Photo: Juan González/ADAPTO-Chile

Challenges of Settlement Upgrading and Climate Risk Management in Informal Settings

Considering Dwellers' Multidimensional Wellbeing

An ADAPTO Policy & Practice Brief authored by Camila Flórez Bossio, Talha Awan, Tapan Dhar, Em Walsh, Sayana Sherif & Lisa Bornstein. July, 2021

The Policy and Practice Challenge

Throughout Latin America and the Caribbean, two priorities—(i) upgrading living conditions for marginalised and informal urban dwellers and (ii) reducing the risk of climate-related disasters—are at odds. Moving people at risk to places where exposure to climate hazards is low is falsely seen as an easy solution. Relocation is met, repeatedly, with local resistance. ADAPTO research indicates that residents find the risks they face with relocation are greater than those they face where they are. Even when allowed to stay *in situ*, they note that risk reduction and upgrading are in conflict, with measures to promote one worsening the other. A central difficulty is that governments tend to neglect both settlement-specific climatic risks and how dwellers deal with everyday challenges. Without proper consideration of informal settings, development and disaster plans can inflict needless harm on dwellers' lives. **How can risks be reduced in ways compatible with inhabitants' aspirations for a life of dignity, meaning, opportunity, and safety?** Specifically—given climate-related hazards—where, when, and how should critical urban services, such as drinking water, sanitation, waste collection, electricity, schools, and health, be provided to those lacking them?

As a starting point, our research suggests that **urban policy and plans should consider (a) the specificities of informality and (b) people's economic, emotional, social, and physical needs**, in other words, **their multidimensional wellbeing.**

KEY TAKEAWAYS

- In informal settings, urban upgrading can worsen climate risks and harm dwellers' wellbeing.
- Urban planning should consider the interaction of informal settings' social and physical characteristics with climatic risks.
- Adaptation and disaster risk management should consider people's multidimensional (economic, social, emotional, & physical) wellbeing.

KEY QUESTIONS TO RAISE

- In view of X expected climatic impacts, is the development plan Y increasing or decreasing vulnerabilities? Where and for whom? How can we adjust it?
- In decreasing the (climatic) vulnerability of residents of informal settlements, how are policies affecting dwellers' multidimensional wellbeing & the functioning of the community?

The Gap Between Adaptation On Paper and In Practice

National and local governments in Latin America and the Caribbean are addressing climate change in varying ways. National climate change plans have been adopted centrally, for instance, in Cuba (Coastal zone management, Law 212) and in Haiti (National policy to fight climate change). These country-wide plans often are to be implemented by local authorities. Adaptation is targeted in a range of policies and plans, a sign that its mainstreaming as a policy concern has advanced in the region. In other cases, local governments are leading climate change adaptation planning and risk management (e.g., Territorial Observatory of Climate Change in the Biobío region in Chile; the Climate Change Collaboration Agreement, in Yumbo, Colombia). While progress on paper is substantial, implementation has faced challenges.

ADAPTO research provides clues as to the challenge of working with climate risks in informal settings in Latin America and the Caribbean. The research, conducted in small and medium-sized cities of Colombia, Chile, Haiti, and Cuba between 2017 and 2021, explores responses to climate change, including at the level of urban planning, risk management, and environmental protection. Our focus was on informal settings—those at the margins of mainstream urbanization patterns for the country. Though that informality differed by locale, for example, self-built settlements in southwest Colombia, peri-urban indigenous communities in southern Chile, and traditional fishing towns in north-central Cuba. Commonalities in conditions included high exposure to hazards, limited government services or investment in the area, and some level (though it varied in intensity and form) of social exclusion, stigma, or marginalization of the residents by the wider society.

Country teams met—and in some cases worked jointly—with residents, NGOs, municipal officials, disaster risk reduction agencies, private donors, and other stakeholders. They reviewed municipal and regional policy documents, including urban, disaster risk reduction, and environmental plans. They also documented how strategic documents and authorities' perceptions of risk and appropriate interventions evolved over the past four years.

The researchers found highly uneven outcomes—positive and negative—for residents in the locales where government most actively pursued climate-related risk management and adaptation efforts. The measures are decreasing the vulnerability of the population to specific climatic events (e.g., sea-level rise and flooding). But governmental adaptation initiatives, particularly the construction of new housing and/or relocation, weakened community ties, disrupted peoples' connection with nature, undermined livelihoods, and ignored individuals' aspirations (see Box 3 on Salgar). Thus, while dwellers and their homes are made more secure against climate-related hazards, residents' personal and collective wellbeing is negatively affected. The adaptation efforts, in some cases, left them more vulnerable, but to a different set of hazards and risks, e.g., loss of livelihood, friendships, daily habits, support networks, and connections to place. Unsurprisingly, psycho-social distress increased amongst those relocated, and many refused to do so. Government officials, echoing many climate change experts, focused on the risks linked to nature's dynamics, and not on those that are societally-based.

Provision of services to a marginalized community, if done with attention to context, is a moment when government can use urban planning to improve quality-of-life and reduce climate risks.

Photo: Juan González/ADAPTO-Chile

Informal settings also made implementation difficult and contributed to uneven outcomes of adaptation efforts. Many physical characteristics of informal settlements differ from those of long-established urbanized neighborhoods. Informal settings are usually in risk-prone areas, for example located close to water bodies, on steep inclines, or set in hills with unsteady ground (see Box 1 on Yumbo). Infrastructure and services may be absent, intermittent, or inadequate. Structures may be precarious. Residents may struggle with limited resources, few entitlements, stigma, or after-effects of prior traumatic events. For all these reasons, climatic threats do not affect informal settlements the same way, nor do they affect all informal settlements, or the residents within them, equally.

Awareness of differentiated effects, and customization to the realities of a given locale, needs to be built into the design and implementation of urban upgrading initiatives.

Box 1: Case Study

Urbanization process without climate risk management in Yumbo, Colombia

Over the last two decades, Yumbo has rapidly urbanized as thousands of Colombians displaced by the 50-year-long internal war have migrated there. Many of the new residents settle in the hills on the outskirts. In these informal neighborhoods, as in many other informal settings, road paving is thought of as a step towards socioeconomic development. Local policymakers and urban planners have worked on road paving as it improves residents' mobility and the transport of goods. In Yumbo, most roads in low-income neighborhoods are now being paved with asphalt or concrete.

The difficulty is that road paving was done without consideration of climate change and has provoked unwelcome consequences for the inhabitants and environment of the slums.

Heavy rains are common in the region. Road paving over Yumbo's hilly terrain has heightened inclines, introduced impermeable surfaces, and directed runoff along new channels. This is worsened by the deficient rainwater infrastructure and absence of storm drains in Yumbo's neighborhoods. When it rains, water "flows down uncontrollably at high speeds." Runoff on the paved roads leads to flooding and landslides, harming residents of the lower parts of the settlement, overwhelming the capacity of the soil to absorb water, bringing surface contaminants into above-ground water bodies, and leading to stagnating water (with its negative consequence for human health, e.g., dengue, gastro-intestinal issues, and skin ailments). Long-accepted urban upgrading priorities for informal settlements need reconsideration in light of changes in climate, topography, and settlement patterns. Neglect of such considerations can increase, rather than reduce, the physical vulnerabilities of dwellers.

Photo: Natalia López /ADAPTO-Yumbo, Colombia

Local governments have short-term interests, aligned with politicians' time in office, which leads them to ignore long-term problems such as climate change. When governments do seek to address climate change, policies and programs are, by law and logistical imperatives, poorly equipped to consider context-specific and socially-differentiated dynamics. Instead, official policies and urban upgrading programs are quite standardized and run out of functional 'silos' (such as public works, environment, and social welfare) that correspond to different ministries or departments. Regularity in the design of programs and plans allows understanding of the rules by all stakeholders, improved procedural, technical, and financial competence by implementers, and ease in oversight by those concerned. However, standardized and siloed planning and climate risk management runs the risk of negatively affecting peoples' lives (see Box 2 on Carahatas).

Box 2: Case Study

Climate change related relocation affecting dwellers' livelihoods and community traditions in Carahatas, Cuba

Local climate scenarios forecast that Cuban coastal villages, such as Carahatas on the northcentral coast of the island, will be 50% underwater by 2050. In response, Cuba has adopted policies to relocate populations and prohibit (re)building in coastal areas at risk of sea level rise (i.e., Law 212). The government is opting for relocation of coastal inhabitants as a mechanism to promote peoples' welfare, reducing their exposure to storms, sea level rise, and accompanying flooding. In Carahatas, inhabitants reject these governmental measures – they are more afraid to relocate than of the rising sea level.

In Carahatas, the community is highly shaped by proximity to the ocean. Fisherfolk depend on the sea for their livelihoods. Local culture and many social activities are likewise linked to the sea. Dwellers are used to living with the sea and recurrent extreme climatic events (e.g., hurricanes, tropical storms). For example, local construction practices, such as natural barriers and elevated foundations, help protect buildings from the sea's effects; measures to protect against strong winds include anchored lightweight roofs; and households install pulley systems indoor to lift beds, refrigerators, and books 3 m in the event of a flood. Further, residents' experience of rebuilding their homes after storms has led them to realize that the continuity of their village is possible – for as long as it is allowed – even when rebuilding means a high debt burden for households.

For Carahatas' inhabitants, life away from the sea presents its own risks. They consider relocating to inland areas (between 5 and 17 km away from Carahatas) an ineffective measure, one that will disrupt their way of life, livelihoods, and community traditions. Residents have observed the negative effects of previous relocation initiatives, where people now far from the sea had to change their occupations and living habits (e.g., moving from independent dwellings to apartment buildings). Thus, many dwellers resist relocation.

While authorities address current hydrometeorological events and expected climate change impacts, dwellers' risk perception sheds light on the negative emotional and social effects that risk management measures can generate at the individual and community level.

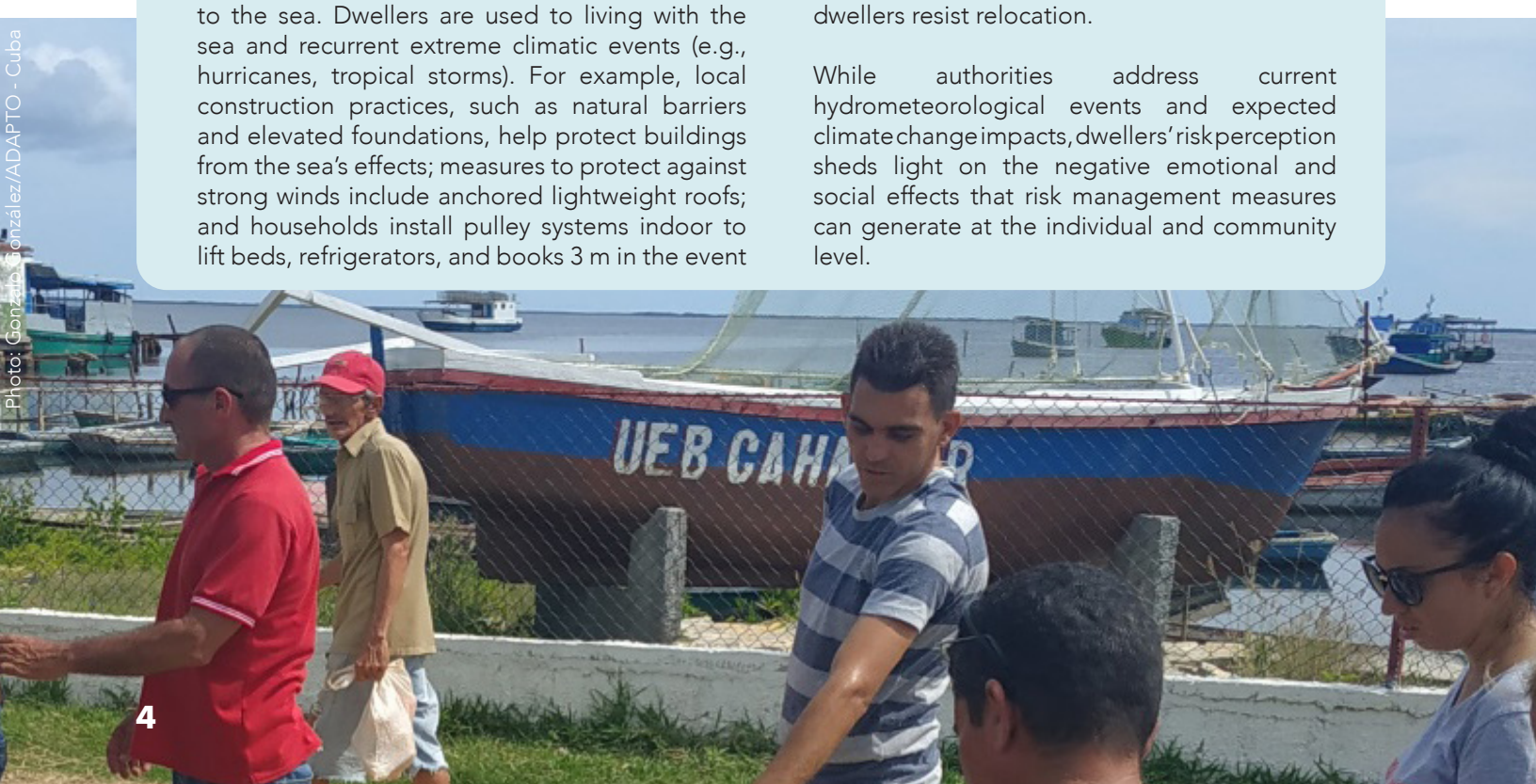

Photo: González/ADAPTO - Cuba

Weak consideration of climate risks in planning for informal settlements is linked in Yumbo, for instance, to the separation of local environmental and infrastructure departments (see Box 1 on Yumbo). Likewise, risk managers typically adopt a narrow understanding of wellbeing (i.e., physical safety as being less exposed to climatic events) that can lead decision-makers to both overlook and harm peoples' emotional, social, and economic wellbeing (see Box 2 on Carahatas and Box 3 on Salgar).

Box 3: Case Study

Dwellers' perspectives on post-disaster reconstruction in Salgar, Colombia

In Salgar, a central Colombian agricultural capital of about 8,000 people (as of 2018), floods occur due to intense winter rains. A particularly extreme rainfall occurred in 2015, severely flooding the town, killing 104 people, and extensively damaging homes, businesses, and public infrastructure. Following the 2015 disaster, the government (and other aid organizations) formulated a comprehensive reconstruction and vulnerability reduction plan, including the construction of 308 housing units. This plan has had positive and negative impacts on dwellers' wellbeing – it decreased their vulnerability to floods and also changed their way of life.

First, as a post-disaster response, the plan was set to decrease the vulnerability of informal dwellers to floods. To this end, new housing units were located far from water bodies, decreasing the population's exposure to future extreme climatic events. Relocation has increased the sense of security of the population but has not erased their collective memory of the disaster. As such, local leaders developed self-management capacities for risk prevention, with an early warning system and an environmental committee, and the population is actively addressing environmental challenges (e.g., reforestation, waste management). Yet, new residents, recently settled in Salgar, are building their homes close to the rivers. While officially prohibited, authorities do not intervene and allow construction to continue, placing homes and residents in danger. In terms of reducing vulnerabilities, the reconstruction plan has been successful, but Salgar's urban planning management is still a challenge.

Second, although the reconstruction plan involved extensive social consultations, the design of the housing projects did not consider dwellers' preferences. Instead, technical and financial feasibility was prioritized. The apartment-style complexes constructed, while providing shelter, had negative emotional and economic consequences for residents. From having their own dwelling, they had to adjust to life in apartments. Residents report "feeling uncomfortable" and that "they have lost their privacy". They are "baffled" by building regulations that require compliance with collective norms and restrict economic activities in the units. Some residents have adjusted to the new conditions, often ignoring the governmental restrictions (e.g., closing their balconies to increase privacy or running businesses in their homes). However, others, unhappy with the new living conditions, have left Salgar.

Photo: ADAPTO - Colombia

A Way Forward: Considering Dwellers' Multidimensional Wellbeing

What can policymakers and urban planners do to improve informal dwellers' urban environment and build resilience to the many hazards they face?

As ADAPTO research suggests, important elements to build into the design and implementation of urban upgrading and adaptation initiatives are:

- Awareness of differentiated effects of policies, programs, and plans
- Customization of policies and plans to the realities of a given locale

In addition, work in the field indicates the need for:

- A multidimensional approach to wellbeing
- An ethical orientation towards 'do-no-harm' in assessing policy options and implementation strategies

Consideration of dwellers' multidimensional wellbeing—peoples' physical safety, economic needs and also their social and emotional needs—in the context of facing climatic risks means broadening the operational focus of policies and plans. Working with a multidimensional conceptualization of wellbeing requires, for instance, interdisciplinary teams that integrate those from environmental, infrastructure, and socioeconomic management units and foster their collective work in informal settings. When cross-sectoral teams are working together, they can better assess how policies and plans affect informal dwellers' multidimensional wellbeing.

Photo: ADAPTO - Colombia

Even with a broadened understanding of wellbeing and risks, policymakers and planners will encounter tough choices. As with every complex social and environmental setting, the benefits and hardships associated with different policies, programs, and plans will unevenly affect different people and areas. Two sets of questions, and accompanying strategies, can assist in making ethical choices around upgrading and adaptation initiatives:

1. **In view of expected climatic impacts, is the proposed urban development plan increasing, decreasing, or creating new vulnerabilities? Where and for whom? How can we adjust to minimize a deepening of vulnerability?**
    - *Contextualize infrastructural investment and service provision*: assess the possible interactions of the physical particularities of the informal settlements with climate risks.
    - *Build on existing informal initiatives*: learn about dwellers' own initiatives to obtain public services and manage risks. When appropriate, build on them.
2. **In decreasing the (climatic) vulnerability of residents of informal settlements, are policies and plans affecting dwellers' multidimensional wellbeing and the functioning of the community?**
    - *Consider dwellers' aspirations, community ways of life, and patterns of inclusion/exclusion*: decreasing vulnerability entails respect for individual and collective aspirations, awareness of social dynamics (including those of discrimination) so as to avoid reinforcing long-standing inequalities or disrupting supportive social ties.
    - *Draw on local knowledge and governance*: give residents say in their own future — residents know the social and environmental characteristics of informal settings relevant to disaster risk management and adaptation and can identify measures that make sense locally.
    - *Incorporate dwellers' knowledge and experiences with everyday risks*: peoples' vulnerability is not only climatic. Reducing poverty, accessing clean water, and improving food security are the most pressing worries for dwellers in marginalized communities.

Cities in Latin America and the Caribbean require the expansion and upgrading of urban infrastructure while dealing with climate risks at the same time. To do so, risk management and urban planning should bring together their goals to make sure that they do-no-harm to dwellers. This will facilitate integrating the specificities of informality in view of climate threats, and people's economic, emotional, social, and physical needs.

ADAPTO

ADAPTO is a multidisciplinary research project funded by the International Development Research Center (IDRC) and coordinated by the Disaster Resilience and Sustainable Reconstruction Research Alliance (Œuvre Durable) from 2017-2021. It investigates climate change adaptation in informal settings in understanding and reinforcing bottom-up initiatives in Latin America and the Caribbean. For more information, see: http://www.grif.umontreal.ca/acciones/en_index.html

Resources

› Salgar case study: https://www.youtube.com/watch?v=bELWDO9zvUI
› Yumbo case study: https://www.youtube.com/watch?v=tIVtDzwVm_I
› Carahatas case study: https://www.youtube.com/watch?v=Ix_HbfbsbJ8
› Aragón-Duran, E., Lizarralde, G., González-Camacho, G., Olivera-Ranero, A., Bornstein, L., Herazo, B., & Labbé, D. (2020). The language of risk and the risk of language: Mismatches in risk response in Cuban coastal villages. International Journal of Disaster Risk Reduction, 50, 101712.
› González Camacho, G., Olivera Ranero, A., Pancho Echemandía, D., Castro Castelo, R., Martínez Nodarse, G. (2020). The Challenge of Disaster Risk Management in the Sustainability of Coastal Settlements. Arquitectura y Urbanismo, 41(2):05-16.
› Lizarralde, G., Páez, H., Lopez, A., Lopez, O., Bornstein, L., Gould, K., ... & Munoz, L. (2020). We said, they said: The politics of conceptual frameworks in disasters and climate change in Colombia and Latin America. Disaster Prevention and Management: An International Journal.