



Connecting tenure security and climate resilience in sub-Saharan Africa

Reflections from informal settlements in Harare, Zimbabwe

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About Dialogue on Shelter

Dialogue on Shelter works in alliance with the Zimbabwe Homeless People's Federation (ZIHOPFE) and the Zimbabwe Young People's Federation (ZYPF) to address poverty among slum dwellers through women- and youth-led approaches and strategies.

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Cover photo: informal settlement housing.
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Over half of Africa’s urban population lives in informal settlements marked by inadequate housing, poor services and high climate risks. These communities face layered vulnerabilities, shaped by political marginalisation and insecure tenure, which limit investment and the building of resilience. This paper explores how stronger tenure security mediates climate risks, and may contribute to unlocking partnerships and resources that enable locally led, transformative climate resilience in informal settlements. Drawing on evidence from three informal settlements in Harare, Zimbabwe, it calls for more attention to the importance of tenure security in shifting urban policy from eviction and neglect towards inclusive, equitable climate action.

Contents

Abbreviations	4	3 Insecure and at risk: tenure and climate risks in Harare	15
Summary	5	3.1 Drought and water scarcity	16
Framing tenure, vulnerability and resilience	5	3.2 Heat	16
Key findings	5	3.3 Flooding	17
Tenure as a lever for resilience	6	4 Securing resilience? Tenure and climate resilience in Harare	20
Implications for policy and practice	6	5 Tenure security for community and city resilience	23
1 Introduction	7	5.1 Why tenure security matters	24
1.1 Urban vulnerability and informality in an African ‘urban century’	8	5.2 Tackling institutional and political challenges	24
1.2 Tenure security: concepts and relevance	8	6 Conclusion	26
1.3 Framing urban resilience, vulnerability and climate risks in relation to tenure	9	7 Looking forward	28
2 Settlement profiles	11	Appendix 1. Tenure security and pathways of climate resilience in the three settlements	30
2.1 Urban development and political settlement challenges in Harare	12	Notes	32
2.2 Study areas: Dzivarasekwa Extension, Tafara and Crowborough North	13		

Abbreviations

DZI	Dzivarasekwa Extension
FGDs	Focus group discussions
WASH	Water, sanitation and hygiene
ZIHOPFE	Zimbabwe Homeless People's Federation

Summary

Across sub-Saharan Africa, rapid, often unplanned, urbanisation is reshaping cities faster than housing, infrastructure and governance systems can respond. Much of this growth is taking place in informal settlements, which are home to low-income populations. These settlements are also where climate change is being felt most acutely within cities. Although sub-Saharan Africa has contributed little to global greenhouse gas emissions, its cities face some of the highest levels of climate vulnerability, driven by exposure to drought, extreme heat and flooding, alongside poverty, inadequate services and exclusionary planning practices.

What remains underexplored in much of the urban climate literature is the role of tenure security in shaping these vulnerabilities. Tenure is often treated as a technical or legal issue, disconnected from climate risks and resilience. Yet in informal settlements, tenure arrangements are varied, fluid and deeply political, shaping residents' everyday experiences of stability, recognition and belonging. This paper argues that tenure security is not peripheral to climate adaptation, but central to understanding why some communities remain trapped in cycles of vulnerability while others are able to invest, organise and engage in more forward-looking forms of building resilience.

Using Harare in Zimbabwe as a case study, this paper brings together debates on informality, tenure and climate resilience to examine how different tenure conditions mediate exposure to climate risks and shape residents' capacity to respond in sub-Saharan Africa. In doing so, it seeks to move beyond hazard-centred accounts of climate impacts, and instead foreground the structural and political drivers of vulnerability in rapidly urbanising African cities.

Framing tenure, vulnerability and resilience

The analysis adopts a continuum-based understanding of tenure security, recognising that tenure is rarely simply secure or insecure. In Harare, land access and occupation are shaped by overlapping statutory, customary and informal systems, as well as by shifting political alliances and institutional practices. Tenure security is therefore understood not only in legal terms, but as a lived experience of stability, protection and recognition, influenced by social legitimacy and power relations.

Climate vulnerability is subject to context, rather than as the outcome of climate hazards alone. Drought, heat and flooding interact with existing conditions of poverty, inadequate housing, weak infrastructure, service exclusion and limited political voice to produce uneven outcomes. Within this framing, resilience is understood as a dynamic process encompassing coping, adaptive and potentially transformative capacities. This paper examines how social organisation, tenure conditions and institutional engagement shape the scope and durability of responses to climate risks.

Key findings

The paper draws on comparative evidence from three informal settlements in Harare — Dzivarasekwa Extension (DZI), Tafara and Crowborough North — selected to reflect different positions along a tenure security continuum. All three settlements are located on the periphery of the city and in hazard-prone areas, yet they differ significantly in their tenure arrangements, political recognition, engagement with city authorities and upgrading trajectories.

Across the three settlements, residents report increasing climate stress linked to water scarcity, extreme heat and flooding. However, the severity and consequences of these impacts vary systematically with tenure security. In **Crowborough North**, where **tenure is highly insecure and contested**, residents face acute water shortages, limited access to safe sources of water and frequent conflict over shared water infrastructure. Housing is predominantly temporary, poorly ventilated and ill-suited to rising temperatures, while flooding routinely damages homes, sanitation facilities and water sources. The persistent threat of eviction discourages investment in durable structures and undermines collective organisation, leaving most

responses confined to short-term, household-level coping strategies.

Tafara occupies an **intermediate** position (has some aspects of tenure security but is not tenure secure). Partial recognition and ongoing, though incomplete, engagement with city authorities have enabled some collective investment in infrastructure, including community-financed boreholes and basic flood-mitigation measures. Residents demonstrate a strong capacity for collective action, drawing on savings and social networks to address shared risks. Yet unresolved tenure arrangements, inactive key infrastructure and the continued risk of repossession constrain longer-term investment and limit the effectiveness of adaptation efforts. As a result, Tafara exhibits emerging adaptive capacity, but one that remains fragile and uneven.

By contrast, **DZI** illustrates how **relatively secure tenure** can create the conditions for more sustained and systemic building of resilience. Incremental tenure security, anchored in formal land allocation to the Zimbabwe Homeless People's Federation (ZIHOPFE) and embedded within the Harare Slum Upgrading Programme, has fostered a sense of permanence that supports both household and collective investment. Residents have co-designed and constructed more durable housing, co-produced sanitation and stormwater systems with city authorities, invested in water security and undertaken settlement-wide greening initiatives. While broader governance and financing constraints remain, these efforts point towards adaptive — and potentially transformative — resilience pathways.

Tenure as a lever for resilience

Taken together, the cases suggest that tenure security shapes not only exposure to climate risks, but also the nature of responses that are possible. Where tenure is highly insecure, responses tend to be reactive, individualised and focused on immediate survival. Partial tenure security enables more collective and anticipatory action, but these efforts remain constrained by uncertainty and institutional fragmentation. More secure tenure, by contrast, supports sustained collective organisation, engagement with authorities and interventions that begin to address the underlying drivers of vulnerability.

Importantly, the analysis does not suggest that tenure security alone is sufficient to deliver greater resilience in informal urban contexts. Financial resources, community organisation, municipal capacity and political will all play critical roles. Nor does it argue for conventional titling as a universal solution. In some contexts, formalisation can exacerbate vulnerability by triggering land speculation, displacement or new forms of exclusion. Instead,

the findings point to the potential of incremental, context-sensitive tenure approaches, embedded within broader upgrading processes and governance reforms, to support more inclusive and resilient cities.

The case of Harare highlights the importance of understanding climate resilience in informal settlements as a socio-political process, shaped by tenure conditions, power relations and institutional arrangements. Tenure security emerges not as a technical end point, but as a lever that can either constrain or enable pathways towards more equitable and resilient urban futures. As climate risks intensify across rapidly urbanising cities, placing tenure security at the centre of climate and urban debates is both timely and necessary.

Implications for policy and practice

- **Reposition tenure within climate and urban policy:** tenure security should be recognised as a key determinant of climate vulnerability and resilience, rather than treated as a separate land governance issue
- **Link tenure improvements to upgrading and adaptation:** tenure interventions should be integrated with investments in housing, infrastructure, services and livelihoods that explicitly address climate risks
- **Support diverse tenure pathways:** legal and administrative systems should recognise incremental and collective tenure arrangements that provide sufficient stability for residents to invest and organise, without increasing displacement risks
- **Strengthen community-led co-production:** supporting grassroots organising, savings groups and federated networks is critical for enabling collective adaptation and constructive engagement with local authorities
- **Address political and institutional constraints:** efforts to strengthen tenure security must engage with the political economy of urban land, including patronage, speculative interests and fragmented governance structures.

Introduction

1

1.1 Urban vulnerability and informality in an African ‘urban century’

Over half of Africa's urban population lives in informal settlements marked by inadequate housing, poor services and high climate risks.¹ These communities face layered vulnerabilities, shaped by political marginalisation and insecure tenure, which limit investment and building of resilience.² Africa's population is growing faster than any other region, projected to reach 2.5 billion by 2050.³ With the world's highest urbanisation rate,⁴ Africa's urban growth will predominantly occur in city slums and informal settlements.⁵ This demographic shift places African cities at the centre of global climate, economic and social futures. Yet without secure tenure and inclusive planning, the majority may continue to live and adapt in precarious, marginalised conditions. Despite contributing less than 5% to global greenhouse emissions,⁶ Africa faces the world's highest mortality risk from climate change, and its cities remain the most vulnerable and underprepared.⁷ Current forms of urbanisation, marked by spatial exclusion, informal tenure and inadequate services, intensify the risks posed by climate change — especially for people already grappling with poverty, unemployment and inadequate housing.^{8,9}

The residents of informal settlements are especially exposed to climate change impacts.¹⁰ In these settlements, the absence of secure tenure rights not only limits residents' ability to adapt, but also increases their exposure to eviction, exclusion or neglect during climate response planning. In these contexts, informality — and the vulnerability it engenders — is not simply a governance failure, but a symptom of deeper political and economic crises. Moreover, urban development and climate responses in African cities are often poorly integrated. However, climate change is **not** an external threat to an otherwise seamless narrative of African advancement.¹¹ Instead, it acts on longstanding processes of uneven and unplanned urban development, poverty and inequality to create disparate outcomes. At the same time, urbanisation contributes to climate vulnerability and emissions. These are mutually reinforcing processes, and the **feedback loops between risks, climate change and the material forms of urbanisation will increasingly become more apparent.**

Although the role of informality in development is contested, it has fostered adaptive strategies and is central to a just transition.¹² Nonetheless, many policymakers still view informality as an impediment to planned development. Cast as ‘unplanned’, ‘illegal’, ‘disorderly’ and ‘dangerous’, informality has often been

criminalised to justify coercive measures such as eviction threats, exclusion and denial of access to basic services.¹³ Dominant narratives that problematise and politicise informality also contribute to decision makers' reluctance to validate informal settlements through engagement with local authorities and improved forms of tenure security. Rapidly urbanising African cities are thus often marked by challenging land tenure contexts, characterised by ambiguity, power abuse, patronage, corruption and competing ideological positions.¹⁴

1.2 Tenure security: concepts and relevance

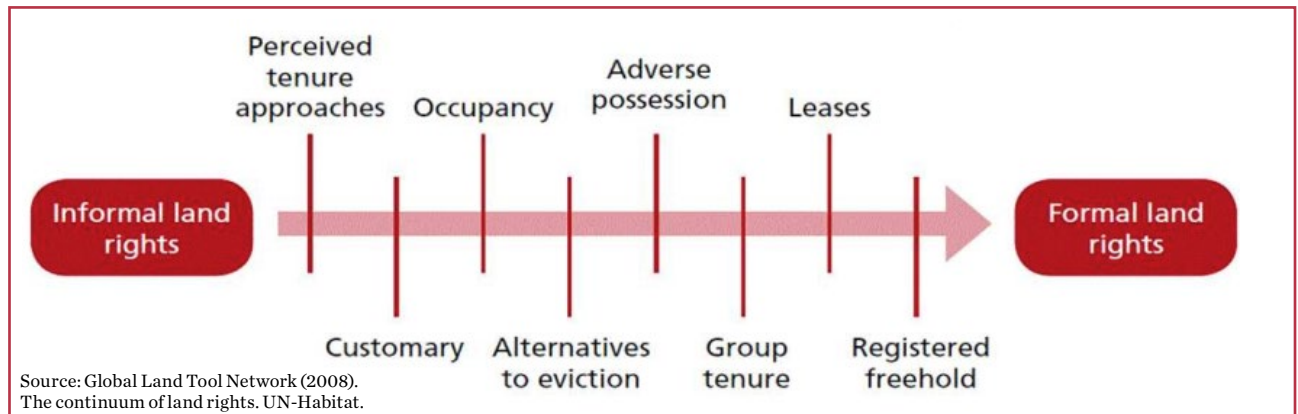
Tenure security refers to protection from forced eviction and the assurance of access to and use of land, governed by specific rules (such as constitutional and legal frameworks, social norms, cultural values). While land tenure is often presented in binary terms (secure/insecure, formal/informal, legal/non-legal, de facto/de jure), the reality is far more complex, with varying degrees of legitimacy and recognition depending on the context. In practice, tenure exists along a continuum: shaped by local norms, institutional recognition and political relationships. More specifically, tenure security includes the degree of recognition, protection and continuity people feel in their occupancy and use of land — influenced as much by social legitimacy and political relationships as by formal law.¹⁵ It is not merely a legal status but also a lived experience, grounded in perceptions of stability and recognition.

In many African cities, tenure arrangements are plural, fluid and shaped by overlapping legal, customary and informal systems, often contingent upon the priorities of political elites.^{16,17} These systems co-exist, interact and are often contested, with boundaries between them blurring and shifting. This paper adopts a flexible approach that recognises tenure security as a continuum (see Figure 1).¹ Rather than viewing tenure as either ‘formal’ or ‘informal’, this paper understands it as dynamic and embedded in broader political, economic and social processes. This paper acknowledges both de facto arrangements (such as customary, community-level understandings of ‘how things work’) and de jure (formalised, legal) arrangements.¹⁸ It therefore positions settlements in terms of their relative (not absolute/technical) tenure security.

In informal settlements, residents typically access land through informal markets, inheritance or social networks, and formal ownership may be difficult to attain or actively denied.^{19,20,21} Despite this, tenure security can still be experienced through everyday practices and de facto arrangements, such as long-term occupation, community recognition or political patronage. The legitimacy of tenure is often based on relationships of power. This makes tenure a deeply political issue

¹ Note that Figure 1 is a simple diagram and is merely illustrative; it does not account for the realities of the myriad, overlapping and non-dualistic forms of tenure.

Figure 1. The continuum of land rights



— one that is negotiated and contested. Moreover, these hybrid systems are not static; they are shaped by changing state policies, urban politics, land speculation, infrastructure investments and broader political-economic dynamics, all of which shape the shifting narrative assigned to informal settlements over time. Tenure can quickly become precarious due to (re)development pressure, shifts in political alliances or new infrastructure projects. Tenure insecurity is therefore not just about lack of legal recognition, but also about the threat and experience of marginalisation, displacement and dispossession.

Tenure security has been linked to greater household investment and property upgrading,²² improved access to rent and credit markets, urban greening and environmental outcomes, women's empowerment, and health outcomes, among others.^{23,24,25,26,27,28,29} In the context of climate change, these dynamics have direct implications for vulnerability and resilience.^{30,31,32,33} Where tenure is insecure, residents may face barriers to accessing improved housing, finance or insurance, or investing in basic infrastructure. The threat of eviction (perceived or otherwise) can deter investment in durable materials or risk-reducing measures. By contrast, secure land tenure was key to successful slum upgrading in Kenya,³⁴ while tenure security influenced residents' willingness to invest in better housing in India.³⁵ Notably, these benefits are not always tied to formal titling, incremental and communal tenure arrangements may better fit local contexts and avoid disrupting existing communal land regulation, as seen in Zambia.³⁶

In addition, tenure insecurity can restrict access to climate information, limit eligibility for assistance and prevent engagement in formal adaptation processes, even though those without tenure security are among the most affected by climate risks. Evidence from Latin America and the Caribbean shows that tenure-insecure households are frequently excluded from disaster aid and reconstruction programmes, compounding their vulnerability to future shocks.³⁷ Similarly, in the Solomon Islands, insecure land tenure reduced adaptive capacity and inhibited local adaptation planning.³⁸ It can also

be a barrier to finance. Climate finance, for example, tends to be routed through formal institutions and infrastructure projects, bypassing informal contexts and reinforcing existing exclusion.

Although there is a growing recognition of the importance of tenure security in shaping climate vulnerability and resilience, this is often overlooked when it comes to urban resilience planning and policy. For example, tenure reform is often treated as a legal or administrative issue, rather than a key determinant of adaptive capacity. Yet, without addressing tenure insecurity, efforts to build resilience may reinforce existing inequalities. Given the emerging evidence of clear linkages between tenure insecurity, climate vulnerability and resilience in other contexts,³⁹ this paper therefore explores the interconnectedness of tenure security, climate vulnerability and resilience in three informal settlements in Harare. It questions how tenure shapes exposure and capacity to adapt to climate risks, and what this means for inclusive, climate-resilient urban development. Harare is a valuable case study as it reflects broader regional trends, including exclusionary colonial-era planning legacies, complex political settlements shaping rapid and unregulated urban expansion, strong rural–urban linkages and complex local–national dynamics shaped by underfunded decentralisation.

1.3 Framing urban resilience, vulnerability and climate risks in relation to tenure

This paper adopts a working definition of **urban climate resilience** that understands it as a dynamic and relational process. It is conceptualised as the capacity of individuals, households, communities and institutions to cope with, adapt to and potentially transform in response to climate-related risks, and in informal settlements these are layered on top of a range of pre-existing risks and structural inequalities.⁴⁰ Crucially, the capacity to adapt is shaped by

contextual vulnerability — the social, political, economic and institutional conditions that mediate how climate hazards are experienced and managed. From this perspective, climate risks are not treated exclusively as an external shock acting on otherwise neutral urban systems, but as the product of hazard exposure interacting with pre-existing forms of marginalisation, including poverty, inadequate infrastructure, exclusion from services, weak governance and insecure tenure. Building resilience is therefore understood not simply as reducing exposure to climate impacts, but as addressing the underlying drivers of vulnerability that structure people's ability to respond. In this sense, resilience is inherently political, reflecting uneven power relations, differential access to resources, and contested claims to legitimacy and recognition in urban spaces.⁴¹

Settlement profiles



2.1 Urban development and political settlement challenges in Harare

Since Zimbabwe's independence in 1980, its urban population has grown from around 1.5 million to nearly 5.5 million.⁴² Harare, like many African cities, operates under an unfunded mandate,⁴³ which limits city authorities' capacity to maintain basic infrastructure,^{44,45} let alone respond to changing climate conditions.⁴⁶ Hyperinflation, dwindling foreign direct investment and restrictive regulations further weaken already unstable urban systems.⁴⁷ Urbanisation has rapidly outpaced the development of housing, infrastructure and services, driving the proliferation of informal settlements.⁴⁸

Across Zimbabwe, nearly 33% of the population lives in informal settlements with inadequate access to basic infrastructure and services.⁴⁹ There are currently more than 60 informal settlements in Harare,⁵⁰ most of which sit on government or city council land. Their complexity and diversity is shaped by the extent of state involvement, the agency of different actors, location and proximity to established services, and past and prospective financing models.⁵¹

A new trend is the deterioration of previously planned and legally recognised settlements into slum-like conditions. In Harare, some formal areas have been taken over by politically connected actors who profit from subletting housing while disconnecting these properties from municipal oversight. As a result, no new infrastructure is provided and existing systems are neglected. For example, the Mbare flats — once formal housing — are now in worse condition than many informal settlements.

Local authorities often prevent residents from constructing permanent dwellings in these settlements, and there is little enforcement of building regulations or minimum standards. As a result, housing is temporary and poorly constructed.^{52,53} Moreover, although basic infrastructure is officially a precondition for housing development, many housing developments remain without basic infrastructure due to multiple reasons including the absence of off-site infrastructure, chaotic development coordination and lack of tenure security. Moreover, without formal property registration, residents of informal settlements may not be eligible for water, sanitation and energy services, and authorities may be disinclined to provide such services where this creates a precondition for permanent settlement.

Inflexible, overlapping and politicised urban housing institutions and governance structures, and policies focused on development control and demolitions, have failed to maintain a planned city and undermined the provision of adequate housing, particularly for low-income earners.^{54,55} Previously, access to formal

housing required registration, which was not open to those without formal employment and savings. This typically excluded the urban poor, especially informal workers, pushing them towards informal land markets dominated by 'land barons', who capitalise on the lack of land designated for housing and the resulting housing deficit to illegally sell government land to low-income households.^{56,57} Consequently, the tenure status of these urban residents has remained insecure, exposing them to eviction, displacement and marginalisation.⁵⁸

The Zimbabwe Homeless People's Federation (ZIHOPFE) successfully negotiated with authorities to allow savings booklets to substitute for formal proof of employment and income when applying for housing. Authorities now use the housing waiting list as a revenue-generating tool and have loosened application requirements to attract as many urban home seekers as possible. Nonetheless, many informal residents are forced to use their limited savings in fighting eviction threats, including through complex litigation procedures, rather than enhancing their resilience capacity.

However, tenure insecurity is further compounded by inaccessible legal and administrative systems, and weak rule of law.⁵⁹ Without a transparent centralised land registry, national framework for sub-national planning and empowered dispute-resolution mechanisms, there has been little confidence in the government's observance for private property rights and people are increasingly using informal institutions to secure land.⁶⁰ Most tenure documents held by informal settlement residents fail to guarantee legal protection,⁶¹ and harmful perceptions of informal settlements are often used to block regularisation or justify evictions. This persists despite high-level political promises, such as the president's land tenure programme announced during the election campaign, which pledged to regularise all informal settlements and issue title deeds. While a few areas have received limited recognition, the broader promise remains unfulfilled, and in Harare, some residents were served with eviction notices a few months after they were promised deeds.

Informality also creates space to enhance the interests of the powerful through rent seeking, bribery and patronage.^{62,63,64} Informal settlers are commonly used as (re)sources for political agency.⁶⁵ For example, party alignment may determine settlement regularisation.⁶⁶ Overall, the lack of participatory urban planning, opportunistic land patronage and the prevalence of partisan politics has seen most government housing initiatives for low-income populations fail.^{67,68} Perverse incentives and politicking around land patronage contrive to keep people in a perpetual state of tenure insecurity and continue to undermine more genuinely inclusive forms of urban development.⁶⁹

2.2 Study areas: Dzivarasekwa Extension, Tafara and Crowborough North

The three case study settlements — DZI (high relative tenure security), Tafara (medium) and Crowborough North (low) — were purposively selected to capture variation along a tenure-security continuum within the same urban and climatic context. The three are profiled below and compared in Table 1. Figure 2 shows a map with the locations of the three settlements. All three are peripheral, hazard-prone settlements in Harare, but differ in three key ways:

- The basis of land access and recognition (for example: formal allocation via ZIHOPFE/state–council arrangements; partially recognised council allocation; politically mediated, contested occupation)
- The degree of engagement with city authorities and the upgrading trajectory (for example: Harare Slum Upgrading Programme-supported co-production; partial infrastructure and emerging compliance; attempted clearances and fragmented cooperative governance), and
- Associated incentives and constraints on household and collective investment in risk reduction.

This comparison therefore enables analysis of how differing tenure conditions mediate exposure to climate change, access to basic services and

infrastructure, and the scope for coping, adaptive and potentially transformative responses to climate risks. Data was collected on these sites using a mix of focus group discussions (FGDs) and interviews with community members.

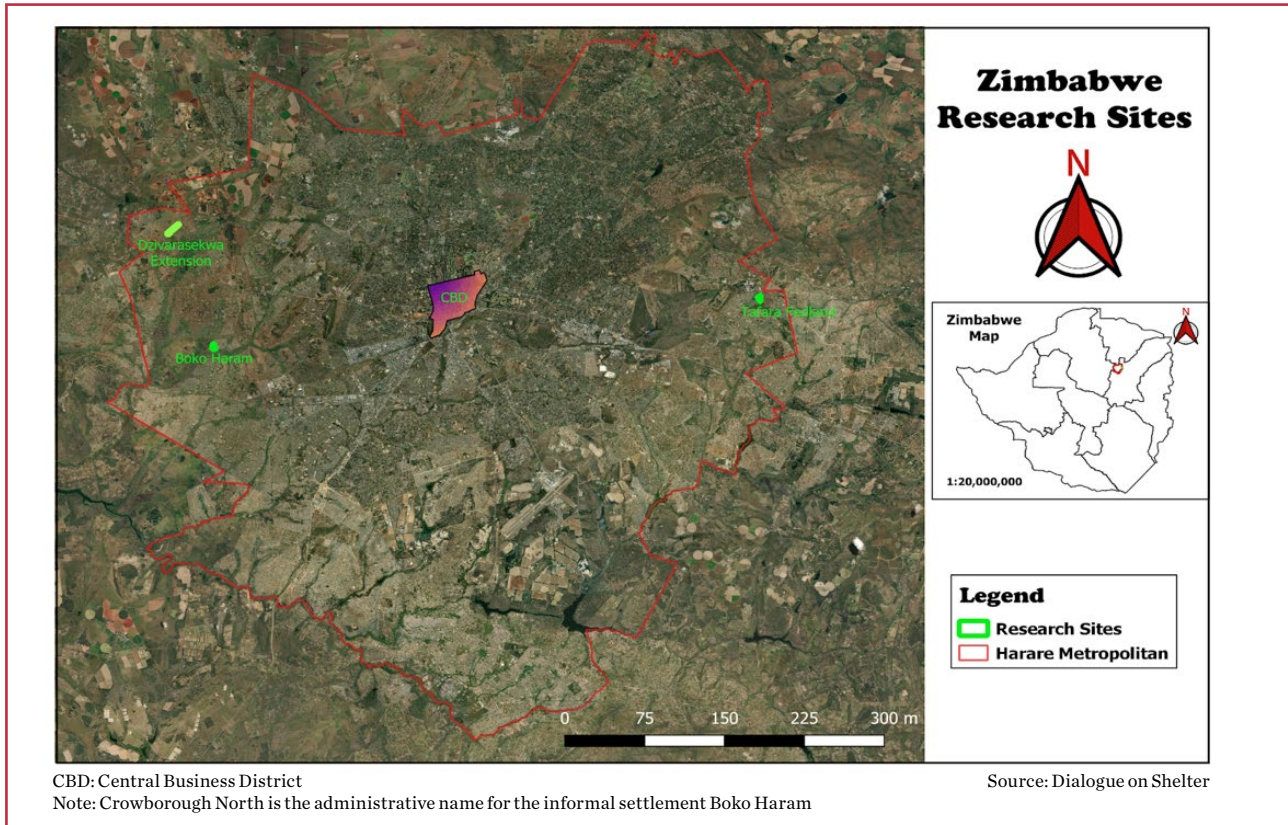
DZI was originally established as a government holding camp for people evicted from informal settlements and over time has become semi-permanent. It is the only informal settlement surveyed in Harare reportedly not under threat of eviction.ⁱⁱ Located on state land administered by the city council, the site was formally allocated to ZIHOPFE/ Dialogue on Shelter, giving it a relatively high level of tenure security. It has benefitted from the Harare Slum Upgrading Programme, which has improved relationships with the city council and supported co-produced interventions such as permanent housing (typically bricks and mortar) and stormwater drainage. However, full tenure formalisation remains pending. Jurisdictional ambiguities — particularly between the state, which owns the land and manages lease agreements through the Ministry of Local Government, Public Works and National Housing, and city authorities, which are responsible for service delivery — continue to hamper progress. While the signing of leases has recently begun and is progressing well, the lack of involvement of city authorities in the land allocation process has discouraged it from prioritising infrastructure and services. As a result, the settlement still lacks a compliance certificate confirming its regularisation.

Table 1. Settlement summaries

SETTLEMENT	SIZE	RELATIVE TENURE SECURITY	REGULARISATION/UPGRADING	KEY CHALLENGES
Crowborough North (Boko Haram)	200 housing plots	Low	Ongoing negotiation; conflict among cooperatives	Unclear claims; weak engagement with council; housing remains temporary
Tafara	1,000 housing plots	Medium	Partial infrastructure post-land allocation	ZIHOPFE members (135 out of the 1,000 stands) have signed agreements of sale, the remainder have unfinalised sale agreements with risk of repossession (although the federation precedent has set the stage for others in Tafara)
DZI	6,000 housing plots	High	Participatory upgrading via Harare Slum Upgrading Programme	Unresolved formalisation; jurisdictional overlap limits services

ⁱⁱ A survey of 16 informal settlements in Harare identified DZI as the only settlement not under threat of eviction.

Figure 2. Map showing the location of the three informal settlements under consideration



Initiated by ZIHOPFE with land allocated by the city council under housing pressure, **Tafara** represents an intermediate case. While some basic infrastructure has been provided, permanent housing construction was allowed before water and sewage infrastructure and roads were fully in place. Residents have been engaging with the city council on basic infrastructure. Formal tenure agreements remain unresolved at the time of writing, meaning residents hesitate to make larger investments and build temporary housing. There is some city-led engagement on infrastructure and, in July 2025, city authorities issued a partial compliance certificate allowing beneficiaries to construct permanent housing and proceed with signing agreements of sale. While this marks progress, the broader tenure status remains vulnerable due to ongoing legal ambiguities and weak enforcement mechanisms. Previously, the council had threatened to repossess housing plots (known locally as ‘stands’), particularly for residents defaulting on land payments.

Crowborough North is a more recent, politically charged settlement from the 2014 election period, when leaders from the ruling party encouraged people to identify and occupy vacant pieces of land. Residents reportedly occupy land earmarked for a school, and tenure is unclear and contested. Three different housing cooperatives are present, creating conflict and confusion in city engagement. City authorities have attempted, unsuccessfully, to clear the land. Residents

remain in precarious housing (temporary shacks) with no basic services, and many are hesitant to invest in their homes in the absence of formal recognition or tenure progress.

These three settlements offer contrasting experiences of tenure security and upgrading pathways within Harare’s broader context of constrained governance, political influence and rapid urbanisation. DZI shows how participatory processes can strengthen tenure and catalyse co-produced upgrading with support from the city council, albeit with bureaucratic delays. Tafara reveals the tensions that emerge from incomplete tenure formalisation and infrastructure roll-out. Crowborough North highlights the ongoing risks and fragilities faced by newer, more politically mediated settlements. The following sections explore these dynamics in more detail to highlight the links between tenure and climate vulnerability.

Insecure and at risk: tenure and climate risks in Harare

3

Vulnerability to climate change is not simply described by an external impact such as flooding (outcome vulnerability), but rather by underlying drivers of vulnerability that mediate that impact (contextual vulnerability). This section explores how tenure contributes to contextual vulnerability. In the absence of tenure security, residents are reluctant to make risk-reducing investments in their homes and settlements, and authorities are reluctant to engage in informal settlements. As a result, tenure insecurity creates a structural foundation of risk, compounding the impacts of climate hazards. While residents in all three settlements are affected by climate change impacts (drought, heat and flooding), **tenure security plays a critical role in determining the extent and nature of those impacts.** The settlement-specific evidence on water scarcity, heat and flooding presented in the following sections suggests that there is a correlation between the relative degree of tenure insecurity and risk.

3.1 Drought and water scarcity

In many African cities, the rate of urbanisation has outstripped the capacity of water service providers to accommodate all residents.⁷⁰ In Zimbabwe, grave water shortages are common⁷¹ and water has become another tool of political control.⁷² Many informal settlements rely on boreholes, wells or informal vendors — sources that are often unsafe or unaffordable. Climate change is intensifying seasonal droughts and drying trends across southern Africa, exacerbating already fragile urban water systems. Tenure insecurity further limits residents' access to formal water infrastructure and deters municipal investment in piped networks. Specifically, informal settlements are often excluded from citywide water planning and face barriers to accessing official standpipes or borehole drilling support.

In the absence of reliable public water provision, residents from all three settlements have highlighted the worsening challenges that they face in accessing water. Some residents note that water costs have risen disproportionately, with informal vendors charging higher rates during shortages. Water stress has significant implications for health, livelihoods and care responsibilities, especially for women and girls. In a context where many informal settlers rely on (peri-)urban agriculture to complement food baskets and income, water security is also linked with food (in)security. Many households have been forced to cultivate smaller plots and reduce their food consumption from three meals per day to one meal per day for adults and two

meals per day for children. One FGD participant from Crowborough North reported that:

“Last year, I harvested six bags of 50kg from my small field. This year I am expecting at most one bucket [15kg] of maize. I just don't know how I am going to survive with my family.”

Participants also reported that cases of violence and abuse at water points are becoming more common, particularly during droughts when most wells and low-yield boreholes have run dry, and communities are forced to rely on fewer water points. For example, a woman from Tafara was attacked with her daughters while fetching water. Another FGD participant commented that:

“Robbers [...] used to harass us on our way to neighbouring settlements in search of water.”

Growing pressure on water points also translates into social tensions. For instance, Crowborough North residents are subjected to humiliation and verbal abuse by 'formal' city residents when they attempt to access shared water sources. One FGD participant reported that:

“We are deprived [of] water by the water point committee members in charge. We are always reminded of legal status and that the council should remove us from where we are staying. The borehole is always locked and we feel it is not fair.”

Table 2 suggests that tenure security shapes both the accessibility and reliability of water sources, with the most insecure settlements facing the highest burdens of water scarcity.

3.2 Heat

Rising average temperatures and increasing frequency of extreme heat are intensifying climate risks across African cities, particularly in informal settlements.^{73,74} As many as 950 million African urbanites are projected to be exposed to 15-day heatwaves over 42°C by 2100.⁷⁵ The urban heat island effect — caused by the absorption and retention of heat by dense, built-up urban surfaces — can elevate temperatures in cities by up to 10–15°C above surrounding rural areas.⁷⁶

In Harare's informal settlements, insecure or ambiguous tenure is one factor constraining residents' willingness to invest in better housing that supports thermal comfort. For example, low corrugated iron roofs, limited ventilation and poor insulation contribute to higher indoor temperatures. Moreover, tenure status can affect access to utilities to help keep cool and avoid becoming dehydrated. As a result, informal settlers may experience chronic heat stress conditions.⁷⁷ Water shortages

Table 2. Settlement tenure status, water access and vulnerability to water scarcity

SETTLEMENT	RELATIVE TENURE SECURITY	WATER ACCESS CONDITIONS	REPORTED IMPACT OF WATER SCARCITY	RELATIVE WATER STRESS
Crowborough North	Low	No formal connections; dependent on depleted shallow wells and single borehole; piped water scheme is controlled by the neighbouring formal settlement; when access is denied, residents must travel to other settlements in hopes of accessing water	Wells depleted; long wait times for water; exposure to violence (especially for women and girls) fetching water; high costs; inability to grow food (food and livelihood insecurity); health impacts (such as diarrhoea); high stress	Very high
Tafara	Medium	Water supply incomplete; community-funded boreholes; water contaminated by neighbouring cement factory	Water shortages in dry months; frequent breakdowns; long wait times for water; exposure to violence (especially for women and girls) fetching water; poor water quality; health impacts (such as diarrhoea)	High
DZI	High	More reliable public supply; higher water table; multiple public boreholes and standpipes typically used as backup; enough water for provision beyond the settlement; diversity of water sources	Seasonal shortages persist; better access than other settlements	Medium

and energy supply disruptions further exacerbate the impacts of heat, and the enhanced demand for these utilities may translate into higher bills.⁷⁸ Livelihoods are affected too. Heatwaves may reduce productivity, particularly for residents reliant on outdoor or manual work, and food vendors may see their wares spoil in hotter weather. Hotter, dryer conditions can also increase the risk of fire, particularly in dense informal settlements where residents cannot access formal gas connections, and the use of open fires and unsafe electricity connections are common.⁷⁹

Residents from all three settlements report experiencing the effects of extreme heat. Women and children were especially affected — not only due to physiological vulnerability but also because they spend more time in overheated indoor spaces, and are responsible for water collection and caregiving. However, as Table 3 shows, the severity of heat-related risks aligns with levels of tenure insecurity: settlements with less-secure tenure

face the most extreme heat exposure, and the highest risk of associated health and livelihood impacts.

3.3 Flooding

Rapid urbanisation, loss of natural drainage systems and the proliferation of impervious surfaces exacerbate the risks of flooding.⁸⁰ Flood impacts are worsened in low-lying and unplanned settlements, where poor drainage, limited sanitation, blocked waterways and inadequate waste management lead to waterlogging, structural damage and heightened health risks.

In Harare, tenure insecurity influences the likelihood of inhabiting flood-prone areas, with the majority of the city's informal settlements located on wetlands. Residents unable to find or afford housing elsewhere are likely to settle in marginal locations, such as wetlands and floodplains. Limited access to affordable, legal housing has pushed the urban poor into these hazardous landscapes, and driven them to adopt coping

Table 3. Settlement tenure status, housing conditions and exposure to extreme heat

SETTLEMENT	RELATIVE TENURE SECURITY	HOUSING CONDITIONS	REPORTED EXPOSURE AND IMPACT OF HEAT	RELATIVE HEAT RISK
Crowborough North	Low	High threat of eviction; use of temporary materials (plastic, low-gauge iron <0.25mm); poor ventilation; no insulation; informal layout limits tree cover	Heat-related illness (headaches, rashes, insomnia, nosebleeds); high fire risks; no access to cooling; vulnerable groups affected	Very high
Tafara	Medium	Allowed only temporary structures; slightly better materials but still pursue cost savings (low-gauge iron 0.2–0.3mm); low roofs; few windows; no insulation; prohibited permanent upgrades; some trees for shade	Heat stress symptoms such as dehydration and fatigue are common; poor thermal comfort; vulnerable groups affected	High
DZI	High	Permitted permanent housing; basic formal standards applied; limited design consideration for passive cooling; ceilings remain rare; households cannot afford fans; trees actively planted for shade; better service access	Still reports of discomfort and illness; fewer severe symptoms; limited cooling appliances; better resilience to fires	Medium

mechanisms that undermine the biophysical integrity of human settlements and surrounding ecosystems (for example, wetlands) — which further increases environmental risks such as flooding. Tenure security also affects the ability and willingness of residents to invest in resilient housing and infrastructure. Poor-quality housing is less likely to withstand flooding,⁸¹ and homes and assets are rarely insured.

Outbreaks of waterborne diseases such as cholera and typhoid remain common in Harare, particularly at the onset or peak of the rainy season.⁸² Residents of the three informal settlements attributed the prevalence of waterborne diseases to the contamination of underground and surface water sources by pit latrines and pour-flush toilets. In the aftermath of flooding, residents also report a rise in the prevalence of disease vectors such as mosquitos, which rely on stagnant water for breeding sites. Resulting ill health and associated caring duties (which often has a disproportionate impact on women and girls) undermines residents' ability to engage in education or income generation, and flooding itself can serve as a barrier to education or livelihood opportunities. For instance, respondents from all three settlements reported that education attendance is

affected when floods block children's access to school, as there are no schools within the settlement with schools instead typically located on the other side of rivers that are prone to flooding.

In all three settlements, residents reported increased flooding during the rainy season. However, relative flood risk tends to be highest in settlements with lower tenure security, where households are located in risk-prone areas and unable to invest in flood-proofing or adequate drainage (see Table 4). In Crowborough North, flooding routinely damages homes and latrines, contaminating water sources and increasing the risk of waterborne diseases. Tafara residents, though better organised, still face repeated damage to temporary shelters and poor stormwater management. In DZI, permanent housing and improved site planning reduce flood exposure, though localised flooding remains a challenge due to blocked drains, spillover from neighbouring settlements and the lack of investment in public infrastructure.

Table 4. Settlement tenure status, infrastructure and exposure to flooding

SETTLEMENT	RELATIVE TENURE SECURITY	LOCATION, HOUSING AND INFRASTRUCTURE CONDITIONS	REPORTED EXPOSURE AND IMPACT OF FLOODING	RELATIVE FLOODING RISK
Crowborough North	Low	Located on low-lying, poorly drained land; no stormwater systems; makeshift housing (without skirting or flooring) prone to water damage; reliance on unimproved pit latrines and shallow wells prone to contamination	Homes and roads often waterlogged; frequent household flooding; property damage; damaged latrines; contamination of water sources; increased disease risks (water- and vector-borne); restricted mobility due to floodwaters/ damage to roads/ paths; absenteeism from school	Very high
Tafara	Medium	Located next to cement plant that discharges captured runoff into the settlement (prone to flooding even with little precipitation); basic community-managed drainage; temporary housing still prone to flood damage; coping mechanisms (plastic covers, newspaper to block water flows); some community nature-based solutions to enhance water uptake and reduce erosion	Homes and roads waterlogged; regular roof leaks and shelter erosion; restricted mobility due to floodwaters/ damage to roads/ paths; absenteeism from school; damage to water infrastructure (collapsing shallow wells); contamination of water sources; increased disease risks (water- and vector-borne)	High
DZI	High	More planned layouts with some stormwater channels; limited technical capacity to clear drains; permanent housing on raised foundations; flooding comes from neighbouring settlements that lack proper stormwater systems	Homes and roads often waterlogged; absenteeism from school; regular roof leaks and shelter erosion; flooded roads making vehicular access problematic; increased vector-borne diseases	Medium

Securing resilience? Tenure and climate resilience in Harare

4

Planning for resilient cities is seen as a critical part of the urban agenda.⁸³ In Harare, there are major gaps in urban resilience building, including weak urban planning and governance frameworks, under-investment in critical infrastructure and lack of climate adaptation planning.⁸⁴ At the same time, urban policy towards informal settlements has ranged from ambivalence to eviction.⁸⁵ In response, the residents of informal settlements — who are already experiencing climate-related hazards — have begun leveraging their own savings to implement in situ upgrading initiatives aimed at reducing their vulnerability and increasing their resilience.

This section explores how the degree of tenure security shapes the ability and appetite to address climate risks and strengthen resilience. It considers how residents in the three settlements are responding to climate-related hazards, and whether these responses constitute coping, adaptive or transformative capacities.^{86,87}

Coping strategies tend to be reactive, aimed at surviving or recovering from shocks in the short term. **Adaptive strategies** signal a shift towards more anticipatory, collective efforts to manage risk.

Transformative strategies go further by addressing root causes of vulnerability and creating conditions for long-term systemic change. Noting the difficulties in assessing or measuring resilience, a qualitative assessment is provided in this publication, informed by the definitions set out by the Intergovernmental Panel on Climate Change Working Group II in its Sixth Assessment Report (see Table 5).⁸⁸

The comparative evidence from the three settlements suggests that climate resilience in informal urban contexts is shaped less by exposure to hazards alone and more by the degree of tenure security and the institutional relationships it enables. Across the settlements, tenure security affects residents' sense of permanence, their willingness to invest in housing and infrastructure, their capacity for collective action and the extent to which they can engage constructively with local authorities. As tenure security increases,

responses to climate risks shift from short-term, household-level coping towards more collective, anticipatory and system-oriented forms of resilience (see Table 6; see also Appendix 1 for a full table on the responses of the three settlements).

In **Crowborough North**, where tenure is highly insecure and politically contested, climate risk responses are dominated by reactive coping strategies. Persistent eviction threats discourage investment in durable housing or shared infrastructure, confining residents to low-cost, temporary measures such as improvised drainage, shallow well reinforcement and makeshift flood barriers. These actions help households manage immediate risks but do little to reduce underlying vulnerability. Fragmented settlement governance and weak engagement with city authorities further limit opportunities for collective action, effectively trapping the settlement in a cycle of short-term coping strategies.

Tafara represents an intermediate condition, where partial recognition and intermittent municipal engagement have created space for more collective and anticipatory responses, while continued tenure ambiguity constrains their scale and durability. Residents have mobilised savings to finance shared water infrastructure, adopted basic flood-mitigation measures, and experimented with nature-based solutions to reduce erosion and runoff. These initiatives reflect emerging adaptive capacity, yet the absence of fully secure tenure and inactive key infrastructure dampen confidence in long-term investment and leave many interventions vulnerable to disruption.

By contrast, **DZI** illustrates how relatively secure tenure can function as a platform for more systemic resilience building. Incremental tenure security, embedded in the Harare Slum Upgrading Programme and supported by strong community organisation, has enabled residents to co-design and implement durable housing, sanitation, drainage and water systems in partnership with city authorities. Settlement-wide greening and

Table 5. Three dimensions of resilience

DIMENSION	DEFINITION	INDICATIVE CHARACTERISTICS
Coping	Ability to survive and recover from shocks using existing resources and strategies	Reactive, short-term, individual-level responses; often insufficient to address root causes
Adaptive	Capacity to learn and adjust behaviour or systems in response to changing conditions	Anticipatory actions, collective measures; minor changes to existing systems such as infrastructure upgrades
Transformative	Capacity to address underlying drivers of risk and restructure systems to reduce future vulnerability	Fundamental systemic shifts addressing root causes of vulnerability, such as institutional reform, co-production with government, shifts in tenure

Table 6. Tenure security and an overview of pathways of climate resilience

SETTLEMENT	RELATIVE TENURE SECURITY	DOMINANT FORMS OF CLIMATE RESPONSE	INDICATIVE RESILIENCE CAPACITY
Crowborough North	Low	Household-level coping: temporary housing adjustments; improvised drainage and flood protection; shallow well rehabilitation	Predominantly coping; reactive and short term
Tafara	Medium	Mix of household coping and collective action: community-financed water infrastructure; basic drainage; settlement raising; nature-based measures	Coping with emerging adaptive capacity
DZI	High	Collective, anticipatory and co-produced upgrading: durable housing; water, sanitation and hygiene (WASH) and stormwater systems; water security; settlement-wide greening	Adaptive resilience with transformative potential

infrastructure improvements address not only immediate climate impacts but also deeper structural drivers of vulnerability. While broader governance and financing constraints limit the extent of the transformation, the trajectory in DZI points towards adaptive resilience with the potential for longer-term systemic change.

This analysis suggests that resilience is not just a technical matter of improving infrastructure or preparedness. It is deeply political, shaped by who has power, voice and legitimacy in the urban space. Although this analysis cannot discount additional factors such as the availability of financial resources, the strength of existing community networks and municipal investment decisions, our analysis suggests that more secure tenure provides a platform for asserting these rights and building the kinds of partnerships necessary for transformative change. It enhances social cohesion, supports collective organising and increases willingness to invest in long-term solutions. In this way, tenure is not so much a legal status, but a lever for securing more just and resilient urban futures.

Tenure security for community and city resilience

5

5.1 Why tenure security matters

Informal settlements in cities across the global South face mounting climate risks exacerbated by inadequate housing, infrastructure deficits and institutional marginalisation. Slum upgrading — of which tenure improvements are a critical component — is emerging as a key pathway for climate resilience, enabling improvements in housing, infrastructure and services without displacing residents or disrupting livelihoods.^{89,90,91} Moreover, the increasing impacts of climate change on rapidly urbanising areas in the global South necessitate resilience strategies that address the structural drivers of vulnerabilities, particularly in informal settlements. Tenure insecurity is one such driver, shaping risk-management behaviours and limiting residents' willingness to invest in their homes and participate in collective adaptation. The case of Harare provides important empirical insights into the role of tenure in shaping climate vulnerability and resilience across different informal settlements.

In Harare, residents in informal settlements live in the most at-risk locations in the city. Without tenure security, they often rely on reactive, short-term coping strategies focused on day-to-day subsistence, rather than anticipatory planning or adaptation. These strategies often operate at the individual or household level, lacking the collective capacity to engender more transformative forms of resilience. In Crowborough North, for instance, the settlement with the lowest tenure security among those studied, residents live on a floodplain in poor housing, with inadequate infrastructure and limited services. Moreover, the persistent threat of eviction generates conditions of uncertainty that stifle long-term investments or upgrading initiatives, trapping residents in cycles of vulnerability.

By contrast, the residents of **DZI**, the most tenure-secure settlement, have built partnerships with city authorities, co-designed housing that better protects against climate hazards, co-produced drainage and sanitation systems, and engaged in urban greening to reduce environmental risks. Although the absence of proactive, integrated urban planning necessarily constrains the scale of their efforts, the case study of DZI nonetheless suggests that improved tenure security could act as a lever for enhancing resilience, as well as a platform for renegotiating entrenched power dynamics.

Most directly, tenure security can provide residents with the confidence and stability to invest in improvements at household and settlement levels. Tenure security also correlates strongly with social cohesion, which is crucial for collective adaptation (a determinant of stronger resilience capacities). DZI exhibits strong community networks, savings groups and organised residents' associations, enabling coordinated resilience-building

efforts. Tenure security also appears to have fostered a shift from adversarial relationships to constructive engagement with city authorities, enabling settlements to be integrated into broader urban planning. In DZI, the 'tenure first' approach served as a catalyst that unlocked collective upgrading efforts. By contrast, tenure-insecure areas such as Crowborough North experience fragmented community cohesion, with internal competition for recognition by city authorities, undermining collective action, adaptive capacity and coordinated relations with the authorities.

Broadly speaking, the evidence from Harare suggests that tenure security plays an important role in reducing contextual vulnerability, and creating space for household and settlement improvements that enhance climate resilience. The Harare Slum Upgrading Programme, which emerged as a result of collective action for improved tenure,⁹² illustrates how incremental tenure security, which supports community-led upgrading processes that directly reduce risks, can also influence municipal governance to become more responsive to local needs.⁹³ This highlights opportunities to address the structural drivers of vulnerability, including exclusionary planning and weak governance, which are prevalent in Harare as in many cities across the global South.

5.2 Tackling institutional and political challenges

The case of Harare also highlights that improving tenure security in informal settlements is not simply a technical exercise; it is deeply embedded within complex socio-political and institutional landscapes. Informal settlements are frequently problematised, marginalised or even criminalised in urban development narratives, undermining efforts to recognise tenure security and community-led upgrading as legitimate and necessary pathways for climate adaptation. These efforts often face entrenched political-economic interests that resist changes that threaten existing power relations. Without broader legal and political reforms, efforts to strengthen tenure security for low-income and informal urban communities risk being challenged by vested interests that benefit from the status quo. This reinforces the need to move beyond technocratic framings of climate action that discount the socio-political dimensions needed for transformative resilience.

Furthermore, tenure security must be embedded within broader urban governance reforms. The Harare Slum Upgrading Programme provides a promising example of how incremental tenure security can shift municipal governance towards more participatory and responsive approaches. Yet, even in tenure-secure settlements, broader economic pressures, land speculation and shifting government priorities constrain the scope of adaptation and resilience building. Without integrated

urban planning and support from city authorities, efforts are likely to remain limited in scale. Moreover, while tenure security could serve as an enabler, it is not a panacea and care must be taken to avoid unintended consequences. For example, conventional formal titling approaches can sometimes exacerbate vulnerabilities by triggering land-value increases, speculative displacement and gentrification. This highlights the need for incremental, context-sensitive tenure solutions, such as community land trusts and incremental tenure, which prioritise inclusivity and avoid reinforcing inequalities.

Conclusion



Evidence from Harare's informal settlements suggests that improved tenure security mediates climate risks and fosters resilience by unlocking community-led upgrading, social cohesion and constructive engagement with local authorities. This paper therefore seeks to open up a wider conversation about the role of tenure security in helping to address root causes of vulnerability and creating the conditions that support more transformative forms of resilience in low-income and informal urban(ising) contexts, while recognising that the relationships between tenure, risk and resilience — particularly where tenure is incremental or communal — may be complex and non-linear.

The case of DZI suggests that stronger forms of tenure security are likely to be a key part of upgrading processes that seek to unlock community-led yet partnership-based interventions for urban resilience. While not a panacea, tenure security — particularly in incremental and locally appropriate forms — is likely to play a role in addressing some of the root causes of structural vulnerability and promoting transformative resilience. Crucially, however, tenure interventions must be situated within wider structural reforms to challenge power asymmetries and promote more inclusive urban governance. More broadly, this paper therefore underscores the need to reframe climate action as an intrinsically political process that empowers marginalised urban communities to lead resilience-building initiatives. Going forward, fostering collaborations among communities, local governments and the private sector is vital to unlocking the transformative potential of tenure security for equitable, climate-resilient cities.

Looking forward



The case of Harare brings to the forefront the political, institutional and practical challenges that such efforts must navigate. As cities across the global South grapple with escalating climate risks, strengthening tenure security may present one lever to support more inclusive, equitable and context-specific approaches to climate adaptation and urban development.

The following recommendations will be relevant to researchers and policy analysts working on the links between urban informality, land governance and climate adaptation, as well as local government actors and urban development practitioners (especially in sub-Saharan Africa):

- **Reframe tenure as part of climate action:** tenure security is rarely positioned as a climate priority. Yet Harare's case shows it has significant implications for how residents respond to risk, and invest and engage in resilience building. Urban planning, climate adaptation and relevant financial mechanisms must move beyond technical infrastructure and integrate socio-political factors such as tenure security. This requires reframing tenure not only as a development or land-governance issue, but as a potential enabler of equitable climate resilience — particularly in informal and low-income urban contexts.
- **Continue deepening the understanding of the linkages between tenure security, climate risks and climate resilience:** this is particularly important in informal settlements where vulnerability is high and legal protections are weak. It includes examining how different forms and conditions of tenure security — such as those emerging through slum upgrading and special planning area (SPA) processesⁱⁱⁱ — can enable or constrain investments in more climate-resilient housing, infrastructure and services. Generating clearer evidence on these relationships is essential to inform integrated policy approaches that advance both urban resilience and climate justice.
- **Link tenure security to broader upgrading processes:** tenure improvements should be integrated into forms of upgrading that address housing, infrastructure, services and livelihoods with respect to climate risks. Upgrading is not only about physical improvements, but also about building collective agency and strengthening locally led action in cities. The case of DZI suggests that incremental tenure security can help to unlock these processes. However, this requires more inclusive planning and responsive governance, alongside multistakeholder coordination and long-term flexible financing.
- **Recognise and support diverse forms of tenure:** efforts to improve tenure security must go beyond conventional titling models and recognise the range of tenure arrangements that already exist in African cities and their informal settlements. Incremental and collective tenure models — such as community land trusts, co-managed arrangements or certificates of occupation — may already provide sufficient stability for residents to invest in risk reduction and negotiate with local authorities, and to support more resilient settlements within the city at large. Governments and development partners should develop legal and administrative frameworks that formally recognise and support diverse tenure pathways.
- **Strengthen community organising and co-production:** tenure security efforts — as part of integrated climate action — must be driven by and accountable to communities themselves. Strengthening grassroots organising — through savings groups, residents' associations and federated networks — builds the capacity required to negotiate with authorities and plan for more resilient settlements. Governments and donors should invest in the institutions of community co-production, recognising that organised, well-connected communities are better positioned to articulate and defend their tenure claims, and to implement adaptation strategies.
- **Confront institutional and political barriers:** efforts to strengthen tenure security are not apolitical and involve confronting speculative interests, political gatekeepers and bureaucratic inertia. Support for tenure security must be tied to broader reforms that challenge exclusionary planning, promote transparency and open up decision making to marginalised communities. International partners can help by aligning support with political economy-informed strategies that acknowledge and navigate power dynamics, rather than bypassing them.

ⁱⁱⁱ An SPA is a specific planning mechanism used for the formal upgrading of informal settlements (see for example the Mukuru SPA in Nairobi: www.muungano.net/mukuru-spa).

Appendix 1. Tenure security and pathways of climate resilience in the three settlements

SETTLEMENT	RELATIVE TENURE SECURITY	INDICATIVE UPGRADING ACTIONS	QUALITATIVE ASSESSMENT OF RELATIVE RESILIENCE CAPACITY
Crowborough North	Low	<p>Residents from Crowborough North have undertaken small-scale interventions such as:</p> <ul style="list-style-type: none"> ▪ Constructing and rehabilitating pit latrines ▪ Digging, deepening and lining shallow wells with bricks ▪ Treating drinking water (chemicals/boiling) ▪ Digging drainage ditches and using sandbags to channel or prevent floodwater and erosion ▪ Sowing grass to reduce water runoff and soil erosion ▪ Raising roofs and increasing ventilation in houses to improve air circulation and thermal comfort despite continued use of sub-standard building materials that do not offer full protection from weather elements ▪ Retrofitting through securing of roofs using sand bags and rocks <p>Most of these occur at the household level or in the direct vicinity of houses</p>	<p>Efforts at coping: mostly reactive actions, with some anticipatory measures, but these are primarily focused on coping with immediate challenges at the household level</p>

SETTLEMENT	RELATIVE TENURE SECURITY	INDICATIVE UPGRADING ACTIONS	QUALITATIVE ASSESSMENT OF RELATIVE RESILIENCE CAPACITY
Tafara	Medium	<p>In addition to household improvements such as those detailed for Crowborough North, residents from Tafara have:</p> <ul style="list-style-type: none"> ▪ Partnered with city authorities in laying water and sewer infrastructure — however, this infrastructure remains inactive due to the lack of bulk infrastructure ▪ Committed community savings to finance the drilling of two solar-powered boreholes and two 5,000-litre water tanks to bridge the gap in water provision and distribution, including during droughts ▪ Constructed EcoSan toilets (a waterless on-site sanitation system) as a way to reduce the risk of overflows and contamination during flooding ▪ Collectively built up the settlement using rubble to reduce flood risks ▪ Adopted nature-based solutions (for example, planting grass on their stands and along roads) to help reduce soil erosion and land degradation 	<p>Coping, with some indications of adaptive resilience: actions are not just individual but also collective and include more anticipatory measures. Minor and small-scale changes at the settlement level</p>
DZI	High	<p>Having used tenure security as a platform to negotiate support from the government, DZI residents have:</p> <ul style="list-style-type: none"> ▪ Co-designed and built new and approved housing for the community, with better thermal performance and higher durability during climate-related hazards (storms, high winds, floods) ▪ Co-produced a system for WASH service provision and stormwater drainage in partnership with city authorities ▪ Drilled a borehole as a back-up water supply in the case of prolonged municipal water cuts or water rationing ▪ Constructed EcoSan toilets that reduce greenhouse gas emissions and water usage, and prevent untreated wastewater from contaminating nearby water sources ▪ Undertaken a settlement-wide tree-planting initiative to improve water retention, serve as a wind break and combat extreme heat/ provide shade 	<p>Adaptive with potential for transformative capacities, although this demands wider systems change (at city-scale and beyond): primarily collective, anticipatory actions that are focused on fundamental systemic changes at the settlement level, address the foundational causes of vulnerability and seek to move the settlement away from unsustainable or undesirable paths (so-called ‘bouncing forward’).</p>

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Over half of Africa's urban population lives in informal settlements marked by inadequate housing, poor services and high climate risks. These communities face layered vulnerabilities, shaped by political marginalisation and insecure tenure, which limit investment and the building of resilience. This paper explores how stronger tenure security mediates climate risks, and may contribute to unlocking partnerships and resources that enable locally led, transformative climate resilience in informal settlements. Drawing on evidence from three informal settlements in Harare, Zimbabwe, it calls for more attention to the importance of tenure security in shifting urban policy from eviction and neglect towards inclusive, equitable climate action.

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