



# TAKING LAND SERIOUSLY IN SPATIAL FLOOD RISK MANAGEMENT

LAND4FLOOD - Natural Flood Retention on Private Land

## KEY POLICY MESSAGES

- Stop financing measures! Focus on the governance of private land for flood risk management.
- Focus on private land! Flood risk management today leans too much on publicly owned land.
- Take time! Getting landowners on board is a long process.

Land for natural flood risk management is often privately owned, Raiten, Germany  
© Thomas Hartmann, 2020

IWRA Policy Briefs are published by IWRA in association with IWRA partners. They aim to provide high quality analysis and practical recommendations for policy makers on important development issues.

*IWRA Policy Briefs are for the purpose of stimulating discussion and awareness; IWRA, as a neutral forum, does not necessarily endorse the views expressed.*

[www.land4flood.eu](http://www.land4flood.eu)  
[www.iwra.org](http://www.iwra.org)

Sponsored by



*We need to change how we think about flood risk management. Successfully implementing sustainable flood risk mitigation measures requires approaches that are different than the management of grey infrastructure measures, such as dams, dikes, or levees. For grey infrastructure projects, the defining factor is engineering. Such measures are designed first, before the needed land is acquired. However, green flood risk mitigation measures, primarily based on achieving retention “where the rain falls”, will often include a large number of small measures and generally involve sites on privately owned land. In contrast to grey infrastructure projects, financing the construction of natural flood risk reduction measures is often only a minor part of the project. For green measures, investment in time and money is needed not only for hydrological studies and models, but throughout the process for preparation, design, and dialogue with landowners before, during and after a programme for flood risk reduction is proposed and approved.*

Successful flood risk management, which explicitly focuses on land and land management, requires not only a functional and flexible land policy but also the engagement of landowners from the earliest stages and throughout the process. Privately owned land is usually small in size. Taking the site dimension seriously is an important starting point for the implementation of measures. Since taking a more process-oriented approach takes time, it becomes imperative to start the process early – not to delay the process related work until project design and a decision for action have been taken.

Inclusion of all stakeholders, landowners and policymakers is a must for a successful implementation of sustainable flood risk mitigation measures. Financing the measures should be an outcome of the process not the beginning.

## **LAND FOR LAND! COMPREHENSIVE LAND POLICY IS CRUCIAL FOR FLOOD RETENTION**

Land is essential for natural flood risk management. Space is needed to retain and detain water. Agricultural land is needed – in upstream areas and in the hinterland. However, agricultural landowners often resist changes and restrictions on their land use. They do not want to lose control over how they manage their land and become forced to

## **LAND4FLOOD COST ACTION**



The LAND4FLOOD network brings together academics and professionals in flood risk management across Europe and beyond to support the implementation of spatial flood risk management on private land. The initiative is supported by the COST funding programme (European Cooperation in Science and Technology). It builds on the activities of a group of researchers and practitioners called FLOODLAND founded in 2014. Numerous publications, collaborations in science and practice, and knowledge and experience-sharing have been produced (see [land4flood.eu](http://land4flood.eu)).

The policy recommendations presented here result from the experiences of experts from more than 35 countries over the past four years. They represent a common ground relevant for various contexts and scales. The main audience of LAND4FLOOD is high-level policy makers, water managers, spatial planners, lawyers, and other stakeholders involved in spatial flood risk management.

change their farming practices, because their land is the foundation of their income and often, identity.

So, what can be done about it? Several approaches have been proposed in policy and research – from informal processes to incentives, to top-down command solutions. Stakeholder participation in processes is often offered as a way to address flooding problems, but when it comes to agricultural land, even negotiating approaches can be stalled by the problem of land scarcity. Money is not the only issue. Not all agricultural landowners are farmers and not all farmers own all the land they manage. If alternative solutions to lost production and satisfactory income cannot be guaranteed over the long term, even money cannot circumvent the reluctance of landowners and farmers to engage in a flood risk management program. Landowners and farmers also represent an important constituency group, so public agencies may be reluctant to use interventionist policy instruments – such as expropriation or regulation.

One effective way to alleviate the problem of land scarcity is to include provisioning of land in the solution. Land for land, i.e., offering suitable and attractive land in exchange for the constrained land, can be a successful means to alleviate such an impasse. However, this approach requires strategic thinking and long-term land management and governance.

## SIZE MATTERS! STARTING FROM THE LOCAL SCALE IS VITAL

Land management is the main component of flood risk measures, which are usually planned on a large regional scale, i.e., on the river basin level. The provisioning of water retention measures by upstream farmers and landowners should be designed to match the need for reduced flood risk in downstream areas. However, often national, regional, and local administrative units, development policies and property laws are incompatible either at the river basin scale or at local partnership boundaries, resulting in obstacles to implementation.

Efficient implementation of natural based retention measures depends, therefore, on both size and scale. For example, while several successful initiatives of water retention and biodiversity protection measures through inter-municipal cooperation have been established at the small scale, up-scaled implementation has not yet become mainstream practice.



The main challenge for policy and management is how to scale up good practices (floodplains of the Nederrijn close to Utrecht, The Netherlands).  
© Thomas Hartmann

Small-scale initiatives have shown that successful implementation depends on a landowner-centred process approach, with active and strong stakeholder involvement through communication, trust-building and mutually beneficial processes. It is important to encourage and support integrative governance-based initiatives. This means to opening up to active stakeholder involvement in all stages, included in the decision-making, from preparation and planning to implementation and evaluation!

## FROM PROJECT TO PROCESS

In complex societies, cooperation and coordination are essential to implement solutions in a sustainable way. Much in the same way, we need to design solutions based upon local natural and factual contexts. We need to design solutions which incorporate the social factors and concerns of stakeholders and landowners. Everyone needs to recognise multiple benefits – individual and societal – from the planning and implementing of a measure.

Landowners, public authorities, and relevant stakeholders must be actively enrolled in the process of addressing flood risk challenges and planning cost-effective solutions. Experience in public participation shows that long-lasting and active partnerships require high effort and high levels of skill from planning authorities. Certain capacities must be incorporated in order to achieve successful flood risk management outcomes. It goes far



Getting landowners on board is a time-taking process (politicians assess damage to agricultural land after flooding close to Ludwigshafen, Germany).  
© Martin H. Hartmann

beyond stakeholders merely being asked to approve or to support a negotiated solution. Getting landowners on board is a time-consuming process due trust-building, mobilisation, and active participation. Identifying, mapping and analysing landowner and stakeholder interests and their potential

commitments are key steps in the process; however, it is even more important to ensure that the engagement is inclusive, transparent, and persistent over the time.

Flood risk management should be seen as an iterative and adaptive process when concerning stakeholder involvement. Although the goal may be the realization of an individual project, this realization will require not only planning and preparation but governance once measures have been implemented. The experience gathered from each process will be input to the next, so it had better be good!

## HOW TO PREPARE, PLAN AND GOVERN WITH LANDOWNERS

The owners of the land under consideration represent a key stakeholder group that needs to be addressed. They might oppose the realization of retention measures (despite public interest and plans) when not satisfied with the process and benefits. However, they can also implement these measures on their own regardless of public authority or expert planning. The situations where landowners themselves take the initiative and implement (privately funded) measures deserve greater attention. Why do they act the way they do? What support do they need to do more or what barriers do they face in their efforts? LAND4FLOOD evidence shows that bureaucracy may discourage enthusiastic landowners. Providing (complicated) public subsidies is not always the key to success when small-scale low-cost measures are in focus. Additionally, low cross-compliance among Common Agriculture Policy and other production and development-oriented policies with flood retention and drought mitigation efforts can disincentivize landowner initiative.

## OVERVIEW STATEMENT

Natural flood risk reduction requires more than just designing and financing the construction of engineering measures. The preparation of flood risk management plans and engagement with private landowners requires a concerted effort and dedicated finances to support the iterative process from the first step to final completion and beyond. This contradicts the prevalent working paradigm in flood risk management, where stakeholders and community become an 'add-on' to the technical and project management processes. Realizing the potential of natural measures to reduce flood risk implies a shift from a managerial and project-oriented approach to a process-oriented approach based on inclusion of stakeholders in the process from the beginning. Examples of natural water retention measures and initiatives from landowners on the local scale should be encouraged and supported with coordinated land use policies which will enable the scaling-up of good practices.

## FURTHER READING

- Hartmann, Thomas; Slavíková, Lenka; Wilkinson, Mark (2021). Spatial Flood Risk Management - Implementing Catchment-Based Retention and Resilience on Private Land. Edgar Elgar.
- Ferreira, Carla S. S.; Kalantari, Zahra; Hartmann, Thomas; Pereira Paulo (2021). Nature Based Solutions for Flood Mitigation: Environmental and Socio-Economic Aspects. Springer.
- Hartmann, Thomas, Slavíková, Lenka., McCarthy, Simon (2018). Nature-based Flood Risk Management on Private Land. Springer.
- Hartmann, Thomas, Jirina Jílková; Schanze, Jochen (2018). Land for Flood Risk Management: A catchment-wide and cross-disciplinary perspective. Journal of Flood Risk Management, 11(1). SPECIAL ISSUE.

## ACKNOWLEDGEMENTS

The content of this policy brief was collaboratively developed by members of the COST action LAND4FLOOD: Natural Flood Retention on Private Land (CA16209), supported by COST (European Cooperation in Science and Technology). A special thanks goes to the International Water Resource Association (IWRA) for supporting this policy brief.

**Editor:** Thomas Hartmann<sup>1,2</sup>, Lenka Slavíková<sup>2</sup>, Dennis Collentine<sup>3</sup>, Kristina Veidemane<sup>4</sup>, Kristina Potočnj<sup>5</sup>, Johan Barstad<sup>6</sup>, Rhys Evans<sup>6</sup>  
**Layout:** Nathalie Lyon-Caen

1. Wageningen University & Research, 2. Jan Evangelista Purkyně University Usti nad Labem, CZ, 3. Swedish University of Agricultural Sciences, 4. Baltic Environmental Forum, 5. University of Zagreb Faculty of Civil Engineering, Zagreb, Croatia, 6. The University College for Green Development, Bryne, Norway.

## MORE INFORMATION

[www.land4flood.eu](http://www.land4flood.eu)

