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Volume 2, 2008

Inondations en milieux urbains et périurbains
Floods in urban and suburban areas

URI : <https://id.erudit.org/iderudit/019218ar>
DOI : <https://doi.org/10.7202/019218ar>

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Éditeur(s)

Institut national de la recherche scientifique

ISSN

1916-4645 (numérique)

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Citer cet article

Richards, J., White, I. & Carter, J. (2008). Local planning practice and flood risk management in England: is there a collective implementation deficit? *Environnement Urbain / Urban Environment*, 2, 11–20.
<https://doi.org/10.7202/019218ar>

Résumé de l'article

Bien que la politique d'aménagement permette aux autorités d'aménagement local d'influencer le développement en fonction des risques d'inondation, il apparaît qu'en pratique, il y a un certain nombre de barrières à la réduction efficace des inondations, en particulier dans les secteurs où les pressions pour le développement sont élevées. Cette recherche est axée sur le traitement des risques d'inondation dans le système d'aménagement local anglais et met en évidence que des occasions stratégiques de gestion collective des inondations ont clairement été manquées, avec pour résultat un écart entre les objectifs de la politique d'aménagement et son application pratique, de par sa mise en oeuvre. L'amélioration de la structure de la politique d'aménagement local est donc nécessaire pour permettre l'utilisation de solutions plus stratégiques sans compromettre les besoins de développement local.

LOCAL PLANNING PRACTICE AND FLOOD RISK MANAGEMENT IN ENGLAND: IS THERE A COLLECTIVE IMPLEMENTATION DEFICIT?

**Juliet RICHARDS
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❶ RÉSUMÉ

Bien que la politique d'aménagement permette aux autorités d'aménagement local d'influencer le développement en fonction des risques d'inondation, il apparaît qu'en pratique, il y a un certain nombre de barrières à la réduction efficace des inondations, en particulier dans les secteurs où les pressions pour le développement sont élevées. Cette recherche est axée sur le traitement des risques d'inondation dans le système d'aménagement local anglais et met en évidence que des occasions stratégiques de gestion collective des inondations ont clairement été manquées, avec pour résultat un écart entre les objectifs de la politique d'aménagement et son application pratique, de par sa mise en œuvre. L'amélioration de la structure de la politique d'aménagement local est donc nécessaire pour permettre l'utilisation de solutions plus stratégiques sans compromettre les besoins de développement local.

MOTS-CLÉS ■ Inondation, aménagement de l'espace, politique, contrôle du développement



❷ ABSTRACT

Although planning policy enables local planning authorities to influence development with regard to flood risk, in practice there appears to be a number of barriers inhibiting effective flood mitigation, particularly in areas with high development pressures. This research focuses on treatment of flood risk within the English local planning system and discovers that there is a seeming failure to capture strategic, collective flood management opportunities, resulting in an implementation deficit between the aims of planning policy and its practical application. Improvements to local planning policy frameworks are needed therefore, to enable the use of more strategic solutions without compromising local development needs.

KEYWORDS ■ Flooding, spatial planning, policy, development control



ACKNOWLEDGEMENTS

The authors would like to thank the funders of the Flood Risk Management Research Consortium, the LPAs who assisted the data collection and the anonymous referees for their comments.

INTRODUCTION

During the last decade, awareness of the potential impacts of climate change on flood risk has significantly increased (Evans et al., 2004; IPCC, 2001; 2007). The growing realisation that the vulnerability of people and property to flooding is becoming more widespread has placed a new emphasis on the need to develop effective strategies to reduce exposure in urban environments. The use of engineered solutions, such as structural (hard) flood defences and the canalisation of watercourses dominated in the twentieth century, but the increasing frequency of damaging flood events has shown that a more sustainable, integrated approach to flood risk *management* (emphasis added) is needed. More recently, the role of land use planning has been highlighted as one of the key mechanisms to manage future flood risk (Evans et al., 2004); it can control the nature and location of land use and development and can facilitate the implementation of flood risk mitigation strategies by developers. However, the process of balancing development needs against the prevention of urban flood risk is complicated and a number of constraints on local planning decisions may arise, which can prevent the full potential of local planning to contribute to effective flood risk management from being realised.

There has been swift development of innovative flood risk management policy tools to aid planning professionals in England (Department of Communities and Local Government (DCLG), 2006; Department for Environment Food and Rural Affairs (DEFRA), 2004; Department of Transport Local Government and the Regions (DTLR), 2001). Therefore, this article is concerned with the way in which national planning policy instruments aimed at development and flood risk are implemented at the local level of planning and exploring the key features of local planning practice that may inhibit implementation of effective flood mitigation in local planning decisions. Although the focus is on the English planning system, it is anticipated that the findings would be of interest to an international audience, given the universal role of land use and development planning processes in shaping flood risk patterns in many urban areas. As other nations develop new policy tools and strategies to reduce or manage flood risk, awareness of potential systematic, administrative or political barriers to their implementation will enable such issues to be addressed at an early stage, prior to any significant strategy development or reform.

I. THE ENGLISH PLANNING CONTEXT

With the UK's planning system central to the pursuit of sustainable flood risk management, national government policies have emphasised the need for planning practitioners to consider flood risk at all levels of planning and on a catchment-wide basis (DCLG, 2006; DEFRA, 2004). In examining how the spatial planning system and its guiding principle of sustainable development can effectively contribute to flood risk management, a regionally-based approach has long been advocated on the basis that regional administrative boundaries better approximate to the boundaries of whole catchments than local authority boundaries (Select Committee on Agriculture, 1998) and that regional planning integrates the activities of individual organisations and authorities operating within the same catchment (Bohm et al., 2004). Currently, flood risk is expressed in the policy agendas of all nine regions in England. However, there have been some arguments that a local focus is needed in order that individual site circumstances can be accounted for (Bohm et al., 2004; Penning-Rowsell et al., 2002; Richards, 2005; Wynn, 2005) which would necessitate effective policy involvement at the local level of planning. All of the local planning authorities (LPAs) in England are also expressing flood risk concerns in their emerging local planning policies (Environment Agency (EA) and LGA, 2006).

A hierarchical policy framework for flood risk management through the control of land use and development clearly exists, operating on a top-down policy basis from national, to regional to local levels of planning policy expression. According to Wynn (2005, p.260) "...most local planning authorities support the philosophy..." of national planning policy on development and flood risk. Current national planning policy objectives for managing flood risk through the control of land use and development are contained in Planning Policy Statement 25 (PPS 25) (DCLG, 2006), which provides guidance for LPAs, and advocates the use of new tools such as the Sequential Test and Exception Test to provide a more risk-based approach to land allocations and development decisions. PPS 25 also requires that Flood Risk Assessments (FRAs) should be carried out on a number of different spatial scales – regional, strategic (e.g. district-wide) and site-specific – to ascertain the likely impact of land allocation and development on flood risk.

Yet, despite a stream of policy principles flowing from the national to regional to local tiers of planning policy expression, it has been argued that "a sense of implementation deficit" (Owens and Cowell, 2002; cited in Bulkeley, 2006, p.204) has existed, at least in

relation to sustainable development policy principles. In terms of flood risk, the High Level Target (HLT) Five report (formerly HLT 12), which provides details of local planning policies and applications with implications for flood risk, shows that 136 applications to develop in high risk floodplain locations were permitted in the 2005/2006 year, despite objections from the EA on flood risk grounds. This equates to five percent of all planning applications. It should be noted that these figures do not include developments in floodplain locations where risk levels are considered to be low or moderate. As such, five percent represents a relatively significant implementation deficit. A further five percent of planning applications in high flood risk locations have been refused by LPAs, but these decisions were not on grounds of flood risk. This indicates that LPAs have felt that flood risk did not provide sufficient grounds for refusal, in spite of the EA's advice. In the event that developers appeal against such refusals, LPAs have lost any opportunity to defend their decision on flood risk grounds. So, whilst the upper echelons of planning policy on flood risk have fulfilled their purpose in that local policy is incorporating higher policy mandates for flood risk management, the problem appears to lie with actual practice at the level of development control and Bulkeley (2006) considers that "development decisions remain... rooted in 'business as usual', and constrained by competing agendas' (p.211). However, that implementation of policy objectives for flood risk management could be deficient at the level of development control may also be a reflection of the quality of the local flood policy framework as well as the degree to which developers adhere to the advice of the EA; the body which has the lead advisory role on matters relating to development and flood risk and is a statutory consultee for certain development proposals with implications for flood risk under emerging legislative changes (DCLG, 2006).

With the introduction of Local Development Frameworks (LDFs) under the Planning and Compulsory Purchase Act 2004 (United Kingdom, 2004), local planning processes are expected to improve, *inter alia*, in terms of flexibility and alacrity. However, the hierarchy of planning policy remains in place under the new system and this has created a rather inflexible planning system. Although the system is intended to be plan-led, central government can still intervene "to amend development plans at the lower end of the policy framework and, on appeal or in the courts, can utilise national policy to undermine the development plan as a principal material consideration" (Tewdwr-Jones, 1994, p.586). Indeed, "regional officials pore over the wording of local

policies to ensure they accurately reflect those established" at the regional and national level (Cullingworth and Nadin, 2002, p.48). Consequently, a preoccupation with policy wording has developed, possibly to the detriment of policy content, with development plan-makers striving to express national policy almost to the letter, in order to avoid any possible backlash at appeal or in the courts. In doing so, LPAs may fail to tailor their policies according to local circumstances. Importantly, PPS25's predecessor – Planning Policy Guidance Note 25 (PPG 25) – stated that the "policies and practices to be adopted by a local planning authority are for them to decide in the light of all the circumstances in their area, having had regard to this guidance" (DTLR, 2001). Whilst the recent introduction of LDFs may create a more flexible and dynamic process of local planning policy preparation, with LPAs encouraged to prepare slimmer, more generic forms of policy to guide development control decisions, there is a chance that plan-makers will continue in the same traditions of repeating broad national planning policy requirements to the detriment of local issues and concerns.

It is generally considered that the influence of PPG 25 has been significant in that it "is a sound policy which has raised awareness of flood risk among planners. But it is still not being applied effectively in all areas and in all cases" (Office of the Deputy Prime Minister, 2005, p2). Its successor, PPS 25, requires flood risk management to be undertaken in 'constructive partnership' involving a wide range of stakeholder organizations, including developers. However, Richards (2005) identified a distinct lack of involvement by stakeholders other than the EA in the local policy-making processes and as such, local policy was failing to capture and integrate the locally-orientated activities or concerns of organisations and individuals impacting (positively or negatively) upon, or affected by, flood risk. Certainly, administrative and operational frameworks for flood defence have been criticised for being disjointed because of the complex and wide distribution of different functions, powers and funding arrangements between several different authorities (Donati, 2002; ICE, 2001; National Audit Office, 2001; Select Committee on Agriculture, 1998). As such, the integration and coordination of flood management activities between authorities and individuals has been problematic and Penning-Rowsell et al. (2002) called for "institutional arrangements for flood defence [to] be more integrated across whole catchments" (p.45). Howarth (2002, p 92) considers that,

security against flooding hazards to life and property are public concerns,

and that flood defence can only be undertaken efficiently and effectively where a collective, rather than an individual, approach is adopted, the case for public regulation has long been recognised.

If public regulation is to be advocated as the most effective route through which integrated, collective flood risk management can be implemented, then it is vital that local planning policies reflect not only the need for a collective and integrated approach but, more importantly, take responsibility for the 'collective' and the way in which it is administered in practice. In this respect, the role of developers in the management of flood risk is significant, yet a distinct lack of flood risk assessments submitted by developers with planning applications has been reported (HLT report), which suggests a lack of compliance amongst developers with national policy requirements. This is particularly prominent amongst smaller developers, as larger developers do appear to be complying with policy requirements (Wynn, 2005). Richards (2005) examined 146 local plan policies on development and flood risk and found that only 26% indicated a policy requirement for developers to submit a flood risk assessment for development proposals in flood risk areas. Given that, in general, development plan policies convey "the criteria which will be used to judge whether planning applications should be allowed in a particular area" (Department of Environment, Transport and the Regions, 1999, p.19) and are the first 'port of call' for developers when preparing a development proposal, this statistic underlines the potential for an implementation deficit to arise; the need to provide local planning policies on development and flood risk that can lead the collective approach and be reliably utilised at the level of development control by both developers and planning officers, is imperative.

The question arises, therefore, as to what is causing the implementation deficit between local planning policy on flood risk and development and actual practice, and whether or not the perceived implementation deficit actually represents a failure of the hierarchical planning policy framework for flood risk management. Indeed, this article is concerned with identifying the key areas of difficulty experienced by local planning authorities across England in managing flood risk through the control of land use and development. The issue was discussed with 36 planning officers and development control committee members from 18 different LPAs in England, adopting a semi-structured, conversational style of interview. All interviewees were offered anonymity to encourage

open and frank dialogue, and to obtain the permission of individuals to quote their responses where relevant to the discussion. Comments were supported, where possible, with a review of local plans and planning application documentation.

2. THE RESPONSE OF LOCAL PLANNING TO FLOOD RISK

Anecdotally, the release of new national policy has positively influenced the way in which flooding is viewed within the planning system. However, implementation of national policy at the local level may take time to occur in practice, particularly where certain barriers are extant within current planning practices. Indeed, the empirical data demonstrated that a number of specific difficulties exist. Although some of these were unique to the individual case, a significant number of concerns were recurrently expressed by all of the LPAs participating in the study. These concerns, which are considered to represent barriers to effective flood risk management, are grouped into three distinct themes, each of which are discussed below: (a) local community and stakeholder involvement; (b) flood risk assessment and mitigation; (c) social and economic development priorities.

2.1 Local community and stakeholder involvement

A key issue to emerge within this theme was that the involvement of the local community and stakeholders in the local policy-making processes of forward or strategic planning was relatively low compared to their involvement in the site-specific planning processes of development control. This was for reasons such as

a local plan is such a big thing to wade through... it's easy to miss the relevance of certain policies to specific sites or areas because the generic wording of policies isn't necessarily understood and can be interpreted in so many ways... and the fact that local planning policies just repeat national policy doesn't help... there's no tailoring to local circumstances [and] the EA's advice is also based on [national policy] requirements, so very broad brush.

The importance of local community and stakeholder involvement at the policy level was certainly recognised by planning officers, with suggestions that, because they don't get involved until

the planning application stage, 'it's too late' for planning officers to accord sufficient weight to their consultation responses because they weren't raised during the preparation of the local plan and now conflict with the local plan policies: "we had a site allocated in our plan but when we started getting applications, we got objections from the EA... if there was a problem with this site, we should have been told earlier in the process". The usefulness of consultations at the planning application stage becomes relatively limited as a result of this, particularly given that LPAs have a finite time within which to deliver development control decisions: "the less people get involved in policy-making and the more they get involved in planning applications, the slower the decision-making process becomes". To an extent, consultation with the local community as a whole on development with implications for flood risk is seen as a somewhat proletarian exercise: "it's easy to ignore the non-expert opinion [on planning applications], given the EA's lead advisory role" and "we would always accept the advice of the EA over that of anyone else in terms of flood risk".

Moreover, whilst it is accepted that there is often an element of self-interest amongst consultation responses to individual planning applications, the views of the local community and stakeholders other than the EA on the undesirability, or indeed, desirability of development in a flood risk location can be a reflection of local social or economic development needs and/or of localised flood experiences. Local knowledge of areas vulnerable to flooding and 'what it's like to live and work in these areas', provides a valuable resource particularly in the event that advice from the EA for these areas is inaccurate or applies only the broad brush, standardised principles of national policy. Whilst it is possible that this knowledge resource is not always accurate or widely distributed, it nevertheless represents an opportunity to ensure fully that planning policies and land allocations are better informed in relation to flood risk, particularly where the source of flooding is not obvious or localised flooding has occurred. The reliability of local planning policy, therefore, as the *democratically-determined* (emphasis added), *primary* (emphasis added) material consideration in deciding planning applications comes into question if, as some comments indicated, they do not capture flood risk and development concerns on a locally-relevant basis, thereby giving the non-elected EA powers of veto over development proposals: "what's the point in having planning policy on flooding if the EA decides whether or not development in the floodplain can go ahead?". However, to strengthen the local relevance of

planning policy requires greater input from the local community and stakeholders but essentially, the broad geographical remit and generic expression of local planning policy on flood risk and development promotes the reverse and may actually inhibit their involvement at this level of planning; the result being to prevent effective, locally-relevant communication of national, regional and local planning policy to development control decision-making processes.

2.2 Flood risk assessment and mitigation

Concerns expressed within this theme related to site-specific, downstream and cumulative flood risk issues. Of particular note is that the suitability of different mitigation options differs depending on the characteristics of a given site and its surroundings. As such, there is an apparent reluctance on the part of developers and planning officers to incorporate certain mitigation options recommended by the EA into a proposed development. Reference was made to the fact that,

the EA sometimes asks for Sustainable Drainage System (SuDS), but they can't always be built into the design because of... ground conditions, long term maintenance... plus, it's not always an economical use of land... and that raising of ground levels has been a fairly common requirement [of the EA] but this can render a development unacceptable in terms of ridge height... visual amenity and so on.

It was also suggested that "the mitigation options are generally the same old 'tried and tested' ones" and that FRAs and consultation responses from the EA for individual sites are often standardised, particularly in relation to smaller sites. It appears, therefore, that a certain lack of motivation to be proactive and innovative in the way flood risk can be managed exists in practice. However, comments suggesting that "sometimes, [the EA] asks things from the developer that we just cannot enforce because it's not in our local policy or they're too expensive in the overall scheme" may be a reflection of the lack of detailed, locally-relevant policy requirements that cater for more strategic, perhaps collective flood risk management solutions. This is further complicated by a concern that planning officers "are not surveyors, specialists in certain areas, so it is difficult to ensure completed developments have fully complied with all of the conditions set, such as floor levels being so many millimeters above a specified flood level".

It was also clear that LPAs are not confident in the way downstream and cumulative impacts on flood risk can be assessed and managed at the local level. That any planning condition or obligation ‘must fairly and reasonably relate to the proposed development’ is certainly a concern for planning officers should a decision or conditions be appealed against by the developer and,

if one site can be dealt with by raising the floor levels or designing out the risk to the site, and this is OK with the EA, we can't then say you [the developer] must provide other forms of mitigation or fund defences because your development will have a much bigger impact downstream when combined with all the other developments we expect to come forward in this area.

Whilst the majority of LPAs interviewed indicated that, on the whole, the EA and developers generally enter into discussions in assessing any major development sites, and that the EA is helpful in negotiating appropriate measures to overcome any issues of flood risk, it appears that there remains a tendency to consider sites on an individual basis. This site-specific approach to flood risk management has certainly been criticized for creating a piecemeal response to the problem of flooding and failing to capture catchment-wide issues. It does not appear that many LPAs have, in practice, tackled this issue although there is one instance where the LPA has “asked the EA for a combined response to several applications made at the same time... the EA must take a more proactive approach and provide information to assist strategic planning”. It is possible that the site-specific, piecemeal nature of planning responses to flood risk is, in part, related to the previous theme of concern over local community and stakeholder involvement. Without greater input from consultations at the policy level and without detailed, locally-relevant flood policies, the ability to implement the broadest range of strategic management options that would be effective, achievable on a collective basis and acceptable in planning terms in dealing with downstream and cumulative flood risk becomes compromised at the level of development control. Without support at the policy level, the scope for the application of more strategic management options to individual sites is limited.

The issue concerning local policy repeating national policy, identified under theme (a): local community and stakeholder involvement, is an

important one. To substantiate this perception, the wording of 12 local plan flood policies that have been prepared since the publication of PPG25 were reviewed. Although the amount of text in the flood policies varied, with some including highly prescriptive and lengthy policies, all of those examined repeated generic phrases from PPG25 and from the Sequential Test; none appeared to apply the principles of PPG25 in more detail on a locally-relevant basis and all adopted a presumption against development in flood risk areas, unless appropriately mitigated. Mitigation requirements ranged from the vague, for example ‘mitigation will be required’, to the slightly more detailed, for example ‘sustainable drainage systems or compensatory flood storage should be provided wherever possible’ and all indicated that development proposals would be considered in the light of advice from the EA. To an extent this negates any potential influence of local flood policies in the development control decision-making process and perpetuates the consideration of flood risk on a site-by-site basis.

2.3 Social and economic development priorities

Concerns expressed within this theme were principally related to the need to balance the benefits of development against the risk of flooding consistently, particularly in respect of central government targets for the reuse of previously developed land and for high density housing provision. For some LPAs,

flooding isn't high on the agenda when [they] have to find so much new housing and employment land ... for any given site, any one [priority] could be the most important depending on the circumstances... how we weight these priorities is extremely complex... and a [site] would have to be truly unsuitable for development to refuse.

Of particular note are those authorities in urban areas that are almost entirely within the high risk flood zone. Two such cases cited a period of time “when all planning applications, even extensions and single dwellings, were objected to by the EA” and “when this happens, we risk losing local discretion and can't fulfil local development needs effectively... we can't refuse all development because of flood risk... we have development priorities just like anyone else”.

Comments such as these demonstrate the view that if other development priorities exist in favour of

development proceeding and, relating to the previous theme concerning the site-specific approach to assessing and mitigating risk, if there is scope for negotiating mitigation measures, development can be allowed. For example,

there is only so much we can do to minimize the risk, such as first floor living areas and basement car parks... but the EA has objected to basement car parks in the past and where the footprint of the new building is larger than what was there before, they object unless compensatory storage is provided, but this isn't making the most efficient use of the site if it's for housing and there's not always room for compensatory storage.

One council member argued "that any mitigation agreed on ends up being a compromise, in order to allow the development to proceed, but this isn't necessarily effective in the long term". Nevertheless, most interviewees responded that they always take into account the advice of the EA in relation to individual planning applications, that it is the minority of applications where decisions may not accord with EA recommendations and that this is due to other, overriding material considerations.

With LPAs struggling to balance national policy priorities for social and economic development against the need to prevent flood risk wherever possible, there is a risk that planning decisions are based on inconsistently weighted values. Whilst there is clearly a need to maintain local discretion on the basis that the circumstances surrounding any given development proposal are highly variable with complex methods to weight different features of a proposal, there are certain limitations to this approach. Firstly, it may perpetuate the site-by-site assessment and mitigation of flood risk, which suggests a relationship between this theme and the previous theme (b) above. Secondly, it reduces the transparency of the local planning process, at policy-making and development control levels, particularly given the complexity of issues to be weighted. Again, there is a relationship between this theme and the first theme (a) concerning local community and stakeholder involvement, in that a lack of transparency in local planning policy inhibits involvement, which in turn creates a local policy framework that may be inconsistent with local circumstances and therefore, unreliable as the primary material consideration in determining planning applications with implications for flood risk.

3. THE 'COLLECTIVE IMPLEMENTATION DEFICIT'?

Concerns have been expressed specifically on each theme described above, but it is evident that some interconnectivity exists between themes. In other words, concerns expressed in relation to one theme also have relevance to one or both of the other themes. It is noteworthy, therefore, that local planning policy appears to be the prevailing influence on all three areas of difficulty, in that few are directing development control decisions with implications for flood risk in the context of local circumstances. Whilst it is a necessary feature of the planning system to consider site-specific issues at the planning application stage, there appears to be a significant gap between this and local policy, which is exacerbated in part by the consultation process between the EA, LPAs and developers:

There are officers who don't always understand whether the EA is objecting or just requesting conditions... the last authority I worked for, it was a different EA office that we dealt with and they objected to everything even though they would also say what should be done to make the development acceptable, such as SuDS or compensatory storage. It could be confusing at times, particularly for outline applications, as we'd never know whether they wanted us to refuse the development in principle, even though it may be allocated and the EA raised no objection then. Many of the conditions would be something we'd sort out in reserved matters.

In a separate statement, the EA explained:

... our normal process is to object to a planning application if we consider a planning condition is required in order to make it acceptable. If the LPA then impose a condition, we would consider the outcome to be in line with our advice... however, having said that, I am aware that there may be inconsistencies in the way that some of our area teams deal with consultations, and in some situations they may not count a request for the imposition of a condition as an objection. However, this is something we are looking into

and we hope to standardise in the future.

The view that the EA may object unnecessarily to planning applications relates in part to the fact that FRAs are not submitted with every planning application with implications for flood risk. However, the need for FRAs has been questioned:

what can a flood risk assessment achieve for minor development proposals and even some of the major ones, for example, 10, 12 or 15 houses? It seems the EA objects to everything if there is no flood risk assessment or if they say [the assessment] is unsatisfactory, but we already know a site is in a flood risk zone, what can a flood risk assessment tell us that we don't already know?... We already know that 'x' amount of hard surfacing produces 'y' amount of runoff under 'z' rainfall.

Moreover, it was considered that a "strategic flood risk assessment is a great tool in that it can tell us the likelihood of flooding in areas... but it can't help with the mitigation issues and this ends up being dealt with on a site-to-site basis". There was a general consensus amongst interviewees that FRAs of individual development sites are unable to contribute to any form of collective, strategic approach unless more detailed local policies are prepared to develop opportunities for partnership working, involving the local community, developers, sports organizations, planners, social services, insurers and environmental organisations in order to deliver "more joined-up thinking in terms of mitigation strategies". Without clarity in consultation with the leading advisory organisation on flood risk or, indeed, clarity in terms of how the results of FRAs are to be applied, problems will inevitably arise in the decision-making process as a result of misunderstandings.

This article has presented a certain amount of evidence that LPAs and the EA are more inclined to look at ways in which a development proposal can be modified in order to make it acceptable in flood risk terms, indicating an overall permissive approach to development, provided that mitigation can be *negotiated* (emphasis added), at the level of development control. However, the local policies reviewed adopted a predominantly restrictive stance towards development in flood risk areas, for example 'development *will not* be permitted in...' or 'there will be a *presumption against* development in...'. This

discrepancy between forward planning and development control suggests that a restrictive policy approach may be rendered ineffectual if it does not integrate locally-relevant development needs and flood risk management needs. Therefore, where development pressures are likely to arise or where conflicting policy priorities exist, for example, an enabling local policy framework may be more suitable in that it can promote a collective strategy to mitigate flood risk and reduce the piecemeal, site-by-site nature of developer mitigation.

Regional planning has been advocated as the best means by which the flood risk management efforts of different stakeholders can be coordinated (Bohm et al., 2004; Penning-Rowsell et al., 2002). As such, it may be argued that the collective approach can be better catered for in regional planning than local planning. Whilst it is not contended that regional planning policy can play a significant role in managing flood risk on a catchment-wide basis, it is nonetheless strategic in nature rather than practical. Therefore, it is vital that regional principles are interpreted in a manner that is locally-relevant if they are to be implemented consistently between individual development sites, between different LPAs sharing the same catchment and between locally-orientated stakeholder organisations with differing responsibilities for flood management. Local planning provides the forum to enable implementation of strategic or regional policies on a collective basis and to encourage locally-orientated stakeholders to take ownership of regional issues.

Examples of collective, partnership working in the management of river corridors are presented by Piper (2005), who reviewed a number of initiatives in the London region. Although most of these initiatives originated from interest groups on a voluntary basis, two certainly achieved some success in influencing local planning practice, with their published strategies adopted as Supplementary Planning Guidance by a number of riparian councils. In response to the interviews carried out for this study, Bedford Borough Council also demonstrated an example of voluntary collective action within the remit of local planning, with its Marston Vale Surface Water Plan. This was not formally adopted as a planning document and carried no statutory weight, yet it has proved effective in that, in order to enable development in a particular area of the borough, developers were encouraged to contribute to a collective strategy for managing surface water. Bedford considered the plan to be extremely effective, with the majority of developers (albeit not all) taking part. The plan was not without its problems

however, and these were predominantly due to legal constraints where developers did not have access rights across land to fulfill their contribution to the mitigation strategy and where developers did not have a legal right to undertake certain mitigation works.

However, according to Piper (2005) stakeholder participation in a collective approach to developing a management strategy or initiative is potentially problematic, whereby “issues such as non-cooperative behaviour (shirking and free-riding) impeding the effectiveness of participative action, and the unreliable level of commitment to collective action, as the involvement of individuals varies through time” (p.3) may arise. Given that central government does not aim to provide flood defences that may be required as a result of new development, the onus being on the developer to make such provision, and that LPAs are experiencing difficulties in enforcing certain types of conditions or obligations, the potential for these problems to arise in terms of managing or mitigating flood risk collectively may be exacerbated. Certainly, evidence of non-cooperative behaviour can be seen in that not all developers are submitting a FRA with their planning applications (Wynn, 2005). Also, an unreliable level of commitment could be seen in that developers, the EA, local authorities and other organizations with water management responsibilities are reluctant to adopt and take responsibility for the ongoing maintenance of certain types of flood alleviation measures, such as SuDS (White and Howe, 2005), particularly when these measures may be for the benefit of downstream land uses and not that of the development site. It may be, therefore, that public regulation at a local level and with statutory weight is the only means through which collective action can be promoted and reliably enforced.

CONCLUSION

The role of spatial planning within flood risk management is becoming increasingly important as the predicted impacts of climate change and escalating development pressures alter the exposure and vulnerability of urban environments to damaging floods. This paper has presented an array of experiences of planning officers and development control committee members in managing flood risk and has suggested that although a strong national policy provides a foundation for more informed decision making, it is the local level which holds the real power to manage risk. Although planning policy in England is well developed and incorporates differing innovative measures designed to balance flood risk with other concerns, the lack of local community and

stakeholder involvement and the inconsistent use of flood risk assessment and mitigation inhibits the potential impact that planning can make. Moreover, as planning has to juggle competing priorities, such as protection against flood risk and social and economic development priorities, it should be recognised that it is an imperfect tool and some degree of floodplain development will continue in the future, particularly where development needs are considered to outweigh the risk.

The emerging message is therefore concerning good practice on potential mitigation strategies, especially of a collective nature, and the effective use of the risk based approach to provide decision makers with the best available information. One way of moving ahead would be to strengthen forward planning policies to enable a departure from the traditional, site-to-site management of flood risk through the control of land use and development. Therefore, LPAs must take responsibility for interpreting national and regional policy and for facilitating its application in a way that is relevant to social, economic and environmental development needs at the local level. This approach should provide an enabling framework for collective action to be developed, focusing on specific areas where the management of flood risk is relevant and that can be relied upon to support development control decisions. It is imperative that the local community and wider stakeholders, particularly the EA, are more involved and proactive in the preparation of local planning policy on development and flood risk in order to remove certain constraints to collective action from the development control decision-making process.

GLOSSARY OF ACRONYMS

DCLG	Department of Communities and Local Government
DEFRA	Department of Environment, Food and Rural Affairs
DTLR	Department of Transport and Local Regions
EA	Environment Agency
FRA	Flood Risk Assessment
HLT	High Level Target
ICE	Institute of Civil Engineers
IPCC	Intergovernmental Panel on Climate Change
LDF	Local Development Framework
LGA	Local Government Association
LPA	Local Planning Authority
PPG 25	Planning Policy Guidance 25

PPS 25 Planning Policy Statement 25
SFRA Strategic Flood Risk Assessment
SuDS Sustainable Drainage Systems

BIBLIOGRAPHIE

- BOHM, H., B. HAUPTER, P. HEILAND and K. DAPP (2004). Implementation of flood risk management measures into spatial plans and policies, *River Research and Applications*, vol. 20, Issue 3, p. 255-267.
- BULKELEY, H. (2006). Is the Issue of Climate Change too Big for Spatial Planning?, *Planning Theory & Practice*, vol. 7 Issue 2, p. 201-230.
- CULLINGWORTH, J. B. and NADIN, V. (2002). *Town and Country Planning in Britain*, Routledge, London.
- DEPARTMENT FOR TRANSPORT, LOCAL GOVERNMENT AND REGIONS (2001). *Planning Policy Guidance Note 25: Development and Flood Risk*, The Stationery Office, Norwich.
- DEPARTMENT OF COMMUNITIES AND LOCAL GOVERNMENT (2006). *Planning Policy Statement 25: Development and Flood Risk*, December, The Stationery Office, Norwich.
- DEPARTMENT OF ENVIRONMENT, TRANSPORT AND REGIONS (1999). *Planning Policy Guidance Note 12: Development Plans*, The Stationery Office, London.
- DEPARTMENT OF THE ENVIRONMENT, FOOD AND RURAL AFFAIRS (2004). *Making space for water: developing a new Government strategy for flood and coastal erosion risk management in England*, Department of the Environment, Food and Rural Affairs, London.
- DONATI, M. (2002). Institution raises alarm over flood risk hazards, *Planning*, 30th August, p2.
- ENVIRONMENT AGENCY AND LOCAL GOVERNMENT ASSOCIATION (2006). High Level Target 5: Development and Flood Risk 2005/06, Joint report to Defra and Dclg, November.
- EVANS, E., R. ASHLEY, J. HALL, E. PENNING-ROWSSELL, A. SAUL, P. SAYERS, C. THORNE and A. WATKINSON (2004). *Foresight. Future Flooding. Scientific Summary: Volume 1 - Future Risks and their Drivers*, Office of Science and Technology, London.
- HOWARTH, W. (2002). *Flood Defence Law*, Shaw and Sons, Crayford.
- INSTITUTION OF CIVIL ENGINEERS (2001). *Learning to Live with Rivers*, Institution of Civil Engineers, London.
- INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2001). *Climate Change 2001: Impacts, Adaptation and Vulnerability*, Cambridge University Press, Cambridge.
- INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2007). *Climate Change 2001: Impacts, Adaptation and Vulnerability*, Cambridge University Press, Cambridge.
- NATIONAL AUDIT OFFICE (2001). *Inland Flood Defence*. The Stationery Office, London.
- OFFICE OF THE DEPUTY PRIME MINISTER (2005). *Strengthened Planning Policy for Flood Risk Areas will ensure Sustainable Development – Hill*, Press Release, 24 March 2005.
- OWENS, S. and R. COWELL (2002). *Land and Limits: Interpreting Sustainability in the Planning Process*, Routledge, London.
- PENNING-ROWSSELL, E., J. CHATTERTON, T. WILSON and E. POTTER (2002). *Autumn 2000 floods in England and Wales: assessment of national economic and financial losses*, Flood Hazard Research Centre, Middlesex.
- PIPER, J. (2005). Partnership and Participation in Planning and Management of River Corridors, *Planning, Practice & Research*, vol. 20, Issue 1, p.1-22.
- RICHARDS, J. (2005). *Treatment of Inland Flood Risk in Development Plans and Development Control in England*, PhD thesis, University of Manchester.
- SELECT COMMITTEE ON AGRICULTURE (1998). *Flood and Coastal Defence: Sixth Report*, House of Commons. Available from <http://www.publications.parliament.uk/pa/cm199798/cmselect/cmagric/707/70702.htm> [accessed 4th September, 2007]
- TEWDWR-JONES, M. (1994). Policy implications of the 'planned' planning system, *Journal of Planning and Environmental Law*, July, p.584-593.
- UNITED KINGDOM (2004). *The Planning and Compulsory Purchase Act 2004*, HMSO, London.
- WHITE, I. and J. HOWE (2005). Unpacking Barriers to Sustainable Urban Drainage Use, *Journal of Environmental Policy and Planning*, vol. 7, Issue 1, p.27-43.
- WYNN, P. (2005). Development Control and Flood Risk: Analysis of Local Planning Authority and Developer Approaches to PPG25, *Planning, Practice & Research*, vol. 20, Issue 3, p.241-261.