

Science for Environment Policy

Flooding had major impacts on business and mental health in Germany 2013

Mental health and supply problems, such as loss of electricity, were perceived by residents as the most serious impacts of 2013 flooding in Germany, according to new research. The most frequent effect of the flooding on companies was interruption to their business. The researchers say that focusing on impacts that can be measured in financial terms does not fully describe the effects of flooding, and make recommendations for improving flood data collection.

The summer of 2013 saw major floods hit many countries in central Europe, and particularly in Germany. In hydrological terms, the June 2013 flood was the most severe flood in Germany since the 1950s.

Although the meteorological and hydrological aspects of the flood have been well studied, comparatively little information is available regarding the impacts of the flood. Direct impacts, such as numbers of injured people and damaged buildings, are relatively straightforward to measure, but indirect damage, such as business disruption and damage to the environment, are more complex to account for. Flood impacts like these that are difficult to monetise are often hidden in analyses, which traditionally focus on economic indicators.

Furthermore, there is little standardisation on how to document flood losses, leading to a lack of reliable, consistent and comparable data. Collecting standardised data on flood impacts is important for many reasons, including identifying the causes of damage, developing new policies, deciding where to allocate budgets and improving risk assessment.

This study explored the adverse impacts of the June 2013 event in Germany using three data sources — governmental reports on the flood, communications of disruptions on the roads and railways, and telephone interviews with residents and businesses — and assessed how well the data meet requirements for disaster reporting. In accordance with the [European Floods Directive](#), the researchers assessed impacts on: human health, economic activities, cultural heritage and the environment.

Overall, they found that flood-affected residents perceived effects on their mental health (such as difficulty sleeping, anxiety and post-traumatic stress) and supply problems (such as lack of electricity or water) more seriously than building damage or other financial losses. In terms of effects on individual companies, the researchers highlight the finding that 88% of companies were affected by interruptions to their business. This was the most frequently reported effect, although its financial costs are more difficult to calculate than damage to equipment or buildings, for example.

In terms of the environmental damage, the researchers say pollution is the main indicator of the adverse impacts of flooding. In June 2013, increased sediment loads were observed in all of Germany's main rivers, and higher than usual concentrations of heavy metals were detected in some water bodies. More serious environmental pollution is associated with bursting oil tanks in flooded homes that use oil as heating.

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The wide range of impacts described by the study, of which these are just a selection, illustrates the diverse consequences of flooding and suggests that the current focus on direct financial losses is insufficient.

The researchers also evaluated the data compared to guidelines on recording disaster losses, including [recommendations](#) made by the European Commission's [Joint Research Centre](#) (JRC) and guidelines released by the [Integrated Research on Disaster Risk](#) (IRDR) research programme. These guidelines will be important for implementing the UN Office for Disaster Risk Reduction (UNISDR)'s [latest framework](#) for disaster risk reduction, which emphasises the importance of systematically recorded data on flood losses.

They say data on impacts was present for all four domains considered by the European Floods Directive, although quality and detail varied and often did not meet the requirements of the JRC or IRDR. For example, although psychological stress, supply problems and business disruption were widespread and seriously perceived, the costs attached to these impacts were not available and thus not included in overall damage figures. Although environmental measurements of water and sediment quality were available, the researchers say indicators should be developed which assess the *consequences* of contamination, in order to give context to the measurements.

Overall, the researchers conclude that information available in German government reports does not meet the requirements of European or international guidelines for disaster loss documentation. They therefore recommend establishing both national and regional disaster accounting systems. They say that without accurate, consistent and comparable databases, Germany — and other EU Member States — will be unable to monitor their progress towards internationally agreed targets.

