



## Recommendations for flood mapping in England and Wales: Findings from the RISK MAP ERA-NET CRUE

A new report suggests ways to improve maps displaying flood risk, to better suit the needs of affected communities and those responsible for managing flood risk. The report also recommends involving both local people and experts in the flood mapping process.

The following recommendations were made:

- Different users have different needs and therefore a layered map should be explored, with the ability to turn the layers on and off.
- Members of the public prefer flood maps with hazard rather than risk information. The Environment Agency should consider maintaining a hazard map for the public.
- The Environment Agency should explore ways to help people understand flood risk in relation to their own property, and potentially revise maps to greater delineate flood risk.
- Local knowledge and expertise should be valued. Public and professional participation should be a routine part of flood mapping. Mixed participation is best with a neutral facilitator to ensure balanced discussion.
- The Environment Agency should consider devising a standard process of publicising major changes to flood maps.
- Workshops are particularly valuable in communities where flood risk is complex, there are known controversies or where trust in authorities and/or maps is low.

The aim of this project was to enhance communities' resilience to flooding by improving flood maps and the mapping process. Risk maps not only inform people about the risk of flooding, but can also stimulate public participation in flood risk decision-making. This project had four central objectives:

- Develop participatory processes to incorporate local knowledge and preferences into maps.

- Improve flood maps with a multi-criteria risk tool to create a more complete view covering economic, social and environmental risks.
- Produce user-friendly maps with clear terms and symbols.
- Understand better how people read maps.

To address these objectives, work was carried out in three steps and applied in four case studies across Europe. The first step looked at the status quo in different case studies, the second focused on improving flood risk maps and the third set out recommendations to improve flood maps and public involvement in the mapping process.

Given that flooding affects many parts of Europe, the project chose case studies in Austria, England and Germany. The case study sites were selected to be representative of different geographical conditions and different catchment sizes.

The project adopted a workshop-based approach to participation, where at least two workshops were held for each of the case studies. A range of professional and public opinions were represented. Limitations and preferences for map content and visualisation were discussed. Based on these initial workshops and other findings, maps were revised before further discussion of the revised maps at a second workshop.

In terms of map content, the following were considered important to strategic planners:

- Detailed information on flood extent and depth for events with different probabilities. If also available, information on flow velocities.
- Information on the consequences of flood events, along with annual average damage.
- Information on environmental, social and cultural risks, along with critical infrastructure such as bridges, power plants and hospitals.

- Aggregation of these risks on a single map to show risk hot spots.
- Information on existing flood defences, protected areas and risk in these areas.

Those involved in emergency management requested the following information to be included on maps:

- The extent of floods with different probabilities, along with critical depth and velocities (when it is no longer safe to access certain areas).
- Flood defences and areas protected by them, to identify weak points in the defence line, and areas affected if defences fail.
- The number of people at risk, to be evacuated in an emergency.
- Critical infrastructure such as energy or water supplies, roads and bridges, along with the flood level at which, for example, roads can still be used or should be closed.
- Assembly points, evacuation routes, along with the flood level at which these would be at risk.

Flood maps for the public should not be overly complex and should contain the following information:

- Inundation depth for different types of flooding. As people are not necessarily familiar with the concept of return periods or exceedance probabilities, such terms should be avoided. The extent and depth of historical floods could also be shown, as people can relate this information to their personal experience.
- Buildings and roads, so that people can easily orientate themselves and find their property.
- Evacuation routes and assembly points, to guide people in an emergency.
- Self-explanatory symbols and text within the map to quickly gather the information.

This summary relates to information from project SC090015, reported in detail in the following output(s):

**Report:** SC090015/R

**Title:** Recommendations for flood mapping in England and Wales: Findings from the RISK MAP ERA-NET CRUE

**October 2012**

**Internal Status:** Released to all regions

**External Status:** Publicly available

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The RISKMAP project was part of the ERA-Net CRUE Project an international consortium representing multiple European member states. England and Wales contribution to this project was provided by the Environment Agency's Evidence Directorate and Defra Flood Management, as part of the joint Environment Agency/Defra Flood and Coastal Erosion Risk Management Research and Development Programme.

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