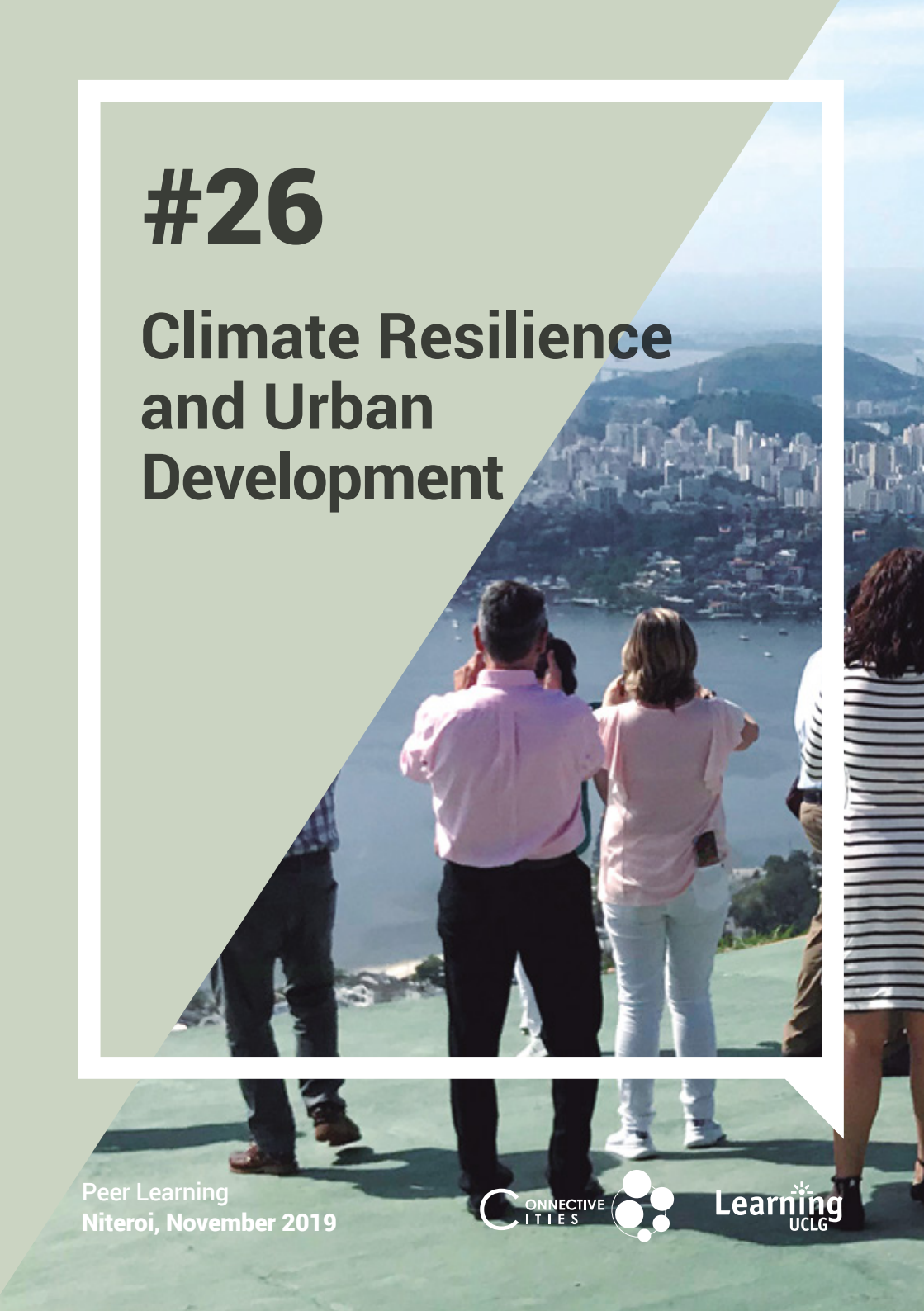
#26

Climate Resilience and Urban Development



Peer Learning
Niteroi, November 2019

CONNECTIVE CITIES

Learning UCLG

Credits

Coordination
Association of German Cities (Deutscher Stadtetag)
City of Niteroi
Connective Cities
Engagement Global and its Service Agency Communities in One World
German Corporation for International Cooperation (GIZ)
National Front of Mayors of Brazil (FNP)
United Cities and Local Governments (UCLG)

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Foreword

Many cities in Brazil and the Latin American region have been pioneers in the implementation of environmental measures and policies, as well as in resilience building and adaptation of their territories to the increasing effects of climate change. Planning for the future is key for the well-being of our communities, and we need to continue working with and for them in order to mitigate and adapt to the impact that climate change will continue to have on our territories in the coming decades.

Niteroi, the former capital of the state of Rio de Janeiro, has grown in its geographical location between the mountains and the sea, with limited space for further expansion. In April 2010, the city experienced severe flooding and landslides, which claimed the lives of more than 120 people, and affected hundreds of residents. The greatest damages were felt in the already vulnerable informal settlements of the area, underlining the deep inequality that still exists in our cities.

In 2012, my administration was elected to govern the city with a strong social and environmental vision. In the face of the challenges the city was confronting, we developed a 20-year strategic city plan together with citizens and key stakeholders. Working with my technical team, we were able to build an alliance with community leaders, universities, and the private sector, launching a plan to modernize the city's public administration, with impactful results in the areas of risk management and resilience. This plan has led to projects to improve retention and drainage, the systematization of the geographic information of the city, the conservation and reforestation of areas of ecological importance, the creation of a hub center for operations and monitoring, as well as civil defense community groups, and much more.

As a mayor, I know firsthand the importance of having competent and skilled public officers and leaders, with strong team working skills. I also understand the value and impact of exchanges of experience and knowledge,

and cooperation among cities. This is particularly true for a global challenge such as climate change and resilience. For Niteroi, it has been a pleasure to welcome our peers from Latin America and Germany, to share and discuss good practices in such an important topic. This exchange facilitated by Connective Cities, together with GIZ, UCLG, the Association of German Cities, and the Brazilian National Front of Mayors, has been a very meaningful experience for Niteroi, and I am sure that the good practices and discussions we have had can benefit the whole community of local governments and development actors.

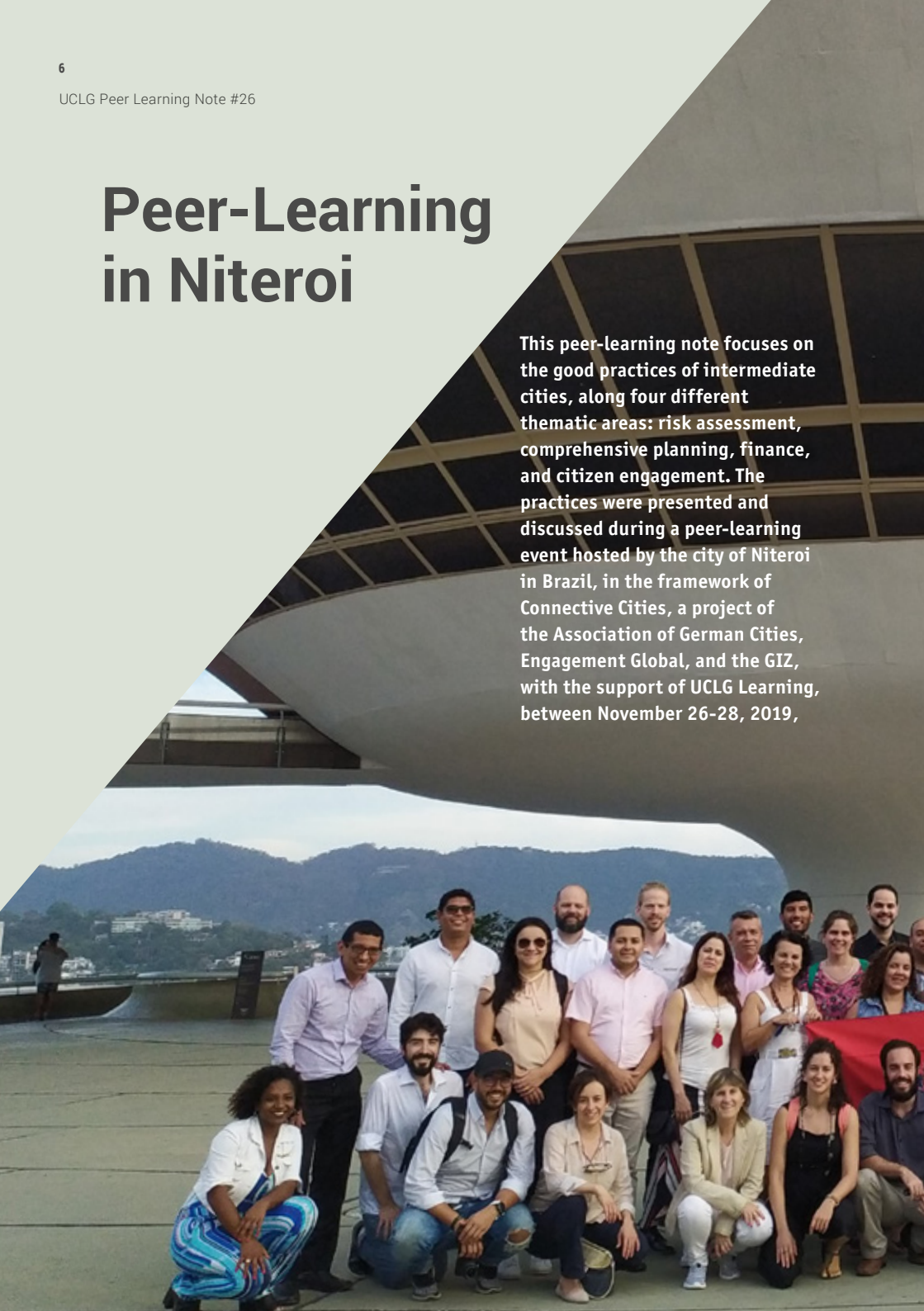
This Peer Learning Note is not only a report of the event and good practices discussed. It is part of an ongoing effort by UCLG and our network to showcase the important role that local governments have in the implementation of global commitments such as the Sendai Framework for Disaster Risk Reduction, the Paris Agreement, and the 2030 Agenda. It is also a key document highlighting the importance of building, governance systems that recognize us as key partners for development, and continue strengthening the decentralized cooperation practices so important for our network. I look forward to continue, together, fostering the exchange and peer learning among local governments, to support the strengthening of cities and the capacity of their leaders to confront the challenge of climate change in a resilient, just, and effective manner, to achieve a future that leaves nobody behind.

Photo: Luciana Cameiro

Mr. Rodrigo Neves
Mayor of Niteroi

Peer-Learning in Niteroi

This peer-learning note focuses on the good practices of intermediate cities, along four different thematic areas: risk assessment, comprehensive planning, finance, and citizen engagement. The practices were presented and discussed during a peer-learning event hosted by the city of Niteroi in Brazil, in the framework of Connective Cities, a project of the Association of German Cities, Engagement Global, and the GIZ, with the support of UCLG Learning, between November 26-28, 2019,



The event had the following goals:

1. Allow the **exchange of knowledge and experiences on climate adaptation** among urban practitioners from Latin America and Germany;

2. Increase the **capacity of participants to analyze existing challenges** for urban climate adaptation, and formulate project ideas;

3. **Identify future necessary support** for the implementation of project ideas and follow-up activities.

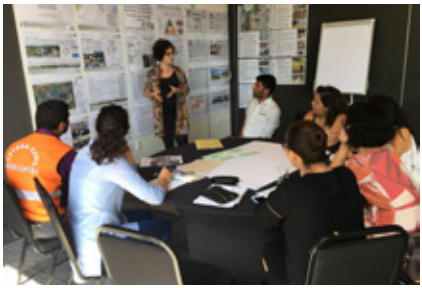
Photo: Diego Goulart

The event was attended by 32 participants (14 women and 18 men) from six countries: Argentina, Brazil, Colombia, Ecuador, Germany, and Mexico. Most participants were technical public officers in their respective cities. There were also representatives from universities, international cooperation agencies/projects, and the private sector.

The three-days long program included:

- **Exchange of good practices** through poster presentations.
- **Group discussions** to identify the key lessons and transferability of the different practices.
- A **field visit** to learn about risk management and climate change mitigation and adaptation projects in the city of Niteroi.
- **Round tables** and interactive activities to discuss the impact of climate change in the region, the planning tools available for adaptation and resilience building, and the relevance of global agendas to support the implementation of solutions at the local level.
- **Peer-to-peer consultation** to analyze the main challenges in four participating cities, leading to the development of roadmaps for the implementation of specific projects targeting these challenges.

Photos: UCLG Learning



Connective Cities & UCLG Learning: Joining efforts

Connective Cities is a cooperation project between the German Association of Cities (Deutscher Städtetag), a member of UCLG, together with the German Corporation for International Cooperation (GIZ) and the Service Agency Communities in One World (a division of Engagement Global), with support from the German Federal Ministry for Economic Cooperation and Development (BMZ).

Connective Cities and UCLG Learning work together to facilitate exchange opportunities, based on cities' demands, committed to a shared goal: the exchange of good practices, expert knowledge, and peer-to-peer consulting focused on the search for practical solutions. This cooperation has led to the exchange of experiences on a range of topics in different regions: management of public services, urban mobility and transportation, waste management, and disaster risk reduction. The dialogue events, such as the one organized in Niteroi, are documented and disseminated so that other members of the network can benefit from the knowledge and experiences shared, and feed the ongoing work of the participating organizations.

While UCLG focuses on sharing local practices and using them to advocate for local governments in order to gain greater recognition, mandate, and support for local governance and policies, Connective Cities follows up with the learning process allowing it to lead to concrete projects in some of the participating cities. For this purpose, it organizes different activities such as webinars, local workshops for project proposal, study tours, and consultations with experts.

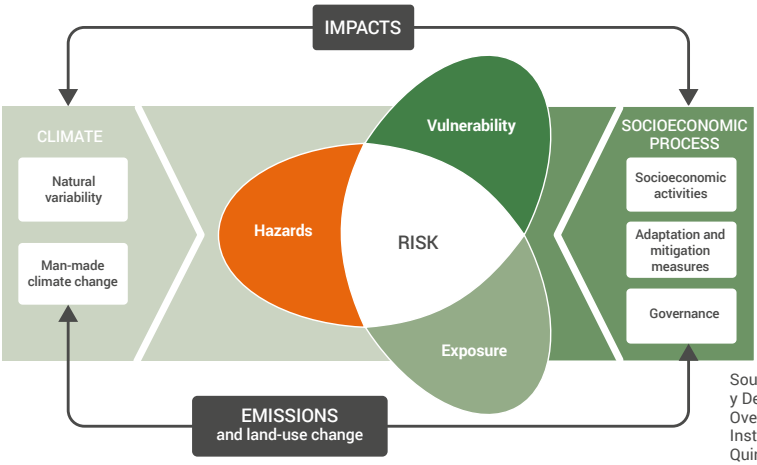
Climate Resilience and Urban Development

Climate change, and its visible effects, such as extreme meteorological events, torrential rains, stronger tropical storms, long droughts and heat waves, raise important challenges for cities all around the world. Continued urbanization, soil sealing, and urban densification aggravate the impacts of climate change, and increase the vulnerability and exposition of urban communities to disaster risks.

Many discussions and initiatives focus on the mitigation of climate change. This is, without a doubt, extremely important to slow down and stop this phenomenon. However, considering that global warming will likely reach 1.5 degrees Celsius within the next 10-32 years (IPCC 2018), adaptation to its different effects and manifestations is an urgent challenge that cities need to confront and include in their plans and projects.

Cities have a key role in the provision of basic services to its citizens, and these services are directly affected by the effects of climate change in local territories. The urban infrastructure and citizens themselves, often those already in disadvantaged circumstances, are often directly affected as well. Being so, urban development and local governance play a crucial role in the resilience of cities, as they cover key fields of action. As such, climate resilience needs to be confronted through comprehensive governance systems and urban development models, which consider the synergies and conflicts that it has with other challenges and solutions.

*above preindustrial levels, based on current emission patterns.



Source: Alianza Clima y Desarrollo (CDKN) y Overseas Development Institute (ODI), 2014. El Quinto Reporte de Evaluación del IPCC | ¿Qué implica para Latinoamérica? (Translation by UCLG Learning)

A global commitment

Cities and local governments, united through networks such as UCLG, have been engaged in global initiatives to mitigate emissions and adapt to the challenges and effects of climate change for several years. Initiatives such as the Mexico City Pact (Global Cities Covenant on Climate) launched in 2010, the Compact of Mayors (2014), and the Global Covenant of Mayors for Climate and Energy (2017), have continuously highlighted the relevance and impact that climate change has for local governments, and promoted the commitment of local governments to sustainability and resilience agendas that prevent and confront the impacts of climate change.

This commitment is clearly manifested in the 2030 Agenda. SDGS 11 and 13 directly refer to the resilience of cities and human settlements, and the mitigation and adaptation of climate change and its effects. These two goals are further developed through the Sendai Framework for Disaster Risk Reduction, and the Paris Agreement on Climate Change. Other goals also refer to resilience, such as SDG 1's target regarding the resilience of poor and vulnerable communities, SDG 2's

target on food security, and SDG 15's target on ecosystem services, underlining the integral and transversal character of resilience to achieve sustainable and equitable development.

These goals are further reflected in the urban context within the New Urban Agenda, as clearly stated in the following passage:

"We commit ourselves to supporting the medium- to long-term adaptation planning process, as well as city-level assessments of climate vulnerability and impact, to inform adaptation plans, policies, programmes and actions that build the resilience of urban inhabitants, including through the use of ecosystem-based adaptation." (paragraph 80 of the New Urban Agenda)

In this way, resilience and climate change have become an urgent political priority at both the global and local level. UCLG has been supporting the localization of the SDGs since their launch thought the implementation of learning modules, training of trainers, and peer-learning events. In response to an increasing call for capacity building to support the planning of strategies and resilience building by local governments, this work has recently extended to encompass other global agendas, particularly the Sendai Framework for Disaster Risk Reduction. With its focus on risk management, this work could not ignore the growing effects of climate change at the local level and the pressure that these manifestations are putting on urban systems, infrastructure, and most importantly, the communities that live in them.

Adaptation, Resilience and Sustainability in Latin America

The impact of climate change in the Latin American region is visible in different trends such as rise in temperatures, stronger storms, increasing frequency of El Niño events, droughts in already water depleted areas, and coastal erosion. These trends, according to the forecasts of the Intergovernmental Panel on Climate Change (IPCC), will continue in the coming years, increasing the risks caused by extreme rainfall, droughts, and storms in the different territories (see graph in page 15). These phenomena will not only directly impact urban infrastructure, but they will also force changes in agricultural production and the quality of food in a large part of the region, requiring efforts across the urban-rural continuum to adapt to a changing climate. An increase in vector and water borne disease outbreaks in the region are also foreseen, due to their spread to new altitudes and latitudes as temperatures continue to rise. As such, climate change adaptation goes beyond physical infrastructure, and will require a comprehensive response which includes territorial planning, health, education, water systems, sewage and waste management, as well as nutrition and food production (IPCC 2014).

Many cities in the region, with the support of international agencies such as GIZ and the IADB, universities, and often with a strong leadership from civil society, have implemented innovative projects to evaluate, mitigate, prevent, and reduce these risks at a local level. These experiences showcase the variety of adaptation mechanisms and solutions available, many of which can be carried out at a low cost, with low carbon emissions, and offering additional benefits and economic opportunities to the beneficiary communities. Many of these initiatives focus on reducing the vulnerability and exposure of informal settlements and

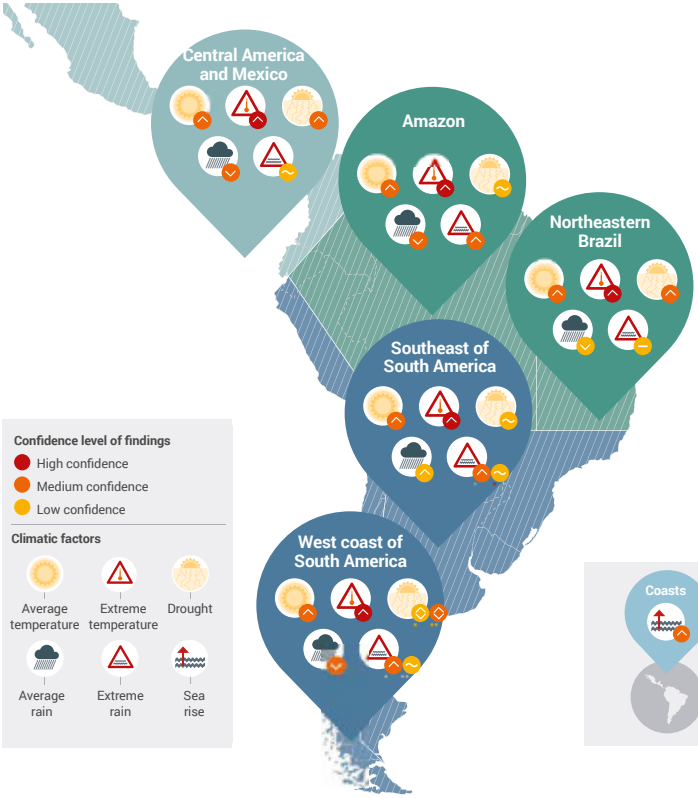
Adaptation is fundamentally about risk management. As such, it should contribute to cities' comprehensive and sustainable development

vulnerable communities, and increasing their social and economic resilience, underlining the strong linkage between adaptation, resilience and sustainability. The importance of citizens engagement and participation of civil society is also clear, as it is the key role that the private sector (including the informal economy) should have, as it could be directly affected by the threat of climate change in the different social, economic, political and environmental systems that its activities rely on.

While some of the most prominent examples of resilience building are concentrated in large urban centers, intermediary cities have also implemented very interesting projects which can provide inspiration and important lessons to other medium cities. Regional and decentralized cooperation can play a key role to foster climate adaptation at scale, and it can also support coordinated management and solutions among territories that share ecological systems, such as valleys, bays, or river basins.

Photo: UCLG Learning

Future climate trends for Latin America



Source: *Alianza Clima y Desarrollo* (CDKN) y Overseas Development Institute (ODI), 2014. *El Quinto Reporte de Evaluación del IPCC | ¿Qué implica para Latinoamérica?* (Translation by UCLG Learning)

Symbols	Rains	Temperature	Extreme rains and temperatures, sea rise
^	Upward trend of up to 25%	Upward trend of 1,0 - 6,7 C	Upward trend
◇	Upward and downward trends	-	Upward and downward trends
v	Downward trend of up to 25%	-	Downward trend
–	None or slight change	Inconsistent trend	Inconsistent trend
~	Inconsistent trend	Inconsistent trend	Inconsistent trend

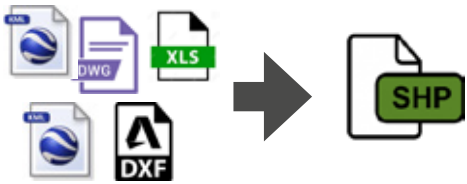
Good Practices

1. Risk assessment

Niteroi (Brazil)

Systematizing geographical information to allow better assessment and planning

Availability and access to up to date georeferenced information can be a key factor for risk management as well as urban management. It allows for a systematic analysis and assessment of the different layers of services and infrastructure that form the city, and how they interact with each other and the surrounding environment. However, this information is often scattered among the different departments, and levels of governments, complicating access and correlation. To this effect, Niteroi's Geoinformation Management System has been key to enable better risk management and planning in the city.



Started in 2014, the system is under constant development, systematizing the geoinformation developed and used by the different departments in the city. The platform provides information about the different services, projects, land use, businesses, as well as providing open access to the geoinformation and orthophotos of the city. The platform is also connected to the municipal land registry, with a mobile application which allows city staff to carry out updates directly from the field, upload pictures of buildings and plots, and immediately verify the city's data base.

The system has not only provided open access to the city government's geoinformation and fostered closer coordination among the different

departments. It has also simplified plot mapping processes, and allowed the monitoring of data regarding urban mobility, water quality, among other key indicators. The system also facilitates the simulation of flooding patterns, the monitoring of forest fire risk, on top of having other uses directly related to risk management and resilience.

Photo: UCLG Learning

Key lessons

- Integrating and systematizing the city's geographical information facilitates coordination within the government and improves planning.
- The systemization can also assist in the assessment and monitoring of risks, and allow for impact simulation models to evaluate mitigation strategies.
- Providing open access to this information is beneficial for citizens and the private sector, stimulating transparency and engagement.

Risaralda (Colombia)

Localizing climate impact models using tangible terms

In Risaralda in Colombia, the provincial governments, together with the regional environmental authority Corporación Autónoma Regional Ambiental (CARDER), have taken the initiative to develop and provide relevant inputs for local governments showcasing the specific impacts of climate change in the local territories. The program has been developed in the framework of national strategies and policies to boost climate adaptation, financial protection against disasters, and low-carbon development.

Using as a base the studies and models developed at a national and regional level, the Technical University of Pereira develops climate profiles for specific territories, as designated by the regional authorities. These profiles identify the main challenges and opportunities that arise from

Local climate profiles translate the forecasted manifestations of climate change in each territory into tangible impacts.

the different manifestations of climate change in the territory, considering local development patterns, land use, and socio-economic characteristics. By translating climate change phenomena into tangible effects in the local territory, the profiles help local governments develop specific adaptation strategies which can be incorporated into their development plans, and other environmental and territorial planning mechanisms. The profiles are also used by CADER, the authority entrusted with the environmental assessment and approval of local development plans, to make sure that local governments are considering climate variability impact in their future plans before they are sanctioned.

The profiles developed under this program have been especially useful because they translate climatic variability into tangible effects easily understood by public authorities and the local communities. Depending on the availability of data, the profiles have been able to reach a high degree of territorial detail, helping to identify specific areas and systems within the territory that might be particularly affected, thus contributing to the mitigation of the negative effects of climate change.

Key lessons

- Assessing the effects of climate change at a local level, in consideration of the socio-economical context, facilitates local action.
- Communicating climate impacts in tangible and relevant terms for local governments and communities.
- Need for coordination and collaboration between different levels of governments, agencies, and the academic sector.

2. Comprehensive Planning

Dortmund (Germany)

Integrated adaptation to climate change through a hub model

While there are cities that include climate change and resilience as a cross-cutting aspect integrated into their different plans and departments, it can also be useful to assign the role of coordination and leadership of the issue to a specific point within the administration. This is the case of the city of Dortmund, which established the position of climate change adaptation manager within a coordination unit for climate change in 2013. The unit led a pilot project to integrate climate adaptation concepts into the district of Dortmund-Horde in 2014, which is now being used as a guide for the development of a master plan for the city.

The MiKaDo plan (Master Plan for the Integration of Climate Change in Dortmund) focuses on the development of a smart and healthy city, reducing the danger of extreme weather manifestations such as heat waves and heavy rains. The plan establishes a roadmap, with the participation of different parties and citizens, and recommendations for each of the city's departments. In order to develop the plan, an assessment and analysis of present and future climate scenarios was made, evaluating the vulnerability and challenges presented by each one. From there, climate adaptation strategies and measures were identified, and a plan for their communication, institutionalization, and monitoring was created.

Photo: UCLG Learning

One of the main lessons of this project is the importance of identifying key actors to convince and mobilize other relevant actors inside and outside the administration. Similarly, the importance of conveying the consequences of inactivity and the status quo in terms that are related to each of these actors has also been highlighted by the city.

Key lessons

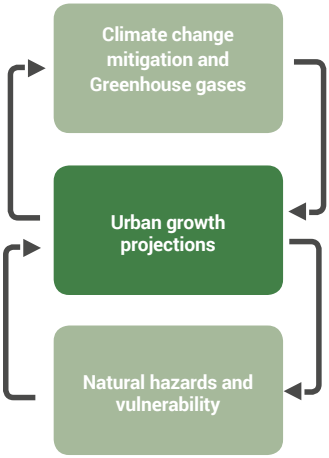
- A focal point can help coordinate climate actions and mobilize the different departments within the local government.
- Identifying key allies and stakeholders within (and outside) the administration is key to secure the continuity of the process.
- The impact of climate change and non-action should be communicated in relatable manners to each specific audience or department.

Monteria (Colombia)

Climate Change Master Plan sets the track for integral change

In 2011, soon after signing on to the Mexico City Pact during the World Mayors Summit on Climate, the city of Monteria published its climate change master plan: Monteria Green City 2019. The plan, developed through a public-private partnership between the city hall and Proactiva (the company in charge of the water and sanitation services in the city), established a set of indicators to measure the progress of the city in regards to emissions reduction and adaptation measures. The plan also gathered key information about the city which became the foundations for the development and implementation of different plans throughout the last decade and have given the city a growing recognition as a pioneer in environmental and climate action.

The Climate Change Plan, which elaboration included consultations with relevant social and private stakeholders in the city, identifies 15 challenges and 26 concrete actions which the city can take towards mitigation,

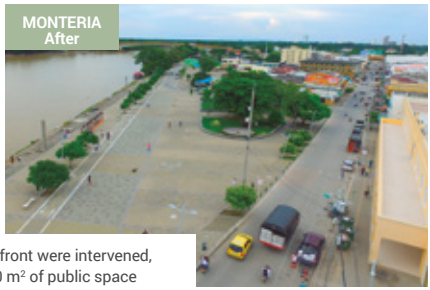


adaptation, awareness-raising and compensation. The actions cover a range of thematic areas such as the construction of parks, the widening of the river's flood basin, the management of water resources, agricultural production, waste management, urban development and public transportation.

The actual implementation of this master plan was carried out by the following administration, which included key aspects of this master plan in the legally binding development plan of the city, as well as other plans and projects. This has led to improvements in the efficiency of the city's transport system, public space network, as well as reforestation projects to recover eroding areas along the river, better management of the city's stormwater canals and drainage system, the implementation of a sustainable building code, and a better management and planning of the city's land use.

Risk management is now a cross-cutting theme in the city's development plan, as well as in other sectorial plans recently developed. More specifically, the city has established a risk management and local emergency plan, developed an environmental information system to support decision making, and has put together a network of environmental advocates to engage and reach out to the different communities within the city. Other projects in the area of biodiversity and ecosystemic services also support the city's risk management measures, through the recovery of river basins and maintenance of ecologically important areas, actions which are managed by the planning department, as the city does not have enough resources to establish a separate environmental department.

The 2011 Master Plan, followed by the different projects implemented by successive administrations in agreement with it, have allowed the city to achieve visible results linked to a long-term vision for the city. These tangible results have prompted the inclusion of climate change into the discussions to update the city's territorial development plan, the main long-term urban planning tool of the city, which could secure the continuity of these actions. Along the institutionalization of climate change into the city's different planning tools, the continuity of the city's technical staff, together with the oversight by external citizen and academic organizations, has also been key to secure the implementation of this ambitious master plan.



6 kms along the riverfront were intervened, recovering 130.000 m² of public space

Photos courtesy of Carlos Montoya

Key lessons

- A long-term vision, together with short-term projects, can foster the inclusion of climate change issues into the city's urban model.
- The continuity of technical staff, and the political commitment from elected leaders, is necessary to conceive and implement comprehensive projects.
- Master plans and strategies need to be included into the city's formal planning mechanisms to guarantee the sustainability of these actions.

3. Financing

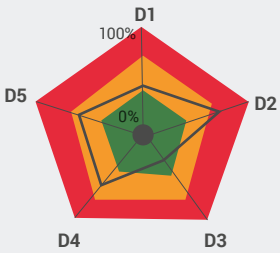
ADAPTUR (Mexico)

Mobilizing resources from the private sector to increase resilience and protect ecological services

Coastal communities and biodiversity rich regions, which directly perceive the effects of climate change and environmental degradation, are often home to a large number of companies from the tourism industry. A large part of the tourism industry's income in these regions depends directly on the environmental attractiveness and the ecological benefits provided by natural ecosystems. The Adaptur Project, coordinated by GIZ in the Mexican regions of Riviera Nayarit-Jalisco, Riviera Maya, and San Miguel de Allende, aims to mobilize the private sector and its resources to bolster and finance climate adaptation measures.

On one side, the project seeks to incorporate the concept of Climate Proofing in the investment calculations (prior to construction) of the companies, cities, and regional governments. This means considering the risk and opportunities of climate change in their projects: potential damage to strategic infrastructure, market shocks, new regulations and policies, etc. Doing so brings a climatic perspective to investment and risk analysis, inducing companies to invest in adaptation measures, rethink their projects, and revalue the external social, environmental, and financial factors that protect their investments.

ID	Dimension	Total risk level
D1	Infrastructure	40.0%
D2	Finances & Market	71.0%
D3	Regulations	24.5%
D4	Social context	63.2%
D5	Operations	62.5%
	Average	52.2%



Low 0-35% | Medium 36-65% | High 66-100%

The project has developed guides regarding climate change and adaptation aimed at investors and developers in the tourism-real estate sector, and has built the capacity of consultants and small companies to evaluate the value of ecosystem protection in the analysis of investments. A valuable lesson shared by the project is the importance of understanding the investment process, the business profile of the territory, and the language used by the private sector. Considering these key factors, the project was able to identify two entry points through which to incorporate adaptation into the investment process, namely: through the inclusion of ecosystem-based adaptation measures in the environmental management plan of projects, and the incorporation of climate risk in the financial analysis and planning.

On the other side, the project has also identified finance options and instruments for ecosystem-based adaptation which local governments can implement, often with the support of the private sector. These options go from international funds to local fiscal mechanisms such as: certification schemes, environmental levies or fines, tourism promotion trusts, fees for environmental compensation, CSR contributions, and sanitation rights, among others.

Key lessons

- The private sector is a key partner to mobilize resources and strengthen the resilience of cities and regions.
- Importance of understanding private sector language and processes, communicating the risks of climate change and benefits of adaptation efficiently in terms of their impact in profits and return of investment.
- Local governments have numerous mechanisms to collect funds from the private sector, which can be more efficient if they are accompanied by a consultation process, and transparent disclosure of investment and results.

Portoviejo (Ecuador)

Reconstruction becomes an opportunity to reduce multiple risks

The Las Vegas park in the city of Portoviejo, Ecuador, can be considered an example of the *Build Back Better* concept at an urban scale. After the earthquake that struck in 2016, the city allocated a small part of the funds received from the central government for reconstruction and economic revitalization to create this large park in the city center. The park is part of an interconnected system of green and public spaces which the city aims to build along the Portoviejo river in order to reduce flood risk. In this way, the city was able to take the challenge of reconstruction and economic revitalization, as an opportunity to generate new public spaces, revitalize the city center, and at the same time confront the increasing flood risks that were threatening this part of the city.

The park's design incorporates ecosystem-based adaptation (EbA) solutions such as the recovery and repurposing of the river's banks as

Photos: Arquitectura Panamericana

floodable recreational areas, and the regeneration of an abandoned meander as a wetland. The regenerated wetland functions as a stormwater retention tank, while at the same time generating a valuable ecosystem that has attracted a larger variety of fauna. The park's proximity to the city center, together with events organized in its grounds, have helped the area's revitalization, and provide a large recreational and leisure area for the whole city.

Key lessons

- Following the concept of Build Back Better, the recovery work after a disaster can become an opportunity to rebuild in a more sustainable and resilient manner, maximizing the effectiveness of mobilized resources.
- Climate change adaptation can be implemented through improvement to public spaces and the environmental systems of the city.
- Resilience solutions need to address multiple risks and vulnerabilities.

4. Citizen Participation

Niteroi (Brazil)

Risk aware schools and communities enhance Civil Defense departments' work

The importance of close collaboration with residents in order to raise awareness about climate change and disasters risk was highlighted by many of the local governments presenting good practices. Here we focus on two projects presented by Niteroi: Civil Defense in the School, implemented by many cities in Brazil; and the Civil Defense Community Groups, which can also be easily replicated and transferred to other cities.

The Civil Defense in the School Project aims to raise awareness and develop the capacity to perceive risks among youth, helping them identify and mitigate risk in their day to day surroundings. While focusing on youth, this Project goes beyond education in schools, as children and youth would share the acquired knowledge with their parents and families, fostering risk awareness and encouraging actions to decrease and mitigate risks.

The Civil Defense Community Clusters (NUDEC), on the other hand, aim to expand the presence and impact of the Civil Defense in the territory though citizen engagement. Created as part of a coordination process among different city departments to reduce the risk of landslides in the most impoverished neighborhoods of the city, each community cluster gathers local leaders, volunteers, faith-based organizations, resident associations, and includes representatives from the environment and conservation, city works, housing, urban planning, and social engagement departments.

The clusters aim to engage the community throughout the full cycle of risk management, from risk assessment and monitoring to the design, implementation, and maintenance of projects, and also the response in case of emergencies. The project incorporates important gender and vulnerability lenses, giving women an important and relevant role in the

process, and special consideration to the risks and needs of people with locomotion difficulties (elderly, infants, and persons with disabilities).

To be effective, the management of this clusters and participating citizens needs to be ongoing, concerted, and based on the socio-economic context of the volunteers. Doing so, it can keep volunteers engaged and motivated, and at the same time promote ownership and empowerment. So far, the city of Niteroi has implemented 58 of these clusters in the city, building the capacity of 1610 volunteers in the prevention of meteorological risks, and 326 in the prevention of forest fires.

Photo courtesy of Niteroi Prefeiture

Key lessons

- Awareness raising and citizen engagement is key for risk management, mitigation, and adaptation.
- Schools, youth and children provide a good platform to increase awareness and reach many homes and families.
- Volunteer management needs to be recurrent, concerted, and sensible to the community context, and can benefit from gender and vulnerability focuses.

Paraná (Argentina)

Water basins as a territorial unit for citizen-government coordination

The city of Paraná, following the demands of neighborhood groups in the city because of the environmental deterioration of the streams in the city, found in these same streams a geographically sensitive opportunity to foster better coordination between citizens and the local government. Through the creation of Water Basin Committees (Comités de Cuencas) in each of the 16 streams of the city, the local government has been able to create a democratic space for citizen participation, improving communication and coordination among residents, neighborhood associations, and city officials, particularly in the departments of sustainable environment and planning, which are responsible for coordinating these committees.

The committees have brought up important issues identified by citizens, as well as possible solutions for them. Furthermore, they have democratized access to information geographically systematized by the government, such as maximum flood levels, water and soil quality surveys for each water basin. They have also facilitated the management and allocation of budgets for the development of linear parks or environmental remediation projects, as well as coordination with local NGOs to promote environmental awareness among citizens, or build the capacity and awareness of maintenance and cleaning crews regarding the environmental value of the streams.

Photos courtesy of Maria Eugenia Cichero

The map of the city clearly showing the different water basins have been distributed and displayed in schools, libraries and other public spaces, fostering recognition of the natural geography of the city, and engagement with the committee activities within each basin.

The committees were established based on a city ordinance on citizen councils, which provided a structure for neighbors to gather, but did not consider the territorial dimension or the natural landscape. This ordinance was then replaced to respond to the specific needs and processes of the committees, safeguarding the continuity of these spaces and the commitment of the city to recognize them as planning mechanisms. Through them, the city has been able to re-acknowledge its own territory and geography, and bring back the streams, historically treated as stormwater drains rather than biological corridors, into the urban fabric. Doing so is beneficial not only in terms of environmental quality and public health, but is also beneficial for the management of flood and soil erosion risks.

Key lessons

- Existing local administration and citizen council systems can be adapted to improve coordination between civil society and the local government.
- The geography of a city and the ecological systems that exist in it can provide structural axes to coordinate activities of adaptation and resilience actions in the territories.
- Environmental organizations and civil society organizations can provide key data, knowledge and resources to support adaptation and awareness raising efforts in the city.

Conclusions

The practices presented during the event in Niteroi became the basis of valuable discussions and reflections throughout the peer-learning event, during group discussions, peer-consultations and the development of projects.

Local and regional governments are at the forefront of climate adaptation and resilience with a long track record of innovation and international collaboration

Local and regional governments have a crucial role in the disaster risk management within their territories. This is directly linked to climate change adaptation and resilience building. A greater recognition of this role must be accompanied by a greater mandate, capacities, resources and coordination with the other levels of government to ensure the protection of lives and of the socioeconomic, environmental, and infrastructure systems that sustain urban communities.

Climate adaptation must include different stakeholders and sectors of local society

Some of the key factors highlighted in participants' discussions as necessary for successful implementation of climate adaptation and resilience initiatives were: the inclusion of different sectors of local society (communities, private sector, academic sector) from the risk and vulnerability assessment stage; cross-departmental and transversal coordination; communication strategies using appropriate and everyday language; incorporating and contributing to existing mandates such as the SDGs; considering ecosystem services and the urban landscape within the resilience strategy; and the institutionalization of disaster risk management.

Political will is as important as communication strategies and systematization and access to locally relevant data

Among the common success factors identified among good practices were: political will; existence and access to information (background, studies, georeferenced data, etc.); inclusive multi-sector participation process; enabling legal instruments and land management mechanisms; visible communication strategy; community engagement; readiness to transform crisis into opportunities; efficient evaluation and monitoring system providing evidence for further investments; and integration of the projects with the broader city model.

Financing solutions remains a challenge that demands creativity and greater decentralization

Most of the good practices presented were financed with local government resources, except for a few that received some external financing through national resources, international cooperation, multilateral agencies, or public-private partnerships. Thus, the discussions highlighted the need to encourage more mixed investment (public and private), mobilize the private sector, and find new forms of financing such as green funds. The technical assistance that can be received from the academic and private sector, or programs such as IADB's Emerging and Sustainable Cities or the GIZ, were also highlighted, noting the resources and capacities already existing in many intermediate cities which can be mobilized and strengthened.

Strengthening resilience at the local level is essential for the achievement of the SDGs and the fight against climate change

The SDGs have been welcomed by many local governments as a framework to structure their development and visions of more sustainable and equitable cities. However, it is clear that, if proper risk management is not done and the increasing impacts of climate change at territorial level not considered, the progress made by cities could be compromised.

Institutionalization must be accompanied by technical continuity and capacity building

Regarding the continuity and strengthening of good practices, it was clear through the discussions the need for legal support, to be institutionalized to ensure their continuity, to have a good communication strategy both within the government and towards other actors such as civil society, and for them to be accompanied by strong evaluation and monitoring systems (ideally external) that guarantee their effective implementation, efficient operation, and good resource management. The cross-cutting nature of climate adaptation and mitigation solutions, and the need to continuously work to raise awareness about climate change, working together with media, experts, academia, youth and community leaders, was also highlighted.

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