Flood Resilience Alliance

POLICY BRIEF
JANUARY 2021

Disaster Law

Is national disaster legislation ready for climate change?

Summary

To address increasing disaster risk, an urgent shift is needed in disaster risk management (DRM),[1] from post-event action towards forward-looking resilience planning. As an important part of this, many countries could improve and modernize their national legislation. Researchers from the London School of Economics and Political Science (LSE) looked at one of the most significant risks – floods. They found that outdated national legislation related to DRM laws, which omits the dynamic and critical aspects of risk, can hamper governments' ability to proactively prepare for flood risks and other hazards that are being exacerbated by climate change.

Flooding in Manuel Buelta y Rayón, Mexico
***Photo**: Gustavo Sánchez, Mexican Red Cross*

Recommendations

- National governments should ensure that legislation addresses current and future risks by incorporating risk-informed analysis and best available scientific knowledge on climate projections and related risks.
- When finalizing Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), and disaster risk reduction (DRR) national strategies, governments should consider the impacts and risks associated with climate change. Governments should also review the status of their DRM laws and commit to updating legislation to proactively consider these impacts and risks.
- DRM and climate change laws should encourage capacity-building in human, social, physical, natural, and financial systems, rather than only focusing on improving physical and financial capital.
- Different ministries related to DRM should be incentivized by laws to work better together to address multi-sectoral problems.
- Support for building natural capital is needed in DRM and climate change legislation given that natural capital often remains unrecognized or underfunded. Government funding for 'nature-based solutions' and 'natural infrastructure' should be encouraged along with implementation of nature-based interventions for DRM.
- DRM and climate change legislation should regulate and ensure sufficient resources for information and knowledge management systems and publicly accessible information platforms, including, for instance, 'Integrated Risk Scenarios' and projected risks over different time horizons (IFRC and UCC, 2019, 2020).
- DRM legislation should give greater prominence and allocate necessary resources to risk mitigation activities, alongside response/recovery measures, to further a forward-looking and proactive approach.[2]

1 Disaster risk management is the whole process of protection, mitigation, and preparation for disaster risks. It consists of four phases: 1) risk mitigation/reduction, 2) preparedness in the pre-disaster stage, 3) response, and 4) recovery/reconstruction in the post-disaster stage. Disaster risk reduction (DRR) is a part of the DRM process, being put in place before shocks occur. DRR is:

> the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reducing exposure to hazards, lessening vulnerability of people and property, wise management of land and the environment, and improving preparedness for adverse events (UNISDR, 2009).

2 Additional relevant recommendations for improving DRM legislation include ensuring references to early warning and early action, displacement, protection of vulnerable groups, etc. (IFRC, 2019).

Authors:

Sara Mehryar, Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science, s.mehryar@lse.ac.uk

Rachel Norton, Institute for Social and Environmental Transition – International

Tommaso Natoli, School of Law, University College Cork

Swenja Surminski, Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science

Introduction

Globally, climate change is increasing disaster risks, including floods. Floods are a significant threat as they affect more people than any other hazard around the world (CRED, 2015; Aerts et al., 2018; Hanger et al., 2018). In 2019, floods and storms displaced over 20 million people (IDMC, 2020). The economic toll of floods is also significant, with inland flooding leading to US$82 bn in losses globally in 2019 (Aon, 2020). Climate change, population growth, and development in flood-prone areas will only increase the risks to lives and property.

Formal legislation systems (e.g. laws, policies, regulations, and plans) are key to shaping and encouraging proper climate adaption, disaster risk reduction and management activities across countries. However, a study by Mehryar and Surminski (2020) from the LSE which focused specifically on flood risk management as an example of disaster risk management, found that law-making for flood risk has often been reactive. Its focus has been predominantly on the response/recovery phases of flood risk management (FRM) (versus disaster risk reduction/DRR elements), and physical and human capital solutions (and less on nature-based solutions). The study also found that legislation does not do enough to address the increasing risks posed by climate change, including flood risks. These findings reinforce the importance and usefulness of *The Checklist on Law and Disaster Risk Reduction* by IFRC and UNDP (2015), which can be used by national governments to assess and ensure that their laws provide the best support for DRR. This brief draws on the results of this study to provide recommendations in relation to the urgent need for legislation that 1) integrates future risks and impacts of climate change in DRM strategies; 2) incentivizes forward-looking and proactive DRR strategies; and 3) employs a variety of measures to enhance the natural, social, human, financial, and physical capacities of communities against floods and other climate threats.

In addition, the COVID-19 pandemic has shown that governments are ill-prepared for crisis: better preparation is clearly needed for managing simultaneous risks including health crises and increasingly frequent extreme weather events. In much the same way that a lack of preparedness for a global pandemic has resulted in more deaths and severe economic losses than might have occurred otherwise, so too will a lack of preparedness and forward thinking for the impacts of floods and future climate-influenced extreme events mean greater losses.

While international funding for the COVID-19 health emergency will be vital to a strong response, resources for preparing for future health and climate crises should not be reallocated. Rather, resources should be funnelled towards a "green, resilient and inclusive recovery" that both responds to the consequences of the pandemic and prepares for the onset of floods and other natural hazards and extreme events. A critical element of preparing for floods and other disasters is ensuring that DRM legislation adequately manages and addresses current and future risk from floods and other natural hazards. Using national adaptation and DRR strategies to better analyse risks and also identifying legislation that needs to be drafted or reformed would be an important step forward for governments to be better prepared for flooding and other impacts of climate change.

The role of national laws in managing flood risk and increasing future flood resilience

The LSE study analysed 139 existing laws influencing FRM[3] from the 33 countries most exposed to flooding. This study shows that, historically, there has been a shift in flood laws away from an initial focus on flooding as a natural and water resource management issue towards a broader set of laws that consider flooding within DRM, climate adaptation, and spatial planning policy. However, the study finds a significant lack of detailed recognition of climate change within flood-related laws. This is underpinned by an observed disconnection between DRM and climate change laws: they are often separated and largely work in isolation in most of the countries in the study. The continued separation of 'climate change adaptation' and 'DRM' laws can lead to gaps in institutional ownership and responsibility, and to separate budgets.

Of the laws analysed, 42 per cent (59 out of 139) are focused on water and natural resource management (i.e. protection, preservation, and maintenance of water and natural resources); only 25 per cent (35 out of 139) of laws have a DRM (multi-hazard) focus; and 4 per cent (6 out of 139) of laws have a flood risk management (single-hazard) focus. Further, of the analysed laws, only 9 per cent contain a specific climate change focus, and among the DRM laws identified in these countries, only 17 per cent incorporate climate change concepts in the rules and regulations related to managing natural hazards.

Moreover, this study shows that most of the DRM laws analysed were created shortly after significant disasters (this includes DRM laws in the US, UK, France, Germany, Nepal, and Indonesia) many before the entry into force of the Sendai Framework or the Paris Agreement. Not surprisingly, then, such a reactive approach to lawmaking in disaster-prone countries influences the content of DRM laws, although it is worth noting that a number of countries are undertaking reviews of their DRM laws. As this study shows, the focus of the DRM laws analysed is largely on response and recovery activities (i.e. encouraging a reactive and post-event response approach) and such laws rarely include DRR elements (i.e. pre-event risk reduction measures) as a priority. When looking specifically at FRM, the laws that do include elements of DRR focus predominantly on the physical and human capital of flood resilience (e.g. building embankments and flood walls and enhancing early warning systems) and less on natural capital and the creation of new natural protection measures

3 These are all the laws that explicitly incorporate flood and other natural hazards in the document and are mainly from climate change, DRM, water resource management, natural resource management, and land-use planning legislation areas.

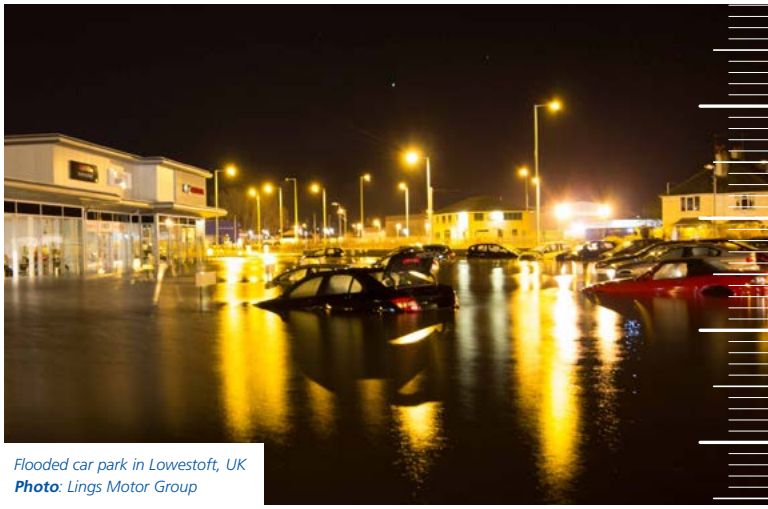
(i.e. nature-based solutions) as a FRM and climate adaptation strategy. Natural capital in this context is the natural resources that provide communities with livelihoods, and work as a flood risk prevention measure, or support communities to cope with or recover from the impacts of flood events. Examples of nature-based solutions include maintaining or creating oyster reefs or mangrove forests to reduce water force in river and tidal flooding, environmental buffers against high tides and storm surges, sustainable drainage systems, cleaning up waste from riverbanks to support drainage and prevent channel obstruction, and making space for the natural flow of river systems rather than restricting them to ever narrower artificial channels (Surminski and Szoenyi, 2019). This is an area that will require further attention as natural FRM efforts offer many advantages over 'hard' engineered measures such as seawalls, including environmental benefits, but this potential is often unrecognized or underfunded.

Change needed

Shifting the focus from measures of physical capital to a broader set of measures can strengthen the role of DRM laws in enhancing the overall resilience of communities against disaster risks. This underlines the importance of treating DRM and adaptation as a broad and holistic concept: ensuring the necessary human, social, physical, natural, and financial systems are in place to address natural hazard events when they occur. DRM cuts across all of these systems, which in turn are complex and interrelated; trying to tackle disaster risks by focusing on only one system is likely to fail (Surminski and Szoenyi, 2019). Among the 139 laws analysed, there are few examples of laws that create policies, responsibilities, or funding for protecting existing natural resources: for example the National Environmental Policy Act of 1970 and the North American Wetlands Conservation Act of 1989 in the USA; the Soil and Watershed Conservation Act in Nepal; the Law Concerning DRM in Indonesia; and the River Research Institute Act in Bangladesh.

In the context of FRM, legislation can facilitate the shift in FRM activities from a mere focus on post-event response and recovery (known as reactive FRM strategies) to prioritizing risk reduction and prevention activities (known as proactive FRM strategies). This can be done via mandating or encouraging interventions that reduce potential flood risks before an event, such as improved building codes, land use planning and informal settlements, provision of risk-sharing and insurance, increasing community education and public awareness of DRR activities, and improving public participation in FRM planning. Among the laws that give a high priority to DRR components are the DRM laws of New Zealand (2002), Mexico (2012), Namibia (2012), and the Philippines (2010) (IFRC and UNDP, 2014).

Making this shift from reactive to proactive FRM necessitates a two-pronged effort: 1) identification of future risks, and 2) the development of strategies/governance mechanisms to address these risks. This can be done through integrating climate change research into the projections of future flood risks, and



Flooded car park in Lowestoft, UK
***Photo**: Lings Motor Group*

then incorporating such climate-aware flood risk projections into FRM strategies, policies, plans, and guidelines, which in general shape the FRM activities in different locations.

There are a few examples of legislation that encourage such efforts on the national and local level. For example, the Bangladesh DRM Act created the National Disaster Management Research and Training Institute to research the impacts of climate change on disaster risks and assess the capability of DRM methods considering the future flood risk predictions. And the UK Flood and Water Management Act (2010) mandated the incorporation of the current and predicted impact of climate change on flood risk in the National Flood and Coastal Risk Management Strategy.

Conclusion and recommendations

A whole-of-society approach – from community to national levels – is needed to minimize harm from climate and weather-related hazards such as floods. There is an urgent need to update national policies and laws to reflect the challenges posed by climate change. DRM legislation can be an effective tool to regulate and encourage current and future flood risk management and resilience-building for communities.

To maximize the efficacy, there are certain commitments governments should make when updating or creating DRM legislation:

- Proactively take into consideration the impacts and risks associated with climate change.
- Create incentives in DRM-related laws for capacity-building in all human, social, physical, natural, and financial systems, with particular support for building natural capital.
- Regulate and ensure sufficient resources for the functioning of information and knowledge management systems.
- Allocate resources to preventive measures to further a forward-looking and proactive approach in DRM legislation.

Adopting these considerations into DRM legislation will help to shift the focus from post-event interventions to the necessary forward-looking approach that is needed to address the increasing perils of floods and other hazards.

Flood damage following Elbe river levee failure in Fischbeck, Germany
***Photo:** Michael Szoenyi, Zurich Insurance Group*

References

Aerts, J.C., Botzen, W.J., Clarke, K.C., Cutter, S.L., Hall, J.W., Merz, B., Michel-Kerjan, E., Mysiak, J., Surminski, S., and Kunreuther, H. (2018) 'Integrating human behaviour dynamics into flood disaster risk assessment', *Nature Climate Change* 8: 193 <https://doi.org/10.1038/s41558-018-0085-1>.

Aon (2020) *Weather, Climate & Catastrophe Insight: 2019 Annual Report* [pdf], Aon, Chicago <https://floodresilience.net/resources/item/weather-climate-catastrophe-insight> [accessed 18 November 2020].

Centre for Research on the Epidemiology of Disasters (CRED) (2015) *The Human Cost of Natural Disasters: A Global Perspective*, Geneva: UNISDR.

Hanger, S., Linnerooth-Bayer, J., Surminski, S., Nenciu-Posner, C., Lorant, A., Ionescu, R., and Patt, A. (2018) 'Insurance, public assistance, and household flood risk reduction: a comparative study of Austria, England, and Romania', *Risk Analysis* 38: 680–93 <https://doi.org/10.1111/risa.12881>.

Internal Displacement Monitoring Centre (IDMC) (2020) *Global Report on Internal Displacement 2020* [online] <https://floodresilience.net/resources/item/global-report-on-internal-displacement > [accessed 18 November 2020].

IFRC (2019) *Checklist on law and disaster preparedness and response*, <https://media.ifrc.org/ifrc/document/checklist-law-disaster-preparedness-response/> [accessed 18 November 2020].

IFRC and UNDP (2014) *Effective Law and Regulation for Disaster Risk Reduction: A Multi Country Report – Summary*, New York: UNDP.

IFRC and UNDP (2015) *The Handbook on Law and Disaster Risk Reduction*, Geneva: IFRC and UNDP.

IFRC and UCC (2019) 'Literature review on aligning climate change adaptation and disaster risk reduction', Geneva: IFRC.

IFRC and UCC (2020) *Law and Policies that Protect the Most Vulnerable Against Climate-Related Disaster Risks: Findings and Lessons Learned from Pacific Island Countries*, Geneva: IFRC.

Mehryar, S. and Surminski, S. (2020) 'National laws for enhancing flood resilience in the context of climate change: potential and shortcomings', *Climate Policy* <https://doi.org/10.1080/14693062.2020.1808439>.

Surminski, S. and Szoenyi, M. (2019) 'Nature-based flood resilience: reaping the triple dividend from adaptation', in E. Berglof and T. Thiele (eds.), *From Green to Blue Finance: Integrating the Ocean into the Global Climate Finance Architecture*, pp. 22–3, London: LSE Institute of Global Affairs.

UNISDR (2009) 2009 *UNISDR Terminology on Disaster Risk Reduction*, Geneva: UNISDR.

Acknowledgements

We would like to thank the 'Climate Change Laws of the World' group at the Grantham Research Institute for their support in collecting and analysing the data used in this study.

The Zurich Flood Resilience Alliance is a multi-sectoral partnership which brings together community programmes, new research, shared knowledge, and evidence-based influencing to build community flood resilience in developed and developing countries.

We help people measure their resilience to floods and identify appropriate solutions before disaster strikes.

Our vision is that floods should have no negative impact on people's ability to thrive. To achieve this we are working to increase funding for flood resilience; strengthen global, national and subnational policies; and improve flood resilience practice.

Find out more: www.floodresilience.net

The Zurich Flood Resilience Alliance is made up of the following organizations:

Members of the Zurich Flood Resilience Alliance are funded by the Z Zurich Foundation, with the exception of Zurich Insurance Group. However, the views expressed in this publication do not necessarily reflect the official position of either the Foundation or the company.