



## Addressing Environmental Inequalities: Flood Risk

Science Summary SC020061/SS

In 2005 a team of researchers, led by the Institute of Environment and Sustainability Research (IESR) found that people in deprived neighbourhoods are disproportionately at risk from coastal flooding, and are likely to be particularly hit hard from the social impacts of flooding. The report recommends that flood risk policy and management should take account of the social consequences of flooding, particularly in areas experiencing multiple deprivation, and consider the implications of climate change on flooding.

### Background

Addressing environmental inequalities is a key theme of the UK Sustainable Development Strategy, and one of the three principles of the Environment Agency's social policy. Understanding more about inequalities in exposure to flood risk and in the experience of flood events, and developing ways of addressing these inequalities, is important for managing the risk of flooding to people.

### Aims of the Project

- To help the Environment Agency to understand the social impacts of flooding and the policy context for addressing social impacts;
- To examine how flood risk is distributed in relation to patterns of social deprivation in England;
- To make recommendations for the most effective ways of addressing inequalities in relation to flooding.

### Methodology

A review of the literature on the social impacts of flooding and policy measures relevant to flood risk and environmental inequalities was undertaken. This was supported by a two-day workshop with stakeholders from within and outside of the Environment Agency to understand the social impacts of flooding. Finally a GIS based data analysis exercise, using the Environment Agency's Flood Map 2005 was carried out to examine the deprivation characteristics of

populations living within and outside of the delineated risk areas in England and the English regions.

### Social Impacts of Flooding

Flooding impacts on people's physical and psychological health, possessions and economic assets, on households and communities. The social impacts of flooding vary with the nature and magnitude of the flood event and may be difficult to identify, as they are interconnected, cumulative and often not quantifiable.

Levels of awareness of flood risk are low amongst those in lower socio-economic groupings. Residents in deprived neighbourhoods are likely to be less well prepared to cope in the event of a flood and in its aftermath.

The health impacts of flooding will be more extensive in neighbourhoods already characterised by poor health. Those who suffer the greatest losses, often those on lower incomes and without insurance, may be most susceptible to psychological health effects and by extension physical health effects.

### Flood Risk and Deprivation

A GIS based data analysis using the Environment Agency's Indicative Floodplain Map 2005 for the first time examined the deprivation characteristics of populations living within and outside of areas at low to medium, and high risk of flooding in each of the English regions and Wales. However, the analysis does not take account of the protection afforded by flood defences. The analysis shows that:

- the most deprived proportions of the population are 62% more likely to be living in areas at high risk of flooding.
- The majority of the most deprived sections of the population who are at low to medium risk from river flooding are found in London and the North West.
- In contrast, people in the least deprived sections of the population at risk from river flooding are found

in the South East - reflecting the underlying highly uneven geography of deprivation.

- The patterns within each region are also highly variable – for some regions the most deprived populations are disproportionately found within flood zones (South West, London, East of England and the North East), whilst in others it is the least deprived (South East, Yorkshire & Humberside). People at risk from sea flooding are mostly found in London (41% of the total population in England) and Yorkshire and Humberside (19%).
- there are disproportionate concentrations of the most deprived populations in zones at risk from sea flooding, but particularly in Yorkshire and Humberside and London. In fact the national picture of a disproportionate concentration of deprived populations in flood risk zones is maintained fairly consistently across the regions.

### Policy Implications and Recommendations

Flood risk policy and management is already seeking to take account of the social consequences of flooding, through differentiated approaches to communication, changes to risk assessment methodologies, appraisal criteria, flood resilience measures and land use planning. Most of these approaches are relatively recently developed and it is therefore difficult to evaluate their significance.

The report recommends that:

1. Flood policy and management at all levels should continue to develop in ways which recognise that the social impacts of flooding on different social groups. Significant attention needs to be given to understanding the implications of sea flooding in areas with large numbers of people experiencing multiple deprivation. In addition, the implications of climate change on flooding and its impacts on different social groups need to be carefully considered.
2. Interactions between processes of environmental, social and economic change and how these may increase vulnerabilities for particular parts of society in the future should be identified and policy implications considered.
3. The impact and significance of flood risk management policy measures and their effectiveness in taking account of social impacts and vulnerability should be carefully monitored.
4. Opportunities should be identified for tackling environmental and social issues together - building local capacity and tackling flood risk problems and social exclusion simultaneously.
5. As the Flood Maps are further refined, further analysis of the impacts of flooding on different social groups in areas protected by flood defences should be undertaken.
6. Targeted information and advice to vulnerable groups on flooding should be developed in collaboration with national and local agencies and

organisations that work with particular social groups and have relevant local knowledge.

7. Further research should be undertaken to understand: how neighbourhoods are affected by flooding; the experience of Flood Action Groups in different kinds of neighbourhoods; the age and ethnicity dimensions of vulnerability; differences in profiles of vulnerability between urban and rural areas; and case studies comparing different policy interventions to manage flood risk and their equity implications.

The report's findings and recommendations will be used to inform the Environment Agency's flood risk policy and management. The report will also be of interest to policy makers, practitioners and other organisations involved in flood prevention and protection.

### Catalogue information:

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