

UK floods: resilience issues

Colin Berghouse's role is to help prepare the UK for severe flooding. In this interview with **Emily Hough** he discusses the key issues arising from this summer's flooding

AS PART OF A PROGRAMME THAT has been running for nearly two years, Colin Berghouse manages the Flood Emergencies Capability Programme. This Cabinet Office led work stream is managed by Defra and the Environment Agency.

The National Capabilities Programme was set up to identify risks and hazards to the UK, and then to determine what plans and responses should be put into place.

Flooding is, of course, one of those hazards.

The most likely severe flooding scenarios are identified by Government. The next step is to establish a nationwide delivery plan to support local and regional tiers with the guidance and support they need to formulate proper contingency and resilience plans.

HEAVY SUMMER RAIN

The two flood scenarios identified are a major coastal flood similar to those which devastated the Eastern Coast of the UK and much of the Netherlands in 1953, and fluvial flooding on a catastrophic scale. "However, given what has just happened," says Mr Berghouse, "We may also need to be looking at a third scenario, that of heavy summer rain.

"It is a completely unusual event to experience this volume and intensity of rain in the summer," he elaborates. "In fact, as a scenario, it is not dissimilar to the fluvial flooding model we have been working on, but that revolves more around winter flooding fed by prolonged rain and snow melt, with high river levels that cause major flooding for a period of weeks."

The Environment Agency's role is primarily to provide information on flood risks, operate flood defences on rivers and issue targeted flood warnings. So these latest floods were slightly outside its usual remit: "In June, floods in Hull, Humberside, Sheffield and so on were caused by heavy and prolonged downpours of rain. They were all about surface water flooding; the drains just couldn't cope and a large volumes of water collected in low lying areas," he says.

However, as the water levels dropped briefly, the nature of the flooding changed once more: "The levels then went up

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A Sheffield street under water

photo: Stuart Hastings / The Star

again as rivers responded to the water that was coming down from higher up the catchments, and caused further flooding."

In a new development, Mr Berghouse supported the Fire and Rescue Service's National Flood Support Team, which was set up at Hereford and Worcester FRS headquarters (see page 16) and headed by CFO Paul Hayden. "The flood support team did really well," says Mr Berghouse. "It was useful for the Fire Service to be able to centrally manage its own personnel and assets, as well as those of the Royal National Lifeboat Institution (RNLI) and other organisations. Because of the length of the event, they mapped out where assets and people were most needed, which helped with deployment, rest periods, etc."

Mr Berghouse acted as liaison officer within the centre. "I kept in touch with the Environment Agency's flood forecasting staff, who were monitoring the river levels and using models to predict the potential for further flooding. This information was very useful in advising the FRS where best to place their very stretched resources."

The Environment Agency runs a sophisticated river modelling system, using hundreds of sensors in rivers as well as heavy rain gauge stations. Data from these is fed into local offices and alarms are triggered when levels rise. The model works out timings for when rivers will peak and volumes of water flows. Staff can then calculate the probability of flooding, allowing operational staff to work sluice gates and issue flood alerts. "These plans are well practised and rehearsed and every time there is a flood we update the models and recalibrate them as necessary to take into account what has happened," according to Mr Berghouse.

So what are the main issues arising from the events of June and July? His response is positive: "I'm sure the Government review will flush out many lessons and issues to be addressed, but it generally the systems and emergency plans worked pretty well. Standing back and looking at these events relative to where we were in 1998 and in 2000, the slickness of the response was a lot better, which is a reflection of the amount of work that has gone on, particularly through the local resilience forums. Clearly, there has been a lot of embedding of the aspects that the *Civil Contingencies Act* put into place to make this type of united and collaborative response work,"

he says, adding: "Also it was clear that quite a lot of the lessons identified previously have actually been learnt, and the emergency response generally was as good as could be expected given the highly unusual circumstances".

But there are areas to be addressed for the future. "Personally, for me and the Flood Capabilities Management Programme, in terms of providing civil protection during a major event like this, the main issue is that of water rescue," he explains. "We do need more boats and trained staff and this is going to cost somewhere in the region of £3 million (US\$5.99 million; €4.4 million) over a three-year period to put in place. Some 70 to 80 boats need to be purchased and 600 staff will have to be trained and accredited in flood water rescue."

Resources were stretched and coped with this year's floods, but the situation would be very different were the coastal floods of 1953 to be repeated: "In a coastal event I'm afraid we will see more deaths than recently experienced unless we put more investment into place," according to Mr Berghouse. But like all government money, the need has to be weighed up against other issues such as health, education and security etc.

STATUTORY DUTY

And it appears the Fire and Rescue Services could be given the statutory duty for floodwater rescue response as part of embedding organisational responsibilities and civil contingencies work. The advice to government officials is that investment into water rescue equipment and training would go hand in hand with the duty for the FRS.

More generally, the British Government has promised an extra £200 million (US\$400 million; €294.5 million) for flood defences. However, one of its own reviews a few years ago determined that spending on flood defences needed to be in the order of a billion pounds by 2010: "And we're not there yet, though the £200 million is a step in the right direction," says Mr Berghouse.

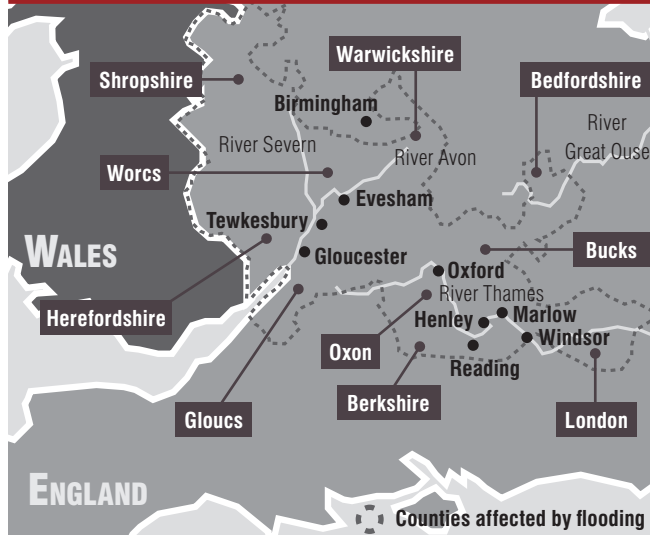
In any event, increased spending on flood defences would have been largely irrelevant in this year's heavy rainfall/surface-water flooding, raising questions at policy level on how infrastructure should be improved. Currently the UK's drainage system comprises ageing and small pipes designed to handle the run-off from drizzle, not violent summer storms involving torrential precipitation. Perhaps, muses Mr Berghouse, it might be time to think about investment in underground drainage systems similar to those in Australia and Singapore, which can cope with much larger volumes of surface water runoff. But



The British Prime Minister Gordon Brown with Chief Fire Officer Frank Duffield of Humberside FRS in West Hull

photo: Humberside Fire & Rescue Service

FLOODING IN ENGLAND, UK



The second wave of floods affected a wide area across the centre of the UK

JUNE FLOODS

June was a wet month, but summer storms on June 22 and further heavy rainfall until June 26, led to a swathe of flash flooding as rain fell on ground already saturated. Rivers burst their banks and in places the drainage infrastructure was overwhelmed.

The worst affected areas were Hull, Sheffield, Doncaster and Nottingham (see map), though other areas including Hereford and Worcester (see p16) were also left flooded.

A feature of this incident was the speed of the rising water. Four people died as a result of the flooding and more than 35,000 properties and thousands of businesses were affected.

Firefighters had to bring in high volume pumps (HVPs) and reduce the water level of a dam in Rotherham that was threatening to break its banks.

Many areas suffered power cuts, leaving people without energy, or drinking water.

JULY FLOODS

Heavy rainfall on July 20 caused flash floods and led to rivers breaking their banks and flooding vast swathes of farmland and towns.

Counties affected were: Shropshire; Hereford and Worcestershire; Warwickshire, Gloucestershire, Berkshire, Bedfordshire, Oxfordshire, Buckinghamshire and London.

More than 350,000 people were left without running water in Gloucestershire when treatment works were flooded. Bottled water and bowsers were brought in and the military helped with relief efforts, as did several NGOs, such as the Red Cross.

AFTERMATH

The British Met Office says that the three months from May to July 2007 have been the wettest since records began in 1766

The Association of British Insurers (ABI) estimates damage from the June floods at £1.5 billion (US\$3 billion; €2.2 billion); and those from July are set to top £2 billion (US\$3.99 billion; €2.9 billion)

of course, the cost would be daunting.

The UK needs to look at other aspects of its critical infrastructure as well, and this is not merely a governmental responsibility. The failure of the water treatment plant at Severn Trent sounds a strong warning to private industry: "In this instance it was a water treatment plant, but it could have just as well been a telecommunication centre or another critical service. Take one of those elements out and there's suddenly a whole load of knock-on effects that people have not thought of," says Mr Berghouse, leading on to his next points – those of personal and private responsibility, coupled with resilience.

"We can prepare plans and emergency services will exercise and refine these plans, but preparing for flooding in particular is something that people need to take responsibility for themselves.

Whichever way you look at it, the government will not throw endless money at flood defence schemes.

"So householders, businesses, schools, hospitals and so on, need to look at their own flood risks and put their own response plans into place. Local Resilience Forums have a role in this and are there to help."

Evidently it will require heavy investment and strong commitment to try to mitigate any future summer floods, and both government departments and the emergency services are aware of the challenge. But both the public and private industry must also take responsibility. Whether they are ready to accept this yet is debatable.

PUBLIC APATHY?

A sobering example is the take-up of Flood Warnings Direct, a system set up by the Environment Agency to warn businesses and residents so that they can prepare and protect themselves from the effects of flooding. Only about a third of people in flood risk areas have signed up for the service.

A further challenge – if yet another were needed – is how to pierce this apparent apathy and convince people and business that everyone has a role to play in national flood resilience. **CRJ**