SDGs as a driver to development

Urban change needs bold action. The Sustainable Development Goals (SDGs) are a global plan to build better world by 2030. SDGs 11 speaks particularly about 'Sustainable cities and communities, but all other 16 SDGs are also interconnected to cities and urban development.

This fact sheet is part of a series to gain knowledge on the localization of SDGs in the endeavor for making them meaningful drivers for future urban development.

Community resilience to flash floods

Structural and non-structural responses in Peter Nanyemba

The rapid growth of informal settlements combined with climate change heightens vulnerability to natural disasters, worsened by limited understanding of local responses leading to interventions unsuited to specific contexts. This issue is particularly evident in Windhoek, Namibia, where flash floods frequently impact settlements like Peter Nanyemba due to inadequate drainage and vulnerable land occupation. These challenges align with SDGs 11 and 13, focusing on enhancing adaptive capacity to climate hazards and minimizing their impact on communities, translating global goals into local realities. This study investigates community responses to flash floods, using qualitative methods like observation, mapping, and interviews with 21 residents and 8 experts. Conducted over two months in 2024 as part of the SDGs GoGlocal Master Thesis research group, it explores risk perception and highlights four resilience components—resistance, recovery, adaptation, and transformation—across three scales: individual/household, neighborhood groups, and administrative blocks. Findings document current measures, highlighting interactions between structural and non-structural responses, and offering policy recommendations alongside a framework for assessing local disaster resilience.

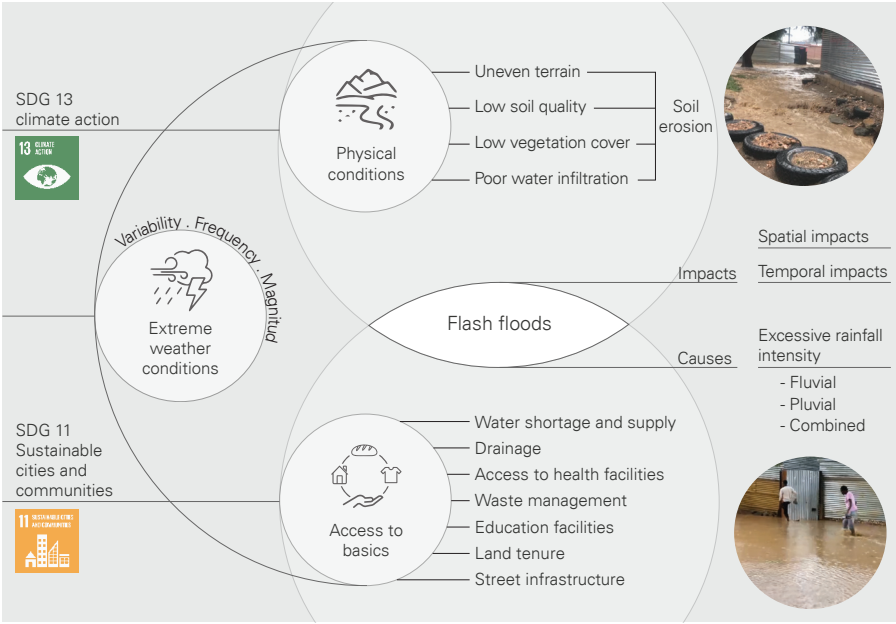
Background

» The combination of rapid informal growth and climate change heightens vulnerability to natural disasters, worsened by limited understanding of local responses and poorly adapted external interventions, resulting in ineffective solutions.

» Flooding poses serious consequences, including immediate physical harm, infrastructure damage, water contamination, and long-term health issues like chronic conditions and malnutrition.

» Residents in informal settlements face heightened risk due to rapid urban growth, inadequate services, and climate change, which increase the frequency and intensity of natural disasters. These issues connect with SDGs 11 and 13, focusing on adaptive capacity and reducing climate hazards' impact on communities.

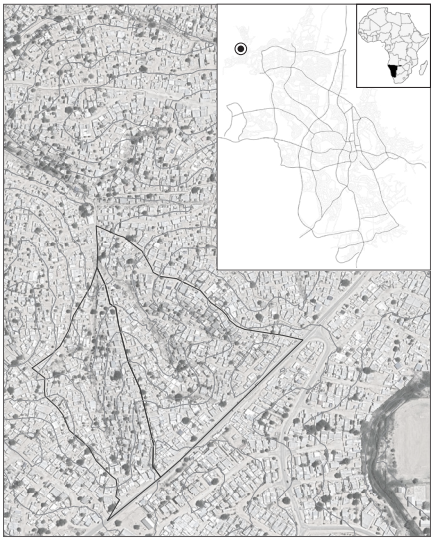
» Although community resilience garners attention broadly, there's a need to deepen understanding of temporal events like flash floods and how communities mitigate their effects.



Topics related to flash floods (Yepez, 2024).

Case study

Pete Nanyemba, Windhoek, Namibia



» In Windhoek, the capital of Namibia, informal settlement populations grew from 69% in 2001 to 77% in 2011.

» Peter Nanyemba, located in Samora Machel Constituency, has a steep terrain and limited access to basic services, with approximately 15,000 residents.

» NHAG's ongoing upgrading project focuses on blocks C, E, F, and G of the settlement. This research analyzes blocks F and G, which are near surrounding rivers.

Structural responses

Non-structural responses

Structural and non-structural responses in Peter Nanyemba (Yepez, 2024 and NHAG).

The research

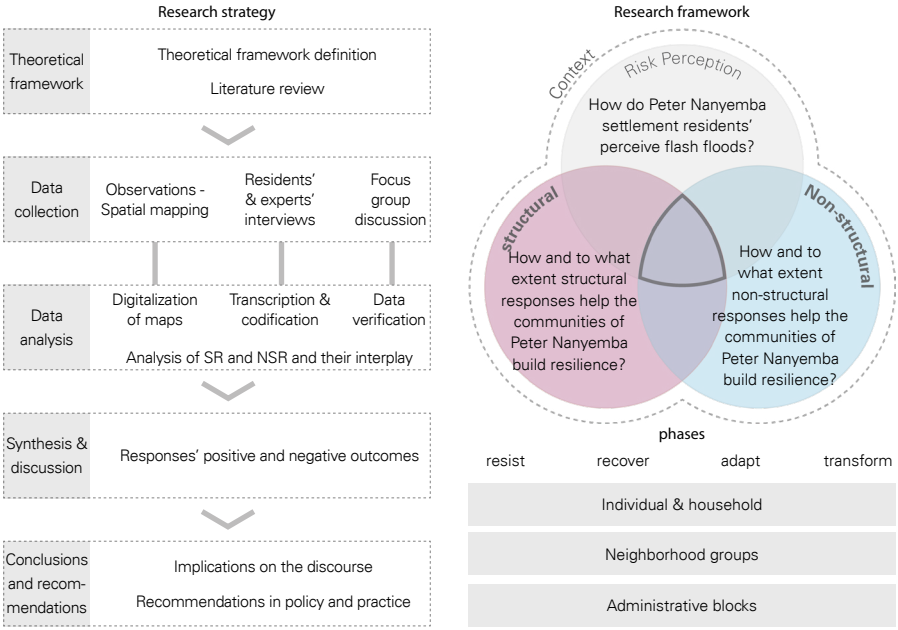
The research has been conducted as part of a master thesis at the University of Stuttgart and the SDGs GoGlocal! project.

» The main research question guiding the research was: **How and to what extent does the community respond to flash floods in the Peter Nanyemba informal settlement?**

» The data collection has been conducted in April and May 2024 and involved observations, spatial mapping, 21 resident interviews, 8 expert interviews, and a focus group discussion.

» Data analysis involved digitizing maps, transcribing and coding interviews, and data verification, enabling a detailed examination of structural and non-structural responses and their interconnections.

» The synthesis analyzed the positive and negative outcomes of structural and non-structural responses, providing a basis for policy recommendations and insights in the community resilience discourse.



Research strategy and framework (Yepez, 2024).

Key findings

Community resilience to flash floods

» Residents' risk perception plays a key role in shaping their response to flash floods, directly impacting community resilience across different levels.

» Structural responses are more prevalent at the individual and household level, while non-structural responses are distributed more evenly across scales but occur less frequently.

» Structural and non-structural responses interact closely; for instance, knowledge of material durability helps residents improve construction.

		Structural responses	Non-structural responses
Individual & household	+	• Measures' improvement from resisting to transforming. • Measures' replication through observational learning	• Undergoing learning process that will enable handling future floods.
	-	• Low budgets limit improvement in mitigation initiatives for next flood.	• Lack of knowledge's dissemination hampers widespread measures' adoption • Adoption of quick solutions that may impact others.
Neighborhood groups	+	• Chain effect of individual measures benefits wider scales.	• NSR continuously present in the resilience phases. • Transmission of information occurs as needed. • Agreements on day-to-day organizational decisions.
	-	• Copy of harmful behaviors affecting nearby communities. • Structural responses limited to emergencies (resisting & recovery phases)	• Some NSR do not specifically address flash flood's issue. • Knowledge and awareness is not widely disseminated. • Occasionally neighborhood decisions results in maladaptive practices.
Administrative blocks	+		• Community participation in NGO's donations implementation. • NSR continuously present in the resilience phases.
	-	• Emergency actions fail to evolve into mitigation and adaptation strategies.	• Residents' involvement in planning and implementation is minimal. • Some NSR do not specifically address flash flood's issue (adaptation & transformation phases).

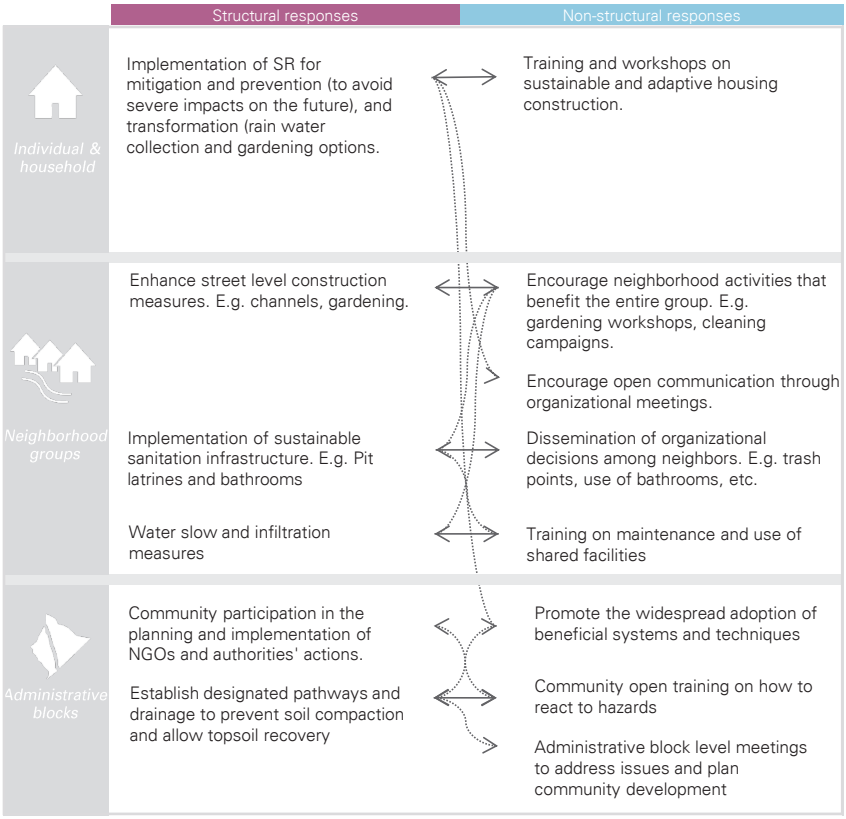
Synthesis and discussion (Yepez, 2024).

Recommendations

» The analysis of structural and non-structural responses relations and positive and negative outcomes revealed key insights, leading to recommendations across individual and households, neighborhood group, and administrative block scales.

» Recommendations emphasize the importance of connecting structural and non-structural interventions.

» Each non-structural recommendation is designed to be enhanced by a corresponding structural measure for greater effectiveness.

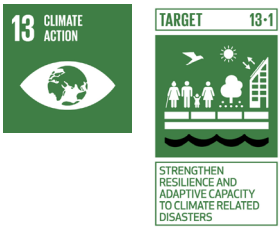


Recommendations in policy and practice (Yepez, 2024).

SDGs relevance

» SGD 13 (target 1)"Strengthen resilience and adaptive capacity-related hazards and natural disasters in all countries"and SDG 11 (target 5) "Reduce the adverse effects of natural disasters" was instrumental in initially examining the challenges related to these goals from the national down to the city level. Localizing these SDGs and targets to the specific context of informal settlements in Namibia requires to take an overlooked topic into account: flash floods.

» The assessment of flash floods enhances resilience in the SDG process by analyzing the interaction between structural and non-structural responses across various phases and scales. This analysis identifies key strengths and gaps, offering a more comprehensive understanding of the flash flood challenge. Furthermore, it highlights how adaptation and transformation measures' can address related issues like water scarcity, soil degradation, erosion, and food security.



SDGs Go Glocal

The SDGs GoGlocal! project aims to strengthen translocal and transdisciplinary research and teaching in how to localise and ground the SDGs meaningfully in urban planning and development practice. It is a partnership between the University of Stuttgart in Germany, the Namibia University of Science and Technology in Windhoek and the Ain Shams University in Cairo, Egypt.

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