

Improving flood risk governance in the European Union



Introduction

At a time where flooding is projected to increase in line with climate change and other risk-enhancing factors, efforts to enhance societal resilience to flooding are essential. The growing risk highlights the importance of effective flood risk management (FRM). It is widely recognised that a mixture of strategies is required, both minimising the likelihood and magnitude of flood hazards, and the consequences of flood events. STAR-FLOOD has evaluated flood risk governance in Europe and has identified ways in which existing governance arrangements can be strengthened to improve societal resilience to flooding (i.e. resist floods, absorb & recover, and adapt to change), make efficient use of resources, and enhance the legitimacy of flood risk governance.

STAR-FLOOD

STAR-FLOOD is an EU FP7-funded research project and stands for “STrengthening And Redesigning European FLOOD risk practices”. Adopting a combined public administration and legal perspective, STAR-FLOOD has examined how current Flood Risk Governance Arrangements (FRGAs) can be strengthened and (re)designed to enhance societal resilience to flooding in urban areas. Empirical research was conducted in six selected EU countries; namely Belgium, England (UK), France, the Netherlands, Poland and Sweden, and 18 urban case studies therein. Each national FRGA was evaluated in terms of the normative stance adopted by the project that governance should enhance societal resilience to flooding and do so in an efficient and legitimate way.



This policy brief is the second brief in a series of three. This second policy brief is written for policymakers at the EU level. It presents the final results of the STAR-FLOOD project, introducing lessons learned for improving FRM and governance in Europe, focusing on the role of the European Commission and the implementation of the Floods Directive (2007/60/EC).

Recommendations are relevant for the implementation of the Floods Directive, which is implemented in coordination with the Water Framework Directive. In addition, it is relevant for the EU Adaptation Strategy, the EU Civil Protection Mechanism, under the EU Humanitarian Aid and Civil Protection department (ECHO), and Horizon 2020, which is the financial instrument to fund research, also in the field of FRM.

1. Flood risk management in Europe

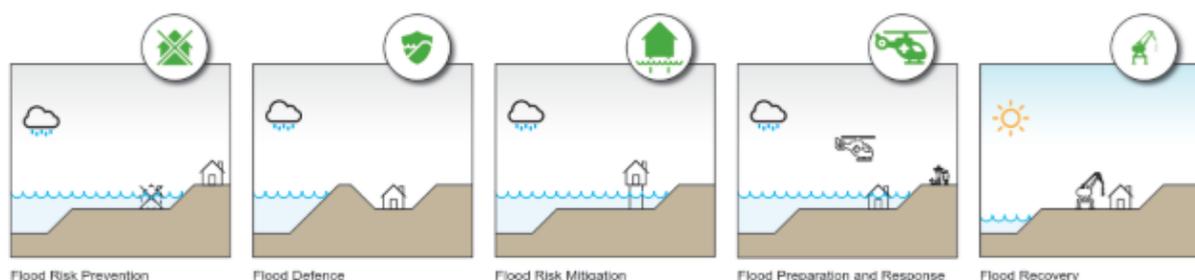
Of all the natural hazards in Europe, flooding is the most common and accounts for the largest number of casualties and highest economic damage (Guha-Sapir et al. 2013, EEA, 2011). Without intervention, both the probability and potential consequences of floods in Europe are expected to increase, due to climate change (IPCC 2011), soil subsidence, population growth, economic growth and urbanisation in flood prone areas (Barredo 2009; Mitchell 2003).

The ultimate goal of FRM is to reduce the risk posed by flooding and to foster societal resilience. Resilience can be divided into three components: the capacity to resist floods, the ability to absorb and recover and the capacity to adapt. FRM should not only lead to resilience, but should do so in an efficient and legitimate way. Just like for other water-related challenges (e.g. OECD 2014), there is no one-size-fits-all solution for addressing flood risk governance challenges. A successful implementation of a diverse, resilient, set of strategies in a certain area is only possible if these strategies and their coordination are appropriate.

FRM strategies and governance arrangements

The growing risk highlights the importance of effective FRM. It is widely recognised that this requires a mixture of strategies aimed to minimise the likelihood and magnitude of flood hazards, as well as the consequences of flood events. The transboundary nature of floods and their impacts also require concerted actions. Both topics are addressed in the EU Floods Directive (2007/60/EC).

In the STAR-FLOOD project, a distinction is made between five FRM Strategies (FRMSs), which can be implemented as part of a comprehensive and diversified approach to FRM (see also policy brief 1). To ensure implementation, the responsible actors, policies, legislation, financial and other resources need to be organised well: they should be embedded in appropriate governance arrangements.



2. Improving flood risk management in Europe

In this section the main conclusions of STAR-FLOOD are discussed, each followed by specific recommendations to the EU.

Setting objectives

Political choices are needed to combine the (perceived and sometimes already legally settled) 'right to be protected' of citizens with the increasing financial scarcity/pressure to focus on priorities. An issue to consider is at what level these choices are best made.

Based on STAR-FLOOD's findings, the conclusion is that in general the FD's focus on procedural requirements is appropriate in the sense of what seems to be feasible given the large diversity between countries in terms of their physical circumstances, historical pathways in dealing with flood risks and normative principles held. Nevertheless, it must be stated that this focus weakens the legal strength of the FD. This is because a procedural approach limits the possibilities to hold authorities accountable for ambitious goals in terms of reducing flood risks and it does not enable EU citizens to realise that FRM measures actually are taken or that they are compensated for the negative effects of FRM measures (e.g. in case of expropriation). A substantive requirement could be the obligation of Member States to implement the measures stated in their FRM Plans, comparable with article 4 and article 11 (7) of the Water Framework Directive, instead of only making a plan.

STAR-FLOOD found that the Floods Directive has facilitated the implementation of FRM in all STAR-FLOOD countries. This is especially the case in those countries where FRM is not yet mature, including Sweden and Poland, two countries included in the STAR-FLOOD project.

Recommendation to the EU:

- The findings of STAR-FLOOD support the current choice in the Floods Directive to not prescribe specific measures at the EU level.
- The EU should facilitate a debate on what the appropriate governance level to set objectives regarding flood safety should be and who is accountable.
- From the viewpoint of legitimacy of the objectives, it would be worthwhile to critically re-evaluate the content of the Floods Directive regarding citizens' possibilities to enforce it and to make clear what the citizens could demand in courts.

Diversifying Flood Risk Management strategies

Some floods cannot be prevented. STAR-FLOOD therefore concludes that in order to increase resilience, a country should have the capacity to resist floods, to absorb and recover from them and to adapt. These capacities are to be seen as different rationales and normative starting points. The empirical data obtained in STAR-FLOOD suggest that there are to some extent trade-offs between these capacities. This raises the question of in which cases and to what level diversification of FRMSs is necessary and important, and how diversification can be achieved.

Countries differ in their approaches to diversification. In The Netherlands, Poland, France and Belgium there is much focus on the capacity to resist. Here we see the desire to create contingency plans (or 'fail safes'). In the UK, England has diversified for 65 years, while Sweden is currently diversifying due to climate change concerns. In most cases, the practical on-the-ground implementation of diversified strategies is lagging behind intentions as laid down in discussions and policy plans.



The STAR-FLOOD project has identified that there is an intricate link between the strategies of flood recovery and those of flood prevention and mitigation. It was found that in some cases strong recovery mechanisms may deter prevention and mitigation. In England, financial recovery mechanisms in the form of insurance or compensation predominantly promote a 'back to normal' approach and do not sufficiently promote and encourage adaptation. In Belgium however, a risk differentiation approach has been adopted, whereby buildings constructed in high-risk areas after a certain date can be refused coverage and do not benefit from the cap set on premiums by the Tariff Office.

Recommendation to the EU:

- The EU could ask Member States to demonstrate in their Flood Risk Management Plans that the mixture of strategies, implemented through a set of measures, achieves the goals these Member States set themselves. This to demonstrate that a well-balanced mixture between the five available strategies is chosen.
- Countries that have ex-post compensation mechanisms in place, should ensure that these sufficiently promote property-level prevention and mitigation measures. This could be considered in the broader context, i.e. it is crucial that one FRMS does not undermine another.

Bridging mechanisms

Diversification of FRMS that is appropriately institutionalised seems to be desirable. However, diversification in many cases leads to fragmentation between actors and sectors and fragmentation in turn may lead to inefficiencies and even ineffectiveness. To counteract the undesirable side effects of fragmentation, bridging processes and mechanisms are needed: instruments or 'tools' that facilitate integration between aspects of governance, such as between different policy sectors.

The STAR-FLOOD research resulted in several examples of these bridging processes and mechanisms, including the role of coordinating actors; procedural duties and instruments; formal rules and regulations; financial and knowledge resources and bridging concepts. There is a clear need to better bridge the gap between actors operating within distinct spatial planning and FRM policy domains to deliver a more integrated approach. The requirement of water assessment/water test that is applied in Belgium and the Netherlands could be an effective way to integrate flood risks in the planning and permitting processes also in other countries. Research shows that a water test works better when it is legally binding.

Recommendation to the EU:

- Effective bridging mechanisms are required to bridge sectors (e.g. water management/spatial planning and water management/disaster management) and strategies (e.g. prevention, mitigation and recovery). The EU could ask for a clear description of how flood management is taken into account in other flood-relevant sectors in the next round Flood Risk Management Plans and ask for a reflection on the expected effectiveness of these bridging mechanisms.

Legitimacy

Objectives for FRM should be reached in a legitimate way. Legitimacy is a multi-faceted concept. STAR-FLOOD developed a set of seven criteria for determining the legitimacy of flood risk governance from a combined public administration and legal perspective: social equity; access to information and transparency; procedural justice and accountability; public participation and acceptability.



Aided by international frameworks such as the Aarhus Convention and European regulations, the countries researched do well on access to information and transparency, procedural justice and accountability. Most potential for improvement lies with the criteria of social equity, public participation and acceptability.

Recommendation to the EU:

- EU could consider more specific criteria or standards for legitimacy using the seven identified criteria for legitimacy and ask countries to self-evaluate if they meet these standards.

Investment and resource efficiency

The availability of different types of resources is an important determinant for the extent to which FRMSs are being developed, implemented and linked to other strategies since they affect the power base of actors. The availability of financial resources differs significantly between the STAR-FLOOD countries. Some countries have well-established systems for funding specific FRM strategies, such as France, England and The Netherlands, whereas other countries such as Poland) are highly dependent on European funds (i.e. Solidarity Fund and the EU Cohesion Fund).

Resource efficiency is highly prioritised by policymakers across Europe. FRM and governance should use resources (economic, human, and technological) in an efficient manner; maximising desired outputs and minimising required inputs. Article 7.3 of the Floods Directive includes a provision for efficiency by including costs and benefits in FRMSs. Efforts to improve resource efficiency by increased application of (societal) Cost-Benefit Analyses are underway in different countries, albeit to a varying extent. These CBAs were found to contribute to resource efficiency, but in some countries were perceived as rather technocratic.

In many cases it was found that through integrated, cross-sectoral approaches to FRM, not only FRM functions were created. Money for FRM invested in this type of projects fostered economic growth, environmental improvement, tourism and recreation, etc. Vice versa, in multi-purpose schemes, other financing sources contributed to reducing flood risks. For integrated projects, there is a need for methods to perform cross-sectoral Cost-Benefit Analysis.

Recommendation to the EU:

- The EU could facilitate knowledge exchange between Member States and regions regarding best practices of instruments for resource efficiency, e.g. cross-sectoral Cost-Benefit Analysis.

Multi-level governance

Resilience is served by well-coordinated multi-level governance. An effective combination of top-down and bottom-up efforts is needed, combining strategic discussions and a strategic overview at the catchment level at higher levels of governments, and bottom-up work by local stakeholders. In several countries, a shift of financial and executive tasks from higher to lower levels of governments takes place. This must be accompanied by a shift of formal powers and necessary resources in order for lower levels of government to work effectively. The EU and the Floods Directive are not hampering this process.

National governments or the EU could act more in a supportive role. This could be achieved by providing funding and expertise as well as approving flood risk policy planning at local level, preferably within hydrological boundaries. Additionally, by taking an active role as supervisory authority in order to ensure that FRM within the river basin as a whole is appropriate.



Recommendation to the EU:

- Local, tailor-made solutions are often most effective when dealing with multi-actor, multi-sector and multi-level flood risk governance issues. At the same time there is need for supervisory instruments to ensure effective flood risk management within (transboundary) river basins.
- The EU could ask Member States to justify the division of responsibilities and resources between government levels and between the government and other actors in their Flood Risk Management Plans to show that the chosen approach meets the goals set by the Member States.

Transboundary cooperation

Adopting the normative starting point that flood risks should not only be addressed locally but also considered at the basin scale, transboundary flood risk governance is necessary. The Floods Directive requires Member States to ensure coordination with the aim of producing one single international FRM plan or a set of FRM Plans with coordination at the river basin district scale. In addition, the Floods Directive states that, according to the solidarity principle, Member States shall not include measures, which by their extent and impact, significantly increase flood risks upstream or downstream unless agreed between Member States.

The Floods Directive now gives Member States full discretionary powers and no substantive cooperation requirements to implement FRMSs and measures at the transboundary scale. Legal analysis identifies inconsistency of responsibilities when it comes to transboundary management goals. Member states are generally obliged to cooperate, but no instruments are prescribed to shape cooperation. This leads to a lack of shared responsibility and accountability. In International River Basin Districts, the Floods Directive could go further in setting forth cooperation requirements between states sharing these districts and to provide clarity on important concepts in the Directive.

Recommendation to the EU:

- The Floods Directive could go further in setting cooperation requirements between states sharing International River Basin Districts and provide clarity on important concepts in the Directive.
- Considering transboundary flood risk management, more study into appropriate instruments to foster cooperation is recommended. In addition, the EU could evaluate the goodness of fit between the river basin district scale and national plans for flood risk management.

Adaptive governance

Investments in flood safety are often made for the long term. If not analysed carefully, investments might lead to future regret as measures might become obsolete or difficult to upgrade. Measures can have lock-in effects, making other future strategies very costly and difficult to implement. A long-term strategic and adaptive approach (ca. 50 to 100 years) to decision-making is needed to ensure that future risks and uncertainties are accounted for, in an efficient way. If not, resource efficiency may well be challenged. Although Article 14 of the Floods Directive refers to taking into account the likely effects of climate change, more specific requirements regarding dealing with uncertainty could be considered.

The cyclical planning approach followed by the Floods Directive and Water Framework Directive encourages learning. Consecutive rounds of FRM Plans should be based on the evaluation of the



implementation of previous plans. Reviews are currently part of the planning cycle of the Floods Directive.

Adaptive management and governance requires continuous learning by involved actors. Institutional cultures for learning appear to be well-established within STAR-FLOOD countries, but there are limited opportunities for exchanging lessons learned between countries, especially between research and practitioner communities at the regional level. Conferences, workshops and research consortiums are one way of transferring knowledge, but the number of participants is limited. The outputs from projects, such as policy briefs and the Practitioner's Guidebook developed within STAR-FLOOD, provide an important means of disseminating research findings in an accessible way, but do not enable the active exchange of ideas and dialogue.

Recommendation to the EU:

- The EU could stimulate exchange of best practices regarding adaptive planning methods to enhance the way Member States deal with uncertainty regarding flood risk management.
- A flood risk governance knowledge exchange platform should be established in Europe to facilitate active exchange of ideas, good practices, principles and normative issues and dialogue regarding flood risk management.

Public private partnerships (PPPs)

The involvement of private parties in flood risk governance is necessary both for substantive and normative reasons. They can provide extra resources for implementing the diverse set of FRM strategies. In addition, in Europe participation in decision-making is considered important (Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters). Governments cannot steer exclusively in a top-down fashion but must involve other stakeholders in decision-making.

Regarding public private involvement, a distinction should be made between state-business orientated interactions and state-NGO/citizen interactions. STAR-FLOOD researched both types of public private partnerships, but few examples of state-business orientated interactions were identified

The lack of public engagement appears to be also a barrier to improving flood resilience. The pursuit of a more balanced distribution of public-private responsibilities is hindered by the current attitudes of those citizens who consider FRM to be a governmental, rather than an individual, responsibility. In order to bring about a shift in responsibility open public debate is recommended. Regarding the role of businesses, some good examples regarding partnership funding were found in England, but still more insight is required concerning what the right incentives for participation are.

Recommendation to the EU:

- New experiments and additional research regarding state-business and state-NGO/citizen interactions is required to fully understand the opportunities that public-private partnerships have to offer and to find the appropriate scale and depth of public-private partnerships.
STAR-FLOOD recommends having an open, broad (political and societal) debate about these shifting responsibilities. The outcome of the debate should lead to more clearly defined roles for governments/citizens, ideally to be laid down in either law or policy documents.



References

- Barredo JI (2009). Normalised flood losses in Europe: 1970–2006. *Nat. Hazards Earth Syst. Sci.*, 9: 97–104.
- European Environment Agency (2011). www.eea.europa.eu/highlights/natural-hazards-and-technological-accidents
- Guha-Sapir D, Hoyois Ph., Below R. (2013). *Annual Disaster Statistical Review 2012: The Numbers and Trends*. CRED, Brussels.
- IPCC (2011). *Summary for Policymakers of Intergovernmental Panel on Climate Change Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*. Cambridge University Press, Cambridge.
- Mitchell JK (2003). European river floods in a changing world. *Risk Anal* 23(3)567-574.
- OECD (2014). *OECD Principles on Water Governance*. Directorate for Public Governance and Territorial Development.

Further reading

- www.starflood.eu, e.g. the Practitioner's Guidebook and briefs 1 and 3 are published here.
- Hegger, D.L.T., Driessen, P.P.J., Bakker, M.H.N. (Eds.). *A view on more resilient flood risk governance: key conclusions of the STAR-FLOOD project*. STAR-FLOOD consortium, Utrecht, the Netherlands.
- Ek, K., Pettersson, M., Alexander, M., Beyers, J-C., Pardoe, J., Priest, S., Suykens, C., and van Rijswick, H.F.M.W., 2016, *Design principles for resilient, efficient and legitimate flood risk governance – Lessons from cross-country comparisons*, STAR-FLOOD Consortium, Utrecht, the Netherlands.

Authors

Martijn Steenstra (Grontmij part of Sweco) / Tom Raadgever (Grontmij part of Sweco) / Dries Hegger (Utrecht University) – with input from all STAR-FLOOD researchers.

Acknowledgements

The authors would like to thank all project partners who contributed to the policy brief and its underlying deliverables. This project has received funding from the European Union's Seventh Programme for Research, Technological Development and Demonstration under Grant Agreement No 308364.

