

Urban expansion in marginal city areas increases the risk of fatalities and home devastation when extreme weather occurs. But many Latin American cities are successfully tackling disaster risk, driven by effective urban governance.

# DISASTER RISK REDUCTION IN URBAN AREAS



## SUMMARY

In the context of urbanisation, disaster risk increases as a result of badly planned and managed urban development, degraded ecosystems and poverty. The Disaster Risk Reduction (DRR) processes developed in several Latin American cities show the benefits of making risk reduction an integral part of local development. The importance of good information for risk assessment, government-civil society collaboration, and links between local, national and regional levels of government is also evident. Latin America's DRR experiences can offer a wealth of lessons for African and South Asian counterparts embarking on their own urban risk reduction processes.

## DISASTER RISK IN AN URBANISING WORLD

As the world's population urbanises, disaster risk - such as landslides and floods destroying homes and taking lives - increases in urban areas. More than 80% of all disaster loss reported in Latin America occurs in urban areas, and the number of disasters reported in small- and medium-sized cities is ever increasing.

The magnitude of disaster risk in South Asia and Africa is also substantial. For example, 44.7 million people in South Asia live in areas exposed to floods. Reports for Africa estimate that between 1997 and 2008 there were 166 large-scale urban disasters that affected 3.3 million people, and that figure does not even include fire.<sup>1</sup>

<sup>1</sup> EM-DAT. 2008. Emergency Events Database. CRED, Louvain, Belgium, cited in Pelling, M., Wisner, B. 2009. African Cities of Hope and Risk. In: Pelling, M., Wisner, B. (eds). *Disaster Risk Reduction: Cases from Urban Africa*. Earthscan. London.

## KEY LESSONS LEARNED

Embedding disaster risk management within overall development efforts has yielded positive results.

Competent city and municipal governments have been key players in DRR, and their effectiveness has been enhanced when they have collaborated with local communities and civil society.

Support from higher levels of government proved crucial, as many DRR initiatives need coordinated action across government levels and sectors.



The quality and capacity of city governance has an enormous influence on the disaster risk its population faces; quite simply, a city with a good urban and environmental plan, and services and infrastructure in place, can prevent disasters better than one that does not. Weak urban governments tend to be less capable of addressing underlying risk drivers. Badly managed urban and regional development, degradation of ecosystems like wetlands, mangroves and forests that can act as disaster buffers, and high levels of relative poverty are common drivers.

Many cities in Latin America have successfully implemented strategies to prevent disaster risk, and the lessons from these experiences may be useful for other regions.

### Risk Reduction Actions

- **Risk mapping:** evaluating then mapping risk based on data like recurrence of weather events, and the area's physical and socioeconomic characteristics, infrastructure and exposure to the elements
- **Micro-zoning:** based on precise knowledge of how risk is distributed spatially, zones with similar risks are grouped and mapped, which then determines the type of construction and standards appropriate for the zone
- **Updating building codes:** use good information to determine building height, type of foundations and materials used
- **Land-use regulations:** prohibit or limit urban development in hazard-prone areas
- **Retrofitting:** modifications to existing buildings to add structural stability
- **Innovative insurance mechanisms for low-income groups:** risk transfer mechanisms for those that cannot access individual insurance for their assets
- **Engagement:** include low-income affected groups living in high-risk zones

## THE LATIN AMERICAN APPROACH

There are many examples of successful risk reduction policies at the city level in Latin America. This Brief presents specific country examples that reflect some of the key features of the Latin American response: integrating DRR into development policy; civil society and multi-stakeholder collaboration; and local-national-regional linkages.

### Risk Reduction as an Integrated Part of Development and City Planning

Latin America offers good examples of local DRR programmes that integrate risk management in their overall development and city plans. The DRR systems developed by different cities in Colombia may be considered some of the most advanced. The cities of Manizales, Medellín and Bogotá have developed local DRR systems that ensure that disaster prevention is factored into the city's urban development and environmental plan. In the case of Manizales for example, the disaster risk management plan is integrated with *Biomanizales*, the city's environmental policy; *Bioplan*, the city's action plan to facilitate policy implementation; and Manizales *Calidad SXII*, the city's development plan.



Figure 1: Urban Expansion over Ladera Norte in Manizales, Colombia  
Source: Germán Villada



### Highlights of Manizales Risk Reduction Measures:

- Tax reductions for implementing measures to reduce housing vulnerability in areas with high risk of landslides and flooding
- An environmental tax on rural and urban properties spent on environmental protection infrastructure, disaster prevention and mitigation, community education and relocation of at-risk communities
- A cross-subsidised insurance scheme called Secure Plot (*Predio Seguro*) provides poor households with catastrophe insurance cover

### Civil Society: A Key Player

Latin American examples depict a range of approaches for making DRR locally-driven and for collaborating between local governments, communities at risk and other stakeholders like NGOs, grassroots organisations and research centres.

Manizales’ DRR programme integrates civil society education and awareness campaigns with multi-stakeholder collaboration to reduce vulnerability to disasters. For example, joint action between the local government and university and community groups successfully relocated residents living on steep slopes, subject to frequent landslides, to safer sites. They then converted the vacated land into neighbourhood parks and introduced measures to stabilise the slopes.



Figure 2: Slope Failure  
Source: Gonzalo Duque

In the programme Slope Guardians (*Guardianes de Ladera*), 112 head-of-household women living near high-risk zones received training and now work on raising awareness, monitoring the slope stabilisation project, reporting problems and communicating their experience to others. They are supported by a diverse team of professionals and technicians from the government agency responsible for environmental management and sustainability, the Municipality of Manizales, the Red Cross, the water utility company, and the [Institute of Environmental Studies](#) (*Instituto de Estudios Ambientales - IDEA*) of the National University’s Manizales campus.



Figure 3: Slope Guardians Programme Participants Receiving Diploma  
Source: IDEA-AL

In some cases, NGOs have created risk reduction programmes that then become adopted by governments. For example, in low-income areas of Guatemala City, [Doctors without Borders](#) initiated an emergency health programme aimed at reducing community health vulnerability due to disease outbreaks and natural disasters; this then developed into an integral initiative to improve drainage systems, vegetation cover, slope stabilisation, building reinforcement, waste management and vector control. MSF moved from emergency preparedness to a long-term collaborative approach, reducing both present and future landslide risks and health related risks.

In other examples, local NGOs working together with community groups proved able to learn from past experiences and anticipate problems with flexibility. Floods in the city of Santa Fe, Argentina, in 2003 and 2007 exposed the lack of government action in terms of urban and emergency planning and risk reduction. The local NGO [Canoas](#) began providing emergency aid after the floods, and in the process, recognised that local actors had little understanding about risk reduction,



vulnerability and their relationship with overall development issues.

Canoas began an awareness-building programme in five neighbourhoods, giving training on risk reduction, and how to prepare community risk maps and develop emergency plans. The effectiveness of their work was tested during recent city floods in 2009–2010. The neighbourhoods where Canoas intervened were much better prepared and organised, and the government is now reproducing the model throughout the city.

Finally, the role of civil society has been fundamental in driving the debate on disaster risk and in generating proposals to address underlying risk factors. For example, the [Network for Social Studies in Disaster Prevention in Latin America](#) (*La Red de Estudios Sociales en Prevención de Desastres en América Latina* - La Red) has played a key role in stimulating debate, and their work has influenced the approaches adopted in many Latin American cities. Their [DesInventar](#) database keeps records of disasters at all scales, and is a much-consulted resource for researchers and policymakers. In particular, it helped show how understanding and acting on disaster risk was better served by considering how disaster triggers often caused multiple small disasters, rather than conceiving of only one large disaster.

### Inter-governmental Support and Coordination

Other Latin American examples show ways in which local governments have benefited by getting support from higher levels of governments. The Colombian programmes described above are the result of years of work in developing a framework for national-local support. Since 1987, Colombia worked to pass a national law and implement the [National System for Prevention and Response to Disasters](#) (*Sistema Nacional para la Prevención y Atención de Desastres*). The system takes a broad approach to disaster issues, working on both prevention and sustainable development planning. It has national coverage and integrates various stakeholders at national, regional and local levels. It works in a decentralised way through committees, although the main responsibilities lie with municipal administrations. They have the power and responsibility to design and implement local DRR policies, though supported by a national coordinating body.

After Hurricane Mitch decimated Central America in 1999, governments in the region began to reform their national legislation and create multi-sectorial and inter-institutional risk

reduction systems. Each country established a commission or national system for risk management, while also strengthening the role local governments play in DRR. Instead of local governments only having an emergency system that is overwhelmed during crisis, they were empowered to take preventative action.

#### National Disaster Prevention Systems in Central America

Nicaragua: National System for Disaster Prevention, Mitigation and Response ([SNPMAD/SINAPRED](#))

Costa Rica: National Risk Prevention and Emergency Management Commission ([CNE](#))

Guatemala: National Coordinating Committee for Disaster Reduction ([CONRED](#))

Honduras: Permanent Contingency Commission ([COPECO](#))

Panama: National Civil Protection System ([SINAPROC](#))

Other examples show ways in which associations and networks of local governments within country borders, and multi-country efforts at the regional level, have coordinated efforts to address risks across administrative boundaries.

After Hurricane Mitch, five Honduran municipalities established the Alliance of Municipalities of Atlántida ([MAMUCA](#)) to create a dialogue and cooperation platform to address risk. Together they have developed participatory diagnosis and risk assessments, drafted awareness-raising campaigns and installed monitoring systems.

At the regional level, the Andean countries created the Andean Committee for Disaster Prevention and Response (*Comité Andino para la Prevención y Atención de Desastres* - [CAPRADE](#)) that is responsible for coordinating DRR policies in the region. It also backs the initiative Support for the Prevention of Disasters in the Andean Community (*Apoyo a la Prevención de Desastres en la Comunidad Andina* - [PREDECAN](#)), which works to strengthen national and institutional capacities and generate disaster prevention actions.



# CONTEXTUAL FACTORS

# ENABLING LATIN AMERICA'S DRR RESPONSE



Several underlying contextual and enabling factors underpin Latin America's successful DRR strategies.

Centrally organised, national DRR authorities are often unable to assess specific needs of individual localities or respond to emergencies, whereas local actors can. Decentralisation enabled the transfer of responsibility and power from central to local governments who have in many cases been able to tailor solutions to the circumstances of their locality.

Local governments, however, did not always have the capacity to manage these efforts. National laws and frameworks provided guidelines and support, and facilitated important collaboration between local governments.

City governments have the opportunity to draw on local knowledge about risks and vulnerabilities, create partnerships

with actors that have a good grounding in DRR, and engage the collaboration of various actors. Their capacity to work with other stakeholders from various sectors has, in many cases, made a marked difference. The involvement of local citizens has raised awareness and given them a vested interest in the success of DRR and development projects. The continuity of local development policies and disaster risk reduction programmes from one government administration to the next has allowed many of the programmes to mature.

In some cases, the commitment of government and engagement of citizens was spurred on by the occurrence of a disaster. The need to address specific, large-scale disasters substantially changed the approach used, moving from emergency and relief to prevention and DRR.

## LESSONS LEARNED

**1** Latin American experiences highlight different models that can be successful in achieving multi-level collaboration between national and local governments, local governments and multi-stakeholder groups, and local government and the community.

**2** Success came from national governments empowering local governments and arming them with the necessary human and financial resources to tackle disaster risk. These local governments did not

necessarily have all the skills and knowledge required to effectively accomplish DRR, and may not have seen it as a critical issue. National governments, international donors and civil society were able to fill the gaps and build capacity and commitment.

**3** Integrating DRR into urban and overall development planning proved to be a successful strategy. It was made possible by focusing on the causes of risk and taking a long-term view.

**4** This long-term commitment to DRR enabled projects to survive through changing government administrations.

Effectively engaging the community and other interested stakeholders enabled governments to capitalise on local knowledge and create community ownership of projects. The inclusion of the community also improved awareness of disaster risk dangers, enabling them to make decisions in order to avoid exacerbating problems.

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