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The big risk of flooding for UK businesses

*JUSTIN BUTLER, managing director of **Ambiental Technical Solutions**, looks at the growing threat to businesses of flooding and the importance of addressing the issue, particularly through flood risk assessment.*

One year on after Hurricane Katrina and many businesses in New Orleans are still not up and running. Damage to sewers, water contamination, mould and a variety of infrastructural problems have resulted in many businesses not being able to return to a pre-Katrina state. Even those which have been successfully rebuilt are finding it difficult to get back on their feet and return to normal operational levels.

As the clean up in New Orleans continues, businesses and insurers in other parts of the world, including the UK, need to better understand what risk flooding poses to their business operations, and what they can do to manage the risk on their own doorsteps. Boscombe and recent flooding are merely reflections of the ongoing risk to UK homes and businesses.

THE RISK OF FLOODING TO UK PLC.

The intensity of recent incidents in the UK has highlighted the damage that flood events can cause to both residential and commercial property. For example, the insurance bill for the Autumn 2000 floods was £ 1.3 billion, of which £440 million was associated with commercial property losses alone (Association of British Insurers). As is the case in many flood incidents, business interruption is likely to be a significant component of the overall loss.

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According to the Axa Insurance sponsored report, Climate Change and its Effects on Small Businesses in the UK, written by David Crichton, visiting professor at University College London, and featured in the Autumn issue of General Insurance, pages 7 and 8, in the last six years weather damage claims have cost the UK insurance industry over £9 billion. Of this, £2.3 billion has been due to claims from businesses, with a further £300 million due to business interruption caused by weather damage.

In the UK numerous high value industrial and commercial premises are located in urban areas near watercourses. In fact, a business in the UK is more likely to be flooded than burned down (Environment Agency, 2006). Worryingly, however, many companies in the UK are unaware of the extent to which flood risk could affect them. Many businesses and insurers to some extent are guilty of taking the view that if a building hasn't been flooded before, it won't happen in the future. This is a dangerous perception given the changing nature of flood risk in the UK.

Intensity

Experts are predicting that climate change is likely to increase the frequency and intensity of storms and coastal surge events in the future, thereby potentially creating more flood events. Increased development in the floodplain (e.g. Thames Gateway) is also changing the pattern and nature of flooding on the ground. Simply

because a business has not experienced flooding in the past does not mean it is not at risk of flooding now or in the future.

The business community must face up to the risk that flooding poses to their operations. In addition, the insurance industry and wider financial community need to identify which businesses are at risk of flooding and to what extent. Only then can they effectively work together to manage the risk. An end-to-end approach to flood risk management needs to be adopted so that insurers, brokers, risk managers and business owners can better understand and deal with the increasing nature of flood risk today and in the future.

FLOOD MODELLING. The first stage in an end-to-end approach to flood risk management should be to identify which properties are at risk of flooding and to what extent. This process involves the mapping and modelling of flood risk to the site and surrounding area.

Transport

This analysis should include risk to essential infrastructure and transport routes as well as the risk faced by a company's distributors or suppliers. Depending on the size of business, this process may involve analysing hundreds of sites, or from an insurance perspective, multiple policies or entire books of commercial business.

"New approaches to detailed urban flood modelling are becoming more accessible to businesses and insurers."

In simple terms, a flood model determines the volume and passage of water which would be expected during a given flood event for a specific area. Depending on the scope and complexity of the model, the extent, depth, velocity and duration of flood water can also be estimated. Most flood models process information relating to some or all of the following factors: precipitation, rainfall runoff, river flows, and channel/floodplain topography.

Hydraulic modelling, a key component in the flood modelling process, involves the simulation of water flow within a river channel, over a floodplain or along a coastline. It often involves two key components: a digital elevation model (DEM) representing floodplain topography and some form of mathematical procedure to simulate the flow of water across the floodplain surface.

Accessible

New approaches to detailed urban flood modelling are becoming more accessible to businesses and insurers. Increasingly, new types of commercially available, high resolution topographic data, coupled with highly efficient computer modelling of water flow are being used as part of the flood modelling process. These models of intermediate complexity provide detailed, high resolution information (including depth, duration and extent of flood risk down to the individual building level) which can be used for risk rating over large areas, even entire cities, at reduced cost.

The information provided by this technology is now starting to be used by businesses, property developers, architects and the insurance industry to rapidly and accurately identify which properties are at risk of flooding and to what extent.

RISK MANAGEMENT. Once a business has identified the extent of the flood risk facing its operations it can then use this information to make informed risk management decisions. For example, for a large manufacturing business with, say,

twenty sites across the UK, the flood modelling analysis may identify five sites at risk of flooding, two of which are found to be significantly at risk.

Mitigation

For those three sites determined to be at medium risk only, the business may decide to absorb the risk within its insurance cover as well as undertake some form of initial risk mitigation, such as registering to obtain early flood warnings. Whatever action is taken, it would be based upon detailed and reliable flood risk information rather than conjecture.

FLOOD RISK ASSESSMENT (FRA). Using the example above, the manufacturing company may also decide to analyse in greater detail the two sites which face a significant risk of flooding so as to initiate a more rigorous process of flood risk management. In order to reliably assess the level of flood risk to the two sites, a flood risk assessment (FRA) needs to be undertaken.

Extent

The FRA process should include detailed topographic surveying of the site(s), an examination of the historical flood record as well as complex hydrological modelling. Information produced as part of the FRA would include a detailed assessment of the probability and potential extent of flooding of the site and surrounding area, identification of potential flow paths, analysis of water runoff and an examination of the capacity of existing drainage systems.

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At present, flood risk assessment services are normally undertaken to accompany new planning applications in flood risk areas, so as to comply with government legislation (e.g. PPG 25 - Planning Policy Guidance Note 25 - Development and Flood Risk). However, the same type of assessment will increasingly be applied to existing properties, enabling businesses and insurers to assess and understand the potential risk of flooding for a particular site or sites.

RISK MITIGATION. The detailed information provided from the FRA process can be used to plan and implement detailed risk mitigation strategies so as to reduce the financial and human impact of flooding on the business. Recommendations can be made to improve the management of surface water, potentially relocating/raising the essential infrastructure above the floodplain, incorporating the flood resilience measures into building design, as well as preparing detailed plans for staff evacuation and business continuity in the event of a flood incident to the site(s).

Unaware

Whilst we are unlikely to face a flood event on the scale of Hurricane Katrina or the Asian tsunami, flooding is a very real, and increasing, threat to UK businesses. However, many companies remain unaware of the potential impact of flooding on their operations. New developments in flood risk modelling technology and the application of flood risk assessment services must be embraced by both the company and the insurance industry if both communities are going to properly address the issue of flooding to UK businesses both now and in the future.