness for such communities and their concerns but also to establish appropriate safeguards. These include environmental and social policies, gender policies, and policies on Indigenous Peoples. Each of these policies has its specific requirements and action plans mainstreamed by means of the Loss and Damage Fund's decision-making structures, accountability mechanisms, participation of overseers and stakeholders, and transparency and information disclosure mechanisms. Well-designed safeguards can promote transparency, protect vulnerable communities (including women, children, elderly people, persons with disabilities, and members of the LGBTQIA+ community), ensure fair participation, and prevent negative impacts on people and ecosystems, thereby enhancing the sustainability and effectiveness of programmes and projects. In addition, actions need to adhere to the do-no-harm principle (Sandvik et al. 2017) to reduce the likelihood of causing further loss to communities as a result of poorly designed and implemented programmes.

> *"... it also will be about putting in place safeguards that are not just about preventing harm, but also about focusing on how to do good, like how to promote human rights through the activities and how to make sure that you basically promote or advance substantive equality in an intersectional way."*
>
> ***(International expert)***

Expert interviews also reveal the potential for (further) development of robust mechanisms for operationalising human rights-based Loss and Damage action within existing international frameworks. Although human rights pertaining to climate change are broadly acknowledged in both the 2015 Paris Agreement and the Santiago Network, only limited consideration is paid to them in the operationalisation text. One approach proposed involves the Warsaw International Mechanism for Loss and Damage (WIM) creating human rights guidelines for Loss and Damage policies, conducting impact assessments, and potentially establishing a monitoring body to ensure compliance (Broberg and Romera 2020; Toussaint and Martínez Blanco 2020).

Rights holders – "Legitimate claimants of rights"

Interview results highlight that vulnerable people should not be seen as passive beneficiaries but as active stakeholders who are already faced with climate impacts, often without significant support. In addition, Loss and Damage action and related funding must recognise the different needs of different marginalised groups. A human rights-based approach highlights the intersectionality of oppressive dynamics that would further marginalise those who are most vulnerable and exacerbate the impacts of climate change. More importantly, a human rights-based approach ensures benefits and redress for those population groups within society that may not necessarily be recognised by the state.

Duty bearers – "Who has to take responsibility"

National governments play a crucial role in the response to Loss and Damage. States, in general, are seen as duty bearers who provide relief in the context of climate-induced Loss and Damage and should act as such regardless of whether they are responsible for climate change or not (Arévalo García 2020). State responsibility also goes beyond national boundaries and requires international cooperation. Since the connection between climate change and human rights are well documented, a human rights-based approach would provide a global framework for establishing international standards for Loss and Damage (Simlinger and Mayer 2019; Toussaint and Martínez Blanco 2020).

Reflections on a human rights-based approach

A human rights-based approach can be a useful tool to structure public policy intervention and target governmental and international support programmes. In the preliminary remarks to the Paris Agreement, the importance of considering human rights obligations when implementing climate change action is highlighted. The Loss and Damage Fund Decision at COP 28 is a missed chance to further strengthen human rights-based procedures, as relevant language was deleted in the process by the Transitional Committee. Reference to human rights is only made in the preamble, missing the chance to establish a human rights-based approach in the objectives of the Governing Instrument of the Fund (UNFCCC 2023). This repetitive reluctance to explicitly refer to human rights by some Parties occurs despite their existing human rights obligations based on international and regional treaties.

> *"If we're translating a human rights-based approach into a kind of campaigning type approach, then I feel like we're likely to alienate some governments at an early stage of a very complex conversation around L&D, if we are talking about integrating a human rights framework in how we think about L&D in terms of what we are providing and to whom we are providing and how we are providing".*
>
> ***(International expert)***

In some contexts, advocating from a human rights-based perspective will alienate governments or other important partners. In these cases, the elements of the human rights-based approach can still be included without necessarily naming the approach as such. Nevertheless, these issues portray a strong case to maintain a human rights-based lens to Loss and Damage interventions.

7. Responses and activities to address Loss and Damage

In the three cities surveyed, a larger number of measures was identified with regards to dealing with disaster preparedness, relief, and recovery. Not all of them are clearly attributable to climate change; nevertheless, they serve to cope with events that are increasing in intensity and frequency as climate change progresses. Some of them already address losses and damages. However, there are also significant obstacles and failures that might impede response.

The combined effects of environmental pollution, geographical marginalisation and inadequate access to waste management amplify the impacts of climate-induced hazards for informal urban dwellers: the surrounding area of Dandora, Nairobi's principal dumping site, Photo: Klause/Misereor

7.1. Activities and responses identified dealing with disaster impacts and related losses and damages

When looking at the different responses we can distinguish between institutional responses at the on national, sub-national, and urban level as well as autonomous responses by communities, families, and individuals (Mikulewicz 2020). Response types can be clustered as follows:

- built or engineered solutions, usually related to improving or rebuilding housing or other cons tructions, including relocation to other places,
- linked to this, provision of basic services like water, sanitation, or health,
- disaster preparedness in the form of early warning and relief actions, for example community members serving as first responders.

All other response types are linked to social or economic action and related information. They include:

- respon ses around planning and management, such as developing of land regulation guidelines or flood monitoring schemes,
- financial support schemes including taxes,
- linked to this, data and information collection and provision and awareness-raising activities,
- several social protection and social support responses, such as supporting alternative income sources.

Almost all of the above response clusters were identified in the three settlements investigated (see ***Figure 10***, ***Figure 11***, and ***Figure 12***). The only exceptions were finance responses which are not reported to have been implemented in São Paulo, and planning, management, or monitoring action which was not mentioned by interviewees in Jakarta. Notably, a large share of the responses in each city is implemented at the community, family, or individual level. In São Paulo, such autonomous actions even account for the lion's share of responses identified.

Jardim Pantanal, São Paulo

***Figure 10**: Responses identified in Jardim Pantanal, São Paulo (size of bullets representing number of responses identified)*

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Institutional response in Jardim Pantanal comes from the national social housing programme (Novo Minha Casa Minha Vida) in the framework of which resources are allocated to new construction and reform projects. At the city level, measures currently implemented include the construction of polders along the river, the regularisation of land to guarantee dwellers formal land titles, flood and river management plans as well as participatory processes. Furthermore, service providers and the government employ dwellers for interventions in the territory, including the implementation of the wastewater system or surveys to identify the need for wastewater connections.

Numerous autonomous responses were mentioned by interviewees. These include continuously repairing houses after disaster events, cultivating gardens to support food security, or building family-owned water reservoirs to cope with drought periods. Local organisations take care of activating emergency services, providing shelter, and organising the distribution of donations. They provide post-disaster aid and address dwellers' immediate needs. Community action plans are developed, while mapping activities identify the challenges and aspirations of focal groups (youth, women, mothers, etc.) for the territory. The protection of local culture is at the centre of a Hip Hop festival celebrating local artists. In collaboration with law students, volunteers provide legal guidance on land tenure security, and human rights dossiers are kept with the aim of denouncing evictions.

Kibera, Nairobi

***Figure 11**: Responses identified in Kibera, Nairobi (size of bullets representing number of responses identified)*

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Most institutional responses mentioned by interviewees in Kibera are initiated and implemented at the sub-national level. They include providing emergency assistance in the form of basic and daily amenities such as food, water, and alternative housing after disasters, or providing alternative income opportunities especially for the youth in informal settlements. One city-led response was identified, namely the provision of water access points, albeit with some potential for improvement:

> *"Everything starts with capacity building and meaningfully engaging and embracing the locals. [...] Let it be the locals, like, the people who live there so that they can own the initiative."*
>
> ***(NGO Representative in Nairobi)***

With regards to autonomous responses, the provision of daily amenities (blankets, food, water, etc.) to populations affected by disasters was identified at the community level. Other responses included community members serving as first responders, community-led awareness programmes to inform about flood risks by means of digital media, or early warning systems.

Besides, many responses led by CSOs or religious groups were in place in Kibera. These included post-disaster spiritual support as well as counselling services in cases of mental health problems, the development and greening of public spaces, and advocacy for land tenure.

Kalibaru, Jakarta

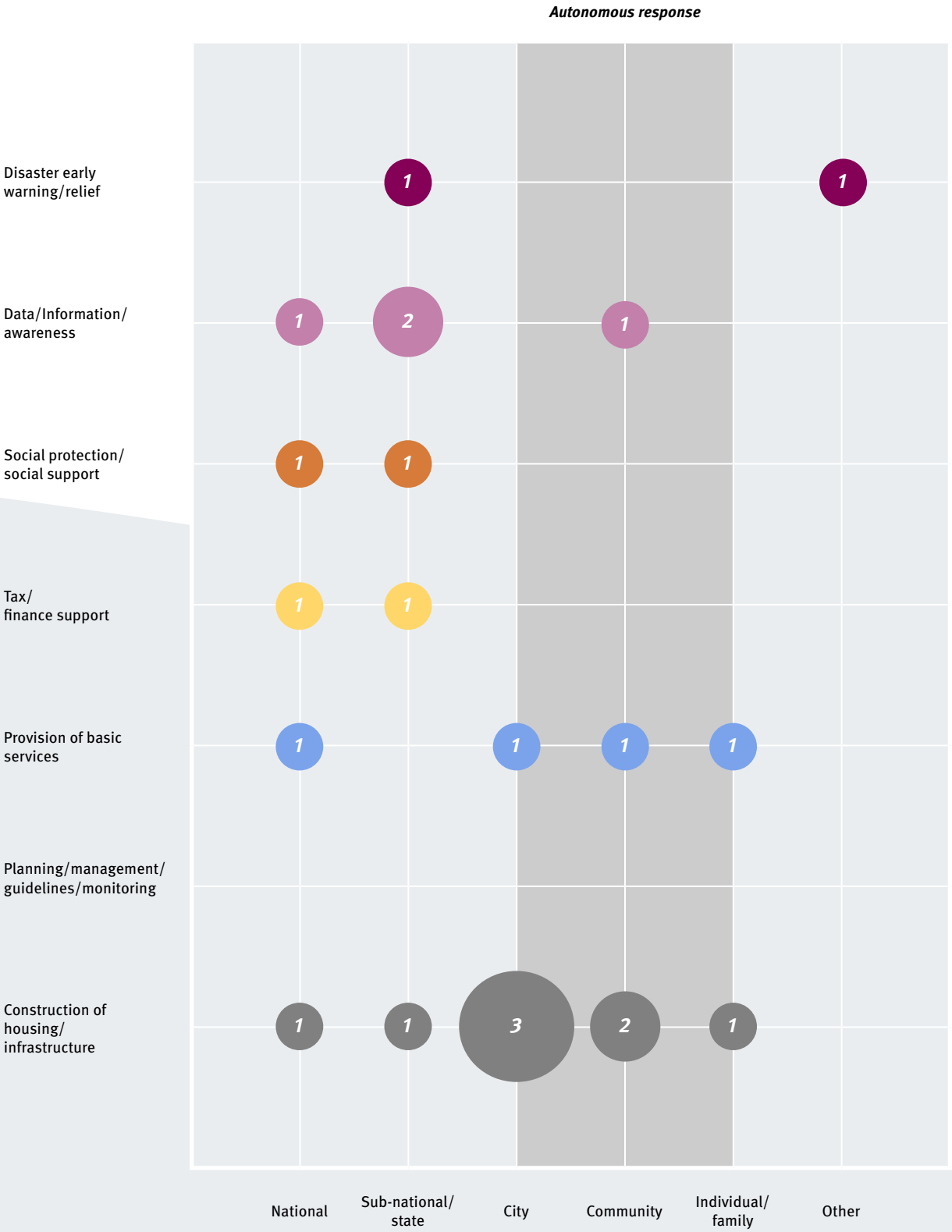

***Figure 12**: Responses identified in Kalibaru, Jakarta (size of bullets representing number of responses identified)*

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Institutional responses in Jakarta included the government's construction of a seawall in front of the informal urban settlement to protect people and dwellings from sea level rise and coastal flooding. This measure also had negative impacts, however, as it blocked local fishermen from accessing the sea on which their livelihoods depend. Local actors also identified other challenges, stating that construction works contributed to increase flood risks:

> *„Because land subsidence in Jakarta is caused by several things. One, deep groundwater extraction. Two, because the soil in Jakarta itself is what is called alluvial or clay. Three, because of the construction load. Building large buildings and all that, so the land sinks. NCICD does not address this issue."*
>
> ***(CSO/NGO respondent, Jakarta)***

Responses at the sub-national (metropolitan area) level include for instance weather warnings, including to pump house and floodgate operators, or subsidies for housing, which however requires land tenure.

Examples for measures implemented at the city level are the widening of rivers and canals or the relocation to less flood-prone areas, albeit often far from people's original livelihoods.

Some of the autonomous responses seem to fill gaps of institutional ones, such as the construction of a brick seawall to safely park fishing boats closer to the residents' homes, or post-disaster community assessments of losses and damages implemented by community leaders and organisations. Individual or family-led responses include purchasing water from informal suppliers using jerry cans, as the trucks sent by the city are often not able to access informal settlements.

In addition, one response from the Indonesian Red Cross and Red Crescent was identified, namely setting up camps in response to extreme abrasion events.

7.2. Responses: disadvantages, obstacles, and failures

With respect to the responses mentioned by interviewees in the three cities, as well as general considerations by international experts, obstacles were also mentioned that primarily relate to planning, cost acceptance, equality, as well as necessary preconditions (see ***Table 3***). In a worst-case scenario such obstacles result in the failure of well-intended measures, either immediately or over time, as one interviewee from Nairobi mentioned with respect to planning interventions:

> *„Most of these people, most of these projects don't even have a do-no-harm policy [...] these projects or these programmes, are they culturally, culturally sensitive to the needs of the people who are Indigenous to the specific area?"*
>
> ***(CBO Representative in Nairobi)***

Institutional responses might also lack efficiency, as pointed out by a representative of the local disaster risk authority BPBD in Jakarta with regards to assessment practices:

> *„I believe that the most pressing need is for additional human resources and more advanced tools. Currently, our assessment methods are still quite traditional, relying on paper questionnaires and manual data collection."*
>
> ***(BPBD Representative)***

Responses: disadvantages, obstacles, and failures	Institutional	Autonomous
Location/ Distribution	• Regional coverage differences, not all people benefiting equally	• Not necessarily equal distribution of benefits, e.g. during relief
Representation of groups	• Settlements have different levels of organisation and activities • Different vulnerable groups not organised or represented equally, potentially leading to unequal responses (e.g. prioritising a specific religious group)	• Intersectional vulnerabilities e.g. gender, disability and extreme poverty risk further sidelining marginalised people
Preconditions	• Formal eligibility criteria might hinder some responses and solutions, such as lack of land ownership	• High dependency on individuals and solidarity
Planning/ implementation	• Maladaptation: a measure's outcomes might exacerbate other challenges, e.g. impacts from raising roads in Kalibaru are flooded houses, or relocation resulting in losing access to current jobs and livelihoods • Human rights violations in existing interventions, e.g. in resettlement programmes funded by multilateral institutions (many with intersectional components) • Preference of "built infrastructures" with little co-benefits, such as polders that are eventually saturated, or seawalls cutting fishermen from their income source • Existing participation formats for affected communities some of which are still performative, e.g. in municipal councils • Interventions without consultation (e.g. by local government) often have stronger disruptive effects on local structures and adaptation processes, risk of overstepping local organisations • Risk of green/climate gentrification and forced evictions	• Without coordination, coping strategies of one household can increase damage to others, e.g. the use of pumps might increase flooding down the road • Lack of (capacity to design) long-term solutions • Unsecure constructions due to lack of materials, budget, or capacities, e.g. an embankment built from solid waste in Jardim Pantanal • Low(er) safety of self-constructed water or power connections, risk of fires and water contamination, no guarantee of service provision and maintenance

Responses: disadvantages, obstacles, and failures	Institutional	Autonomous
Costs and access	• Limited budgets available • Lack of pre-arranged finance quickly available in case of disaster	• Cost of purchasing basic amenities such as water in absence of formal supply comparably higher • Need to rely on alternative funding e.g. from philanthropy or CSOs • Recurring repair costs of houses for local communities, trapping them in poverty cycle • Loans and credits for housing that still have to be paid off even when the housing is destroyed in a disaster
Acceptance/ willingness	• Resistance from decision-makers to change traditional planning models, such as changes in construc tion typology (e.g. raise houses, stilt houses, floodable ground floor) and planning (e.g. floodable public spaces) to adapt urban life to regular and predictable fl ooding	• Informal communities might not want measures implemented, such as relocation • Conflicting relations with government representatives hindering reporting of challenges including losses & damages • Resistance from dwellers to understand new models or measures, such as NbS
Terminology and awareness	• Existing activities and data collections are likely to be relevant to Loss and Damage discourse, but different terms are used	• Lack of awareness of climate change and increasing impacts can hinder adequate responses

Table 3: *Disadvatages, obstacles, and failures of institutional and autonomous responses identified*

7.3. Prioritised actions to minimise and address Loss and Damage to improve response development and efficiency

> *"It's a continuum of actions. First, you need to mitigate, build adaptation, respond to Loss and Damage. And when you go to a community, the first thing they say is thank you for coming, that's great. Also, can you help us not having this happen again immediately? And you say, well, I can't do that because that's not Loss and Damage."*
>
> ***(International expert)***

Addressing Loss and Damage - responding to disaster impacts, relocation, and compensation

Respondents recognised the importance of aid responses and post-disaster recovery, covering for instance housing, food, water, and other basic needs. Apart from these immediate needs, interviewees also listed secondary costs such as replacing lost documents, ensuring the continuity of education for children, and covering travel costs to and from their (temporary) relocation site.

Forced evictions constitute a violation of internationally recognised human rights (OHCHR 2024). Relocations should therefore only be considered as a last resort in exceptional circumstances when it is not feasible to provide safe housing. If absolutely necessarily, relocations must be carried out in consultation with the community affected, thus preserving their right to participate in a transparent process before, during, and after the relocation. Furthermore, relocations must consider: the adequacy of housing provided, considering location, access to services, habitability, etc.; the adequacy and diversity of housing models for different family compositions, needs, and capacities; the need to avoid temporary solutions that violate the dignity of individuals; as well as fair compensation for those affected by relocations. Further recommendations include the guidelines presented to the Human Rights Council by the Special Rapporteur on adequate housing in 2007 (A/HRC/4/18, Annex I) (UN General Assembly 2007) and the Guidelines for the Implementation of the Right to Adequate Housing presented in 2020 (A/HRC/43/43) (UN General Assembly 2020).

These aspects are important, as communities often make traumatic experiences in the framework of relocation programmes, as demonstrated by cases other the those of the settlements analysed (e.g. Abu et al. 2024; McNamara et al. 2018). Many relocation programmes violated people's rights and were implemented without consent by or consultation with those affected, relocating them a long distance from their communities — often their only safety net in disaster events. Additionally, alternative livelihoods are seldomly provided, resulting in different, but still severe risks. A human rights-based approach to relocations with high levels of inclusivity and participation is of the highest importance (Schade 2013). Moreover, it is imperative to learn from past failures and adhere to basic standards.

The demand for direct financial compensation for losses such as property was also mentioned. Paradoxically, dwellers of informal settlements often do not necessarily understand themselves as a community impacted by climate-induced disasters and hence do not recognise that they are entitled to support. This is reinforced by legal precedents where compensation claims were denied on the grounds that responsibility for "natural disasters" cannot be attributed to a person or entity. Awareness raising and legal advice are needed both among recipients and donors, but especially at the government level.

Minimising Loss and Damage - locally led adaptation and resilience building, building back better

> *"How do I allocate this resource in a way that will help this family; but not just for immediate improvement, but in the long term? That will guarantee them a way out of this vulnerability or at least a guide to not returning to the state in which they were found, providing better living conditions, access to more opportunities. When we talk about Loss and Damage, that's what we have to talk about, not just material damage, but damage to health, well-being, everything."*
>
> ***(NGO Representative in São Paulo)***

Addressing losses and damages from a post-disaster perspective is often connected with direct compensation and reconstruction efforts (Boyd et al. 2017). However, as in other empirical studies (e.g. Bakhtaoui et al. 2023; van Schie et al. 2023a; Bakhtaoui and Shawoo 2022), interviewees highlighted that much could be done to prepare for disasters and reduce their impacts:

> *"But I think one of the needs of the people of Kibera is to be able to be safe today, tomorrow, and also into the future. So, responses that are geared just towards managing the situation at a moment are not sufficient."*
>
> ***(NGO Representative in Nairobi)***

In informal settlements, much of such action is linked to land tenure and access to finances as incentives and enablers for action. Long-term visions are needed to transition from incremental improvements to structural changes, while ensuring adequate and in-situ living conditions for the population in compliance with the "do-no-harm" principle. Frequently named priorities include obtaining resilient housing built with durable materials and sustainable livelihoods; improving infrastructure, such as drainage, sanitation, roads, health facilities, and waste management systems; and building public spaces which are of vital importance in informal settlements. Several respondents indicated that to minimise losses and damages and achieve longer-term resilience, the neighbourhood planning needs to be revised and adjusted. In other terms, they make the case for rebuilding not as it was before, but better.

On an individual level, access to capacity-building activities and knowledge transfer opportunities enables people to improve their situation in the long run, to enhance their earnings, and to protect themselves against future harm. This capacity building can be integrated into infrastructure improvements when residents are trained, for example in building and maintaining sanitary facilities and water systems. When the communities own the infrastructure and have the necessary skills, the investment is more sustainable than a one-time intervention:

> *"It goes far beyond the material, psychological, and health aspects, but if you don't have it beforehand, you lose out; that money will be lost along the way."*
>
> ***(Researcher in São Paulo)***

Respondents also stressed the need for advance planning to make best use of resources, data as well as climate-sensitive and inclusive planning and monitoring processes. As mentioned above, one suggestion was a national or local "disaster observatory" in the form of a multi-stakeholder group to collect data related to losses and damages and assist the government to prioritise action in a participatory manner. Existing databases such as the Eviction Information Portal (NRC 2024) could serve as guidance. Localised risk assessments that capture the needs and location of particularly vulnerable groups were also suggested:

> *"You need to have a list of people that you work with in the community when the funding comes in. These are the people who are in need and they need support. So, that support will directly reach them and not be diverted."*
>
> ***(CBO Representative in Nairobi)***

Communities are forced to repeatedly apply erosive coping strategies after disasters although many issues could be solved, for example by improving drainage and infrastructure, or resorting to nature-based solutions. Such activities are in accordance with the principle of adaptation (Boyd et al. 2017). Most respondents prioritised building resilience and addressing systemic risks and vulnerabilities faced by the inhabitants of informal urban settlements, thereby breaking the repetitive downward spiral of poverty and climate impacts. This approach can reduce future losses and damages. This shows that in urban informal settlements, the hard limits of adaptation are often not yet reached. In addition, as noted by other researchers (Bakhtaoui et al. 2023), there is an ambiguity between adaptation and addressing losses and damages in terms of implementation. Measures proposed by participants frequently are post-disaster interventions which also help people adapt to future hazards. This shows how interventions can simultaneously rebuild infrastructures and compensate people while preparing them for future disasters. This is in line with the "Build Back Better" principle, which is increasingly mentioned in relation to Loss and Damage (e.g. McNamara et al. 2023a; Roberts and Pelling 2018; UNFCCC 2022).

8. Fund for Responding to Loss and Damage

Funding allocated explicitly to address Loss and Damage from climate change does not yet exist. At COP27, the international community established the Loss and Damage Fund, which is still in the process of being set up. First efforts towards operationalization were made at COP28 when first budgets were pledged. Nevertheless, funding to avert, minimise, and address Loss and Damage does not include entirely new activities. Instead, it must rather fill gaps in the existing funding landscape. This landscape is composed of (but not limited to) general development, climate change mitigation and adaptation, humanitarian assistance, emergency planning and response, health, recovery and reconstruction, migration and relocation, and upgrading and formalisation of informal settlements. The fund is complemented by the funding arrangements, including sources, funds, processes, and initiatives inside and outside the UNFCCC (see ***Box 1***). The components are still undefined and too diverse to try and list here. The UNFCCC has started to collect potential international pieces of the Funding Arrangements (UNFCCC 2023). Additionally, there are a wide range of regional, national and local funding sources with relevance to the many aspects of Loss and Damage.

Interviewees were asked about their experiences with any type of existing funding. In all three settlements, some funding from different public and private sources was detected, however by far not to the extent needed to build sufficient resilience to protect people from losses and damages, or to adequately deal with them. In addition, the existing funding comes with a number of obstacles and disadvantages, limiting the meaningful implementation of responses. Learning from that, three different pathways have been identified to bring Loss and Damage finance to the local level.

Many informal settlements and their dwellers are ill-prepared for climate-related hazards: View on an informal settlement in Nairobi, Photo: Harms/Misereor

The UNFCCC has established a financial mechanism that includes several special funds and operating entities to support developing countries in addressing climate change (UNFCCC n.d.).

- **Fund for Responding to Loss and Damage:** This fund, operationalised at COP28 and still in the process of being set up, will focus on assisting vulnerable developing countries with both economic and non-economic losses due to climate change. The Fund will be accountable to and function under the guidance of the COP and the CMA (Conference of the Parties serving as the meeting of the Parties to the Paris Agreement).
- **Global Environment Facility (GEF):** As an operational entity of the financial mechanism, the GEF finances projects in developing countries. It is guided regularly by the COP and also serves the Paris Agreement.
- **Green Climate Fund (GCF):** The GCF, governed by a 24-member board equally divided between developed and developing countries and accountable to the COP, also serves the Paris Agreement and aims to be the main fund to reach the global goal of mobilising $100 billion by 2020. That 100 billion goal was exceeded for the first time in 2022 (OECD 2024).
- **Special Climate Change Fund (SCCF):** Managed by the GEF, the SCCF finances complementary activities related to climate change that are not covered by other funding mechanisms.
- **Least Developed Countries (LDC) Fund:** The LDCF, also administered by the GEF, supports Least Developed Countries in implementing national adaptation programmes of action (NAPAs).
- **Adaptation Fund:** This fund supports concrete adaptation efforts in vulnerable developing countries, financed partly by proceeds from emission reduction projects.

Box 2: *International climate funds under the UNFCCC*

8.1. Existing financing options in the three settlements

Local research yielded multiple financing options in all three settlements. However, most of them had some flaws or room for improvement. Sources range from national to local governments, CSOs, philanthropists, and the private sector, with hugely varying ways of financing and disbursement. It should also be noted that in all three cases national and sub-national governments invest significant budgets in climate and disaster action, but nowhere are public investments high enough to finance all actions needed.

Jardim Pantanal, São Paulo

Brazil has a track record of ambitious social protection programmes, including multiple instruments assisting the poorest and most vulnerable. An example is the Bolsa Família programme, which guarantees a minimum allowance to low-income families since its introduction. After being dismantled by the previous administration, the programme was reinstated in 2023 under the Ministry of Social Development and Assistance. As of April 2024 (MDS 2024), approximately 20.9 million households were enrolled in the programme, with 83.5% of them being headed by women. The average amount disbursed per household was BRL 680 (approximately USD 130), totalling BRL 14 billion (around USD 2.75 billion). To qualify for assistance, families must be registered in the Unified Registry for Social Programs (CadÚnico). It is considered one of the largest conditional cash transfer programmes in the world (Pereira 2015).

In addition to Bolsa Família, social protection in the country is administered through the Unified System of Social Assistance (Sistema Único de Assistência Social, SUAS), a collaborative governance model that coordinates efforts at both national and subnational levels. This system encompasses various services, including, among others, protection services for public calamities and emergencies, comprehensive family protection and care (PAIF), the Benefit of Continuous Provision (BPC) for people with disabilities, and assistance for the homeless population.

While there is no reliable data on current climate finance (NINT 2023), figures from 2018 show that climate finance flows in the country (urban and non-urban areas) amounted to roughly USD 4.9 billion, equalling 0.26% of Brazil's GDP (WRI Brasil 2021). With respect to urban areas, the Lula government introduced programmes targeting informal settlements that linked risk reduction, climate action, and inequality reduction under the Cities Ministry's Periferia Viva Programme, worth more than USD 10 billion in the first stage alone (Government of Brazil 2023a).

The State of São Paulo presented its Climate Action Plan at COP26 (Ozório Valentim et al. 2022) with a focus on health and infrastructure. At the municipal level in São Paulo, most actors have not been able to obtain much government funding. Only the largest civil society organisations (CSOs) managed to do so. The period of the COVID-19 pandemic was exceptional in this regard, as funding was more readily available. However, the prefecture and sub-prefectures have developed emergency plans and received funding from the national government during emergencies. As a representative from an NGO in São Paulo noted:

> *"It seems there are mechanisms that are only triggered when damage occurs. These include some economic flow mechanisms, the transfer of resources, both public and private. Which is a big problem, because when the disaster happens you've already suffered inevitable damage."*
>
> ***(NGO Representative in São Paulo)***

Established CSOs can, to some point, exert influence and receive some funding to act at the local level. The community has access to Bolsa Família and some basic government assistance for those who are eligible and registered. CSOs have also submitted complaints to the public defender's office and have made their rights heard in support of the community. CSOs have drafted a detailed neighbourhood plan with a budget and work plan to approach the sub-prefecture. In general, there are some resources for emergency response, but such solutions do not exist for resilience building. Emergency interventions cannot address the medium and long-term impacts, as people get dispersed and transition to more structural challenges – such as finding a job and permanent housing. CSOs have been successful in raising donations and crowdfunding from the society after disasters and bringing the money to the most vulnerable who otherwise often have no access or information on how to obtain assistance (or might not be registered for official assistance).

Kibera, Nairobi

To fight climate impacts which already accumulate to economic liabilities of 2-2.8% of GDP annually, Kenya invests heavily in climate action. In 2018, USD 2.4 billion of public and private investments went to climate-related activities, around 60% of which were public budgets (Republic of Kenya 2021). The country has developed a strong climate policy framework, including a National Climate Change Council (NCCC) as the high-level coordination mechanism. Programmes such as the government's clean cooking programme aim at healthier living conditions coupled with environmental and climate protection. Social protection programmes like the flagship safety net initiatives Inua Jamii and the Hunger Safety Net Programme offer accompanying measures for investing in poorer households' capacities to sustainably enhance their livelihoods (World Bank Group 2023).

There is a proposal to establish a Disaster Risk Management Fund meant to mobilise funds for effective and efficient disaster management. An amount not exceeding 55% and 25%, respectively, of the fund will be appropriated to disaster response and recovery (Government of Kenya 2022). On county level, emergency funds exist that are not tied to specific climate impacts but could be used to handle for example fire or displacement after floods. Kenya is part of the Financing Locally-Led Climate Action (FLLoCA) Program, through which the government has started to channel funds to the local level, and which is greatly appreciated by CSO representatives. However, interviewees were partly sceptical about locally suited action:

> *"Most of the times, donor-funded projects are not tailor-made to fit communities. Like, is it what the community needs? Most of these things are boardroom solutions, you know. But is it what the people in Kibera need?"*
>
> ***(CBO Representative in Nairobi)***

Uptake was found to be slow because of a lack of adequate policies and frameworks from different government levels. In Kibera, CSOs have been able to mobilise some international funding as well as receive resources from churches. Most of the time, these funds are project-bound. Through lobbying, CSOs have pushed the national government to make some investments in resilience building (footbridges for flooding), which is funded by multilateral donors and banks. Nevertheless, these limited activities with regard to policy development and resilience building have been mostly adaptation-related, and not proactive.

Kalibaru, Jakarta

The Asian Development Bank estimates that the costs associated with climate change for Indonesia will range between 2.5% and 7% of GDP by 2100, with the poorest in society bearing the brunt of the financial burden and loss of livelihoods (Sokhna Seck et al. 2023). Being prone to these multiple hazards and climate change impacts, Indonesia has responded through a broad portfolio of measures and strategies for risk reduction and climate change mitigation and adaptation. Between 2014 and 2018 alone, the national government spent between USD 90 million and USD 500 million annually on disaster response and recovery, an additional USD 250 million was spent by subnational governments (World Bank Group 2020). Past efforts to develop solutions at scale include a Disaster Pooling Fund (Wahid and Gemilang 2023), the Just Energy Transition Partnership (JETP) and the development of an Adaptive Social Protection Roadmap, linking climate change adaptation to disaster risk reduction and social protection, with an emphasis on supporting the most vulnerable (ILO 2023). While the city of Jakarta committed to ambitious climate action, including to reduce greenhouse gas emissions by 30% by 2030, there is nevertheless untapped potential to accelerate action and secure financing for climate projects (Mafira et al. 2021). However, most budgets went to infrastructure projects, with little availability for informal settlements.

Consequently, interviewees pointed out that local people feel left alone handling disasters and related losses and damages:

> *"It's "every man for himself". Who wants to give us money? If someone doesn't have the money, then their house just sinks. This house is an example."*
>
> ***(CBO Representative in Jakarta)***

Financial support to locals in Kalibaru is partly coming from local and international CSOs like the Buddhist Tzu Chi Charity Foundation providing financial support to orphans and elderly people to purchase food or medication. Indonesian CSOs provide support in the form of assessing and communicating need or lack of service to the local government, which would then follow up within their capacities. The key obstacle still is the lack of registration and land titles, hindering formal action including financial support as this would be understood as an implicit legalisation of the settlement. Private sector investments might be another option, as large companies depend on workers from informal settlements and supplies from Micro, Small and Medium-Sized Enterprises (MSMEs) run by informal settlements dwellers. Partly, larger companies already provide training and other support, sometimes on their own without previous agreement with the government. Accessing national programmes was described as difficult, as for instance the PRONA (Program Nasional Agraria) that provides a fee exemption for land certification is targeted at rural areas, with little exceptions.

8.2. Funding: disadvantages, obstacles and failures

The sections above have shown that people and institutions are engaged in minimising and responding to losses and damages, and some support and funding opportunities exist to finance such activities in informal urban settlements. However, respondents pointed out a multitude of obstacles inhibiting them from accessing this funding.

Accessing government support at an individual level

Countries and cities often have support schemes for vulnerable groups in place, but there are obstacles or blind spots that prevent people living or working informally from accessing them. Indonesia leads by example by providing with free health insurance, but informal workers face problems accessing it. Similarly, Jakarta offers assistance for (re-)building housing which is tied to having a certificate of ownership. This certificate can be issued to persons living in the same place for a minimum of 20 years, but the process of obtaining it is difficult. In Brazil, government support programmes exist, but some highly vulnerable groups such as owners of small enterprises might not be eligible for support. Yet they risk losing everything in the event of a climate-related disaster. Attempts to bring attention to this have been unsuccessful so far.

Lack of funding opportunities for CSOs

> *"But that direct access to cash is very - it's rare. It's only in special cases."*
>
> ***(CBO Representative in Nairobi)***

CSOs struggle due to largely absent direct funding opportunities. More often than not, local and national governments as well as humanitarian organisations pass on in-kind contributions to smaller CSOs, which limits their capacity for proactive action. Since (local) government capacities are already stretched in efforts to meet basic needs after disasters, they are less likely to also provide financial resources. Additionally, CSOs as well as local governments struggle to access international (climate) funds. Some funds, such as the GCF, are trying to link more directly with cities but their mandate, being limited to the national level, hinders them from doing so effectively.

Obstacles for CSOs to access funding

When funding opportunities exist, CSOs and CBOs are often unaware and do not have the necessary information to apply. A frequent formal obstacle is that the organisation is not formally registered. Many respondents remarked that the registration process is burdensome. Similarly, CBOs might not have a bank account. Soft obstacles include a lack of capacity to access funding, including financial management and financial literacy skills, and the inability to network and fundraise. The application process itself is often highly bureaucratic, which can lead to unintended consequences. In the USA, the Just Transition Fund is explicitly intended to benefit disadvantaged and marginalised groups, but due to the difficult application procedure, the funding often goes to more privileged groups who have more capacity to navigate the process. Donors prefer to fund larger projects, and additionally bigger cities and CSOs have more capacity to engage and access funds, sidelining smaller ones. Many small and youth-led initiatives are underfunded and must thus rely on volunteers. Respondents have also pointed out that collaboration among organisations, such as for joint fundraising and proposal writing, could be improved.

Existing funding does not meet local needs

> *"If you're seen as squatters and there's no physical plan in that area, and it's a politically volatile area, that scares away potential donors or investors from investing in the area. They'll just do the minimal things, small things that don't have that big of an impact."*
>
> ***(CBO Representative in Nairobi***

Existing funding opportunities seem to be more aligned to donor priorities and preferences and to cater towards the donor's ease of process rather than to the needs on the ground - especially in informal contexts with insecure land tenure.

> *"Again, let's not even think about climate change. If you look at the grants or loans that governments have taken to build affordable housing or decent housing [...] Well, what are the lessons there? You know, the financing hasn't flowed. It hasn't directly benefited these communities. The question is: why? Because you don't really know what their needs are, and you haven't addressed them, and they're informal. So, it's really hard - whether it's a World Bank loan or grant or whether it's a BMZ or DfID or AfD or USAID grant, you still managed not to solve this problem of informality because you're coming from formality".*
>
> ***(International expert)***

In general, funding does not flow smoothly from the international to the local level, but often gets intercepted or delayed along the way. Currently, there are only a few climate-change specific interventions in the surveyed settlements, and climate aspects are not mainstreamed into existing development or upgrading activities. Additionally, the funding provided is very action-specific, which risks missing out on co-benefits. Many programmes have no gender dimension and ignore intersectional needs (e.g. funding to increase access to water cannot be used to give women access to sanitary products, even if these issues are closely linked).

Transparency and accountability

> *"There are many NGOs actually in the informal set-tlement and they are able to access funds in the name of addressing issues within the informal set-tlement. What is not sure is: are they really using that money to address that issue? And is that mon-ey even enough to respond to emergencies like the one we are talking about?"*
>
> ***(NGO Representative in Nairobi)***

While it is important that donors adjust the way they provide funding, transparency and account-ability for the use of funding is of critical importance. There is a risk that recipients do not use funds for the intended purposes, and a balance needs to be found between ensuring account-ability and avoiding undue reporting burdens.

> *"There'll be smart guys. And we know that, unfortu-nately, in Brazil, corruption is something that affects many projects and, whether you like it or not, out of 100% of what is invested in a project, often 30% is diverted to other things that aren't for the execution of what the project is designed for."*
>
> ***(NGO Representative in São Paulo)***

Misuse of funds is an issue that spans across levels and requires due diligence from the national governments as much as from international and local organisations.

> *"Yes, everything needs money, but sometimes it needs more than money. It needs accountability for the money that is being allotted. The donor fatigue that affected Pakistan before 2022 is really a good example of that. You know, USD 56 million went missing."*
>
> ***(International expert)***

Lack of information for prioritisation and interventions

A major obstacle is that donors and (local) governments do often not know where to channel funding to, especially in new contexts and in emergencies. This is part of the so-called money-out problems relating to the disbursement of funding, as there is often no collection of trusted and established CSOs. As detailed above, assessment methods and data gathering are inadequate in the case of many informal settlements that might not be part of any formal census. Available data often comes from CSOs or the communities themselves. However, this might not be data that local governments will accept. The data might also not be comparable with other parts of the city. A last hurdle could be the lack of trust into local governments, as in the worst case the data might be used for actions unwanted by informal settlements dwellers. This hinders action, access to and allocation of funding (since you cannot address issues you do not know about), and effective prioritisation. Some respondents suspected that municipal governments possess some information, but that it is not shared.

Lack of established community structures

Local governments often have a weak presence in informal urban settlements, and direct community interaction is facilitated by CSOs. Money-out problems are amplified by a lack of formalisation of community support structures, or simply by the absence of community organisation before disasters strike. Funding majorly flows to organised communities and established organisations. If these are missing or weak, mobilising funding in an emergency is considerably hindered.

> *"This is one of the issues with the Loss and Damage Fund, which is that the funds need to reach the affected territory, but often these affected territories are not in a position to manage the funds themselves. And then it's up to the local governments. What is the institutional process for this money, firstly, to reach them? And secondly, once it arrives, who operates it, for whose benefit, will there be social control of this resource, who determines the priorities for the use of the resource? There are many issues involved, because we're not necessarily talking about communities in territories that have historically had strong NGOs working in them."*
>
> ***(NGO representative in São Paulo)***

Deficits in policy development and communication

Many of the previously discussed obstacles have their roots in the lack of established relationships between CSOs and local governments. This hinders CSOs from influencing planning and spending. Often, there are no established policy frameworks for community engagement and representation, such as local hearings with the local governments, or the government might not attend or respond to such requests.

8.3. Pathways to bringing Loss and Damage Finance to the local level

Formal governance and funding schemes struggle to reach informal urban settlements. The many obstacles identified above need to be comprehensively addressed. At the same time, there is no need to re-invent the funding wheel within the Loss and Damage system. Rather, one should build on and improve existing systems:

> *"There are myriads of extremely formal, bilaterally funded programmes that work exclusively and directly with people in informal areas. There is a whole range of government schemes, particularly for public health, that are accessible to people living in the informal system. So, there is a precedent to make sure that support, financial and non-financial, is provided to people living in informal settlements. Therefore, I feel like yes, maybe for the Loss and Damage Fund we'll have to think about how we do it. But it is a failure of imagination at this point, as opposed to a failure or lack of institutional systems. It is not something fantastically new that we're talking about."*
>
> ***(International expert)***

Scaling up existing social protection approaches

Social protection consists of policies and programmes designed to reduce poverty and vulnerability, such as social insurance, social assistance, and labour and economic inclusion programmes (World Bank 2024). They provide safeguards against individual (such as illness) and collective risks, which would include natural hazard-induced disasters and climate events.

> *"I really feel like social protection provides that readily available thing that policy-makers can tag on to really release Loss and Damage payments."*
>
> ***(International expert)***

Many countries already have social security systems in place that can be scaled up and improved, while other countries should be supported in sustainably setting up such structures (Aleksandrova and Costella 2021). Governments need to find ways of including very vulnerable populations, such as informal settlement dwellers and workers, in their social protection and health care systems. These systems can be used to disburse emergency assistance through additional funding and thus be scaled up in times of disaster or other emergencies, known as adaptive or shock-responsive social protection systems. The additional funding might come from both national or international sources, including international funding for Loss and Damage. Using social protection systems, e.g. by humanitarian actors, avoids the duplication of systems and structures that will often target the same vulnerable groups and people.

Some countries will need substantive action to implement social protection systems and related registries. When systems are already in place, they will have to be reviewed to make them accessible, e.g. for informal workers. In some cases, registration procedures will need to be simplified and eligible people supported throughout the process. For example, CSOs in São Paulo have assisted eligible vulnerable people to register and receive government support, because to register, people have to walk long distances, as the authorities are afraid to enter informal settlements.

An example was set by the city of Accra which recognised that informal waste management workers are not classified as a vulnerable group by Ghana's national social protection policy. Therefore, the city made it a priority to improve basic health care for this group in the framework its "C40 UCAP Climate Action Implementation Programme" (C40 Cities 2024). New mechanisms were created to provide access to improved health care and life insurance for 209 informal workers for a one-year period in a pilot case. It was a strong signal for stakeholders at the local, national, and international levels showing them what can be done. The focus is on inclusive social insurance for low-income workers, including those working in Small and Medium-Sized Enterprises (SMEs), including by using mobile payment systems.

Insurance is not a common instrument in the informal settlements surveyed, though there is reason to hope for more positive examples of social insurances (health insurances), like the one described above. Experts also referred to other trailblazers, such as a new Extreme Heat Income Insurance for informal workers, mostly women, in India. Launched by Arsht-Rock, in collaboration with SEWA and Blue Marble, this innovative insurance compensates members for income lost due to extreme heat, aiding 2.5 million SEWA members. It is part of a broader climate resilience initiative, ensuring these workers do not sacrifice their health to financial stability (Henrich-Koenis and Dabrowsko 2023). Another example for innovation in the insurance sector to benefit people living in informality is Sugar Insurance, a startup from South Africa. It offers home insurance to people in informal settlements, "even for shacks costing a few hundred pounds, and without a street address". Using innovative technology and a simplified claim process, Sugar Insurance offers essential financial protection to one third of South Africa's population (Huckstep 2021).

With the necessary adjustments and by using innovative technologies like mobile money, market-based insurance products are possible even in informal settings. Nevertheless, to be affordable for people living in poverty, premiums would need to be heavily subsidised to the point that universal health insurance is a viable alternative. Experts have discussed the use of insurance-related products for intermediaries, for example for risk pools for cities such as through the ICLEI Urban Infrastructure Insurance Facility (UIIF). Through the weather data-based (parametric) payout, funds are quickly available and can be used by the municipal government to respond to the needs of vulnerable population groups (ICLEI 2023). Additionally, risk pools and insurance solutions for humanitarian organisations such as ARC Replica were discussed as efficient solutions to pre-arrange finance to facilitate quick responses (Start Network 2024).

Box 3: *Insurance for addressing Loss and Damage in informal settlements*

The important role of local organisations – formalisation, capacity building, and relationships

Interview results from across the three cities and at the international level stress the importance of meaningful engagement and collaboration with local organisations and population groups, including the most vulnerable. This is key to avoid conflicts and implement culturally sensitive and context-specific programmes with lasting a impact.

> *"I feel like it all comes down to local institutions. Again and again, I see effective examples of resilient communities that are able to bounce forward, not only to bounce back, in those places where there is an assembly of local institutions, where people are cooperating with each other within a mutually agreed framework and according to rules that also have co-benefits for local community members. And I feel like it's pretty shocking to me that over 3.5 decades of local risk management practice, local institutional development still tends to be overlooked, mainly for political economic reasons, because in project timeframes of 3 - 5 years, it's difficult to set up living, breathing institutions. But if one can do that, I feel like that is the golden nugget, is the secret sauce, for effective resilience and effective recovery."*
>
> ***(International expert)***

Communities are often the first if not the only responders after disasters, underscoring the importance of meaningful community engagement and participation. This observation is also increasingly highlighted in broader climate and disaster literature (e.g. Hashemipour et al. 2017; Rahman et al. 2023). Despite their crucial role, local communities and CSOs have severe problems to directly access funding (Colenbrander et al. 2018).

"Check what are these people [community-based organisations] doing. What are they doing with the existing funds they already have? Because if someone is able to do a lot with so little, I believe if you give them more, they're able to do more and have more impact. So, it's a matter of how do we get the government, how do we get the external funders to be able to really appreciate the activities being done at the grassroots level that have already proven to be effective? How can they strengthen them?"

(NGO Representative in Nairobi)

Governments and donors should recognise the crucial role CSOs have in filling a governance void in informal urban settlements, and enable them to play an active role. This capacity building should be very accessible and can be fostered through peer learning. It can assist them when formalising and registering their organisation, setting up bank accounts, and establishing legal structures. These are important prerequisites for CSOs to be able to receive traditional, formal funding. At the same time, a process of easing formalisation and related bureaucracy is urgently needed, as they put a huge burden particularly on small CSOs. Additional capacity building might cover proposal writing, financial management, reporting, and raising awareness of funding opportunities. In some cases, this might also include support to set up community-based structures from loose movements in the first place.

"Most funding has been structured in a way by most donors that it will benefit organisations that have structures. Therefore, it takes a lot of courage for people to organise themselves, to be able to understand the requirements for a particular call."

(CBO Representative in Nairobi)

At the same time, donors need to adjust the way they provide funding and offer funding schemes that are easier to access and which consider the circumstances of small CSOs and informal communities. Interviewees demanded funding flexibility to enable the community to (co-)decide on the use of the funds. Often, solutions would not be directly connected to the losses and damages but would address the root causes of vulnerabilities. In this context, microcredit experiences were given as an example to prove that accountability can be built based on mutual trust and co-responsibility over funds. Interviewees proposed simplified reporting to ease the burden born by responsible organisations or communities. A balance needs to be found between broad support and making sure CSOs meet necessary quality, transparency, and accountability requirements. Local governments and donors should act as brokers to facilitate access to funding and share the risks with dwellers and their organisation – rethinking their relationships and working together for the well-being of communities.

"How do you make sure that those resources are going to the hands that need them, and that you do it transparently? [...] The first one is at the scale of either the country or the city. There are ways. You can set up trusts, for example, to give clarity, to allocate the money and to give it to the organisations that are able to distribute the money and so on. That is one way to do it on a larger scale. On a local scale, though, making sure that money goes to the right hands is a completely different matter. And it goes back to what I was saying before: lack of information and the gap that exists between local authorities and different organisations with people on the ground."

(International expert)

Respondents stressed the importance of comprehensive ex-ante planning, relationship and trust building, and overall preparedness. Especially in emergencies, resources will only reach the informal communities in a reliable and inclusive way if the necessary mechanisms have been established beforehand. Such relationships can be established through different activities, not limited to the field of climate change. Local governments can do this by continuously mapping and identifying good grassroots organisations, building on existing networks and relationships to avoid duplication. Additionally, they need to map which groups risk being left out and make an active effort to include them.

> *"One principle when you manage complex systems is that if the system is not working properly beforehand, meaning if there are no relationships between these groups and supporting agencies, of course it is going to be more difficult later on when you want to respond. Because there are no existing links, the system is not working. So, that means that cities need to have mechanisms in place to engage with these communities for different purposes. For example, for participatory planning through participatory budgets [...] If you create these links at an early stage, then it is going to be easier later on to respond."*
>
> ***(International expert)***

Not all communities have the necessary strong organisations. They will have to develop solid structures of participation and community organisation to overcome short-term responses. However, this is often easier said than done and takes time. Learning from good practices may facilitate such processes, but it has to be acknowledged that due to the hugely different realties of informal urban settlements there can be no standard approach.

Lastly, the lack of opportunities to obtain direct cash (not in-kind) funding has been mentioned by many respondents. In some instances, direct access to (international) financing sources has proven to be difficult. In these cases, intermediaries – regional, national, or topical – can help increase reach and accelerate financial flow from the international to the local level. These intermediaries can be, among others, banks, national programmes, trust funds, or programmes by other CSOs. International good practices as described in ***Box 4*** can help developing locally suited approaches.

An inspiring example of community organisation that led to the channelling of funding can be found in San Juan, Puerto Rico. There, the world's first Informal Settlement Community Land Trust (CLT), Fideicomiso de la Tierra, was established to develop and preserve communities near the polluted Martín Peña Canal. Formed by the government, residents, and experts, the CLT manages land titles, prevents involuntary displacement, and supports resident participation. It focuses on housing development and affordability, collectively owning 200 acres. The government's failure to install adequate infrastructure led to severe flooding and health issues. In response, the CLT supports canal dredging and urban development, balancing social justice, housing, and environmental improvements (Bernardi 2017).

An example for channelling international climate finance to the local level is the **Global Environment Facility's Small Grants Programme (SGP**). Operational in 136 countries since 1992, the SGP empowers local civil society and community-based organisations to tackle global environmental challenges while enhancing livelihoods. With over USD 724.91 million invested and USD 876.94 million co-financed, SGP has significantly impacted environmental, social, and economic aspects globally. It offers up to USD 50,000 in grants, focusing on innovative, inclusive projects in areas like sustainable agriculture, energy, ecosystem conservation, and urban development (GEF 2024).

The Development Bank in Colombia (FINDETER) is an example of an intermediary which is pivotal for channelling international funding to local levels due to its comprehensive approach in sustainable territory development. It specialises in planning, financing, and technical assistance for infrastructure projects. With regards to sustainable urban development, the bank runs the "Sustainable and Competitive Cities" programme, supported by the IDB, focusing on transforming medium-sized cities through orderly planning. The "Emblematic Cities" programme aims to close inequality gaps in strategically important cities, addressing environmental, fiscal, urban, economic, and social challenges. This is a way for municipal governments to access funding (Government of Colombia 2024).

Governments have started to address inaccessibility. The **Periferia Viva** Award, initiated by the National Secretariat of Peripheries of Brazil's Ministry of Cities, acknowledges and rewards initiatives by residents of peripheral areas that help reduce inequalities and transform their communities. Open to groups and non-profit organisations, it covers categories like urban planning, food sovereignty, health, economy, justice, communication, and culture (Government of Brazil 2023b, 2023a). The Kenyan Government and World Bank's **Financing Locally-Led Climate Action (FLLoCA)** Program aims to bolster county and national capacities in climate risk management, focusing on community partnerships, funding climate change initiatives, and enhancing planning, implementation, and reporting. 90% of programme funding shall be spent at the county and community level (Arnold and Soikan 2021).

CSOs have started to collaborate and support each other, e.g. through subgrating. Funds might be hosted by bigger organisations and the smaller or loose ones access them through them. The Voices for Climate Action (VCA) programme aims to empower marginalised groups in climate solutions through a human rights-based approach. The programme features the **Next Level Grant Facility (NLGF)** to support grassroots decision-making and assist small organisations with challenges like legal conflicts, emergency situations, and communication campaigns, emphasising rapid response to urgent climate and human rights issues (SDI Kenya 2023).

***Box 4**: Examples of good practices of local level funding*

Multi-level governance and coordination

Addressing challenges that involve multiple stakeholders and scales requires adequate coordination and governance.

> *"The answer is multi-level governance and coordination. [But] the way that you get to it is really hard and super individual for each country, and again for each city."*
>
> ***(International expert)***

Multi-level governance involves collaboration among local, regional, national, and international government levels to address complex issues. This approach facilitates the sharing of responsibilities and resources across different levels, enabling comprehensive, integrated solutions (Pattberg and Widerberg 2015). It is crucial for tackling global challenges like climate change, ensuring that policies are inclusive and accommodate diverse perspectives and needs.

"Looking at the Brazilian reality, but this will also apply to other countries, we see that these resources arrive and it will have to be operated within a pre-existing structure. An economic, bureaucratic and political structure, too. Today, in Brazil, there is no mechanism for a fund to arrive and for you to create a popular management committee for that fund. The money will come to the municipality and the mayor will do what he wants, often without social control. This is the existing mechanism. New mechanisms would have to be invented, perhaps another institution to operate these resources in an agile way, while ensuring that there is no misuse, no political, paternalistic use of this resource, and that it will in fact take care of this range of losses that the population has, not just build a housing complex and that's it, because that's not enough that there is social control."

(NGO Representative in São Paulo)

Introducing such multi-level approaches partly requires overcoming centralised governance schemes that have been in place for decades.

"In Indonesia, all [climate action] plans, including the RAN [National Action Plan] and the NDC [Nationally Determined Contribution], are prepared by the central government. Not by local governments. Of course, we would be happy if sub-national governments, meaning regional governments, could participate. But for now, everything is still centralised."

(NGO Representative in Jakarta)

Multi-level governance is already advocated for and implemented in climate action as the complexity and multi-level nature of climate change demands managing and resolving conflicts of interests across different levels and with the involvement of diverse policy actors (Di Gregorio et al. 2019). For example, a study in Kenya found the country's climate architecture impressive; however, efforts at the national level were insufficiently coordinated. This highlights the need for stronger multi-level governance to ensure the complementarity and consistency of policy and practice (Bellali et al. 2018).

Good and multi-level governance, where funding is passed from international donors to national and local governments, is a prerequisite for Loss and Damage funding to effectively reach the local level. In informal settlements, community-based organisations are often closer to informal dwellers than the municipal government and should therefore be included in the chain. All these levels of governance play crucial roles and must be functional, interlinked, and their respective mandate respected. Localised access from the international level alone cannot compensate for inadequate governance at other levels. In the case of failed or fragile states, humanitarian organisations sometimes de facto take over certain functions of the government.

Implementing multi-level governance will, however, only be successful if existing obstacles to cross-level interactions are actively addressed. The local level and its interests usually are weaker in centrally dominated policy processes such as climate action (Di Gregorio et al. 2019). Consequently, there is a huge risk that mistakes will be repeated in Loss and Damage governance. The responsibility to avoid this lies with international and national level actors. At the local level, actors are increasingly aware of the potentials associated with increased collaboration, as pointed out by a BPBD representative in Jakarta:

„In the past, we've had to take the initiative to seek out NGOs and partners to collaborate with. We've also experienced a lack of outreach from these organisations, which could be due to a variety of factors. We are indeed open to collaboration and actively seek out opportunities to learn and improve our practices. We would love to collaborate with NGOs on Loss and Damage assessments, so that they could offer recommendations."

9. International responsibilities to address Loss and Damage

Informal settlers are already combating climate impacts through both individual responses and community-based measures, as well as, to a limited extent, with government assistance. Currently, climate vulnerable people pay the bill for climate change, even if they have not contributed to it (Timmons Roberts and Parks 2007).

Direct compensation in the face of losses and damages from climate change, such as for deaths of family members, loss of houses and property is an issue that was raised by various respondents.

> *"In our reports we ask for the families to be compensated, because they are the ones who end up paying the bill for climate change, that's it. We had a meeting at the public defender's office saying these people can't pay this bill. It's the state that has to pay this bill. If the state is not in a position to charge those who are emitting greenhouse gases, that's the state's problem. But, in the first instance, it is the public authorities that have allowed this situation to arise. This is the position we defend, as do those affected, but there has never been a case of compensation."*
>
> ***(NGO Representative in São Paulo)***

This raises different issues about who bears responsibility, and discussions as to the type of action to be taken in the face of Loss and Damage.

9.1. Responsibilities of different actors and at different levels

> *"The Indonesian Government does not yet have a perspective on Loss and Damage. That's for sure. It just doesn't exist. It hasn't been discussed yet. That's why we did research in collaboration with the government in order to give them that perspective."*
>
> ***(NGO Representative in Jakarta)***

It is the responsibility of national governments to ensure that basic human rights of all people in their national territory are safeguarded and enjoyed (O'Brien et al. 2009). The three case studies have shown how dwellers are caught in a poverty trap and underlying vulnerabilities. It is the government's responsibility to address both root causes and different aspects of risks that informal settlements dwellers face in an inclusive and participatory manner – spanning from the national to local governments. This means developing plans and capacities at different levels to avert, minimise, and address Loss and Damage.

Climate change has to the largest extent not been caused by countries of the Global South, and even less so by people living in informality. At COP27 in 2022, all countries agreed that developing countries have unaddressed needs to funding Loss and Damage and established the Loss and Damage Fund and Funding Arrangements (UNFCCC Secretariat 2023). Additionally, countries are turning to courts to clarify international responsibilities outside the UNFCCC. Developed countries should thus provide financial and technical assistance to developing countries to address the losses and damages occurring on their territories. The funding can take different characters.

> *"What is the role of the Loss and Damage Fund, be it international, national, or local reparation measures, is it a compensation role or a reparation role? Because I see that these are different situations."*
>
> ***(NGO Representative in São Paulo)***

Respondents reflected on challenges to quantify losses as many of the most devastating ones are non-economic in nature. Instead, respondents advocated for a more encompassing approach that goes beyond simple indemnification and immediate compensation and focuses instead on how the funding can have a transformative perspective beyond the immediate response and recovery.

> *"I think that a fund like this could also put a whole agenda on the table, not just the compensation that will happen after the disaster."*
>
> ***(Researcher in São Paulo)***

> *"Now, for me, the issue of reparation is different from that of compensation, because when you try to make reparation, you try to restore a previous situation of dignity, or even improve the family's living situation. It doesn't necessarily matter how much money I'm going to transfer to the family in terms of compensation, but rather how I'm going to be able to leave that family in the same or better circumstances, preferably better, in relation to the status quo before the extreme weather event."*
>
> ***(NGO Representative in São Paulo)***

The operationalisation of a Loss and Damage fund would benefit from integrating the principles of climate justice, namly distributive justice, procedural justice, and recognitional justice (Newell et al. 2021; Newell 2022). These pillars underscore that a Loss and Damage fund or related actions must transcend mere aid-oriented approaches and address intertwined socio-economic and institutional factors. Such considerations encompass participatory methodologies, safeguards to mitigate potential harm, recognition of vulnerabilities, and preservation of intergenerational equity.

Distributive justice addresses the equitable distribution of both benefits and costs across society, spatially and temporally. Procedural justice pertains to the fairness, accountability, and transparency of decision-making processes in climate change initiatives. Recognitional justice centres on acknowledging the socio-economic and political disparities exacerbating vulnerability and marginalisation within affected communities, including the intersectionality therein. At its core, recognitional justice underscores the equality of human rights, acknowledging discrepancies in the capacity to exercise these rights.

Figure 13 shows how such a perspective can guide the setup of the Loss and Damage Fund but also of related multi-level governance schemes.

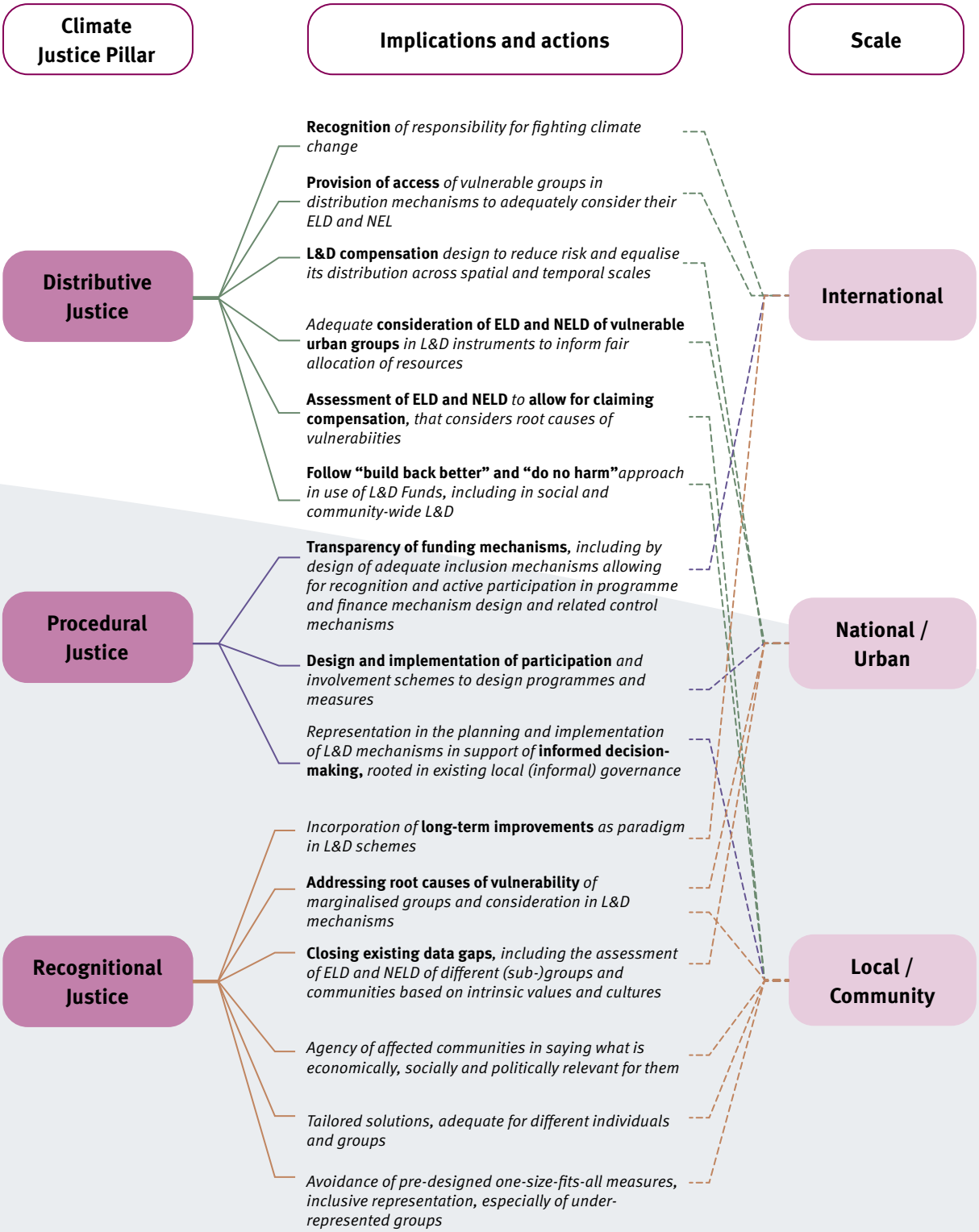

***Figure 13**: Putting a climate justice perspective on L&D access for marginalised urban communities and implications from the local to the international scale*

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9.2. Loss and Damage Fund and Funding Arrangements inside and outside the UNFCCC

Vulnerable countries and communities are eagerly awaiting progress since the establishment of the Loss and Damage Fund at COP27 and its subsequent operationalisation at COP28. The Fund is to be set up at the World Bank as its interim host, and the Fund Board is to provide more clarity on the operational modalities of the Fund. Yet, experts have cautioned against putting all hopes on the Fund alone, as setting it up could take a considerable amount of time, and dispersing money quickly and to the local level has been challenging in the case of other climate funds.

> *"If you look at all other funds from the GCF to the GEF and the LDCF and all of them, the Adaptation Fund, it's all very hard for them to get money to - almost impossible to get money directly to communities quickly [...] So to me, it's politically very important that this fund exists and it does actually disperse some money. But ultimately that's not going to really help most people at the community level, in the urban level, to address lots of damage because it's not going to be enough money there. It's never going to get there quickly."*
>
> ***(International expert)***

While the Fund has to overcome considerable obstacles to bring resources from a formal and international to an informal and local level, several steps can be taken to make the Fund more fit to the needs of marginalised and informal people.

Procedural consideration of the Loss and Damage Fund

Losses and damages are highly localised and hit the most vulnerable people the hardest. A meaningful engagement of marginalised groups such as informal dwellers in an international mechanism to address Loss and Damage, such as the Loss and Damage Fund, is paramount. At the same time, precisely because of their informality and lack of institutional representation it is a challenging task. There are many moments in the setting-up and functioning of the Fund during which community voices need to be heard and involved. Starting from the highest level, the Loss and Damage Board, marginalised groups have not received a seat at the table (Toussaint 2020). On a positive note, though, women, environmental groups, and youth have been included as active observers, which are all organised in diverse and different ways. The board could leave open the option to involve more groups as they formalise and form constituencies. Additionally, communities and cities should be actively involved in the writing of guidelines, operational procedures, and frameworks (such as Monitoring and Accountability frameworks or integrated results management frameworks). Respondents stressed the importance of involving the local level early on and in the stage of needs assessments and design of activities.

> *"I think the human-centred design approach will really work, whereby the people of Kibera, are the centre of this development. So, instead of a programme or anything being implemented from the top, let the policy-makers or people who are in charge of the funds, let them come and meet the people. Let the people decide on what really suits them instead of having a white elephant project".*
>
> ***(CBO Representative in Nairobi)***

Experts stressed the importance of having strong safeguards in place to prevent harm, but also to encourage the Fund to do good. Additionally, the Fund needs to offer an effective grievance mechanism. Concern was voiced about the choice to locate the fund at the World Bank (Getzel and Robertson 2023; Walker 2023). Indeed, local organisations have made negative experiences, e.g. with regards to World Bank funded relocation programmes. World Bank safeguards are not regarded as best practice, and the bank does not have a track record for engaging with or has previously provided funding for local communities.

> *"On the other hand, it [the COP28 decision] says that it will support implementing agencies or accredited entities to reach the benchmark of World Bank safeguards, which is not best practice. So already it just doesn't match. And also the World Bank activities are very much not what we envisage them to be, you know, like community-based Loss and Damage responses. So, it's unclear how those safeguards would actually work in such a context."*
>
> ***(International expert)***

Money-in: sufficient finance for the Loss and Damage funding regime

> *"If you don't have enough money in, then the problems that you have when you put money out are infinitely multiplied."*
>
> ***(International expert)***

Only a well-resourced Fund will create the possibility of reliable access for marginalised groups. The Fund and Funding Arrangements must receive new, additional, adequate, and predictable funds from a wide range of sources, including innovative sources of finance such as taxes and levies (Roberts et al. 2017); new and additional means that the Loss and Damage funding does not subtract from current adaptation and development finance, which also needs to be scaled up. Experts recognised that the traditional voluntary pledge-based system financed by government revenues might not be sufficient to guarantee a stable flow of finance, especially as losses and damages continue to increase.

> *"The USD 700 million from the Loss and Damage Fund are literally a drop in the ocean of damages. And even if we would have a flight tax or I don't know something, to make the money bigger, as long as we continue to increase the damage, we will never have enough Loss and Damage funding."*
>
> ***(International expert)***

Additionally, the current global financial system does not work for climate vulnerable countries and communities, who are highly restricted in averting, minimising, and addressing losses and damages because of their high debt burdens and limited fiscal scope:

> *"And will the donors deliver on their commitments or their pledges? Who knows? I still think we need efforts to demonstrate what else is happening outside of the Loss and Damage Fund."*
>
> ***(International expert)***

Experts also stressed the financial and technical contributions of the private sector to Loss and Damage funding. While it is unlikely that private companies would put resources in a multilateral fund, they could be engaged either via taxes or via incentives. Real estate companies could be taxed on new developments in cities like Jakarta, and the funding used to upgrade informal settlements. Another idea is to make the private sector contribute to resilience building by showcasing the benefits of a resilient supply chain, which for many global companies start in SMEs in countries like Indonesia.

Money-out: ways to provide Loss and Damage funding to communities

Prior sections have discussed possible ways to provide assistance and finance to informal urban settlements to minimise and address losses and damages: scaling up social protection, facilitating direct access for communities, and passing on funding through solid multilateral governance. These streams are also reflected in the debate on and governing instrument of the Loss and Damage Fund.

> *"I consider the Loss and Damage Fund to be a fund that is first and foremost for countries and country governments to access."*
>
> ***(International expert)***

The UNFCCC is an international treaty among countries and therefore, to the largest extent, caters towards national governments (also known as Parties). Consequently, significant responsibilities lie with the national government, which needs to coordinate and regulate with other actors within its jurisdiction (Calliari and Vanhala 2022). The Paris Agreement "recogniz[es] the importance of the engagements of all levels of government and various actors, in accordance with respective national legislations of Parties, in addressing climate change" (UN 2015:2). This means that the governments can require to approve or regulate interactions of stakeholders within their jurisdiction with the mechanisms under the UNFCCC. Once again, this shows the importance of good multi-level governance. It is of crucial importance to advocate within the country for a conducive relationship between informal settlements and different levels of government.

"If you keep doing exactly the same things over and over again, you can't expect different results. [During] the discussions around the Loss and Damage Fund and how to make it accessible to communities and to cities and so on, there was a specific request to have one component, or one window or however you want to call it, for cities and for communities. But that was not taken into account. And then you are going back again to the same thing. The GCF or whoever, through the World Bank, or regional development banks or any other organisation that connects directly with central governments primarily, which already excludes cities and communities."

(International expert)

A direct access window for cities, CSOs, and local communities was a major demand from civil society and local governments during the discussions on the operationalisation of the Loss and Damage Fund. The agreed upon operational modalities of the Fund do not include such windows, which can be understood as dedicated pots of funding for specific activities or recipients. Instead, the access "modalities may include: [...] (d) Access to small grants that support communities, Indigenous Peoples and vulnerable groups and their livelihoods, including with respect to recovery after climate related events" (para 49.3, 1CP.28k, UNFCCC 2022). Further details on access modalities are yet to be developed by the Fund Board. While this direct access option is positive, in the absence of windows, local organisations will compete with national governments, subnational, national, and regional entities, as well as multilateral or bilateral entities for funding, which are equally listed in the operational modalities.

"In an ideal world, it would be nice as a direct response fund for Loss and Damage for communities to call upon. But there's never going to be enough money and it will all be tied up with some bureaucracy. Because the donors are going to say, we can't just give away taxpayers' money without some sort of process. But it can't go like a GCF [...] when it gets approved, then it takes you 3 or 4 years to develop a project proposal and then disperse the funds. And it is captured by UN entities and national entities. That's their massive challenge, you know."

(International expert)

The challenge will be to provide quick funding to a wide range of organisations, despite the World Bank having limited experience with directly funding CSOs. This has traditionally been accomplished through intermediaries such as UN agencies or bilateral partners. In these cases, CSOs are often sub-contracted as project delivery partners by accredited Implementing Agencies. The World Bank recommends consulting CSOs, NGOs, private sector, academia, individuals, and other actors during the project development process. More recently, some World Bank programmes have started to directly engage with and fund CSOs, such as through the Global Partnership for Social Accountability (gpsa 2023). When designing the direct access modalities for the Fund, bureaucracy and admission requirements need to be kept to a manageable level to ensure inclusivity and efficiency and not to disproportionally favour large organisations.

Funding Arrangements

> *"It won't disburse any money this year. Maybe next year. And will the donors deliver on their commitments or their pledges? Who knows? I still think we need efforts to demonstrate what else is happening outside of the Loss and Damage Fund."*
>
> ***(International expert)***

As shown above, many actors – local, national, international – are already addressing losses and damages from climate change through a wide range of activities, which are connected to different existing or emerging sources of funding. This landscape of support has become known as the "Funding Arrangements" under the UNFCCC. While still undefined, the Arrangements certainly include the most important actors in development finance, climate change, and humanitarian regimes. An annual high-level dialogue aims to contribute to better coordination and scaling up of ambition. The up to 30 high-level representatives of entities to attend the dialogue paint a picture of the Funding Arrangements:

> *"(a) The Fund; (b) The World Bank and regional development banks; (c) The International Monetary Fund; (d) Relevant United Nations agencies and other intergovernmental organizations as well as relevant regional, international, bilateral and multilateral organizations; (e) Relevant multilateral climate funds, such as the Adaptation Fund, the Climate Investment Funds, the Global Environment Facility and the Green Climate Fund; (f) The International Organization for Migration; (g) The WIM Executive Committee and the Santiago network; (h) Civil society, Indigenous Peoples and the philanthropic sector, as well as individual experts on losses and damages chosen on the basis of their expertise and their representation of different regions and pespectives"*
>
> ***(1/CP.28, Annex II, para. 14, FCCC/CP/2023/11/Add.1, UNFCCC 2023)***

While there already are these and many more organisations addressing losses and damages, we have seen throughout this report that the existing structure is not enough, and currently funding and activities do not sufficiently cater towards the needs of informal settlement dwellers. All Funding Arrangements, and the activities they finance, need to adjust their mandates, guidelines and operational modalities to be more inclusive, implement a gender and intersectional lens, and account for the specific needs of informal settlements.

> *"We were trying to bring the humanitarian and developing people together and say, look, you're the same - different sides of the same coin. You know, if you spent more on development, then there's less need for humanitarian assistance, and if humanitarian [needs are less], we can do more preventative work."*
>
> ***(International expert)***

> *"We also need a big push to get humanitarian funding because, you know, we just see the need for humanitarian assistance going up and not being met."*
>
> ***(International expert)***

In addition, there are still untapped opportunities to learn from or integrate action and actors within the humanitarian system, which is severely underfunded. Humanitarian organisations, as well as national and local emergency response agencies, are often the first to respond to climate-induced losses and damages, and therefore need to be a central part of the Loss and Damage landscape.

10. Outlook and recommendations

Losses and damages from disasters are a common reality in informal urban settlements. Their impacts are exacerbated by climate change, with severe impacts on lives and livelihoods. Dwellers in each of the three informal settlements analysed are already facing them, including dramatic short- and long-term impacts. They have reported disproportionate losses and damages regarding housing, health, and income, accompanied by financial impacts. Consequently, these losses and damages go hand in hand with the risk of exacerbating the already prevalent poverty, further limiting the already poor adaptive capacities. The pressing issues of adequate housing, health, and financial insecurity in urban informal settlements might also overshadow other losses and damages, particularly non-economic ones. In some cases, living conditions and construction methods in informal settlements may prevent the recognition of certain types of losses and damages - but this should not negate their impact on informal settlements. For instance, the absence of biodiverse green spaces cannot be reported or compensated for, if they were never present.

Importance and benefits of community-led action

Local and autonomous responses significantly contribute to dealing with losses and damages. They complement or even replace institutional responses which are frequently insufficient and too often absent. Mostly, both types exist in parallel instead of being linked. As a result, important and potentially life-saving synergies are missed. In general, it is important to note that such responses are not solely structural, such as rebuilding houses or basic services. Instruments such as land tenure or social measures are often just as crucial in informal settlements for creating better living conditions in the long term.

Communities and CSOs play a key role in building resilience, enhancing preparedness, and ensuring effective disaster response. Recognising local capacities and community-based action hence bears a huge potential. On the other hand, neglecting informal settlements perpetuates a cycle of poverty and exclusion, hindering sustainable development efforts in the long run. Informality is not an exception or a detached component of the city; therefore its importance for the functioning of the city and its economy must be considered.

Locally led action exists in many different ways and is often the primary, if not the only, support during and after disaster events. This cannot and should not simply be replaced, but meaningfully integrated into strategies, including actions to avert, minimise, and address Loss and Damage. The potentials of community-based approaches are not sufficiently recognised in government-led approaches, regardless on the level of administration. On top of this, local actors with already limited resources and capacities are at a disadvantage in accessing support. Authorities' knowledge about available mechanisms may not trickle down to local levels where implementation is needed and is often hampered by prevalent informality.

However, formalisation alone is not the solution, because it does not necessarily end marginalisation and stigmatisation. Often, it leads to the exclusion of already marginalised groups, neglecting values and knowledge that is not hegemonic. Similarly, solely compensating for losses and damage through restoring previous inadequate conditions can perpetuate vulnerabilities.

Need for holistic approaches addressing root causes of vulnerabilities

The study has revealed that losses and damages neither exist nor can be addressed in isolation. On the ground, the political and academic distinction between adaptation and Loss and Damage is largely irrelevant. This is particularly true for highly vulnerable groups such as residents of informal settlements, who face structural vulnerabilities that often have been shaped by proceses spanning decades, if not centuries. Merely compensating for losses and damages, though necessary and urgent, could inadvertently perpetuate precarious livelihoods and living conditions instead of building long-term resilience. Therefore, transformative approaches are needed. They should consider root causes of vulnerabilities and involve dwellers as agents of change, not just as passive recipients of benefits.

Otherwise, there is a significant risk that efforts to create more equitable approaches to losses and damages and distribution of resources end up creating more inequitable procedures that fail to adequately recognise the affected populations and their needs and demands. To avoid this, climate justice and all its pillars should guide all action, including in cases where relocation is the only option. Successful and impactful action to address Loss and Damage on the ground also requires global efforts to create the right framework conditions.

Too little and too slow action by some will have far-reaching negative effects on billions of others, including informal settlement dwellers and other vulnerable urban groups. Disasters impact informal settlements and their inhabitants on a regular basis. This is likely to increase as the number of inhabitants grows, partly due to climate-induced migration to cities. It is crucial to critically scrutinise what action and related funding to address Loss and Damage alone can achieve. No fund can compensate for all losses and damages, especially if there is too little adaptation and mitigation. Hence, preventing future losses and damages is key and should guide action from the local to the global level.

Closing knowledge gaps with respect to informal urban settlements

Losses and damages in informal urban settlements might go unseen, including due to a crucial lack of data and assessments by authorities. Informal urban settlements are often not considered in formal census. This results in poorly documented disaster impacts, which hinders access to financial or other support. Although community-based assessments – often supported by CSOs – are already conducted in many places, they are usually not recognised by governments. Consequently, data gaps remain unaddressed even though potential and, in some cases, actual data are available.

Regarding data, there is a crucial need for more knowledge and studies on specific losses and damages in informal urban settlements, in particular on non-economic ones. Understanding the cascading nature of losses and damages caused by climate change is crucial for developing effective strategies to mitigate and prevent future impacts following the "build back better" paradigm. Over the past years, the general understanding of losses and damages has grown considerably, influencing global policymaking and the establishment of a dedicated fund. However, specific knowledge about the characteristics of losses and damages in informal urban settlements and how they are often tied to the root causes of vulnerability of people living in urban informality is still missing. Mapping the cascading effects in informal urban settlements can provide insights into the interlinkages between existing vulnerabilities, informality, and the everyday construction of risk, including specific impacts on the most vulnerable groups within these settlements. Furthermore, such mappings should not only include local but also trans-local consequences of losses and damage, for example in rural places of origin of urban settlers.

Lastly, there is a need to research the (future) impacts of Loss and Damage finance on urban development, and particularly its unintended consequences. Without a perspective that incorporates a transformative approach to the territory, compensating for losses and damages may perpetuate existing urban vulnerabilities, drive future carbon emissions, and maintain precarious conditions, especially in informal settlements.

Agreeing on underlying principles to address losses and damages in informal urban settlements

Regarding climate action in urban areas and sustainable development of informal settlements, global agendas can provide guidance. These include in particular the New Urban Agenda and the SDGs, especially SDG11, with their "Leave No One Behind" paradigm that should guide action. In this context, it is also important to assess the link between losses and damages and human rights. The climate crisis is already affecting the most vulnerable and their living conditions, including through violations of human rights. Rights-based approaches provide a normative framework that can underpin the development of equitable Loss and Damage action at all levels, from the international to the local level. At the same time, they create a basis for linking this action with other measures and concepts, such as sustainable urban development and the right to the city.

Progress has been made by recognising climate-induced disasters and establishing a Loss and Damage Fund. However, achieving net zero emissions as rapidly as possible remains key in the global effort to mitigate climate change and limit global warming to 1.5 degrees Celsius above pre-industrial levels. Failing to do so increases the likelihood of surpassing this critical threshold, leading to catastrophic impacts that far exceed our capacity to adapt and to address resulting losses and damages. It is essential to acknowledge the principles of Common but Differentiated Responsibilities (CBDR) and "polluter pays" to ensure that nations contribute equitably, reflecting their capacities and the extent of their historical contributions to global emissions.

To effectively address the impacts of climate change in informal urban settlements, the establishment of the Loss and Damage Fund by the Board and the World Bank as interim host is urgently needed, alongside the translation of pledges into tangible funding. This requires a particular emphasis on cities in less developed countries which are home to the vast majority of people living in informality. However, the current financial architecture often fails to adequately prioritise these countries' and cities' needs. Consequently, reforming the global financial system is essential to ensuring that climate-vulnerable countries have the resources and support they need to address their development and adaptation needs while transitioning to low-carbon economies. Without such support, local action at the scale needed seems impossible.

Building on available practices and learnings

There are proven measures and solutions to build resilience and improve livelihoods in informal urban settlements – as well as approaches that have not proved successful, such as relocation, which are justifiably viewed critically. Valuable lessons must be learned from existing approaches and instruments, for example in the area of social protection and urban planning. Robust social protection systems can avoid duplication of registries and planning through the integration with existing community structures and initiatives, and can also be linked to actions to avert, minimise, and address Loss and Damage. Communities might also learn from other traditionally marginalised groups and how they organise themselves when engaging with policy-makers or donors. For example, Indigenous groups have developed „community protocols“ to define consultation and decision-making processes before an implementation entity arrives.

Underlying paradigms such as the right to the city or climate justice offer great potential as guard rails for the development of appropriate mechanisms to address losses and damages in informal urban settlements. It is crucial to realise that no informal settlement is standardised: context matters. Even if the broader categories of losses and damages in the three settlements studied are similar, cultural, social, and geographical aspects must be considered when developing actions. This study has shown that local actors and civil society organisations can be an important, though yet untapped, source of information for doing so. In addition, lessons should also be learned from ongoing debates, for example on structures that are designed for climate migrants to leapfrog the status of informality through adequate preparation.

The study advocates for policies that are inclusive and responsive to the realities of these communities. The findings shall inform the design and implementation of the Loss and Damage Fund and other funding mechanisms targeting informal settlements and their dwellers. Conclusively, by amplifying the voices and experiences of residents of informal urban settlements, the study aspires to foster a shift towards climate justice through more equitable and effective climate resilience strategies that recognise and address the unique vulnerabilities and capacities of vulnerable urban population groups.

Informal settlement dwellers must be given the opportunity to live a decent life without facing unbearable disaster and climate impacts. Action to avert, minimise, and address Loss and Damage can become a powerful instrument for this. However, certain rules must be observed to ensure that a good approach does not end up perpetuating existing vulnerabilities. This risk is very real, and now is the time to design and implement appropriate measures. This requires cooperation as equals, between all levels, and among all stakeholder groups.

Consequently, this study derives 20 recommendations summarised in ***Figure 14***:

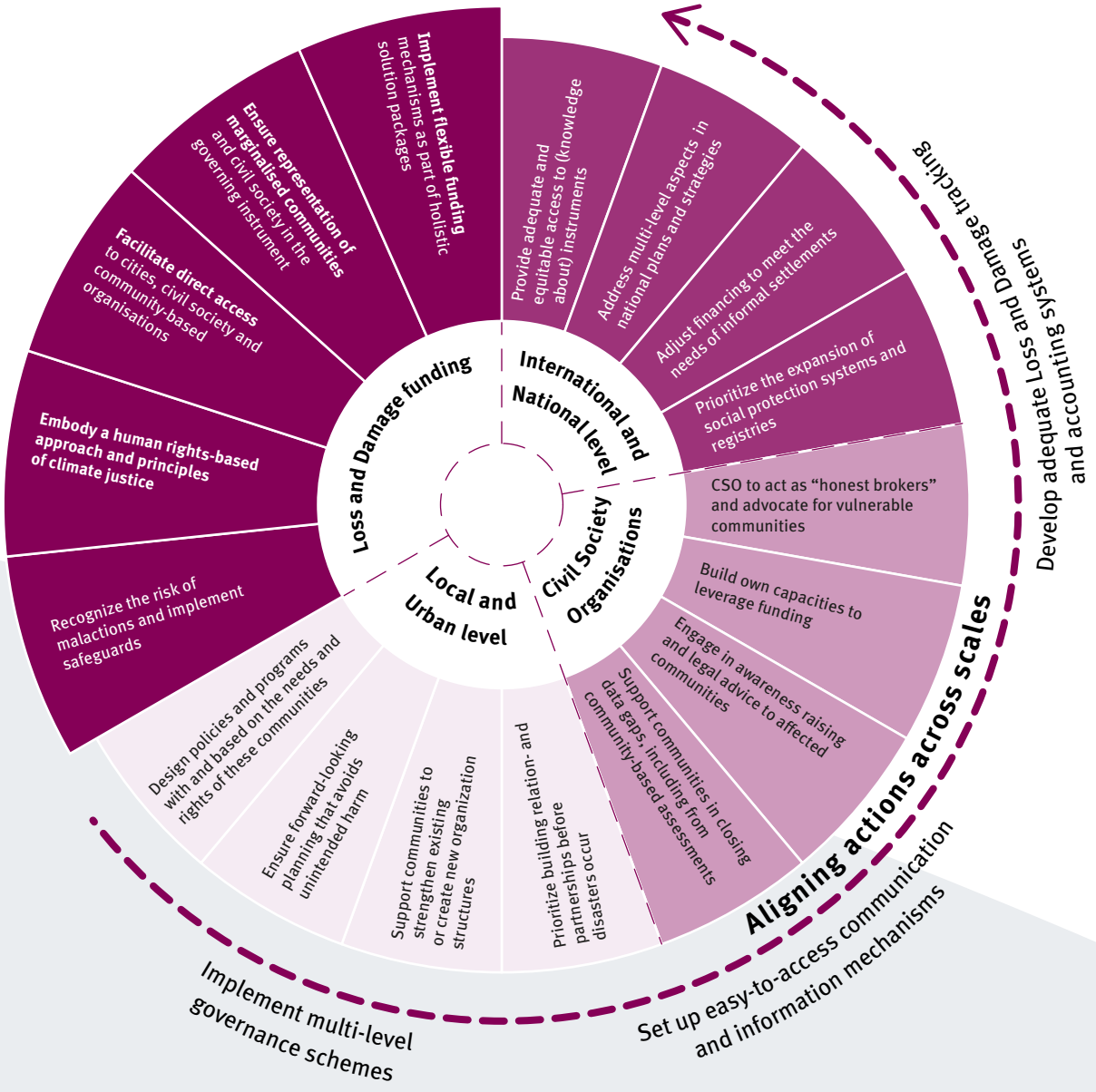

***Figure 14**: Wheel of recommendations*

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Recommendations for Loss and Damage funding mechanisms

- There is no hard distinction between the concepts of adaptation, addressing Loss and Damage, and humanitarian action in highly vulnerable communities. It is vital to **implement flexible funding mechanisms** that are not constrained by rigid definitions but aim at maximising impact. Action to address Loss and Damage must be part of holistic solution packages by linking it to DRR, CCA, and mitigation, putting long-term resilience-building and the well-being of affected communities centre stage.

- **Ensure representation in the governing instrument of the Loss and Damage Fund**. Marginalised communities and civil society must be represented, involved, and consulted throughout all Fund activities and in all stages of decision making, such as by the Board, the secretariat, or expert groups. Consider a truly forward-looking operationalisation by including voting representatives of civil society organisations from developing countries and members of marginalised communities in the Board.

- **Facilitate easy access** to grants by cities, civil society, and community-based organisations through a dedicated window. Simplify eligibility and reporting requirements to increase accessibility and offer capacity building to local stakeholders, which often are the main supporters and first (if not only) responders in informal settlements.

- The set up and operational modalities of the Loss and Damage Fund and related mechanisms should **embody a human rights-based approach and principles of climate justice**. This includes in particular the incorporation of community-led and human rights-based approaches to address losses and damages among the most vulnerable population groups, including in informal urban settlements.

- There is little knowledge on **impacts of Loss and Damage finance**, particularly on unintended con sequences. Compensating for losses and damages without considering the root causes of vulnerabilities may inadvertently perpetuate existing urban vulnerabilities and increase future carbon emissions, especially in informal settlements. Hence, funding needs to take a transformative approach, implementing safeguards and recognising the risk of actions that lead to maladaptation.

Recommendations for aligning action across scales

- Successful action to avert, minimise, and address **Loss and Damage demands effective multi-level governance**. Amplifying the voices of local stakeholders can mediate the dominance of inter national decision-makers and ensure that Loss and Damage action is more responsive to the realities and priorities on the ground. A precondition is that sub-national governments and local voices are considered actual partners in delivering actions and meaningfully participate in decision-making, implementation, and monitoring.

- The aim must be to identify and implement the best, climate-just approach to handle Loss and Damage as quickly as possible across all administrative levels. There is often a gap in the transfer of knowledge between international mechanisms and good local practices to other levels. **Effective and easy-to-access communication and information mechanisms** need to be implemented, including for the benefit of disadvantaged stakeholders with limited resources and capacities.

- Loss and Damage **tracking and accounting systems need to be improved** to account for climate impacts in informal contexts. **Building upon existing assessment practices** and creating partnerships with communities and CSOs is an efficient and ethical way to access data at the community level and avoid duplication of efforts.

Recommendations for the international and national levels

- **The success of the Loss and Damage Fund and Funding Arrangements depends on adequate and equitable access to knowledge about their instruments**, especially at the local level. To address these challenges, **hands-on information is essential**. Actionable guidance to operate funding mechanisms and navigate the process has to be provided to different stakeholder groups. The Santiago Network needs to be well connected to the Fund and produce inclusive and quality data and coherent national approaches.

- **National response plans and strategies need to include multi-level aspects** to bridge the gaps bet ween national, sub-national, urban, and local actors and their interests. Actively addressing the existing gaps in collaboration, knowledge, but also institutional setups, will facilitate addressing local losses and damages. This includes recognising community-based assessment approaches.

- **Bi- and multilateral donors and programmes must adjust the way they provide finance to better meet the needs of informal settlements**. This includes lessening bureaucratic demands and simplifying application and reporting requirements. Support should prioritise initiatives working directly in informal settlements, thus recognising their unique insights and their linkages to local communities. Access criteria must not be misused to exclude organisations critical of government actors.

- Governments and relevant stakeholders should **prioritise the expansion of social protection systems and registries** to cover population groups living in informal urban settlements. They can provide both long-term support and emergency funding when needed. Social protection systems should also be **easily accessible to residents of informal settlements**, who often face obstacles such as lack of information, documentation, or communication means.

Recommendations for the urban and local levels

- Informal urban settlements are a reality. Their inhabitants must be treated with dignity and have all their basic rights respected. Urban decision-makers bear a significant responsibility to ensure that **policies and programmes are designed in accordance with the needs and rights of these communities**, including to address growing impacts from climate change and related losses and damages.

- **All planning must be forward-looking and avoid unintended harm**. Averting, minimising, and ad dressing Loss and Damage should never replace foresighted planning for future climate and population scenarios, including population growth due to migration. **In-situ upgrading is a key strategy** to foster resilience-building and community participation, while avoiding forced relocation resulting in high non-economic losses and new vulnerabilities.

- **Communities must be enabled to strengthen existing or create new organisation structures**, before a disaster strikes. Communities might learn from other traditionally marginalised groups such as Indigenous communities, and how they organise themselves when engaging with policy-makers or donors. Thereby, communities can increase their ability to assess losses and damages, particularly non-economic ones. This is a precondition for accessing support and funding to minimise and address climate impacts.

- **Municipal governments and CSOs should prioritise building relationships and partnerships before disasters occur**. This involves engaging in collaborative initiatives, joint projects, and capacity-building activities, with a focus on the inclusion of the most marginalised groups. Systems and mechanisms set up before disasters strike are more likely to work efficiently and effectively, and local organisations are enabled to access funding and assistance.

Recommendations for civil society organisations

- Currently, there are gaps in adequately considering Loss and Damage not only between the national and urban levels, but also between the urban and the localised levels of informal urban settlements. CSOs have the potential to bridge these gaps, to **act as "honest brokers", and to advocate for vulnerable communities**. International cooperation should strengthen local CSOs institutionally and also beyond project cycles.

- CSOs should **build their own capacities to mobilise funding, including by forming alliances**. Capacity building initiatives, focused on areas such as formalisation, financial management, and proposal writing, can empower CSOs to access funding opportunities. **Peer learning is a particularly effective approach** to capacity building, providing CSOs with practical knowledge and skills in an accessible and collaborative way.

- Affected communities might not understand themselves as impacted by climate-induced disasters and hence do not recognise or claim their entitlement to support. CSOs can support by **engaging in awareness raising and legal advice to affected communities**. They are also in an adequate position to support capacity development and foster the autonomy of the community to become their own advocates.

- CSOs should **support communities in closing data gaps and have continuous datasets**, particularly from cascading impacts of disasters in informal contexts. Data generated, including community-led assessments in collaboration with civil society and academia, can be used to improve disaster preparedness, to advocate, and to build relationships with city authorities and other actors.

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