DEVELOPMENT IN FLOOD RISK AREAS - PREVENTION IS BETTER THAN CURE

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INTRODUCTION

In all walks of life it is an accepted principle that it is better to stop something happening than to fix the problem when it has gone wrong. The theory is fine but we seem to have difficulty in putting it into practice. Flood events in England and Wales in recent years have seen many properties, a significant number of which were relatively new, badly affected. This paper seeks to set out measures taken in England to put the theory into practice.

WHAT IS THE AGENCY'S AIM AND HOW DOES IT SEEK TO ACHIEVE IT?

The Environment Agency aims to reduce the risk of flooding to people and property from rivers and the sea. It does this by maintaining existing defences, building new ones, providing a flood warning service and regulating the activities of others. Regulation involves using our own legislation such as the Water Resources Act 1991 and the Land Drainage Act 1991 to prevent obstructions in watercourses and protect major assets. It also involves giving advice, particularly to local planning authorities, on the likely effects of development on flood risk. This is the area on which I will concentrate. This activity is the most effective way of limiting future flood risk and leads to sustainable development. There are many definitions of this but my engineer's definition is ensuring that today's development will not need flood protection tomorrow.

WHAT IS AT FLOOD RISK NOW?

It is currently estimated that 5 million people in England live and work in flood risk areas both from rivers and the sea. About ten thousand square kilometres of land is at risk in England, ten per cent of the total land area. The number of homes believed to be at risk is 1.85 million with a further 185,000 commercial properties threatened. The total value of this property is estimated to be of the order of £200 billion. We must also not forget that 12% of agricultural land, about 1.3 million hectares, is also at risk further adding to the burden farmers have to carry.

CURRENT TRENDS IN DEVELOPMENT IN FLOODPLAINS

We are seeing a steady increase in the number of planning applications being made for development in floodplains. In the year 2000 about 20,000 were made for houses in such locations. The current projection for new housing in England suggests that, at the present rate, we could see another 340,000 homes in floodplains by 2021. This represents another million people. We need to remember that flooding of floodplains is both natural and necessary. Natural needs no explanation. As to being necessary we only have to look at where our major conurbations are. Most are towards the downstream end of river catchments and, without the flooding of floodplains upstream, high and potentially damaging river levels would be experienced more frequently.

WHAT PRESSURES ARE THERE?

The government has set a target for an additional 3.8 million homes in England by 2021. This equates to a possible 340,000 new homes in floodplains. In addition development results in increasing surface water runoff sixfold. By taking a permeable site, such as a field, and covering it in buildings and tarmac we alter the nature of the drainage both in terms of quantity and timing. Frequently this leads to problems downstream. Finally, we have climate change. It is predicted that temperatures will rise by 3C by 2100. This does not seem much but the effects will be major. Heavy rain is predicted to be 3-4 times more common, winters will be wetter and sea level will rise 25cm by 2050. Given all these, surely it makes sense to give the Environment Agency a veto over development in floodplains?

WHAT IS THE AGENCY'S POSITION ON DEVELOPMENT?

We have been asked if we should have a veto and our answer has been a decisive "no". One reason being that it would make us the largest planning authority in England but that is not the prime reason. The planning process in England is a democratic one and the Agency's role is to act as advisor. We

provide advice on flood risk but elected representatives of the community decide. They give all the issues due consideration and their decision is a balance based on what they believe is in the best interests of the community. Our concern is that flooding has not had sufficient "weight" in the balancing process. We need to remember that building in the floodplain creates a ticking time bomb. One day the site will flood but we don't know when. All we do know is that climate change will make the clock tick faster.

WHO HAS THE POWER TO PROTECT FLOODPLAINS?

Under existing legislation, the Water Resources Act 1991 and the Land Drainage Act 1991, the Agency has strong powers to protect channels. Its powers over floodplains are weak being limited to those provided in Byelaws. The protection of floodplains is largely in the hands of planning authorities. They have the power to prevent more development in floodplains through the planning process. Nevertheless, there is still huge pressure on floodplains. After all they are flat and cheap, ideal for development surely?

WHY NOT DEVELOP ON FLOODPLAINS?

Recent experience in England has shown the folly of the past in terms of developing on floodplains. In 1998 the Easter floods resulted in five deaths and 5,000 properties being flooded and, only last year we had another two fatalities and 10,000 properties flooded. Both of these floods resulted in huge damages, immense stress and cost, lasting health problems to those affected and death. We associate flood fatalities with the Third World but should remember that people have lost their lives in Europe and America through flooding in recent years. We should ask "will it get worse?" and the answer is "yes". Climate change will increase storminess and may even mean that a 100 year event today becomes a 20 year event in 2050. Now let us look at some images from last year.

IS ANYONE TO BLAME?

We can only imagine what the owner of this new house felt on seeing their dream home devastated and it is no wonder that flooding is an emotional business. It is inevitable that those affected look for someone to blame and this in itself can be constructive. Only by seeking what went wrong can we identify ways to improve. There is nothing wrong with the activity but sometimes the process gets out of hand. Before blame can be apportioned we need to understand what causes houses to flood. In my time I have heard many theories but believe there are two simple causes. Firstly a change in meteorology which causes water to leave its normal course and enter its floodplain and secondly the building of houses in that floodplain. Then, if you want to blame someone, either go for the person who changed the meteorology or the person responsible for the development. I think I know where you have most chance. We, therefore, need to ask is flooding avoidable and must conclude that it is. In which case we should seek to see what we can control and what part those involved in new development can play. In fact it is all a matter of choice. We do not have to build in floodplains. The amount of damage, loss and injury from floods is the result of deliberate choices. People do have choices, but to act on them, they need to know and understand them, NOW and when the memories of these floods have faded.

INDICATIVE FLOODPLAIN MAPS

To make choices you need knowledge and, following the Easter 1998 floods, many said that they did not know that they lived in a flood risk area. Consequently, the MAFF Minister Elliot Morley, made a statement in the House and said, "Priority will be given to publishing the best available information even if in a relatively unrefined state". This task was given to the Agency and was completed within a year. This was the first time that a nationally consistent database showing flood risk areas had been compiled. It took the best available data at any one point, both historic and modelled, and produced a composite outline showing the nominal 100 year fluvial and 200 year tidal floodplain. The historic data was from past flood records and the modelled from location specific studies and the Institute of Hydrology Report 130. The outline ignored the presence of defences which caused some consternation. However, it must always be remembered that defences are present because of a risk and they can never eliminate that risk.

The maps were put on compact discs at 1:10,000 scale and distributed to public bodies who needed to know flood risk as part of their business. In particular they were provided to planning authorities, emergency planners and emergency services. There was also a good deal of interest from the general public who wished to have access to the maps. It was, therefore, decided to place them on the Internet although at a reduced scale. They can be found on the Agency's website, www.environment-agency.gov.uk, in "What's in Your Backyard?" pages. This section also contains information on other aspects of the environment such as water quality and groundwater. The site was hugely successful and received 2.1 million hits on the first week putting it in the top twenty most popular sites. This clearly demonstrated the degree of public interest in this issue.

The foregoing sets out what the Agency have been doing in terms of flood risk but, inevitably with such an important issue the public asked "What's the government doing?"

GOVERNMENT RESPONSE TO FLOODPLAIN DEVELOPMENT

The Easter 1998 floods had a big effect on the way the government viewed development and flood risk. The current planning guidance had been published in 1992 and a commitment was given to review it. New draft guidance, Planning Policy Guidance Note 25: Development and Flood Risk was released for consultation in April 2000. It was scrutinised by two Parliamentary Select Committees, Agriculture and Environment, and they along with many other bodies urged the government to strengthen it. Later in the year we had the Autumn Floods, described as a "Wake up call" and these prompted a redraft. A second, unprecedented, draft was issued early this year and the final document published in July. The main points are summarised below.

PPG 25

The guidance states the following:

"The susceptibility of land to flooding is a material planning consideration". This means that it must be considered in the planning process. Previously this had been taken as read but now it is explicity stated.

"The Environment Agency has the lead role in providing advice on flood issues at a strategic level and in relation to planning applications". Once again, this had previously been accepted but is now explicit.

"Policies in development plans should outline the consideration which will be given to flood issues, recognising the uncertainties that are inherent in the prediction of flooding and that flood risk is expected to increase as a result of climate change". The onus is placed on planning authorities to state how important they believe flooding is, to understand prediction is not a precise science and to understand that climate change will make matters worse.

"Planning authorities should apply the precautionary principle to the issue of flood risk, using a risk based search sequence to avoid such risk where possible and managing it elsewhere". This introduces the concept of "is this site good enough to approve?" as opposed to previous practice which was "is this site bad enough to refuse?" The risk based search sequence requires authorities to find the best available site and not just an acceptable site. This is an accepted process in selecting sites for other development such as Retail and Housing. I have always advocated using the "Mum technique". It goes like this: when looking at a site you ask yourself " would I let my Mum buy a house there?" If you do not immediately say "yes" you should look elsewhere. If you would not let your Mum live there why should you let someone else's?

"Planning authorities should recognise the importance of functional floodplains, where water flows or is held in times of flood, and avoid inappropriate development on undeveloped and undefended floodplains". A clear message to ensure that the invaluable contribution floodplains make to reducing flood risk is recognised and protected.

"Developers should fund the provision and maintenance of flood defences that are required because of the development". This does not allow the building of defences to justify development but rather that, if there is no alternative but to build in a flood risk area, then the developer must pay for suitable defences.

"Planning policies and decisions should recognise that the consideration of flood risk and its management needs to be applied on a whole – catchment basis and not be restricted to floodplains". This requires macro not micro thinking and requires decisions to take account of the effects elsewhere in a river catchment, possibly in a neighbouring authority. If that means that one authority has to abandon its development plans to prevent detriment to a downstream authority that may lead to some serious debates.

WHAT PARTICULAR ISSUES DOES THE PPG RAISE?

The guidance places the onus for assessing flood risk to a proposed development on the promoter. It generally requires a Flood Risk Assessment to be carried out and an Appendix sets out what is expected. It also says specifically where an FRA should be done and refers directly to the Agency's Indicative Floodplain Maps. A clear example of "joined up" thinking.

The way in which proposed development is considered has undergone a "sea change". Previously a site was identified and advice sought as to whether it was suitable – i.e. is it "bad enough to refuse". The new guidance requires using a risk based search sequence to find the best site – i.e. is it "good enough to approve?" The new approach is a complete turn around.

Previous guidance has said little about drainage systems and the planning system has struggled to control runoff from sites. PPG 25 has explicity referred to Sustainable Drainage Systems, where the natural runoff from the site is mimicked. The guidance requires planning authorities to encourage the use of such systems.

In the past much work has had to go in to securing contributions from developers for improved defences to protect new development. The guidance specifically deals with this issue and sets out a process for their funding and maintenance.

Finally PPG 25 places some limitations on the granting of planning permission by requiring planning authorities to reconsult the Agency if they are minded to go against our advice. Consideration is also being given to issuing a Ministerial Direction which equates to an automatic "call in" under such circumstances and this is due to go to external consultation later this year.

WHAT WILL THOSE INVOLVED IN DEVELOPMENT NOW NEED TO DO?

It is clear that the Agency will need to improve its data, particularly the Indicative Floodplain Maps. When produced they were in a "relatively unrefined state" but we do need to have a better understanding of flood extent and return periods.

In order to find the best sites the Agency and local planning authorities will have to work closely together to identify sites suitable for development but at lowest flood risk. This will require much pre planning and discussion.

Developers are also key players. Their aspirations and requirements need to be understood and they need to understand the guidance and the limitations it places on those making decisions. All those involved in the process need to understand each others position and work towards limiting the increase in future risk. It is just unacceptable in a society such as ours to tolerate an increase in the sort of distress too many people suffered last year.

SUMMARY
It is clear that the Government wants an end to development in flood risk areas. The new guidance gives clear signs and, although rightly stopping short of banning it, makes it very difficult. Development must continue, it is vital for the economy. However, the new emphasis is on getting it in the right place with regard to flood risk. In order to achieve acceptable development many parties will have to work together. Guidance and information are available but those intangibles co-operation and imagination will be needed in abundance.

Prevention **is** better than cure, developing in lowest risk areas **is** better than protection after the event. The theory is in place but the practice won't be easy!