Resilience Learning Module II:

Strategies and Actions

Practical approaches to resilience-building
for local, metropolitan and regional governments

Resilience Learning Module I: Strategies and Actions

October 2021

Practical approaches to resilience-building for local, metropolitan and regional governments

UCLG United Cities and Local Governments

UN-HABITAT FOR A BETTER URBAN FUTURE

UNDRR UN Office for Disaster Risk Reduction

This project is funded by:

UN-HABITAT FOR A BETTER URBAN FUTURE

European Union

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of UCLG and do not necessarily reflect the views of the European Union.

Sweden Sverige

This document has been financed by the Swedish International Development Cooperation Agency, Sida. Sida does not necessarily share the views expressed in this material. Responsibility for its content rests entirely with the author.

Presentation

Following the first volume of the Resilience Learning Module, *Fundamentals of Resilient Governance and Development*, this volume focuses on practical Strategies and Actions for building resilient cities, regions and metropolitan areas. This volume provides for a practical way for local and regional governments (LRGs) and their associations (LRGAs) to develop and undertake resilience strategies in alignment with achieving the *Sustainable Development Goals* (SDGs), fostering climate mitigation and adaptation, and advancing an inclusive ecological transformation during this crucial Decade of Action.

Together with the first volume, this second Resilience Learning Module has been developed by United Cities and Local Governments (UCLG) in partnership with the United Nations Human Settlements Program's (UN-Habitat) and the United Nations Office for Disaster Risk Reduction's (UNDRR), with the support of UCLG regional sections and the UCLG Task Force for Territorial Prevention and Management of Crisis. The modules are a key tool of the Making Cities Resilient 2030 (MCR2030) initiative, supporting the transition from awareness-raising to concrete resilience-building policies and actions.

The Resilience Learning Modules argue for a systems-based resilience thinking, understanding the local and territorial contexts in their entirety with their different stakeholders, sectors, and urban elements, and presenting the ways in which the parts of these systems are connected and influence one and another. This second volume underlines the unique characteristics of local and territorial contexts with their geographical locations, socio-economic and physical systems, and collective memories. All these unique characteristics of the local and territorial contexts teach

us that there is no one size fits all in resilience and that each city and region requires distinctive approaches. For these reasons, this Module discusses strategies and actions that not only increase resilience of the built environment, but also take into consideration social, economic, and environmental resilience, understanding the cross-cutting nature of all these sectors. The Module gives practical examples and tools that are used and applied in varied geographical locations with different sizes and administrative structures.

While discussing these actions, the Module also gives a preeminent role to LRGAs in awareness raising and advocacy, bridging the gap in governance and capacity building for resilience, and monitoring the implementation of resilience-building actions. This pronounced role of LRGAs in risk reduction and resilience building has been observed extensively during the ongoing COVID-19 crisis and their effective involvement is also needed for COVID-19 recovery which requires a multi-faceted whole-of-society approach and systems-based thinking. Such an approach will allow communities to not only recover and build back better from COVID-19 pandemic, but also to transform themselves towards a more resilient, inclusive, and sustainable development.

Target Audience

This module aims to provide a base structure for workshops to inspire LRGs with concrete actions and strategies they can develop across their different departments to build resilience and integrate DRR into their programs and projects. It has been developed to support all relevant stakeholders at the local, regional, and even national levels; such as political leaders, technical public officers in different departments, civil society and other community stakeholders. Going further into technical aspects, urban planning tools, and concrete solutions, some of the contents can be of particular interest for municipal staff in specific departments, but we recommend organizing the workshops with a diverse group of participants from different departments/backgrounds to foster richer discussions and reflections in line with the comprehensive approach necessary for building resilience.

Methodology

This learning module follows the same structure as the first resilience module and previous modules developed by UCLG on the localization of the SDGs. It serves as a guide for facilitators to adapt and organize their own workshops and trainings, based on their target audience.

The theoretical part of the module is based on lectures, case studies, and additional resources based on the experiences of LRGs and existing research. Interactive exercises aim to facilitate knowledge exchange

and build on the theoretical part, providing opportunities for reflection on concepts, as well as integration of context specific experiences and knowledge from participants' own cities and territories. They are designed to allow participants to think of specific tools, actions and strategies which they can use in their city, region or metropolitan area in order to build resilience and integrate DRR into their daily work.

Iconography

Throughout the module you will find a series of icons that will help you find the information more easily and move around the different activities and resources available for your workshop.

- **Lecture**
- **Debate**
- **Dynamic**
- **Resources**
- **Handout**
- **Reference documents**

Apart from the icons, on the margins you will also find key messages, additional resources and information as to whether any previous preparation is needed for an exercise or dynamic.

Complementary Materials

This module can be further complimented using some of the existing tools developed by UCLG, UN-Habitat, UNDRR, and other partners, building particularly on the following resources:

- UCLG, UN-Habitat & UNDP, 2020. Resilience Learning Module I: Fundamentals of Resilient Governance & Development.
- UNISDR, 2017. How to Make Cities More Resilient: A Handbook for Local Government Leaders.
- UNDRR, 2019. Words into Action guidelines: Implementation guide for local disaster risk reduction and resilience strategies.
- UN-HABITAT / CRGP, 2018. City Resilience Profiling Tool Guide.
- UCLG Taskforce for Territorial Prevention and Management of Crisis, 2019. Guidance for Local Authorities on Effective Working with Humanitarian Actors.

Additional complimentary material is provided for each chapter in accordance to the topics discussed.

Glossary

CRGP — City Resilience Global Programme

CRPT — City Resilience Profiling Tool

DRM — Disaster Risk Management

DRR — Disaster Risk Reduction

LRGs — Local and regional governments

LRGAs — Local and regional government associations

MCR2030 — Making Cities Resilient 2030 initiative

NbS — Nature-based Solutions

NUA — New Urban Agenda

SDGs — Sustainable Development Goals

SFDRR — Sendai Framework for Disaster Risk Reduction

SME — Small and medium enterprises

UCLG — United Cities and Local Governments

UN-HABITAT — United Nations Human Settlement Programme

UNDRR — United Nations Office for Disaster Risk Reduction

Chapter 1.
Recognizing the context

Resilience-building strategies must take into consideration the particularities of the territorial and institutional context, as risk management is not the same in a metropolis as in a rural municipality, nor between a city located on the coast or inland. Resilience-building is closely linked to the degree of decentralization and competences assigned to different LRGs. The most robust and effective resilience strategy is often the one that can be implemented with the available resources and is adapted to the specific risks, context and needs of each city or region.

This chapter analyzes the different stakeholders, sectors and vectors that play a critical role in designing, planning, monitoring, and evaluating resilience-building and disaster risk reduction (DRR) actions and strategies within local and regional governments (LRGs). It also discusses the resources LRGs may have to strengthen their resilience; issues such as political, legislative and administrative competencies, or technical, human and financial resources are essential to ensure the implementation of the strategies discussed in this Module.

LECTURE 1

Lecture 1: The territorial context

Each of the thousands of local and regional governments (LRGs) around the world faces its own challenges including developing responses adapted to its needs and local and regional contexts. UCLG, as the world's leading network of subnational governments, encompasses metropolitan areas, regions, intermediary cities and rural municipalities in its network.[1]

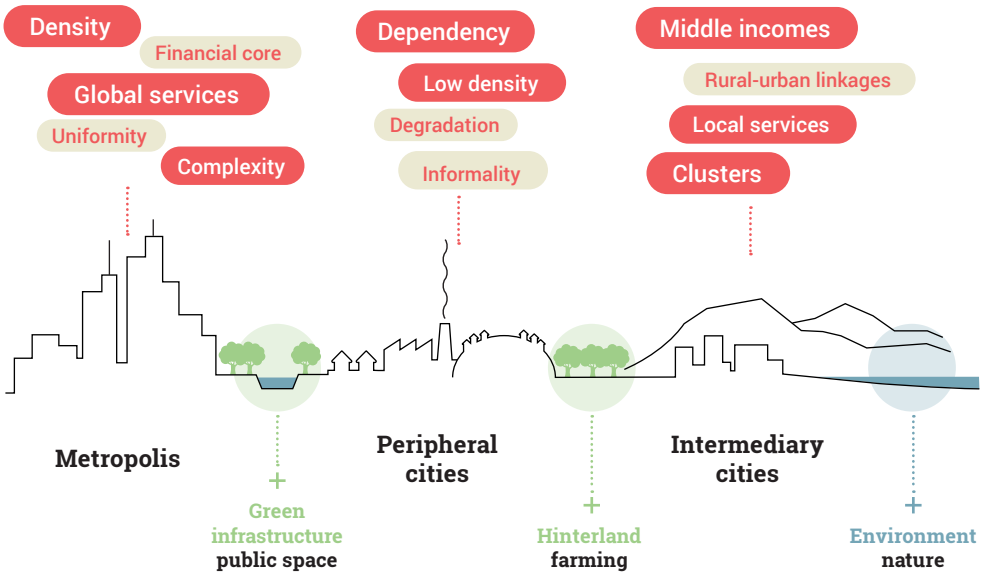


Fig 1. Resilient system of cities*

Understanding these different contexts is essential to designing and implementing resilience-building and DRR strategies. DRR and resilience-building strategies cannot be the same for a municipality located in an isolated mountainous area and a municipality located on the periphery of a metropolitan coastal corridor. Accordingly, a resilience-building strategy needs to take into consideration:

1. The multiple risks associated with the regional context and the potential impacts these can generate.
2. The history and background of hazards, exposure, vulnerability and risk management.
3. The areas and opportunities for recharge and recovery (environmental, social, economic and institutional).
4. The relationships and dynamics between the various stakeholders and multi-level governance systems.

* Urban areas range from small villages to growing intermediary cities and metropolitan areas. Together they form systems ever more interdependent with the borders between urban and rural becoming increasingly blurred.

1. Check the GOLD IV Report for more information on the challenges confronted by various urban systems. UCLG, 2016. Co-Creating the Urban Future. The Agenda of Metropolises, Cities and Territories (https://www.gold.uclg.org/sites/default/files/GOLDIV_ENG.pdf)

DRR and resilience strategies promoted by LRGs need to be contextual and aligned with their particular risks, needs and vulnerabilities

As discussed in the Resilience Learning Module I, it is critical for DRR and resilience strategies promoted by LRGs to be aligned with the particular risks, needs and vulnerabilities of their territorial contexts. To do so, an analysis of environmental, economic, social, cultural and geographic components is necessary to identify areas, communities and services that can be strengthened, protected or where risk can be mitigated. It is also key for resilience-building and DRR strategies to incorporate a temporal perspective and include both the historical background and future scenarios.

In terms of human and productive development, the "memory of a place" helps to improve the knowledge about the challenges that a territory, city or settlement may face. An analytical-based mechanism that has its origins in the "Valley Section", originally drawn by Patrick Geddes in 1909, provides an analytical-based mechanism to understand economy and employment linkages according to the physical and environmental characteristics of a region (see figure 2).

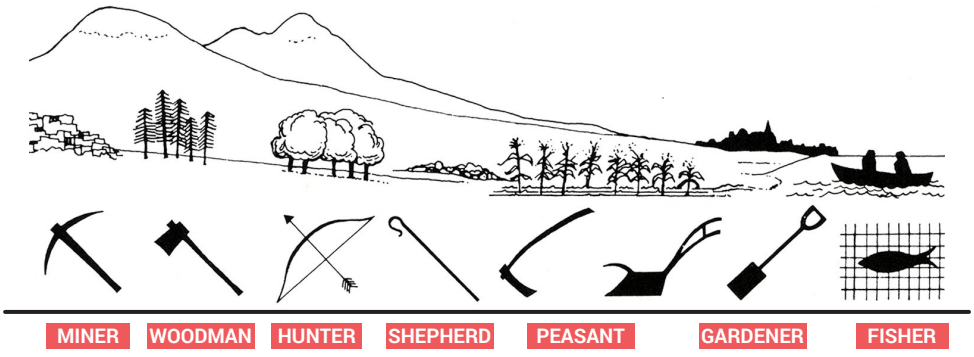


Fig 2. Geddes' Valley Section. Source: Patrick Geddes, 1909.

A reinterpretation of the "Valley Section" in terms of risk management and reduction, provides an insight into some of the important challenges communities are currently facing (see figure 3). The **collective memory** of a city or territory is also crucial to inspire the building of future scenarios; therefore, it is necessary to broaden horizons as much as possible and understand the social, economic, cultural, and environmental dynamics that led to the current organization, structure and particular functioning of settlements in order to design resilience and DRR strategies aligned with long-term scenarios.

The COVID-19 pandemic highlighted the high vulnerability of cities, territories and their communities to external risks, and the chain effects that complex disasters can have when conflagrated to underlying stresses and overburden local public services, finances and infrastructure. A mapping carried out by UN-Habitat[2] in over 1,700 cities has highlighted that, like in many other disasters, the pandemic has broadened inequality gaps,

2. Check UN-Habitat's Report on Cities and Pandemics: Towards a More Just, Green and Healthy Future (https://unhabitat.org/cities-and-pandemics-towards-a-more-just-green-and-healthy-future-0)

> ***The collective memory of a city or region should feed the building of future scenarios, incorporating ongoing social, economic, cultural, and environmental dynamics***

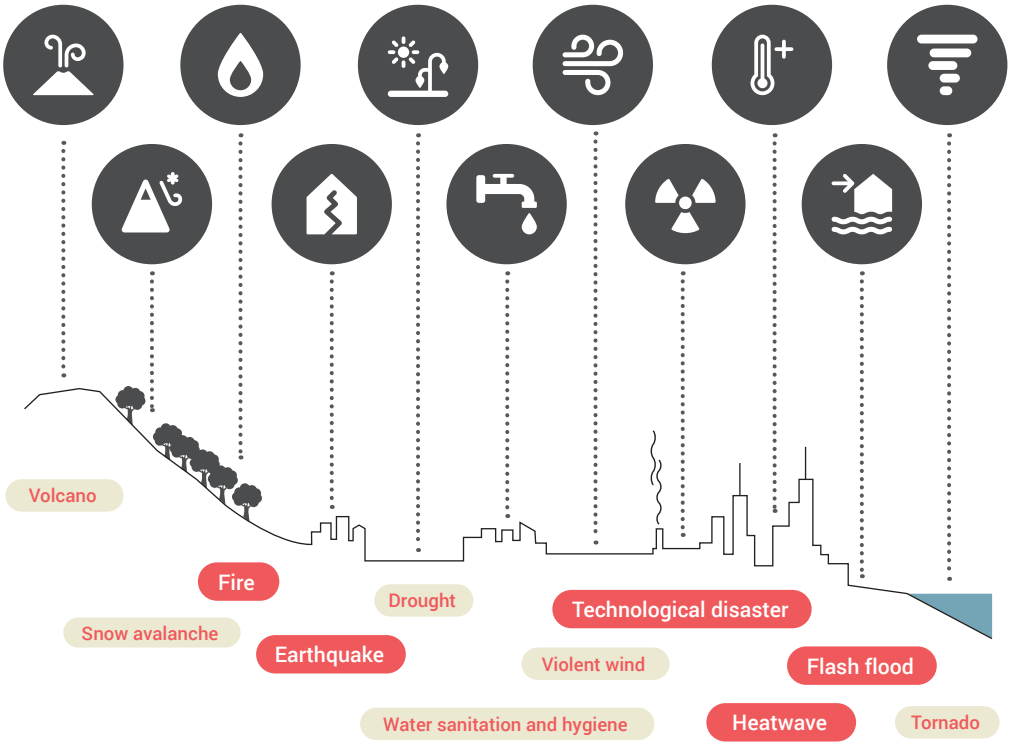


Fig 3. Emerging risks in the Valley Section.[3]

aggravated environmental risks, and further limited the mechanisms for adequate local financing, ultimately undermining the progress that was being done towards the Sustainable Development Goals.

Looking at the medium and long term, climate change associated risks are considered to be the most important challenges for humanity, as they determine the future of cities and their populations and jeopardize the continuity and social organization of communities. Challenges like water sovereignty and food security affect humanity as a whole and must also be placed at the heart of resilient strategies.

There are many mechanisms and platforms to analyze **future trends** based on smart-data analysis. For instance, meteorological data allows for the estimation of increasing temperature or the regularization of seasonal cycles; the use of geo-referencing socio-demographic data allows for the observation of the variations in the urban fabric that the community may suffer from and that may affect the economic, social and environmental sustainability of a territory; the use of geo-referenced databases also allows for spatial analysis of more specific challenges related to health, education, labor market, finances and many other qualitative indicators that are relevant for designing and implementing resilience-building and DRR strategies.

3. Refer also to UNDRR, 2020's Hazard definition & classification review (https://www.undrr.org/publication/hazard-definition-and-classification-review)

LECTURE 2

Lecture 2: Stakeholders and sectors

Similar to the physical and spatial contexts, economic and socio-cultural relations tend to differ according to each LRGs' context. As mentioned above, it is essential to understand that territorial development and localization of global agendas require a methodology that recognizes this diversity and uniqueness. Stakeholders involved in the process and sectors that need to be strengthened in the face of future risks are key to a resilient DRR strategy in cities and territories.

Public sector, private sector and civil society

Resilient territorial development and the localization of global agendas require the engagement of all sectors of society and methodologies that recognize the diversity of stakeholders involved

It is essential that LRGs have clear capacities and adequate resources to set-up and manage cooperation frameworks adapted to each action

The first distinction to consider is between the **public sector** – composed of national, local and regional governments, organizations and agencies, etc. – the **private sector** – shaped primarily by the business sector – and **civil society** – represented by community actors, non-governmental organizations and others. The second distinction is related to the interest that mobilizes them and that can be the focus for local resilience and DRR management actions in cities and territories.

The public sector, in which LRGs are integrated, is a key territorial actor in resilience-building. In any strategy development, it is essential that LRGs have clear capacities and adequate resources to mobilize cooperation frameworks adapted to each action. **Multilevel governance** - at local, metropolitan, regional and national levels - is intensified in an emergency episode, and communities expect public help, regardless of whether it is from the local, regional or national government. Disaster response is a critical moment that requires additional efforts in coordination and communication, as will be discussed in more detail in chapter five.

In addition to the different levels of government, there are critical public actors working on resilience-building and DRR strategies in sectors like education and the knowledge industry. Public universities and research centers that are based in cities and territories can generate high-added value information and applied research in fields that allow strengthening resilience strategies: for example, in mobility, pollution reduction, and many others. Schools can help to ensure that children are familiar with hazards that may impact their neighborhoods and can take actions to protect themselves from these.

> ***Resilient strategies can greatly benefit from direct-participation from civil society and the private sector all the way from risk-assessment and awareness-raising to implementation and evaluation***

As for the heterogeneous **private sector**, the main challenges for reducing risk and building resilience are often related to the practice of responsibility and having the public's interest in mind. For this reason, LRGs need to identify and integrate the efforts that are being made, or could be made by entrepreneurs and help to reinforce these through incentives or direct aid. It is necessary to align potential demands with greater awareness and with mechanisms that allow economic activity to recover as quickly as possible, given that a resilient local economy is key to achieving a cohesive and robust society in the context of uncertainty.

Finally, **civil society** also has an important role to play in resilience-building. A key challenge in DRR management is direct participation in the decision-making process, not only at the household level but also at the neighborhood, city and territorial levels.

PARAGUAY

Systemic and intersectoral resilience strategy: The case of Asunción

Asuncion, capital of Paraguay, is part of the pilot group of cities that has used the Resilience Profiling Tool (CRPT) developed by UN-Habitat in order to identify cross-cutting issues that have an impact on DRR strategies promoted by LRGs. In the case of Asunción, the resilience strategy has been accompanied by strengthening stakeholders and developing a systemic vision of risk management. The use of the CRPT tool has made it possible to identify stresses such as the alteration of the water cycle, inefficient mobility patterns, lack of sound urban planning, a high dependence on fossil fuels, poor waste management, as well as poverty and social vulnerability.

In Asunción, it was essential to map the stakeholders involved to understand their links in resilience-building and risk management. To this end, legal frameworks, competencies scenario, and the plans and initiatives being implemented were analyzed. Ultimately, a detailed picture was obtained from the multi-stakeholder partnerships (local government, civil society organizations, private sector) on which the city's future resilience strategy was based. The engagement of these actors is not linear, but rather involves the participation and commitment of different sectors. In this case, the sectors assessed and identified in the mapping included the built urban fabric, the supply chain and logistics, mobility, municipal public services, social inclusion and protection, the economy and ecology. Following the mapping of stakeholders and sectors, key conditions and challenges for the implementation of initiatives were identified. For instance, some weaknesses were observed in resource management governance such as the absence of a metropolitan agency, the centrality of government that hindered a more efficient relationship with local governments, and a general lack of transparency in processes and decision making.

> ***Mapping stakeholders and identifying key conditions and challenges across sectors can help to generate concrete recommendations to build a systemic and intersectoral resilience strategy***

Based on these results, it was possible to generate recommendations that stressed building a systemic and intersectoral resilience strategy around the water cycle, mobility, urban connectivity, and the economy. The recommendations include the implementation of the following projects: 1) articulating and restructuring all the city's planning and programming in the basin logics, 2) incorporating different risk assessments when building containment dikes on the coast, and 3) revitalizing the historic center. These projects are also connected to the promotion of an active mobility (walking and cycling) and the reorientation of mobility in the basins and the coastal strip. A clear strategy has also been promoted to guide the local economic base, a key aspect of taking advantage of agglomeration economies through a medium and long-term vision that responds to informal markets and opens opportunities for younger population segments.

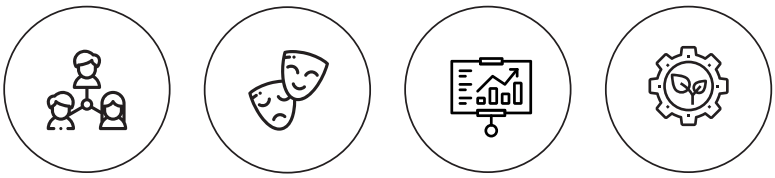
With a cross-cutting vision and taking into account and involving multiple stakeholders and sectors, the CRPT has allowed Asunción to analyze its current context, articulate proposals for key actions and commit to implementing projects together with all stakeholders and sectors. The recommended actions avoid the usual time-line (short, middle and long-term) criteria to be organized in 3 main categories:

Direct implementation: The Municipality can carry them out directly since they depend on their own decision making and/or competence. This type of action includes all measures proposed by the already approved at the local level. (Example: Regulating Plan of the Municipality)

Agreement: The Municipality can pursue actions through consultation with other competent actors or agents, maintaining the ability to lead and/or exert pressure in a pro-active manner to ensure that this measure is implemented. Agreement implementation includes measures approved at a metropolitan or national level (other administrative levels than the local one) or measures at any level, in which the weight of other actors, such as the private sector or civil society organisations is relevant. All direct implementation measures pass through an agreement stage within the Municipal Council prior to final approval. (Example: Downtown revitalization plan, waste management).

Advocacy: The Municipality does not currently have instruments to carry out this action unless it advocates for or exerts pressure to implement them, since they depend on institutions of higher rank and/or require legal changes in municipal responsibilities. (Example: Urban development or territorial planning laws).

Box 1. Source: UN-HABITAT / CRGP. 2019.



> ***Resilience strategies must encompass different sectors and need to consider the interconnectivity and complexity of present and future risks faced by local and regional governments***

Social, cultural, economic and environmental sectors

The second distinction relates to the interest that mobilizes the LRGs and that can be the subject of local actions for resilience and DRR in cities and territories. This can be categorized into the following sectors: social, cultural, economic, and environmental.

Social development is a key sector for the well-being of the population. Its strengthening reduces patterns of inequality and contributes to improving the communities' ability to cope with various stresses and shocks. In DRR strategy building, the inclusion of citizens in the decision-making process is essential. The institutionalization of consultations by LRGs has made it possible to highlight the importance of developing inclusive policies (access to efficient public services designed according to sustainability criteria) that are also robust in the face of natural hazards. To give an example, building a good network of public facilities (health, educational, and cultural, including sports) and green spaces can contribute towards an increase in peoples' safety and contribute to the cohesion of the population.

Culture also plays a key role as an element of social empowerment. Stakeholders linked to education, arts and different religious and cultural belief systems are critical for achieving a cohesive society. In many instances, their values and capabilities are important to build a common vision to react to specific hazards. Cultural rights, including access to information and knowledge in diverse languages, are essential to achieve a more sensitive and informed citizenship in the face of shocks and stresses. As demonstrated by the recent COVID-19 pandemic, culture has been widely recognized as an essential asset, and, according to UCLG, also an "antidote to the secondary effects" that the pandemic may cause.

Cities are economic engines, and as such, LRGs must minimize potential impacts on the **economy** derived from natural and anthropogenic hazards. The development of a territory's local economy is driven by a heterogeneous set of private stakeholders, companies of different sizes, self-employed professionals, and in some contexts, also by the informal sector. In this perspective, it is useful to observe how large companies have integrated risk prevention into their management and lobby through their trade unions to reinforce mitigation protocols.

In the **environmental** sector, environmental risk reduction strategies need to be developed according to the scale they are based upon, whether they are local, metropolitan or regional. Environmental resources, although considered public goods, do not necessarily imply that they

are the exclusive responsibility of the public sector. On the contrary, organized civil society is getting involved and taking the lead in creating multilevel, multi-stakeholder and multi-sectoral coordination and cooperation roundtables aiming at protecting and supporting ecological systems, with active engagement of many LRGs. These strategies tend to focus on the ecosystem services provided by forest and watershed management, which are fundamental for building resilience in systems comprising cities, small towns and their rural hinterland.

Resilience building, recovery, and "building back better" strategies usually encompass all these different sectors considering the interconnectivity and complexity of present and future hazards faced by local and regional governments. The following example illustrates the comprehensiveness and diversity of responses to the COVID-19 impact in Canada.

CANADA

"Building Back Better Together": Recommendations for Canada's LRGs on recovery from the COVID-19 crisis

The **Federation of Canadian Municipalities (FCM)** is an association made up of more than 2,000 cities and communities of different sizes representing more than 90% of the country's population. As a high-income economy, its municipalities usually have sufficient financial resources to face challenges. However, COVID-19, as in other similar contexts, has exacerbated existing inequalities. Strategies identified by the FCM are structured in an "inclusive and green recovery", addressing the different vectors and contributing towards the strengthening of resilient partnerships.

The **"Inclusive recovery"** proposes ending homelessness by allocating more than US$7 billion in the construction of 24,000 affordable housing units for the next seven years within the framework of the *National Housing Strategy*. It also aims to prevent the increase in homelessness and to strengthen communities' cultural and recreational infrastructure. This includes access to basic services and green spaces, along with places for social interaction, in order to build societal trust and networks.

The goal for the **"green recovery"** strategy is to achieve zero emissions by 2050, keeping in mind "every dollar invested in climate adaptation saves six dollars in future costs, at a time when annual property damage costs from extreme weather have already risen from $405 million (1983-2008 average) to $1.8 billion in 2018" (FCM, 2020:9). Towards this goal, the municipal strategy has focused on modernizing public transportation, scaling up the role of LRGs in climate change, increasing funding for local green, circular and social economy projects, and strengthening community resilience by encouraging the public acquisition of land to allocate parks and community facilities.

Finally, the FCM's BBB strategy calls for **"building resilient partnerships"** between all levels of government, stakeholders and citizens to ensure a greater role for LRGs in the decision-making process. These partnerships should be based on guaranteeing access to public services in emergency contexts, doubling funding to guarantee supplies of goods and services provided by LRGs, and in the light of the relevance of adequate internet access, guaranteeing access to telecommunications for as many people as possible. Lastly, it aims to implement long-term municipal resilience with direct links to regional and national levels of government.

Box 2. Source: FCM. 2020

LECTURE 3

Lecture 3: Resources and tools

LRGs manage their territories with resources that may vary significantly, limiting their capacity to develop coherent DRR and resilient-building strategies. It is therefore important for LRGs to understand what resources are available for them financially, administratively and technically, as well as the tools available at each level.

Economic resources

Financial resources for LRGs are key to building robust resilience strategies and mitigating the impact of potential environmental, social, and economic hazards. Ideally, LRGs should have budget allocations for DRR that facilitate investment in urban policies in the short, medium, and long term, along with financing tools and mechanisms that allow the sustained provision of public services during periods of crisis.

It is very common for emergency episodes to worsen the financial situation of municipalities and for the appearance of new expenditure allocations to guarantee the provision of basic public services. On many occasions, it is the central government, with its powers and borrowing capacity, that provides direct financial assistance to curb the secondary effects that may translate into a social and economic crisis. The figure below illustrates the extent to which cities and regions had to prioritize spending during the early months of COVID-19 and make significant cuts in public sector areas that have become accustomed to relying heavily upon local budgets (see Figure 4).

Many LRGs displayed agility in the management of resources, despite austerity and constraining measures. However, prioritization during an emergency response also implies budget cuts in areas like culture, infrastructure modernization, social housing construction, and other

Prioritized and non-prioritized budget lines

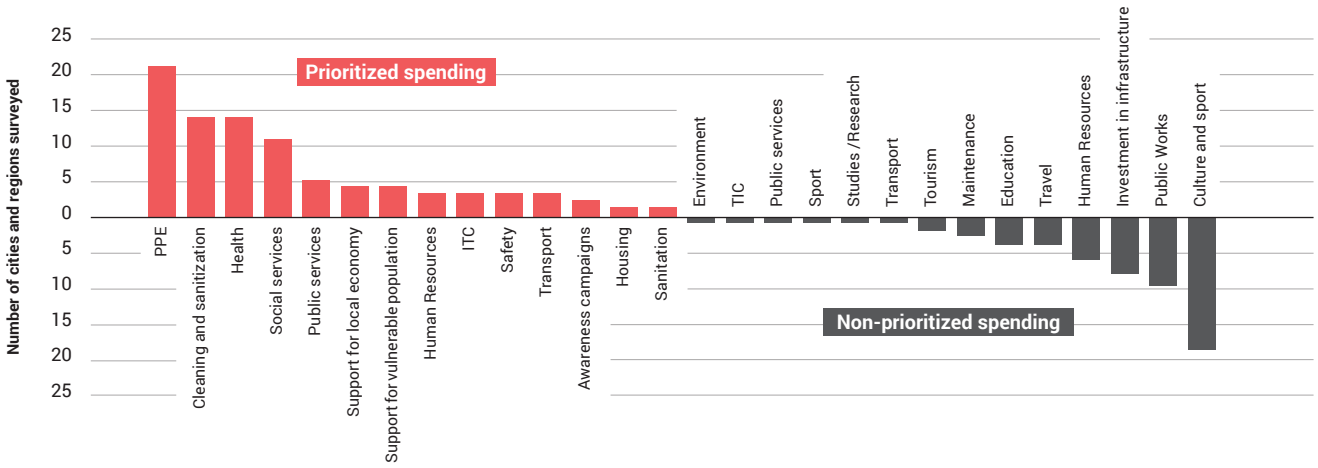


Fig 4. Spending priorities during the COVID-19 emergency. Source: UCLG, Metropolis & LSE. 2021.

key policies areas that contribute to strengthening the inclusion of vulnerable groups, advance gender equality and can be critical for building resilience to future risks.

Administrative resources

The administrative resources of LRGs are key to managing resilience and DRR strategies, as discussed in Resilience Learning Module I. Strong legal and regulatory frameworks, with clear competencies and trained staff, facilitate the integrated management of DRR and the coordination of resilience actions and strategies.

Municipalities often have key tools in this area such as land use planning and regularization, zoning, and building codes. At the strategic level, LRGs can develop sectoral and comprehensive plans (in infrastructure, housing, services, etc.) avoiding possible contradictions and inconsistencies between the tools that may be finally implemented. Sectoral risk management plans are often less effective than comprehensive plans, as they must ensure that site-specific measures do not create new risks or transfer existing risks to other areas.

> ***LRGs need to understand what resources are available for them financially, administratively, and technically, as well as the tools available at each level***

LRGs are often responsible for waste and public space management. However, in times of crisis, this role becomes particularly important as it includes undertaking risk assessments, developing contingency plans, and critical emergency management (such as fire, police, and other essential urban services), such as schools, public transportation and health services. It is crucial for LRGs to be able to define a disaster management structure that may include aspects such as evacuation

safety or primary care. This includes tasks related to the transmission of information, maintaining transparent communication with communities, and ensuring the availability of critical institutions and personnel such as local police, schools, firefighters, or civil defense.

Technical resources

> ***Inclusive democratic processes can facilitate stronger solidarity and collective coordination, while articulating robust resilience strategies in the medium and long term***

Resilience strategies require the participation and involvement of professionals from diverse fields. These range from geography and architecture to economics, and social and environmental sciences among many others. These professionals bring their applied knowledge to deal with economic, environmental, social, and cultural challenges. Although it is common for only LRGs in large metropolitan areas to comprise these technical profiles in their departments, it is essential that LRGs with fewer resources and capacities can also access these services and disciplinary lenses. In particular, it is crucial that LRGs can rely on sustainable, open, and transparent contracting systems and public procurement procedures that can be facilitated by regional and national governments.

In building resilience, it is important for LRGs to develop building and development codes that are aligned to the territorial context, local practice and available materials in order to ensure that implementation is viable. It is also essential to introduce robust control systems in construction licensing in order to clarify the roles and responsibilities of the agencies involved, ensuring time and cost efficiency. To guarantee construction quality, LRGs can define minimum qualifications for construction professionals and create robust inspection and accountability mechanisms.

Democratic resources

Ultimately, LRGs must find democratic resources to complement administrative structures in their communities. In emergency contexts, the presence of empowered neighborhood movements and community boards - such as block-wards and veedores - can facilitate stronger solidarity and collective coordination in the first moments of an emergency, while articulating robust resilience strategies in the medium and long term. In these cases, it is crucial for LRGs to enhance participation in the decision-making process and facilitate greater awareness in DRR strategies.

Participatory planning is another tool that facilitates community awareness of hazards and enhances their involvement in finding solutions to mitigate and strengthen them from their possible impact. This tool has proven to be very effective for LRGs in relocation processes, the design

of public policies and in budget allocations. Participatory planning is usually cross-cutting and links with different sectors and actors.

LRGs can promote a "culture of compliance" with a mixture of participatory planning, transparency in investments, and fluid communication with the community and different sectors. This engagement with stakeholders and citizens promotes communities' awareness of the risks derived from their daily activities, location of their buildings and construction practices, and willingness to comply with and contribute to regulations designed for DRR and resilience-building.

Debate: Clouds of Disruption

Present the following graphic and open up a debate among participants around resilience-building in the post COVID-19 context, taking into account:

1. The multiple risks cities and regions face, with different degrees and levels of urgency and impacts.
2. The medium and long-term outlook necessary when thinking about resilience.
3. The capacities, competences, and resources available for local and regional governments to confront these risks.
4. The connections between local and global contexts, the role of international cooperation, and the relevance of international agendas.

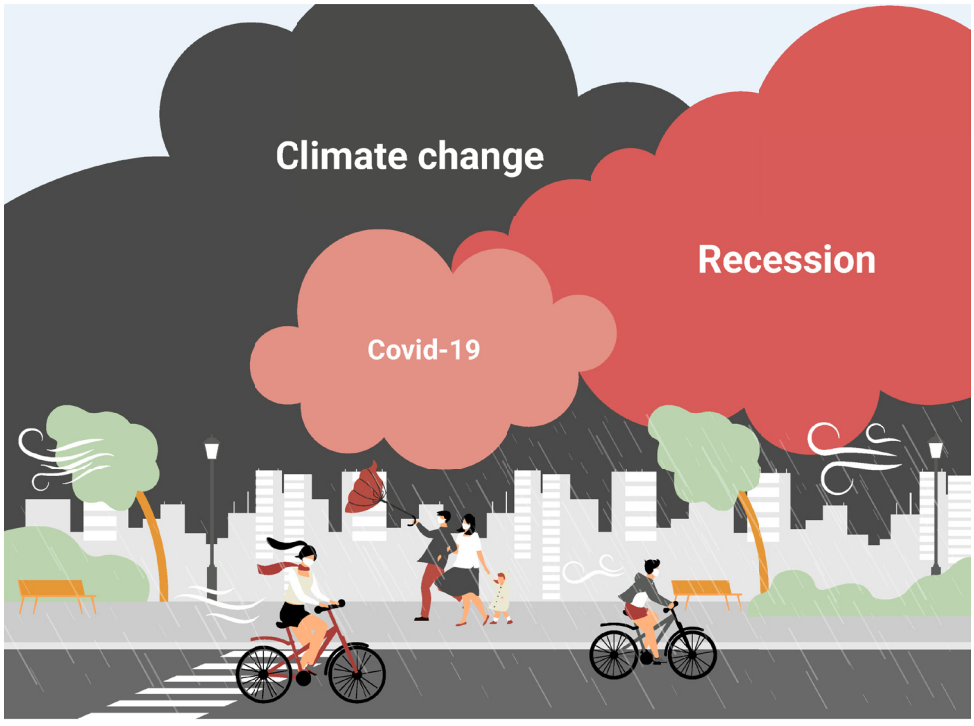


Fig 5. Clouds of Disruption

Resources

- *UCLG, UN-Habitat & UNDP. Resilience Learning Module: Fundamentals of Resilient Governance and Development.*
- *UN-HABITAT / CRGP. 2018. City Resilience Profiling Tool Guide*
- *UN-Habitat & UNCDF. 2021. Global Compendium of Local Practices on Local Economic and Financial Recovery.*
- *UNISDR 2017. How to Make Cities More Resilient: A Handbook for Local Government Leaders*

Chapter 2: Enhancing Social Resilience

This chapter will examine the relevance of promoting social, cultural and economic actions as part of a cross-cutting resilience-building strategy to strengthen community cohesion and "leave no one behind". Local governments are the closest level of government for the population. They play a key role in facilitating access to culture (in all its expressions), urban services and decent housing for its entire population. Particular attention is needed towards vulnerable populations, including inclusive approaches based on human rights, gender and accessibility. Likewise, local and regional governments have the duty to strengthen the local economy by reducing small and medium-sized enterprises' vulnerabilities and maintaining a robust domestic economy in the face of potential risks.

LECTURE 1

Lecture 1: Understanding the cross-cutting nature of social resilience

A human rights-based resilience approach recognizes the importance of social resilience in strengthening the capacity of the urban system in the face of shocks and stresses. Social resilience refers to the capacity of a social entity, community, or society to resist, absorb, accommodate, adapt to, and recover from the effects of hazards, shocks and stresses in an agile, caring, and efficient manner. It recognizes the importance of human and social capacities to access and make use of resources and services, adapt, collaborate, express themselves, and participate in decision-making.

Cohesion, empowerment, participation and **inclusiveness** can enhance populations' ability to negotiate a variety of economic, ecological, social and cultural challenges in a more coordinated, cooperative, and supportive manner. Through persistence and assimilation, people strive to cope with the risks they encounter using short-term tactical actions or initiating adaptation processes by adjusting their livelihoods and plans when confronted with new circumstances and tipping points (Keck and Sakdapolrak, 2013). Communities are often forced to manage emergencies themselves, and in these situations, their capacity to respond, cooperate and collaborate with each other can vastly affect

the impact a hazard has on them. Creating enabling environments for communities to have a level of trust, familiarity, and social cohesion, alongside some knowledge of the risks they face is essential to ensure peoples' wellbeing and ability to thrive.

Cohesion, **empowerment**, **participation** and **inclusiveness** can enhance populations' ability to negotiate a variety of economic, ecological, social and cultural challenges in a more coordinated, cooperative, and supportive manner. This is due to the high degree of awareness of potential threats (often built through *memories of the past*) and the search for solutions based on cooperation and mutual aid.

Throughout history, women have played a key role in building community cohesion and caring for community members. Yet this critical role is commonly overlooked and undervalued, as are the women who perform it. If cities and territories intend to improve their resilience, they need to protect and enable these essential actors and the work they do for society. An inclusive, and intersectional **gender perspective** should guide the development of all urban policies.

Cohesion, empowerment, participation and inclusiveness can enhance populations' ability to negotiate a variety of economic, ecological, social and cultural challenges in a more coordinated, cooperative, and supportive manne

Culture, as the fourth pillar of sustainable development,[4] is also a basic necessity for people and is increasingly becoming relevant in LRGs' resilience strategies. **Cultural resilience** can be defined as the strengthened capacity of "local identities" (built on arts, language, traditions, knowledge etc.) against stresses and crises. On many occasions, the experiences, 'wisdom' and local and indigenous knowledge forms that have accumulated over generations can be used to mitigate environmental risks. Adapting this knowledge to current challenges facilitates the implementation of solutions based on local 'common sense'. Thus, heritage and traditions transform and evolve alongside resilience. One example of this is the accumulation and storage of cereals in times of abundance to face subsequent periods of drought and prevent famines. In the case of culture, a crisis may be caused by the effects of globalization, which has often diminished the richness and diversity of heritage, creativity and cultural identities of the local contexts.

For a city or territory to be resilient, the **local economy** is also fundamental. It is necessary to ensure that households and communities have sufficient resources to cope with emergency episodes and create prospects as well as horizons of opportunity for medium- and long-term improvement. Achieving local **economic resilience** with a robust productive fabric is key to achieving a cohesive society. Thus, the focus is aimed towards addressing inequalities and increasing the capacity of generating value in inherited cultural manifestations as well as those that may emerge over time among future generations. The economy acts as a cross-cutting sector with an impact on the environment, culture and social development of communities living in cities and territories.

4. Refer to UCLG, 2010. Culture, Fourth Pillar of Sustainable Development. (http://www.agenda21culture.net/documents/culture-the-fourth-pillar-of-sustainability)

Social, cultural, and economic policies and actions are a key part of systemic resilience building strategies

At the local level, resilience strategies in social, cultural and economic sectors often overlap and interlink. Yet, they share the need to improve access to greater well-being for the community, and especially for the most vulnerable segments of the population.[5] Examples of these strategies by sector are presented below:

- **Social:** Guaranteed access to **essential services** such as education, health care and welfare benefits. Additionally, safeguarding the right to **decent housing** through public housing policies and access to **basic urban services** (drinking water, sanitation, energy and, increasingly, telecommunications).
- **Cultural:** Ensuring **Cultural Rights**, including through heritage asset protection, promotion of artistic expression and innovation with an **intersectional approach**, increased risk awareness and cohesion through cultural activities, and programs to shift discriminatory behaviours, attitudes and values.
- **Economic:** Commitment to integrate a local ecosystem of companies, organizations and traders, including those in the informal economy into a **circular, cooperative, and locally-based economy** in key sectors such as agriculture, industry, green energy and technology.

It is essential for LRGs to have as much social support as possible during the 'change process' after addressing risks and moving towards sustainability. To achieve this, it becomes crucial to involve grassroots movements and civil society organizations, as well as stimulating **citizen participation** in the form of consultations when related to the development of strategies (bottom-up). Therefore, some of the most common **democratic mechanisms** are carried out by neighborhood representative boards. Since they have decision-making powers and participate in regular and continuous collection of citizens' opinions, they can evaluate political action to correct possible deviations. In any case, LRGs promoting social, cultural and economic resilience-building strategies must be cross-cutting, inclusive, participatory and scalable – in time and resources – and prioritize the principle of 'leave no one behind', to improve common wellbeing.

5. Refer also to UN-Habitat / CRGP, 2018, *Social Resilience Guide* (http://urbanresiliencehub.org/wp-content/uploads/2018/11/Social-Resilience-Guide-SMALL-Pages.pdf)

LECTURE 2

Lecture 2: Ensuring inclusivity to leave no one behind

LRGs must have a detailed knowledge about the risks that may affect different sectors and populations in their territory in order to develop a social resilience strategy. Thus, it is essential to understand their socio-demographic dynamics, especially those involving the population in vulnerable contexts, and discover, based on a detailed diagnosis, which aspects should be strengthened to build resilience in the community itself.

> ***Guaranteeing access to essential services, safeguarding the right to decent housing, and addressing vulnerabilities within specific segments of the population are key ways in which LRGs can build social resilience***

LRGs need a deep **understanding of the socio-demographic dynamics** of local communities. Detailed analysis of demographic indicators (gender, age, ethnicity, households with disabilities), along with more complex indicators regarding accessibility, education, housing tenure, employment, income equality, health coverage, access to socio-cultural services and nutritious food, public transport, communication networks, language skills and many others, clearly identify the challenges faced at a local context. This information, when integrated into geo-referenced databases, can also map the concentration of risks and vulnerabilities, in order to develop specific DRR strategies on the urban fabric.

Once LRGs know their social context, it is essential for them to **focus their attention on the most vulnerable segments of the population**.[6] One of the main lessons of the COVID-19 pandemic is that not everyone in a city or territory is equally exposed to the impact of a crisis. The pandemic has widened inequality gaps and made the needs of the most vulnerable people much more visible. Affected people are especially those living in precarious environments such as informal settlements, but also other groups such as the elderly, people with disabilities, the dependent population, and low-income households. Guaranteeing access to essential services such as education, health care and welfare benefits, and safeguarding the right to decent housing through public housing policies and access to basic urban services (drinking water, sanitation, energy and, increasingly, telecommunications) are key areas of actions for LRGs.

The **human rights-based approach** defines a pattern of human rights relationships between the individuals (also called claim-holders or right-holders) with justified claims on the state, and the state, which is the duty-bearer. The human rights-based approach adds value to urban planning and the public service provision role of LRGs by legitimizing prioritization of the interests of the most marginalized in society and their participation in planning processes.

Applying a **gender perspective** is also critically important to respond to the different needs and burden of care responsibilities which fall

6. See an overview of potential vulnerable populations in UN-Habitat / CRGP, 2018, Social Resilience Guide (http://urbanresiliencehub.org/wp-content/uploads/2018/11/Social-Resilience-Guide-SMALL-Pages.pdf)

> ***A cross-cutting gender perspective which recognizes the disproportionate burden of care and different needs of women is vital in building social resilience***

overwhelmingly on women. For example, the ongoing COVID-19 pandemic has put a spotlight on the many care-giving activities and unpaid work that women commonly take up. A lack of consideration and recognition of these responsibilities and gender dynamics can deeply affect the impact of resilience-building strategies or responses, as seen by the deepened inequalities and vulnerability of women brought forward by the lockdowns. Therefore, a cross-cutting gender perspective is vital in building social resilience. This varies from bringing more equitable approaches to the responsibility of care work, to shifting cultural norms around the roles of men and women in society towards more caring, inclusive and fluid approaches, to addressing the specific needs for sanitary materials in evacuation and shelter centers or the protection of the LGBTQ population.

A resilient society requires the equal valuing of all people. To build resilience, it is essential for LRGs to regularly conduct multi-sectoral diagnostics on issues that may weaken **social cohesion** (such as the precariousness of services, migration, lack of employment, or political participation). From the results of these diagnostics, it is necessary to develop a design proposal and implementation of actions targeted to mitigate risks and reinforce inclusion in a viable, visible and sustained manner.

TURKEY

From Emergency to Resilience approaches towards Migration and Displacement: Gaziantep (Turkey)

Gaziantep is located around 60 kilometers from the Syrian border and is considered the economic urban heart of Turkey's Southeastern Anatolia Region. The city has historically strong economic ties with its Syrian neighbor, particularly Aleppo, 90 kilometers to the south. Following the outbreak of the conflict in Syria in 2011, **Gaziantep's population increased by 25% with the arrival of over 500,000 refugees**. The first years of the crisis brought enormous challenges to the municipality of Gaziantep. This included the burden of limited cooperation between international humanitarian and municipal actors; uncertainty about the duration of the emergency; lack of integration of service delivery and increasing pressures on local infrastructure, housing, and the job market; as well as social services creating ground for tension with the local "hosting" community.

There was a clear urgency to provide and sustain social services for a new population for an indefinite period of time. Therefore, in 2015, the city government therefore established a Sub-Directorate for Migration Affairs, within the Department of Women, Family, Education, and Social Services. The Gaziantep Social Research Center (SARMER) also extended its work on social risk mapping to include Syrian families' data. This data has been used to identify families in need of urgent help

and to develop an analysis on regional needs. The need to effectively make use of a limited set of resources prompted the need for a shared vision and strategy and encouraged the efficient coordination of all municipal activities related to the crisis, as well as planning for long-term approaches.

The city expanded its traditional responsibilities and established a comprehensive refugee policy. Here, civil society's social cohesion and effective participation were essential. The goal was to assure that the migrant population was provided with healthcare, education, housing, employment, and equal access to other essential municipal services. Additionally, the municipality's Women's Shelter provided accommodation and support services for Syrian and Turkish women who were victims of violence, along with their children. Likewise, the Municipality's Art and Vocational Courses Centers offered vocational and language courses for Syrian refugees to support access to employment and social cohesion. Moreover, a new Community Center was established to provide guidance and advisory services, and create events intended for the Syrian community. These were additional to the specialized services already provided by the International Blue Crescent Joint Community Center, operated jointly with the municipality, and the SADA Women's Development and Solidarity Center.

See Gaziantep Declaration in: https://www.municipalforum2019.org/

The 2019 **Gaziantep Declaration** underlined the importance of strengthening existing local responses to transition from emergency to resilience approaches when responding to complex refugee and migration situations. Turkish Mayors embraced these forward-looking efforts and were recognized by other cities around the world. The declaration emphasizes the importance of multi-level governance, civil society, and gender equity. It also highlights social cohesion as an anchor for long-term success, as well as inclusive access to quality services, and the crucial role of new technologies, innovation, and data management at a local level.

In 2020, during the midst of the **COVID-19 crisis**, the result of social inclusion and integration in the city's resilience became clear. The successful integration of over half a million refugees allowed Gaziantep to respond better. Not only was the city able to overcome language and socio-economic barriers, it also benefited from the talents and skills of the migrant population. For instance, volunteering Syrian doctors played a critical role in containing and responding to the COVID-19 pandemic.

Box 3. Sources: Gaziantep Metropolitan Municipality, 2019. IMPACT Initiatives, UCLG, Cites Unies France, 2016. Önder, 2020.

LRGs can also focus on raising risk awareness, empowering their citizens, and reinforcing social capital

In addition to securing inclusive service provision, developing housing policies, and addressing particular vulnerabilities within their cities and territories, LRGs can also focus on **empowering** their citizens through their active **participation** in the development of local DRR and resilience-building strategies, as well as the promotion of risk awareness.

Social capital is a key aspect to consider in social resilience strategies. This concept is defined as the existing solidarity ties and networks between citizens and communities, as well as community resilience and the sense of place. Each of these attributes enhance communal social resilience. It is essential for LRGs to protect local identity, encourage political and civic participation, and promote cultural innovation. Through bottom-up practices, these enable the release of vast information and knowledge about the local context among the multiple stakeholders involved. The potential of Social Capital is related to the understanding of vulnerability as an intersectional and dynamic subject. Therefore, as an evolving characteristic and not as a predetermined feature of a context or a community.

Knowledge is also a key issue to enhance these processes. Transparency and efficient risk communication strategies are critical to build trust and achieve a better informed community. The introduction of awareness-raising material in educational programs is crucial to strengthening the population's capacity in the run-up to and aftermath of a disaster. In this resilience-building framework, it is just as important to stimulate the participation of children and young people as it is to incorporate a gendered and socially inclusive perspective.

SOUTH AFRICA

Social capital as a basis for physical transformation and regeneration: The eKhaya neighborhood, Johannesburg

Numerous LRGs face challenges resulting from the socio-spatial exclusion experienced by their most vulnerable communities. In many cases, building resilience can only be accomplished with the buy-in and participation of the community. For instance, the **eKhaya** neighborhood in the Hillbrow district went through a transformation process in which the community collaborated with the municipality to build an inclusive and sustainable future vision. This district has struggled with some of the most extreme degradation and poverty in Johannesburg, alongside high rates of violence. In 2004, the municipality's strategy to build social resilience incorporated the Neighborhood Improvement Program to strengthen "public safety, cleanliness and hospitality". The first steps focused on **fighting the stigmas** that identified these neighborhoods as "grey zones". To do so, the community - represented by tenants, for-profit and non-profit landlords, and public managers - participated in municipality meetings, which outlined their needs and priorities to create a positive environment for dialogue.

The first phase of the project focused on **mobilizing the community**. The Johannesburg Housing Company (JHC), together with Trafalgar Property Management (JHC's advisor) launched the "Know Your Neighborhood" campaign, with an estimated cost of USD $35,000. The community collaborated through simple walks around the neighborhood to overcome barriers and bring residents and stakeholders together. This opportunity opened channels of dialogue on issues like the rehabilitation of housing and public space. The main challenges to be addressed at community level were high crime rates, littering, and the violent celebrations on New Year's Eve. This led to the creation of an association and selection of an executive committee. To cover the cost of agreed actions, a voluntary payment of USD $1.7 per month per household was incentivized, generating approximately USD $450 per month.

The second phase focused on **"physical regeneration from the bottom up"**. The eKhaya executive committee implemented a security and street cleaning program, funded by monthly taxes from property owners, called "Our Clean eKhaya Neighborhood". Its implementation involved enterprises like Bad Boy'z Security (a private security service provider) and Pikitup (a city waste agency). These taxes also allowed for the initiation of public space improvement and management projects, supported by public agencies such as the Johannesburg Development Agency. The first improved public spaces included abandoned walkways and littered sanitary tracks, which were sanitized and enhanced in terms of safety and security.

Phase three involved **community development** and further attempts to foster hospitality in the neighborhood and district. Social cohesion programs targeting children were implemented in the form of street football and the celebration of eKhaya Kidz' Day.

After more than 16 years, the **project is 50% implemented** and has generated new turning points in the community's prosperity. Among other things, the community has secured the following: public investment of more than USD $500,000 for a park and children's playground; promotion of additional awareness campaigns against violence and disorder; and progressive attraction of small businesses and shops to diversify the neighborhood's economy. The overall response on a survey conducted in 2016 regarding the impact of this program for the community highlighted a positive change in their quality of life and livelihoods.

While many urban regeneration initiatives may lead to gentrification and exclude vulnerable residents, the eKhaya project remained rather flexible in dealing with the informal and street trade and subletting practices. These are often considered illegal by LRGs for allegedly contributing to urban 'disorder'. However, as proved in the case of eKhaya, they are in fact essential to ensure an inclusive city for the urban poor and contribute to strengthening the resilience of the entire city.

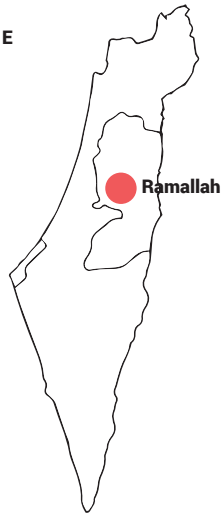
Box 4. Source: UCLG, 2017a & 2017b.

LECTURE 3

Lecture 3: Culture as a pillar for resilience

Cultural heritage (tangible and intangible) is often discussed as something in need of protection, yet it actually plays a vital role in building resilience in and amongst communities. Culture allows a community to give meaning to experiences across generations. It evolves and adapts, incorporating new collective narratives and memories, building fabrics of connectivity and understanding. Culture is a renewable resource which shapes people's sense of risk and strengthens their capacity to confront adversities, both positively and adversely. It therefore can support communities in coming together, building cohesion, and overcoming crises. For instance, in moments of post-conflict recovery, poetry and literature can serve to enable communities to collectively process trauma helping people feel understood and heard.

PALESTINE



Building resilience through cultural space (Culture for Social Cohesion)

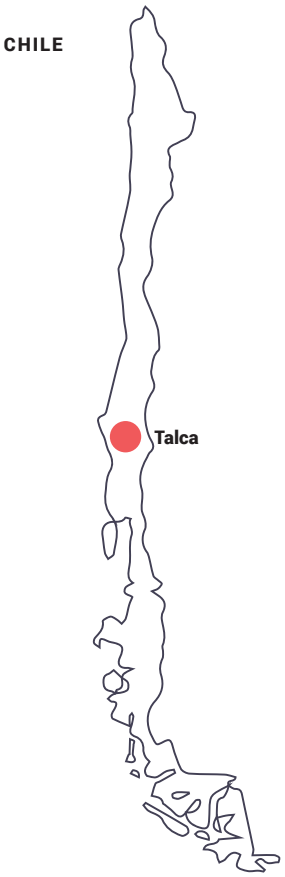
The City of Ramallah (Palestine) is committed to highlighting the importance of culture in Palestine, focusing on integration and universal access. In an effort to consolidate a kind of 'unwritten cultural policy', it hosts, funds and partners with many cultural spaces like theatres, libraries and museums. In November 2017, Ramallah developed its Resilience Strategy with an emphasis on three strategic directions: regaining ownership; responsive governance; and making the most of the city's potential – including institutionalizing and documenting the critical role of culture. In order to do so, the local government considered establishing a pilot curriculum with culture and creativity at its core, while providing capacity development for teachers through an interdisciplinary approach. The municipality has also acknowledged the need for arts and cultural organizations to develop more collaborative, interdisciplinary and inclusive approaches to achieve this goal. Such collaborations demonstrate how culture develops a creative economy, promotes cohesion, encourages creativity, and fosters diversity. A resident captured the central role culture plays in celebrating social cohesion in the city by stating: "I want Ramallah to always embrace diversity" in their Resilience Strategy.

Box 5. Source: UCLG's Agenda 21 Good Practice Platform.

> ***The diversity of local cultural assets should be both the target of and an integral part of DRR, recovery and resilience building processes***

LRGs can integrate DRR management and resilience-building into the cultural dimension. On the one hand, they can outline public policies that value cultural assets and the role they play in building community cohesion. On the other hand, they can use cultural approaches and policies to enhance risk awareness, promote risk prevention, or help the population overcome traumas from previous disasters or conflicts.

When LRGs support artistic expressions (theatre, dance, gastronomy, literature and so on) they should be sensitive to the representation of community diversity and the benefits of two-way exchanges. The goal should be to build relationships of respect, solidarity, and mutual aid. Policies that create enabling environments for communities to build trust, understanding and an openness to work with diversity can prove more cost effective than implementing processes post-crises. Indeed when communities can act more cohesively and decisively in times of crisis, the negative after effects can sometimes be reduced, saving LRGs from more costly interventions.



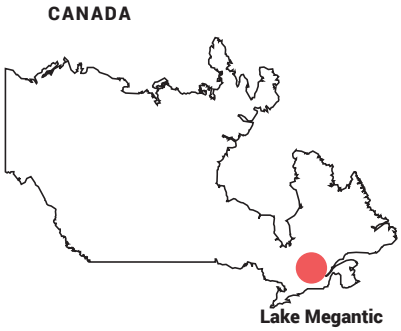
Transmitting Mapuche knowledge in school and community contexts (Culture for Awareness)

Since 2015, the City of Talca (Chile) has been piloting a process to promote the participation, culture, and rights of local indigenous people. The "Werken Escolar" program is a key element as it focuses on fostering knowledge transfer and language-learning, while celebrating the Mapuche identity. The cultural policies underlying the initiative draw expertise from the principles of the Agenda 21 for Culture from the UNESCO and local policies. These were developed through a consultation process with local indigenous groups like the Inche Tañi Mapu Association. The program boosted economic development by highlighting indigenous handicrafts and has allowed for a greater sense of belonging and connection among the community of Talca. Therefore, the program contributes to resilience by building mutual understanding and deeper trust. At the same time, it promotes Mapuche cultural values like environmental protection, which is inherently aligned with the Sustainable Development Goals. As a result, the Werken Escolar's educational model of intergenerational and inter-ethnic transmission has been highly recognized and even won an award from the Association of Municipalities of Chile.

Box 6. Source: UCLG's Agenda 21 Good Practice Platform.

In order to strengthen community resilience at a local level, the strategic planning of cultural systems must also enhance the physical and social infrastructures. The implemented strategies should protect the **tangible**

and intangible heritage of a territory. These are key to energizing and diversifying the local economy by enabling mechanisms for cooperation and exchange with other territories based on their strengths and unique offers (festivals, local traditions, gastronomy, heritage buildings, natural environments, etc.). At the same time, LRGs must also consider the proximity scale within the community which allows them to adapt available resources to the demands of the moment. Similarly, it is crucial to assess the suitability of allocating investments towards community infrastructures that have proven to be effective in strengthening social cohesion and inclusion (sports facilities in informal settlements, etc.) Moreover, infrastructures which can play a role in the mitigation of disaster risks (safe areas free of buildings in the event of earthquakes, etc.) should be integrated.



Participatory cultural processes for the revitalization of Lake Megantic (Culture for Recovery)

On July 6, 2013, the small town of Lake Megantic (Canada), faced one of the worst rail disasters in the country's history. A runaway train derailed and barrelled into the town-center, killing 47 people, and destroying over 40 buildings. The Lake Megantic municipality launched a reconstruction plan for the city center, incorporating the largest citizen participation process ever undertaken in Québec. Citizens from both the city and the region came together to share their ideas and visions for rethinking the town center as a new entity and to create a new dynamic. Since then, over 100 community culture and leisure projects have been supported or initiated by the municipality. It became an opportunity for citizens to process and express their feelings and traumas after the immense losses suffered in the railway tragedy. Cultural mediums like art, theatre, performances, and walking tours were a key part of the process. They enabled citizens to reclaim the heart of their city and turn it into a lively new living space that generates sustainable economic and community activities.

Box 7. Source: UCLG's Agenda 21 Good Practice Platform.

LECTURE 4

Lecture 4: Fostering resilient local economic development

While the presence of large commercial, multinational and technological corporations is increasingly visible in many cities. Small and medium-sized enterprises (SMEs), including microenterprises, employ two out of every three people and are the foundation of global, national and local markets. Moreover, 60% of the world's working population are in the informal economy. The fabric of small businesses operating at regional and local level are becoming increasingly vulnerable to changes in policies, consumer habits and to the impact of environmental or socio-economic risks as well as changing political dynamics. These dynamics have direct consequences on communities, both urban and rural, and increase their exposure to social risks which can lead to social unrest, migration processes, and further inequalities.

> ***LRGs can contribute to strengthening city resilience by making the local economy more adaptable and flexible to rapidly changing environments***

To a large extent, a resilient local economy depends on its capacity for innovation and ability to adapt to crisis situations and drastic changes. **Innovation and social dialogue** can be one of the main factors of development and can also contribute to strengthening social cohesion. In a context of widespread uncertainty, LRGs must contribute to strengthening city resilience by making the local economy more adaptable and flexible to rapidly changing environments. This includes securing health and social security measures for all residents, while creating enabling policy environments for actors such as informal traders, care workers, small businesses and neighborhood shops, the ecosystem of professionals working as freelancers in the tertiary and service sector, as well as the varied workforce of the public sector. A resilient economy must be capable of generating decent employment, a liveable income, social protection and job security and ultimately ensure the wellbeing of the population, promising each person the opportunity to thrive.

Another area that must be taken into consideration is the **agricultural-based economy**, which has a crucial role for the food supply of urban areas. This includes a variety of actors expanding through a complex but often risk-prompt food system composed of farmers, producers, processors, packaging and trading. Furthermore, they are usually organized in small clusters, such as cooperatives in order to have a more competitive position in relation to larger agri-food processors and supermarkets. In view of the increasing pressure on waste collection and waste management services, **circular economy** approaches have also gained importance. Highlighted in SDG12, sustainable consumption and production, the circular economy can unfold locally through policies

for promoting reduction of food waste in markets, composting organic waste, increasing urban gardening, and improving recycling systems and waste treatment.

LRGs territorial resilience strategies often engage **local economic development agencies (LEDAs)** which involve stakeholders from the business and private sector, or their organizations, such as chambers of commerce. These agencies have been created in many major cities to strengthen their competitiveness in the international arena. However, LEDAs have also been implemented and adapted in smaller cities and towns according to the potential of their local economy. Some reinforced tourism, technology, and consumption industries. Meanwhile, other smaller agencies focused on tackling unemployment through training and hiring personnel for the urban services maintenance industry. This is the case for many Latin American municipalities. One strategy, for example, has been integrating informal waste pickers into public waste management processes. As a result, workers were guaranteed a regular income and social protection.

> ***Local production, cooperative and cicular economy models are gaining traction in response to a growing awareness of the impacts of globalization and climate change***

The **information and communication society** opens scenarios to develop new models of collaborative economy and technology-based enterprises. However, it is necessary to have adequate technological infrastructures facilitating access to the internet and various knowledge sources. This is where LRGs can play a fundamental role as facilitators of infrastructure and knowledge networks in collaboration with universities and the private sector.

At the same time, these technology-based economies can contribute to increase vulnerabilities in various sectors of society. For example, confinement measures highlighted the vulnerability of traders and entrepreneurs, many of whom were forced to close their establishments unable to adapt to more digital sale models. It is also the case for gig-workers in new technology platforms, such as food delivery people, who are being subjected to abusive practices and working conditions that are more typical of the informal economy.

Local and regional governments need to be aware of the assets that can act as a driving force to develop and promote the appropriate model of resilient economy for their cities and territories. To do so, it is essential to map and support businesses and professionals in their communities. It is vital to provide training and capacity building together with financial assistance and support for entrepreneurship. Ultimately, the role of LRGs is key as the local administration stimulates and develops projects, and can enable local economic development.

Building Urban Economic Resilience during and after COVID-19

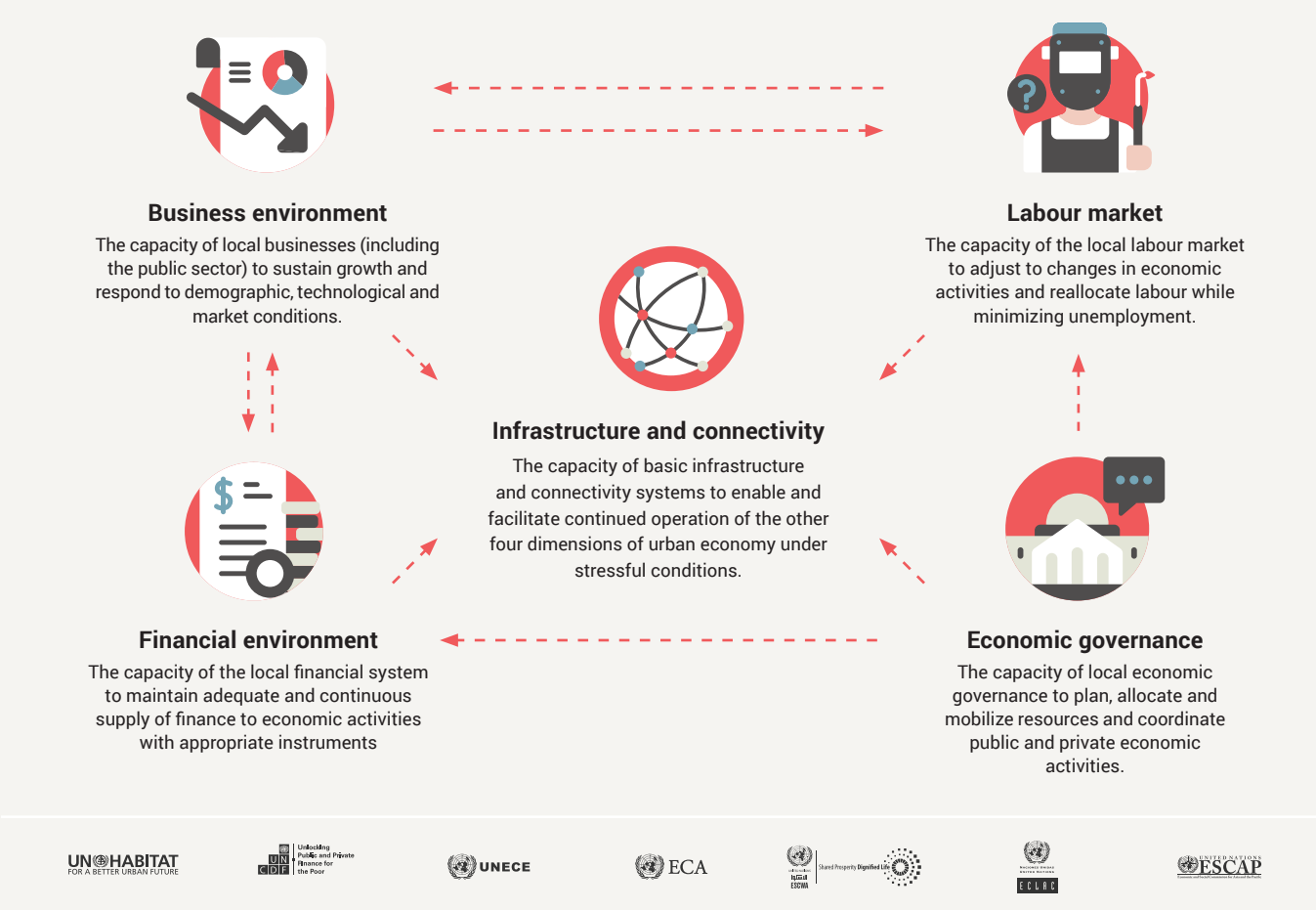


Fig 6. Dimensions of resilience-building for urban economies.
Source: UNCDF, 2020 and UNCDF & UN-Habitat 2021.

LRGs are increasingly committed to building resilient local economies by prioritizing 'quality over quantity' and developing medium and long-term rather than short-term projects. Also, proximity – or zero-kilometre – consumption initiatives are gaining traction in response to a growing awareness of the impacts of globalization and climate change. As a result, it is possible to support environmentally sustainable agriculture, reduce travel costs and guarantee maximum food quality. It additionally strengthens food sovereignty and security and contributes to rejuvenating the social fabric. Likewise, high added-value local industrial production is also being re-established in old factories. They produce furniture, clothing, and other items using locally or regionally sourced materials, and traditional methods. This strengthens a circular economy that is less dependent on global logistics and production chains. In the case of rural municipalities, the community's position in markets is strengthened, and the sustainability of the production and consumption cycle is ensured by integrating cooperative and circular models into the local economy.

Many cities are implementing initiatives that originate from alternative economic theories. One example is the model of 'Doughnut Economics', which draws on principles of inclusiveness and ecological responsibility, and has been successfully applied by the City of Amsterdam.

Applying the "Doughnut Economy" model in Amsterdam

Developed by economist Kate Raworth, Doughnut Economics proposes a framework for an economy centered, not on growth, but on the ability of people and ecological systems to thrive. The 'Doughnut' is made up of an outer and inner circle, which indicate the ecological and social minimums necessary for a resilient, happy world.

The outer circle depicts the ecological, planetary thresholds, which when breached will lead to catastrophic tipping points, and runaway greenhouse effects. These have been similarly outlined by the IPCC Special Report on Global Warming.

The inner circle depicts the social minimums necessary in order to achieve a just, decent life for all people on earth. These closely relate to the Sustainable Development Goals (SDGs), and in their absence, a resilient city cannot be achieved.

The area in between these circles represents the environmentally safe and socially just space in which humans and the planet can thrive together.

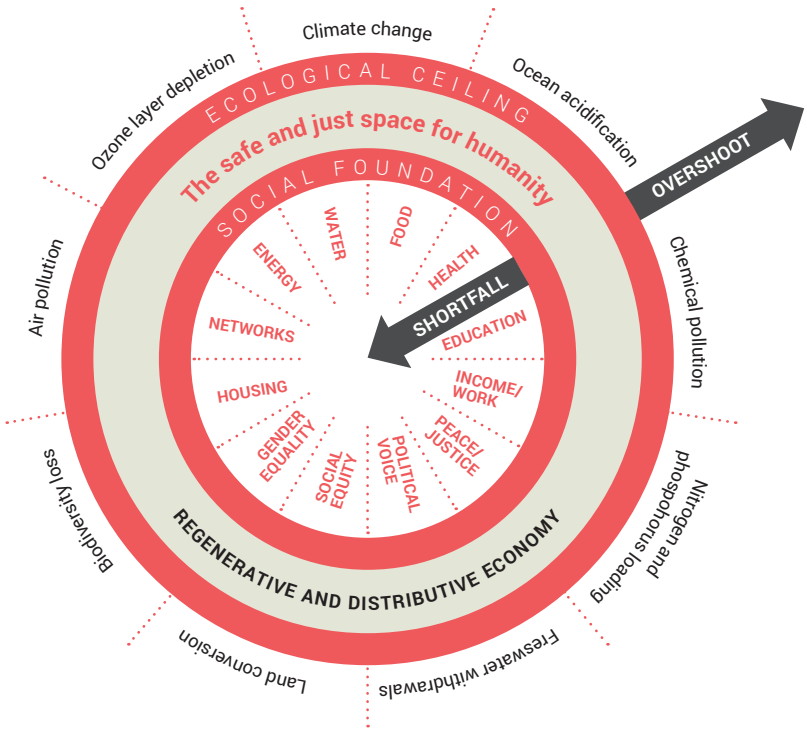


Fig 7. The Doughnut Economy model

In 2019, Amsterdam became the first of several cities to implement economic policies based on this way of thinking. The city drew up a "circular strategy" combining the Doughnut's goals with the principles of a "circular economy". This model reduces, reuses, and recycles materials across consumer goods, building materials and food. Its policies aim to protect the environment and natural resources, reduce social exclusion, and guarantee a good living standard for everyone. The **Amsterdam Circular Strategy 2020-2025** also aims to significantly reduce the use of new raw materials, thus contributing to a sustainable city.

The strategy operates along three axes: food chains, consumer goods, and building materials. For the latter, the city introduced sustainable and circular standards regarding the use of materials for contractors in all city-owned buildings. For instance, as the city administration also acts as developer, anyone wanting to build on the flagship project, Beach Island, needs to provide a 'building materials passport', so whenever they are taken down the city can reuse parts of it.

Additionally, the local government is pushing the private sector to be more cooperative. It began to focus attention on ecologically harmful production patterns, like denim. This product is one of the most resource-intensive fabrics in the world, with each pair of jeans requiring thousands of gallons of water and highly polluting chemicals. In 2020, textile suppliers and jeans brands agreed on a 'denim-deal'. The plan aims for collaboration to produce three billion garments that include 20% recycled materials by 2023. On the other hand, the city will campaign to collect old denim from residents and foster recycling and repair shops in neighborhoods.

Box 8. Source: City of Amsterdam, (n.d.).

Dynamic: Actions for Social Resilience

DYNAMIC

50-60 min

Divide participants in four groups (4-6 per group)

Handout: The Doughnut Economy - Social Foundations

Preparations: This dynamic can be played physically or virtually according to the workshop you are implementing.

The aim of this dynamic is to reflect upon the different social, cultural and economic actions and policies that can contribute to resilience, by building the social foundation proposed by the "Doughnut economy" model, while being aware of ecological limits.

For physical workshops, you will need papers in 4 different colors, markers, and a roulette. You can also use a digital roulette in your phone/computer. For virtual workshops, the dynamic can be implemented using a digital whiteboard such as Mural. Contact us to have access to the digital templates.

DYNAMIC

50-60 min

Video: https://youtu.be/Mkg2XMTWV4g

Divide participants into four groups of 4-6 persons

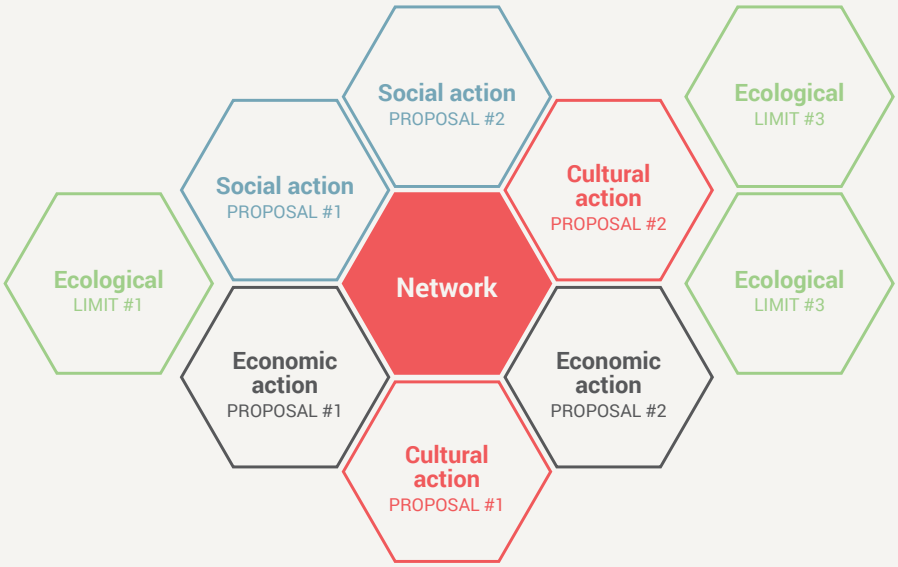
1. Introduce participants to the Doughnut Economy model showing the following this video and/or the handout describing the social foundations as aligned with UCLG's policy work.
2. Divide participants into four groups of 4-6 persons each.

   Note: *If you have a larger number of participants, we recommend replicating the dynamic parallely with other four (or eight) groups to allow all participants to be engaged in the discussions.*
3. Each group is responsible for one of the four areas (social actions, cultural actions, economic actions, or ecological limits).
4. Roll the "doughnut roulette" to select one of the social foundations. The selected social foundation should be placed at the center of the board.
5. Give each group five minutes to discuss and propose TWO policies or actions that their department could take to ensure this social foundation minimum is met and contribute to social resilience. The ecological limits group should not discuss actions, but consider ecological limits/impacts related to the social foundation selected.

   Note: *Encourage participants to think from the perspective of their assigned department/role within a local or regional government.*
6. Ask each group to write down their TWO proposed actions/policies, each in a separate card.
7. Once time is up, bring all groups together. Each group should present their ideas, placing them around the social foundation card on the board. While presenting, they should look for connections between the actions/policies proposed by the different departments, and reflect on the relationships between the different areas.
8. Invite the ecological limits group to evaluate the actions presented and share the potential impact of those actions based on their discussions.

Following one round (which should last 12-15 minutes), switch the areas/departments assigned to each group, and repeat the same process. The game ends when the four groups have passed through the four roles/areas, giving them the opportunity to reflect on the different perspectives and connections.

DYNAMIC



End the game with a collective reflection on the nature of cross-departmental coordination in participants' own LRGs, and the role that different departments beyond planning and infrastructure play in building resilience in an inclusive and sustainable manner.

Resources

- *UCLG's #BeyondTheOutbreak Live Learning Experience Knowledge Hub*
- *UCLG's Culture 21: Actions Commitments on the role of culture in sustainable cities*
- *UN Habitat's Social Resilience Guide*
- *UN Habitat / CRGP (2018) Gender Equality Enhancer*
- *UN Habitat / CRGP (2018) Human Rights Enhancer*
- *UNDRR. 2020. Reducing Risk & Building Resilience of SMEs to Disasters*

Chapter 3: Managing Resilient Urban Development

This chapter analyzes the most common strategies LRGs can use to build resilience in urban areas through spatial planning and physical risk reduction measures focused on buildings and infrastructure. It distinguishes between strategies and processes carried out in public land (infrastructure, services, facilities, and public space) and privately owned land (mostly residential fabric and land for economic activities). The chapter also discusses resilience-building in informal settlements, one of the main challenges currently facing many of the world's major cities.

LECTURE 1

Lecture 1: Managing resilient urban systems: infrastructures, basic services & public space

In addition to ensuring equal access and universal coverage of public service provision, it is key for LRGs to strengthen their local public systems to ensure a robust response to the impact of potential hazards, reduce stress and pressures on them, and generate DRR and resilience-building strategies. The urban system is composed of residential and non-residential architecture, critical infrastructures and facilities, public spaces and urban ecosystems.

The following **critical infrastructures** make a whole territory functional and are key to strengthening the inclusion and competitiveness of cities, small towns and rural areas:

- **Transportation:** These include pedestrianized areas, sidewalks and trails, bike lanes/roads, vehicle roads, ports, airports, railways, and motorways. They guarantee the mobility and transport of people, goods, and services at neighborhood, local, and regional level. They also provide the backbone of the functional system of cities and stimulate cooperation between activities and economic flows.
- **Energy:** Energy systems when based on sound infrastructure and good management enable day-to-day economic activity and social welfare. They should have robust self-protection mechanisms to minimize

risks and ensure continuous operation. The energy grid is a structural element cutting across landscapes, and power plants also have a high environmental impact (GHGs and toxic waste) which need to be considered in resilience strategies.

- **Water and sanitation:** The availability and access of fresh water sources determines the type of water-management systems in a city or region. It is fundamental to ensure access to safe drinking water and optimal sanitation for all residents including those in informal settlements. Reusing and treating water is also becoming highly critical to protect and secure future environmental services.
- **Solid Waste facilities:** From points of generation in households and businesses, to collection, recycling, and final disposal facilities, solid waste infrastructure is critical for the day-to-day functioning of the city and its population's health, and often involves a complex network of formal, informal, private, and public actors.
- **Digital and telecommunications:** Digital telecommunication infrastructure is now critical to maintain much of the population's information flow and access to other local services. It is also increasingly important to facilitate residents' access to the labor market and educational opportunities. In large part managed and provided by the private sector, ensuring its uninterrupted service and facilitating equal access has become critical for the local economy.
- **Administrative, educational, cultural and sports facilities:** These critical facilities and services are the backbone of a living urban system, facilitating key services for the day-to-day function of a city. At times of emergencies, critical moments, these critical facilities often become nodes which provide assistance and carry out coordination tasks.
- Other critical infrastructures, particularly at times of emergency, include **public health services** (hospitals and primary care centers), **public spaces** (used as temporary centers for evacuation or response management, as well as being critical for the mental and physical health of the population), and **industrial and logistic areas**, (which are often home to central food supply markets and concentrate the flow of key resources for the population´s daily subsistence).

Most of these infrastructures function through a combination of "hard" elements, and "soft" aspects and processes, all of which need to be considered in DRR and resilience building strategies

Most of these infrastructures function through a combination of "hard" (physical or tangible) elements, and "soft" aspects and processes (human capital, monitoring and maintenance measures, as well as legal codes, governance, economic and social systems). A robust critical infrastructure is essential to strengthen the social, economic, and environmental resilience of cities, especially large metropolitan areas. LRG-driven resilience strategies need to ensure these infrastructures have up-to-date self-protection plans. These need to withstand the potential impact of multiple hazards and contribute to rapid socio-economic recovery to pre-disaster levels - or in territories of high inequality, to catalyze improved conditions.

> ***Strengthening infrastructure's resilience often requires investments and coordination between different municipalities and levels of government***

LRGs can extract lessons from the recent explosion at a flammable material warehouse in Beirut's port. Besides affecting a significant part of the urban fabric, this explosion destroyed one of the main goods and services gateways. The aftermath of the damage portrays a weakened city and country and an anticipated slow recovery process. However, it is important to reflect on the mechanisms that make such critical infrastructures sustainable for a city's economy, society, and governance.

LRGs need to **strengthen their infrastructure's resilience** levels. However, this becomes a difficult task since it often requires investments to be coordinated between different municipalities and levels of government. The design of resilient infrastructures need to consider the impact of different hazards. Therefore, a detailed risk assessment is essential, as discussed in previous chapters of this Module. For instance, earthquake-prone areas require flexible highways that absorb seismic movements, such as the large bridges in California and Japan. Regarding energy infrastructures, reinforcing protection of energy production centers and transformer stations is necessary as well as preventing fires or toxic waste spills. It is equally important to maintain control by ensuring that connection systems and production plants are at an optimal state, which is essential in the event of system failures. In the case of telecommunications infrastructures, it is essential to activate independent satellite alternatives from terrestrial cabling in case of damage. Finally, the design of health facilities and logistics centers must guarantee maximum resistance in emergency episodes through building codes and settlement practices. Their condition is crucial for the continued functioning and survival of the rest of the city.

Planning for resilient basic services aided by regional governments

Strengthening resilience and DRR strategies in basic services – water, sanitation, energy, and telecommunications, among others – is fundamental to ensure the population's well-being. For cities and their communities, it contributes to strengthening the response to the impact of environmental, economic, and social shocks. However, planning for the resilient basic services can be quite complex and costly, becoming out of reach for many small municipalities. The following case studies outline the main features of new management tools aiming for resilience.

The **Diputación de Barcelona** (Spain) is a provincial body which recently introduced "resilience plans for urban service infrastructures". It was intended as a local management tool available for its municipalities. This type of plan can be implemented, in a municipality of about 15,000 inhabitants for an estimated investment of 25,000 euros. Firstly, the plan must provide a detailed *analysis* on the actual state of basic services (supply, sanitation, energy, telecommunications, public transport) in

relation to the built fabric and the presence of risks, especially those being reinforced by climate change. This leads to a risk *diagnosis* based on digital models and a process of citizen participation. With the purpose of strengthening the entire municipality's resilience, the plan is concluded with an *action agenda*. It integrates priority actions, an investment plan, and a cross-cutting strategy. The main challenge that LRGs in the province face is related to the high costs required to upgrade the sewerage network and install wastewater treatment plants, especially in low-density and highly dispersed urban areas. In these cases, LRGs can receive some critical financial support from regional bodies and sectoral agencies.

ECUADOR

The **Quito Metropolitan District** (DMQ) (Ecuador), in collaboration with the Inter-American Development Bank, have also implemented a methodology to "assess and increase the multidimensional resilience of the water supply system". For this purpose, digital models (WeaGETS) with climate scenarios were used. Through precise measurements of water demands, these scenarios help to develop strategies to guarantee satisfactory conditions in their supply system in episodes of stress. The physical analysis of water infrastructures attributed the system's vulnerabilities to volcanic and seismic events. The creation of a scoreboard with traffic lights represented the probabilities of a system failure in an agile way. To illustrate, green symbolized the months in which the subsystem manages water supply according to historical demand and can maintain its performance in the face of various climate shock scenarios; yellow referred to the subsystem's compliance with performance, while compromising ecological flows; and red was used when a subsystem failed to meet its performance criteria. This exercise was used to rate, on a score out of 10, resilience levels and robustness of contributing micro-watersheds to climatic, seismic and volcanic events, guiding the development of site-specific, seasonal or comprehensive measures as necessary.

Box 9. Sources: Generalitat Catalunya, 2020. Paltán, H. et al, 2020.

> ***Infrastructure's resilience is not only about resistance. It can also be strengthen through built-in flexibility and adaptability***

Resilient infrastructures are designed according to rigorous building and structural codes to increase their resistance to shocks and stresses. Yet, they must also be conceived with certain **flexibility regarding their locations and uses**. Throughout time, buildings and structures have changed their use and have been rehabilitated, expanded, and reinforced to adapt to the needs of the moment. This is perhaps the best example to explain the difference between 'resilience' and 'resistance': a built city can endure over time if its structures adapt and are flexible to accommodate new forms of production, uses and habitat typologies, even those that have not been designed yet. Although intended to facilitate the population's mobility, the common case of high-capacity road infrastructures (motorways, railways, etc.) need to be designed with public transport systems (buses, electric trains) for future populations in mind. These should also integrate cycle paths and other sustainable modes into their layout.[7]

7. Refer to UITP, UN-Habitat and UCLG's Policy Brief (May 2021) on Strengthening the integration between land-use and mobility planning, at: https://cms.uitp.org/wp/wp-content/uploads/2021/06/Policy-Brief_How-to-build-successful-cities.pdf

> ***A decentralized network of multi-functional small public facilities well-distributed throughout the urban fabric can contribute more to building resilience than large central facilities***

Similarly, school facilities tend to be designed to accommodate children and are characterized by their high level of safety. However, they have the potential to readapt part of the structures to host cultural activities or be transformed into community health or entrepreneurship centers, depending on their needs.

The structures and systems for **basic services, facilities, and green spaces** are often managed directly by LRGs. Currently, additional sustainability and resilience criteria need to be integrated within their procurement, design, implementation, and maintenance phases. For instance, by upgrading or extending a **sanitation network** in a particular area of the city, the value of the land is enhanced and it improves the community's wellbeing. Additionally, integrating new technologies to decontaminate or separate stormwater networks enable the creation of bio-management areas (biotop). Therefore, a city's **green space** design must integrate diverse functions beyond those related to leisure and relaxation. It contributes to the articulation of a sectoral resilience strategy which is environmentally sensitive and sustainable for the management of water resources,[8] along with the mitigative aspects on Heat Island Effect, among others.

LRGs can incentivize the arrival of new families and avoid depopulation through the improvement of **telecommunications networks** in rural areas. In small and intermediary cities public facilities can be accommodated for multiple functions, ensuring for example educational, social and economic service at a feasible cost and involving the community in their management and organization. Similarly, small **neighborhood cultural facilities** are fundamental to build community resilience. For instance, the schools and playgrounds of many cities in Japan have served as a model for many other Asian cities and the rest of the world. In Yokohama,[9] the large size of school-yards, as with other public areas, allow the space to be used as a meeting point and coordination and guidance centers at times of disasters. In addition, primary schools serve as communication and awareness centers and are equipped with survival kits and trained staff. These schools tend to focus on protecting the child population as much as possible. Since they are designed at a neighborhood level, they are regularly used for disaster response drills and simulations. Therefore, studies have concluded that having a well-distributed, decentralized network of small facilities throughout the urban fabric contributes to building **resilience** much more when compared to having fewer, large central facilities.

Often, LRGs lack the resources or capacities to manage the installation of infrastructures to guarantee their adaptation and assure optimal conditions. In these cases, public-private-people partnerships (4P) are gradually being consolidated. The private sector is crucial to finance and manage development. However, this 4P model benefits particularly from community cooperation, generating robust and transparent partnerships and incorporating perspectives like DRR and inclusive resilience-building.

8. Refer to the case of Tåsinge Park in Copenhagen and its strategy of floodable public spaces, at: https://www.publicspace.org/works/-/project/j075-refurbishment-of-tasinge-square

9. Refer to: city.yokohama.lg.jp/business/kokusaikoryu/yport/material/pf_jica.files/0009_20181016.pdf

Monteria Climate Change Master Plan

Montería (Colombia) became a pioneer city by implementing environmental strategies and actions to combat the impact of climate change. Its Climate Change Master Plan (PMCC) "Montería Ciudad Verde 2019" aims to improve critical infrastructure, urban services, and public spaces. It was published in 2011 after signing the Mexico City Pact at the World Mayors Climate Summit. Its development is the result of a public-private partnership between the Mayor's Office and the Proactiva group (water and sewerage service provider). The planning framework consisted of an extensive evaluation through participatory roundtables with relevant social and business actors in the city. As a result, the CCMP identified 15 challenges and 26 specific actions in the areas of mitigation, adaptation, awareness raising and compensation. The implementation of certain projects, carried out by the subsequent local government of the city, has improved the transport system, recovered public spaces, reforested areas with erosion problems, improved management and maintenance of rainwater channels, created a sustainable building code, and led to the establishment of better urban land planning and management. As the city lacked sufficient financial resources to implement the CCMP, additional support was key for its implementation. These investors included the Inter-American Development Bank's (IDB) "Competitive and Sustainable Cities" program, FINDETER (*Financiera de Desarrollo Territorial*), along with investments made by the national government.

The plan includes a long-term vision for the city, developing a parallel implementation of short-term policies and projects with tangible results for the population. Among these projects, some have already been completed and have had an impact on different sectors of the city. For instance, the construction of a 40 kilometers bicycle lane network and the BiSinú public bicycle program, which contributed to an increase in bicycle use of 9% (a high percentage for a hot tropical city). Similarly, six kilometers of the riverbank were rehabilitated, including the restoration of 130,000 square meters of public space. In the transport sector, a strategy was implemented to incorporate the construction of public spaces along the main transit routes as well as the river transport system along the Sinu River, which was formalized and restructured. In addition, the maintenance of canals and drainage systems was improved, while solar panels were installed in schools and other public facilities.

The PMCC has been successfully implemented because of the city's political leadership. Realizing their economic limits, they created alliances with the private sector, which allowed them to combat some of the impacts of climate change. Significant factors to its success can be attributed to the support shown by subsequent administrations in the evaluation and monitoring process of the plan, as well as in addressing the implementation of planning mechanisms and sustainability strategies. It was also essential to base these strategies on technical studies, to involve

the community and other stakeholders in transparent processes, and to integrate these plans into the *Plan de Ordenamiento Territorial* (POT). With the 2019 deadline approaching, the city must assess progress and update its strategic vision, taking into consideration the commitment to use public resources responsibly and make evidence-based decisions.

Box 10. Source: UCLG, 2019.

LECTURE 2

Lecture 2: Fostering resilience in private land use

The following lecture focuses on resilience-building strategies related to housing and economic activities and driven by LRGs on **privately owned land** – or outside their direct administration – usually through strategic management (medium and long-term) and executive management (building codes and regulations).

Most development in cities occurs within the realm of the private sector. For instance, in Dhaka (Bangladesh), construction activities are a dynamic source of growth since the 1990s. Its private investment in construction accounts for approximately 20% of the GDP. In addition, land ownership influences where to build. Land owners and developers are the key stakeholders in the city's resilience strategy as approximately 10% of the population own more than 60% of the city's private land (Jabeen, 2013). Additionally, factors like the availability of up-to-date hazard information and constraints in land availability are part of the private sector's location criteria.

LRGs can increase urban resilience by following the same "analysis-diagnosis-proposal" processes as other sectoral planning instruments. Most LRGs have planning authority, mechanisms, and instruments to sustainably manage existing and undeveloped private land uses and activities. The most exposed areas can be identified through **urban planning**. For example, cyclical hazards such as hydrological (floods), geological (landslides), or anthropogenic (e.g. industrial hazards). As a result of the analysis, LRGs can consider proposals for action such as relocating housing to safer locations and converting land reserves into green spaces.

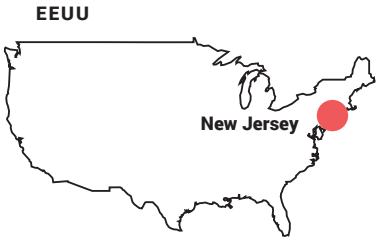
LRGs have planning authority, mechanisms, and instruments to sustainably manage existing and undeveloped private land uses and activities, integrating risk and resilience considerations

Zoning is one of the most effective tools to regulate development in hazard-prone areas and reduce people and property exposure to hazards. For instance, when planning for areas with flood risk, zoning can require new buildings' ground floor to be built above the base flood elevation or can prevent building on unstable slopes. In some cases, development can be restricted as an area is zoned for public open green spaces. Moreover, a **land-subdivision ordinance** can be used to regulate the use

> ***LRGs can foster a culture of compliance by promoting risk-awareness, developing feasible regulations adapted to local contexts and implementing efficient administrative procedures***

of greenfield sites and propose the type and extent of improvements required. This instrument controls the density, configuration, and layout of divisions and helps to regulate development in hazard-prone areas and adjust development sites' layout to minimize exposure. Additionally, **building codes** are one of the most used instruments for development control. These are sets of regulations governing the design, construction, alteration, and maintenance of structures. They specify the minimum requirements for a building's safety and local authorities are responsible for their enforcement.

While these instruments help guide resilience-building, regulations are often not robustly enforced or can be easy to bypass. The main issues for development control include unnecessarily complex administrative procedures, fees, and time required to receive a land title or building permit, which often leads to informal construction. To overcome these challenges, local authorities need to "create a **culture of compliance**, where all stakeholders are knowledgeable about risks, how such risks interact with building location and construction practices and are willing to comply with building codes" (ADB 2015). Furthermore, it is important to develop codes referenced to local practice, context, and locally available materials to make compliance feasible. Also, incorporating robust systems towards building permits to clarify the roles and responsibilities of agencies involved and ensure time and cost-effectiveness. It is also important to introduce flexibility in technical specifications, such as referring to risk zones in building codes and emphasizing the importance of added structural requirements. Furthermore, minimum qualifications for building professionals should be established with robust inspection and accountability mechanisms to ensure quality in construction.



Updating Standards and Codes for Urban Flood Management in Hoboken, New Jersey

On October 29, 2012, Hurricane Sandy hit the city of Hoboken, Northern New Jersey, flooding eighty percent of its land. The hurricane's damage resulted in an estimated property damage of more than USD$100 million and a severe impact to the region's transportation infrastructure. Following the hurricane, the city received a Community Disaster Block Grant Disaster Recovery funded by the Federal Housing and Urban Development Department (HUD). The city used these funds to develop a resilience project in 2014, which consisted of a guideline for flood proofing buildings.

New Jersey is considered a self-governing state where zoning is the responsibility of each local authority. However, aspects such as connectivity, transportation, and real-estate interests require regional collaboration. Although Hoboken faces unique challenges due to its

higher density compared to other cities, the current state building code does not allow the city to change it without state-level consent.

The city is working to reconcile its zoning code with state and federal regulations. They aim to allow for "wet flood proofing" and "dry flood proofing" of ground-level floors located below the base flood elevation (BFE). This is to account for the many building owners who cannot feasibly elevate their multi-storey attached structures to comply with the National Flood Insurance Program's regulations and requirements.

Box 11. Source: Gencer and Rhodes 2018, in UNISDR, 2017

The **private land allocated to economic activity** (industrial, manufacturing, or commercial) is also key to ensure city resilience-building. Planning can determine the pattern of land-use by prioritizing **mixed uses** (offices, retail, housing, recreational, care) over single-use, such as solely residential. A diverse community with dynamic public spaces tends to be more resilient. Important aspects to achieve this include proximity to different resources and services, improving street safety, supporting local consumption and local economies, and avoiding over-stressing mobility networks. Therefore, "mixed-use planning" can limit developing large shopping centers or replacing small, local shops for large chains. They can also promote high-value heritage and cultural activities in the city. Other DRR strategies in private land can include building regulations with mechanisms for structural reinforcement, safety of installations, and protection against earthquakes, fire, floods, and other hazards.

Since office, industrial and commercial areas have a higher population density during business hours, it is also crucial to promote and implement contingency, response, and care plans in case of disasters. These plans must take into consideration a disaster's impact on commuting (between office, schools, universities, large commercial areas, etc to home.). Local governments can additionally encourage the private sector and other sectors (with high densities during the day) to prepare response plans, temporary shelters, and communications. It is key to adapt the scale of these working ecosystems to the city and territory characteristics while considering each city's mobility model.

Resilience-building strategies must be accompanied by 'self-protection plans', and risk reduction plans in **industrial and logistical areas**. As these areas concentrate important activities for the economy and the supply of products to the territory, there must also be contingency plans to avoid collapses in supply chains. For instance, the food and commodities chain can be affected by damage to road infrastructure, social disorder, or others. In recent years, many LRGs built resilience through environmental and economic sustainability actions, such as incorporating solar energy installations, urban vegetable gardens and landscaping in buildings' rooftops, and improving the socio-environmental impact of production chains.

> ***The private sector should also be mobilized to develop and implement risk reduction, contingency, response and care plans for office, commercial, industrial and logistical areas***

Embedding urban resilience in the business sector

The municipality of **Tokyo** (Japan) established comprehensive disaster management measures after the Great East Japan Earthquake in 2011. The main challenge during this disaster was having 3.5 million people (mostly commuters) stranded for hours, some even days, due to traffic congestion and mobile phone network disruption. Therefore, the municipality decided to mobilize all their resources, involving cooperation between every stakeholder to provide public, mutual, and self-assistance options and backup services. The objective of the resulting ordinance was to prevent people from heading home all at once, secure temporary shelters, enhance communication infrastructures and information services, and aid people to return home.

The cooperation between the municipality and the private sector was a crucial factor during the implementation stage. The main action plan revolved around the establishment of Boards who developed efficient strategies to reduce stranded people during times of emergency. Not only the municipality provided financial support, but they also ensured legal guidance on disaster management. In the private sector, more than 50% of employers adapted their storage facilities to include sufficient water and emergency food supplies as a result. Additionally, institutions and commercial establishments like schools, restaurants, and convenience stores turned into support stations, increasing the number of temporary shelters around the city to 10,000. These strategies demonstrate how dense cities need to consider the potential number of stranded commuters during the event of a disaster and have enough public shelters and communication facilities available to maintain or re-establish the city's functionality.

Box 12. Source: UCLG, 2018b.

DYNAMIC

20-30 min

Divide participants in four groups (4-6 per group)

Handouts: Base Section & City Icons

Handout: Urban Planner Power: Tools & Processes

Preparations: Cut out the icons before-hand for participants to use.

Dynamic : Urban Planner Power

This dynamic aims to encourage participants to reflect on the planning and development control tools and processes available to build resilience, and the importance of middle and long-term city visions to guide the development, prioritization and implementation of spatial resilience building strategies.

Before starting the dynamic, introduce participants to the handout which lists some of the main planning tools and processes available for LRGs to integrate risk reduction and resilience in urban development management. Depending on the background of the participants you can explain in detail some of the tools, using examples from the lectures.

• Option 1: **Open discussion (debate style)**

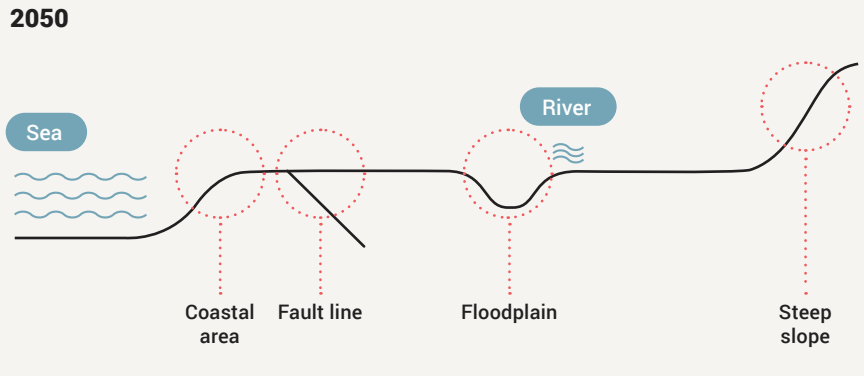
Open a discussion around the question: What would the ideal, resilient vision of your city look like?

Guide the participants' inputs for them to reflect on physical characteristics, urban planning, basic service provision, public space and infrastructure.

Invite participants to reflect on what is missing and what can be done for participants' cities to move towards this vision.

• Option 2: **Interactive exercise**

Divide participants in small groups (4-6 persons per group). Each group is shown a base topographic scheme, in which they need to position different buildings, facilities and services taking into account resilience and risk reduction measures. Give them five minutes to quickly complete this task, and five minutes for some of the groups to explain their choices.



You will also need post-its or pieces of paper and markets for participants to write.

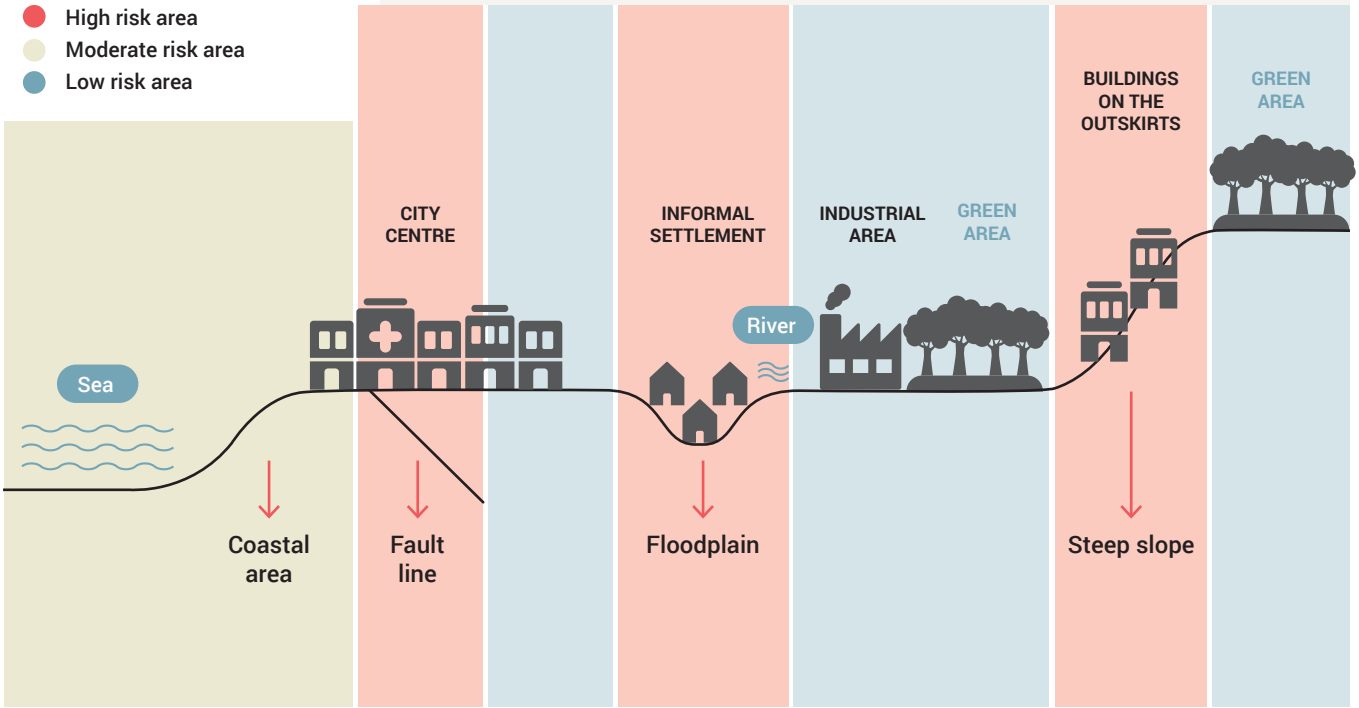
For virtual workshops, the dynamic can be implemented using a digital whiteboard such as Mural. Contact us to have access to the digital template.

Now present the sample city scheme, showing what many cities look like in reality. Present the geographical risk analysis of the territory, and give participants 10-15 minutes to identify tools and actions that can be used to reduce disaster risk and build resilience in the city.

Participants can choose from the gallery of tools/actions available in the handout, or propose new ones, based on their own context, knowledge and experience. The tools/processes should be placed in/near the areas where they will be used or where they will have a larger impact on resilience-building.

Once time is up, bring all the groups together. Invite each group to present one (or two) tools/processes they have identified. Each group should present a new tool or a different application of one previously presented.

Guide the ongoing discussions and interventions so that they focus on the development and planning tools available to their own LRGs, and some of the limitations of them in the real world. You can also point out shortcomings in the geographical risk analysis, which does not necessarily take into account multiple hazards, or non-geographical/natural hazards (such as air pollution, technological hazards, etc.).



LECTURE 3

Lecture 3: Enhancing resilience in informal settlements

It is important to reiterate how LRGs need to place the most vulnerable populations (especially people living in informal settlements and slums) at the center of their DRR and resilience strategies. The main considerations in these settlements and for their residents include their physical location in high-risk areas, substandard housing, lack of basic services and access to social and welfare systems. While ensuring access to basic services (sanitation, water, energy and telecommunications), LRGs promoting resilience-building strategies in informal settlements and slums can also promote policies for decent employment, protect human rights and sustainability aiming to create new horizons of prosperity (see box 11). Additionally, involving residents in the process of the DRR cycle is crucial, and can be accomplished through, implementing strategies regarding awareness raising, and ensuring participation during decision-making, data collection for risk assessment, design of risk mitigation and resilience building strategies, and identifying safe areas for disaster events.

Three DRR strategies are commonly used by LRGs to address upgrading the living conditions of informal settlements and their inhabitants. These mechanisms are discussed in more detail below:

In-situ neighborhood upgrading processes with the participation of their inhabitants

Involving residents throughout the cycle of DRR and resilience building strategies is crucial

The participatory in-situ upgrading strategy allows informal settlements' inhabitants to be directly involved in making decisions affecting their daily lives. With this approach, it is important for LRGs to involve the community. For instance, the elaboration of risk maps can ensure a better understanding of existing hazards among inhabitants. These actions guarantee their commitment to design and support the necessary solutions to mitigate risks. Additionally, it is key to increase visibility for these urban areas. Therefore, LRGs need to gather, with the participation of residents, as much data as possible to enhance the focus of DRR and resilience-building strategies.

Improvements driven by LRGs during the in-situ upgrading process regarding the provision of basic services, critical infrastructure and public spaces not only contribute to reducing potential risks but also significantly improve the living conditions of people living in informal settlements. Some of these actions can lead to rapid changes in the risk profile of the settlements and can be relatively simple, easy to implement, and low-cost in comparison to larger infrastructure projects that are more complex and costly. On the other hand, small-scale actions can easily be undertaken, especially in response to irregular layouts identifying many informal settlements. At locations with higher risks, crucial actions include developing a pedestrian network, planning community public spaces, opening up road-space for fire vehicles, defining evacuation routes and networks of temporary community shelters, among others. For example, rescue efforts in Haiti were hampered by the lack of access routes between streets, which are a 'maze' of unmarked corridors, because 70% of the population live in slums (WB and AUS Aid 2012).

Reinforcing these processes, LRGs can promote policies that ensure access to land and secure tenure rights, allowing residents to invest in home improvements over time. Some of these strategies can be implemented through the following: 1) temporary occupancy rights; 2) lease agreements; 3) community land trusts; and 4) rights against eviction (WB and AUS Aid 2015). For example, in Dar Es Salaam (Tanzania), the government identified informal settlement properties and issued land/property licenses or occupancy rights to be used as collateral. In the case of Sao Paulo and many other Brazilian cities, a gendered approach was incorporated in this process where the land tenure was registered under the name of women in the community rather than men's names. This process becomes key to empowering vulnerable women and children because it prevents them from being continuously displaced (as in many cases it is women who take care of children when a couple separates) and empowers them against domestic violence and abusive situations.

Another way for LRGs to implement on-site upgrading projects is by using innovative access to credit and finance. Successful mechanisms include Community Development Funds (CDFs), and broader program improvement funds - like those of the Asian Coalition for Community Action (ACCA) or Slum/Shack Dwellers International (SDI). Therefore, these funds strengthen the credibility of smaller savings groups and attract funds from larger international agencies.

Comprehensive and integrated slum upgrading

A second DRR strategy used by LRGs in informal settlements is the comprehensive and integrated approach. This strategic approach focuses on expansion planning for the urban footprint through a city-

wide upgrading program. In addition to physical upgrading measures, it includes other social and economic measures designed to enhance the entire area's sustainable development. These measures cover a wide range of measures, from providing health services, educating, and supporting job creation opportunities, to micro and small business assistance programs, financial investment policies, capital appreciation, and affordability. The comprehensive upgrading approach is often complex and requires an appropriate legal, institutional, and financial framework. Regardless, the final results increase long-term resilience and significantly contribute to improve slum dweller's living conditions.

Relocation planning

LRGs should use relocation planning strategies as a last resort for risk reduction. These should be undertaken with great care and only when settlements are in areas declared by risk maps as no-take zones. These areas may be in steeply sloping hillsides, flood plains, or sites highly exposed to environmental pollution and contamination. In such cases, neighborhood upgrading processes may not be adequate to reduce disaster risk. Any resettlement strategy should be implemented in a participatory and consensual manner considering the will and input of the community. It should represent a minimal impact on slum dwellers in terms of their social networks, school population, and employment options.

Re-parcelling and land readjustment processes can be used to strengthen participation in resettlement processes for vulnerable households on vacant land or at higher densities. Yet, it is also possible to increase safe housing stock through flexible building codes, regulations, and incentives to improve the quality and resilience of development and housing. As mentioned above, it is also vital to consider employment and economic opportunities, access to different services, and avoid urban uniformity with little presence of community facilities, which tends to be a common factor in large social housing projects.

Scaling up resilience-building in informal settlements. Key aspects towards success.

In 1969, the city of Surabaya (Indonesia) initiated the Kampung Improvement Program (KIP).Today, the results of the program distinguish these informal settlements through a network of paved, marked, and clean streets, along with numbered houses and streets with vegetation. Additional improvements include septic tanks in most houses; previous metal roofs replaced by sturdy structures; bins for waste collection in

the street; and presence of the community in maintaining civil order in public spaces and green areas. Also, a prefabricated drainage system was implemented in narrow streets which drastically reduced the risk for flood prone areas from 52% to 2%. A further boost in the tourism industry, traffic management improvements, and addressing plastic waste prove the potential of having a scalable resilient strategy through improvement plans. Surabaya also managed to build social resilience by strengthening informal economies. Kampungs operate different kinds of home-based economic activities including laundries, barbershops, and room rentals for workers or students. In many cases, families raise the ground level to protect damage to their main area of economic activities caused by floods.

"As a type of local urbanism, the kampung has endured as a resilient and long-lasting heritage. Key to its longevity is the notion of everyday resilience, which relates to chronic risks and micro-economic phenomena" (idem). In Surabaya's case, three key elements were identified as relevant for cases in similar contexts: 1) strengthening community resilience and integrating women's groups, elders, and other focal groups in all decision-making processes; 2) strengthening creativity to find solutions adapted to local context and developing a local economy based on community capacities; 3) strengthening the linkages between the community and the local government.

Box 13. Sources: Das, A. and King, R. 2019; Hawken, S. et al, 2020.

Resources

- *DB, 2016. REDUCING DISASTER RISK BY MANAGING URBAN LAND USE Guidance Notes for Planners*
- *UN-Habitat / CRGP, 2018. Upgrading from Informality Enhancer*
- *UN-Habitat, 2018. Climate Action Enhancer*
- *UCLG, 2018. Local and Regional Disaster Risk Reduction: Peer Learning about localization of the Sendai Framework for disaster risk reduction 2015-2030.*
- *UNDRR. 2020. Words into Action: Implementation guide for land use and urban planning*

Chapter 4: Fostering regional and ecological resilience

Ecosystems and their services not only support cities' day-to-day functions, but they can also reduce risks from hazards and the effects of climate change. Innovative design and planning strategies including ecosystem protection and restoration, the use of green and blue infrastructure, and changes in urban morphology, can reduce the risk from various hazards such as heat waves, floods, or landslides.

Debate: Ego-logical vs Eco-logical

Whenever ecosystem services or the importance of nature is discussed, there is often an underlying assumption or tendency to put nature at the service of humans, thinking of it as separated from our social, cultural or economic systems, and only valued according to the economic benefits it can provide, or the human needs it helps to fulfil.

This introductory debate will invite participants to reflect on the underlying worldviews and attitudes towards nature, and our relationship with it.

1. Present the following graphic to your participants.

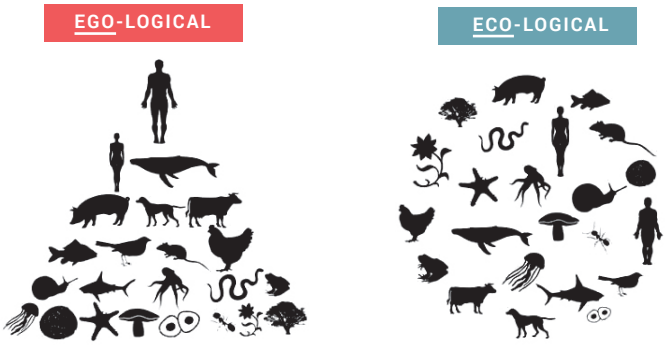


Fig 9. Diagram 'Ego-Eco'. Source: S. Lehmann, 2010.

2. Invite participants to discuss, based on the graphic, the following issues:
   - The position and relationships between humans and nature.
   - The links between the environment and our social, cultural and economic systems.
   - The implication these links and relationships have in the way we plan, manage and govern our cities and regions.

3. While the discussion can highlight very different perceptions of nature among participants, bring the discussion to a close by underlining how humans are part of an ecosystem, and how our actions can alter the different existing relationships in both positive and negative ways, with even the smallest organisms shaping complex systems that help to sustain life on the planet.

LECTURE 1

Lecture 1: The role of ecosystems

The concept of an "ecosystem" refers to a set of communities of living organisms that interact as a system with their environment and are extremely sensitive to certain changes in their biodiversity. As such, there is a great diversity ranging from terrestrial (forest, agricultural, desert, river and urban) to marine ecosystems (corals or mangroves). In each ecosystem, there is a great variety and complexity of relationships that regulate living organisms, vital processes, and resources such as water, air, fertile land, and food production.

Every city in the world is located in, is part of, and benefits from the presence of diverse ecosystems within and around it

Every city in the world is located in, is part of, and benefits from the presence of diverse ecosystems within and around it. The concept of ecosystem services can be defined as the benefits that an ecosystem brings to society,improving the population's health, economy, and quality of life. Given their importance, ecosystem services are being placed at the centre of sustainable development agendas of numerous countries and regions facing the dramatic effects of the climate emergency.

Four main types of ecosystem services can be distinguished (Millennium Ecosystem Assessment, 2005):

- **Provisioning services** refer to the raw materials and goods an ecosystem is able to provide (e.g. wood, water and food). Therefore, the resilience and DRR strategies that LRGs develop in their cities need to integrate water and food sovereignty to withstand the impact of droughts and famines.
- **Regulating services** are key to help reduce some impacts at local and global scales. For instance, ecosystems like rivers help regulate river flows and mitigate flooding; forests help reduce soil erosion; and wetlands and mangroves help absorb excess water and contain the impact of tidal surges during storm events. In the case of cities, ecosystems linked to vegetation found in parks and streets can help regulate "heat island" effects and reduce air pollution.
- **Cultural services** relate to those services linked to people's leisure time, culture, and the benefits that arise through interaction with nature, including mental health, children's development,

The benefits of a robust ecosystem are key to strengthening the resilience of territories and should be part of local, metropolitan and regional resilience and DRR strategies

ecotourism, spiritual connection or creative inspiration. As mentioned in this module's introduction, when explaining the memory of a place, a territory's culture and heritage are strongly linked to the nature and ecosystems within it.

- **Supporting services** such as biodiversity, physical territory, and natural adjustment processes that all ecosystems carry out, contribute to the population's quality of life on the planet and guarantee many of the above services.

The benefits of a robust ecosystem are key to strengthening the resilience of territories and should be part of the resilience and DRR strategies that LRGs design. In order to reduce the impacts of climate crises - for example hydrological and climatological disasters like droughts- LRGs can strengthen the resilience of their territories through actions focused on protecting, restoring and enhancing their different ecological ecosystems. It is becoming essential for LRGs to incorporate the natural buffer zones of the city's area of influence (hinterland) and the general region into their strategic and urban planning. Additionally, they need to adopt a regional resilience approach by fostering cross-border cooperation with other municipalities.

From biocultural heritage to climate action

Grasslands, wetlands, forest transition areas and rainforests are key ecosystems for resilience building as well as for environmental sustainability. They contribute to ensuring the survival of rural communities, enhancing rural-urban linkages, and food sovereignty of cities. These soils are often extremely vulnerable to climate change impact and therefore LRGs need to be able to incorporate their protection and strengthening into their resilience and DRR strategies. This box lists some initiatives at community, LRG and regional-continental levels.

Strengthening biocultural heritage is one way for rural LRGs to generate value through ecosystem enhancement. The *Apple Park* located in **Jafr** (Tajikistan), a small village in the Rasht Valley in an arid high mountain environment, is the result of more than forty years of adapting crops to climatic conditions and the capacities of its community. The farming area is now able to generate profits through the sale of seeds and honey. As a result, it has been able to build a lodge, a handicraft centre, allocate resources for community development, and a training centre. The Rushnoe Community Association led this initiative and enabled neighbouring communities to join the project to restore the Rasht Valley cultural landscape "through a constellation of community gardens covering 16 hectares". The resilience building and DRR strategy focused on: 1) Enhancing local agriculture with traditional varieties; 2) Restoring

abandoned and eroded high mountain soils by experimenting with new drought and frost resistant varieties; 3) Strengthening training and capacity building; and 4) Integrating artistic expression of biocultural diversity, local history, and spiritual traditions into the strategy. This experience shows how combining traditional knowledge and agricultural heritage with modern innovations significantly improves communities' capacity to adapt to environmental, social, and economic challenges that strengthen their resilience in the face of uncertainty and external pressures.

The **protection and enhancement of coastal wetlands** is key to strengthening the resilience of many urban areas and small rural populations. They also reduce climate change risks related to sea level rise and flooding caused by tropical storm events. This ecosystem is also in decline due to the growth of cities, pollution and cultivated areas. The cost-benefit analysis of mangrove restoration in the city of **Quy Nhon** (Vietnam) encourages LRGs and dispels doubts about resilience strategies in the short and medium term. The cost of restoring 150 ha of mangroves is estimated at US$850,000, mostly in the first four years. After that, maintenance costs reduce significantly over the lifetime of the project (22 years) and much greater benefits ensue. According to the analysis carried out by the report, 'mangrove restoration' can create large benefits for communities, especially in helping them avoid the impacts of climate change in the future. The initial investment can generate benefits of US$1.7 million over four years.

Many LRGs are investing great efforts in restoring the rivers that run through their cities, as well as the surrounding environment. This is the case of the **Green Corridor** in **Cuenca** (Ecuador). The green corridor represented a turning point after more than 17 years of continuous improvement through the US$144 million Pollution Control Master Plan. It solved two important issues relating to water supply: improving the quality of water through the construction of two water treatment plants and achieving 85% drinking water coverage in rural areas. Through this integrated river basin management approach, the *Tomebamba River* turned into a new green river axis connecting the city transversally, with recovered banks and a network of cycle paths reviving public spaces within the city. The allocated budget to combat climate change is up to five million US per year. Many of the projects within the river basin were embedded in a participatory budgeting process that the city hall expanded particularly to rural communities living on the periphery. The feedback process made the project stronger over time and fostered water governance as a key priority carried in and by the communities.

Box 14. Sources: INMIP, 2019. ACCR, 2013. OIDP, 2020

LECTURE 2

Lecture 2: Nature-based solutions

Nature-Based Solutions (NbS) are defined by the European Commission as "solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions" (European Commission, n.d.).

LRGs have NbS at their disposal to mitigate, absorb, and prevent risks associated with different hazards and to strengthen resilience in their respective territories. At the same time, these nature-based tools contribute to protecting, recovering, and strengthening their respective ecosystems. It is relevant to highlight the role of regional and municipal planning instruments discussed in the previous chapter, which generally classify and qualify land uses according to whether they are urban, suburban, rural, or natural. These divisions can facilitate the protection of certain natural areas, but might limit the inclusion of nature-based solutions in urban environments.

To overcome this, planners can use innovative planning and design strategies including **nature-based solutions**, looking at the morphology of the city, the geography and environment in which it was built on, and its memory of place. They can also draft special building codes and regulations to increase climate resilience of housing and public facilities, facilitating the integration of nature-based solutions at a micro scale and thus contributing to improving the quality of life for the city as a whole. At a macro scale, the main elements of the landscape at neighbourhood, city, and regional level, in particular water axis, parks, and green corridors provide a base from which to renature the city and incorporate green and blue infrastructures into the city's strategic planning.[10]

> ***Nature-based Solutions bring more, and more diverse, nature and natural features and processes into cities and regions through locally adapted, resource-efficient and systemic interventions***

Green infrastructure

Green infrastructure refers to a strategically planned network of natural and semi-natural areas with other environmental features designed and managed so as to deliver a wide range of ecosystem services (European Environmental Agency 2015). Re-naturalization of the urban fabric is one of the nature-based solutions most easily leveraged by LRGs, for example, to mitigate pollution levels. Some of these tactical actions focus on planting trees in streets and public spaces, creating public urban garden areas, encouraging green roofs on buildings (with orchards and vegetable gardens), installing vertical gardens on façades, and facilitating soil drainage. Green infrastructures must ensure that plant species are native, well adapted to the territory, resistant to possible

10. Refer to UNEP and UNDP's Working Paper for the G20 "Smart, Sustainable and Resilient Cities: the power of Nature-based Solutions", available at: https://www.unep.org/resources/report/smart-sustainable-and-resilient-cities-power-nature-based-solutions

local conditions (wind, snow, etc.), and do not generate allergy problems among the population.

On a larger scale, LRGs can ensure that environmental corridors are connected as much as possible, rather than being fragmented by road infrastructure. For instance, they can encourage designing "green bridges" as biodiversity corridors. Nature-based phytoremediation techniques work hand in hand with green infrastructure, since they are able to clean up contaminated land and water, enhancing the air quality and public health. At the urban level, these solutions also contribute to improving neighbourhood aesthetics, cooling and cleaning the air, reducing asthma and heat-related illnesses, and reducing heating and cooling energy costs. When building ordinances and regulations incorporate sustainability parameters, they also contribute to improving natural ventilation and strategic shading of public space. The *Green Belt* concept originated at the end of the 19th century and is still relevant for the direct benefits it generates as a buffer space for cities. Urban parks can also contribute to reducing water scarcity by providing underground reservoirs where rainwater filters through permeable soil.

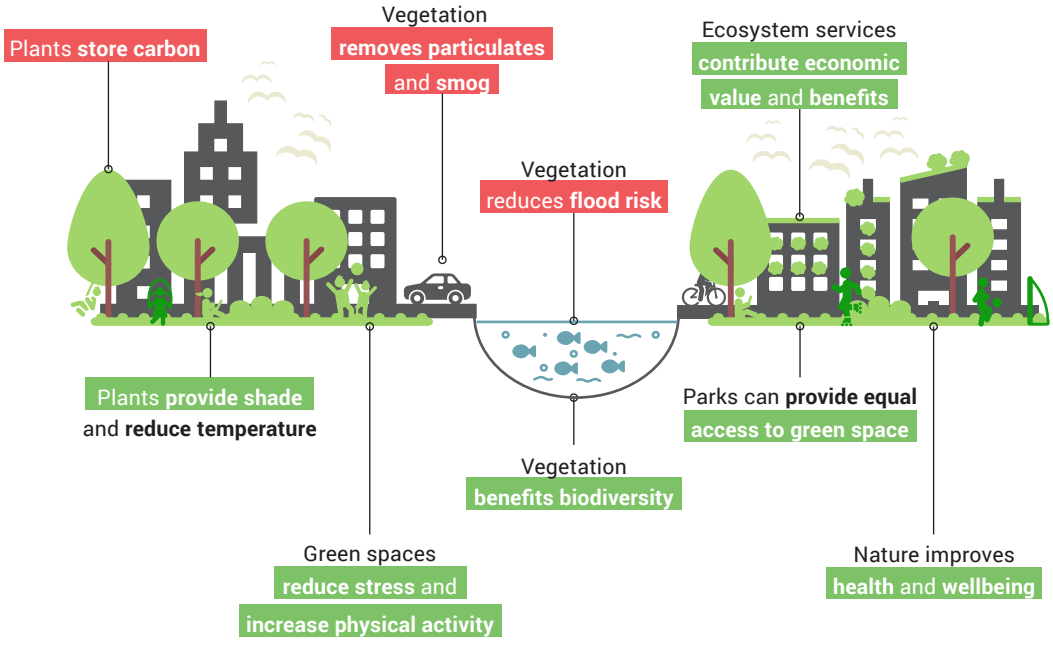


Fig 10. Resilience related benefits provided by Nature-based Solutions

ECUADOR

Integrating ecosystem-based adaptation into city park systems: *The Parque Lineal Las Vegas*, Portoviejo

In April 2016, the city of **Portoviejo** (Ecuador), capital of the province of Manabí, suffered the impact of an earthquake that destroyed a large part of its infrastructure, causing a significant number of deaths. Prior to the earthquake, the areas around the Portoviejo river had been abandoned and faced significant degradation caused by the neglect of both previous administrations and the inhabitants themselves. As part of the reconstruction efforts, the city saw the opportunity to implement efficient strategies based on risk reduction and resilience building. One of these is the Las Vegas Linear Park project, located on the right bank of the Portoviejo River, with an area of approximately 10.7 hectares. This project marks the beginning of an interconnected system of parks and nature reserves that are part of the Portoviejo River Master Plan. With an investment of approximately US$ 10.9 million, the project was built in just three years. The execution was guided by hydraulic engineers, acousticians and landscaping experts, and with the participation and commitment of different governmental, social, private and academic actors. The main objectives of the project include the reconstruction and economic reactivation of the city, flood risk reduction, environmental recovery, and the creation of cutting-edge public spaces.

The design of the park incorporates ecosystem-based climate change adaptation (EbA) solutions. This encouraged the riverbanks to be reclaimed and reused as recreational flood zones. Abandoned streams were also regenerated and converted into wetlands. This implementation serves a dual function and the wetlands also function as stormwater retention tanks. In addition, an increase in the diversity of flora and fauna was observed with the presence of amphibians, reptiles and birds in the wetlands. In terms of flood risk reduction, the landfills that hindered the flow of water in the riverbed were removed and the area is now a green space that allows people to get close to the water. Some of the landfill materials were also used to create an artificial hill where an open-air amphitheatre is now located.

As a result of the revitalization of the area, the park has successfully restored the area's function as a recreational and cultural space. Its central location favors the organization of multiple events in its different facilities. The park has further contributed to public awareness raising, on issues such as caring for the river and the environment. Moreover, new businesses have emerged in its area of influence, which have been well received by the population.

Box 15. Source: UCLG, 2019.

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The effects of climate change and environmental pollution are leading LRGs to rethink their relationship with the water cycle and aquatic ecosystems within and around them

Blue infrastructure

Blue infrastructure relates to Nature-based Solutions and green infrastructure that incorporate aquatic ecosystems (including rivers, wetlands, coastal and marine areas) or include water for regulating hydrological flows. Blue infrastructure can play a key role in LRG-driven water management, climate resilience and DRR strategies.

Most cities have developed throughout history in locations very close to water, adapting and becoming dependent on its systems and cycles. High-water dependency is due to human consumption (drinking water), provision of sewerage and sanitation services, mobilization, transportation, and other services. The effects of climate change and environmental pollution are leading cities to rethink their relationship with the water cycle. In many cases, they need to protect access to vital ecosystem services and increase the environmental resilience of their territory.

The imminent “Day Zero” during **Cape Town’s** (South Africa) 2017-2018 water crisis was a wake-up call for cities around the world. Indeed, many cities rely on water bodies or aquifers that are already depleted or at high risk of drying up. Sometimes, LRGs may be forced to impose water emergency policies, and prioritize or limit water distribution depending on whether it is for minimum services, agriculture, industry, or recreational use. At critical times, this is the case for cities like Barcelona, Tehran, or California. The sensitivity goes beyond municipal boundaries, requiring robust coordination between different LRGs that, for example, share a river basin, and with other national and international levels of government on governance and sustainable management.

Both "producing" and "consuming" municipalities have a role in preventing the degradation of their aquifers by coordinating their strategies and improving management. These can focus, for instance, on modernizing the rainwater and greywater drainage system and network to prevent leakage. In parallel, rainwater harvesting, greywater reuse, and promoting aquifer recharge at the catchment level can be encouraged and promoted. Other strategies can also be aimed at raising public awareness of more responsible water consumption, obtaining funding to invest in treatment plants construction, and ensuring that water catchments are in optimal sanitary conditions. All of these solutions can benefit from the enormous potential of nature-based solutions.

In terms of the water cycle, a global shift in the provision of basic services is pushing towards a resilient approach to water, moving away from a vision of water simply as a resource to recognizing its importance as a backbone element to be taken into account in the definition of a

Many cities that had historically turned their backs on their rivers or waterfronts are now trying to recover their relationship with these water bodies

city or region's structure. As such, LRGs are being challenged to take on integrated water supply and sanitation management since water resources, ecosystems and their cycles have become increasingly valuable and vulnerable. LRGs must not only be able to raise the financial resources needed to run complex and costly facilities, but they should also be transparent and raise awareness among their residents about the sustainability of the services provided and the financial viability associated with the collection of fees. These issues are key and will involve strengthening local cooperation at the regional level, involving neighbouring municipalities, regional bodies and the private sector in the process.

In terms of urban strategy, many cities that had historically turned their backs on their rivers or waterfronts are now trying to recover their relationship with these water bodies. Once integral to the development and positioning of these settlements, throughout the process of industrialization and subsequent deindustrialization in the 20th century, many of these cities witnessed the degradation of their rivers, wetlands and waterfronts. Many of these sites became rubbish dumps, waste areas, or motorways and roads. The key role of rivers and lakes for creating microclimates that promote ventilation, for example, to mitigate pollution and the heat island effect needs to be re-emphasized. Cities that have implemented projects for upgrading, renaturing, and restoring river banks or mangroves in coastal areas show the importance of promoting urban planning that takes into consideration nature-based solutions. These can restore, strengthen and make their ecosystems more resilient, despite high recovery costs incurred by LRGs in the processes.

Urban River regeneration and flood control

At the local level, outstanding cases of river regeneration highlight the complex yet beneficial task to many cities. They are often accompanied by comprehensive strategies of sanitation, flood control, and urban planning.

The restoration of the Pasic River in **Manila** (the Philippines) has become a key example for building resilience on the values of blue infrastructure. Initiated in 2012, the programme ran until 2015 and cost approximately US$500,000 per year. It transformed a hyper-degraded and littered river into a new landscape asset for the city, full of plants and crystal-clear waters. This was achieved through the construction of water treatment plants, robust solid waste management and the support and participation of the community who became the main advocates for action.

SOUTH KOREA

A similar example is the restoration of the Cheonggyecheon River in **Seoul** (South Korea). It had been covered by a highway for decades, and its restoration created a new lung for the city. With an investment of approximately 323 million dollars, this operation has increased the value of the land by 25-50%. In general terms, the project raised awareness about the role urban planning should play in central areas of the city and in changing the model of private mobility towards the use of public transport. Cheonggyecheon also became a prime venue for events (259 events organized between 2005 and 2007) and has generated direct benefits in reducing the heat island effect and contributed to a 35% reduction in air pollution in the area.

GERMANY

The history of city of **Cologne** (Germany) is strongly linked to tthe Rhine river. For centuries, the Rhine basin has been one of the main waterways driving the development of a significant part of Central Europe. Throughout the 20th century, significant efforts were made to modify the course of the Rhine in order to increase the number of goods, and the speed of their flow with ever larger vessels. However, the rain season contributed to overflowing the river, causing major flooding in the cities located along its banks. The 1993 flood amounted to approximately 75 million euros' worth of damages.

The increased frequency of flooding led the city government to launch an ambitious strategy to control and minimise risks. As a result, a hydraulic wall was installed to protect the old city centre which contains the city's key heritage for tourism. At a cost of 400 million euros, the government recuperated the investment in just over eight years, minimising the costs of potential flooding. The strategy foresees additional preventive measures, such as the creation of retention areas, renaturation of river banks, prohibition of new construction and retroffiting of certain buildings in risk areas and public awareness actions. The project has favoured the consolidation of numerous intergovernmental agreements with regions and cities located along the riverbanks and reinforced wetland recovery strategies in the upper basins, helping to improve water quality and recover the river's fauna. As in the cases of Manila and Seoul, the river is again the pride and joy of Cologne and one of its most cherished symbols, showing how far it is possible to reverse the historical relationship with the river.

Box 16. Sources: ADB, 2016. Neumüller, 2008.

DYNAMIC

25-30 min

Divide participants in four groups (3-4 per group)

Handout: Renaturing Pathways (Challenges & NbS Cards)

Preparations:
Print and cut the challenges and NbS cards included in the handouts (print two or more sets if necessary).

For virtual workshops, the dynamic can be implemented using a digital whiteboard such as Mural. Contact us to have access to the digital templates.

Dynamic: Renaturing Pathways

This dynamic aims to familiarize participants with some of the many Nature-based Solutions available, fostering peer-to-peer learning and reflection on their use and appropriateness in different local and regional contexts.

Introduction (5 minutes):

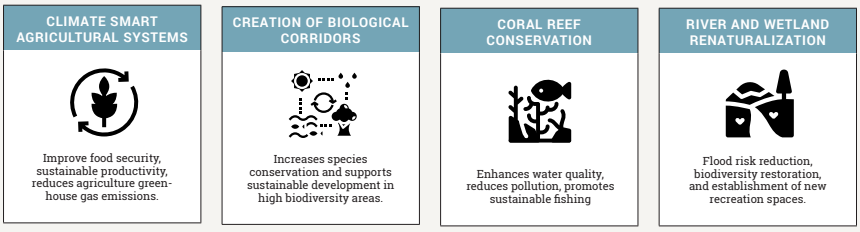
1. Divide participants into four groups of three to four persons (for larger audiences, we recommend using two or more sets of cards and to replicate the game).
2. Present the challenges confronted by the four sample cities to the whole group. Handout a sheet of paper with the challenges.

   Hint: Feel free to adapt and create new challenges, based on sample cities in your region or specific contexts. Try to maintain some diversity among the key risks confronted by the four cities.

Kombolcha

Rainfall is increasingly scarce in the Sahel zone between the Sahara and the African savannah. Many communities in this area, such as the town of Kombolcha, in Ethiopia, suffer from drought and desertification, leading to large-scale migration and conflict among their inhabitants.

3. Hand out four NbS cards to each of the groups, plus one empty Joker card. Each card includes a brief description of the solution presented.



Group-work (10 minutes):

4. Each group should discuss and choose, from their NbS cards, the ones that best fit each of the challenges. If necessary, they can use the Joker card to propose their own NbS for one of the challenges.

DYNAMIC

5. Once they have selected an NbS card for each of the challenges, they should prepare to present what they consider the best match to the rest of the participants. They should explain why it is a good match, how it will help to improve the city's resilience, and what aspects should be considered to ensure it is implemented effectively.

Plenary (10 minutes):

4. Bring all groups together, and invite each group to present their best match. Invite other groups to comment, make suggestions or ask questions about the Nature-based Solutions presented. Feel free to add comments or explanations to the different groups' presentations based on your own knowledge and expertise.

   Hint: If there are cities/challenges for which no NbS was presented, you can invite a group to present their proposed solution, making sure that you cover the different contexts represented by the four cities/challenges.

7. Close the dynamic by inviting participants to think of which nature-based solutions might be useful for some of the challenges their cities confront, and inviting some of them to share their thoughts with the group.

LECTURE 3

Lecture 3: Metropolitan & regional approaches

Beyond green and blue infrastructures and the use of nature-based solutions in an urban context, having robust rural-urban linkages and well-functioning regional systems and governance mechanisms is critical to safeguard and maintain ecosystems services and their capacity of providing energy, water, food and other materials and resources to urban and rural communities alike. A significant part of terrestrial ecosystems, in which a rich diversity of wildlife can be found, are in rural areas.

In recent decades, the labour market in rural areas has become increasingly precarious owing to agricultural automation and extensive agroindustrial impacts. These factors have also contributed to the acceleration of migration patterns to cities, particularly of young people, as well as loss of income, quality services and the breaking down of community fabrics. While the COVID-19 pandemic and rapid adoption of remote work has led to a renewed valuing of the rural environment along with intermediate and small cities, many small municipalities and regional governments do not have the capacity to adapt and adequately respond to these new dynamics while responding to existing challenges without exacerbating or creating new risks.

National and supranational policies such as the EU Territorial Agenda 2030 have addressed these regional inequalities, aiming for territorial cohesion and leaving no place behind. Going beyond existing financial incentives, such as subsidies for peripheral local and regional governments to maintain basic services like schools or health provision, these new policies focus on place-based development, cooperation and multilevel governance.

Robust rural-urban linkages and well-functioning regional systems and governance mechanisms are critical to saveguard and maintain ecosystem services for urban and rural communities alike

The promotion and implementation of **digital services and connectivity** play a key role in generating opportunities for innovation, employment, and income creation. For instance, some regions of the world seek to avoid massive youth migration to cities, especially to informal and precarious settlements, by strengthening rural areas with appropriate services, including ICT infrastructure. Other initiatives to improve employment opportunities in rural areas are often based on fair trade, organic farming, digital empowerment, and information and network support. Initiatives like "Smart Villages", promoted by the European Union, can contribute to boost resilience strategies and prevent depopulation in small towns and rural areas. Considering these trends, it is crucial for LRGs to take advantage of current conditions to demand improved resources and increased connectivity in order to not only maintain public services but also generate innovation and employment opportunities.

The effects of climate change dramatically increase the vulnerability of **agriculture activities** and the people who make a living from farming. The

These efforts not only contribute to the resilience of food systems, but can also strengthen agricultural areas' role as ecological buffers, foster a more diversified economic activity, and improve access and recognition to their cultural, leisure and education services

industrialization and specialization have reduced the diversity of crops, the biodiversity, and also the diversity of labour and economic systems. This reduced the understanding, influence and engagement of citizens in agriculture and related policies, leaving land to be considered simply as a resource for development, production or urbanization. However, the rural-urban relation is a strength of intermediary cities and towns, where agricultural traditions are considered part of the public life, temporary workers live during harvesting times, and cultural festivities are rooted in seasons and uniqueness of natural resources.

To build resilience among the most vulnerable farmers, LRGs can support sustainable crop management systems, implementing modern irrigation techniques, and promoting a culture of production - and consumption - that is co-operative rather than exploitative. Food markets can play a key role here. Open markets often fall under municipal competence and provide an opportunity for surrounding farmers to present their work, traditional methods, and sell their products. Intermediary cities like Chefchaouen in Morocco or Pasto in Colombia regulate and organize farmer's markets in public spaces and also support programmes for the farmers of their hinterland (UCLG. 2014 & 2015). Regional governments in the Amazonian region of Peru have also come together to support sustainable production and entrepreneurship efforts in this environmentally critical area (UCLG, 2018a). Metropolitan regions such as those in Barcelona and Sao Paulo (see box below) are also increasing efforts to protect or re-establish agricultural areas close to urban areas – including through market access and rural-urban linkages.

These efforts not only contribute to the resilience of the food procurement systems, but they can also strengthen agricultural areas' role as ecological buffers, fostering a more diversified economic activity, along with improved access and recognition to their cultural, leisure, and education services. In the current climate emergency context, the rising risk of drought and devastating fires is also forcing increasing cooperation between local, regional, and national governments on integral rural and **forest area management** and bringing attention to the responsible use of leisure, areas in the hinterland or in protected natural reserves. An outstanding example is the initiative of Freetown, the capital city of Sierra Leone. *"Freetown the Treetown"* is a programme to mitigate landslides and increase water scarcity in the city, planting one million trees in the immediate periphery. Besides environmental benefits and leisure, these urban forests will also allow economic activities of forest management for low income groups.

Energy infrastructures are often set up in natural environments and hinterlands. When they are fossil-based they contribute to higher pollution levels in cities. Along with the Paris Agreement on climate action, public awareness and green energy agendas have increasingly put pressure on energy companies - or open the energy markets - to

address the ecological transition to renewable energy sources. In Europe, agricultural fields already share space with solar panels and wind turbines, as alternative rural income. Additionally, desertic regions, such as Ouarzate (Morocco), have also set up large-scale solar thermal infrastructures to supply large urban areas. At the same time, LRGs are transforming brownfields and other areas degraded by industrial use into leisure areas using new energy infrastructures and facilities. Such is the case of many former industrial areas like the Emscher Park in the Rhur basin, which manage to generate new ecosystems and spaces for the population while also building on and contributing to the region's cultural heritage.

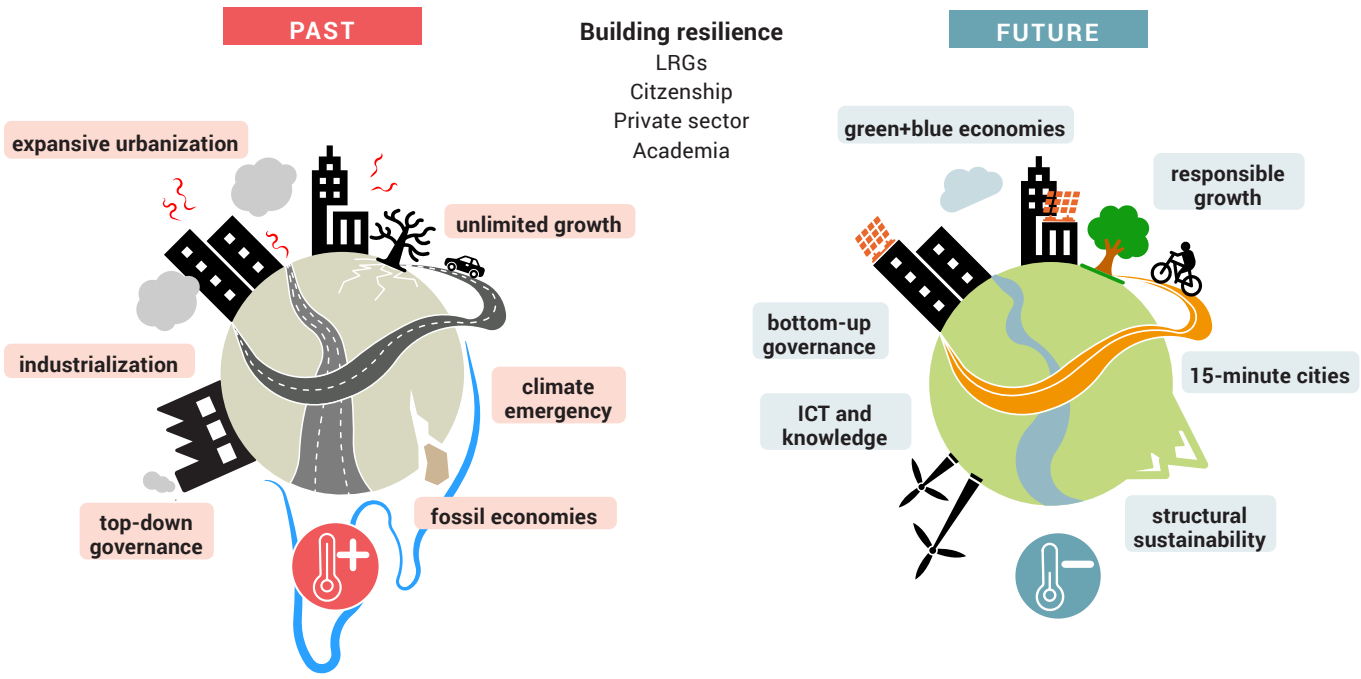


Fig 11. An inclusive ecological transition can support a more resilient and sustainable future.

Finally, but not without complexity, are **marine ecosystems**. Although coastline management is usually under the direct mandate of nation states, many LRGs face challenges caused by sea level rise in their territories. Issues affecting millions of people include the salinisation of soil and freshwater bodies, as well as tidal erosion gradually changing the coastline. High levels of water pollution from urban sewage discharge compromises public health and limits a territory's access to the sea, and therefore the ability to strengthen its local economy. These aspects need to be addressed through integrated and robust regional resilience strategies. Within watersheds or bays, these strategies need to facilitate coordination and cooperation between different municipalities,

prioritising the recovery of natural ecosystems, also to protect coastal areas from flooding. On the beaches, LRGs may develop small dune landscapes with vegetation, or foster protection and regeneration of mangrove areas to confront the risk of flooding and erosion from sea-level rise. Considering the rich biodiversity and the vulnerability of marine ecosystems, LRGs are increasingly looking beyond their land boundary and working with their communities to call for an increased level of protection, sustainable fishing practices and even the establishment of underwater natural reserves.

Inter-municipal, Metropolitan and Multiscale Resilience strategies

Local and regional governments coordinate across municipal borders to enhance territorial resilience and manage community-dependent ecosystems. Cases regarding forest management, food systems, water basins, or energy infrastructure vary across regions.

At **regional or metropolitan level**, the province of **Limburg's** (Belgium) case studies stand out. The creation of green corridors in agricultural land aims to strengthen biodiversity, boost local economy, and benefit from a long-term maintenance plan. Additionally, the creation and enhancement of metropolitan agricultural parks such as the Parco *Agricolo* in north-west **Rome** (Italy) or the *Parc Agrari del Baix Llobregat* in **Barcelona** (Spain) are two examples of locally agreed strategies at metropolitan scale. They contribute to maintaining biodiversity, preserving a valuable landscape on the metropolitan edge, and reducing water flooding risks. In both projects, it is essential to guarantee protection of these land, prohibiting construction on them in the future. It is also useful for different municipalities to form part of the park to assume shared responsibility for their maintenance cycle. The *Ligue os Pontos* in **Sao Paulo** (Brazil) also exemplifies strengthening connections between the city's urban core and its rural outskirts. It contained the expansion of the urban area by funnelling new development back into the city. It further enabled a vibrant and productive farm economy which resists pressure from the real estate sector.

Coastal cities and regions exposed to coastal erosion or tropical storms can also reinforce resilience in an efficient way by working with the ecosystem from a regional perspective. Coastal erosion and sand loss prompted **The Hague** (Netherlands) to implement the **Sand Motor**. This is a pilot project based on building a peninsula off the coast of Ter Heijde which acts as a coastal defence and allows for sediment concentration. The peninsula extends out one kilometre into the sea and is two kilometres wide at the beach, which was developed from sand taken from 10 kilometres away. "The Motor Sand is a good example of building with nature which, in the end, puts the sand in the right place."

In the metropolitan city of **Surabaya** (Indonesia), the local and regional governments decided to designate the remaining **mangroves** in its Eastern Coast as a conservation area, in order to provide protection. Serving as a water catchment area, it prevents floods and erosion and protects ecosystems, while supporting communities' livelihoods in the area. The participation of the community managing the areas designated for ecotourism, such as *Mangrove Ecotourism Wonorejo Forest* aimed at building awareness and respect for the environment and nature. The project led to a new sensitivity and awareness, on the part of managers, communities and visitors, towards the mangrove ecosystem's social, economic, and cultural services and their environmental impact.

Box 17. Sources: OPPLA (n.d.) ; Sand Motor (n.d.); S Murtini et al, 2018.

Resources

- *UNDRR, 2020. Words into Action: Nature-based solutions for disaster risk reduction*
- *UCLG, 2015. Peer Learning Note #13: Urban-rural policies for the promotion of decent work in intermediary cities*
- *UCLG, 2014. Peer Learning Note #11: Strengthening Local Economic Development through Urban-Rural Policies*

Chapter 5: Effective Response, Recovery and Building Back Better

This chapter will examine the operational elements of disaster preparedness, response, and recovery in cities and territories, and how local governments are undertaking these actions. LRGs may undertake many of the structural approaches discussed in previous chapters, such as risk-based land-use planning, reducing social vulnerabilities, or increasing the resilience of infrastructure systems in order to reduce current and future risks and build resilience. However, they still need to have a plan to prepare for, and effectively respond and recover from crises and build back better.

LECTURE 1

Lecture 1: Local preparedness and response

The effectiveness of disaster management - in terms of preparedness, response and recovery - often depends on the success of the management systems and institutional environment in place. Optimal coordination, with a clear allocation of roles and responsibilities based on a sound legal framework and a clear competences scenario, will facilitate maximum control over the disaster management cycle, and thereby contribute towards enhancing efficiency in mitigating and responding to potential impacts.

Preparedness

Within the disaster management cycle, preparedness refers to short-term actions taken before a disaster to minimize potential impacts of a hazard, not previously reduced through mitigation. Preparedness measures can include analysis and planning related to what to do during a disaster, what food and supplies to have on hand, how to evacuate, where to go, who to contact, and where to seek emergency shelter. Risk communication and public awareness programs are important elements of the preparedness phase by increasing risk awareness of the general public and facilitate emergency preparedness starting from individual levels to ensuring the continuity of businesses. School

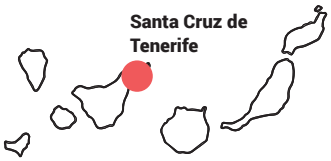
> ***Risk communication and public awareness programs are important elements of the preparedness phase by increasing risk awareness of the general public and engaging the community***

wide curricula on risk preparedness, training and drills are important elements of the preparedness phase. Many local governments also involve the community through volunteering programmes, training, cultural activities, or work with civil society organisations for a wider citizen reach.

In addition, planning of evacuation routes, the identification of shelters, and storage of emergency food and equipment supplies and alike are some of the spatial elements that go into thinking about preparedness. City planners can incorporate emergency functions in the planning process by considering shelter spaces and multi-use open spaces; incorporating potential redevelopment areas in plans; and developing policies that will guide recovery and reconstruction processes.

The preparedness phase is driven by the LRG's knowledge about the risks and hazards in their local context and even regional level challenges. In this sense, it is key that LRGs have robust diagnoses of possible shocks and stresses. Depending on their location, these risks can have different causes. They may be strictly environmental like earthquakes, floods, droughts, etc.; economic – including financial crises, informality, etc.; health - such as the recent COVID-19 pandemic -; or anthropogenic - pollution, forest fires, etc. They can also be interconnected among them and at a global scale - such as the fight against climate emergencies. This diagnosis, along with a clear identification of responsible managers of first emergency actions, allow risk management specialists to draw up a sequence of actions aimed to minimise damage, both in terms of human lives and economic resources.

CANARY ISLANDS, SPAIN



Santa Cruz de Tenerife's Municipal Emergency Plans

The municipality of Santa Cruz de Tenerife (Spain) has promoted a **Municipal Emergency Plan** (*Plan de Emergencias Municipal,* PEM). Due to its volcanic origin and certain seismic activity, the priority aspects of the PEM are defined in detail and illustrate how LRGs implement a contingency plan in the face of all possible risks.

The goal of the PEM is to generate clear and precise multi-sectoral guidelines. In Spain, the drafting of a PEM usually costs between 15,000 and 50,000 euros. This depends on the existing population, the amount of information available, and the time required for drafting (which should not exceed six months). The PEMs are coordinated by the regional administration and developed by each municipality, according to existing legal regulations. A PEM usually consists of six phases: 1) multi-sectoral analysis, 2) risk assessment, 3) structure, 4) operationalisation, 5) implementation and monitoring, and 6) various supporting annexes. A summary of each phase is described below.

1) Multi-sectoral analysis. A PEM consists of a detailed analysis of the topographical, geological and morphological conditions. Additional components include the vegetation and its natural heritage, climatology, socio-economic and demographic context, historical heritage, communications networks, and an inventory of potential sites for temporary shelter. The analysis for Santa Cruz de Tenerife PEM focused on volcanic activity and hydrography, as well as biomass with susceptibility to becoming plant fuel. It further looked at areas in need of biodiversity protection. In terms of climate, risk episodes identified were linked to Saharan winds. They include progressive warming and risk of originating tropical storm cycles where torrential rains and destructive winds converge. Contextually, it was crucial to analyse the risk of potential impacts to the tourism industry, as well as effects on critical infrastructures such as port and telecommunications, which are key to an island economy. The analysis identified buildings and facilities (football fields, pavilions) that could be used by the population as temporary shelters.

2) Risk assessment. In this phase, it is essential to explain the PEM methodology and define concepts such as "risk indexes", "probability" and "damage" in a scoreboard format which is easy to update. Accordingly, the PEM verified changes between 2014 and 2002 regarding flood hazards, air pollution, pandemics, public events, and marine pollution. Other hazards changed from low to medium risk: airborne dust, landslides, critical infrastructure, droughts, tsunamis and volcanic activity.

3) Structure of the PEM. In this phase, the PEM sets itself as the lead body and defines its responsibilities throughout the process. This section defines the command centre, advisory committee, information office, 24-hour operational centres, IT systems and physical transmission infrastructures, advanced control centre, operational intervention bodies, security and logistics teams, along with the necessary support groups.

4) Operationalisation. Here is where the PEM defines all the protocols to be activated from early warning to the recovery of normality. The protection phase consists of population warning, protection of people, goods and health. Meanwhile, the intervention phase manages relief and assistance tasks, damage neutralisation, control and support to action groups. Finally, the rehabilitation phase restores basic services supply and reconstructs infrastructures in a clear return to normality.

5) Implementation and maintenance. During this process, it is key to generate a timetable of actions for the PEM implementation programme, which should not exceed more than 12 months.

6) Additional information to support the PEM. For the Santa Cruz de Tenerife PEM, the annexes provide an inventory of human and physical resources available, along with their location and contact telephone

numbers (24 hours a day, seven days a week). There is also information on the actors involved in mobilising resources at local, regional, and national level. An additional sectoral mapping and operational manuals presented in a DIN A4 sheet format displays information about the people in charge, substitutes, functions, actions to be avoided, and an organisational chart.

Box 18. Source: Ayuntamiento de Santa Cruz de Tenerife, 2015.

Response

Response refers to the actions taken by LRGs in response to the actual disaster once it has occurred. Some of these first responses relate to rescue operations, mass evacuations management, victims' sheltering, emergency medical care provision, and other basic services. In this context of an emergency, it is necessary for LRGs to maintain maximum control of the situation, and essential to maintain an updated disaster management plan. It must outline the city's mitigation, preparedness, and response phases during local emergencies including details on roles, responsibilities, resources, cooperation and coordination.

During this phase, and in parallel to actions safeguarding the population, it is key for early risk planning to ensure the continuity of critical infrastructures in an emergency context. Ranging from public order maintenance with the help of civil protection professionals - such as firefighters, local police, etc. - to the supply of drinking water, electricity, telecommunications networks, communication roads and food and health supply chains, and basic necessities, especially for the most vulnerable population, who are often hardest hit by the disaster.

With the increasing occurrence of large-scale disasters (such as hurricanes, conflicts, or also droughts and food crises) **coordination among government spheres** is even more critical. A disaster is first felt locally, but may require to be declared as a national emergency to allow for an adequate response and resource mobilization. This step can unlock national funding and support; however a national (or international) response can easily overlook local commitment, knowledge and visions, and even deauthorize leadership. To avoid this, and as discussed in the first module, it is imperative that LRGs have an enabling environment ensuring robust coordination and multi-level governance frameworks supportive to decisions that may sometimes be taken ad hoc. In this regard, robust coordination between local and external actors must play a role in avoiding overlaps and loss of efficiency in relief and situation management. It is crucial that LRGs communicate and inform, once they have their emergency plan, to organisations, bodies, and agencies they may have contact with in the emergency context, as well as with their associations and other neighbouring cities so that they can maintain regular contact and share exercises and learning experiences.

> ***Disaster management plans must outline a city's response to potential local emergencies including details on roles, responsibilities, resources, cooperation and coordination mechanisms***

Community-based early warning and response strategies

In 2018, UCLG and UCLG-ASPAC held a peer learning workshop on DRR and localization of the Sendai Framework in the city of Surabaya (Indonesia), with many cities highlighting clear coordination mechanisms and the engagement of communities as a key part of their municipal and regional early-warning and response strategies.

In **Christchurch** (New Zealand), the city has promoted a participatory DRR management framework known as "Community Leaders" since 2014. The inclusive approach taken by the municipality allowed for a better understanding of the residents' challenges, concerns and most urgent needs in emergency situations. In addition, this framework acted as a catalyst for different stakeholders to come together and discuss needs, expectations, and actions to be taken. Such an approach facilitated the development of community-based resilience plans with a higher level of ownership and commitment than the usual disaster risk management approaches.

The province of **Albay** (the Philippines) implemented the "Zero Casualties" strategy in response to its exposure to volcanic eruptions and typhoons. As part of the strategy, teh city created a permanent disaster management office and institutionalised DRR through legal decrees. The implementation of the regional early warning system required significant financial investment and a change in the culture of risk reduction. Society's involvement also facilitated the implementation of efficient evacuation procedures. All these efforts paid off: in the first 20 years after the strategy was established, not a single casualty due to natural hazard was recorded in the province of Albay, proving the strategy's effectiveness.

The city of **Bochum** (Germany) strengthened municipal administration and management in extraordinary crisis episodes based on three pillars: 1) awareness raising; 2) potential population needs assessment; 3) and the development of specific structures to streamline the municipality's response. The response mechanisms are applicable to a variety of extraordinary situations like severe storms, floods, and unforeseen staff shortages in municipal government. This strategy, along with the principle of subsidiarity in emergency management, improves the preparedness of municipal governments for extraordinary situations and crisis episodes by establishing effective emergency management at the municipal level.

Box 19. Source: UCLG, 2018.

LECTURE 2

Lecture 2: Effective recovery

The recovery phase is a highly complex concept encompassing short-term infrastructure and services restoration, intermediate recovery, and long-term reconstruction phases. Like other DRR management processes, a recovery strategy must cover institutional and financial aspects, but also physical planning and citizen participation. Both recovery and reconstruction phases can, to a certain extent, be planned before a disaster, thus reinforcing the concept of "Building Back Better" and contributing directly to making cities and territories more resilient. Almost all disasters accentuate existing inequalities and can reinforce unsustainable development practices, making the recovery and reconstruction process critical to address deeper layers and root causes.

Almost all disasters accentuate existing inequalities and can reinforce unsustainable development practices, making the recovery and reconstruction process critical to address deeper layers and root causes

Recalling earlier sections of this chapter, LRGs, with the support of technical experts, can establish working horizons and assess their most suitable instruments for possible recovery and reconstruction during the pre-disaster planning phase. Some aspects can be channelled in an agile way, one example being changes in building regulations in order to make them more robust to the impact of a seismic event. On the other hand, actions involving land use changes, such as zoning and relocation, can be more difficult to manage. In these cases, it is essential that LRGs involve the affected population and for relocation to be carried out with the involvement of the community, and the maximum possible guarantees, respect, and transparency.

Shelter and housing policies are key to building resilience within the recovery and reconstruction process. The concept of shelter encompasses everything from emergency or temporary housing to the different forms of permanent housing tenure within the reconstruction consolidation process. Access to initial shelter in emergency disaster contexts ensures not only the survival of the affected population but can also become a starting point for economic recovery. What is planned for as an immediate and temporary solution often gives room to other dynamics and initiatives, through which temporary camps establish themselves as permanent neighborhood. Even modest forms of shelter can engage the affected population by gradually evolving into more ambitious economic and urban development policies. In the long-term horizon of the reconstruction process, financial and logistical assistance could even reinforce the public housing stock.

In the planning framework for housing reconstruction, it is essential that LRGs develop a holistic approach to urban settlement to generate spatial solutions to future challenges.[11] This way, settlement design needs to integrate improvements to both private housing space and public space like reinforcing land reserves for community facilities and green spaces. The settlement approach, based on a socio-economically

11. See also the Guidance Notes on Recovery from the International Recovery Platform

> ***In the planning of the reconstruction, it is essential that LRGs develop a holistic approach to urban settlements generating spatial solutions to future challenges***

defined space, shifts the focus from households to neighbourhoods and communities (Grimaud and Campbell 2016).

Socio-economic opportunities and provision of resources for the most vulnerable populations, including through cash transfers and material assistance (for property-based reconstruction), help to cover immediate needs and ensure no one is left behind. Taking into account the individual initiatives, it also can enable self-organization and enhance communities' systemic resilience. Taking the voluntary initiative into account is key to ensure the social cohesion of the population who is committed to rebuilding community life after the impact of a disaster.

Effective coordination with humanitarian stakeholders

In order to ensure that the response and recovery processes are effective in building resilience, LRGs often must take the lead and coordinate the actions of various actors, especially those working in humanitarian agencies and organisations. The UCLG Working Group on Crisis Prevention and Crisis Management has developed a guidance document[12] highlighting the need to align perspectives and priorities between LRGs and humanitarian actors; strengthening humanitarian coordination; and improving LRGs' work effectiveness with humanitarian workers. Those recommendations include:

- The need to **clarify local authorities' responsibilities** for crisis management and forging links with the National Disaster Management Authority (or equivalent) and relevant regional/international actors.
- Establishment of a focal point and assignment of a team according to available resources and level of risk, to **identify and map the entire territory**, including actors and informal agreements within it.
- Conducting **testing and simulation exercises** to build trust, listen to expectations and needs, identify possible communication breakdowns, and improve coordination systems.
- **Gather information** and collaborate with (and lead, depending on the context) mechanisms and processes designed to strengthen different humanitarian actors' accountability. To this end, LRGs should have increased access to information related to plans and activities supporting public communication efforts.
- Dual collaboration with national and international development partners, supporting and understanding the local authority's context. LRGs should encourage humanitarian actors to **use a territorial approach** taking into consideration community participation and a full and comprehensive recovery of the affected territory, beyond their post-disaster intervention.

12. Guidedance for local authorities in working with humanitarian actors (https://issuu.com/uclgcglu/docs/guideautorit_slocales3langues__1_)

- Coordination and jointly **planning for the return of external humanitarian partners** to avoid disruption of services to the affected community. It is key to ensuring sustainability and effective transition at the end of programmes, including the transfer of skills, capacities,and assets.
- Leaving **"open doors" for opportunities** emerging from recovery phases to build long-term resilience and beyond short electoral mandates. Many local governments rely on their existing development plans during the recovery phase, yet realise they are no longer appropriate as the context has changed significantly.

Box 20. UCLG Working Group on Territorial Prevention and Management of Crises, 2019

DYNAMIC

30 min

Divide participants in four groups (3-4 per group)

Handout: Beyond the timeline (Hazards and Action cards)

Preparations: For in-person workshops, you will need to print and cut the Hazard and Action cards included in the handouts (print one set for each group). You might also need markers and a large sheet of paper (board) to draw the timeline.

For virtual workshops, the dynamic can be implemented using a digital whiteboard such as Mural. Contact us to have access to the digital templates.

Dynamic: Beyond the timeline

The objective of this game is to co-create an emergency preparation and response plan for a specific hazard, in order to reflect on the appropriate sequence of actions and strategies and their implications. It aims to foster discussion among participants about the complexity of DRR and resilience building strategies, and the reality in which preparation, response, and recovery actions need to be undertaken simultaneously. Moreover, it highlights the need for a prospective approach in order to break the cycle of disaster and response, and move beyond the timeline towards resilience.

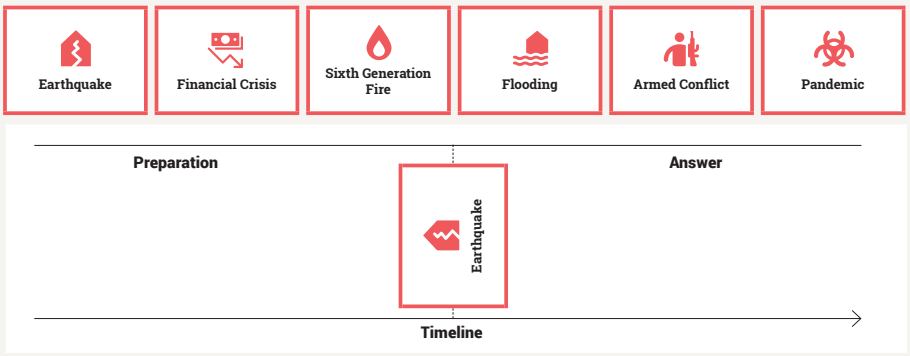
Introduction (5 minutes):

1. Divide participants in groups of three to four to play the game. Each group should have one board/large sheet of paper (or simply a table), a set of hazard cards, and a set of action cards.

   Hint: For virtual workshops, create one Mural with multiple copies of the game, and assign each group to one of these areas. Explain the instructions in the plenary before dividing participants in breakout groups.

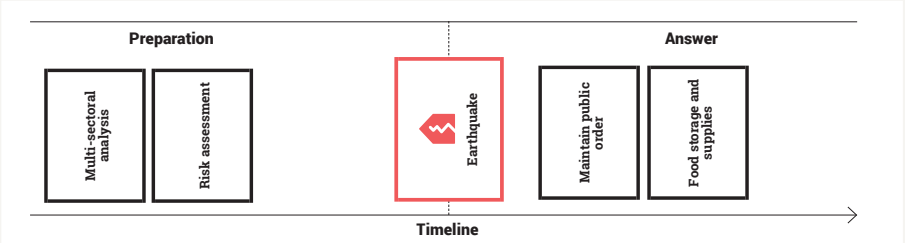
2. Invite each group to select one of the Hazard cards, and put them in the middle of the board. This will be the hazard for which they will be preparing the timeline.

DYNAMIC



Actions cards (15 minutes):

3. In turns, each player should uncover one of the action cards, and place it in the board where he/she deems is the appropriate location along the timeline. The player should explain to the rest of the group the reasoning for the card's location . When placing a new card, a player can move other cards to make space for his/her card in the location he/she thinks is the most appropriate.



4. Once all the action cards have been played, each player should take a "Joker" card and fill it out with a new preparation or response action, targeted to the specific hazard of the group. In turns, place the cards in the appropriate locations within the timeline, explaining the action and its relationship to the hazard to the other group members.

Discussion (10 minutes):

5. Finally, discuss among the group the timeline you have created, the general sequence of the actions, and how the recovery phase can be built on or help to implement some of the actions described.

LECTURE 3

Lecture 3: Building back better

The concept of "Building Back Better" (BBB) was first used after the impact of the tsunami in Southeast Asia in 2004. It was later incorporated by UNDRR in the Sendai Framework and gained prominence after the COVID-19 pandemic. A BBB framework refers to the process of recovery, rehabilitation and reconstruction after a disaster that should increase the resilience of communities (see Figure 10). While a simple concept, its implementation presents a real challenge, given that "recovery is not a clean linear progression with a clear end point, but part of a continuum of development and change. It is complex, long-term and multidimensional - economic, social, psychological, physical, environmental, political and institutional - and takes place at the same time and at different scales" (ODI, 2018).

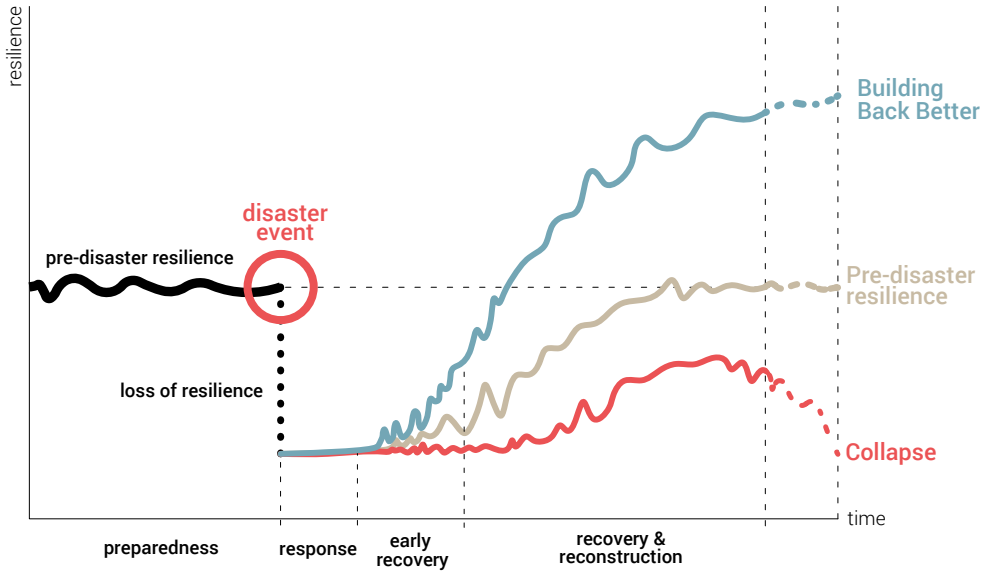


Fig 10. Building Back Better can not only restore but improve resilience levels.

A Building Back Better framework focuses not only on preventive measures to reduce future recovery costs, but also on incorporating structural, social, and environmental improvements to enhance the population´s well-being

This is a process that focuses not only on preventive measures to reduce future recovery costs, but also on incorporating structural, social, and environmental improvements to enhance the population´s well-being in the long term. This term has been widely used in the context of post-COVID-19 socio-economic recovery. The impact caused by this epidemiological crisis has highlighted numerous shortcomings already known, such as the lack of resources to provide public services, in particular citizens' health; difficulties to access housing; the need to reduce the digital gap, especially in education and to facilitate teleworking; the urgency of ensuring adequate housing and access to basic services for vulnerable populations as well as to secure their livelihoods (UCLG, 2020).

In July 2020, UCLG launched a "Decalogue for the post-COVID-19 era" as a starting point for a post-pandemic BBB strategy. It insists on the need to (1) guarantee universal public services; (2) stimulate public finances; (3) promote models of proximity in consumption and production; (4) achieve a global green deal; (5) ensure greater protection of citizens' freedom; (6) greater equality; (7) territories that take care of their public servants; (8) by putting in place a more inclusive and caring economy; (9) the strengths of the inter-urban system and (10) by firmly committing to a new generation of multilateralism.

As discussed in previous chapters of this module, resilience-building strategies vary depending on the geographical, administrative, political, and financial context of the city or territory along with the role of the stakeholders involved. However, the following three approaches can facilitate the articulation of a resilient BBB strategy by LRGs:

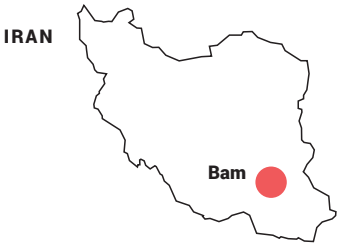
- **Building back stronger** ensures social, economic, and environmental infrastructures are more resilient to future impacts. Some studies (IBRD-WB, 2018) indicate that, if reconstructed infrastructure can withstand the next 50 years, it can save up to US$65 billion a year in repairing potential damage.
- **Building back faster**, ensuring pre-planning in which "what, how and when" is defined. Thus, reducing financial uncertainty and improvisation. The same studies indicate that reducing the average speed of reconstruction by two thirds without compromising quality could reduce welfare losses by 14% (IBRD-WB, 2018).
- **Building back more inclusively** ensuring that no one is left behind, especially the most vulnerable populations. Studies have demonstrated that countries which were more considerate of these populations saw a 9% reduction in welfare losses associated with natural disasters (IBRD-WB, 2018).

A BBB process usually stimulates the introduction of policies and instruments that enable the improvement of the quality of reconstruction processes. However, the presence of legal frameworks is essential to facilitate decision-making. As discussed in this chapter, emergency plans should place citizens at the core of the public policies promoted by the LRGs. They also need to be formulated with defined stakeholder involvement, financial sources availability and the processes to be followed during contingency phases.

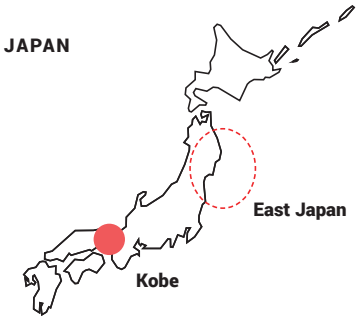
Lessons on response and recovery strategies for major earthquake events

Devastation episodes caused by earthquakes often have major impacts on cities and their communities and recovery can take years. The following case studies showcase some of the lessons learned from the reconstruction

and recovery strategies of cities directly impacted by major earthquakes such as Kobe and Fukushima (Japan), Bam (Iran), Haiti and L'Aquila (Italy). They show how far they have come in building resilient strategies linked to the recovery process. It also demonstrates whether some of them have been able to strengthen their resilience capacity or, on the contrary, are weaker in the face of the impact of new hazards.



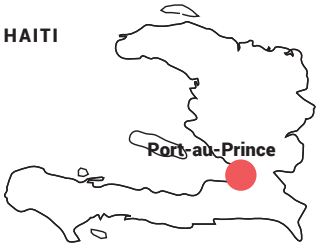
The city of **Bam** endured an earthquake in 2003 which devastated 70% of one of the oldest urban areas on the planet and a UNESCO World Heritage Site. The death toll was approximately 45,000 people, almost half of the population, and the citadel of Bam was completely destroyed. Initially, the Iranian Cultural Heritage, Handicrafts and Tourism Organisation (ICHHTO) took the lead in the recovery efforts. The most important activities carried out were debris management and road clearance. Alongside this work, national and international teams implemented pilot projects to strengthen and improve traditional mud-brick structures, based on prior research. In the case of Bam, beyond the necessary quality of its heritage reconstruction, it was key to reinforce the soil, and incorporate structural requirements to improve future earthquake resistance. The use of palm fibres was an important result from searching for natural additives to improve the adobes mechanical quality. By 2020, approximately 80% of the ancient citadel of Bam had been reconstructed and the flow of tourists is expected to recover once the COVID-19 restrictions are lifted.



The city of **Kobe** was hit by a major earthquake in 1995. More than 5,000 people were killed and nearly 60,000 buildings were destroyed, causing losses of US$60 billion. The local government promoted three phases to boost the recovery of the local economy: relief, recovery, and new development. "In some cases, the local community promoted building and street restoration projects, demonstrating the power of social capital and the need to strengthen ties within communities". The long-term resilience strategy was channelled through two axes aimed at diversifying the industrial economy: the revitalisation of handicrafts and the creation of new businesses in emerging sectors such as advanced technology and biomedicine. The city also became a testing ground for anti-seismic technologies and implemented large-scale anti-seismic "isolation" technologies. This led Japan to become a leader in the anti-seismic industry. In this case, "the proactivity of local institutions was key, and collaboration between informal and formal institutions played an important role in the crisis response". Finally, "resources such as culture and creativity can be instrumental in shaping new pathways. They can stimulate innovation capacity and economic change by rejuvenating existing traditional sectors or creating a new one", as had been the case in Kobe.

In 2011, the Great **East Japan** Earthquake and Tsunami resulted in a total of 18,000 deaths and triggered the Fukushima nuclear power plant disaster. The central government undertook rebuilding the affected

region to a high level of safety. The first infrastructure projects (dikes, roads, elevated highways, etc.) were designed based on simulations of future tsunamis and potentially flood-prone areas that had been banned. Housing projects were encouraged in elevated areas with an increased provision of public housing for people who could not afford to rebuild their own homes. This experience highlights the need to involve the community in the structuring of a BBB strategy. Given that building "safer" alone is not sufficient to address existing needs in the recovery phases and it is essential to generate greater synergy between people's BBB strategies and risk reduction principles.



In January 2010, an earthquake struck **Haiti**, causing more than 220,000 deaths and leaving the poorest country in the Caribbean on the brink of failure. While the international response was swift, experience has shown the great difficulty of implementing BBB strategies in a context diagnosed with chronically weak governance, insecurity and violence, systemic and desperate poverty, and frequent tropical storms; and where disaster risk reduction is low on the country's development agenda. Aspects such as the lack of control in the reconstruction process with little security in allocating funds from foreign governments and agencies, limited the effectiveness of a real resilience strategy and the perpetuation of the "response" phase with many environmental, physical and economic challenges pending. This may aggravate the situation of the population in the face of future shocks.

Lastly, the region of L'**Aquila** was hit by an 6.3 earthquake on 6 April 2009. It devastated the region's capital and 56 surrounding municipalities. Approximately 309 people died, 1,500 were injured and 70,000 found themselves homeless in the affected area, known as "the crater". A state of emergency was declared within hours and extraordinarily lasted three years. Although the reconstruction process was almost complete by 2020, it has received much criticism. The critiques are based on the "bad use of 493 million euros" and the lack of transparency from the local governments. During the three years' state of emergency, a top-down approach was adopted by national and sub-national governments, with state transfers to which local governments had easy access. Local authorities contracted companies without tendering for clean-up and reconstruction work, without transparency and lack of accountability, which eroded the possibilities for participatory learning and transformation. Over time, only through citizens' efforts has it been possible to correct episodes of neglect and contribute to making the BBB concept viable.

Box 21. Sources: Ghafory-Ashtiany y Hosseini, 2008. Oliva y Lazzeretti, 2017. Maly y Suppasri, 2020. Patrick, 2011. Contreras, Blaschke y Hodgson, 2017

10 -15 min

Debate: Stronger, faster, more inclusive?

Invite participants to discuss what measures and actions LRGs can take to "Build Back Better" along the three guidelines presented in the lecture:

- Building back stronger
- Building back faster
- Building back more inclusively

Ask participants to reflect on what LRGs would need in order to achieve these actions, whether some of these actions are in conflict with other principles discussed in the modules (planetary limits, leaving no one behind, etc.), and whether any of these measures would need pre-disaster actions and preparation to be feasible.

Resources

- *International Recovery Platform, n.d. Guidance Notes on Recovery*
- *UCLG Working Group on Territorial Prevention and Management of Crisis, 2019. Guidance for local authorities working with humanitarian actors*
- *UCLG, 2018b. Peer Learning Note #24: Local and Regional Disaster Risk Reduction*
- *UNDRR. 2020. Words into Action: Enhancing disaster preparedness for effective response*

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Acknowledgements

Coordination
UCLG Learning

Key Partners:
United Cities and Local Governments (UCLG)
UN-Habitat's City Resilience Global Program
UNDRR's Global Education and Training Institute
UCLG's Taskforce for Territorial Prevention and Management of Crisis

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Gamification (Dynamics & Exercises):
La Taula SCCL

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ggrafic.com

Handouts

Handouts

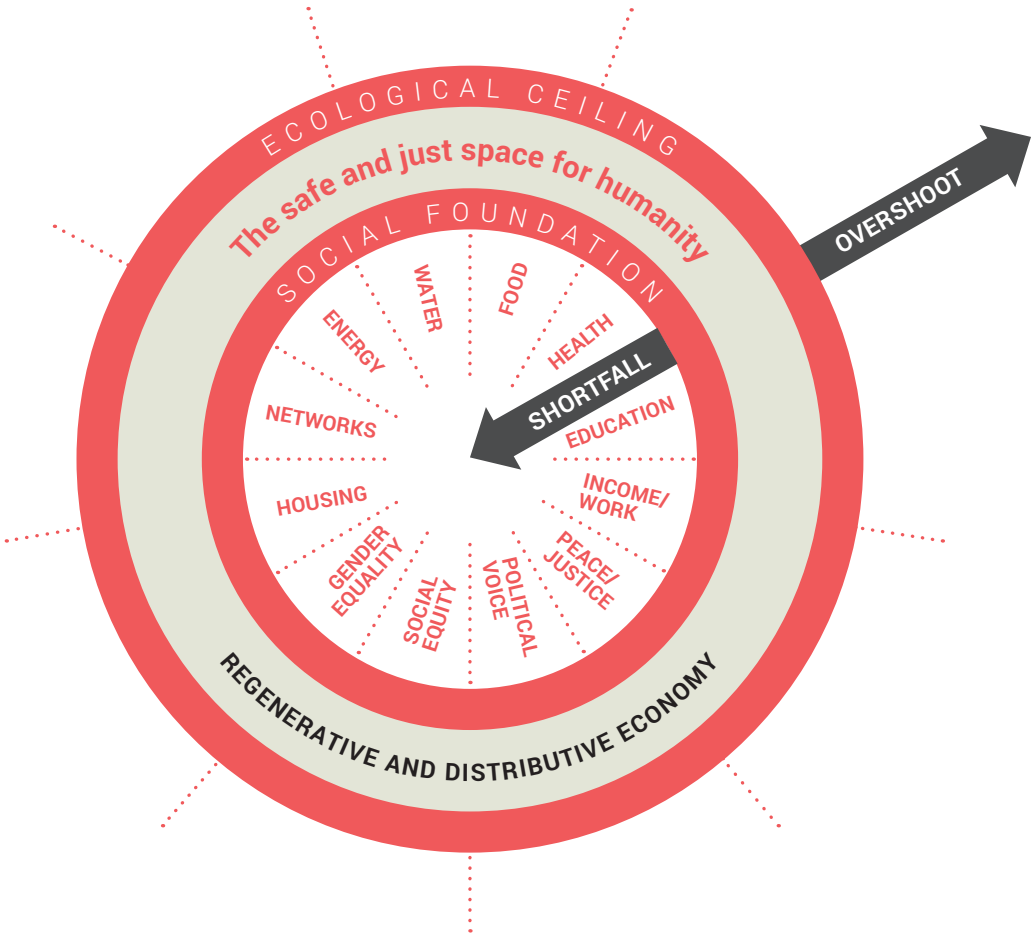
Handout: The Doughnut Economy

Developed by economist Kate Raworth, and adopted by the city of Amsterdam in 2019, Doughnut Economics proposes a framework for an economy centered, not on growth, but on the ability of people and ecological systems to thrive. The 'Doughnut' is made up of an outer and inner circle, which indicate the ecological and social minimums necessary for a resilient and just world.

The inner circle depicts: the social minimums necessary in order to achieve a just, decent life for all people on earth. These map onto the UN Sustainable Development goals, and in their absence, a resilient city cannot be achieved.

The outer circle depicts: the scientific ecological, planetary thresholds, which when breached, will lead to catastrophic tipping points and runaway greenhouse effects. These have similarly been outlined by the IPCC Special Report on Global Warming.

The area in between these circles represents the environmentally safe and socially just space in which humans and the planet can thrive together.



Handout: The Doughnut Economy

Social Foundations (1/3)

ENERGY

Energy must be understood as a right and a common good, ensuring all people have access to safe, affordable energy for heating, lighting, cooking, and transportation. Energy should be derived from ethical, renewable, and sustainable sources, in which the full lifecycle is accounted for and emissions, air pollution and natural contamination are minimised.

WATER

Access to sufficient clean water for drinking, cooking and sanitation is a basic human right. LRGs can play a key role in ensuring there is reliable availability, infrastructure, and accessibility of water for all people. Moreover, it is critical to ensure that water is treated as a common good, owned by all, free from speculation, and used with respect for ecological boundaries.

FOOD

Access to sufficient, nutritious, culturally-appropriate food that is sustainably-produced and ethically-sourced. LRGs should take a systemic, comprehensive and multi-stakeholder approach all along the food chain. Strategies must promote a rights-based approach in which food systems not only serve, but are defined by, communities and ecological needs.

HEALTH

Strong universal health care systems supported by integrated and resilient basic services are critical for the wellness of citizens. This includes a broad spectrum of culturally appropriate considerations, including physical, psychological, reproductive, emotional, spiritual, and planetary wellbeing. LRGs, alongside key partners such as civil society, play an important role in ensuring all citizens are cared for and enabled to thrive.

Handout: The Doughnut Economy

Social Foundations (2/3)

EDUCATION

All levels of government must work together to improve literacy levels, ensure all children are enrolled in affordable, quality schooling, and that citizens can access opportunities for tertiary education and life-long learning. Education systems can play a central role in shifting societal norms thus promoting the inclusion of marginalised groups, improving gender equality, and ultimately ensuring "that no one is left behind".

INCOME AND WORK

All people should be valued equally regardless of their profession or occupation. Yet, much of the most critical work in our societies goes unacknowledged or underpaid, such as formal and informal care work and domestic work. LRGs have an important role in creating enabling environments for employment and promoting the right to decent work for all.

PEACE AND JUSTICE

Peace must be the axis of our cities, wherein all residents' human rights are at the center. Peace is built upon equity, belonging, justice and trust. Local and regional governments can play a key role in creating enabling environments for all people to thrive, through participatory processes, social cohesion building, conflict resolution and transparency in governance.

POLITICAL VOICE

This involves transparency and accountability in governance; civic education to empower populations to understand their rights, responsibilities and political systems; and enabling environments to ensure all groups can express their needs, as well as freely and fully participate in decision-making and all forms of leadership.

Handout: The Doughnut Economy

Social Foundations (3/3)

SOCIAL EQUITY

LRGs play a key role in protecting citizens' Right to the City, regardless of gender, race, class, sexual orientation, ability, or nationality. This includes promoting fair access to resources, adequate service delivery and social welfare, inclusive public spaces, and fostering the preservation of the commons. All social groups should be enabled to actively participate in society and politics.

GENDER EQUALITY

People should be actively valued, cared for, and enabled to participate in civic and political life and leadership positions regardless of their gender. This includes ensuring equal access to education; access to work for equal pay; recognizing unpaid labour such as domestic and care work; and engaging boys and men to eliminate gender-based violence.

DECENT HOUSING

The right to safe, affordable, accessible housing is a key priority for any citizen, intrinsically related to decent living conditions, life opportunities, and territorial and urban cohesion. The principles set out in the Cities for Adequate Housing Declaration, such as more powers to regulate the real-estate market, or urban planning that combines adequate housing with quality neighborhoods, are key milestones to promote.

NETWORKS

This refers to peoples' ability to create and nourish networks, ranging from access to information and internet, to social support, community reciprocity and care structures. LRGs and LRAs play an essential role in facilitating equal access and opportunities to connect, and ensure communities are at the core of the multilateral system by raising their voices and engaging in solid partnerships with all stakeholders.

Handout: Urban Planner Power: Tools & Processes

The table below lists some of the tools and processes that LRGs can use to integrate resilience and DRR into their planning and spatial development. This is a non-exhaustive list which will vary according to the national and regional context and legislative frameworks.

MACRO LEVEL	
Land Use Related	**Development Control Related**
Situation analysis (including shocks and stresses) Visioning & Goal setting (informed by resilience) Technical assessment (environmental feasibility and risks categories) Land Development Scenarios (including DRR implications, climate and socio-economic trends) Land Use Policy (which forbids certain use, protects hazard-prone and environmental sensitive areas, mitigates impact of shocks, and prevents further stresses) Urban Upgrading programmes (Regeneration and formalization plans for informal settlements, etc.) ...	Zoning (integrating risk and adequate standards) Land Subdivision (require risk assessments; integrate resilience principles in the design of utilities and service provision expansion) Land Acquisition (restrict development in hazard-prone areas or provide buffers) Transfer of Development Rights (away from hazard-prone areas and aiming to mitigate stresses) Building Control (Resilient standards, materials & retrofitting specifications. Increased technical capacity accompanied by culture of compliance) Community guides and training for resilient building and risk mitigation (affordable materials, techniques, local ideas) ...
MICRO LEVEL	
Structural	**Non-structural**
Changing inclination/direction/fixing of roofs, and install gutters (for better rainwater run-off and avoid roof damage) Adapt construction material (walls/pillars) to potential shocks (heavy rains, winds, earthquakes, etc.) Improving electricity installations (preventing exposure to floods and/or fire risks) Repairing/reinforcing public infrastructure (wastewater pipes, rainwater drains, roads, etc.) ...	Preventing waste clogging in drains, waterways and roofs Promote community risk-awareness to prevent development in hazard-prone areas Improve waste collection, recycling and management Engage grassroot organizations and schools in campaigns and drills Emergency/evacuation routes signs in public spaces ...

Source: Adapted from ADB. 2016a.

Handout: Urban Planner Power

Base section

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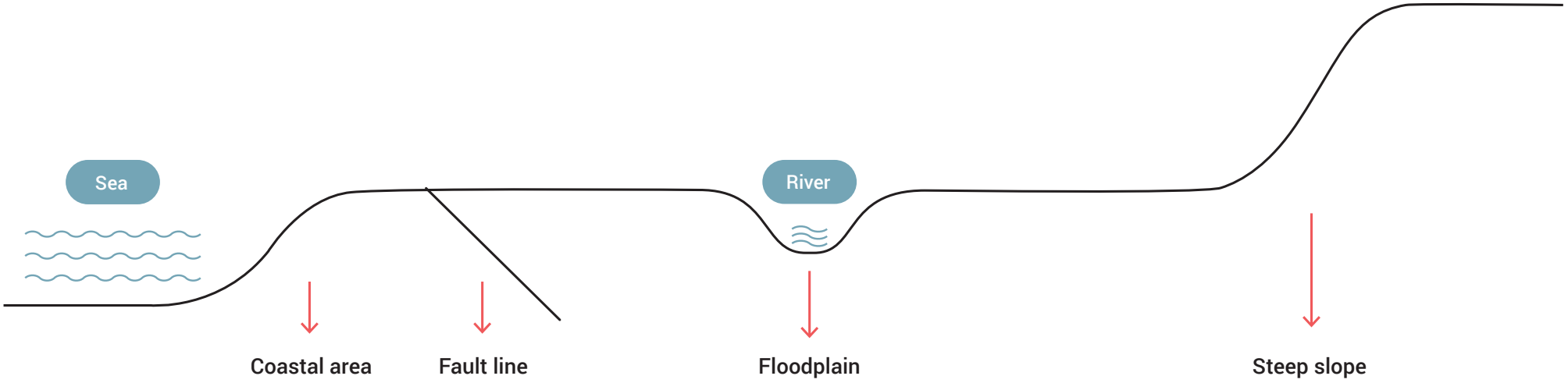


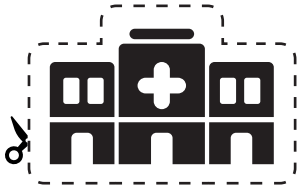
Place the icons on the section without overlapping

Handout: Urban Planner Power

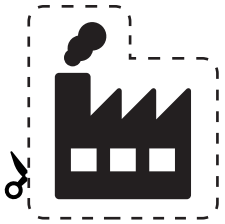
Icons

Bloques de viviendas

Viviendas unifamiliares



Hospital

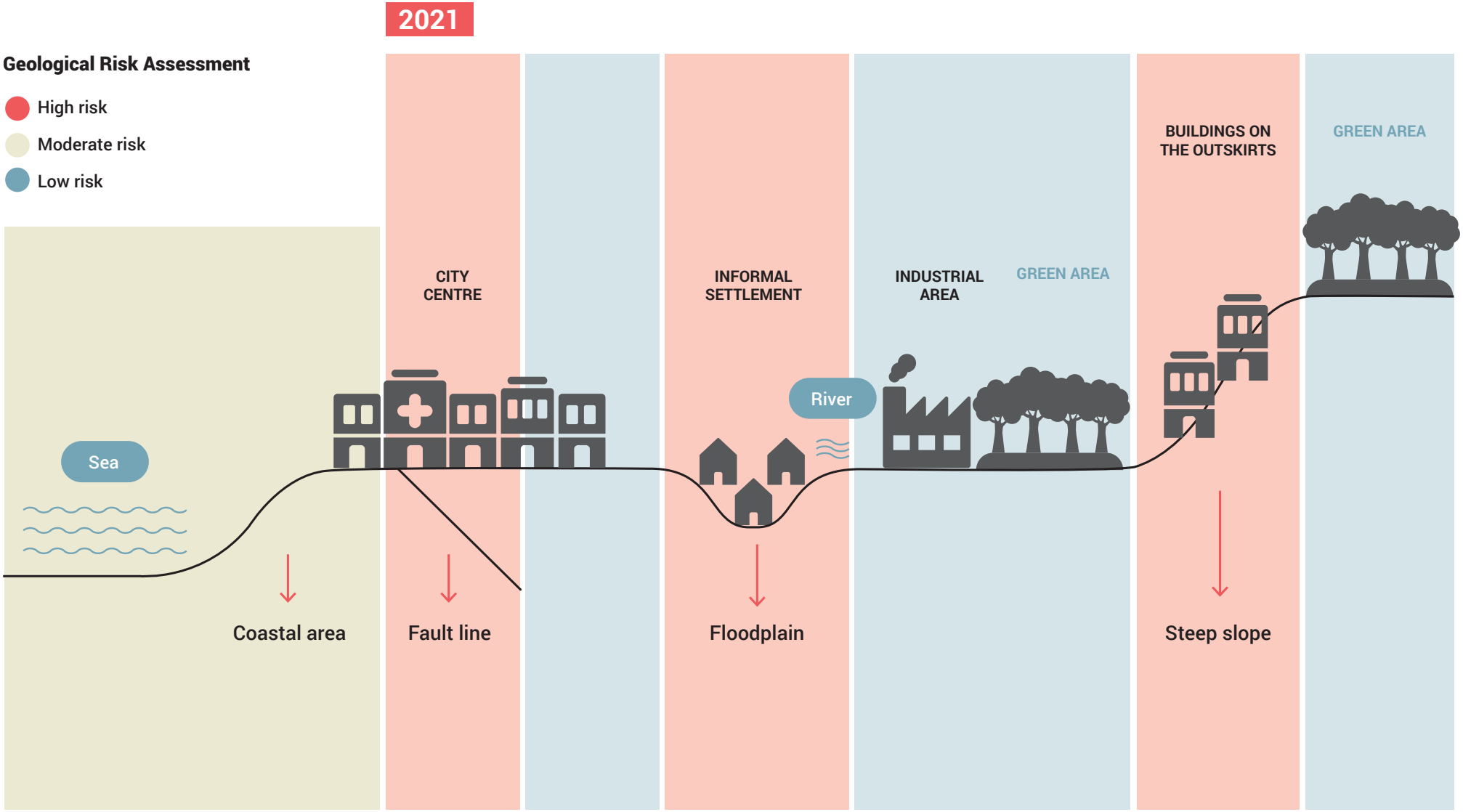


Zona industrial

Zona verde

Handout: Urban Planner Power

Sample city section



Handout: Renaturing Pathways

Challenges

Miami

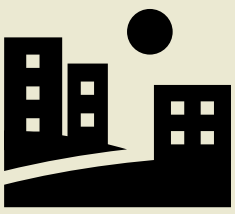
Miami is one of the most exposed cities facing wave erosion and flooding during hurricane and storm seasons. In addition, sea level rise due to climate change will severely affect its population.

Milano

Milan is one of the cities with the most air pollution in Europe. In addition, every summer heat waves have intensified, significantly increasing the mortality rate among its citizens.

Farellones

The village of Farellones, like many other municipalities in the Chilean Andes, is located in a high-risk area for avalanches and landslides. In addition, climate change is increasingly reducing the ski season, directly affecting the tourism sector.



Kombolcha

Rainfall is increasingly scarce in the Sahel zone between the Sahara and the African savannah. Many communities in this area, such as the town of Kombolcha, in Ethiopia, suffer from drought and desertification, leading to large-scale migration and conflict among their inhabitants.

Handout: Renaturing Pathways

Challenges

CITY

DESCRIPTION

CITY

DESCRIPTION

CITY

DESCRIPTION

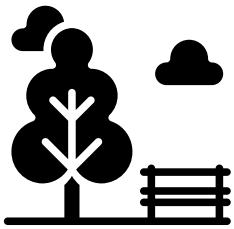
CITY

DESCRIPTION

Handout: Renaturing Pathways

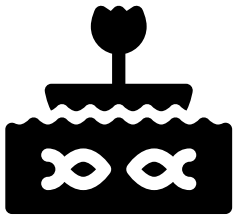
NbS Cards (1/3)

PARK CREATION AND MANAGEMENT



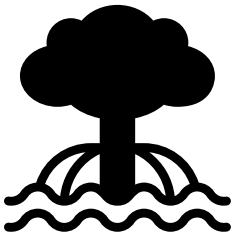
Reduce urban heat with cooler areas and act as biofilters for air pollution.

WATER-RETAINING GARDENS, PONDS, AND SWALES



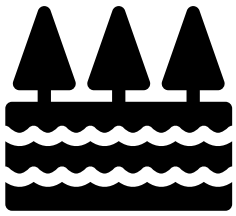
Debris and pollution removal while concentrating and conveying stormwater runoff.

RESTORATION AND CONSERVATION OF MANGROVES AND/OR MARSHES



Absorb energy, reduce storm surges, filter and distribute sediments along the coastline.

SOIL AND/OR WATER BIOREMEDIATION

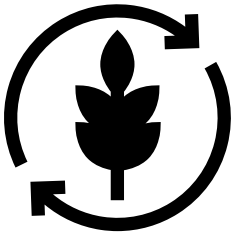


Detoxifies hazardous substances in a cost-effective and less disruptive manner.

Handout: Renaturing Pathways

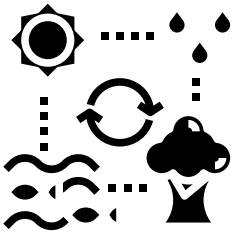
NbS Cards (2/3)

CLIMATE SMART AGRICULTURAL SYSTEMS



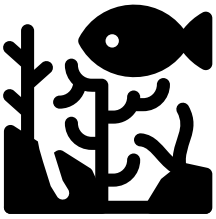
Improve food security, sustainable productivity, reduces agriculture green-house gas emissions.

CREATION OF BIOLOGICAL CORRIDORS



Increases species conservation and supports sustainable development in high biodiversity areas.

CORAL REEF CONSERVATION



Enhances water quality, reduces pollution, promotes sustainable fishing

RIVER AND WETLAND RENATURALIZATION

Flood risk reduction, biodiversity restoration, and establishment of new recreation spaces.

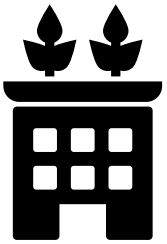
Handout: Renaturing Pathways

NbS Cards (3/3)

HILLSIDE RESTORATION AND REPLANTING

Reduce stream water salti-ness, landslide risk reduction, and erosion control

ROOFTOPS AND GREEN ROOFS

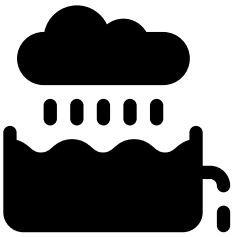


Reduce urban rainwater runoff and cooling buildings

ECOTOURISM IN RURAL OR PROTECTED AREAS

Minimize environmental impact from tourism, increases conservation aware-ness, boosts employment opportunities

REGIONAL WATER BASIN MANAGEMENT



Promotes citizen awareness, ensures adequate supply of fresh water

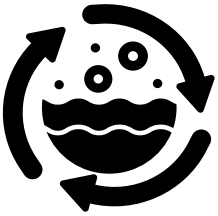
Handout: Renaturing Pathways

NbS Cards (4/3)

COMMUNITY GARDENS AND URBAN AGRICULTURE

Regulation of ecosystem services through soil formation, nutrient cycling, and sustaining biodiversity. It also increases food security and community engagement.

GREYWATER RECYCLING

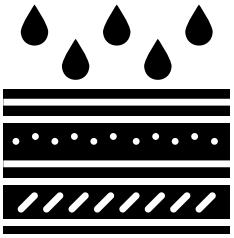


Potentially enhance wetlands and streams. Reduce freshwater consumption and pollution.

FOREST MANAGEMENT

Reduces soil erosion, creates micro-climatic conditions, strengthens social resilience (revenue diversification and capacity building)

PAVING AND PERMEABLE SURFACES



Absorbing and reusing rainwater, flood risk reduction, filter pollutants

Handout: Beyond the Timeline

Hazard Cards

Earthquake

Financial Crisis

Sixth Generation Fire

Flooding

Armed Conflict

Pandemic

Handout: Beyond the Timeline

Action Cards (1/2)

Establish a governing body and its competences	Ask for help from regional, national or international support teams
Securing the food and health supply chain	Multi-sectoral analysis
Risk assessment	Maintain active supplies of water, electricity and telecommunications

Handout: Beyond the Timeline

Action Cards (2/2)

Maintain public order	**Disaster recovery planning**
Risk communication and public awareness programmes	**Designing early warning protocols**
Food storage and supplies	**Providing financial support to companies**

Handout: Beyond the Timeline

Joker Cards