

# The Urbanization of Disaster Management

Protection against catastrophic events, including acts of terrorism, is a central task in security policy. Civil protection is an important instrument in this context. In most countries, civil protection is organized through national and regional structures. As a result of the growing importance of urban security issues, the existing systems are coming under pressure to adapt.

By Linda Maduz and Florian Roth

Cities are important centers of modern societies that will continue to gain in importance in the future. Today, more than half the world's population lives in urban areas (see Fig. p. 2). Of this figure, almost one in eight people lives in a megacity (more than ten million inhabitants), and almost half live in urban settlements with fewer than 500,000 residents. According to UN estimates, by 2045 the number of residents in cities will increase by one and a half times, to six billion worldwide. Not only people (residents, commuters, and tourists) are concentrated in cities, but also infrastructures, whose importance extends far beyond municipal, and often national borders. These include transport, communication, and energy networks, as well as educational and healthcare facilities. More than 80 per cent of global economic output is generated in cities.

However, the strength of cities as social, technological, and economic hubs also presents disadvantages. The high density and interdependence of urban lifestyles and work, and the growing dependence on increasingly complex infrastructure systems and services, are making cities more vulnerable to a variety of hazards. These can be the result of technological, natural or social causes. In order to address these risks, many countries are discussing greater integration of cities in civil protection sys-



Disaster management in urban areas is becoming more and more important. In 2012, Hurricane Sandy ravaged the US East Coast causing major damage and power blackouts. *Andrees Latif / Reuters*

tems. Upgrading urban disaster preparedness not only promises to increase the security of cities themselves. In view of the potentially wide-ranging implications of urban disasters, increased investment in urban disaster preparedness is an important contribution to the overall resilience of societies, i.e. the ability to withstand and adapt to future security policy challenges.

## The Risk Landscape in Cities

Urban areas face specific security risks. Technological disasters are especially common in cities as centers of industry and infrastructure. They are also focal points of political and social conflicts. Cities are characterized not least by their social and technical density. The damage potential from hazards, such as pandemics or terrorist attacks, is therefore particularly high.

The breadth of the urban risk spectrum is illustrated by a number of recent international catastrophic emergencies that particularly affected cities (see box p. 3).

Against the background of these very different risks, the protection of urban areas involves numerous challenges. Making provisions for a large number of people, for example in the context of evacuation, is very difficult in high-density urban areas. In the event of an emergency, such as an accident at a nearby nuclear power plant, it is almost impossible to evacuate large cities quickly. Another problem is how to deal with socially vulnerable groups who can be disproportionately affected by catastrophic emergencies for economic, demographic, or cultural reasons. These might include financially disadvantaged families, immigrants, or older people living alone. Urbanization processes can lead to the emergence or geographic concentration of such vulnerable groups. For example, many newly arrived residents are not aware of local hazards, which means that effective risk communication is difficult, but becoming increasingly important.

Due to the combination of urbanization and the changing risk landscape, urban disaster management will grow in importance in the coming years. Today, almost half a billion people live in coastal cities, for instance. In the coming decades, these inhabitants will be increasingly affected by the consequences of climate change, in particular by the increase in storm surges and extreme heat waves. The complexity of socio-technological systems, and the social dependence on these systems, will continue to increase. The realistic scenario of a disruption to information and communication systems, possibly due to a power outage, can bring social and economic life to a standstill in any city, depending on its duration and severity. Finally, an increase in so-called intentional hazards can also be expected in urban areas. These include in particular: social unrest, cyberattacks and terrorist attacks. How to deal with these disparate hazards constitutes a particular challenge for urban security managers.

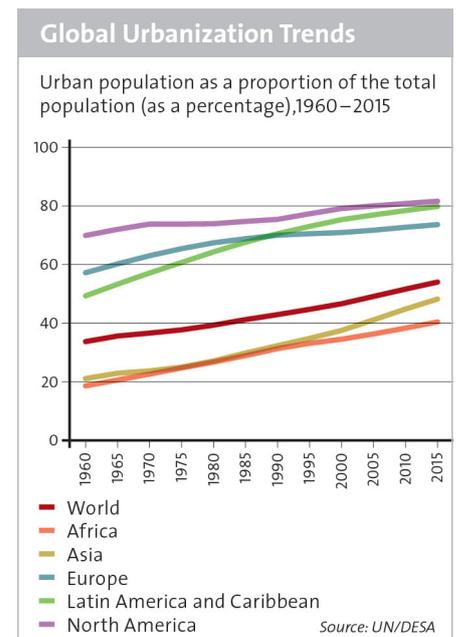
### Global Trends

Even though the structures differ greatly around the world, in most countries preparedness against natural hazards and industrial risks takes place at local level. For example, firefighting and rescue services are traditionally mostly organized locally. Their priority is to ensure everyday safety, but when extraordinary events occur these

actors are supported by the broader civil protection structures. In federal states, such as Switzerland, Germany, the USA and Australia, the regional level (cantons, provinces or states) plays a major role. By contrast, civil defense organizations at the national level, have historically focused on protecting the population against military threats.

Since the turn of the millennium, however, the powers and structures of disaster management have fundamentally changed in many countries. In response to the terrorist attacks of 2001, the United States was the first to develop new risk-management strategies which aimed to coordinate and to partly centralize the activities of different actors tasked with security matters. The most important step in this direction was the integration of the Federal Emergency Management Agency (FEMA) into the Department of Homeland Security (DHS), founded in 2003. Other countries followed with similar strategies that were also, in part, a response to the challenges of international terrorism, but also the result of major natural disasters, such as the so-called “flood of the century” in different parts of Europe in the summer of 2002. This strategic reorientation is reflected, among other things, in the transformation of civil defense into civil protection authorities in Switzerland (2003) and Germany (2004), and in the adoption of the UK Civil Contingencies Act (2004), all of which sought to bundle existing powers and resources. Under the aegis of these new national civil protection organizations, risk assessment and early detection, in particular, were strengthened. Based on the so-called “all-hazards approach” an attempt was made to comprehensively address as broad a range of natural, social and technological hazards as possible. In these cases, though, the focus was mainly on developments in the national and international risk landscape.

More recently, however, cities have gained more importance in international discussions about disaster management. For example, the UN Framework for Disaster Risk Reduction, adopted in 2015, identified urbanization as a significant driver of risk. In addition, many cities themselves are striving to take on a more active role by investing more in preventive work, including risk analysis, intensifying cooperation with private and civil society actors, and expanding their communication channels. However, the speed with which this is done varies considerably. While financially strong cities invest more in reducing risk and pro-



moting resilience, financially weaker cities often lack the means for preventive measures.

The growing role of cities in disaster management reflects a wider political trend in many countries, often referred to as “urban governance”. Comparable developments are taking place in a variety of policy areas, among others, in the context of economic development and transport policy. Generally, “urban governance” approaches aim to tackle the specific challenges in a dynamic urban context with the help of strengthened local structures and responsibilities. Following the guiding principle of subsidiarity, the aim is to achieve the highest possible geographic consistency between the functional urban area and the political authority of municipal policy and administration. This is meant to increase both the effectiveness and the legitimacy of government action.

The increased activity of cities requires close cooperation with higher levels of government. Good vertical integration of cities prevents gaps and duplication in disaster management. For example, the events surrounding Hurricane Katrina (New Orleans, 2005) showed that competing parallel processes make efficient action impossible in the event of a disaster. The best results are achieved when responsibilities are clearly distributed and the authorities at different political levels work closely together.

At the same time, new transnational networks are being created to expand the horizontal cooperation between cities. Several international initiatives are committed to strengthening urban disaster management. The European Forum for Urban Security (EFUS) has been around for 30 years. It mainly serves the purpose of exchanging experiences between European cities. Of importance at the global level is the “Making Cities Resilient” campaign, launched in 2010 by the UN Office for Disaster Risk Reduction (UNISDR). More than 3,000 cities from different regions around the world now take part in this program, which aims to improve the understanding of risks to urban structures, and to strengthen their resilience through the methodological support of local government and administrative structures. In addition, private actors are also increasingly becoming involved. One example is the “100 Resilient Cities” program of the Rockefeller Foundation, which supports cities in building systematic risk-management capacities and seeks to advance the networking of cities. However, such initiatives cannot do much more than provide a drive for promoting urban risk awareness and critical analysis of existing practices when dealing with disaster risks. They can only complement vertical integration but not replace it.

### Urban Security in Switzerland

In Switzerland, the majority of the population lives in urban areas. Although there are no megacities, the proportion of people living in urban areas, 73 per cent of the total population, is higher than the global average. In particular, the Swiss Plateau and the region around Lake Geneva have experienced a strong increase in population density in the past few decades (see Fig. 2). The growing urbanization of Switzerland is also reflected in the development of other factors that are used for the statistical determination of cities, for ex-

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ample, based on commuter flows. A hundred years ago, barely one tenth of the working population worked outside their municipal area of residence. Today that figure has grown to two thirds, and it is the nation's larger cities that show a positive balance for commuters.

### Examples of Disasters Affecting Urban Areas

#### Natural disasters

- 2003 European heat wave (extent of damage: estimated number of deaths between 30,000 and more than 70,000; estimated economic loss over USD 15 billion)
- 2011 earthquake and tsunami in Sendai and other Japanese cities (more than 19,000 dead; total in damages over USD 210 billion)
- 2012 Hurricane Sandy, including in Port-au-Prince/Haiti and New York/USA (Haiti: over 50 dead. USA: over 100 dead; USD 30 billion to over USD 50 billion in damages)

#### Social disasters

- 2014–2015 Ebola epidemic, in Conakry/Guinea, Freetown/Sierra Leone, Monrovia/Liberia (over 11,000 dead; USD 2.2 billion losses in 2015)
- Unrest in France 2005 (2 dead; up to USD 300 million in damages) and England in 2011 (5 dead; over USD 300 million in damages)
- 2015 terrorist attacks in Paris (137 dead) and 2016 in Brussels (35 dead)

#### Technological disasters

- 2006 European blackout (up to 10 million European households affected)
- 2015 accident in chemical plant in Tianjin/China (173 dead; USD 1.1 billion in damages)

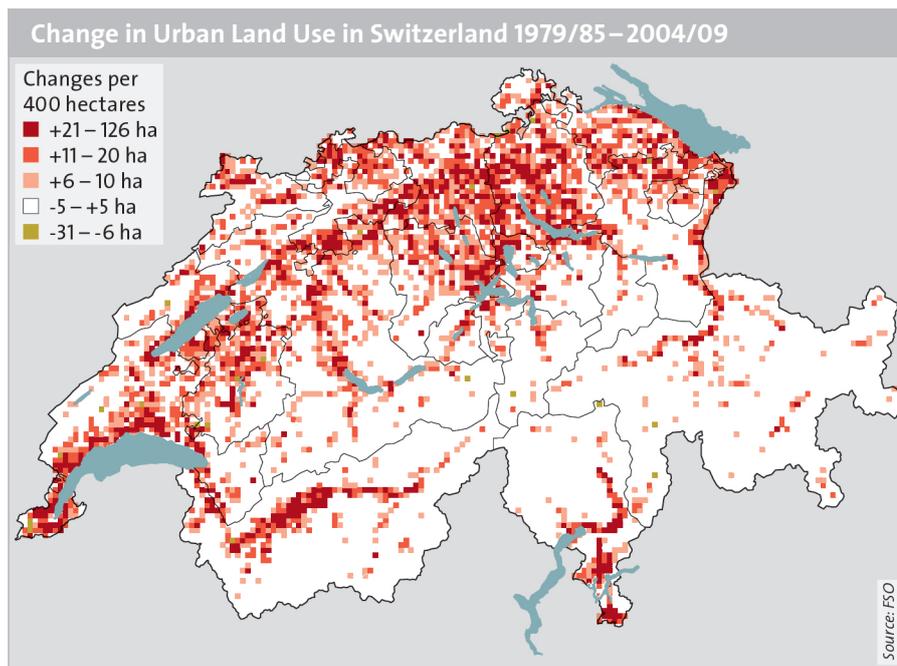
In comparison with the rest of the world, Switzerland has been affected by very few serious catastrophic emergencies in recent decades. Recent emergencies include the 1986 fire in Schweizerhalle (total damages CHF 0.9 billion), the 1999 storm “Lothar” (CHF 1.4 billion), and the 2005 “flood of the century” (CHF 3 billion). In future, however, much bigger emergencies can also be expected. For example, in the event of an earthquake in the Basel region that is comparable in magnitude to the historic earthquake of 1356, damages around 80 billion Swiss francs can be expected. This figure would place the event as one of the world's most devastating natural disasters in recent decades. The economic damage of the Kobe earthquake in 1995, for example, amounted to CHF 100 billion.

New risks and vulnerabilities increase the potential that future serious events that would affect Swiss cities. In addition to the urbanization of Switzerland, the continued threat presented by ongoing climate change will likely increase the exposure and vulnerability of urban areas to climate-related natural hazards. In particular, the risk of flooding and heat waves is expected to rise significantly in Switzerland. Risks can also arise due to the growing international interconnectedness and dependence on increasingly complex socio-technological systems. For example, due to the greater cross-border interdependence in the energy sector, it is unlikely

that Switzerland would remain unscathed in the event of a major power outage in Europe. Urban disaster management officials also believe that terrorist attacks in Switzerland are possible.

In response to these hazards a number of larger Swiss cities have launched their own risk-management processes in the past few years. In addition to incident management, which was traditionally the focus of city administrations, greater investments have recently been made in disaster management and prevention. As a result, a systematic risk analysis is now carried out in several cities at regular intervals. One example is the Security Report of the City of Lucerne. On the whole, however, urban disaster management is still in its infancy in most cases. Among other things, there is scope to further develop public risk communication, planning for the reconstruction phase following catastrophic events, and cooperation with vulnerable groups. However, these initiatives often lack financial and human resources, as well as political support.

The pronounced federalist structures of Switzerland's political system, which are also reflected in the area of civil protection, pose a particular challenge for efficient and effective urban disaster management in the country. The cantons are primarily responsible, sharing tasks with the federal government in accordance with the subsidiarity principle. Originally, this system did not foresee an independent role for cities. The



change of knowledge and experience, and the creation of complementary internal and external communication structures.

The horizontal integration of Swiss cities into national or international city networks promoting their resilience also has potential for better exploitation. The Swiss Cities Association and the Conference of Municipal Security directors are forums that already exist in Switzerland and could provide a path toward more cross-scale and systematic cooperation in the field of disaster management. International initiatives also provide opportunities for increased networking. In Austria and Italy hundreds of cities are already part of the UN initiative “Making Cities Resilient”. In Switzerland, only Geneva and Davos have joined this network. Not only can improvements in vertical and horizontal integration of disaster management practices strengthen the security of urban areas in Switzerland, it can also contribute to Switzerland’s overall social resilience.

usefulness or the need for greater involvement of cities in civil protection was recognized at national level (see Strategy for Civil Protection and Civil Defense 2015+: Report of the Federal Council of 9 May 2012). However, in practice, the efforts are still focused at the cantonal level, particularly on the cooperation between the cantons and the federal government.

The growing importance Swiss cities in terms of demography and area, which tran-

scends municipal boundaries, raises the question of which strategies are best for managing future tasks. Interviews conducted by the CSS with Swiss city disaster management experts have indicated a variety of measures that could, in their view, improve cooperation between cities, cantons and the federal government in matters of urban security and disaster management. In particular, they have mentioned joint exercises and training that are coordinated across all political levels, a systematic ex-

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