The costs and impacts of the winter 2013 to 2014 floods

Project Summary SC140025

Summary

The total economic damages for England and Wales from the winter 2013 to 2014 floods were estimated to be between £1,000 million and £1,500 million, with a best estimate of **£1,300 million.**

Residential properties suffered the greatest proportion of flood damages, with 25% of total damages occurring to this sector (best estimate of £320 million incurred by 10,465 properties).

Background

Between December 2013 and March 2014, the UK witnessed heavy and prolonged rainfall, including the wettest January on record in parts of the country and around twice the average monthly rainfall in other locations. The East Coast was also affected by the largest coastal surge since 1953. These events resulted in significant coastal damage and prolonged fluvial and groundwater flooding. During these 4 months many properties, crucial transport infrastructure and farmland were flooded.

Why was the study needed?

The purpose of this project was to identify the range of impacts and to calculate the financial and economic damages resulting from the as well as the damages that were avoided.

This assessment was also an opportunity to revisit and build on the methodologies developed as part of the summer 2007 flood cost estimate project and the rapid flood cost calculator devised by the Environment Agency in 2012.

The reference data from the 2007 study are reliable and based on in-depth data collection. They are used in the Multi-Coloured Manual (MCM) for investment appraisals, within the rapid flood cost calculator and in the partnership funding calculator.

However, the characteristics of the 2013/14 floods differed in many ways from those of the 2007 floods, and so their impacts and damages were different. These differences made it necessary to carry out an in-depth review of the impacts of the winter 2013 to 2014 floods to better understand their unique characteristics. In particular, a better assessment was needed of the impacts resulting from:

- coastal surge and extreme waves
- long duration floods
- damage to transport and energy supply networks
- damage to water treatment works
- damage to wildlife sites

How was the assessment made?

To estimate the costs of the winter 2013 to 2014 floods, data were collected from a wide range of sources. In some cases these were national datasets and in other cases local sources. Over 600 organisations were contacted for information and over 500 data sources (reports, presentations, spreadsheets and spatial data) were reviewed. The data used were subject to a stringent quality assessment and each data source was given an uncertainty rating based on its quality.

What were the findings of the assessment?

A breakdown of the damage estimates by impact category is given in Table 1.

The economic damages are further analysed in the technical report, where data are available, to establish:

- the proportion of damages related to England and Wales separately
- the proportion of damages incurred by coastal versus fluvial flooding

How will these findings be used?

The methodology used in this project will be used to update the evidence base on the economic damages of flooding and associated decision making rules for investment. It will be possible to use the new 2013 to 2014 values alongside those from 2007, drawing on data from either or both events depending on the nature of future floods.

Specifically, the findings of this study will be used to update the Environment Agency's rapid cost calculator, so that it is better at establishing the economic and financial costs of a flood soon after an event.

Table 1: Damage data based on best estimates

Impact category	Best estimate (£ million)	% of total	Possible range (£ million)
Residential properties	£320	25	£270–370
Businesses	£270	21	£230–310
Temporary accommodation	£50	3.9	£42–57
Motor vehicles, boats, caravans	£37	2.9	£31–42
Local authorities and local government infrastructure	£58	4.5	£49–66
Emergency services	£3.3	0.26	£3.3–8.7
Flood risk infrastructure and response	£147	12%	£145–148
Utilities: energy	£0.82	0.06	£0.63–1.0
Utilities: water	£29	2.3	£25–33
Transport: road	£180	14	£91–220
Transport: rail	£110	9.0%	£93–140
Transport: ports	£1.8	0.14	£1.6–2.1
Transport: air	£3.2	0.25	£2.6–3.9
Public health and welfare	£25	1.9	£25–67
Education	£1.6	0.13	£1.2–2.0
Agriculture	£19	1.5	£12–25
Wildlife	£2.4	0.19	£1.9–3.0
Heritage	£7.4	0.59	£5.6–9.3
Tourism and recreation	£3.5	0.28	£2.6–4.4
Total	£1,300		£1,000–£1,500

The outcomes of this report will also be used in future updates to the MCM. Identified research needs on avoided flood damages and the social impacts of flooding will be fed back into the Defra/Environment Agency Joint R&D programme.

This summary relates to information from project SC140025, reported in detail in the following output(s):

Report: SC140025 Technical report
Title: The costs and impacts of the winter 2013 to 2014 floods

Report: SC140025 Non-technical report
Title: The costs and impacts of the winter 2013 to 2014 floods

Report: SC140025 Annex 1 Method statements
Title: The costs and impacts of the winter 2013 to 2014 floods

Infographic: SC140025 Infographic
Title: The costs and impacts of the winter 2013 to 2014 floods

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