III LATIN AMERICA AND CARIBBEAN FORUM ON HOUSING AND HABITAT

Santo Domingo, Dominican Republic, June 12-14, 2018

Housing Laboratories (LAVs)

Conceptual Note

Housing Lab. Building Urban Resilience and Environmental Sustainability

Thursday, June 14, 11 am-3:30 pm

Plenary Room Garden Tent

Objective

To generate a dialogue between several players that are presently developing initiatives in the Latin American and Caribbean region on the subject of climate change (CC) mitigation and adaptation, as well as risk management. More specifically, the goal is to delve into the current challenges to build resilience and environmental sustainability, to analyze the different initiatives that have been implemented, and to link these themes to those of housing and habitat. In particular, this Housing Lab seeks to explicit the relationship between housing policies, urban planning and climate change.

To that end, the dialogue is divided into two moments: discussion of the macro view of the problem (integration of the CC agenda and others) and the analysis of initiatives in the LAC region.

Key Words

Climate change, vulnerability, urban resilience, environmental sustainability.

Description

Disasters and environmental risks in Latin America and the Caribbean (LAC)

Human impact on climate change is undeniable, especially due to urbanization and industrialization. In the LAC region, which, by itself, is prone to hydrometeorological, seismic, volcanic and other types of natural phenomena with destructive potential, climate change will result in a higher frequency and intensity of disasters and risks.

Between 2000 and 2013, 613 extreme events, mainly hydrometeorological events, were registered in the region (IPCC in Habitat for Humanity 2018). And the forecast shows an increase in risk events and disasters in 2050 in the following: landslides, cyclones, storms and flooding, mainly in coastal areas; destabilization of the hydrologic cycle in the main basins; heat waves and droughts that may affect food security; a possible 'savvanization' of the Amazon region and degradation of areas that offer environmental services. The economic impact of these events will amount to 100 billion dollars per year for the region (IPCC 2014; IDB 2013).

In the LAC region, eight out of ten people live in cities (Habitat for Humanity 2018), which, as human conglomerates, are primarily responsible for CC. Large cities are the source of most greenhouse gas (GHG) emissions as well as the places where environmental degradation primarily occurs. Both these factors increase environmental risks and disasters.

Regarding environmental degradation, LAC accounts for 31% of the world´s fresh water (WB 2013). However, the management of this natural resource poses some key challenges: less than **20% of wastewater is treated and the overexploitation of aquifers is accelerating**. Thus, the risk of water shortages and land subsidence in some regions has increased, as well as that of earthquakes (UN-Habitat 2010). On the other hand, several other factors also contribute to GHG emissions. The **transportation sector poses the main concerns, as it accounts for 35% of the GHG emissions** related to fuel consumption, the highest rate in the world, by region (IDB 2011). Several other factors also contribute to GHG emissions. Deforestation rates are also the highest in the world (UN 2010), and only 2.2% of solid waste is adequately treated (WB 2013). Finally, building

homes and infrastructure are added to the list. Social housing units account for around 70% of residential construction in LAC, and they are built with deficient technical support, disregarding the production of emissions and/or waste management (Habitat for Humanity, 2018).

Vulnerable Sectors

The cities in the LAC region are the most vulnerable to climate effects: 80 out of 100 disasters in the region are reported in large cities (IPCC 2014). In this context, the types of cities, zones and sectors that are most vulnerable to environmental risks and disasters are as follows.

(a) Medium-sized cities, which represent the growth pattern in the region (UN-Habitat 2011), face the biggest challenges and impacts, with accelerated urbanization and as they are less able to respond to or deal with CC related events.

(b) The location and/or geographic condition of many LAC cities exacerbate their risks. As an example, the metropolitan cross-border regions face coordination issues when coping with disasters; while 50% of the cities with a population over 5 million are exposed to extreme natural events due to their location on low-lying coastal areas (IDB 2017).

(c) Irregular settlements (where 27% of the LAC population lives – IDB 2011) and new housing projects disconnected from the urban mesh, where residents face a deficit in urban services infrastructure and a housing backlog. In addition, irregular settlements do not have secure land tenure and are usually located in risk zones (ex.: 90% of cities in Southern Nicaragua), which increases dwellers' vulnerability.

(d) Displacements/relocations as a result of environmental protection classification of risk zones, which tend to affect the poor who cannot access the formal housing system (IIED 2018). In some cases, families are relocated to new risk zones or to homes which lack adequate construction parameters. In the long term, this entails major costs, both economic (connection infrastructure) and social (regeneration of the social fabric).

(e) Vulnerability is higher for some already marginalized groups with lower social power (women, indigenous people, children, sick and senior citizens. Of these, women are the most vulnerable, as they have the least access to property and income, and tend to support their families, care for others and handle household chores, besides being responsible for providing water, food and energy (CCCCC 2012; IGEUS 2011).

(f) The case of the Caribbean region stands out due to its geomorphological, demographic, social and economic characteristics. This sub-region is occupied by 27 million urban inhabitants (almost 50% of the total Caribbean population), most of whom live in coastal cities (IDB 2017b). Thus, this population faces all of the previously mentioned challenges, in addition to the fact that a large share of their economic activity stems from natural resources.

The Problem – lack of integration between the urban agendas and climate change

Despite the fact that they produce the majority of GHG emissions and their growing vulnerability, cities are privileged spaces to counteract climate change (CC). To that end, the New Urban Agenda (NUA) promotes the development of fair, accessible, affordable, resilient and sustainable human settlements (UN-Habitat 2016), suggesting in principle the need to interconnect the different agendas – those of urban planning, housing, resilience and environmental sustainability.

On one hand, **urban resilience** is defined as the ability of a city - perceived as a complex and interconnected system - to overcome weather-related impacts and to adapt to variable conditions (WB 2015). This requires management to reduce risks and vulnerabilities by strengthening the infrastructure, but also through territory planning; showing the close relationship between the resilience agenda and a strategy for city planning. Indeed, another way to see resilience is as **a process to acquire competencies** by learning, planning, designing and equitably distributing resources. This could be an important strategy to counteract the lack of planning processes in medium-sized cities of LAC.

On the other hand, **environmental sustainability**, understood as urban development that does not degrade natural resources and does not put in jeopardy society's well-being, also requires greater integration with urban planning. In LAC, many consolidated informal settlements have been formed in areas of high ecological value or vulnerable to environmental risk, including wetlands, water reservoirs, or steep slopes such as the hillsides of Rio de Janeiro, Caracas, Bogota, and Medellin (Lincoln Institute 2011). In some cases, conflicts have emerged, with environmental values opposing public policies to regularize or legalize settlements. This environmental opposition tends to negatively impact marginalized communities both in the center and outskirts of a city. The same concern may be less articulated when environmentally protected areas are occupied illegally by middle- and upper-income households, which do not suffer sanctions.

These conflicts require a more articulated and flexible vision, where government, the private sector and society join forces to innovate and to connect investments in social housing with

principles of a sustainable and resilient design, while seeking to regenerate environmental services, such as increased water uptake in the settlements without the need to relocate them. Similarly, this type of approach may contribute to solve environmental degradation challenges, such as water or solid waste treatment, turning them into economic opportunities for marginalized sectors.

Moreover, another problem is the **low prioritization of the climate change agenda and its weak integration with planning, territory organization and housing policies**. This lack of linkage is evident in the control exerted by the private sector regarding where to build and the type of housing project, and housing policies do not prioritize the identification of risk zones to avoid construction in these areas or the upgrading of dwellings in informal settlements located in risk zones. On the other hand, the CC agenda is primarily geared to mitigation – one-time and short-term actions – such as rebuilding damaged infrastructure or relocation of settlements affected by disaster events as opposed to a learning, planning, risk management and adaptation approach (resilience).

Another challenge is the necessary linkage among the **different levels of action** by different players which impact the urban agendas and climate change. In several municipalities of the Caribbean, for instance, international agents – financing banks and development agencies – require a number of standards and alignment with which communities and/or local governments find hard to comply, due to lack of skills and scarce resources. Also, local projects – with significant achievements and lessons learned – have not advanced given the absence of a legal framework or actions which set the conditions for their scalability. This points to the need to create spaces, roles and processes for democratic and inclusive participation, aiming at drafting and implementing feasible, complete and sustainable interventions. For example, spaces where science-generated knowledge (different fields) is integrated with the drafting of policies and programs of different levels of government, the private sector, regulatory standards and with the praxis and problems of vulnerable locations.

With the increased incidence of disasters dramatically impacting infrastructure and residents' quality of life, the CC agenda has the potential to become the catalyst and driver of planning and land organization, particularly in mid-size fast-growing cities characterized by disorganized expansion and a borderless continuum between urban and rural areas. One of the greatest areas of opportunity in LAC is the **use of urban voids**, as well as of underutilized property in areas served by urban infrastructure and services. These limitations in urban land use lead us to recognize the

direct relationship between recovering the social function of land, the right to the city and the regularization of settlements, to build resilience and environmental sustainability.

Challenges

Based on the previously mentioned problems, the greatest challenge for LAC lies in the governance framework. In other words, in the coordination among different governmental and non-governmental players to create a strategic, multi-sector, inter-institutional, multi-level and inter-territorial urban plan, geared to implement (urgent) risk management and adaptation actions for the long-term. More specifically, these are the following challenges to build resilience and environmental sustainability:

Governance, urban planning and housing policies

- Strategic planning and territory organization (to revitalize ecologically valued bur degraded spaces; to avoid construction in areas prone to natural disasters; to put urban voids to use; to improve infrastructure deficits and secure land tenure in informal settlements).
- Modification of housing policies to include themes related to the right to the city, social function of property and secure land tenure.
- Mapping and identification of risk zones (with priorities) to find innovative and long-term solutions as opposed to short-term interventions such as relocations.
- Inclusion of strategic marginalized stakeholders in a planning process that is democratic, multi-sector and with a focus on long-term adaptation actions.
- Capacity building in risk mitigation for vulnerable populations (ex.: in informal settlements located in risk zones) with a gender-sensitive approach.
- Linkage with the private sector, which influences housing and habitat management, to encourage their integration with the climate change agenda.

Services infrastructure, housing and technologies

- Analysis and implementation of projects to build sustainable and resilient social housing projects (focus on smart design and on the use of green materials and ecology-friendly technologies).
- Development and use of affordable context-adapted technologies for integral water management and reduction of GHG emissions which impact climate change.

- Improvement and inclusion of communication methods adapted to populations more exposed to risks (ex.: environmental disaster alerts, use of text messages, others).

Bolstering Research and Action

- Closing the gap between research and action, and formulating a theme plan for researched and actionable problems.
- Articulating knowledge – in practices, capabilities and functionalities – generated by different scientific fields, as well as linking research to public policies.

Key Questions

1. How can the CC agenda be placed at the core of urban development processes and housing? How can the urban resilience and environmental sustainability agenda help articulate **immediate and step-by-step strategies** for urban planning and other public policies in order to promote joint adaptation actions in **medium-size cities**?
2. Which mechanisms can foster concurrent strategic planning (that is multi-level, inter-sector, inter-territorial and inclusive) to drive the implementation of sustainable, viable and scalable projects?
3. Of the initiatives implemented in LAC related to climate change and urban resilience, which ones produced participatory processes, coordinating several players, levels and sectors? What common principles were identified?
4. How can the gap be closed between national/international parameters and local needs or lack of capacity? How can legal frameworks or actions be integrated so as to guarantee scalability of local initiatives? What is the role of local or international development agencies in this challenge?
5. How can the risk and vulnerability of marginalized communities be mitigated (ex.: through skill-building and/or appropriate communication technologies), since they are more exposed to CC effects, and how can they be part of the planning process, and of the drafting and implementation of adaptation projects?
6. How can we foster the implementation of housing upgrading projects with sustainable and resilient infrastructure, particularly in informal settlements?
7. How can we encourage and link private sector actions to the climate change agenda in order to establish innovative business models? How to incorporate this business logic into the public sector so as to drive investments in housing and urban development with urban resilience and environmental sustainability strategies?

8. How to create linkages among different academic disciplines, as well as between the academia and other stakeholders (public and private sectors and civil society) to strengthen the integration between research and action around climate change?

Map of Case Studies in LAC

- Climate Resilient Cities Initiative in Latin America: Six projects which include thirteen cities (FFLA, IDRC, CDNK and local organizations/institutions). We highlight three of them:
1) CASA [Amazon Self-Sustainable Cities]: Creating Homes in Iquitos, Peru.
2) A focus on Participatory Decision-making for Climate Resilient and Inclusive Urban Development in Latin America, in Santa Ana in El Salvador; Dos Quebradas in Colombia; and Santo Tomé in Argentina.
3) Climate-Resilient Coyuca: a Gender-Sensitive and Participatory Project for Adaptation to Climate Change, in Coyuca Mexico.
For more information: https://crclatam.net/.
- Programs for Disaster Risk Management in the Dominican Republic, Haiti and Jamaica and Peru (USAID/OFDA in collaboration with local organizations).
For more information: https://www.preventionweb.net/files/11489_fullreport1.pdf y https://www.usaid.gov/sites/default/files/documents/1866/lac_boletin_marzo_2017.pdf
- Emerging and Sustainable Cities, the Case of the City of Trujillo in Peru (Inter-American Development Bank and local organizations). For more information: http://cdn.inventarte.net.s3.amazonaws.com/cop20/wp-content/uploads/2014/12Ciudades-sostenibles-y-cambio-clim%C3%A1tico-MINAM.pdf y https://www.iadb.org/es/ciudades
- 100 Resilient Cities, the Case of Mexico City, Quito, Buenos Aires and Salvador, Brazil (Rockefeller Foundation and Fundación Avina in coordination with the private sector).
For more information: https://www.100resilientcities.org/100-cidades-resilientes-lanca-em-salvador-iniciativa-para-implementar-plano-de-resiliencia/
- National Sustainable Housing Policies and Regulations Through the Promotion of Energy Efficiency in Brazil (Law No. 10.29) and Colombia (Law No. 697/200).
- Second Generation Strategic Territory Planning and Public-Private Partnerships in Santiago de los Caballeros, Dominican Republic (Ministry of Finance, Planning and Development, with the private sector). For more Information: http://memorias.minpre.gob.do/api/documents/292/download and https://publications.iadb.org/handle/11319/1086?locale-attribute=en

- Participatory Mapping and Housing Co-Construction in Mexico, the Case of Yucatán. For more information: https://www.sciencedirect.com/science/article/pii/S0197397512000549
- Disaster Risk Management Strategies and Neighborhood Revitalization Program "Quiero Mi Barrio" in Chile (Ministry of Housing and Urban Planning – Minvu).

For more information: http://quieromibarrio.cl/index.php/programa/ and http://repositorio.uchile.cl/handle/2250/132620

- Housing Policy in Chile (infrastructure and housing upgrading):

For more information: http://biblioteca.cchc.cl/datafiles/29833-2.pdf

- Climate Predictability Tool (CPT) in Kingston, Jamaica. For more information: http://www.ipsnews.net/2017/08/climate-scientists-use-forecasting-tools-protect-caribbean-ways-life/
- Community Protection Program Implemented in the Slums of Rio de Janeiro in Three Stages: (a) Training of local agents (b) Community Alert and Warning System, and (c) Simulations and Drills in public schools. For more information: http://centroclima.coppe.ufrj.br/images/Noticias/documentos/estrategia-ing.pdf
- Regularization of Informal Settlements Located Near Water Reservoirs in Sao Paulo, Brazil. For more information: https://www.lincolninst.edu/sites/default/files/pubfiles/regularization-informal-settlements-latin-america-full_0.pdf

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