

**OECD Reviews of Risk Management
Policies**



Boosting Resilience through Innovative Risk Governance



OECD Reviews of Risk Management Policies: Boosting Resilience through Innovative Risk Governance

EXECUTIVE SUMMARY



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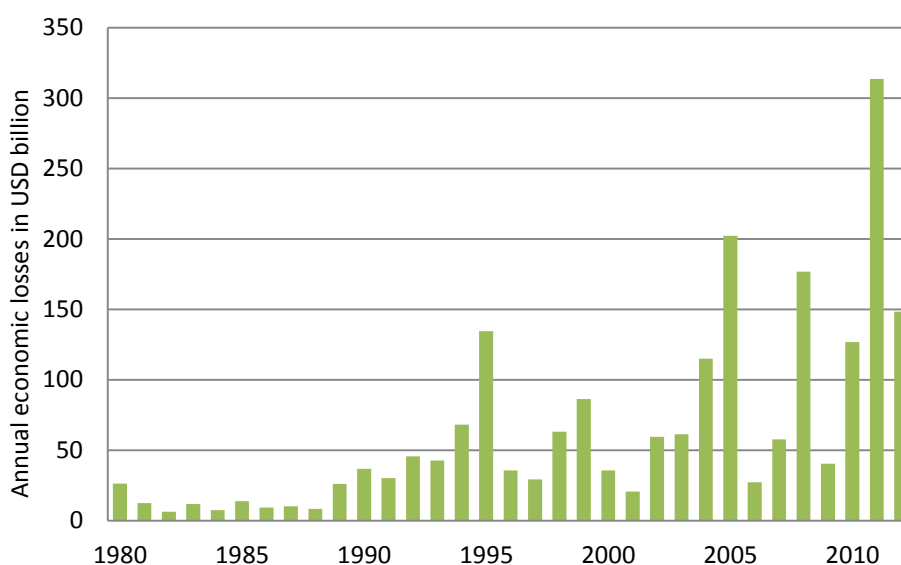
Executive Summary

Why Resilience matters

Despite progress in reducing impacts from disasters, their socio-economic costs in OECD countries are still considerable.

During the last decade OECD and BRIC countries have experienced an estimated USD 1.5 trillion in economic damages from disruptive shocks stemming from natural risks such as storms or floods as well as man-made risks like industrial accidents or terrorist attacks (Figure 1). These destructive events may not have occurred with any more frequency than in previous years, but the unprecedented extent of damages accentuates greater economic and societal vulnerability in OECD member countries. The scale of recent impacts has raised questions about whether OECD countries could have made more progress in their risk management systems to increase resilience against such shocks through better risk prevention and mitigation.

Figure 1. Economic losses due to disasters in OECD and BRIC countries, 1980-2012 (USD Billion)



Source: EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be – Université catholique de Louvain – Brussels – Belgium

Single shocks have caused damages in excess of 20 percent of national GDP, such as the recent earthquakes in New Zealand and Chile, forcing governments to raise their debt ceiling or increase taxes. Also, major shocks are no longer confined to single places, but rather cascade globally as demonstrated by the Great East Japan Earthquake in 2011.

Disruptive shocks risk undermining trust in governments

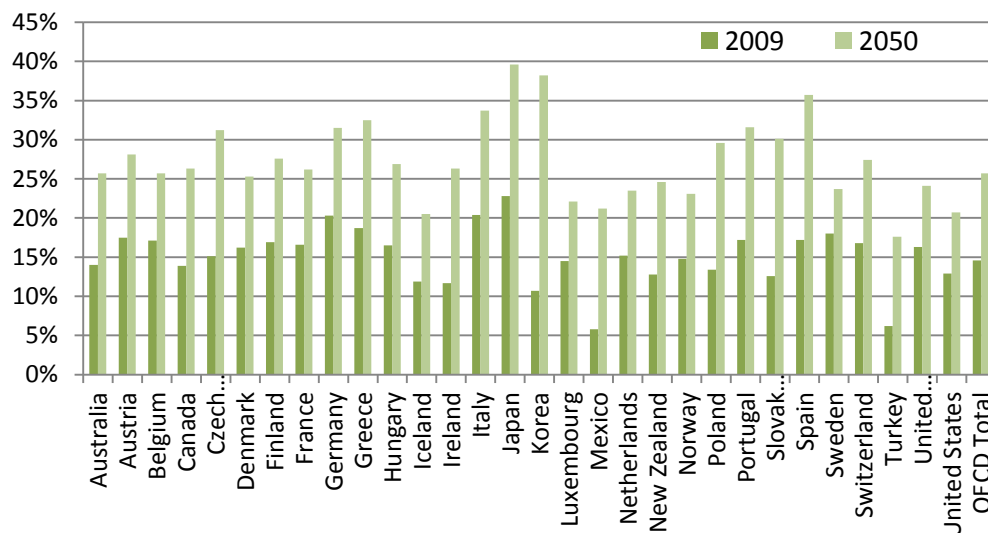
Previous neglects in resilience measures that became apparent during a major shock have had disproportionately negative effects on trust in governments, forcing them to take drastic actions to restore confidence, including the resignation of senior government officials. Others include expensive spending measures to restore trust among citizens. After the attacks of 9/11 the United States government injected liquidity in banks, which was an essential measure to restore confidence among bank account holders.

Rather than eroding trust, disruptive shocks can and should be an opportunity for governments to showcase prospective governance based on long-term commitments to protect citizens. Governments have a great window of opportunity to strengthen citizen trust in their ability to prevent or mitigate the negative impacts of large-scale disruptive events by promoting and communicating the efforts they engage in prior to a shock.

The increasing trend in economic damages is driven by a number of socio-economic factors

Disruptive shocks have occurred more frequently over the past decades but, perhaps more importantly, they have seen a significant increase in intensity and complexity. Among the factors driving the surge in intensity of shocks are the increasing concentrations of people, especially a growing number of vulnerable populations (Figure 2), such as marginalised and elderly, and economic assets in risk prone areas. Accelerated urbanisation and increased global economic integration (Box 1), facilitated by transport mobility and communication, have equally contributed to the surge in intensity of disruptive shocks. Global value chains have acted as a vector for propagating risks across borders. Failure of one country to identify and manage a major risk can have tremendous impacts on other countries which have been observed in recent major shocks (Box 1).

Figure 2. Percentage of population aged 65 and over across OECD countries



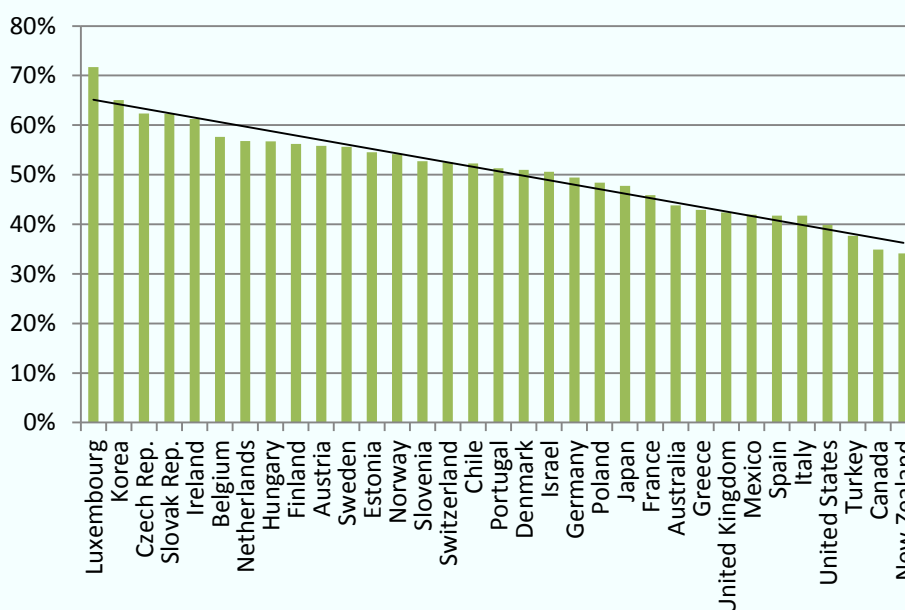
Source: OECD (2009), OECD Factbook 2009: Economic, Environmental and Social Statistics.

Box 1. Global value chains as vectors for propagating risks

An example of how local disruptive shocks can have cascading global effects is demonstrated by global value chains. The Great East Japanese Earthquake, the Thailand Floods, droughts suffered in the United States have recently demonstrated how such shocks can indirectly, but rapidly and significantly have global impacts:

- The Great East Japanese Earthquake in 2011 caused disastrous impacts not only in Japan, it led to slowdowns in the global automotive and electronics industries which rely on Japan for inputs to their value chains. For example, car manufacturers in Detroit were affected when Renesas, a large supplier of microchip controllers in Japan, halted production due to the destruction of its factory. Single sourcing was equally the root cause of a global disruption in the supply of car paint due to a factory that was destroyed in North East Japan. The supplier supplied 100 % of global car paint demand, leading to major disruptions in car supply chains worldwide.
- The floods that affected the Bangkok metropolitan area in Thailand in 2011 hit a particularly industrialised part of the city, where more than 1 000 factories were affected. Forty-five % of the world's manufacturing capacity of computer hard disk drives are produced in the affected area. It is estimated that global hard drive supply saw a decrease of 30 % that year.
- The severe and prolonged drought in the United States that is estimated to have started in 2012 and that lasted until 2013 has had severe economic impacts. The low water levels in the Mississippi River, for example, where USD 180 billion worth of goods are moved every year, forced barges to reduce the amount of cargo they can carry by two-thirds of their usual load.

Global value chain participation index across OECD countries



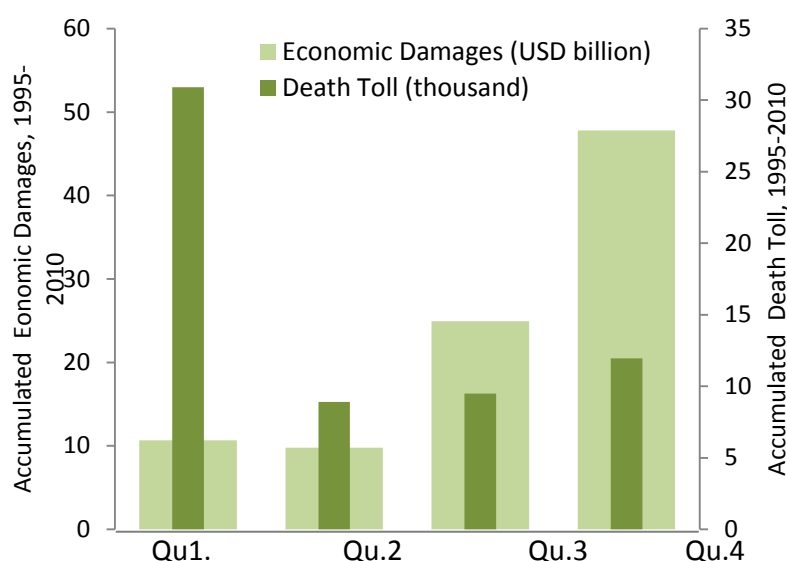
Sources: OECD (2013b), *Interconnected Economies: Benefiting from Global Value Chains*, OECD Publishing. doi: 10.1787/9789264189560-en; WEF (2012a), “Global Risks 2012”, World Economic Forum, Geneva, www3.weforum.org/docs/WEF_GlobalRisks_Report_2012.pdf; WEF (2012b), “New Models for Addressing Supply Chain and Transport Risk”, World Economic Forum, Geneva, www3.weforum.org/docs/WEF_SCT_RRN_NewModelsAddressingSupplyChainTransportRisk_IndustryAgenda_2012.pdf, Mirdoudot, S. and K. De Backer (2012), “Mapping Global Value Chains”.

Countries must improve resilience to disasters against the backdrop of mounting social economic costs

OECD countries have made substantial progress in achieving resilience...

- **Relatively high income levels across the OECD largely contributed to reducing fatality rates from disasters** (Figure 3 and 4): Past disruptive shocks have advanced OECD countries' understanding of how risk can be prevented and mitigated, and how preparedness, emergency response, rehabilitation and recovery from shocks can be improved to increase resilience and lower fatality rates.

Figure 3. Fatality rates versus economic damages from disasters during 1995-2010

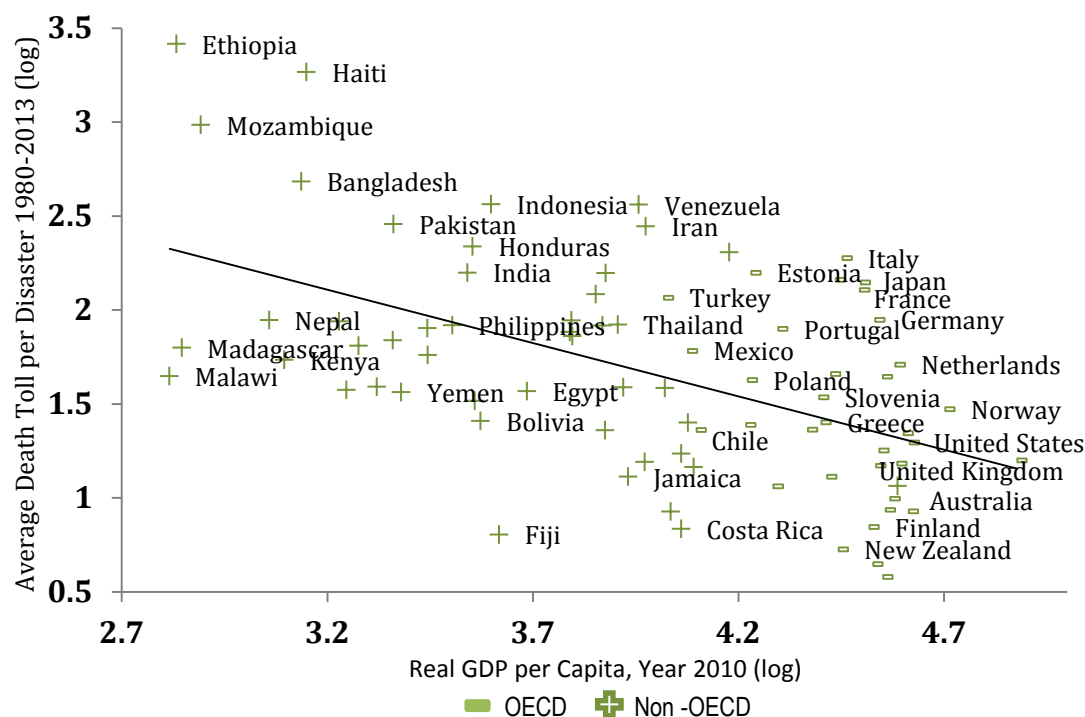


Source: EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be – Université catholique de Louvain – Brussels – Belgium; OECD Statistics Database – <http://stats.oecd.org/> – GDP per head in 2012, USD Billion, constant prices (2005)

- **The level of risk awareness and information sharing is high:** These have been fostered through public information campaigns and integration of risk management tenets in the standard curricula of education institutions. The incorporation of resilience in the national science and research agendas in the great majority of OECD countries has fostered a culture of safety and resilience.
- **Central government leadership is vital:** Most OECD countries have emphasised strong central leadership by either the Prime Minister's office or equivalent, or by central co-ordinating bodies to ensure critical risks are managed, and investments to reduce them, supported at the highest political level.
- **Successful mainstreaming of risk management policies across sectors and administrative level:** Nearly all OECD countries systematically consider disaster risk in sectoral public investment strategies and planning. The

importance attributed to the local level is reflected by the establishment of legal frameworks for local responsibilities, including risk sensitive regulation in land zoning and private real estate development.

Figure 4. Significant decrease in fatality rates from disasters with increasing income



Sources: EM-DAT: The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium, www.emdat.be (accessed 14 November 2013); Heston A. et al. (2011), “Penn World Table Version 7.0”, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, https://pwt.sas.upenn.edu/php_site/pwt_index.php (accessed 15 January 2014); OECD (2013d), “Gross domestic product (GDP) MetaData : GDP per capita, USD, constant prices, reference year 2005”, OECD National Accounts Statistics (database), <http://dx.doi.org/10.1787/na-data-en> (accessed 14 November 2013).

... But significant gaps have been made apparent during past disasters...

... on the part of the government...

- **Regulatory reform:** Risk regulations have often not kept in pace with changing risk environments. For example, the earthquake of L’Aquila showed that building codes were not adapted to new housing design, or rigid air safety regulations during the volcanic eruption in Iceland in 2010 caused significant losses to the aviation industry that might have been avoided otherwise.



- **Enforcement:** Shortcomings in enforcing risk regulations is omnipresent. For example, despite known hazard exposure there have been increases in population around the Vesuvius Volcano in Italy. In Mexico, informal construction of houses in Mexico undermine good risk management planning practices.

...but also among non-governmental stakeholders

- **Business continuity planning:** Businesses have shown to underinvest in disaster prevention. For example, the Great East Japan Earthquake in 2011 caused nearly 700 businesses to go bankrupt and the UK Summer floods in 2007 created an average of 9 days of business interruption.
- **Global supply chains:** Events such as the Great East Japan Earthquake or the floods in Thailand have highlighted the vulnerability of current supply chain systems, where the disruption in a critical element of the chain led to the shut-down of entire manufacturing processes (Box 1).
- **Individuals and households** have consistently underinvested in protecting their own assets, despite being aware of their exposure to risks. After the major Marmara earthquake in 1999 only one-fifth of Istanbul's population had taken some preventive action as a result of this. Similarly, after the major floods in Germany in 2002, 30 % of the directly affected citizens would still not consider purchasing flood insurance for better individual protection in the future. Hurricane Sandy in New York City in 2012 also revealed persistent under-investment by individuals.



Why do resilience gaps persist?

Shortcomings in the provision of resilience measures are often rooted in the existing risk governance frameworks

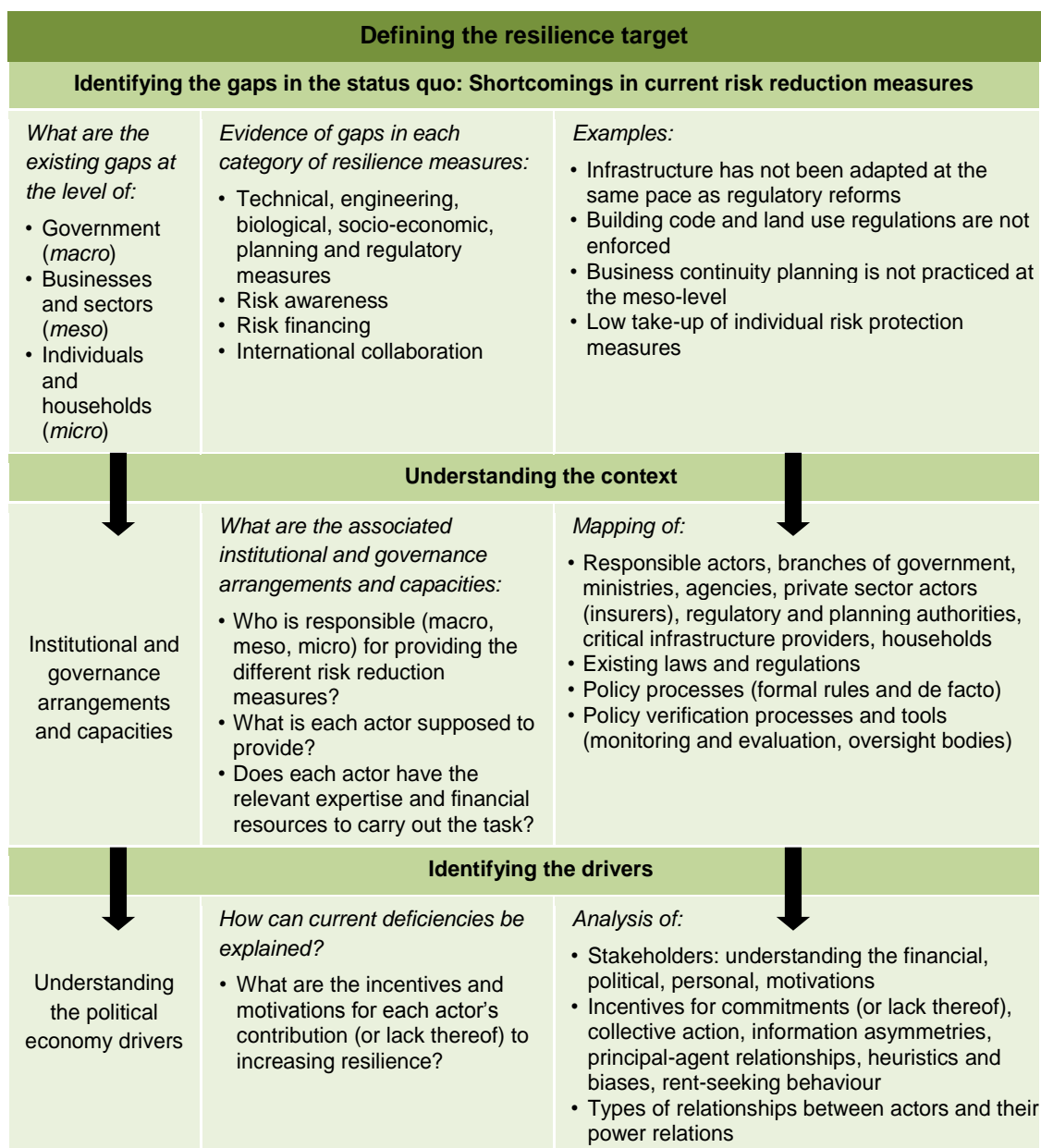
The decision of an individual household not to build protection against floods or take up insurance may depend on the expectation of the government in doing so for them. A local government's decision to not invest in a protective dam may be undermined by other communities not contributing to the costs, but enjoying the benefits. Central government actors may be reluctant to invest more in resilience, because costs are visible in the present but benefits may or may not materialize in the future. It is crucial to identify such incentive barriers and address them if resilience against future disruptive shocks was to be boosted.

Addressing disincentives for engaging in resilience

This report proposes a framework that helps identify bottlenecks to resilience engagements in existing risk governance frameworks. It is based on the definition of basic resilience targets and their achievements at the status quo. The mapping of the institutional landscape, including all responsible actors, their current engagement and

their respective motivation, incentives, as well as power relationships seeks to reveal the driving forces underlying the existing gaps. The identified shortcomings provide information to adjust the institutional and governance arrangements to unleash the engagement of all actors towards higher levels of resilience.

Figure 5. Diagnostic framework to boost resilience



Source: adapted from Fritz, V. et al. (2009), "Problem-Driven Governance and Political Economy Analysis. Good Practice Framework", The World Bank, Washington D.C.

Key policy recommendations – How to make resilience happen

Governments should not wait for the next disaster to happen

Making reform happen is a needed and welcome change; however aiming to do so before a disaster occurs is more effective and efficient. Although past disasters have unleashed risk governance reforms that saw previous implementation hurdles, they came at a very high cost. Reforms following the aftermath of a disaster are often rushed and resources spent swiftly, without a thorough needs assessment. All of this underscores the importance of making reform happen before the onset of disasters, and not waiting until other, more devastating, events occur.

Towards a frame of reference to boost resilience

Raising awareness of critical risks in order to mobilise households, businesses and international stakeholders is crucial to foster investment in risk prevention and mitigation. Governments should establish an institutional environment that incentivises all actors to contribute to boosting resilience. The role and responsibility of each actor should be acknowledged in contributing to the common goal of boosting resilience. This builds on the recognition that collecting and sharing information on existing risks as well as on the exposure to risks and underlying drivers of risk, is crucial. Governments can engage in a number of concrete measures to enhance their own resilience actions for and to also strengthen the engagement of private and non-governmental stakeholders.

- **Inclusiveness:** Adopt a whole-of-society approach to engage all actors in strengthening resilience. Such a strategy is essential to align responsible risk actors and their institutional frameworks.
- **Risk ownership:** Implement a framework that determines who “owns” a risk, or who is responsible for sharing the responsibility and management of a risk and which also clarifies accountability and liability for damages to third parties. Foster the role of risk ownership by increasing risk communication, raising awareness, engaging in risk dialogues among all stakeholders and owners and managers of risks.
- **Rewards:** Build a culture of rewards that encourages pro-active behaviour to increase resilience. Compare the management of risks to a business strategy, where the emphasis is placed on achieving objectives rather than avoiding bad outcomes.
- **Trust:** Emphasize the role of trust already prior to disasters to avoid costly measures to restore trust in the aftermath of an event. Transparency and accountability in managing resilience are key factors to maintaining trust in the long-run.
- **Cooperation:** Encourage joint action through international collaboration, public-private partnerships and across governmental sectors and levels to address the trans-boundary and complex nature of future risks.

- **Sharing:** Increase the collection and sharing of risk information by taking advantage of „Big Data“. Triangulate information from governments and the private sector as well as use crowding information from web-based sources.
- **Monitoring:** Ensure resilience measures adapt to changing risk patterns by monitoring and evaluation risk trends and efforts based on multi-hazard analyses. Monitoring and evaluation systems should consider evolving risk patterns, including demographic, economic, technological, and environmental drivers, as well as their inter-dependencies and potential cascading impacts.

The OECD Recommendation on the Governance of Critical Risks

To promote good practices in risk management in general, and in ex-ante engagement to increase resilience through prevention and mitigation in particular, the OECD has elaborated a draft Recommendation of the Council on the Governance of Critical Risks. The draft Recommendation is designed to assist governments, policy makers and senior officials charged with developing and maintaining robust risk management frameworks and their implementation. The conclusions of this report and the elaboration of the draft Recommendation will both contribute towards establishing a catalogue of criteria to assess the achievements made in OECD countries in implementing the advice set out in the draft Recommendation.

