



Flood Risk Mapping in Europe

A comparative analysis of methods availability and use

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INTRODUCTION

Managing river floods, one of the most costly natural disasters, is becoming increasingly complex because of ongoing developments in floodplain areas and future uncertainties associated with climate change. The need to develop flood risk management strategies (fig. 1) instead of traditional preventive measures, is therefore increasing. This is also addressed by the new EU flood directive. For flood risk strategies the mapping of the hazard/risk is of vital importance. Already many governments, and other public and private institutions, have created flood maps for various purposes.

Here we present an overview of what types of flood risk maps are currently available in Europe and how they are used at the moment.

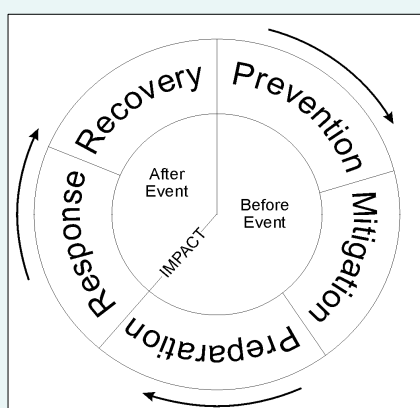


Figure 1 - The "disaster management cycle", a framework for risk management strategies. Figure adapted from Herold et al. (2005)

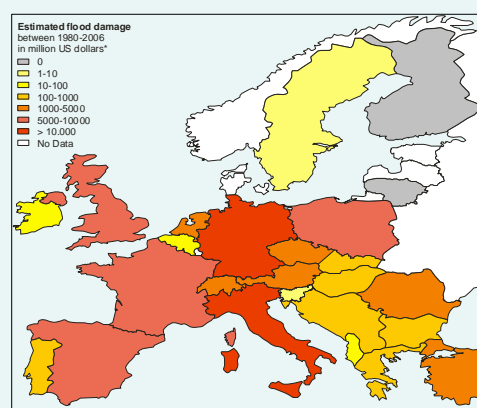
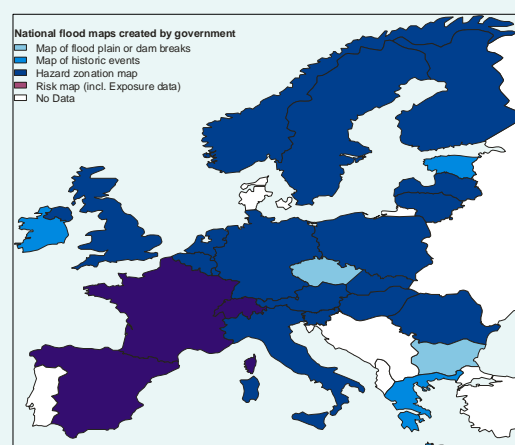
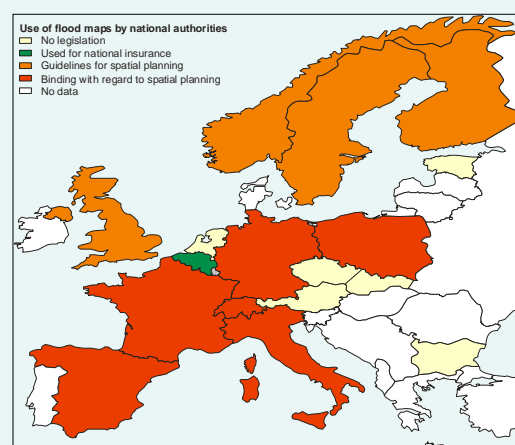


Figure 2 - Estimated historical flood damage. Data taken from the OFDA/CRED International Disaster Database (www.em-dat.net)

AVAILABILITY AND USE - Government



Flood maps differ greatly among countries, varying from maps displaying waterways, dams or historical events to sophisticated maps based on hydrological/hydraulic model simulations showing inundation levels, and sometimes even include data on potential damage.

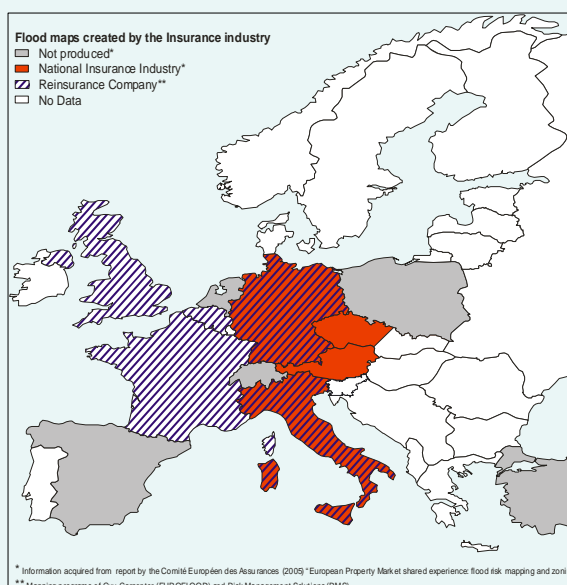


Besides for spatial planning and insurance (see figure), in many countries maps are used for emergency planning, especially in Eastern Europe and Scandinavia. Furthermore, they are often used to increase public awareness (e.g. France, Germany, Ireland, Latvia, Lithuania, Luxembourg).

Conclusions

- The quality of flood maps is sometimes (especially in eastern Europe) limited by the quality and availability of the data.
- Governmental programs hardly use data on potential damage.
- Countries that have experienced high damages in the past due to floods usually initiated sophisticated flood mapping programs, binding legislation and an active role of the (re-)insurance industry.
- Binding legislations with respect to spatial planning and hazard zones is often still young (except for France). Furthermore, the actual implementation may differ per region (like in Italy and Spain) and national legislation is sometimes rarely implemented by lower authorities (Poland).
- In most countries hazard zones play an advisory role and/or legislation has yet to be developed.
- Maps of flash floods are still rare due to methodological difficulties. Mainly created by reinsurance companies, who have created spatial stochastic precipitation datasets.
- **Additional information on mapping activities and use of flood maps is very welcome.**

AVAILABILITY AND USE - Insurance Industry



Sophisticated maps are created by the insurance industry. In the case of the Czech Republic, there was close cooperation with the national government. In other cases, like in the UK and Switzerland, governments provide the insurance industry with flood maps. Potential damages are mainly included in mapping activities of the reinsurance industry, which provide the most advanced maps.

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