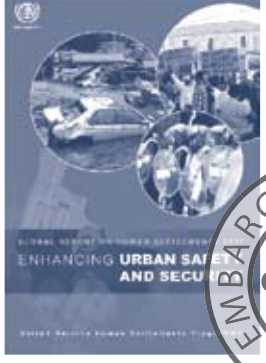


UN-HABITAT

DISASTER
at a glance

How urbanization shapes disaster risk

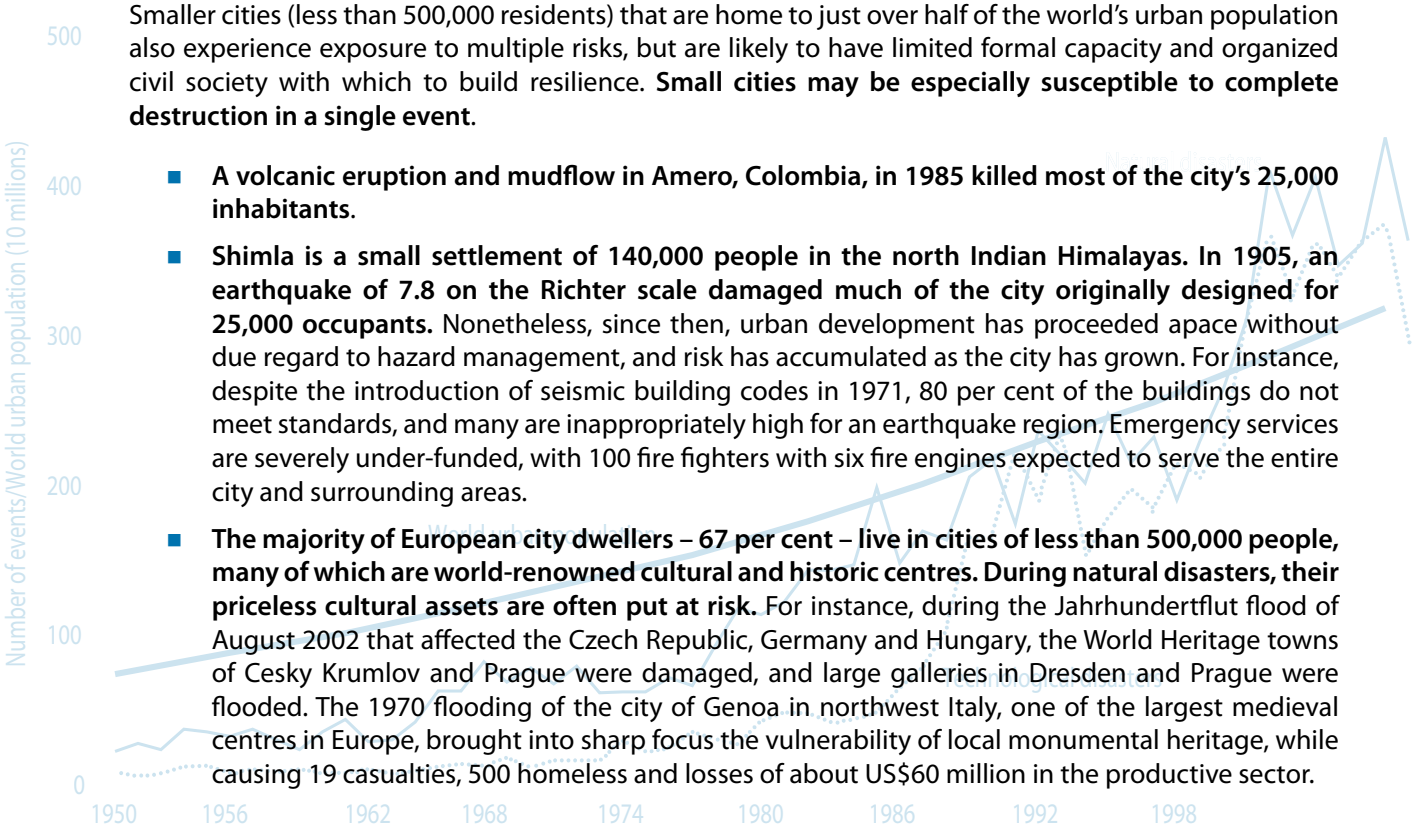
Rapid urbanization is fast becoming a force shaping where and when disaster strikes and who it most affects. Huge concentrations of people and physical and financial assets in today's fast-growing cities means that a single major disaster can result in human catastrophe and destroy decades of development gains. However, it need not be so. In those cities where government and civil society take risk reduction seriously, great progress can be made.

Large cities and megacities concentrate and magnify risk. The location of major urban centers in coastal areas exposed to hydro-meteorological hazard and in geologically active zones is an additional risk factor.

- **Mexico City is responsible for around one third of Mexico's GDP. At the same time, the capital city is exposed to a wide range of hazards**, in particular earthquakes, volcanic eruptions and floods. Mexico's national plan for risk reduction uses warnings based on a simple three-tier "traffic light" indicator system for severity of risk, which triggers actions to be taken by civil protection agencies as well as by the population.
- **Tokyo, a global financial centre, is at high risk from earthquakes.** Many neighborhoods in the city are densely built, with wood being a common building material. Consequently, fire risk is high and has caused large losses following earthquakes. To reduce risk, a Promotional Plan for a Disaster Resilient City was formulated in 1997. The plan aims to strengthen the resilience of Tokyo's buildings through retrofitting and the redesign of urban neighborhoods.

Smaller cities (less than 500,000 residents) that are home to just over half of the world's urban population also experience exposure to multiple risks, but are likely to have limited formal capacity and organized civil society with which to build resilience. **Small cities may be especially susceptible to complete destruction in a single event.**

- **A volcanic eruption and mudflow in Amero, Colombia, in 1985 killed most of the city's 25,000 inhabitants.**
- **Shimla is a small settlement of 140,000 people in the north Indian Himalayas. In 1905, an earthquake of 7.8 on the Richter scale damaged much of the city originally designed for 25,000 occupants.** Nonetheless, since then, urban development has proceeded apace without due regard to hazard management, and risk has accumulated as the city has grown. For instance, despite the introduction of seismic building codes in 1971, 80 per cent of the buildings do not meet standards, and many are inappropriately high for an earthquake region. Emergency services are severely under-funded, with 100 fire fighters with six fire engines expected to serve the entire city and surrounding areas.
- **The majority of European city dwellers – 67 per cent – live in cities of less than 500,000 people, many of which are world-renowned cultural and historic centres. During natural disasters, their priceless cultural assets are often put at risk.** For instance, during the Jahrhundertflut flood of August 2002 that affected the Czech Republic, Germany and Hungary, the World Heritage towns of Cesky Krumlov and Prague were damaged, and large galleries in Dresden and Prague were flooded. The 1970 flooding of the city of Genoa in northwest Italy, one of the largest medieval centres in Europe, brought into sharp focus the vulnerability of local monumental heritage, while causing 19 casualties, 500 homeless and losses of about US$60 million in the productive sector.



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Ongoing demographic and social changes in cities are a challenge since social groups at risk may alter, requiring flexibility in disaster management. Nevertheless, **the economically poor, politically marginalized and socially isolated are consistently the most vulnerable**.

- **The growth of slums whose residents' livelihoods are tied to solid waste dumps is a common cause of hazard in large cities such as Manila, where 300 people were killed by a landslide in the city's Patayas dump.**
- In Los Angeles, United States of America, legal and illegal migrants from Latin America live in the least well constructed housing built before earthquake codes were introduced.
- The isolated elderly were most vulnerable to heat shock in Europe and the US, with France's death toll from the 2003 heat wave reaching nearly 15,000 people.

Urbanization processes modify the hazard profile of the city directly – for example, through the urbanization of hill slopes and floodplains – but also indirectly as the impacts of climate change hit cities.

- **Around 40 per cent of the world's population lives less than 100 kilometres from the coast, within reach of severe coastal storms. Close to 100 million people around the world live less than one metre above sea level.** Thus, if sea levels rise by just one metre, many coastal megacities with populations of more than 10 million, such as Rio de Janeiro, New York, Mumbai, Dhaka, Tokyo, Lagos and Cairo, will be under threat.
- **In Manila, Philippines, informal settlements at risk from coastal flooding make up 35 per cent of the population;** in Bogota, Colombia, 60 per cent of the population live on steep slopes subject to landslides; and in Calcutta, India, 66 per cent of the population live in squatter settlements at risk from flooding and cyclones.
- In El Salvador, free trade zones in San Bartolo, El Pedregal, Olocuilta and San Marcos were promoted by the government without adequate concern for earthquake hazard. During the 2001 earthquake, large losses were reported among migrant workers who supplied labour to foreign-owned enterprises in these new towns. In Rio de Janeiro, local landslides caused 1,000 deaths in 1966, after which houses were reconstructed at the original sites, and 1,700 people died the following year.

Building standards are in place in almost all cities, but they are seldom implemented. This, more than any other policy challenge, highlights the need for social policy to connect with technical and engineering solutions to risk management.

- **The need for risk reduction initiatives for schools is clear**. In 2006, 160 schools were destroyed during an earthquake in Iran, and a mudslide on Leyte Island in the Philippines covered a single school but killed more than 200 children. In 2005, the South Asian earthquake led to over 16,000 children being killed when schools collapsed.
- The 2006–2007 World Disaster Reduction Campaign: Disaster Risk Reduction Begins at School led by UN agencies and international NGOs seeks to promote disaster reduction education in school curricula, and to improve school safety by encouraging the application of construction standards that can withstand any kind of natural hazard.

There is a serious lack of urban planning capacity in most cities. It is almost impossible for many planning departments to keep pace with rapid urbanization, and new techniques in urban planning that can extend formal practices into the informal housing sector are needed.