

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

# Resilience to disasters for sustainable development



UNECE  
taking action to  
protect lives and  
livelihoods



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## UNECE activities that contribute to better disaster-risk management

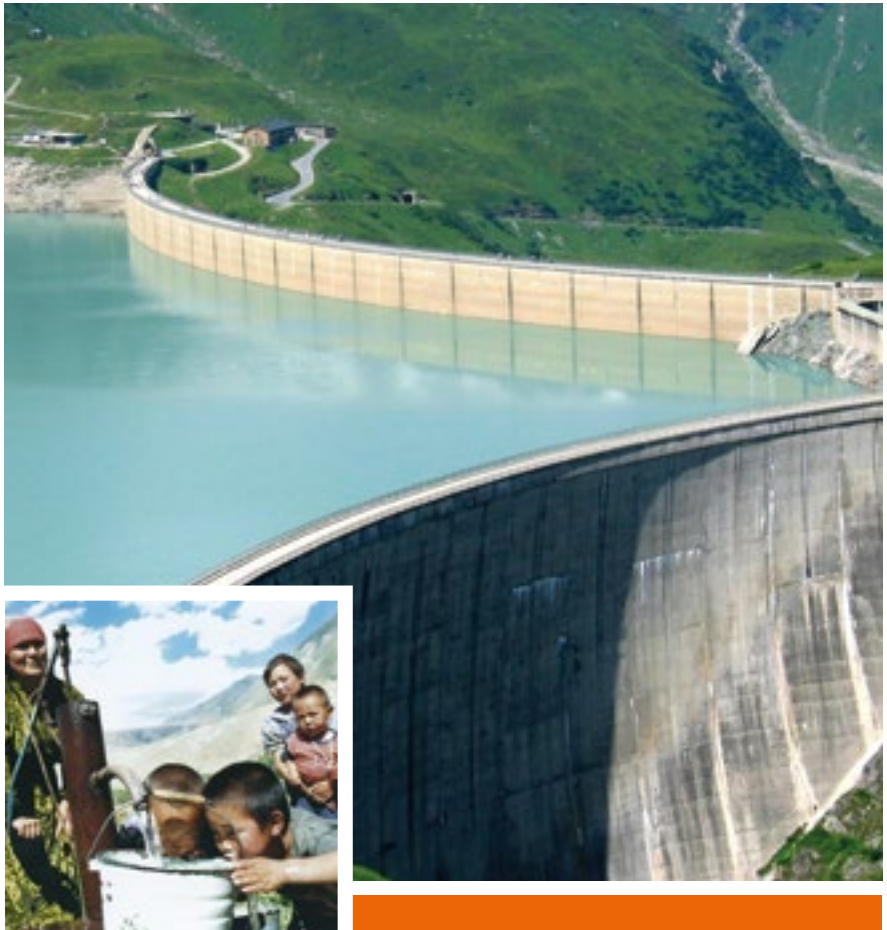
All the countries of the United Nations Economic Commission for Europe (UNECE) region, including the most developed, are vulnerable to disasters. In the European Union, almost 100 billion euros were lost to disasters over the past decade. In Germany alone, the floods of June 2013 caused economic losses of over 10 billion euros, while in the Russian Federation the 2010 heat wave resulted in over 15,000 casualties. From 2001 to 2011 Tajikistan suffered economic losses from disasters equivalent to almost 60 per cent of the foreign aid the country received over the same period.

The United Nations Plan of Action on Disaster Risk Reduction for Resilience calls on the United Nations system, both as individual organizations and collectively, to “make disaster risk reduction a priority”. UNECE work plays a crucial role in disaster preparedness in its region and — through its recommendations, treaties and best practice — well beyond its boundaries. Many UNECE activities set out binding rules and obligations for States and international organizations that contribute to a more sustainable and resilient pattern of development.

UNECE also promotes the increased implementation of international standards and other risk management tools by all stakeholders. A first outcome of this work is the UNECE Recommendation on “Crisis Management in Regulatory Systems” that presses governments to design and implement crisis management functions as part of the regulatory frameworks of all key economic sectors, integrating best practice from international standards in the management of emergencies.

Through its Group of Experts on Risk Management in Regulatory Frameworks, UNECE is currently launching an ambitious collaboration with the United Nations Office for Disaster Risk Reduction (UNISDR) and with standards organizations to make standardized guidelines supporting disaster risk reduction (DRR) more readily available and accessible to authorities, policymakers, small and medium-sized enterprises, non-governmental organizations, universities and local communities.

Disasters such as floods know no borders, so effective response requires transboundary or regional coordination and cooperation. The UNECE environmental treaties are a key tool in this area, helping countries to better cooperate with their neighbours and increase the overall effectiveness and efficiency of each member's activities. Through its activities, UNECE and its partners will help United Nations Member States better implement the post-2015 framework for DRR to be adopted in Sendai, Japan, in March 2015.



## **Ninety per cent of disasters are water-related**

Floods, droughts and windstorms are the most frequently occurring natural disaster events and account for almost 90 per cent of the 1,000 most disastrous events since 1990. The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention), which entered into force in 1996 and was opened for



accession to all United Nations Member States in 2013, obliges Parties to prevent, control and reduce transboundary impacts, including those potentially resulting from floods and from unilaterally decided flood protection measures, such as dams.

Since 2010, following the elaboration of the Guidance on Water and Adaptation to Climate Change, the Water Convention has been coordinating a programme of pilot projects and a global platform for testing new methodologies and sharing experience on climate change adaptation and DRR in transboundary basins. These pilot projects deliver clear DRR benefits. For example, the “Climate Change and Security in the Dniester River Basin” project, jointly implemented by UNECE and OSCE, aims at managing floods that may cross borders, taking into account both current climate variability and long-term impacts of climate change on flood risks. Several DRR measures have been and will be implemented. A Strategic Framework for Adaptation to Climate Change in the Dniester River Basin has been elaborated, trees have been planted to reduce flood risk, automatic monitoring stations will be installed in the river basin and a joint platform for transboundary data exchange will be created. A similar project, targeting the Sava River Basin developed a programme for Flood Risk Management Plan (FRMP) in accordance with the EU Floods Directive (2007/60/EC), as well as with the UNECE Guidelines on Sustainable Flood Prevention.

The lessons learned from these pilot projects are shared through the annual workshops of the Global Network of Basins Working on Climate Change Adaptation, established by UNECE in cooperation with the International Network of River Basins (INBO) in 2012. The Global Network currently involves 14 member basins, including from outside the UNECE region, including the Chu-Talas, Danube, Dniester, Neman, Rhine, Mekong, Niger, Sava, Congo and Senegal Basins. A collection of good practices and lessons learned will be published in 2015.





## Housing and land management policies for resilient communities

Cities, infrastructures and buildings are constantly and increasingly exposed to hardships posed by natural phenomena and human-induced disasters, including weather-related events, such as floods, landslides, sea level rise and erosion. Unpredictable events such as earthquakes will also continue to hit cities hard. Sound urban planning and safe building prevent disastrous effects and save lives.

UNECE, through its Housing and Land Management Programme, is addressing disaster risk prevention and mitigation in cities by integrating and mainstreaming DRR into relevant policies and building standards. Activities include regional forums and urban planning guidelines for DRR, in particular for coastal cities. Recently UNECE has begun collaborating with the University of Geneva to integrate natural sciences into urban planning in order to build resilient communities.

UNECE work in this area also includes capacity-building events and advice to individual countries, including on informal settlements, published in its country profiles on housing and land management. Eighteen country profiles have been published to date. In 2014–2016, national workshops are being organized in Armenia, the Republic of Moldova, Serbia and Tajikistan in cooperation with the United Nations Human Settlements Programme (UN-Habitat), the United Nations Development Programme (UNDP) and UNISDR.



## Environmental assessments help prevent disasters

When moving forward with a proposed plan, project or policy, it is essential to put in place measures to prevent, reduce and control significant adverse environmental impacts. The Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) and its Protocol on Strategic Environmental Assessment (Protocol on SEA) provide a set of requirements for a formal process to put preventative actions in place, taking into account both environmental and health effects. According to the Espoo Convention, the implementation phase should also include a post-project analysis, i.e., monitoring and risk management measures.

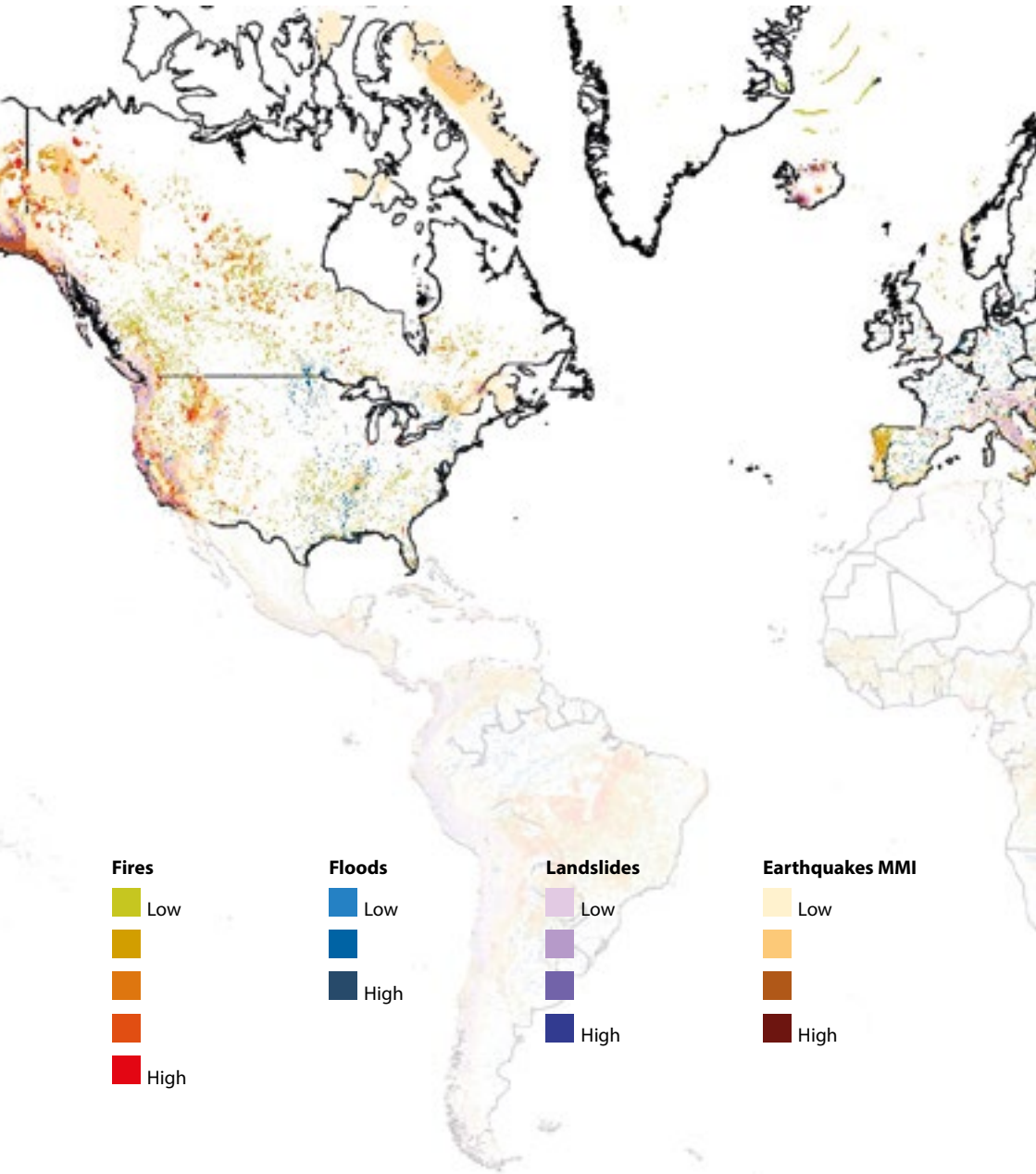
Experience shows that, despite preventive measures, natural disasters, terrorist attacks or simple human error cannot be excluded and these may lead to large scale accidents. However, although its frequency may be below one million per year, the risk of a very-low-probability-but-particularly-severe accident — such as occurred in Fukushima, Japan, in 2011 — should not be ignored.

Both the Convention and its Protocol were developed with the belief that “to prevent is better than to cure”. For example, the environmental impact assessment (EIA) process for a nuclear installation includes evaluation of the safety of infrastructure and the impacts on the environment in case of a severe natural disaster, such as an earthquake or flooding, and the EIA documentation includes specific measures to prevent the risks and manage them, should they occur. Similarly, carrying out a strategic environmental assessment (SEA) procedure for energy plans in regions with rich hydropower potential allows for the early consideration of the cumulative effects of several planned hydro-power schemes in the region. The SEA procedure takes a holistic approach to the development of the region and the sector, including, for example, specific measures to address the changing flows of migratory fish and to avoid soil erosion and recommendations on the time schedule of the different projects.

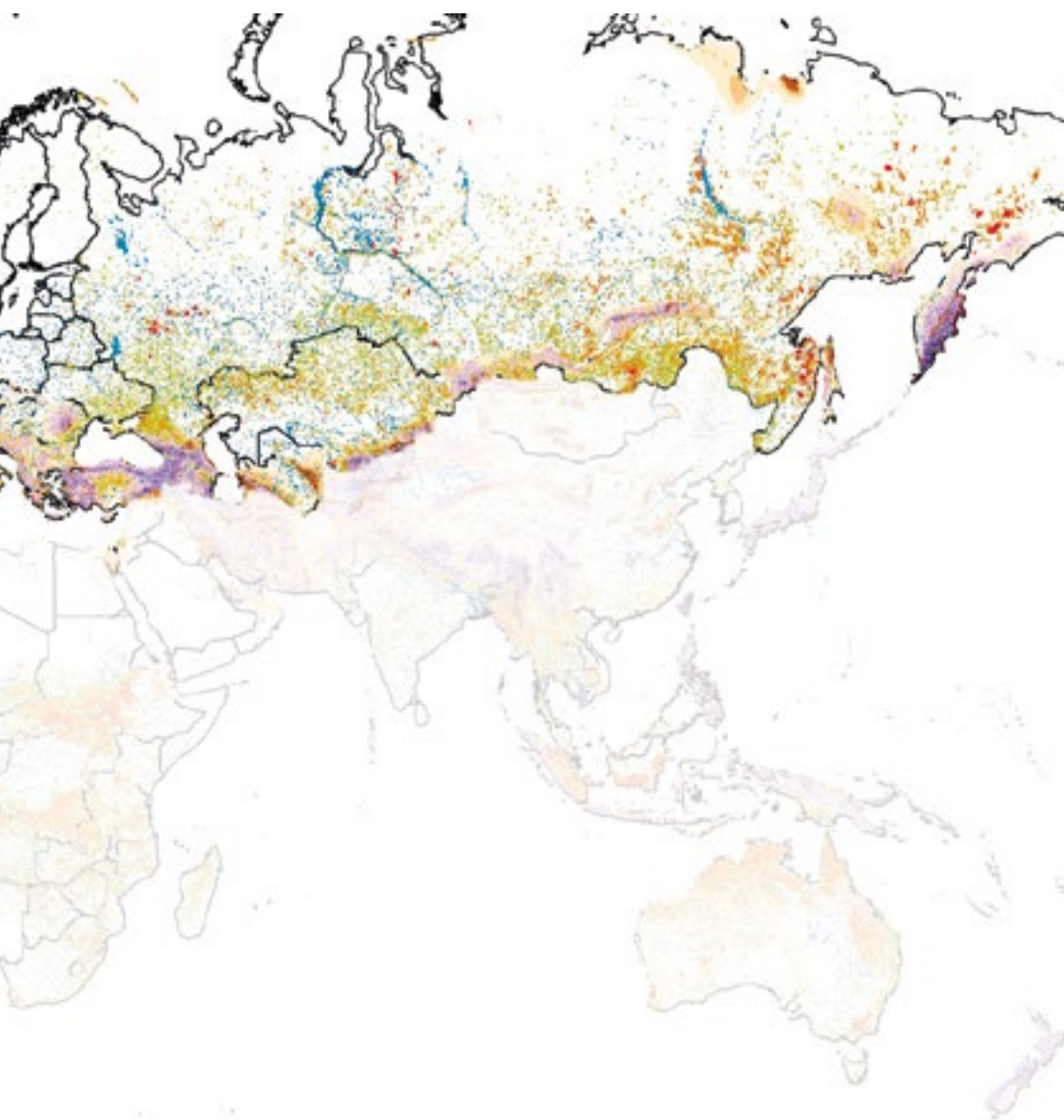




## Disaster prone areas in the UNECE region



Source: UNISDR: Preventionweb, compiled by UNECE (multiple hazards: earthquakes, fires, landslides and floods)



## Preserving human rights in disaster situations

Effective DRR is only possible if the public has timely access to adequate information on the potential risks of and actions for mitigating disasters; if they can effectively participate in decision-making on proposed DRR projects, plans and laws; and if those responsible can be held accountable for all matters related to potential and past disasters.

Parties to the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) and its Protocol on Pollutant Release and Transfer Registers (PRTRs) are obliged to effectively disseminate all relevant information that would help the public take measures to prevent or lessen harm in the event of an imminent threat to human health or the environment. When public authorities develop emergency preparedness plans, and establish a system of notification of relevant services (including local governments, fire and medical services), the public must be given the opportunity to participate effectively. Furthermore, training and guidance for personnel responsible for the management of hazardous substances must be carried out.

In this context, a number of the 56 Aarhus Centres operational in 14 UNECE countries are currently developing activities to raise awareness and strengthen national capacity for disaster preparedness and risk reduction in cooperation with the Organization for Security and Cooperation in Europe (OSCE).

The Aarhus Convention has also inspired civil society actors beyond the UNECE region to apply its principles in various areas, including violations of human rights in the event of disasters. In particular, the Santa Fe Declaration on Disaster Risk Reduction of 12 November 2014, which calls upon States to set up a culture of resilience based on human rights at all stages of a disaster, acknowledges the usefulness of the Aarhus Convention in disaster situations.





## When industrial accidents cross borders

The 41 Parties to the Industrial Accidents Convention — from Western, Eastern and South-Eastern Europe, the Caucasus and Central Asia — work together to prevent, prepare for and respond to industrial accidents, especially those with transboundary consequences. These accidents may be the consequence of human activity, or may be triggered by natural disasters. Under the Industrial Accidents Convention, Parties have to work first of all at the national level, for example by setting up early warning systems, mandating the operators of large industrial installations to take precautionary measures, or preparing contingency plans for immediate response. This explicitly includes public participation in the decision-making and in emergency planning and exercises.

Parties also have to work internationally on joint emergency plans, mutual assistance, public awareness and ensuring that the public, including that of other potentially affected countries, can take part in decision-making. In practice, Parties to the Convention exchange technology and information and identify actions that may save lives in the event of an accident, such as facilitating the transport of equipment and personnel across borders during emergencies.

The Convention has been publicized via a recently released “summary in cartoons” and a short film, and online training materials have been developed to further promote awareness. Since 2000, the Convention has been complemented by an Assistance Programme, to support countries with economies in transition in implementing the Convention’s provisions. The Danube Delta region has received special attention, with projects that aim at managing potential transboundary emergencies, and a field exercise on response to accidental water pollution is planned for September 2015.









## Measurement of extreme events and disasters

When an extreme event or disaster occurs National Statistical Offices have to quickly provide data on the population, areas and businesses affected. The coordinated delivery of good quality data helps to define the type of actions to be taken for an effective recovery of the affected areas. This can help to save lives and reduce economic losses. Another role of official statistics is to provide information on the impacts of disasters for risk management.

UNECE coordinates the statistics in the UNECE region through the Conference of European Statisticians (CES) and its Bureau and the Database of International Statistical Activities.

In October 2014 the CES Bureau undertook an in-depth review of international work on measuring extreme events and disasters, based on a paper by Mexico. The review emphasized several priority action areas, including: institutional cooperation with mapping agencies to integrate statistical data with geographical information; honouring statistical confidentiality when detailed information is needed quickly for disaster relief; and the need for common classifications and definitions for extreme events and disasters for statistical purposes. In this regard the Framework for the Development of Environment Statistics (FDES) has been identified as an important reference document.

As a next step, the UNECE, in consultation with Mexico, Eurostat, the Organization for Economic Cooperation and Development and UNISDR, will develop a proposal for further work related to official statistics and measuring extreme events and disasters, in order to address issues identified by the in-depth review.





## Protecting forests, protecting lives

Environmental and disaster risk reduction are often addressed separately. However, forest ecosystems have shown that an integrated approach is essential. Forests exercise key protective functions, which prevent disasters. These include protection from erosion and avalanches, conserving ecosystems, filtering air and protecting and filtering water. Sustainable forest management is not only a tool to maintain healthy and growing forests, it also allows forests to maintain their protective functions, which are critical for the well-being of the society.

UNECE, through its joint programme with the United Nations Food and Agriculture Organization (FAO), implements a very comprehensive programme of work to monitor the state of forests and develop sound policies and tools for their sustainable management. The work is supported by an extended network of experts in different forest-related fields. Among recent outputs are a study on forest-fire issues in the region, and a White Paper on the State of Wildfires and Fire Management in Forests and Other Vegetation Resources in the UNECE Region, both developed in close cooperation with the Global Fire Monitoring Center. At the global level, the experts also prepared and contributed to the implementation of the Fire Aviation Guidelines and the International Wildfire Preparedness Mechanism.

To protect this resource and the benefits it brings, UNECE organizes training and awareness raising events for more resilient forest ecosystems and sustainable forest policies and institutions, develops and maintains databases for the management of wild-land fires and promotes awareness of the economic and environmental value of forests and forestry resources.



## A UNECE toolkit for the implementation of the Sendai framework

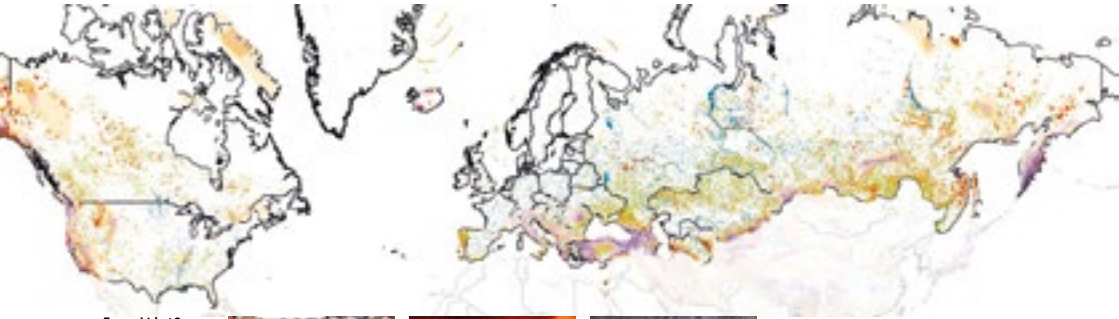
Prosperity can only be built on a solid foundation of security and stability, but can be wiped away in minutes as a consequence of both natural and man-made disasters, not counting the immeasurable human suffering and environmental degradation that may result.

Sustainable development in its economic, environmental and social dimensions also relies on the solid management of disaster risks. This is because disasters exacerbate poverty, affecting disproportionately the most vulnerable, who often live in exposed areas such as informal settlements erected with no regard to building codes. Disasters also have a devastating impact upon fragile eco-systems, destroy schools and hospitals affecting health and educational outcomes, and result in increased social tensions and weakened institutional support systems for social policy.

UNECE works to ensure that social and economic progress go hand in hand with a better disaster risk management. Weak and under-resourced systems and infrastructure in sectors ranging from housing to energy networks, from trade and transport hubs to information technology, compromise the capacity to manage any risk, including disaster risks. UNECE activities not only strengthen these systems' capacity to deliver services in normal times, they also reduce disaster risks, build resilience and enable countries to cope with and recover from disasters when they occur.







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