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What would flood-defence cuts cost?

The Environment Agency (EA) has recently been forced by the UK government to cut its spending on flood defences. Dr Justin Butler, of flood risk consultancy Ambiental Technical Solutions, looks at how changes in flood defence spending could potentially effect levels of flood risk in the UK, and the affect that this will have on the insurance industry.

Unlike other countries around the world which operate voluntary flood insurance schemes underwritten by the state (e.g. The National Flood Insurance Programme in the USA), flooding is covered as part of standard household insurance in the UK and is underwritten by the industry.

This system is based on an agreement between the ABI and the government 'to make flood insurance available where the risk is adequately managed' (ABI, 2005). This agreement is maintained under the principle that the government continues to invest in flood defences and other flood risk mitigation strategies to 'adequately manage' the risk.

Any changes to flood defence spending could, potentially, change the level of flood risk in many parts of the country, and therefore affect this agreement. Further, experts have suggested that cuts in flood defence spending in the USA could have exacerbated the flood damage caused by Hurricane Katrina. Could similar cuts have the same effect here in the UK?

In order to assess this issue in more detail, the insurance industry needs to better understand the nature and extent of changes in future flood defence spending by the government. Any potential changes made may significantly alter the levels of flood risk in the UK and only then can the insurance industry take action to address potential problems associated with future changes in flood defence spending.

In the last few years, following the devastating floods in the UK during 2000 and 2001, the UK government increased spending on flood defences from

approximately £500 million in 2003 to approximately £600 million in 2006 (ABI, 2006).

However, according to the ABI, “funding has been frozen since 2004 and is now falling in real terms” (*A Future for the Floodplains, ABI, 2006*). Spending on flood defence includes:

- capital funding projects (i.e. engineering, construction and maintenance of flood defences)
- flood monitoring and warning systems; and
- flood risk mapping and modelling (i.e. creation of national-scale flood risk maps to help estimate where is at risk of flooding and to what extent).

Government Initiatives

In recent years, the government has set out a number of new initiatives for dealing with the increasing problem of flood risk in the UK (e.g. ‘Making Space for Water’) and has tightened up the planning regulations in flood risk areas (e.g. Planning Policy Guidance 25 - Development and Flood Risk).

Although new initiatives such as those described above are helping to address the flood risk problem, these must be balanced against growing evidence to suggest that levels of flood risk in many parts of the UK are increasing, and that the cost of flood damage is also on the increase.

For example, during the last spending review, around 220,000 homes and businesses were estimated to be at high risk of flooding. Following an improvement in the flood models used to derive this estimate, this figure has increased to around 570,000 homes.

Further, the Government estimates that annual flood damages now average approximately £2.3 billion per year, double the level in 2004 (ABI, 2006). Experts point to a number of factors which are driving the increase in flood risk, and hence potential flood damage, in the UK, including: climate change, sea level rise, sinking of the east coast due to isostatic shift as well as, perhaps most importantly, increased development in the floodplain.

The Department for Environment Food and Rural Affairs (DEFRA) – of which the Environment Agency (EA) is part of – partly as a result of this year's 'bird flu' scare, has had its budget cut by £200 million. From these cuts, the EA has to find £23.7 million from its overall budget, of which £14.9 million is to come from flood defence spending.

The EA has suggested that cuts in flood defence are most likely to result in reduced spending on flood mapping and warning projects, although this could result in knock-on effects and delays to other projects.

We are told that funding for capital projects and the building of flood defences – arguably the most important part of the flood defence system in terms of reducing risk - will not be cut, although local EA offices may be required to reduce their maintenance budgets.

How are these cuts likely to affect levels of flood risk in the UK? At the time of writing, it is difficult to determine how these cuts will affect levels of flood risk at the regional level – both now and in the future - as limited information is available.

However, although budget cuts are not forecast for spending on capital projects and the building of new flood defences, reducing the maintenance budgets of regional EA offices may affect the quality, condition and resilience of existing defences which may, in turn, alter the level of flood risk now and in the future. How this will affect the risk to insured properties is difficult to determine without more detailed information.

Furthermore, the proposed cuts to budgets for flood mapping projects and flood warning systems, could also create potential liability issues for insurers if flood maps are not updated to reflect changes in patterns of development.

Understanding the effects

How can insurers better understand the effect that these cuts and future changes in flood defence spending, will have on the levels of flood risk in the UK?

Firstly, more readily available information is required from government to determine the potential implications of spending changes at the regional / local level (e.g. which specific geographical areas / projects are likely to be most affected). Second, insurers need to better understand how flood defences influence patterns of flood risk on the ground, and how changes to spending on these defences could alter levels of risk.

Using new developments in high-resolution, 3-dimensional flood risk mapping tools (such as those developed by Ambiental) which take into account the quality and (future) condition of flood defences, multiple scenarios can be modelled to determine how changes to a defence could alter the levels of flood risk for a particular area. For example, Ambiental is currently building an ultra high-detail, building level flood risk map for London which includes the ability to manipulate flood defences along the Thames (including the Thames Barrier) so as to model the effect alternate flood defence scenarios could have upon patterns of flood risk in different areas.

This type of information is very useful not only to insurers for rating and underwriting flood risk more accurately; but also to better inform the debate on how potential cuts in flood defence spending in the future could affect patterns of flood risk on the ground.

More detailed analysis and research on extreme flood events is required in the UK and abroad, to answer the question as to whether lowering spending on flood defences will leave the country more vulnerable to a catastrophic flood events such as that experienced during Hurricane Katrina,.

New techniques in 3-dimensional flood risk modelling which incorporate the effects of defences upon patterns of extreme flood risk will help to inform this debate. It is difficult to say to what extent the reduction in spending on flood defences in New Orleans exacerbated the flood damage caused by Hurricane Katrina. However, given the benefit of hindsight and the lessons which will hopefully be learnt from Katrina, both the government and insurance industry should bear the catastrophic loss potential of extreme flood events in mind when discussing the issue of future flood defence spending.

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