Joint Defra/EA Flood and Coastal Erosion Risk Management R&D Programme

Social Justice in the Context of Flood and Coastal Erosion Risk Management: A Review of Policy and Practice

R&D Technical Report FD2605/TR

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Joint Defra/EA Flood and Coastal Erosion Risk Management R&D Programme

Social justice in the context of flood and coastal erosion risk management: a review of policy and practice

Main Report

R&D Technical Report FD2605TR

Authors: Clare Johnson, Sylvia Tunstall, Sally Priest, Simon McCarthy and Edmund Penning-Rowsell

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Statement of use
This report documents the outcomes of Project FD2605, “Social Justice in the Context of Flood and Coastal Erosoin Risk Management: A Review of Policy and Practice”. The report examinens the social justice principles embedded in government policy, guidance and practice towards Flood and Coastal Erosion Risk Management (FCERM) and provides insights and recommendations on how fairness concerns might be addressed in FCERM policy and practice.

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Research contractor: Middlesex University, Flood Hazard Research Centre, Trent Park, Bramley Road, London N14 4YZ.

Defra project officer: Sue Antonelli & Tony Pike

Publishing organisation
Department for Environment, Food and Rural Affairs
Flood Management Division,
Ergon House,
Horseferry Road
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Tel: 020 7238 3000 Fax: 020 7238 6187

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Executive summary

Background

'Socially just' government policy is a key component of sustainable development (HM Government, 2005) and of Defra's Making Space for Water vision (Defra, 2004; 2005). At present, there is no clear understanding of what is 'socially just' Flood and Coastal Erosion Risk Management (FCERM). This research provides 'first insights' in this regard. From the philosophical literature in this area, FCERM policy and practice was examined using three models of fairness: maximum utility, equality and vulnerability (see table below).

Justice principle	**Fairness rule**	**Meaning for FCERM**
Equality	**Equality:** All citizens should be treated equally	**Process:** Every citizen should have the equal opportunity to have their risk managed in the decision process **Outcome**: Resources should be distributed equally according to the risk
Rawls' Maximin rule	**Vulnerability:** The vulnerable should be prioritised and the FCERM options chosen should be those that favour helping the worst off best.	**Process:** Positive discrimination rules in the decision process in favour of those regarded as most vulnerable **Outcome:** Resources should be targeted to the most vulnerable to flooding or erosion (or to the most needy)
Maximum utility	**Utility:** The units chosen should be those that secure the greatest risk reduction per unit of resource input	**Process and outcome:** Assistance should be provided to those members of society to whom the benefits offer the greatest gain to society (i.e. loss reduction is thereby maximised)

Research objectives and approach

This research examined the social justice principles embedded in government policy, guidance and practice towards FCERM. Secondly, it examined the fairness attitudes of key stakeholders towards FCERM at national, regional and local levels. Thirdly, it provides insights and recommendations on how fairness concerns highlighted by the research might be addressed in FCERM policy and practice in the future.

The research methods included document analyses, semi-structured interviews and roundtable discussions at the national level. Four case studies were examined at the local level: Lewes flood management strategy; Leeds urban flood risk and integrated drainage; Felixstowe coastal defence strategy; and East Riding coastal erosion management.

Key findings

Lack of consistency in social justice approaches. At present there is no joined-up approach to social justice across government. There are similarly important institutional differences in the application of social justice principles

and there are inconsistencies in how inter-generational equity is addressed. Although FCERM is regarded as fairer now than in the past, the tools to enhance this in practice are lacking.

Utility principles are most widely used. The model driving much of the FCERM spend, at the national level, is based on utility principles; characterised by high benefit-cost scores, particularly in comparison with other areas of government funding (i.e. roads). Stakeholders considered the allocation of funding to FCERM to be inadequate and unfair and at the heart of FCERM injustices.

However, utility on its own can be problematic. The utility approach results in inequality in outcomes and, although national stakeholders generally considered this to be the fairest principle to apply, enthusiasm was tempered by concerns for procedural justice and vulnerability. As would be expected, a percentage of those at-risk regarded the outcome inequality associated with structural flood risk reduction measures to be unfair; particularly where the outcomes result in different standards of protection within communities. An additional unfairness was perceived to exist, at this spatial scale, in the different standards of protection afforded to sewer and fluvial flooding.

Targeting the vulnerable. There is scant evidence of decisions being made on the basis of vulnerability principles, other than as an add-on in the utility-dominated appraisal process and in the provision of flood warnings and emergency management. Targeting the vulnerable is not, currently, embodied in the policies and practices towards the provision of insurance, spatial planning, homeowner adaptation, and land use control and management. The vulnerable are not generally seen as adequately accounted for in FCERM decisions, with both national and local stakeholders agreeing, in principle, that a more focused targeting of the flood-vulnerable in FCERM would be fairer. However, the multi-faceted nature of vulnerability was seen as a major barrier to the successful implementation of policy in this regard.

Transparency of policy and decisions. Procedural justice is seen as a key issue for FCERM. There is strong ambition for policy and practice to be consistent, neutral, transparent and clear. However, at present, there is a conflict between achieving national consistency and transparency on the one hand, and encouraging stakeholder engagement with ‘real’ local influence in decision-making on the other. This is a significant barrier to achieving fair FCERM in practice.

No single model of social justice. The research has illustrated the multi-faceted nature of social justice and the multi-faceted nature of FCERM. Because of this, there can be no “correct” model of social justice for FCERM. The policy question, therefore, is not: how can different model(s) of social justice inform future FCERM decision-making policy and practice? But, how can we ensure that the range of social justice concerns is adequately accounted for in FCERM policy and practice?

Accounting for social justice concerns in FCERM:

1. There must be an open and transparent account of the weight being applied to different social justice principles in policy, guidance and practice across the range of FCERM options;
2. There needs to be a clear account of the trade-offs that are required in the balancing of requirements for national consistency with those for stakeholder engagement; and
3. The current model of resource distribution which favours the distribution of national resources through the appraisal process (rather than to 'other' FCERM options less easy to appraise) should be re-evaluated; particularly for those who have no equality of opportunity to access this decision process.

Conclusions and Recommendations

Headline conclusions:

1. There appears to be value in using the social justice framework we have employed; even though the process and outcome distinctions may be less clearly differentiated than is theoretically suggested. For FCERM to be considered fair, a balanced approach using the following three principles is required:

Utility: *'Fair FCERM that seeks (process) and secures (outcome) the greatest risk reduction per unit input'*

Vulnerability: '*Fair FCERM that prioritises the vulnerable in the decision process and targets resources in favour of the most vulnerable''*

Equality: "*Fair FCERM decisions are those that provide an equal opportunity for every citizen to have their risk managed in the decision process."*

2. Ultimately, what is important is that the social justice principles are transparent and consistently applied; and seen to be so. If the utility model is used in isolation - explicitly say this is the case - it is a fact of life that there will remain those who will always believe that an injustice has occurred. Transparency and consistency will aid communication of the approach adopted and decision made.

Headline recommendations from this research: In light of the two headline conclusions, Defra and the EA should

1. Keep under constant review their policy, procedures and funding models, using the framework, to examine the extent to which they embody the social justice concerns highlighted by this research.
2. Explicitly recognise, and actively incorporate, a framework for systematically identifying and evaluating social justice concerns within their decision-making processes and procedures.
3. Review and evaluate decision outcomes with a social justice 'lens' in order to illustrate how social justice concerns are embedded in decision

outcomes. This will make social justice less of a theoretical concept but more tangible in terms of outcomes and policy measures.

The evaluation tools will provide the opportunity for Defra and the EA to monitor explicitly how social justice is embedded into policy decisions and outcomes.

Contents

List of Figures

List of Tables

Appendices (Volume 2)

I CONTEXT

1. Introduction

1.1 Background

The policy framework within which flood and coastal erosion decisions are made has undergone a significant transformation in the last 10-15 years; influenced by both incremental changes in policy, and the catalytic influences of major floods (Johnson *et al.,* 2005). Where previous policy was dominated by a flood defence doctrine, it is now widely recognised that to achieve sustainable policies for flood and coastal erosion risk management (FCERM), flood defence needs to be supported by a number of non-structural risk management options. Thus, as elsewhere in Europe, the flood doctrine is now concerned not with defending against floods but rather 'living with floods' (ICE, 2001), 'preparing for floods' (ODPM, 2002) and 'living with risk' (UN/ISDR, 2004).

Asking people to 'live with floods' requires a significantly different approach to FCERM than that which preceded it (Table 1.1) And, whilst these changes are welcome, the practical reality of implementing policy, guidance, strategies and decision-tools at regional and local levels which embrace these principles is proving more difficult. The embodiment of principles of sustainability and equity goals asks searching questions concerning whose definitions of *just, fair* and *equitable* FCERM count (Johnson *et al.,* 2007), as does the requirement for managing all forms of flood risk; an issue of particular concern given the knowledge uncertainties and institutional complexities concerning pluvial and groundwater flooding.

Table 1.1 Key principles underlying the new approach to FCERM

- Manage risk from all sources of flooding (coastal, fluvial, pluvial, groundwater and sewer flooding);
- Adopt a risk-based approach across catchments requiring better understanding of the integration between risk drivers, sources, pathways and receptors at the catchment scale;
- Seek multi-functional benefits from interventions;
- Broaden the risk management options, decision-making techniques and processes involved to better account for social and environmental consequences;
- Emphasising the social pillar of sustainable development by enhancing the risk management tools available such that decision processes account for social justice and equity issues;
- Enhance our understanding of the social and environmental consequences of FCERM decision-making processes. (Adapted from Penning-Rowsell *et al.,* 2006).

This 'new' approach also asks searching questions concerning: the appropriate mix of state vs. individual responsibility in the management and financing of

FCERM; the appropriate nature of current decision tools and guidance to account for social and environmental consequences; and the ability of current decision processes and procedures to fully account for social justice and equity issues.

In some areas the 'new' approach will mean coastal abandonment and/or the removal of any maintenance of flood and coastal defences for those that have previously 'enjoyed' protection funded and maintained by central government finance and bodies. In others, particularly where structural flood defence will never be economically justifiable, it will require the recognition that direct government assistance for flood defence will never be forthcoming; either because the benefits will never justify the costs or because there is no practical flood defence solution that is either technically possible or socially acceptable. For these communities, 'living with floods', 'living with risk' and the need to 'prepare for floods' is either already a reality - or soon to become one.

In such a 'reality driven' context, questions concerning the 'socially just' nature of government decisions, and the processes by which decisions are made, are certain to arise. And, if the findings of the Foresight study (Evans *et al.,* 2004a & b) into future flood risk are actualised then the future is likely to be characterised by a greater number of cost-beneficial schemes coming 'on-stream' - resulting in greater competition for an already over-stretched flood defence budget (Johnson *et al.,* 2006).

Add to this the cross-government requirement under the Aarhuss convention for greater access to information, participation and accountability in environmental decision-making and the necessity for decision-makers to 'justify' both the processes by which they make decisions and the outcomes of these decisions will become increasingly more important.

As in other policy arenas (e.g. housing, education, health, transport), FCERM decision-making is about trade-offs in the distribution of funding across society; the aim being to provide the greatest gains for society as a whole whilst recognising the needs and rights of those individuals, households, businesses and communities at risk of flooding and coastal erosion. However, unlike other areas of policy, there have been very few analytical studies investigating what is a fair decision process or what makes for a fair decision outcome; hence the significance and timeliness of the research contained within this report.

1.2 Report overview

The research reported on here is concerned with evaluating three key issues. Firstly, it seeks to examine the social justice principles embedded in government policy, guidance and practice towards FCERM. Secondly, it seeks to examine the fairness attitudes of key stakeholders towards FCERM at the national, regional and local level. And, thirdly, it seeks to provide insights and conclusions concerning the fairness challenges which emerge and how different models of social justice might inform future FCERM decision-making policy and practice.

Having provided an overview of the aims, objectives, methods and conceptual

framework used in the study, the report is then structured such that national policy and guidance is evaluated in section two, the practical implementation of this policy and guidance is evaluated in section three and the research insights and conclusions are provided in the final section of the report.

For the analysis of national level policy and guidance, the report seeks to evaluate the fairness principles embedded in the hierarchy of national level documents and guidance – including key government-wide documents, Defra and EA policy documents, context specific policy documents (such as those concerned with spatial planning) and the more specific guidance concerned with local/regional decision-making processes (e.g. project appraisal, CFMPs and SMPs). In addition, understanding of the attitudes of key national stakeholders towards the fairness of current and future FCERM is sought - the findings of which are provided in chapter five.

At the regional and local levels, the analysis focuses on the findings from four case studies, each chosen according to the different contextual and fairness issues they embody:

- Lewes: flood defence strategy (river flooding, appraisal)
- Felixstowe: coastal defence strategy (coastal flooding, appraisal)
- Leeds: Defra pilot projects (urban drainage, adaptation)
- East Riding: coastal management strategy (coastal erosion, adaptation)

As with the analysis at the national level, the research at this spatial scale evaluates the fairness principles embedded in key documents and the fairness attitudes of key stakeholders. These case studies are summarised in chapter 10.

The concluding section then seeks insights from the research, with a particular focus on the implications for the EA and Defra. It is important to bear in mind, however, that throughout the report, the analysis does not seek to provide any definitive answers as to what is, and is not, fair FCERM. Rather, it seeks to provide a greater understanding of the social justice principles currently embodied in government policy and guidance and the attitudes of key stakeholders to policy processes and outcomes.

2. Objectives and methods

2.1 Objectives

The purpose of this research is to provide the first insights into the 'socially just' nature of FCERM policy and decision-making. Thus, the objectives of the research are:

(1) To examine national policy in the context of social justice.
(2) To examine planning tools and guidance in the context of social justice.
(3) To provide insights into the attitudes of key stakeholders to the fairness, or otherwise, of current policy and practice.
(4) To provide insights into how different model(s) of social justice might inform future FCERM decision-making policy and practice.

2.2 Methods

The research was conducted in two stages with the first addressing these objectives at the national level and the second addressing them in each of the four case studies. Terminology is important here and, at each stage of the research, we sought to extrapolate understanding based on key terms. In the document analysis we sought evidence based on issues of fairness, 'social justice' and 'equity'. However, in the roundtable discussions and interviews we sought consistency through the use of the language of fairness.

Social justice, albeit contested, is a familiar term for national scale policy makers. It is not, however, a term that is readily applied in public discourse nor is it a term that is readily definable; dependent as this is on the underlying principles upon which it is founded (see chapter 3). Indeed, in academic literature and elsewhere, 'fairness', 'social justice' and 'equity' are often used interchangeably without any clear definitional differentiation between the terms (Ikeme, 2003). By embodying our discussions in the language of fairness, it is the respondents' interpretation of what is fair that then defines the social justice principles guiding attitudes and decision-making processes. Thus, no definition of fairness has been provided; indeed providing one would have run counter-intuitive to the objectives of the research.

At the national level, and in each of the four case studies, the following methods were employed to collect data and understand the issues.

2.2.1 National level

2.2.1.1 National policy document analysis

Twenty one key policy documents were analysed using a coding framework developed to examine fairness in both policies and processes generally and within a conceptual framework of social justice (See Appendix 1 Coding Framework). This analysis addressed objectives (1) and (2) above. The content analysis undertaken was qualitative rather than quantitative in nature. Documents were examined for any direct references to social justice and for

any evidence of the social justice principles embedded in the documents. Quotations from the documents are cited as evidence of the principles involved. Judgement was used in determining whether particular principles were of 'dominant', 'major' or 'minor' importance within the document. Equality in process or procedural justice is characterised by consistency, transparency and some degree of consultation or engagement with stakeholders and the public. This principle is only described as 'major' where the document supports participatory, or deliberative, processes to some degree - not just consultation.

2.2.1.2 Roundtable discussions

Two roundtable discussion meetings were held with key national stakeholders. These aimed to provide insights into the attitudes towards the fairness of current FCERM and into the direction that future policy could, and should, take. These addressed objectives (3) and (4) above. The discussions held on 23rd and 27th March at Defra were attended by eight and six participants respectively. Participants were drawn from the key organisations with responsibility for social justice and FCERM: Defra, the EA and CLG. Both discussions were lead by Professor Edmund Penning-Rowsell using the same discussion agenda guide (Appendix 2); although the discussions were free flowing and did not cover topics in the same order or explore them in equal detail. Discussions lasted approximately two hours and were fully transcribed by Dr. Clare Johnson.

2.2.1.3 Interviews with key national stakeholders

These were intended to address objectives (3) and (4) above and were designed to amplify, examine in greater detail, and validate the findings from the roundtable discussions. The criteria for choosing whom to interview were to:

1. Amplify roundtable response of attendees (re-interview attendees);
2. Supplement roundtable responses with interests and organisations not covered;
3. Obtain a balanced representation of views across organisations, interests and professional backgrounds; and
4. Provide insights from insightful people.

A total of 15 potential interviewees were approached. One organisation considered that it was not appropriate for a representative to participate in the research as it was thought to be outside their remit. It proved impossible to contact and arrange interviews with two other potential research participants within the time available. A total of twelve interviews were completed; two with roundtable participants. Eleven were conducted face to face. One was conducted over the telephone. Most of the interviews lasted approximately one hour but a few were considerably longer. The interviews broadly followed the same agenda as the roundtable discussions but, for some, they focused on the areas of particular interest to the interviewees. In order to ensure that the interviews were completed in a timely manner, they were conducted by a team of three experienced FHRC Research Fellows, Dr Simon McCarthy, Dr Sally Priest and Sylvia Tunstall. The interviews were tape recorded and very detailed

notes were taken from the recordings but - due to cost and time constraints - the tapes were not fully transcribed.

Round table transcripts and interview notes were analysed together according to the topics or themes found. The analysis was qualitative in nature as a more quantified approach was deemed unsuitable due to the varied nature of the data and the limited number of responses.

2.2.1.4 Outcome Measures and Prioritisation Consultation

As part of the project, FHRC researchers were asked to review the responses received to, and the content of, Defra's Consultation on FCERM Outcome Measures and Prioritisation Approaches in the context of social justice (Defra, December 2006). Two researchers also attended the Consultation Workshop on this topic held on 2nd March 2007. A selection of 22 out of the 72 responses to the consultation on Outcome Measures was received by FHRC on 12th April. A full set of 72 responses was e-mailed to FHRC on 17th April together with a summary of responses with a bearing on social justice and social issues. Qualitative and selective analysis of the responses was undertaken and a separate 20 page report written and submitted by the research team on 23rd April (Tunstall *et al.,* 2007) (Appendix 3).

The research reported here draws in a limited way on the Outcome Measures evidence of attitudes among a wider group of stakeholders to social justice issues in FCERM. This provides support for the examination of objectives (3) and (4). It should be noted, however, that the consultation responses were heavily structured by the 19 consultation questions that stakeholders were asked to address. None of these questions were explicitly concerned with social justice in relation to the Outcome Measures and Prioritisation; although some of the questions raised issues relevant to social justice.

2.2.2 Case studies

The second phase of the research involved the analysis of four local level case studies; the primary purpose of which was to examine, firstly, how national policy is implemented in practice and, secondly, to examine the fairness attitudes of regional and local stakeholders. In this way the case studies addressed objectives (2) and (3) above.

The case studies were selected in collaboration with members of the project advisory board which included representatives from Defra and the EA. In the original research application it was stated that the case studies would focus on two fluvial and two coastal contexts. In light of the aims of Making Space for Water (Defra, 2004; 2005) – particularly the principle of managing risk from all sources of flooding - it was agreed, in consultation with the steering committee, that a case study which particularly addressed urban drainage and flood risk issues would be beneficial. As a result, two coastal, one fluvial and one urban drainage case study were selected. The reasons for their selection, and the social justice issues they were expected to highlight, are given in Table 2.1.

Table 2.1 Case study selection

Case study	Characteristic	Issue/context
Lewes	Location	Southern, urban, non-coastal
	Spatial Scale	Project
	Type of flooding/erosion	Fluvial, tidal
	Potential social justice issues	Utility: appraisal process – importance of geographical boundaries. Vulnerability: dependent on rules applied in appraisal process. Equality: defences to be provided to some urban cells but not others – process and outcome issues.
Felixstowe	Location	Anglian, urban, coastal
	Spatial Scale	Project
	Type of flooding/erosion	Coastal flooding and coastal erosion
	Potential social justice issue	Utility: appraisal process – importance of geographical boundaries. Vulnerability: dependent on rules applied in the appraisal process. Equality: defences provided to some and not to others – process and outcome issues.
Leeds	Location	North east, urban, non-coastal
	Spatial Scale	Pilot projects
	Type of flooding/erosion	Fluvial and urban drainage.
	Potential social justice issue	Utility: different standards of protection for fluvial and urban flood risk. Vulnerability: concerns over the ability of the 'most vulnerable' to access and afford resistance and resilience measures. Equality: Resistance and resilience measures – process and outcome issues. Equality issues in pilot itself.
East Riding	Location	North east, rural, remote, small settlements
	Spatial Scale	Strategic
	Type of flooding/erosion	Coastal erosion
	Potential social justice issue	Utility: not enough benefits to justify coastal defences Vulnerability: roll-back scheme impact on 'most vulnerable' – cost implications. Equality: roll back scheme – process and outcome issues - geographic scale, 'haves' and 'have nots'.

Each case study involved the analysis of key documents, a site visit by one or more of the research team and semi-structured interviews with key stakeholders.

2.2.2.1 Sub-national policy document analysis

The coding framework guiding the examination of sub-national policy documents was able to benefit from the completed research and analysis conducted at the national level, and reported to Defra in June 2007 (Tunstall *et al.,* 2007). As a result, by comparison to the national level (Appendix 1), this framework was both simplified and targeted (Appendix 4). More specifically, the coding framework was used to:

- extrapolate useful contextual case study information;
- examine the links between local and regional documents and those at the national policy level;
- examine the role of the stakeholders involved;
- seek evidence of who funds the scheme/project/strategy, who is expected to benefit and what social justice criteria were used; and
- most importantly, the coding framework was used to seek evidence of the social justice principles applied in practice using the conceptual framework expanded on in Chapter 3.

A total of 15 sub-national documents were analysed, addressing research objective (2). As with the national documents, the content analysis was qualitative rather than quantitative in nature. Documents were examined for any direct references to social justice and for any evidence of the social justice principles embedded in the documents. Quotations from the documents are cited as evidence of the principles involved. Judgement was used in determining whether particular principles were of ‘dominant’, ‘major’, ‘minor’ or ‘no’ importance within the document.

2.2.2.2 Interviews with key sub-national stakeholders

These were intended to address objective (3) above and were designed to examine in greater detail the case study background, funding ‘streams’ - in terms of costs and benefits - as well as providing generic and targeted questions concerning the respondents’ attitudes towards the fairness of decision processes and outcomes. A snowball technique was applied to the interview selection process; with the additional requirement that each case study obtain a balanced representation of views across the range of organisations involved and, where possible, seeks representation from the ‘general public’.

A total of 35 potential interviewees were approached: one withdrew for health reasons, two didn’t feel they could usefully contribute and there was no response from four others. A total of 28 interviews were completed; 10 in Lewes, 8 in East Riding, 4 in Felixstowe and 6 in West Garforth; 23 were conducted face-to-face and 5 were conducted over the telephone. The case study research was undertaken by Sylvia Tunstall (Lewes), Dr. Sally Priest

(Felixstowe and East Riding) and Dr. Simon McCarthy (Leeds) with assistance from Dr. Clare Johnson.

In all interviews, a general proforma (Appendix 6) was developed and applied; guided by the simplified framework of social justice illustrated in Table 3.2 (chapter 3). The interviews were tape recorded and very detailed notes were taken from the recordings but, due to cost and time constraints, the tapes were not fully transcribed.

3. Conceptual framework

A commitment to achieving 'socially just' flood and coastal erosion risk management (FCERM) is a key component of sustainable development (HM Government, 2005) and a key component of Defra's Making Space for Water policy vision (Defra, 2004; 2005). To pursue such a commitment requires an understanding of what organisations, communities, individual householders and businesses recognise to be a fair share of the benefits of this management and a fair share of the responsibility for this management. The problem is, determining what a fair share is requires a coming together of different perspectives. It also requires the recognition of the changing dynamics of these perspectives over time; something of particular importance given the changeable dynamics and drivers influencing flood and coastal erosion risks; over which there is much uncertainly and little direct control (e.g. climate change and sea level rise).

So, why should the management of flood and coastal erosion risks be scrutinised using a social justice lens? The answer is relatively simple: because people differentially benefit, and are differentially burdened by, system interventions across space and time. Thus, we need policies that fairly distribute the benefits and burdens of flood and coastal erosion risks between, and across, generations; whilst similarly distributing risk responsibilities 'fairly.'

To step-up to such a challenge requires a consensus over which principles of social justice are most appropriate to apply in this context. This chapter seeks to summarise, and distil, those theories and principles of social justice which appear, on paper, to offer the greatest explanatory gain (Section 3.1). These are then developed into a framework of social justice in the context of FCERM for use in the research (Section 3.2).

3.1 Theories and principles of social justice

Social justice is a highly contested concept. The debates generated depend on which of the principles of justice, within some given geographical unit of society, are regarded as necessary either for a fair distribution of 'goods' and 'bads' (distributional justice) or a fair decision-making process through which this distribution comes about (procedural justice). Add to this the important time dimension - which issues of sustainability bring to bear - and an additional element of complexity emerges: inter-generational fairness. This complexity is further compounded by the varied language of discourse across philosophical traditions; with issues of fairness, distributional justice, procedural justice and equity being used inconsistently and interchangeably (Ikeme, 2003). For purposes of clarity, this report uses the language of fairness as a basis for exploring social justice issues.

For simplicity of explanation, the five most influential philosophical traditions of social justice can be categorised as *utilitarianism, pluralism, egalitarianism, libertarianism* and *Rawlsian*; each offering a different explanation of the kinds of 'social arrangements' - or in Rawlsian terms 'social contracts' – that are required to ensure a fair society (Table 3.1).

Table 3.1 A simplified summary table of the main social justice theories

Theorists	Society is just if…
Utilitarians (e.g. John Stuart Mill 1863)	…it maximises the total potential happiness of society as a whole through the aggregation of individual happiness
Egalitarians (e.g. Sen 1992)	…institutions ensure equality of opportunity in the distribution of resources across society and the treatment of individuals
Libertarians (e.g. Nozick 1974)	…free market mechanisms are guaranteed
Pluralists (e.g. Walzer 1983; Miller 1999; 2005)	…the 'goods' and 'bads' in society are distributed according to their own criteria
Justice as fairness (e.g. Rawls 1971; 2001)	…basic liberties and fair equality of opportunity are guaranteed, then inequalities are only justified where they are to the greatest benefit of the least advantaged

In classical *utilitarianism* (e.g. Mill, 1863), justice is about maximising the total potential happiness of society as a whole through the aggregation of individual happiness. Thus, the objective of public policy is to redistribute resources across society so as to maximise the sum total of societal happiness.

This view - that maximising total welfare is the sole moral consideration of relevance - is rejected by most modern moral philosophers (Kagan, 1998); not least because it cannot account for individual needs, rights or entitlements nor can it account for differential vulnerabilities; dealing fairly with individuals using any of these principles may not lead to the maximum utility of societal happiness (Miller, 1976).

Rejecting the idea of classical utilitarianism as the sole moral consideration does not, however, require that maximum utility be rejected *per se.* Quite the contrary, the concept of maximum utility provides the normative framework driving economics and cost-benefit analysis in particular; the single most important technique used by economists in the policy decision-making process.

As a technique, however, there are two 'types' of cost-benefit analyses; each with very different moral considerations of social justice. On the one hand, there are cost-benefit techniques which adopt a normative framework solely on the basis of 'economic efficiency' (or more specifically Kaldor-Hicks efficiency) without any consideration of distributional issues. Fairness from this perspective is only of concern in terms of procedural justice – in that the application of the cost-benefit technique must be even-handed and transparent (NERA, 2007).

On the other hand, there are cost-benefit techniques which recognise that welfare is not evenly distributed across society and, in order to maximise

welfare, some form of distributional weights must be applied to the decision-making process (NERA, 2007). This approach adopts an underlying normative framework of 'efficiency' (or overall well-being) plus 'equity' (Adler, 2006); from this perspective fairness is interpreted as the application of 'distributional weights' such as is recommended in the Treasury Green Book (HM Treasury, 2003).

The analysis of 'equity' then brings us to the *egalitarian* (e.g. Sen, 1992; Nussbaum and Sen, 1993) perspective on fairness; where social justice will be attained so long as institutions ensure the equal distribution of resources across society and the equal treatment of individuals. As individuals are not born with an equal 'bundle' of resources - and it is impossible to ensure that equal inputs will lead to equal outputs - egalitarians tend to focus on the equality of opportunity when discussing issues of social justice (Smith, 1994).

Here, Amartya Sen's seminal work on inequality is particularly valuable. For Sen (1992), the 'currency' of analysis should not be focused on merely income and fatality risk but should, instead, focus on a person's 'capabilities'; where they provide opportunities to achieve certain 'functionings' (Adler, 2006)[1]. As a theory, therefore, Sen's principles and values focus not on utility or access to resources but on 'functional capabilities'; variables, or proxy variables, for the analysis of well-being poverty. Nussbaum's ten capabilities then serve to illustrate what these well-being variables might look like as a 'social minimum' (Table 3.2).

Table 3.2 Martha Nussbaum's 10 capabilities

1. *Life*. Being able to live to the end of a human life of normal length; not dying prematurely, or before one's life is so reduced as to be not worth living.
2. *Bodily Health*. Being able to have good health, including reproductive health; to be adequately nourished; to have adequate shelter.
3. *Bodily Integrity*. Being able to move freely from place to place; to be secure against violent assault, including sexual assault and domestic violence; having opportunities for sexual satisfaction and for choice in matters of reproduction.
4. *Senses, Imagination, and Thought*. Being able to use the senses, to imagine, think, and reason-- and to do these things in a "truly human" way, a way informed and cultivated by an adequate education, including, but by no means limited to, literacy and basic mathematical and scientific training. Being able to use imagination and thought in connection with experiencing and producing works and events of one's own choice, religious, literary, musical, and so forth. Being able to use one's mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech, and freedom of religious exercise. Being able to have pleasurable experiences and to avoid non-beneficial pain.
5. *Emotions.* Being able to have attachments to things and people outside ourselves; to love those who love and care for us, to grieve at their absence; in general, to love, to grieve, to experience longing, gratitude, and justified anger. Not having one's emotional development blighted by fear and anxiety. (Supporting this capability means supporting

[1] Functionings are the activities individuals undertake and the state of being able to achieve these activities. Capabilities are the combinations of functionings that individuals have the opportunity to achieve (Burchardt, 2005).

forms of human association that can be shown to be crucial in their development.)

6. *Practical Reason.* Being able to form a conception of the good and to engage in critical reflection about the planning of one's life. (This entails protection for the liberty of conscience and religious observance.)

7. *Affiliation.*

    1. Being able to live with and toward others, to recognize and show concern for other human beings, to engage in various forms of social interaction; to be able to imagine the situation of another. (Protecting this capability means protecting institutions that constitute and nourish such forms of affiliation, and also protecting the freedom of assembly and political speech.)

    2. Having the social bases of self-respect and non-humiliation; being able to be treated as a dignified being whose worth is equal to that of others. This entails provisions of non-discrimination on the basis of race, sex, sexual orientation, ethnicity, caste, religion, national origin.

8. *Other Species.* Being able to live with concern for and in relation to animals, plants, and the world of nature.

9. *Play.* Being able to laugh, to play, to enjoy recreational activities.

10. *Control over one's Environment.*

    1. *Political.* Being able to participate effectively in political choices that govern one's life; having the right of political participation, protections of free speech and association.

    2. *Material.* Being able to hold property (both land and movable goods), and having property rights on an equal basis with others; having the right to seek employment on an equal basis with others; having the freedom from unwarranted search and seizure. In work, being able to work as a human being, exercising practical reason and entering into meaningful relationships of mutual recognition with other workers.

Nussbaum (2000: 78-80)

One of the main objections to the *egalitarian* approach is that what determines fairness is then dependent on the subjective manner in which well-being (or 'functional capabilities') is defined and operationalised. This is why egalitarians often focus on opportunities for well-being rather than well-being itself.

For *libertarians* (e.g. Hayek, 1944; Nozick, 1974), justice is a guarantee of free market mechanisms provided that all individuals have a right to an equal amount of economic resources. From this perspective, the free market is inherently fair and private property is paramount. This then forms the basis of Robert Nozick's entitlement theory (1974) which runs on the premise that people are entitled to what they have so long as it arises from legitimate means. Thus, for libertarians, any distribution (no matter how unequal) is fair provided it can be argued to be legitimate and the entitlements of others are not infringed.

This is not the position adopted by *pluralists* (e.g. Walzer, 1983; Miller, 1999) who seek a multi-dimensional approach to fairness which evaluates each of the 'goods' and 'bads' to be distributed - and the process through which this should occur - according to its own criteria. From this perspective, different 'goods' should be distributed according to different reasons, procedures, and by

different agents, because the goods themselves differ according to historical cultural particularism (Walzer, 1983:6).

Thus, because goods and their values are socially, and historically, constructed, discovering the fairness principles to apply requires a similarly diverse approach (Miller, 1999). For pluralists, and Miller (2005) in particular, the core values of social justice then embrace a wider understanding of fairness than more traditional measures such as income and wealth (Pearce and Paxton, 2005). Most recently, this has lead Miller to articulate four key principles for ensuring a fair society (Table 3.3).

Table 3.3 Miller's (2005) principles of social justice

Equal citizenship: Every citizen is entitled to an equal set of civil, political and social rights, including the means to exercise these rights effectively. ***The social minimum***: All citizens must have access to resources that adequately meet their essential needs, and allow them to live a secure and dignified life in today's society. ***Equality of opportunity***: A person's life-changes, and especially their access to jobs and educational opportunities, should depend only on their own motivation and aptitudes, and not on irrelevant features such as gender, class or ethnicity. ***Fair distribution***: Resources that do not form part of equal citizenship or the social minimum may be distributed unequally, but the distribution must reflect relevant factors such as personal desert and personal choice. (Miller, 2005:5)

Each of Miller's principles embraces important values about what is required of society for it to be considered fair. However, this does not in turn mean that all 'goods' and 'bads' should be distributed according to all facets of these principles. Rather, in tune with the pluralistic philosophy, each 'good' or 'bad' should be distributed according to different reasons, different procedures and by different agents (Waltzer, 1983:6). This then is not simply a process of distributing state resources across departments, or for different purposes. Rather, it requires a coming together of state policy and grass-root activity:

'Pubic policy needs to go hand in hand with an ethos of social justice that pervades society, and the state's role will often be to inform and support, rather than to intervene directly' (Miller, 2005: 20).

This relationship between the state and society is at the heart of arguably the most influential theory of social justice in recent times: John Rawls' theory of *justice as fairness* (1971; 2001) which is based on contractarian ideals between individuals and society. Indeed, for Rawls the subject of social justice is 'the basic structure of society' understood as the institutions that allocate, or facilitate the allocation of, rights, opportunities and resources (Barry, 2005:16). For Rawlsians, it is 'justice as fairness' that is all important with economic inequalities only allowable in so much as they benefit the least advantaged in terms of their primary goods; the *difference* principle. To achieve this, the

maximin rule needs to be applied to any decision which requires the options to be chosen to be those which favour the worst-off the best. Or, in Rawlsian terms:

'it tells us to identify the worst outcome of each available alternative and then to adopt the alternative whose worst outcome is better than the worst outcomes of all the other alternatives' (Rawls, 2001: 97).

The underlying premise of Rawls' theory is that, were individuals able to establish the basic structure of society, under what he terms a *veil of ignorance* (where these individuals know nothing of their characteristics, circumstances or desires beyond those of primary goods – liberty, rights, opportunities, powers, income, self-respect), then the *difference principle* (which allows economic inequalities only where they benefit the 'primary goods' of the worst off) would be chosen. This is what Rawls refers to as his *original position*, from which he develops his principles of 'justice as fairness'. What Rawls is trying to do, therefore, is determine the moral principles of a fair society from an impartial standpoint (Kukathas and Pettit, 1990); regarding social justice as a right in itself and not dependent on consequences. This then results in his two (revised) principles of justice:

(a) Each person has the same indefeasible claim to a fully adequate scheme of equal basic liberties, which scheme is compatible with the same schemes of liberties for all; and

(b) Social and economic inequalities are to satisfy two conditions: first, that they are to be attached to offices and positions open to all under conditions of fair equality of opportunity; and second, they are to be to the greatest benefit of the least-advantaged members of society (the difference principle) (Rawls, 2001: 42-43).

These rules are then sequential in that liberty must be satisfied before the second principle is invoked and that the 'fair equality of opportunity' must be given priority over the 'difference' principle. This means that the institutions of society can be said to fairly distribute primary goods provided that liberty and the fair equality of opportunity is guaranteed. Inequalities are then only justifiable where they benefit the least advantaged members of society. Such a sequential approach is necessary for Rawls to ensure that his basic principles of liberty, fair equality of opportunity and difference cannot be traded-off against each other (Smith, 1994).

As this discussion illustrates, there are a number of different theoretical viewpoints of social justice, each with a long history of philosophical debate, and each resulting in a number of different fairness principles that can be justifiably applied when distributing resources across society, or when determining what is a fair function of the state, and a fair' responsibility for communities, households, businesses and individuals. The question is: which of these principles are most applicable in evaluating the policy and practice of FCERM in England?

3.2 A framework for social justice in the context of FCERM

Currently, some 1.8 million houses are exposed to flood risk in England (Defra, 2006a) with the management of this risk being funded largely by the other 29.5 million tax payers (HM Revenue and Customs, 2006). This funding structure means that any assessment of the fairness of decision processes and outcomes must include not only those at risk of flooding but also those providing the resources: the taxpayer. In this respect, to date, it has been the efficient use of taxpayer's money that has been the dominant factor guiding government decisions. The question now, given the move from flood and coastal defence to FCERM, plus the increased emphasis on issues of sustainability and equity, is whether the current approach to FCERM which prioritises the fair distribution of taxpayer's money on the grounds of economic efficiency is the most appropriate model of social justice to apply. Or, should decision-makers be seeking a decision-making model which shifts the focus away from fairness for taxpayers towards a model that provides greater emphasis on the fairness concerns of those at risk?

Such a shift would require greater weight to be given to issues of procedural equality and to addressing the needs of those most vulnerable to flooding – something which researchers in risks and hazards have long since argued (e.g. Blaikie *et al.,*, 1994; Wisner *et al.,*, 2004; Cutter, 2006). Certainly the recent upsurge in flood risk vulnerability and environmental inequality research in England would suggest that support for such a shift is gathering pace (Walker *et al.,,* 2003; Fielding and Burningham, 2005; Fielding *et al.,*, 2005a&b; Burningham and Thrush, 2001) (Johnson *et al.,* 2007).

Given the history of flood hazard research concerning issues of equality and vulnerability - plus the long history of FCERM resource distribution based primarily on principles of economic efficiency - it seems appropriate to evaluate current and future FCERM policy using social justice principles that embody these three criteria; equality, vulnerability and efficiency. To do so, the conceptual framework developed for this research focuses on the theoretical traditions which appear to offer the greatest explanatory gain in this context; procedural equality, Rawls' maximin rule and maximum utility (Table 3.4).

Adopting such a context specific evaluation of social justice adheres to pluralist theoretical traditions (Walzer, 1983; Miller, 1999; 2005). It is also in keeping with decades of research in hazards and disasters research which recognises the significance of the socio-political context (Mitchell *et al.,* 1989; Hewitt, 1997) and the 'human factor' of vulnerability in particular (Blaikie *et al.,* 1994; Wisner *et al.,* 2004; Cutter, 1996). Indeed, evaluating FCERM using a three-pronged 'fairness-lens' of equality, vulnerability and efficiency is consistent with a 'realistic' approach to hazard research which recognises the importance, for those at-risk, that decisions adhere to the principles of procedural justice (Table 3.4) and incorporates vulnerability as a multi-faceted concept in this process (Adger, 2006; Bosher, 2007). Similarly, it recognises the 'reality' of economic efficiency as the dominant model guiding decision-making in the distribution of taxpayer's money for managing this risk.

In addition, and in keeping with a pluralist tradition, the model embraces Miller's (2005) 'equal citizenship' and 'equality of opportunity' principles as the underlying values of state-citizen engagement, and then engages in debates concerning what a 'social minimum' and 'fair distribution' in the risks, resources and responsibilities for FCERM might look like (Table 3.3). As with any simplification this has required a number of fairness principles to be excluded from the analysis.

Firstly, 'desert-based' claims have been omitted because they are fundamentally tied to personal characteristics and are by their very nature backward looking. This neither fits with the forward-looking nature of sustainable development nor the collective-choice nature of FCERM decision-making.

Secondly, 'needs-based' claims, whilst of interest, are similarly excluded as a driver of analysis because of the difficulty in determining individual and collective 'needs' over and above those associated with 'risk to life'. People can, for example, logically argue that they 'need' to be protected from flooding and coastal erosion so as not to be physically harmed, but the extent to which society has a moral duty to ensure that the individual 'need' for a protected property/business is met for those at risk of flooding or coastal erosion is more contested.

Finally, 'rights-based' claims are similarly omitted because operating authorities have only permissive powers to construct and maintain flood and coastal defences; a core activity in FCERM. The law does not confer legal rights on those at risk. A moral right might be claimed under the general duty of the state to keep its citizens safe - not least significant of which is 'risk to life' – but those at risk of flooding or coastal erosion have no legal rights to any minimum standard of protection or provision of flood warnings.

Table 3.4 Simple framework for social justice in the context of FCERM

Justice principle	Fairness rule	Meaning for FCERM
Equality	Equality: All citizens should be treated equally	**Process:** Every citizen should have the equal opportunity to have their risk managed in the decision process **Outcome**: Resources should be distributed equally according to the risk
Rawls' Maximin rule	Vulnerability: The vulnerable should be prioritised and the FCERM options chosen should be those that favour helping the worst off best.	**Process:** Positive discrimination rules in the decision process in favour of those regarded as most vulnerable **Outcome:** Resources should be targeted to the most vulnerable to flooding or erosion (or to the most needy)
Maximum utility	Utility: The units chosen should be those that secure the greatest risk reduction per unit of resource input	**Process and outcome:** Assistance should be provided to those members of society to whom the benefits offer the greatest gain to society (i.e. loss reduction is thereby maximised)

Other legal arrangements such as the UN Declaration of Human Rights (1948) and the Human Rights Act (1998), which gave direct application to the European Convention on Human Rights and Fundamental Rights in October 2000, confer rights. However, these have never been invoked in relation to the provision of protection against flooding and coastal erosion. Taussik *et al.,* (2006) have examined the possibility that the Human Rights Act could be used in relation to failure to maintain existing defences. The results are inconclusive and leave open the possibility of a challenge under the Act. Despite this, it appears that rights-based claims play only a small part in FCERM and, therefore, in the interests of simplicity, it was judged appropriate to omit this consideration from the analysis.

The resultant 'fairness-lens' employed in this research (Table 3.4) specifically adheres to the principles of equality, vulnerability (Rawls' maximin rule) and economic efficiency (maximum utility); a further elaboration of which is given below.

The first – equality – finds its roots in *egalitarianism* and is a useful justice principle for FCERM because of its close association, as procedural equality, with issues of participation and stakeholder engagement. It requires Miller's (2005) principles of 'equal citizenship' to be upheld in that it requires all citizens to have an equal right to influence government. It also requires Miller's principle of 'equality of opportunity' to be upheld in that factors such as gender, ethnicity and social background should have no influence on the FCERM decision-making process, the outcomes of this process or the ability of individuals and communities to participate in, and engage with, the FCERM process.

Table 3.5 Characteristics of Procedural Justice

Characteristics of Procedural Justice
• A consistent policy process to be applied to all those at risk
• Neutrality – processes applied in a manner that is unbiased and not subject to political or other influence
• Representativeness – all those affected should be considered in the decision-making including the vulnerable and disadvantaged
• Accuracy – procedures that succeed in their own terms and are based on accurate information
• Correctability – the right to appeal
• A clear, transparent and understandable policy and decision-making process
• Standing – are the interested stakeholders/parties respected as people; do procedures protect the worth and dignity of those involved?
• Equal opportunity to access the decision-making
• Opportunities to participate in deliberations and influence decisions

Ultimately, procedural equality is necessary to underpin the legitimacy of the decision process, irrespective of outcomes concerning intra- and inter-generational issues (Lind and Tyler, 1988). It is also necessary to ensure that issues such as engagement, participation and the fair distribution of power are integrated into the analysis (Paavola and Adger, 2006). Therefore, it is integrated into the conceptual framework used in this study as a 'fairness rule' based on the principle that all citizens should be treated equally.

In particular, the framework has focused on the process aspect of this principle - giving every citizen an equal opportunity to have their flood risk managed - since equality of outcome, given differences in geography, flood risks and flood events, is very difficult to achieve. If we adopted an equality of outcome approach, this would demand 'consistent standards' of protection across society and this has not been the aim, or the outcome, of policy for FCERM in terms of protection (Ramsbottom and Green 2004). For clarity, the characteristics of procedural equality and justice, as used in this research, are those developed by Thibaut and Walker (1975) and Leventhal (1980) and summarised by Green (2007) in Table 3.5

The second principle – the maximin rule – is a *Rawlsian* justice principle and is useful for FCERM because it specifically requires decisions to be adopted which favour the 'worst off best'. In this way, it specifically addresses issues of vulnerability; a critical concept in the FCERM discourse (Tapsell *et al.,* 2002; Fielding *et al.,* 2005a&b; Messner and Meyer, 2006)) and one which has been at the forefront of the environmental risks and hazards literature for many years (Wisner *et al.,*, 2004; Cutter, 2006; Cutter and Emrich, 2006). Indeed, Dow *et al.,* (2006) have argued similarly for the use of Rawlsian principles as a valuable framework for examining vulnerability and environmental change.

There are a number of similarities between vulnerability research and that of social justice; both have contested meaning, both have a history of distinctions between outcomes and processes, and both are characterised by the underlying theories upon which they are based, e.g. vulnerability based on the entitlement approach (Sen, 1981), natural hazards theory (Burton *et al.,* 1993), human–ecology (Cutter, 1996) and from a systems perspective (Turner *et al.,* 2003). This is ably illustrated by Adger (2006) in his assessment of the vulnerability literature when, using the language of 'equity', he argues that:

'equity within decision-making processes is as important as equity in outcome in reducing vulnerability' (Adger, 2006: 227).

Thus, for procedural and distributive justice to target the 'worst off best' - as evidenced in the vulnerability literature - a clear definition about what constitutes vulnerability and how such assessments are made are all important. In our research framework, vulnerability is applied as a 'fairness rule' based on the principle that 'the vulnerable should be prioritised and the FCERM options chosen should be those that favour helping the 'worst off best' (Table 3.4)

In addition, it is also useful to link the Rawlsian 'maximin rule' with Miller's (2005) 'social minimum' and 'equal citizenship' principles when examining its value for FCERM. For Rawls (2001), his principles are sequential in that liberty

must be satisfied before ‘fair equality of opportunity’ which must be given priority over the ‘difference principle’. For Miller, the unequal distribution of resources can only be regarded as fair where they do not form part of his ‘equal citizenship’ or ‘social minimum’ principles; thus although Miller argues that no one principle should take priority, and that policies should be multi-dimentional, he recognises that there will be trade-offs when prioritising his four principles.

For FCERM, this could be particularly important because having recognised the needs of the ‘vulnerable’ as the ‘worst off’ using Rawls’ minimin principle, Miller’s ‘social minimum’ then provides value in that it highlights the requirement for a ‘risk threshold’ as a means of determining what is and is not ‘sufficient’ FCERM; i.e. what is the minimum ‘risk threshold’ above which resources can be distributed unequally on the basis of Miller’s ‘fair distribution’ principle or on the basis of Rawls’ maximin rule?

This is important because targeting resources unequally in favour of the vulnerable (ie. the ‘worst off’) is only fair provided there is an acceptable ‘social minimum’ level of risk for which ‘sufficient’ risk management is available. Hence the usefulness of linking Rawls’ maximin rule with Miller’s pluralist principles which seeks to secure a ‘social minimum’ for all those at risk prior to the application of his ‘fair distribution’ principle. For FCERM, what this ‘social minimum’ is remains contested.

Finally, the *utilitarian* concept of maximum utility is included as the third principle in our framework because it provides the mechanism for evaluating the fairness of resource distribution when applied to the dominant model of FCERM project appraisal; the cost-benefit approach. In this way, it incorporates the ‘reality’ of economic efficiency as the dominant model guiding decision-making in the distribution of taxpayer’s money. However, this is not akin to classical utilitarianism; rather, it adopts the underlying normative framework of ‘efficiency’ plus ‘equity’ (Adler, 2006) in the application of cost-benefit analysis plus distributional weights.

Ultimately, the approach adopted in this research is *pluralistic* drawing on the premise that FCERM:

- needs to be beneficial to the nation as a whole (i.e. maximises total utility);
- needs to ensure that all those at risk of flooding have an equal opportunity of having their flood risk managed by the state (i.e. procedural equality); and
- that the distribution of resources should target those most vulnerable to flooding (i.e. Rawls’ maximin rule).

In this sense, it is normative, because no government could maximise the allocation of resources for FCERM - using all three principles - without a detrimental effect on other societal needs; a greater share of public revenue for FCERM means a lesser share for education, health, etc. However, if a pluralist approach is to be adopted, then a fair system of resource allocation for FCERM would draw on those elements of each principle which, in the FCERM context, appear to offer the maximum potential for fair outcomes and processes at all

spatial scales; both for the taxpayer and those at risk. Of the three justice principles in Table 3.4, only the principle of equality of opportunity directly relates to procedural justice. The other two are based on the outcomes of decisions (distributive justice) as determined by certain rules/criteria based on collective-choice welfare models.

Similarly, adopting a pluralist approach requires us to recognise that some principles of distributive justice are not compatible: it is not possible to prioritise the most disadvantaged or vulnerable and at the same time maximise utility; although a pluralist or hybrid approach combining principles may be applied. Procedural justice, however, can be sought whatever the principle of distributive justice that is the focus of policy and practice. This makes this element in social justice of particular significance. Through it, justice may be seen to be done, if the processes for decision-making are deemed fair, even if the outcome is judged unfair.

II NATIONAL POLICY AND GUIDANCE

Having set out in chapter 3 the fairness principles which appear to offer the greatest explanatory gain for FCERM, the purpose of this section is then to evaluate the extent to which these fairness principles are embedded in government policy and guidance towards FCERM. In doing so, this section addressed objectives (1) and (2) of the research:

(1) To examine national policy in the context of social justice.
(2) To examine planning tools and guidance in the context of social justice.

The majority of the analysis is focused on current policy and practice as embodied in key national documents. However, at the request of Defra, analysis is similarly undertaken of the consultation processes for Defra's 'Outcome and Performance Measures' - due to be implemented in the period covering the 2007 comprehensive spending review, starting with the 2008/9 capital programme.

The attitude of key national stakeholders to this policy and guidance is then examined in Chapter 5, addressing objective (3) of the research:

(3) To provide insights into the attitudes of key stakeholders to the fairness, or otherwise, of current policy and practice.

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4. Fairness in key documents

The purpose of this chapter is to summarise the evidence concerning which of the three main social justice principles in Table 3.4 are explicitly referred to, or embedded in, key policy documents and guidance that are of relevance to FCERM. These documents are also analysed in respect to their embodiment of principles concerned with inter-generational equity. These documents include:

- Government-wide high level documents;
- Defra documents concerned with all aspects of FCERM.
- EA documents both dealing with the EA's overall responsibilities and with FCERM in particular;
- Specific guidance documents for FCERM planning, programme, project and scheme development; and
- Documents from the CLG concerned with spatial planning, in general, and development and flood risk in particular.

The documents analysed (Figures 4.1) reflect a time period since 1999 in which policies and guidance on sustainable development - and on FCERM - have undergone a process of rapid evolution and the documents reflect this process (Figures 4.2 and 4.3). However, other than the evaluation of outcome measures mentioned above, the advances currently characterising Defra and EA policy - particularly under the Making Space for Water delivery programme (Defra, 2005b) - are not included in the analysis.

Thus, our analysis of the fairness of FCERM at the national level focuses on the textual analysis of current policy and does not reflect these recent, and ever changing, developments. The evidence for this textual analysis is provided in tabulated form in Appendix 5, with a summary overview provided in the sections that follow. The fairness attitudes of policy-level stakeholders is then analysed in Chapter 5 and the manner in which this policy is interpreted and implemented at the regional and local level is analysed in the four case studies in section III.

4.1 Government-wide policy

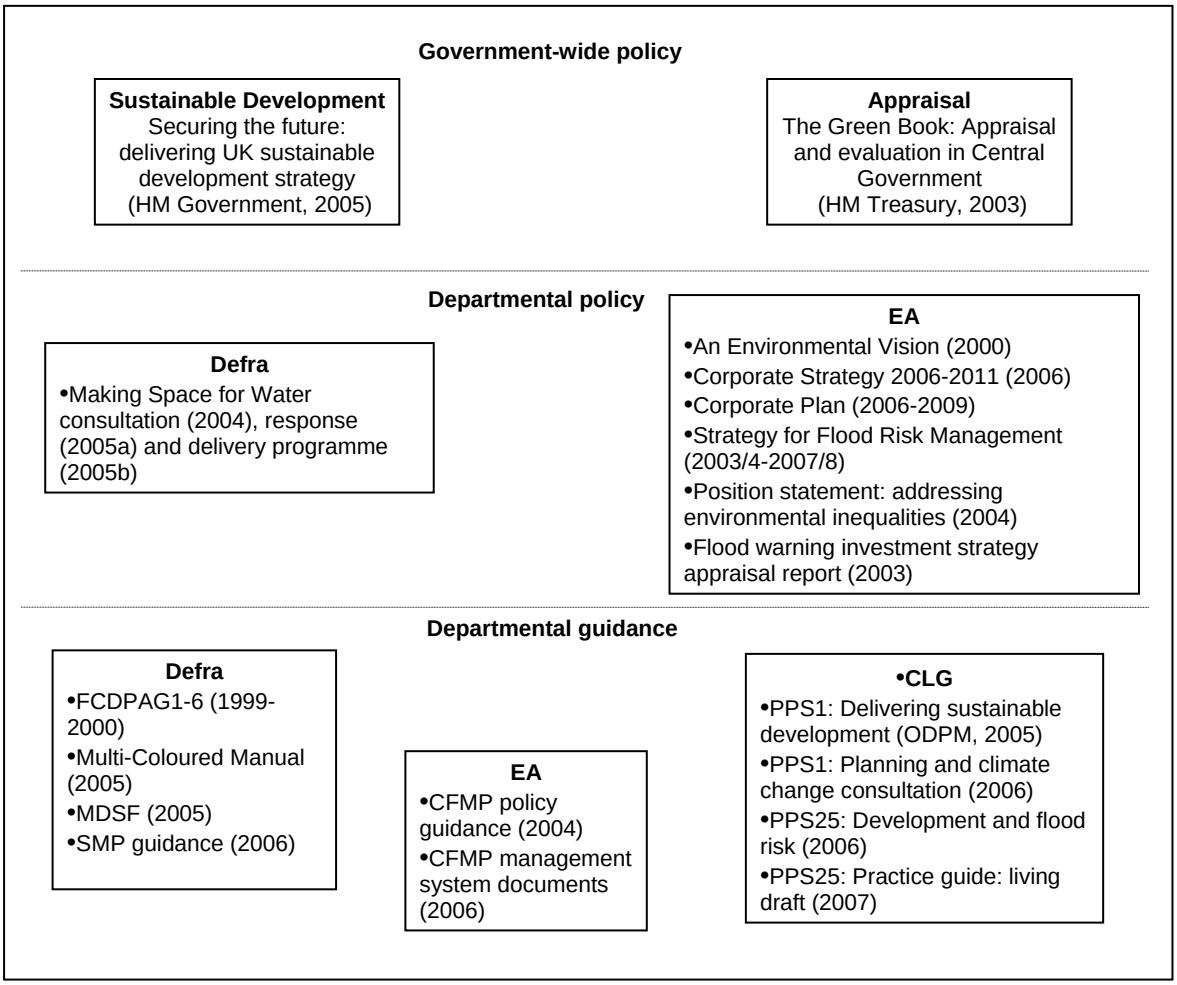
4.1.1 Securing the future: delivering UK sustainable development strategy (HM Government 2005)

This high level and wide ranging document - a replacement for the 1999 strategy for sustainable development 'A Better Quality of Life' (ODPM, 1999) - covers policies from the global to local level and considers issues of global inequalities.

It is crucial for FCERM because it sets out a strategic framework for sustainable development for the UK Government and Devolved Administrations; central to which is its set of five guiding principles. This provides the overarching policy context within which all FCERM must take place. It states that:

> '*the goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations.'* (p.16).

Figure 4.1 Key government policy and guidance of relevance to FCERM



The latter part of this definition is broadly consistent with Brundtland's steady state definition, although the reference to 'a better quality of life' appears to go beyond that; at least for the current generation.

One of the 5 Guiding Principles for achieving sustainable policies is:

> *'Ensuring a Strong, Healthy and a Just Society - Meeting the diverse needs of all people in existing and future communities, promoting personal wellbeing, social cohesion and inclusion, and creating equal opportunity for all'.* (p.16).

Social justice is thus a core component for sustainable development and the conception of fairness implied in this principle appears both to look for equal opportunities/treatment for all (equality) and to argue for special treatment to further the inclusion of the excluded and to enhance the position of the worst off (vulnerability). However, as recognised, environmental inequality and social justice are two areas where indicators will need to be developed further (p.22).

A commitment to vulnerable groups and social exclusion is made explicit as is a commitment to reducing flood risk vulnerability; albeit vulnerable properties rather than vulnerable people or vulnerable groups (Fielding *et al.,* 2005a&b) (Table 1: Appendix 5)

The strategy also makes a clear commitment to developing further research for exploring the links between environmental inequalities, social justice and deprivation. This builds on previous research linking the disproportionate exposure of lower social groups to flood risk (Walker *et al.,* 2003; Lucas *et al.,* 2004); which whilst valuable remains incomplete and inconclusive. Similarly, it recognises the importance of environmental inequality, deprivation and sees value in the use of the index of multiple deprivation (Table 1: Appendix 5).

A second of the document's guiding principles stresses procedural justice and opportunity for stakeholders and local people to be involved in the decision process:

'Actively promoting effective, participative systems of governance in all levels of society – engaging people's creativity, energy and diversity' (p16)

This is then reflected in a strong emphasis throughout the document on involving communities in decision-making and capacity building. There is a commitment, too, to improve access to local environmental information and the document notes the links to international law (Table 1: Appendix 5).

A third of the document's guiding principles recognises the importance of economic efficiency in underpinning sustainable development and public sector spending; arguing in particular that a sustainable economy is one in which *'efficient resource use is incentivised'* (Table 1: Appendix 5). However, in comparison with equality and vulnerability, this principle is of minor significance in the document. This may be because of the historic dominance of utility in the distribution of resources when compared with the environmental and social pillars of sustainable development. Certainly the intonation in the delivery of the principles underlying this document is suggestive of such (Table 1: Appendix 5).

Finally, inter- and intra-generational equity is - as would be expected - a core element of this policy document. This is emphasised throughout, and exemplified in the overall strategy:

'Our Strategy for sustainable development aims to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations.' (P6)

In summary, therefore, the Government's sustainable development policy seeks a model of social justice which adheres to the principles of procedural equality, recognises the special requirements of vulnerable groups and endorses the principles of intergenerational equity. Within this framework, economic efficiency remains an important principle in public sector spending; thus it endorses Adler's utility concept of 'efficiency' plus 'equity' (Adler, 2006).

4.1.2 The Green Book: Appraisal and Evaluation in Central Government (HM Treasury, 2003)

The Green Book - an influential best practice guidance document for all central government departments and agencies - covers projects of all types and sizes: all new policies, programmes and projects, whether capital, revenue or regulatory. It presents the techniques and issues that should be considered when carrying out all appraisals and evaluations. Thus, it applies across all aspects of FCERM.

As outlined in its preface and introduction, the social justice principle underlying this document is one of utility (Table 2: Appendix 5). The core approach presented to achieve this is cost-benefit analysis; although other forms of assessment such as a Health Impact Assessment (Para.2.15) and techniques such as Multi-Criteria Analysis - which may relate to other social justice principles - are mentioned. The document also covers the appraisal and evaluation of non-market impacts such as human health and loss of life.

The purpose of the Green Book is to establish national consistency and transparency in decision-making across government and its agencies. Thus, it aims for procedural justice in the project appraisal process with numerous references to the importance of consultation: in the early stages of appraisal, in the creation of options and in the development of solutions. Whilst this is in keeping with Cabinet Office advice, it is worth noting that it is 'consultation' rather than more participatory and deliberative processes that are discussed; although the document does not preclude such approaches (Table 2: Appendix 5).

Equality is one of a long list of 17 issues (including economic rationale, legislation, regulatory impact, affordability, achievability, health and safety) cited as relevant to appraisal and evaluation. It argues that in order to achieve equity in appraisal, it is necessary to take distributional impacts into account through the application of a distributional analysis. This is seen as enhancing the understanding of the fairness of proposals, their social impacts and their scale; an economic rationale based on the principle of diminishing marginal utility (Table 2: Appendix 5).

It also notes that age, gender, ethnic group, disability, health, skill and location may have a bearing on potential impacts. However, distributional issues are largely correlated with incomes and the resultant distributional analysis focuses on the differential costs and benefits according to socio-economic groupings. In this way, proposals that give greater benefits to lower socio-economic groups are *rated more favourably* (Paras. 5.37 and 5.38).

The document recognises that applying explicit distributional adjustments requires detailed socio-economic information about the affected population that may not be available at an acceptable cost. Where appraisers decide not to adjust explicitly for distributional impacts, they must provide a justification for this decision.

Given the barriers to distributional analysis and weighting, it is unclear to what extent this approach is applied in project and programme appraisal. The

intention is to ensure *equity* in outcomes in terms of the utility or well-being that can be attributed to the project or programme. However, it also means that those affected will be treated differently according to their income in a way that will favour those on lower incomes. The approach does not aim to favour the vulnerable, but when applied to FCERM it could be interpreted as having that effect if low income is taken as reflecting, or as a surrogate for, vulnerability. Additionally, the document notes the need to take rural issues into account; although it is left to Defra to spell-out what this means.

Discounting is the recommended technique used to convert all costs and benefits to 'present values' for comparison (Para.5.48). For projects with very long term impacts, a declining discount rate should be used to take account of uncertainty. The discount rate reduces from 3.5% over 1-30 years to 1.5 % over 200-301 years. This process will favour projects that have short term benefits and raises issues of inter-generational equity. Green argues that we may well have preferences about the shape of the distribution of benefits, net of costs over time, and that these cannot be taken into account by the adoption of any discount rate (Green, 2003) (Table 2: Appendix 5).

In summary, therefore, the Green Book is dominated by a fairness principle based on maximising utility. The application of these principles in appraisal is expected to provide for nationally consistent and transparent decision-making; although as this is consultative rather than participatory it falls short of adhering to many of the principles of procedural equality. Similarly, the Green Book recognises that welfare is unevenly distributed across society but as this is accounted for only in the application of socio-economic weightings, it similarly falls short of adhering to Rawls' maximin rule by failing to account for the multi-faceted nature of vulnerability.

4.2 Key Defra documents

4.2.1 Making Space for Water (MSW) (Defra, 2004; 2005; 2005a)

Three documents were examined for this project (although the primary focus has been on the first response (Defra, 2005) and the delivery plan (Defra, 2005a) (Figure 4.1)**.**

The overall aims of the Making Space for Water (MSW) strategy are reflected in the following quotation from Elliot Morley in the foreword to the first response (Defra 2005):

> *'In our future management of flood and coastal erosion risk, we are committed to applying the principles in the recently-published Sustainable Development Strategy. Whilst recognising the need to focus investment in defences where there is the greatest risk in terms of probability and consequence, we also want to consider what more the Government may be able to do to help all communities and individuals prepare for and live with flooding and coastal erosion risk.* (p.7)

The MSW response document does not spell out what the principle 'ensuring a strong, healthy and just society' in the sustainable development strategy might mean for FCERM. The delivery plan goes some way to rectify this omission,

but only in its reference to maximising sustainable development outcomes (Defra, 2005a, p. 12); through the development of: multi-criteria approaches, revised scheme appraisal guidance and the delivery of multi-objective schemes (Table 3: Appendix 5).

The MSW policy aims for equality of treatment and ensuring that all those at risk can have their risk addressed in some way; even if the outcomes are very different. In this sense, it adheres to the principles of procedural equality, the delivery of which is to be achieved by:

- including all sources of flooding;
- providing a greater emphasis on the social and environmental pillars of sustainability; and,
- recognising that a wider portfolio of management options needs to be developed to cater for those whose risks that cannot be managed through capital schemes.

Indeed, managing the risk of those for whom capital schemes cannot be justified is explicitly recognised as a social justice issue requiring a broadening of the risk management tools available:

> *'The Government recognises that, even within the improved risk management framework to be introduced in this strategy, there will be cases where investment in capital schemes (on 'hard' or 'soft' flood management/coastal erosion solutions) will not be justified. In such cases and in line with its policies on social justice, the government recognises that there is a need to consider extending the risk management tools available, in particular to take account of the needs of smaller rural or dispersed communities' (Defra 2005, p.20)*

What these risk management tools might be is, as yet, undisclosed. However, within the delivery plan, work packages aimed at increasing resilience to flooding, expanding flood warnings and developing options for enhancing funding streams, offer some clues as to what these might look like.

In terms of procedural justice, the MSW documents aim to address many of the procedural justice characteristics illustrated in Table 3.5: most notably consistency, accuracy and neutrality in decision-making. The response document (Defra 2005) stresses the need to improve the evidence base and the coverage and reliability of flood risk information and mapping. The vision (Defra 2005) aims for decision processes that embed sustainable development principles and are transparent; although the response document recognises that there are difficulties in creating such transparency (Table 3: Appendix 5).

Further elements of procedural justice are evidenced in the examination of nationally consistent standards for cost-benefit analysis which include non-quantifiable impacts in decision-making. This is noted at the consultation stage, and in the recognition of the need to exploit new techniques for demonstrating alternative futures for effective stakeholder engagement (Table 3: Appendix 5).

The response document (Defra, 2005) supports democratic input and arrangements for stakeholder involvement at all levels of decision-making; while

recognising that more work needs to be done to establish the most appropriate mechanisms for achieving this. Thus, the ultimate aim of procedural justice in the MSW policy guidance is to seek national standards with local participation (Table 3: Appendix 5)

The MSW documents do not explicitly mention a form of discrimination in favour of the vulnerable in relation to FCERM. It may be that the assumption here is that this is adequately covered by the Distributional Analysis, Impacts and Weightings presented in the Treasury Green Book and in Defra's Supplementary Note to Operating Authorities (July 2004) on revisions to Economic Appraisal Procedures to reflect socio-economic equity in appraisal (Defra, 2004a). There is, however, no direct evidence that this is the case.

Vulnerability is mentioned in relation to home owner adaptations in the form of resistance and resilience measures. In the consultation document (Defra 2004), the issue is raised in terms of 'vulnerable households' being least likely to cope during a major flood event and least likely to afford flood protection products and resilience measures. However, in the response document (Defra, 2005), the issue is raised in terms of 'vulnerable property' without reference to the income or vulnerability of the householders involved (Table 3: Appendix 5).

The maximum utility approach continues to be favoured in the MSW strategy; with explicit recognition that funding will be targeted to areas of greatest benefit. Similarly, in relation to managed realignment, decisions for defence renewals and maintenance will continue to be justified on cost-benefit terms; albeit with greater recognition of environmental and social considerations.

The response also supports co-funding but does not make clear whether the availability of external funding would affect the priority of particular schemes. This clarity will be important; particularly given the social justice implications that would ensue.

The importance of taking account of the long-term, and thence inter-generational equity, is recognised in the MSW documentation; particularly in relation to climate change uncertainty and the continued application of the precautionary approach (Table 3: Appendix 5).

In summary, therefore, MSW places a strong emphasis on principles of fairness which offer procedural equality and maximise utility (with greater recognition of social and environmental considerations). There is, however, no evidence for outcome equality. Similarly, although MSW raises concerns for vulnerable properties, it is unclear how vulnerability might be operationalised in decision processes or outcomes. The provision of flood resistance and resilience grants is being piloted as one option but the extent to which this might be targeted towards the most vulnerable is unclear; as is the definition of vulnerability.

4.2.2 Outcome Measures and Prioritisation Approaches for FCERM (Defra, 2006; 2007; 2008)

New outcome measures for FCERM have been developed following a period of consultation which included a consultation document (Defra, 2006), two stakeholder discussion forums, a summary of responses to this consultation

(Defra, 2007) and the subsequent publication of nine Outcome Measures (OMs), five of which have targets. The resultant OMs issued by Defra are simplified versions of those proposed in this consultation (Defra, 2008); although none of them are significantly different (Table 4.1).

A review of the fairness issues raised in the consultation process is provided in Appendix 3. Thus, the analysis in this section focuses on the fairness issues embedded in the final OMs as they currently stand (Table 4.1).

Table 4.1 Consultation and agreed Outcome Measures

Consultation Outcome Measure (December, 2006)	Final Outcome Measure (agreed by Minister in June 2007)	Minimum Targets (sent to Operating Authorities February 2008)
R: National risk quantified in economic terms	1. Overall benefits	5 to 1 average with all projects having a benefit cost ratio robustly greater than 1
P: Probability of households in risk areas being directly affected	2. Households at risk	145,000 households of which 45,000 are at significant or greater probability
SD4: Deprived communities at risk from flooding or coastal erosion	3. Deprived households at risk	9,000 of the 45,000 households above
SD2: Area of SSI not in favourable condition	4. Nationally important wildlife sites	24,000 hectares
SD3: Area of UK Biodiversity Action Plan habitat achieved through risk management activities	5. UK Biodiversity Action Plan habitats	800 hectares of which at least 300 hectares should be intertidal
C2: Percentage of households and businesses offered appropriate flood warning	6. Flood warning (flood risk only)	
C3: Contingency planning by emergency responders	7. Contingency planning (flood risk only)	
C1: Inappropriate development in flood and coastal erosion risk areas	8. Inappropriate development	
SD1: Completed long term flood and coastal erosion risk management plans	9. Long term policies and action plans	

The aim of these OM's is to operationalise the policy requirement outlined in MSW (Defra, 2005), to identify new approaches for making decisions; including new approaches for the allocation of funding. In this respect, the new OMs are designed to capture Defra's priorities for the overall investment allocation for FCERM. Whilst these OMs have yet to be operationalised - because the changes to the prioritisation approach have not been finalised and the weightings to be given to each of the nine OMs remains unclear - the intention is to use these OMs to set targets which will define the balance of the programme to be delivered. So far, the targets have been set for OMs 1-5 for the period covered by the Comprehensive Spending Review 2007.

It is intended that the OMs, and subsequent targets, should be used to prioritise the investment programme, initially for capital schemes and, as data is

improved, in the setting of targets in the future. Thus, for capital schemes, it is intended that OMs 1-5 will be used to replace the current priority score scheme using the targets illustrated in Table 4.1.

The OMs are intended to reflect the two aspects of risk: probability and consequences for people, and to cover the three pillars of sustainability: economic, social and environmental. However, only two of the measures (OM 2 and OM 3) to be used in the prioritisation of capital schemes are directly concerned with social aspects (Table 4.1)

In terms of procedural justice, OMs are intended to enhance fairness in decision processes by providing a consistent, transparent and challengeable process. Indeed, this is arguably the driving force behind the development of OMs (Table 4: Appendix 5). And, it is explicitly recognised that this is linked to a fair process for project appraisal in the prioritisation process. In this sense, fairness is very much determined by the consistent application of guidance; thus it is founded on the same principles as the current priority score system.

In terms of opportunities to access decision-making, and to participate in deliberations and influence decisions, the OMs are much less clear. Similarly, the manner in which stakeholders may become involved has not yet been established; although the consultation responses suggested support for stakeholder workshops and informal consultations and there was general agreement with the principles of consistency, transparency, stakeholder 'buy-ins' and with the principle that stakeholders need to be assured that their contributions will be accounted for (Defra, 2007). In this sense, consultees supported the argument for a fair decision process to be one based on principles of procedural equality (Table 4: Appendix 5). However, the extent to which stakeholders are able to participate in, and influence, the targets set by Government is far from clear. Indeed, it appears that these have been set without consultation; and certainly without stakeholder participation. These targets cannot, therefore, be seen as fair through a procedural equality lens.

In addition, the consultation document argues that, in order to accommodate the variety of projects coming forward, and to provide some flexibility in the prioritisation system, it would be feasible to moderate the programme after the initial ranking of schemes. This would have to be undertaken against clear guidelines, be transparent and involve high-level external stakeholders:

> '*Any moderation to the programme would follow the initial numerical ranking and could be undertaken by a panel comprising EA Directors in consultation with Defra, RFDC chairmen and the Local Government Association'.*(p.27)

Thus, the underlying aim of OMs is to seek to balance consistent national standards for procedural justice with some flexibility for operating authorities to make an input into, and to deliver on, particular priorities within a suite of targets set on a national basis. The extent to which the resultant decision processes or outcomes will positively discriminate in favour of the vulnerable, or in favour of a model of economic efficiency, will largely depend on the weightings applied to the OMs in the prioritisation processes. That said, there are fairness issues which arise from the OMs as they currently stand.

Firstly, the use of the household rather than people as the unit measure for describing the probability of flooding (OM 2 as measured by the number of households at risk of flooding in one of four bands) raises fairness issues since it would mean that the removal from risk of a one person household would be given the same weight as the removal of a six person household. This neither accounts for vulnerability considerations nor does it treat 'all citizens equally'; thus it cannot be classified as fair on vulnerability or equality grounds.

Secondly, OM 3 (deprived households at risk) was specifically developed by Defra to enable the level of risk of the most deprived communities to be monitored and targeted. This is not synonymous with targeting those most vulnerable to flooding because deprivation is only one of the many potential characteristics of vulnerability. The simplified Social Flood Vulnerability Index, for example, is a composite index of those aged over 75, people with long term limiting illness, single parents and financial deprivation (Tapsell *et al.,* 2002). Therefore, because a focus on deprivation cannot account for the multi-faceted nature of vulnerability, the outcome of any decision process that targets resources using deprivation cannot be said to discriminate in favour of the most vulnerable in process or outcome. Similarly, because of the geographic scale of Super Output Areas for determining deprivation, it is difficult to see how the vulnerable can be targeted in this process. Thus, OM 3 cannot be classified as fair on vulnerability grounds; it has the potential to positively discriminate in favour of the most deprived but not the most vulnerable.

Thirdly, utility remains a core element in the OMs with OM1 capturing national risk quantified in monetary terms. As with the other OMs, the weight attached to this largely economic measure - and thence the importance of the utility approach in the Outcome Measures and Prioritisation process - will depend, to some extent, on how the targets are operationalised in the prioritisation process.

Finally, inter-generational equity remains an important issue of consideration when making decisions and, in this regard, OMs are consistent. OM9 - *long term policies and action plans* - is particularly important in this regard. Indeed, the need to take account of the potential impacts of a changing climate and socio-economic demographics is arguably a major driving force behind the development of OMs (Table 4, Appendix 5).

Ultimately, therefore, the fairness of the OMs to be used in the prioritisation process will depend on the weightings applied to these measures and the targets set. That said, the OMs and targets that have been developed so far offer some potential to enhance the social and environmental elements of the prioritisation process. They do not, however, offer any guarantees that the process by which decisions will be made will be any fairer on equality or vulnerability grounds. Rather, outcomes are expected to be fair on the basis of maximum utility (OM1) and on the basis of targeting resources to 9,000 most deprived households in high risk areas (OM3). Thus, without knowing how the OMs will be operationalised we cannot know, with any certainty, whether the current economic-led system will be significantly altered by the introduction of OMs.

4.3 EA documents

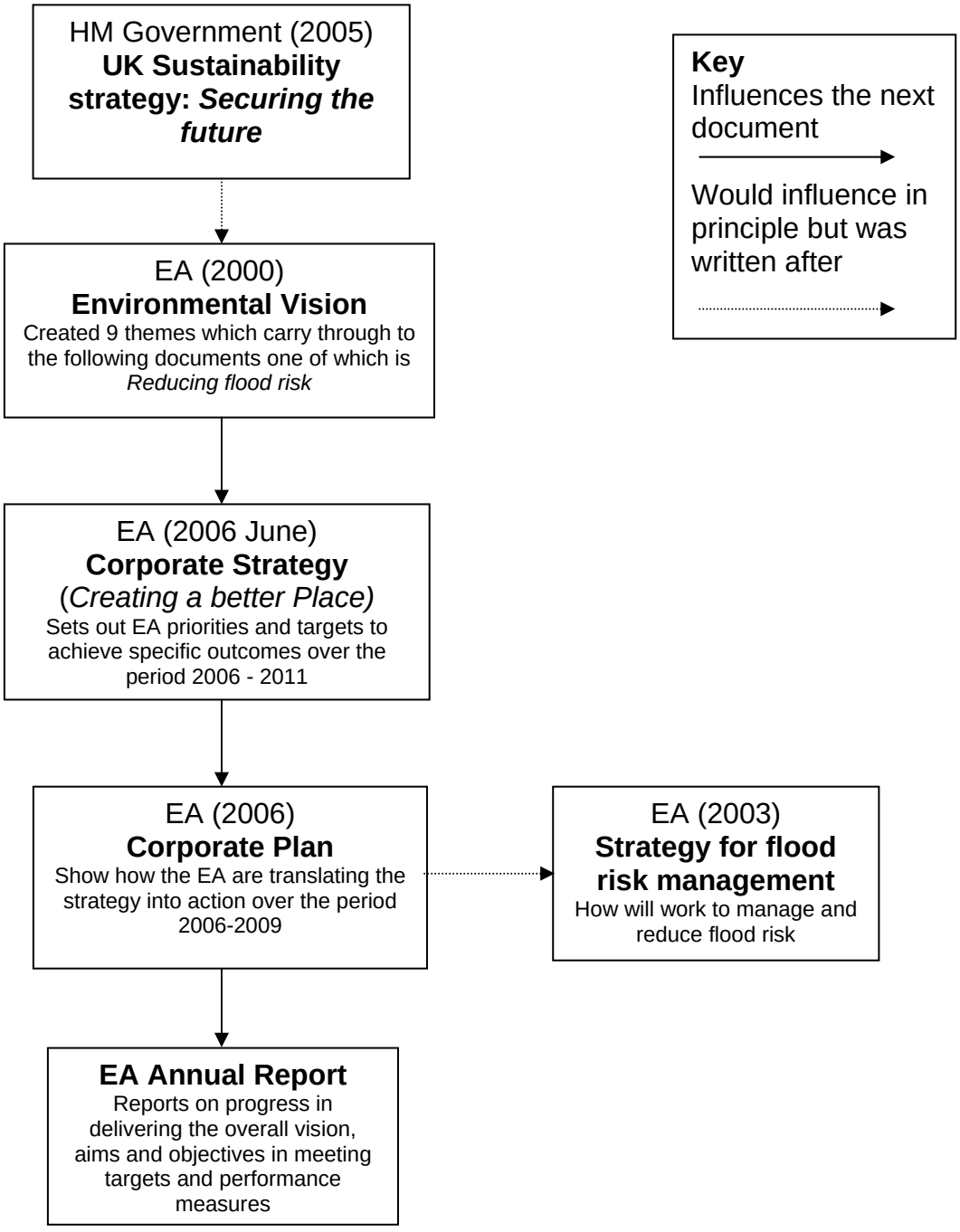


Figure 4.2: Relationship between EA documents

4.3.1 An Environmental Vision (EA, 2000)

This high level vision document covers all the EA's functions and interests. As a result, there is only limited reference to FCERM, in general, and fairness in particular.

The document sets out the nine themes which form the core of the EA's business. These are then reflected and used within all other EA corporate documents (plan and strategy). One of the themes adopted is to *reduce flood risk* (p.5). Another theme of interest is *a better quality of life*, the objective being that:

> '*People will have peace of mind from knowing that they live in a healthier environment, richer in wildlife and natural diversity***'** (p.20).

Within this theme many aspects related to social justice are touched upon, however, it is not clear how they will be adopted in practice. Some details and selected illustrative quotations are presented in Table 5, Appendix 5.

The emphasis is on a moderate form of procedural justice involving '*openness, collaboration, partnership, participatory decision-making*…' but chiefly it is consultation rather than more deliberative processes that is mentioned.

There is only limited recognition of other social justice issues and principles in this early document. The need to be more aware of social issues in the EA's work is raised in this key quotation:

> *'The* EA *needs to be more aware of the social issues raised by its work in protecting and improving the environment: for example the needs of people in poverty who often live in the most polluted neighbourhoods. This means becoming more active in decisions on integrating environmental sustainability with social justice and a more dynamic economy.'* (p.10)

Environmental equality and justice are mentioned. There are also some references to the need to take special account of 'vulnerable' communities. Inter-generational equity is addressed only in so far as it accounts for the impacts of climate change.

4.3.2 EA Corporate Strategy 2006-2011 (EA, 2006)

This strategy document reflects the approach presented in the MSW documents, the Foresight Future Flooding report and, thence, a long-term view of the new sustainable development strategy. Table 6, Appendix 5 illustrates the social justice principles identified in the document.

As in the Vision, one of the nine goals of the document is to 'reduce flood risk'. Like MSW, the approach can be viewed as fairer in equality terms since it aims to manage all floods - not just those affected by fluvial and coastal flooding – and all risks, using a range of management and adaptation options so that those for whom capital schemes cannot be justified have their risk managed in some way.

In terms of procedural justice, the strategy argues that there is the need to work more closely with other stakeholders (e.g. Defra, Natural England, CCW, Forestry Commission, public etc). With regard to the public, the EA talks about being an effective communicator, presenting information to the public and listening to their views; rather than involving them in participatory decision-making processes.

Targeting vulnerability can be seen as an emerging social justice issue; although not specifically in connection with FCERM. The links between environmental and social inequality are mentioned, and the need to develop new ways of evaluating the effects of flooding on people's health is highlighted. Specific mention is made of the need to ensure that flood warnings and advice are accessible to vulnerable members of society, particularly the elderly.

As an important body for public expenditure, the EA's corporate strategy recognises the significance of operating cost-effectively; with the cost-benefit approach to appraisal remaining important. As with the MSW doctrine, however, the EA seeks new methods for incorporating the wider environmental, social and economic benefits of schemes.

Inter-generational equity is an important principle underlying the work of the EA. Indeed, it is the requirement to manage the environment for present and future generations - given the need to adapt to changes such as those associated with a changing climate - that is the main driving force of the EA's work, and recognised as such in its corporate strategy.

4.3.3 EA Corporate Plan 2006-2009: Translating strategy into action (EA, 2006a)

This Corporate plan shows how the EA aims to translate its Strategy into action, covering the three years 2006-2009. Postdating MSW, the Foresight Report, and the Government's new strategy for delivering sustainability, it advocates a more sustainable approach to FCERM that considers the longer term, particularly in terms of climate change; inter-generational equity is thus an important principle.

It makes a few references to vulnerability, utility and procedural equality as indicated in Table 7, Appendix 5. However, in terms of vulnerability, its Key Performance Target of 'more houses protected from flooding' does not differentiate between protection of houses in general and of those in deprived areas. Rather, as with the Corporate Strategy, vulnerability is accounted for in terms of flood warnings, particularly for the elderly.

The Corporate Plan mentions the 'beneficiary or polluter pays' approach which can be seen as introducing a further fairness issue - in terms of more efficient outcomes - but it does not specify the activities to which it is applicable. It also mentions the significance of partnerships for external funding, which can raise important social justice issues; but again no specificity is provided.

This lack of specificity makes an assessment of the fairness principles involved somewhat difficult. This is because it is the process through which partnership

funding and the beneficiary/polluter pays principles will actually be operationalised that is all important. Determining who the beneficiaries are is no easy matter. Efficiency in the allocation of funding to new schemes, and maintenance, remains the dominant principle of resource distribution; although new methods are sought.

4.3.4 EA Strategy for Flood Risk Management (2003/4-2007/8) (EA, 2003)

This document focuses on FRM and pre-dates the EA's overall strategy and plan, the Foresight Report, MSW, and the Government's new strategy for delivering sustainable development.

The principles of the strategy echo many of the principles of procedural justice: simplicity and transparency, accountability, and consistency (Table 3.5). For example, the document emphasises achieving consistency across its flood warning system so that those at-risk will be treated equally. Another priority area is effective communications to developers, local authorities, other stakeholders and the public. However, the communication envisaged appears to be consultation and information exchange rather than participatory processes. It also argues strongly for partnership and collaborative working.

Discriminating in favour of the vulnerable or disadvantaged in policy does not feature in this document. Maximising utility remains a key social justice principle for targeting investment (Table 8, Appendix 5). Inter-generational equity is seen to be encapsulated in Catchment Flood Management Plans (CFMPs) and Shoreline Management Plans (SMPs) - due to their requirement to include climate change and future scenarios. In this sense, the EA strategy for FRM recognises the need to make decisions today that account for future changes in climate and land use; there is, however, no suggestion of the inclusion of differential socio-economic futures.

4.3.5 EA Position statement: Addressing environmental inequalities (EA, 2004)

This position statement directly addresses the issue of environmental inequalities (including flood risk) and social inequalities. Thus, it offers a useful insight into the fairness concerns of the EA; in its functions and interests. It notes that environmental and social inequalities can coexist and that the former may reinforce the latter (Table 9, Appendix 5). These issues are encased in terminology of deprivation, thus environmental inequalities for the most deprived can - it is argued - be caused by the actions of others.

The document argues for more research to enhance understanding of environmental inequalities and how to address them. It welcomes the proposal that environmental and social justice should be key themes in the UK Sustainable Development Strategy (not published at the time). It supports the Government and the EA itself in improving action to tackle environmental inequalities and social disadvantage together. It also argues for government, the EA, and others to involve, and include, disadvantaged communities in environmental decision-making. Thus, it focuses not only on targeting the disadvantaged, in terms of environmental outcomes, but also in terms of participatory processes; procedural equality. In doing so, it acknowledges the

role of the Aarhus Convention for conferring rights for stakeholders to participate in decision-making processes; arguing that this helps promote environmental justice.

There is, however, an important caveat: analyses on environmental inequalities in relation to flooding are incomplete and the evidence is uncertain (SDN Briefing paper). Walker *et al.,* found a strong association for tidal flood risk plains and deprivation, reporting that there are eight times more people in the most deprived 10% of the population in England living in tidal flood plains than the least deprived 10% (Walker *et al.,* 2003). However, such an association was not found for fluvial flood plains; and - given the concentration of deprivation in areas of urban density - London and Hull appear to have a disproportionate impact on the association's reported.

Maximum utility is not mentioned in the document and the need to account for the future is incorporated into the document, although not specifically developed.

4.3.6 Flood Warning Investment strategy appraisal report (EA, 2003a)

This report presents the arguments in support of a new national investment strategy for improvements to the flood warning service for the period 2003/4 to 2012/13 (EA 2000). It addresses five key capability areas in which improvements are to be delivered: management, detection, forecasting, warning and response.

Investment in the flood warning service is mainly justified in terms of the value of property damage avoided; achieved as a result of four options offering different levels of service associated with different levels of investment in the flood warning service. For each of these options, six performance indicators were used to calculate the level of flood damages avoided relative to costs. Thus, maximising utility is the dominant fairness principle used to justify the option choice, and investment, in the national flood warning service (Table 10, Appendix 5).

However, the wider impacts and potential additional benefits of flood warnings in reducing stress to individuals and savings to transport providers, utilities and local authorities are recognised. A 50% factor has been added to the calculated benefits to take account of these additional or intangible benefits.

The document and approach also recognise that some groups may require targeted action specific to the flood warning service. The 'ability' indicator is evidence of this (Table 10, Appendix 5); the intention being to measure the proportion of properties unable either to receive, understand, or respond to, flood warnings as a result of, for example, physical or mental impairment or other socio-economic factors. Under the recommended option, the aim is to increase this 'ability indicator' from 80% in year 2003/4 to 85% by year 2012/13 in England and from 75% to 85% in Wales. But, the document does not state clearly how this will be achieved; except in its reference to new communication strategies and further research.

Similarly, the document seeks procedural justice through enhancing the coverage of flood warnings so that more of those at-risk are offered some form of warning service; the aim here is to increase coverage in England from 70% to 80%, and substantially improve coverage in Wales from 50% to 80% over the period 2003/4 to 2012/13. Again, it is unclear how this will be achieved. What is clear is that the purpose of developing the investment strategy at the outset was to present this investment in a clear and transparent manner (Table 10, Appendix 5). In this way, the document itself can be seen as a tool for procedural justice.

In terms of inter-generational equity, the strategy adheres to the futures considered in the EA's Corporate Plan relating to changes in climate and land use.

4.4 FCERM guidance documents

4.4.1 Flood and Coastal Defence Project Appraisal Guidance (FCDPAG).

This six volume series (MAFF/Defra, 1999-2006) aims to provide best practice guidance to practitioners involved in the preparation of strategies and schemes (Table 4.2). For this project, analysis has focused on volumes 1-4. All the documents are relatively old, predate the most recent strategy on sustainable development (HM Government 2005) and refer to the earlier document (ODPM 1999). They cover river and coastal flooding in England and Wales. Irrespective of the apparently dated nature of these documents, however, they remain the most important guidance documents in the project appraisal process.

Table 4.2 Flood and Coastal Defence Project Appraisal Guidance

Document	Subject	Date	Geographic scale	Types of flooding
FCDPAG1	Overview (including general guidance)	May 2001	England and Wales	River and coastal
FCDPAG2	Strategic planning and appraisal	April 2001	England and Wales	River and coastal
FCDPAG3	Economic Appraisal	Dec 1999 Supplementary notes: March 2003, July 2004, October 2006	England and Wales	River and coastal
FCDPAG4	Approaches to risk	Feb 2000	England and Wales	River and coastal
FCDPAG5	Environmental Appraisal	March 2000	England and Wales	River and coastal
FCDPAG 6	Post project Evaluation		England and Wales	River and coastal

FCDPAG1 (MAFF, 2001)

FCDPAG1 introduces the series and provides an overview of project appraisal and its objectives. It is intended to cover all stages of the process from planning, through strategy development, to scheme appraisal.

Utility is the dominant social justice principle in this document; although the objectives of project appraisal in the context of flood and coastal erosion are wider:

- *Reducing risks to people and to the developed and natural environment from flooding and coastal erosion;*
- *Identifying a solution that is technically sound and fit for its purpose;*
- *Being environmentally acceptable and sustainable and.*
- *Ensuring best value for money from a national perspective.'* (p.3)

The definition of sustainability in the context of flood and coastal defence does not mention social justice or intra-generational equity as an issue for sustainability. It focuses on sustainability as: preserving and enhancing the environment; using resources efficiently; and ensuring design, operation and maintenance processes are efficient and flexible to long term needs. The social pillar of sustainability is given little consideration (Table 11, Appendix 5).

FCDPAG1 sets out the basis for considering climate change and thence for taking its impact on future generations into account. Inter-generational equity is also addressed directly (Table 11, Appendix 5)

The whole purpose of the FCDPAG series is to ensure national consistency in project appraisal and to make the decision-making process clear. The series, therefore, addresses some of the key criteria for the equality principle in terms of procedural justice. However, consultation with key stakeholders and the public is only mentioned incidentally (Table 11, Appendix 5).

FCDPAG2 (MAFF, 2001a)

This document focuses on the appraisal and development of strategy plans - but states that its principles are also applicable to large-scale planning such as CFMPs, SMPs and CHaMPs. Strategies provide an intermediate level between large scale plans and schemes, and FCDPAG2 is intended to provide guidance for integrating strategic, longer-term thinking into the appraisal process.

Utility is the core social justice principle embedded in this document; although the evaluation of costs and benefits is mainly covered by reference to other PAG documents. Consultation is given detailed consideration and there are indications that what is envisaged is some real involvement in decision-making beyond consultation. Awareness is shown of the challenge of finding innovative ways of expressing technical information, such as probabilities, in a way that makes them transparent to lay people (Table 12, Appendix 5).

There is no reference to social justice or vulnerable groups in this document and very little attention is paid to social issues in general; the focus is on the economic, technical and environmental (Table 12, Appendix 5).

FCDPAG3 Economic Appraisal (and its supplements) (MAFF, 1999)

This guide sets out the best practice principles that should be used when undertaking economic appraisals for nationally funded river and coastal flood alleviation schemes. It is old and aims to meet the requirements of an earlier Treasury Green Book (HM Treasury 1997).

The whole purpose of FCDPAG3 is to maximise utility, with only a brief mention made towards consultation (Table 13, Appendix 5). It provides very detailed guidance in order to achieve consistency across options and across schemes. It recognises, however, that the cost-benefit approach cannot take all impacts into account (Table 13, Appendix 5).

A supplementary note to Operating Authorities (Defra, 2004a) comprises revisions to economic appraisal arising from the new HM Treasury 'Green Book' to reflect socio-economic equity guidance in flood and coastal defence. The Treasury Green Book (HM Treasury, 2003) and the Supplementary Note recommends that Distributional Impacts (DI) should be applied where it is *necessary* (where there is a bias toward an AB or DE social class group in an area) or *practical* (where good quality data is available without using disproportionate resources). The note provides a table of Total Weighted Factors by social class to be applied in order to adjust the standard depth-damage curves to obtain damages avoided - taking account of DI. These factors - designed in part to redress the bias in favour of wealthier areas through higher property values - can be interpreted as a process favouring equality or as discriminating in favour of the less wealthy (the vulnerability social justice principle) (Table 13, Appendix 5).

A further adjustment to cost-benefit analysis was introduced in a Supplementary Note in July 2004 (Defra, 2004a) to take account of the human-related intangible impacts of flooding. As the research could not identify personal, household or flood characteristics associated with effects measured in monetary terms, the only weighting proposed is by risk reduction. Thus, this does not target any group, as particularly vulnerable, to these effects.

Climate change advice and allowances are presented in relation to sea level rise in FCDPAG3. This issue - relevant to intergenerational equity - has been kept under review and supplementary guidance was published in April 2003; providing fuller and more detailed coverage of climate change impacts. A further supplementary note of March recommended whole life appraisals, typically of 75-125 years, reflecting Treasury Green Book changes. Following on from that, a note considering longer timescales, and climate change impacts up to 2115, was published in October 2006 (Table 13, Appendix 5).

FCDPAG4 Approaches to Risk (MAFF, 2000)

This document aims to improve decision-making for investment in river and coastal flood alleviation schemes and coast protection at all levels - large scale,

strategic, and scheme - through improved methods of risk assessment and management at the project appraisal stage.

In considering risk assessment principles and issues, it discusses consequences which are social, environmental and economic. Whilst utility is dominant, it takes a somewhat broader view of the benefits and beneficiaries that are offered by cost-benefit analysis (Table 14, Appendix 5); there is no suggestion, however, of differential or preferred treatment.

This document mainly covers risk assessment tools and techniques, including multi-criteria analysis, which can support fuller consideration of social aspects that are more difficult to value – in monetary terms – than traditional benefit-cost analysis. Social justice issues are not discussed. The document does raise the issue of communicating results from risk assessments and the need to provide information in a clear and concise format that is accessible to non specialists. Risk assessment is presented as a technical aid to decision-making and its possible use in consultation, or more deliberative processes, is not discussed directly.

4.4.2 The Benefits of Flood and Coastal Risk Management: A Manual of Assessment Techniques, (Penning-Rowsell *et al.,* 2005)

This document comes under the umbrella of the Treasury Green book that identifies the preferred approach to public sector investment appraisal. It complements Defra's FCDPAG series, particularly FCDPAG3 (plus addendums) and also the strategic approaches embodied in CFMPs and SMPs. It provides the user with a range of techniques and data to be used in a practical way to assess the benefits of: (a) fluvial flood risk management; and (b) plans and schemes to alleviate the impact of erosion at the coast. It presents the results of research (1999 to 2005) designed to update and improve the techniques and data. It also covers the limitations and complications of benefit-cost analysis to potential users.

Benefit-cost analysis (BCA) is presented in Chapter 1 as only one of a range of techniques - including multi-criteria analysis and environmental assessment - that can be used to aid decision-making for investment appraisal. However, BCA is the technique that is the rationale for the data and methods covered in the Manual and thence the dominant social justice principle for much of the volume (Table 15, Appendix 5).

In setting the context for benefit assessment, the Manual stresses that flood risk management needs to be seen as: underpinned by international requirements for sustainable flood risk management (UN Convention, the Hague 2000); adopting a catchment-wide and participative approach; taking account of the Water Framework Directive (1999), the Aarhus Convention (2000), and the aims and vision contained in Making Space for Water.

Procedural justice is embedded in terms of a consistent approach. Stakeholder involvement rather than consultation is stressed; although the Manual does not deal with how stakeholder engagement should be undertaken in the methods covered (Table 15, Appendix 5).

The techniques presented include Vulnerability Analysis and it is recommend that users should 'consider' vulnerability as measured by the Social Flood Vulnerability Index (SFVI) (Tapsell *et al., 2002)* and other variables. Vulnerability here is recognised in terms of: flood characteristics; property characteristics; and the social characteristics of residents. The prioritising of schemes in favour of vulnerable people is suggested (Table 15, Appendix 5).

The Manual also follows Treasury Green Book (HM Treasury 2003) guidance in that it recommends, where it is 'necessary' or 'practical, to incorporate social equity considerations into appraisals and that potential benefits should account for distributional impacts.

Inter-generational equity is addressed in the Manual in relation to the application of discount rates. In particular, the Manual argues that the use of the discount rate in BCA cannot account for inter-generational equity because it does not address the preferences for the distribution of benefits and costs over time. The argument then follows that option selection is based on the presentation of a reasoned argument based on Net Present Values (Table 15, Appendix 5).

4.4.3 Modelling and Decision Support Framework (MDSF) (Defra/EA, 2005)

This document was created to support the implementation of CFMPs. However, the most recent version has been adapted so that it is also suitable for use with SMPs, strategy studies and pre-feasibility studies or other appraisals; where a broad-scale view of flood risk is to be taken. It is a software tool to aid those involved in the production of such plans and the decision-making it may involve.

As a tool, it does not explicitly state social justice principles; except in so far as it is intended to help to provide objectivity and national consistency in risk and policy appraisal. Thus, it embodies some of the requirements for procedural justice (Table 16, Appendix 5).

Some indications of the social justice principles underlying the tool can be gained from examining: the principal data that can be inputted; MDSF components; and the key functions they support. These include data on: flood levels; depths and extents; and on property and agricultural damages - to support economic appraisal of flood risk; and thus a maximum utility social justice principle.

However, the tool also allows for the assessment of social impacts and vulnerability using the Flood Hazard Research Centre's Social Flood Vulnerability Index (Tapsell *et al.,* 2002).

Using the MDSF, the population at risk and the social impact - as measured by five levels of the SFVI - can be mapped for each Output Area and each return period. The index can be mapped onto the flood plain areas affected to determine the balance of vulnerable communities when viewing the impact of alternative flood risk management options; thus affording the opportunity to take 'vulnerability' into account (Table 16, Appendix 5).

All three social justice principles can, therefore, be seen to be embedded within the MDSF document; although the degree to which the principles are reflected in outputs will depend upon the way the tool is employed by practitioners. The MDSF is recognised as providing a snap-shot in time of damage estimates and, as such, inter-generational equity is not a major concern (Table 16, Appendix 5)

4.4.4 Catchment Flood Management Plans Vol. 1 Policy Guidance (EA, 2004a) and EA Management System Documents (EA, 2006c)

Catchment Flood Management Plans (CFMPs) are high level, catchment-wide planning tools (intended to be produced for approximately 80 catchments in England and Wales) through which the EA seeks - working with other key decision makers in the catchment - to identify and agree policies for sustainable flood risk management. Because of this, CFMPs are specifically concerned with the longer-term (50 to 100 years), thus inter-generational equity is a major principle in the guidance (Table 17, Appendix 5).

The MDSF is designed to be used to aid the production of these plans and, therefore, the social justice principles identified in the MDSF of utility and vulnerability also apply to the CFMPs.

The CFMP policy guidance stresses the importance of collaboration and effective stakeholder engagement (Table 17, Appendix 5). Despite this, however, the strategy appears to be primarily based on consultation rather than the adoption of a truly participatory approach (Table 17, Appendix 5).

A formal consultation and communication plan has to be produced in the early stages of the planning process, and wider consultation is required during the scoping stage: on the scoping report; during the work on the draft CFMP 1; and on the document itself. The procedures (EA, 2006c)) leave open the methods and extent of engagement and communication at all stages; although they note that consultation may vary and techniques, such as MCA, must be designed with care (Table 17, Appendix 5).

4.4.5 Shoreline management plan guidance. Volume 1: aims and requirements (Defra, 2006b), Volume 2: Procedures (Defra, 2006c)

This recent revised guidance takes account of the lessons learned from the first round of SMPs and three pilot second round SMPs. It should be read in conjunction with the FCDPAG series - especially FCDPAG2 which deals with strategic planning and appraisal. The MDSF has been adapted for use with SMPs and the social justice principles embedded in that document may, therefore, be relevant.

This guidance is markedly different from the earlier FCDPAG documents in the emphasis it places on, and the detailed consideration it gives to, procedural justice issues. It requires: a Client Steering Group; sets out when different stakeholders should be involved in the SMP process and in what way; it recommends using different types of communications tools; it requires detailed reporting of what consultation has been carried out and the decisions made as a result.

Annex A - Stakeholder engagement strategies - provides detailed guidance on this aspect of SMP plan preparation and makes clear that negotiation and dialogue will be required to resolve any differences among stakeholders on a draft SMP. It also includes a review of ways of resolving differences in SMP preparation (Annex A5 -1). Past experience, and the experience in the SMP2 pilots, has highlighted the importance of engaging successfully with at-risk communities (O'Riordan and Ward, 1997, O'Riordan *et al.,* 2006). The recent documents shows a greater support for engaging with, rather than simply consulting with, stakeholders and local communities; although it is left open to those undertaking the SMP to indicate the approach and the extent of community involvement they propose (Vol.2, p.26).

Socio-economic appraisal is an important element in the process of evaluating policy scenarios in SMPs. However, it is noted that the justification for a particular policy is not necessarily dependent on economic viability - as the impacts on other benefits e.g. benefits to a designated habitat could be considered more important. Alternatively, a policy of 'hold the line' could be rejected where it had adverse impacts on the coast elsewhere.

Management of the coasts for the longer-term is the objective outcome of SMPs and in this sense inter-generational equity is an important guiding principle (Table 18, Appendix 5). Vulnerability is not mentioned in the documents.

4.5 Spatial planning policy and guidance documents

Since 1999, there have been major changes in planning policy, in general, and in guidance on development and flood risk in particular. The ODPM's 1999 policy document on sustainable development was replaced, in 2005, by the Government-wide Delivering Sustainable Development Strategy (Figure 4.3). However, the initial overarching PPS1: Delivering Sustainable Development, published in 2005, was written with reference to the earlier sustainability strategy document. Subsequent Planning Policy Statements and the PPS25 Practice Guide reflect the later and slightly different formulation of sustainability principles of the 2005 document. This process of evolution is one reason why the policy and guidance documents do not present an entirely coherent approach to social justice (Table 4.3).

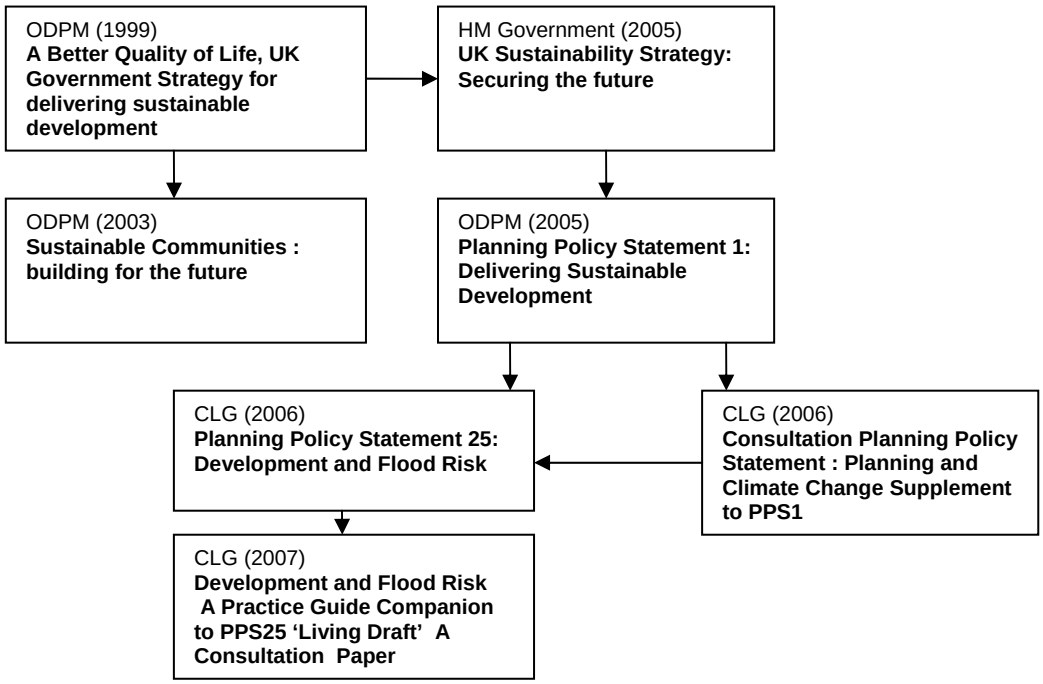


Figure 4.3 Relationship between ODPM and CLG documents

Spatial planning and development control are different from other forms of FCERM in that they deal mainly with: *potential* flood risks that may arise to *new, future* development in flood risk areas; and *potential* risks that may arise elsewhere as a result of such new development. A key concern is the generation of future risks through development and changes from the present baseline. However, spatial planning and development control are also significantly concerned with: urban regeneration; redevelopment; further development; and change of use involving property already existing that may be in flood risk areas. These categories of development have become more important as a result of government policy under PPS3 - promoting development on 'brownfield' sites or previously developed land.

4.5.1 Planning Policy Statement 1 (PPS1): Delivering Sustainable Development.

This document (ODPM, 2005) sets out how the planning process can contribute to the delivery of sustainable development. It also highlights the shift from land use planning to spatial planning, i.e. spatial planning is seen as a major vehicle for integrating policies across regions and local areas including flood risk management policies.

Sustainable development is the document's guiding principle; with the three pillars having equal weight. Intergenerational equity is a critical component of this sustainable development, and the sustainability aims - upon which the document is based - incorporate the requirement for a 'just society' (Table 19, Appendix 5).

Table 4 .3 Key spatial planning documents relevant to FCERM.

Document	PPS1	PPS1 Climate change	PPS25	PPS25: Practice Guide: Living Draft
Date of publication	2005	December 2006	December 2006	February 2007
Geographical scale	England: national, regional and local	England: national. Regional and local	England: national. Regional and local	England: national. Regional and local
Type of flooding	General not specifically flooding	General with focus on emission reduction and stabilising climate change with mention of flooding impacts	Coastal, fluvial and all forms of flooding but not coastal erosion	Coastal, fluvial and all forms of flooding but not coastal erosion
Futures considered	Present and future generations		Climate change allowances to 2115 and foresight scenarios to 2080 in context of climate change (Annex B)	

PPS1 is a general document dealing with delivering sustainability. However, flooding is explicitly mentioned under the 'Protection and Enhancement of the Environment'; particularly in reference to the avoidance of new developments in areas at risk of flooding from sea level rise and climate change. On design, developments that use resources efficiently are recommended (Table 19, Appendix 5).

Fairness is addressed in general terms - rather than specifically in relation to FCERM - and the key principles relating to a just society, and sustainable communities, involve ideas of 'social cohesion and inclusion'. These ideas appear to imply both seeking equality of treatment and outcome for all (reducing social inequalities). At the same time there is recognition of special needs and a requirement to target those vulnerable to social exclusion for special consideration.

The document aims to present a policy that embodies many of the requirements of procedural justice: consistency in national policy; equality and neutrality of treatment; a clear and understandable decision-making process; and access to decision-making and opportunities to participate. Thus, the plan-led system is intended to make the planning system proactive rather than reactive. However, planning applications and windfall sites remain an important feature of planning (Table 19, Appendix 5).

The document also provides strong support for community involvement in spatial planning and development control; emphasising the importance of early involvement. The importance of 'real' engagement is stressed. Reference is also made to a document which sets out the Government's overall approach to community involvement in planning (ODPM, 2004).

In terms of time scales, it intends that consideration should be given to current and to future generations and argues against a short-term focus; hence it accounts for inter-generational equity (Table 19, Appendix 5).

4.5.2 Planning Policy Statement 1: Planning and Climate change, Consultation

This consultation document (CLG, 2006) sets out how spatial planning should contribute to: reducing emissions; stabilising climate change (mitigation); and take into account the unavoidable consequences (adaptation). It is a supplement to PPS1: Delivering Sustainable Development, which sets out the overarching planning policies on delivering sustainable development through the planning system. It is part of a package of action being taken forward by CLG to help deliver the Government's ambition of achieving zero carbon development which includes: The Code for Sustainable Homes (CLG, 2006a); Building a Greener Future (CLG, 2007a) and the Stern Review (HM Treasury, 2006).

A key interest of the document is the reduction of carbon emissions as a concern in spatial planning. The document says relatively little on flooding and limits its concern to ensuring that spatial planning takes increased vulnerability to natural hazards, due to climate change (such as flooding), into account. There will be a Practice Guide to accompany the climate change supplement.

The document notes the potential impacts of a changing climate and argues that new developments should be designed/avoided and that Regional Spatial Strategies (RSS) should be developed with this in mind. Furthermore, in identifying land for development, authorities should take account of the known constraints such as sea level rise, flood risk and stability, and take a precautionary approach.

There are few references to social justice in this document. However, it is a supplement to PPS1 and, therefore, builds on its consideration of fairness.
Of its Key Planning Objectives on climate change, most refer to emission reduction strategies; only one appears to be concerned with flood risk.

The policy tentatively suggests that climate change may have a greater effect on the more 'vulnerable' without going on to indicate how their needs might be prioritised.

Like PPS1, the supplement on climate change argues that the planning system should enable communities to influence decisions, and take effective action; thus, procedural equality is reflected.

4.5.3 Planning Policy Statement 25: Development and Flood Risk (PPS25)

This document (CLG, 2006c) presents the central government's statement of its policy on development and flood risk to planning authorities. It is more detailed, clearer, and more prescriptive, than the guidance it replaced (PPG25, DETR/DLTR 2001). It offers a more strategic risk-based approach and provides a systematic approach to vulnerability through its flood risk vulnerability classification by land use type. It is set within the framework of PPS 1, which sets out the government's objectives for the planning system and how planning should facilitate and promote sustainable patterns of development; avoiding flood risk and accommodating climate change.

However, there is a discontinuity between PPS1 and PPS25. PPS25 does not address the issue of social justice explicitly and the only reference to it is in Annex A.

The guidance and Practice Guide (CLG, 2007) are intended to ensure that there is a consistent national policy that can be applied by local planning authorities and the EA - according to the risk of flooding - taking both the probability (as defined in the three Flood Zones: low, medium, high probability and functional flood plain) and the consequences (as captured in the Vulnerability Classification) into account. Those currently, or potentially, at risk should be treated equally according to the risk (Table 20, Appendix 5). Thus, the policy aims for consistency in processes and outcomes across spatial scales and across time.

However, there are exceptions and ways in which policy and guidance may be interpreted and implemented differently, from locality to locality, and from case to case. The planning system and guidance have always allowed for some local discretion in order to cater for local circumstances. It has also allowed for local political preferences. Indeed, the objective in having a planning system - in which key decisions on development plans and planning applications are taken at local level - is to ensure that complex local sustainability issues are taken into account.

Areas in which the policy and guidance do not ensure equal treatment for all according to the flood risk include the following:

- PPS25 states that a development proposal in any of the three Flood Zones must take account of flooding from other sources than river and sea. However, the Flood Zones only apply to fluvial and coastal flooding. Nevertheless, the principle of locating development in the lower risk areas should be applied to all sources of flooding. Mapping of flood probability may not be available or possible for groundwater, surface water and sewer flooding, and work to include these other forms of flooding on an equal or comparable basis is being undertaken.
- Although more detailed guidance on how 'functional flood plains should be defined' is provided in the Practice Guide - and detailed national guidance may be forthcoming from the EA to their area staff - localities may vary in their definition of the 'functional flood plain' and how it is treated. There is flexibility for the EA and the LPA to agree a definition in terms of the probability.

- In cases where the exception test is applied, there will be differences in the way that people with a given current or potential risk will be treated.
- Within the application of the Exception Test, there can be differences in interpretation of what constitutes wider sustainability benefits to the community that outweigh flood risk; whether or not there is developable 'brownfield' land available and in the interpretation of 'safe' according to local circumstances and local views (Table 20, Appendix 5).

Policy on development and flood risk - perhaps because planning has since 1947 been a local concern - has identified the dilemma for social justice that a national policy that treats all those currently - or potentially at risk - equally may be unjust in that it does not take local circumstances into account. The Exception Test thus arises in part from a wider concern for social justice. It recognises that a uniformly applied policy on flood risk may be unfair in terms of the social and economic pillars of sustainability: that it would be 'unjust' to deny development absolutely to local authority areas that have little or no developable land in low risk zones and thus, potentially, blighting them in social and economic terms. It also recognises that floods vary in their nature, in the risks they pose to people and in what will make for 'safe' development; thence that it is fair to take these factors into account, depending on the nature of the river or coastal setting. PPS25 notes that the test provides a method of managing flood risk while still allowing the necessary development to occur.

In terms of equality of process, the details set out in the Planning and Compulsory Purchase Act 2004, and Planning Policy Statements issued since 2004, go a long way to ensure that planning processes are consistent and transparent; although the processes are complex and the language used to describe them is not easy to understand. For development and flood risk, again PPS25 (and its associated guide) provides more detailed and clearer guidance than is available for some other areas of planning; thus furthering national consistency and transparency of processes in this area.

In terms of equality of opportunity, to have access to the decision-making process, and opportunities to participate in deliberations and to influence them, the ODPM and its predecessors have a long tradition of supporting public engagement in their policy areas, including planning. Guidance on community involvement in planning was published in February 2004 (ODPM 2004a). Both PPS1 (ODPM 2005), its supplement on climate change (CLG, 2006), and other key guidance documents Strategies (Planning Policy Statement 11: Regional Spatial Strategies, ODPM (2004b); PPS 12 on Local Development Frameworks, ODPM (2004c) stress the importance of involving the public in planning processes. Consideration of flood risk within the planning system takes place in a context of well developed and institutionalised processes for stakeholder and public engagement. Under its key objectives, PPS25 recognises the importance of working in partnership with key stakeholders (Table 20, Appendix 5)

The PPS makes clear the EA's status as a statutory consultation body for RSSs, LDFs, for Strategic Environmental Assessment, and Sustainability Appraisal, and for planning applications as defined under the General Development Procedure Order 1995, and amended in October 2006. This last

change should ensure that the EA's advice is sought consistently for major developments in flood risk areas; in the past this was not always the case.

Under another recent change, the Town and Country Planning (Flooding) (England) Direction 2007, an LPA is required to notify the Secretary of State of any application for major development in a flood risk area (as defined in the Direction) - where it remains after further discussion minded to grant permission to develop against the advice of the EA. The Secretary of State then has the option of calling-in the application for determination. This power provides the parties, the LPA, developer and the EA, with a strong incentive to consider whether their position is in line with national policy.

In Annex H: Roles and responsibilities of parties, PPS25 lists key stakeholders and their responsibilities and draws attention to the requirements for community engagement (Table 20, Appendix 5).

PPS25 recognises, and provides for, different treatment according to vulnerability - through a Flood Vulnerability Classification (p.25 Table D.2). This defines vulnerability in a very simple - and easily identifiable – way; according to land use type rather than the characteristics of occupants/residents (Table 20, Appendix 5). The assumption behind the classification appears to be that the impact on the community's ability to cope and recover from the flood will be greater when some institutions are affected, e.g. ambulance stations, and that the impact on some individuals occupying certain housing types will be greater than for other occupants, e.g. caravans and basements.

However, the classification is limited in its way of conceptualising vulnerability: it does not differentiate according to the vulnerability of the occupants. This means that sheltered housing and residential institutions - such as children's homes - are classified in the same way as residential dwellings; as 'more vulnerable' rather than as 'highly vulnerable' as was the case in the consultation draft of PPS25 (ODPM 2005). The classification is applied after the sequential test which is intended to direct new development to the sites at lowest probability of flooding. The flood vulnerability of land use should then be matched to the flood probability so that the more vulnerable land use types are kept out of the high flood probability areas.

4.6 Conclusions: the fairness of FCERM policy and guidance

The findings concerning the social justice principles embedded in policy and guidance documents on FCERM are presented in Table 4.4. The classification is subjective and based on the researchers' best judgement. It is presented as an extreme simplification of the principles embedded in the documents. However, due to the richness of data in the documents investigated, such a simplification is believed necessary to aid clarity.

Generally, three conclusions can be drawn:

- There is no 'joined-up' approach to social justice across government, organisations, departments and documents;

- There is a marked contrast in approaches to fairness within the two over-arching policy guides; with the strategy on sustainable development favouring equality and vulnerability principles and the Treasury Green Book favouring utility.
- There is a move in FCERM policy towards a commitment to participatory decision-processes which recognise the needs of the most vulnerable. These fairness principles are not, however, embedded in policy guidance; partly because of the 'newness' of these policies and partly because the tools to do so are not adequately developed. There remains a potential for these to be developed further in the new Outcome Measures but this has yet to be realised.

More specifically, the following key points can be made:

Utility: *'Fair FCERM that seeks (process) and secures (outcome) the greatest risk reduction per unit input'*

Utility is the most important fairness principle driving FCERM policy and guidance concerned with the appraisal of flood and coastal erosion defences. This is in accordance with government-wide appraisal policy as laid out in the Treasury's Green Book.

Where there is some variation, is in the extent to which a hybrid approach is adopted; with greater or lesser attempts being made to balance the three pillars of sustainability, and to incorporate significant elements of discrimination in favour of vulnerable, or disadvantaged, groups.

This approach to fairness features minimally, if at all, in some areas of FCERM, e.g. flood warnings, emergency response and spatial planning. It is, however, the only approach that seeks to address both the benefits and the costs associated with FCERM. Fairness rules based on principles of vulnerability and equality are characterised by a focus on beneficiaries, not costs.

Vulnerability: *'Fair FCERM that prioritises the vulnerable in the decision process and targets resources in favour of the most vulnerable''*

Policy and guidance varies in whether, or not, it attempts to discriminate in favour of disadvantaged, or vulnerable, groups. Where it does, there are differences in the approaches adopted. In some documents - including general documents not dealing specifically with FCERM - the discrimination is in favour of a general category: the 'excluded'; the 'deprived' (as measured by the Multiple Deprivation Index); and those on low incomes.

Some documents, however, suggest - or aim to identify and support - some form of discrimination in favour of groups that are defined as particularly vulnerable to flooding through, for example, the use of FHRC's SFVI (as in the MDSF and thence CFMPs and SMPs).

Many documents indicate that this is an area of policy and practice that requires further research and development, as illustrated in Defra's Outcome and Performance Measures and the EA's Position Statement on Environmental Equality.

Discrimination in favour of the excluded and disadvantaged is in line with the government's strategy for sustainable development. However, low income and multiple deprivation are not the same as vulnerability to flooding; although these measures may capture some of the elements that may make people vulnerable in this situation. The issue, then, is whether these general measures provide an adequate surrogate in the absence of better measures of flood vulnerability - or whether it is better to employ a measure such as the SFVI which attempts to address specific flood vulnerability.

Vulnerability is a complex and contested concept. It has been defined in many different ways as a recent review of indicators of social vulnerability has noted (Tapsell *et al.,* 2005). The use of simple taxonomies or sets of indicators of 'vulnerable groups' is not without problems (Wisner 2005) and this approach can be seen as a very limited view of vulnerability (Brown and Damery 2002).

Research into the factors that make individuals particularly vulnerable to the mental health effects of flooding did not produce results in terms of social indicators (Tunstall *et al.,* 2006a). Recent research examining broader definitions of vulnerability has also been unable to identify a clear set of social indicators of vulnerability (Tunstall *et al.,* 2006b). Other aspects of vulnerability have been examined in research - particularly in relation to the flood warning system, e.g: on the social performance of flood warning technologies (Tapsell *et al.,* 2004); and on the interpretation and response to flood warnings (Fielding *et al.,* 2006; Fielding *et al.,* 2005a)

Vulnerability to flooding may best be viewed as relational i.e. vulnerability may be specific to particular stages or situations in a flood event, e.g. capacity to receive a flood warning; capacity to respond to a flood warning, or to a flood event; capacity to bounce back after a flood in terms of mental and physical health; and practical recovery. Vulnerability may be contextual: dependent upon the household; community; and social context in which the flooding occurs. From this, it would follow that it would be best viewed in a 'bottom-up' way in relation to specific local contexts (Green 2005). Using this approach may be feasible in relation to flood warnings and response which can be adapted to local circumstances but may be problematic for plan, strategy and scheme appraisal.

Equality: ***Fair FCERM decisions are those that provide an equal opportunity for every citizen to have their risk managed in the decision process.***

The documents reflect strong drives on the part of the government and the EA to achieve national consistency in FCERM policy and practice. All the documents have embedded within them the procedural justice principles of consistency and neutrality.

All the documents aspire to be clear, transparent and understandable. However, it is open to question whether they achieve this. Certainly, for example, some of the consultation responses on the Outcome Measures and Prioritisation questioned this (Appendix 3).

This is uncontroversial (the ‘motherhood and apple pie’ of procedural social justice). Where there is more divergence on procedural justice is in the extent to which there is support for equal opportunity to access the decision-making process and to participate in deliberations and influence decisions. This may in part reflect the date of the documents; since there has been a growing recognition of the need to engage with stakeholders and communities and to work in partnership and collaboration with other organisations to achieve sustainable development objectives. The MSW response document (Defra, 2005) and the recent Shoreline Management Guidance (Defra, 2006b&c) exemplify this.

In part, differences may reflect the organisational origins of the documents and organisational understanding and commitment to more participatory and deliberative processes with the Government (as evidenced in its strategy for sustainable development and spatial planning documents from the CLG) showing a greater commitment to go beyond consultation towards engagement with stakeholders and communities in decision-making than, for example, EA documents such as the CFMP guidance.

There is, too, a potential conflict and balance to be achieved between the elements of procedural justice: obtaining a nationally consistent and transparent approach whilst at the same time encouraging flexibility to allow for engagement and ‘real’ local influence in the decision-making process.

Table 4.4 Summary of social justice principles embedded in policy and guidance documents

DOCUMENT	EQUALITY (PROCEDURAL)	VULNERABILITY (DISTRIBUTIONAL)	UTILITY (DISTRIBUTIONAL)
GOVERNMENT-WIDE			
UK sustainable development strategy (2005)	**Major** *Covering effective participative systems of government going beyond consultation*	**Major** *Social inclusion and cohesion, inequality , index of multiple deprivation*	Minor *A sustainable economy is an efficient economy*
Treasury Green Book (2003)	Minor *Consistency, transparency and consultation*	Minor *Distributional impacts but only when 'necessary or practical'*	**Major** *Benefit-cost analysis the core approach*
DEFRA			
Making Space for Water: response (2005)	**Major** *A commitment to national and local participation in decision-making*	Minor *Vulnerable property and homeowner adaptations*	**Major** *Funding to areas of greatest benefit. Continued favouring of cost-benefit approach*
Consultation on outcome Measures and Prioritisation (2006)	Minor *Through the consistent application of guidance. Opportunities to participate in decision-making less clear.*	Minor *OM 3 But focus on deprivation but not vulnerability.*	**Major** *OM1 Economic benefits quantified in monetary terms*
EA			
EA Vision (2000)	**Major** *But as consultation rather than deliberative processes*	Minor *Reference made to vulnerable communities*	Not mentioned
EA Corporate Strategy 2006-11 (June 2006)	Minor *Consultation rather participatory decision-making*	Minor *Targeting the vulnerable an emerging issue*	Minor *Focus on cost-effectiveness*
EA Corporate Plan 2006-2009 (2006)	Minor *Consultation and communication*	Minor *Flood warnings for the elderly*	**Major** *Efficiency in appraisal remains dominant*
EA Strategy for FRM (2003)	Minor *Consistency, communication and consultation*	Not mentioned	**Major** *Key feature for targeting investment*
EA position statement: environmental inequalities (2004)	Minor *Targeting the disadvantaged in participatory processes*	**Major** *As socio-economic deprivation*	Not mentioned
Flood Warning Investment appraisal (2003)	Minor *Aims to expand coverage of warning service*	Minor *'Ability' indicator*	**Major** *Cost-benefit analysis and flood damage avoided*

Table 4.4 cont'd Summary of social justice principles embedded in policy and guidance documents

DOCUMENT	EQUALITY (PROCEDURAL)	VULNERABILITY (DISTRIBUTIONAL)	UTILITY (DISTRIBUTIONAL)
GOVERNMENT-WIDE			
GUIDANCE			
Defra FCDPAG1 (2001)	Minor *Transparency*	Not mentioned	**Major** *To ensure value for money for tax payer*
Defra FCDPAG2 (2001)	Minor *Consultation, real involvement, transparency*	Not mentioned	**Major** *Economic appraisal*
Defra FCDPAG3 (1999) (plus notes)	Minor *Consultation and transparency*	Minor *Distributional Impacts and Weighted factors*	**Major** *Economic appraisal*
Defra FCDPAG4 (2000)	Not mentioned	Not mentioned	**Major** *Broader view of benefits*
FHRC MCM (2005)	Minor *Stakeholder engagement rather than just consultation*	Minor *Use of SFVI and other indicators of vulnerability*	**Major** *Data, techniques and methods of appraisal*
MDSF (May 2005)	Minor *National consistency*	Minor *Use of FHRC SFVI*	**Major** *Appraisal tool*
CFMP Vol.I (2004) and EA AMS documents (2006)	Minor *Participation, stakeholder engagement, collaboration*	Minor *Use of SFVI in MDSF*	Minor *Use of MDSF*
SMP guidance (2006)	**Major** *Stakeholder engagement strategies*	Minor Possible use of MDSF which includes SFVI	**Major** *Use of MDSF*
SPATIAL PLANNING			
PPS1 (2005) and climate change supplement(2006)	**Major** *An emphasis on community involvement rather than consultation*	**Major** *Key concepts of social inclusion and cohesion and equal opportunities* *Specific reference to social groups e.g. age, disability, ethnic*	Minor *Only in that developments should make efficient use of resources*
PPS25 (2006) and the Practice Guide 2007)	**Major** *Emphasis on community engagement*	Minor *Classification of land use types main distinction between residential (people) and commercial and industrial rather than specific groups of residents*	Not Mentioned

5. Attitudes to the fairness of FCERM at the national level

This chapter reports the views of national-level stakeholders concerning their general perceptions of the fairness of FCERM today, and their specific views of the fairness of key issues of significance to FCERM. This is not a definitive account of all of the fairness issues that could be addressed using a social justice lens. Rather, it is an analysis of the issues which the researchers and informants consider most important. In doing so, this section addresses the following research objective at the national scale:

(3) To provide insights into the attitudes of key stakeholders to the fairness, or otherwise, of current policy and practice.

The findings presented below emerge from the roundtable discussions and the interviews with key national-level stakeholders (see Chapter 2).

5.1. Attitudes to the general fairness of FCERM today

On fairness in FCERM today, the following points were made:

In general,

- It was widely recognised that fairness is a contested concept that has different meanings to different people and in different contexts; these differences were reflected in the discussions and interviews themselves.
- Issues of fairness arise in all policy areas and some respondents felt that in FCERM at least as much, if not more, attention has been paid to these issues - and attempts made to address them - as in other policy areas.
- Flooding and coastal erosion affect minorities of the population, and yet, mitigation measures are a national responsibility predominantly paid for out of general taxation; the fairness of this model of funding was raised.
- Flooding and coastal erosion are themselves varied physical phenomena and, therefore, fairness across their different manifestations is an issue. The management of the risks associated with flooding and coastal erosion are never, therefore, undertaken on a level playing field.
- Social justice - as a key issue in government policy in general, and FCERM in particular - is a relatively recent and evolving concern and its incorporation into policy documents and guidance is uneven; partly due to the varied dates at which documents are produced. Thus, a consistent and coherent approach to social justice is lacking in government policy at present.
- Constraints on FCERM funding - and on raising national taxes and local levies to fund FCERM options – are critical factors affecting attitudes towards the fairness, or otherwise, of FCERM.
- FCERM, post MSW, is itself a very fast and evolving field. Thus, the MSW projects are serving to both tackle, and to throw up, new social justice issues; particularly where they address resistance, resilience and adaptation toolkits.

- Climate change means that FCERM is dealing with dynamic, uncertain and long term phenomena. Thus, it involves issues of inter-generational equity as well as intra-generational equity and geographical equity. The perceived fairness of FCERM, generally, will be influenced by what is determined to be the most appropriate balance between these issues.
- Perceived fairness will similarly be influenced by the balance between the social, economic and environmental pillars of sustainable development.
- Respondents generally thought that a move towards a fairness model which places more emphasis on principles of procedural justice and vulnerability would be fairer.

Utility

- FCERM remains dominated by the utility approach. This was thought to be an important fairness model for the efficient allocation of taxpayer's money; albeit with caveats.
- Some respondents thought that there was too much of a focus on utility which, with limited funding, leads to gross inequalities of outcome between protected and unprotected communities.
- The utility approach was thought to be fair, in principle, in that: all individuals and communities have the opportunity to be considered for flood defence and objective criteria are used in the decision process. However, it was recognised that this may not be fair in practice.
- Utility was perceived to have limitations in its ability to actively engage with stakeholder participation and to target the most vulnerable. MCA and Outcome Measures are seen as important here.

Vulnerability

- There was general agreement that the current system of FCERM does not prioritise the needs of the most vulnerable.
- It was recognised that the appraisal process accounts for deprivation in the people score although the new Outcome Measures were expected to offer a fairer inclusion of vulnerability than has been available in the past.
- The majority of respondents, although not all, thought that targeting resources and services to the most vulnerable would offer a fairer model of FCERM. However, the multi-faceted nature of vulnerability was seen as a particular barrier to this.
- For one respondent, a focus on the vulnerable would be an unintended outcome of the continued squeeze on resources.

Procedural justice

- For several interviewees, given that fairness in terms of distribution was inevitably a contested and subjective concept, procedural justice was seen as the key issue: processes can be seen as fair even if the outcomes are not deemed so.
- Transparency and understandability were seen as key issues in procedural justice. There was a difficult balance to be struck between complex systems (that might be fairer but difficult to grasp for

stakeholders and members of the public) and simple systems which further transparency. One interviewee noted that while you do not want to over simplify, you want systems that you can explain in two minutes.

- The transparency and understandability of the processes was one of the key concerns voiced in the responses to the consultation on Outcome Measures and Prioritisation (Tunstall *et al.,* 2007 – Appendix 3*;* Defra 2006).
- The conflict between different elements in procedural justice was seen as particularly important for determining fairness in the decision process: between a 'top-down' technically-based approach with consistent national procedures that ensures that everyone is treated equally, and a 'bottom-up' approach of engaging with people and allowing flexibility to meet their wishes and needs.
- The costs in time and money of engaging with the public were raised by some of those interviewed. However, another view was that the benefits were substantial in avoiding having to deal with disaffected people, and the costs small when considered in the context of capital expenditure on flood and coastal defence. A suggestion was put forward that a small proportion of the FCERM budget (e.g.1% or 2%) should be designated for engaging with local communities. This would provide a strong signal of commitment to this approach by government and the EA.
- Other suggested ways in which procedural justice might be encouraged within the EA were by rewarding those who demonstrated leadership and performance in this area and by drawing in supporting skills by using external facilitators. Different skills are required for this kind of decision-making. Lack of training and experience in deliberative decision-making processes among EA staff is one barrier to progress in this area. It is one, however, that has been recognised by the EA in its training plans.
- Other barriers to a participatory approach identified in the interviews were the large number of not very well coordinated planning processes that stakeholders and local publics could be asked to engage with: SMPS, CFMPs, RBMPs, strategies, schemes, local authority planning processes, RSSs, LDFs and Local Strategic Partnerships and Community Strategies. There was considerable potential for 'consultation fatigue' and there could be benefits in co-ordinating some of these processes.
- The issue that consultation and engagement processes may only succeed in involving the articulate and capable - and may thus serve to reinforce power inequalities and access to resources in communities, missing out the disadvantaged and the vulnerable - was raised by research participants.
- There is a difficulty in engaging with the public and indeed with stakeholders at the more strategic level. There are similar difficulties when taking a long term viewpoint because public interests are mainly local and immediate. Thence, there is a need to find ways of drawing publics into more strategic engagement. There could be benefits in using existing local groups e.g. church or women's groups when accessing local communities.

5.2 Is FCERM becoming fairer?

Most participants interviewed for the research considered that although there was a 'lot of rhetoric' about fairness, FCERM was indeed becoming fairer: although this was not the attitude of all.

MSW was viewed, by most, to be demonstrating a real policy drive to be fairer. Social justice issues were being explored to different degrees, and in different ways, in its projects. Clearly what they considered to be involved depended upon how individuals interpreted fairness. Common comments were that:

- There was greater awareness of social justice issues in FCERM than had been the case in the past.
- The movement away from an appraisal system focused on economic benefits - to a system in which other sustainability concerns (both social and environmental) are considered - was generally considered to be a fairer approach; although some thought that this needed to go further.
- Likewise, movement away from a focus on property, towards a focus on people, was generally considered to be a fairer approach; although again some thought that this needed to go further.
- For some, studies aimed at a greater understanding of what made people 'vulnerable' in areas of flood and coastal erosion, and moves to adjust policy and practice to take account of this vulnerability, were illustrative of changes towards a fairer FCERM policy approach.
- Generally, it was considered that the change from a reactive policy - in which defences were provided in response to flood events, and to public and political pressure for action - to a strategic, proactive, approach with rational national systems for appraisal meant that FCERM processes were becoming fairer.
- It was felt that the importance of procedural justice, and of really engaging with stakeholders and members of the public, was better recognised within the EA and other bodies concerned with FCERM than in the past; and there were some examples of good practice in this area within FCERM. The EA had developed a Building Trust in Communities Toolkit to aid in communicating with communities: it was, therefore, moving in the right direction in involving stakeholders and listening. But, respondents generally felt that there was still a long way to go in this regard. The MSW project, SD6, was seen as important in this regard.
- Some of those interviewed felt that it would require a significant 'culture change' within the EA; an engineering-based organisation whose decision-making has largely been based on technical expertise. A real commitment is required to move from a technocratic, to a participatory, approach to decision-making.

5.3 Key fairness issues in FCERM today

Discussions and interviews brought out the views of research participants on key issues in FCERM today and, in particular, on funding and the distribution of resources between different areas and options in FCERM.

5.3.1 Funding for FCERM

National versus local funding

A major debate on fairness in FCERM is concerned with the way in which it is funded. The move away from limited local to national funding has, it was argued, made the system fairer in procedural justice terms: in that schemes and options are prioritised according to rational national criteria rather than according to local willingness-to-pay for flood defence that might depend upon a wide range of factors including: the recency of flooding; community memories of flooding; and traditional interest in flood risk management. A counter argument to that was that the national system breaks the democratic and accountability links and means there is less local involvement in decision-making, thus reducing procedural justice or, as one participant put it, 'the community should take ownership of the problem'. This raises the questions of what is a community and what is the appropriate regional or local unit for fund raising? Thus, funding highlights the tension and the balance between elements of procedural justice: national consistency in managing the risk and local involvement in decision-making.

The beneficiary pays principle

An issue raised in discussions and some interviews - a variant on the argument of national versus local funding - was the fairness of expecting the general taxpayer to pay for FCERM that benefited only around 10% of the population. This situation has parallels in other areas of government such as the NHS; although it can be argued that everyone may, over a life time, have a chance to benefit from health services whereas, over a lifetime, there may be less likelihood of citizen's directly benefiting from flood risk management through, for example, moving into a flood risk area. There are, however, clear indirect benefits; the wider societal impacts of the protection of the city of London being one obvious example.

The beneficiary pays principle has been forwarded in a recent NERA report for Defra (NERA, 2007) which argued, even given the problems of 'reasonable expectation', that:

'Payments by beneficiaries of local environmental measures (such as flood and coastal protection) would similarly in the long run be fairer and provide incentives for more efficient outcomes' (NERA, 2007: iii)

Underlying the 'beneficiary pays' principle is the assumption that individuals have made a choice - knowing about the risk - to live in a flood or erosion risk area. Therefore, their exposure to flood risk was their choice and responsibility. Both these assumptions were questioned in discussions because information, for example about flood risk areas, had only become widely available and promoted in recent years. Similarly, although it was recognised that there were some situations where residents had traded-off the attractions of a sea view or riverside sites knowingly against erosion or flooding risks, this could not be said to apply to all beneficiaries.

A second argument against this approach concerned the difficulty of defining the beneficiaries: for urban areas, the beneficiaries could extend much more widely - well beyond those living or owning property in the flood risk area to those working or travelling through the area - and in some cases, such as major cities, through impacts on the national economy (a utilitarian argument). Research is currently underway to investigate in more detail the complexities associated with the benefits of FCERM projects (Defra research project: FD2606). This could provide useful research in exploring the fairness of the beneficiary pays principles for FCERM.

Another consideration is that flood risks are generated in complex ways and sometimes in ways related to human activities outside the flood risk area, such as land management and development. Similarly, past activities may be responsible for some of the risk and, therefore, responsibility may lie in part with past generations under the 'polluter pays principle'.

A pragmatic argument made in favour of this approach was that tax funding is inevitably rationed and this gives rise to the inequity of excluding cost effective schemes from funding - simply because of limitations on the available funds. A counter pragmatic argument presented was that it was difficult to think of ways of raising money for FCERM, at the individual level, that would not cost more to collect than they would yield; an argument that would not be very popular. Treasury approval also might not be forthcoming for local tax-raising. Thus, how realistic a move toward a beneficiary pays approach would be in political terms was questioned. Attracting corporate or organisational funding was another matter considered of value for further investigation.

A basic FCERM system and external contributions

Suggested approaches to the funding issue was for the national funding to cover limited basic needs for *all at risk* (an equality, procedural justice principle) with areas allowed to top-up the funding from local, or alternative, sources. An alternative argument was to focus limited basic national funding upon *lower income areas* that would be unlikely to raise funding themselves (vulnerability, distributional justice principle), with other wealthier local areas being encouraged to secure their own funding.

Possible approaches of this kind are foreshadowed in the Outcome Measures and Prioritisation consultation document (Defra 2006). Indeed, the Outcome Measure OM3 which prioritises the directing of funding towards a total of 9,000 of the most deprived households in high risk areas is illustrative of this approach. However, it is unclear, as yet, whether this Outcome Measure is a target in its own right or whether it will be met as consequence of achieving other targets. For example, a capital expenditure programme which targets investment in areas of high urban density (e.g. London or Hull) will, by default, similarly be targeting investment towards areas of high deprivation; even if this was not the intended outcome.

Some of those interviewed felt that there were grounds for the government to focus more on people rather than property and that there was room for the government to intervene more to protect the 'neediest', and those with less capacity to bounce back – the vulnerability social justice principle.

Given limited government funding, a key concern for policy is to find ways of drawing in additional funding for FCERM. With any system - where basic funding could be topped-up by additional contributions from other sources - the question arises as to whether this would be allowed to affect the prioritisation of allocation of funding to particular schemes. At the moment, cost benefit analyses evaluate the benefits to the national economy without accounting for such contributions. If external contributions from developers, local authorities, or other sources such as the EU, were taken onto account, this would introduce a social justice issue in that those areas (possibly wealthy areas) and schemes able to attract external contributions could gain priority. A counter argument to this is that making costs to government net of external contributions could encourage such third parties who would otherwise lack the incentive to contribute. This would encourage multiple-benefit projects and allow government funding to cover more schemes and, therefore, would be fairer to communities with marginal schemes.

The wider implications, and impacts, of using external funding for FCERM needs to be considered. For example, if local authorities were to fund resistance and resilience measures for properties in their local area, the installation of such measures might reduce the potential benefits of any flood defence scheme and reduce the likelihood of it being funded; including possibly a scheme to mitigate flooding in a wider area than that covered by the resistance and resilience measures.

The issue of whether or not it was appropriate to use net costs to government in prioritisation was raised in the consultation on Outcome Measures and prioritisation (Defra 2006). The EA in its response drew attention to its work on a contributions policy project - to be completed in May 2007 - to inform its treatment of third party contributions. The National Flood Forum argued that programme managers and RFDCs urgently needed guidance on protocols for joint funding to ensure consistency and procedural justice; this is something that the EA has under review (Appendix 3).

5.3.2 Coasts versus rivers?

Questions were asked in the interviews, and discussions, about the fairness of the allocation of resources between coastal erosion, coastal flooding and fluvial flood risk management. Research participants stressed the very different nature of the risks involved which made securing procedural and distributional justice between coasts and rivers difficult, and potentially contentious.

The consultation on Outcome Measures and Prioritisation asked whether the use of different Outcome Measure definitions for flooding and coastal erosion, within a single framework, was supported by consultees. Some of the responses examined showed an awareness of the social justice issues raised in terms of equality of treatment, consistency, transparency and clarity (Appendix 3).

The proposal to separate funding for flooding and coastal erosion, and the criteria to be used to determine the relative size of their funding allocations, are highly relevant to procedural justice and equality of treatment. However, they were only touched upon by the research participants.

One point of view was that it would be seen as unfair if there were separate allocations and it would not be clear that money was being targeted to the places with the greatest risk. However, it was accepted that previously the process had been seen as unfair; with more money perceived to be going to coasts. This was perhaps because of the way the appraisal system worked - with its focus on property - and because large sums were spent on a limited number of locations at the coast. Mixed opinions were expressed as to whether it was, or would be seen to be, fairer if there were separate or single funding allocations.

Participants found it difficult to decide on criteria for allocating these budgets because of differences in the nature of the risks and uncertainty in the data available. There were estimated to be approximately 2 million properties at flood risk, and about 100,000 houses at erosion risk, over a 100 year period. One view was that, once the consultation responses had been considered, and a recommendation put forward to the Minister, the decision would be taken by the Minister as a political decision. In this way, where decisions were thought to be intractable and difficult, responsibility for a course of action was seen to reside with Ministers; as democratically elected decision-makers.

5.3.3 Urban versus rural FCERM

The First Government Response to the autumn 2004 consultation on 'Making Space for Water', notes that a better balancing of the three pillars of sustainable development should promote Defra's strategic objective of sustainable rural communities. It adds that Defra has already removed the specific priority that was given under the 1993 strategy to urban areas over rural ones. It recognised that social justice issues are raised where capital schemes cannot be justified particularly in rural areas:

> '*In such cases, the Government recognises that there is a need to consider extending the risk management tools available, in particular to take account of the needs of smaller rural or dispersed communities.'* [p20.para.3.7]

This issue of fairness in FCERM, between urban and rural areas, was raised in discussions and interviews. Some research participants noted that, historically, the policy was for a long time biased towards the rural and land drainage and that this has now changed. The large populations at-risk in urban areas justified the interventions there. However, some social justice issues relating to rural communities were raised in the discussions.

Flooding, it was argued, can threaten the fragile fabric of rural communities, and the cost-benefit analysis does not take into account these wider benefits to the community of protection.

A further fairness issue was raised in relation to vulnerability; that small pockets of deprivation in rural areas which - because of their size and the number of properties involved - may not be considered for investment. Some rural communities are impoverished but they are often surrounded by people who are

reasonably well off so that the deprivation is masked. These issues need to be taken into account.

5.3.4 Fairness between FCERM options

The fairness of the allocation of resources between different FCERM options was raised in discussions and in the interviews. MSW signalled a shift to a FRM approach in which a wide range of options should be brought into action. This broadening of risk management tools so that - where investment in capital schemes cannot be justified - other risk management options may be available, was developed out of a concern for social justice and ensuring that all those at risk had their risk managed in some way. However, there is a view that it would take a cultural change within a largely engineering-dominated organisation, such as the EA, to move the organisation from predominantly engineering solutions to the use of a wider range of options and to innovative multi-benefit solutions.

Others, however, considered that a change was already happening and that adequate resources were now going into developing areas of the EA's work such as: flood warnings and response; planning liaison and development control; and incorporating resistance and resilience. And, that a better balance between these areas of work was being achieved than in the past.

5.3.5 Fairness between different types of flooding

The MSW response document (Defra 2005) identified a strong need for a holistic, joined-up and integrated approach to all forms of flooding. This was particularly the case in urban areas where there are complex interactions between drainage systems, and where it is often difficult to establish the source of flooding, and thence the responsibility for dealing with the issues. In seeking to manage flood risks to people from all sources: sewer, pluvial, ground water, fluvial or coastal, policy was shifted significantly towards a more socially just FRM system.

Participants in the interviews, however, recognised that there are significant barriers to creating a socially just system in which people are treated consistently, or equally, regardless of the sources of their flooding. There are differences in levels of knowledge and experience in dealing with different sources of flooding and in institutional and financial arrangements. There are also differences in the mechanisms of flooding from different sources, which vary in their predictability and in their potential for management.

In addition, levels of protection indicated for sewer flooding are lower than those indicated for river and coastal flooding; although in practice the level of protection afforded in both cases depends upon the appraisal process. OFWAT have undertaken to examine, with sewerage undertakers and the Government, adaptation options such as compensation, insurance and mitigation measures relating to sewer flooding; given that there will still be properties that it will not be cost beneficial to protect from sewer flooding though capital schemes. In these circumstances, mitigation measures such as storm porches with raised thresholds may be funded by water companies.

Policy and practice is under substantial development in this area. Research under the MSW research programme (Defra 2007b) will throw light on the extent to which it may be possible to manage the risks from different sources of flooding consistently and to offer the people affected similar services, adaptation and mitigation measures as are available, or are being developed, for fluvial and coastal flooding. Fifteen pilot projects are being undertaken to examine ways of reducing urban drainage flooding in towns and cities and to ensure that they are better prepared for the impact of climate change. One of which is investigated as a case study in our research (chapter 6)

From Spring 2007, the EA took on a strategic overview role for monitoring groundwater. In addition, a project to report on the scale of the risk from groundwater, and recommendations for its management, has produced an initial statement on non-Chalk aquifers and a detailed report of chalk aquifers. Further developments are expected in the enhancing of this knowledge base.

5.3.6 Inter-generational equity

Securing the future (HM Government 2005) states the goal of sustainable development as:

> '*to enable people throughout the world to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations*.' (p.16)

Inter-generational, as well as intra-generational, equity is thus a key issue for social justice in FCERM. Policy has to take into account not only the social, environmental and economic changes that may affect future generations but, very importantly, changes that climate change will bring at the coast and, in terms of fluvial and other flooding; the uncertainty associated with climate change impacts. Both components were examined in the Foresight 'Future Flooding' report (Evans *et al.,* 2004a&b*)*.

Intergenerational equity requires policies, plans and procedures that take a long-term view and that take climate change into account. In FCERM documents, this is increasingly the case. The Treasury Green Book (HM Treasury, 2003) recommends that investment should be appraised over its whole life - typically of 75 – 125 years. The EA has, therefore, been encouraged to consider plans and projects over periods longer than 50 years (which used to be the time period) and, sometimes, to extend consideration to 100 years. Guidance (EA, 2004a) states that CFMPs should develop catchment scenarios to reflect possible futures looking 50-100 years ahead and considering urban development, land use and management changes and climate change. SMPs (Defra, 2006b&c) now aim to identify policies for managing risk from flooding and coastal erosion over the next century.

Spatial Planning, Regional Spatial Strategies, and Local Development Frameworks operate to shorter time frames. Regional Spatial Strategies provide a broad development strategy for 15 -20 years; although guidance does note that they may need to look beyond this period in certain instances; since some relevant forecasting horizons are longer, for example, adaptation to climate change (ODPM, 2004b). There is, therefore, a mismatch between the

timescales over which spatial planning is conducted and the timescale over which flood and coastal erosion risks, which take climate change into account, are undertaken.

There appears to be scope for regional planning bodies, in collaboration with other bodies, to take a longer term view in their spatial planning and to produce a document that would take forward a vision for their region over a 100 year period; taking account of climate change and taking account of the information and scenarios presented in CFMPs, SMPs and other plans. One Region - Anglian - was reported to be undertaking a planning process of this kind and others may have taken some comparable action.

Defra has issued new interim guidance on climate change impacts (Defra 2006d) following on from the Treasury Green Book changes prior to a wider ranging review. This interim guidance, covering a period to 2115, has been incorporated in PPS 25; ensuring that the same climate change allowances are built into planning decisions and decisions about capital assets.

Processes are available to ensure that the interests of future generations are taken into account in FCERM. What is not clear is the way in which the balance is struck between current and future generations though the various planning processes. Views on intergenerational equity were mainly expressed in the context of spatial planning (see section 5.5).

5.4 The flood warning system

The flood warning service was regarded by research participants as relatively unproblematic in social justice terms. The utility principle was used to justify, to the Treasury, national investment in the service in terms of potential property damages avoided (EA, 2003) at the level of about 5% of what is spent on FCERM each year. However, this principle does not enter further into decisions about local service provision. In this, the flood warning service is provided under a radically different social justice principle from the core activity and expenditure in FCERM; on flood and coastal defence schemes. It was noted, in explanation, that the EA has a duty to provide a flood warning service under the Ministerial Direction of September 1996; although the nature and coverage of the service was left open. By contrast, the EA has only permissive powers to provide flood and coastal defences.

Furthermore, a flood warning service can be offered to property owners for whom flood defences cannot be justified; thus ensuring that their risk is managed in some way. The fact that the service has a key role in securing people's safety, and in preventing loss of life in a flood event, may also explain why it is treated differently in social justice terms. These can be defined as underlying moral duties of the state, even if they are not enshrined in law. The UN Universal Declaration of Human Rights (United Nations, 1948) includes 'the right to life and security' as among its provisions (Article 3). The Human Rights Act (1998) also encompasses 'The right to life' (Article 1) and 'The right to liberty and security' (Article 5). But, it seems highly unlikely that these would be interpreted as imposing duties on the state to protect individuals against natural hazards such as flooding and coastal erosion.

Unfairness is present in flood warning because the ability to forecast flooding, and potential lead time for warnings, varies across different river and coastal settings and events. Furthermore, the EA's current warning system covers river and coastal flooding and not sewer, pluvial and groundwater flooding. The service could be expanded to cover other forms of flooding e.g. groundwater flooding using a network of borehole levels to give a warning. However, it was noted that extending the warning service to other forms of flooding might be problematic and it might undermine the credibility of the current warning system. There is currently no service to give warning of changes at the coast, due to erosion that could put property at risk.

The EA has worked to ensure that there is a consistent national flood warning service offered across regions and areas in flood forecasting (National Flood Forecasting System) and in warning dissemination through the national Floodline Warnings Direct (FWD) system; albeit one in which recipients can make choices about warnings received and communications methods used. The provision and national standards of service (a maximum, intermediate and minimum) are prioritised according to the risk (both probability and consequences) in terms of the number of properties liable to be flooded in a given year in a flood risk area (Andryszewski *et al.,* 2005). The EA's customer charter states that prior warning will be provided (two hours in general) to people living in designated flood risk areas, where a flood forecasting facility exists, and where lead times allow this..

Thus, the service aims to treat everyone equally according to their risk - ensuring procedural justice and aiming for equal outcomes according to risk.

The service depends on householders and businesses at risk choosing to opt in, or out, of the service, and the EA has recognised that one-size fits all communications methods may not the best way of encouraging registration and, therefore, it is experimenting with a segmented approach.

The EA has also recognised the importance of understanding, and taking into account, the vulnerabilities and needs of different groups, within communities, in: its warning service delivery; its warning dissemination methods; and in the response that may be anticipated and promoted. These issues have been explored in a substantial body of research including work on the social performance of flood warning technologies (Tapsell *et al.,* 2004); on flood warnings for vulnerable groups (Fielding *et al., 2005 a&b*); and on public responses to flood warnings (Tunstall *et al.,* 2006) with a view to adapting its services to meet the needs of vulnerable and other groups.

The emphasis in the warning service has been on developing a nationally consistent 'top-down' technology driven system, meeting the procedural justice requirements of consistency and transparency. However, it is now recognised that there is a need to engage more with local authorities who have responsibility for emergency planning and response, with other stakeholders, community groups and local people, in order to make services more responsive to local requirements and to meet the needs of vulnerable groups. This might make for more procedural justice in that engagement processes could influence the provision. It might also further the social justice principle of targeting those particularly vulnerable in terms of flood warning and response at the local level,

if not as part of national policy. Generally, research participants considered that movement was in these directions but needed to go further.

5.5 Spatial Planning

In some senses, the system for dealing with development and flood risk, established under recent changes in the spatial planning system - PPS25, the practice guide, the Direction and statutory consultee status of the EA on major planning applications in flood risk areas - were seen as procedurally just; offering greater clarity and national consistency and coherence in decision-making on development and flood risk at all levels in the planning system in England with Regional Spatial Strategies, feeding into Local Development Frameworks and planning applications. The arrangements can also be seen as having strengthened the national as against the local in decision-making. The new planning arrangements also stressed the need for, and provided opportunities for, stakeholders and local people to be involved in the planning process; although the extent to which these processes went beyond consultation was questioned by some participants.

The spatial planning system may, however, not treat all those at risk equally. For example, the document deals mainly with fluvial and coastal flood risk because flood zones are only available for these types of flooding; although the regional flood risk appraisals, strategic flood risk assessments and site specific flood risk assessments are intended to take other sources of flooding into account.

It was noted that we have a local planning system and, therefore, national guidance would inevitably be interpreted differently in different regions and, more particularly, in different local authority areas, by local authorities and EA staff.

There were opportunities for different local interpretations of the Exception Test, and of particular criteria within it, e.g. the definition of ‘safety’, and contribution to sustainable development. In the PPS, the local definition of the functional flood plain may vary. Variations in these interpretations and definitions are likely to result in a divergence from treating all applications and land allocations in the same way.

In spatial planning, the same tension is evident, as in other policy areas, between a nationally consistent system which treats all in the same way and local flexibility allowing adjustment to local circumstances and local democratic input. Research participants felt it was too early to say how the balance will be struck in this policy area. However, wide differences in interpretation of aspects of PPS25 are anticipated.

The vulnerability classification indicates the land use types that are permissible in different flood zones. It does not distinguish between social groups according to their vulnerability, and mainly makes the distinction between residential and non residential property. It is thus a rather minor application of the social justice principle which seeks to treat the vulnerable differently from others.

It was pointed out by one participant that the planning system was inherently 'unfair' since it provided a gateway to private gain when planning permission was granted. These benefits did not accrue to the community when land is privately owned, and planning guidance - as in PPS25 - defined whether or not individuals could make such gains.

Conflict can arise between the justice principle embodied in the sustainable development strategy - which seeks to discriminate in favour of the excluded and deprived - and a principle of treating all those currently, and potentially in the future, at risk in the same way. The sustainable development policy will tend to encourage regeneration and redevelopment in economically declining areas but this will often involve putting people and property at risk in those areas; because of residual risk where flood mitigation measures are provided as part of the development.

The issue of whether currently it is possible to ensure that developers make a fair and proper contribution to the cost of flood mitigation measures, where development is permitted to go ahead in areas of flood risk, was raised by research participants.

Research participants considered that there was also a clear conflict between intra-generational equity and taking a long-term view. Considerations of current intra-generational equity - which leads to regeneration and redevelopment in areas of risk - builds up requirements for future generations to maintain defences in areas that may prove unsustainable; particularly with climate change. Great Yarmouth (targeted as a growth area by the Regional Development EA) and Portsmouth were cited as examples. It was felt that the long term planning processes was not in place (spatial planning approaches comparable to those of CFMPs and SMPs looking ahead for up to 100 years) and that the planning processes that are available are influenced by short term political, social and economic considerations.

Furthermore, the political will to deal with difficult decisions at the coast and on rivers was not yet there. Climate change will present planners with three fairly stark choices regarding threatened urban areas: to continue to defend such areas; to stop maintaining defences and allow an area to become blighted so that people are gradually forced to leave as the area degenerates economically; or to relocate populations over time - which will be very expensive.

An argument was put forward by one research participant that it would be better to have decisions about investment in flood defence made at the regional level so that they could be better aligned with regional plans for long term development in the region.

5.6 Resistance and resilience in buildings

Resistance measures (designed to keep flood waters out of buildings or minimise the amount that enters) and resilience measures (designed to reduce the damage and speed recovery following a flood event) are more recent FRM options. These can be applied both to new development that, exceptionally, are allowed in the flood plain and to existing buildings; where collective flood defences cannot be justified in economic terms.

The Exception Test, in PPS 25 (CLG 2006c, p.27), specifies that as one of three criteria that must be met for the test to be passed:

> '*a FRA must demonstrate that the development will be safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.'*

The PPS25 consultation Practice Guide (CLG 2007), in risk management by design, offers some guidance on resistance and resilience in new buildings as does a new document, 'Improving the Flood Performance of New Buildings: Flood Resilient Construction (CLG, 2007b), which provides detailed information on methods available.

Current Building Regulations (2000), for England and Wales, do not specifically cover flood risk management or flood protection issues. However, it is the intention that new building regulations that incorporate the results of research on resistance and resilience will be published by 2009. Developers are required to comply with building regulations. Thus, for the exceptional and limited number of developments that will go ahead in flood risk areas, policy will be in place that ensures that developments will be treated equally and resistance and resilience measures will be included.

For the owners and occupants of existing flood plain property, the situation is entirely different; introducing unfairness. For undefended home owners and businesses in flood risk areas, resistance and resilience measures are an important management option. As Defra (2005) notes:

> '*In the case of isolated or small rural communities, which are unlikely to benefit from a community scheme, building resistance or resilience may represent a key tool for managing their risk (*p.23, para.5.4).

Some devices on the market, such as air-brick covers, are inexpensive but others, such as flood skirts or flood gates, raising electrical points, water pumps and flood proofing walls are more costly. Recognising the public's need for quality assurance on the many products available, the EA, in 2003, commissioned a Kitemark scheme managed by the British Standards Institution. So far, over 100 products have been awarded this quality standard.

Although the government has provided advice to homeowners (ODPM, 2003), and the EA and the Association of British Insurers (ABI) (2006a&b) have encouraged the use of these tools, it is currently the responsibility of the individual property owner to provide, and pay for, any protective measures: an example of' the beneficiary pays principle'. The Council for Mortgage Lenders has provided some assurance that mortgage extensions could be available to cover extra costs of resistance and resilience measures provided there is adequate equity in the property (ABI 2006a).

Furthermore, the option of installing flood resistance and resilience devices is only open to those who own, or are buying, their property; including landlords. Similarly, this option is only open to those who can afford them. Whether these initiatives should be subject to government grants is, however, controversial.

For those adhering to the 'beneficiary pays principle', resistance and resilience devices should be funded by homeowners themselves; arguing that using taxpayer's money to fund a collective flood defence is different from using it to benefit private individuals whose property may gain value as a result; although there are precedents such as home improvements grants. From this perspective, targeting national resources for household level resistance and resilience measures would be unfair.

Clearly, however, Defra considers that fairness issues are raised by not offering some of those at risk *any* management of their risk apart from flood warnings i.e. the current arrangements do not provide procedural justice in terms of giving every at-risk citizen an equal opportunity to have their risk managed. Defra (2005) states that:

> '*taking account of the principles of sustainable development and social justice, the Government will carry out a feasibility study to consider whether it is practical to provide Government financial support for making any of these properties more flood resilient/resistant. This study will consider a number of issues including the scope of any scheme, effectiveness, eligibility, legal basis, the degree of incentivisation and the cost.'*

A further fairness issue might be raised by the installation of resistance and resilience measures. If these were to be included in the appraisal process and were considered to reduce the benefits of protecting property (because it was already partially protected) this might have a negative influence on the likelihood of the provision of flood protection. Individuals might find that when they paid for their own protection measures, their chances of having a nationally funded flood defence scheme were reduced.

Indeed, different social justice principles might suggest different types of schemes:

Equality
All property owners (residents and/or businesses) currently undefended and unlikely to be in the future, would be offered the opportunity to have their risk adequately managed through appropriate resistance/resilience measures.

Vulnerability
Resistance/resilience measures would be targeted at the 'vulnerable': according to vulnerability characteristics e.g. elderly, disabled, single parents, those with small children (perhaps using the SFVI), or to those in high MDI areas, or to those facing more extreme flood risks.

Utility
Resistance/resilience options would be provided only to the extent that their costs could be justified by the benefits.

Procedural justice would require that scheme provisions were clear, accessible, transparent and consistently applied and that the EA/local authority or other provider engaged with those involved to understand their preferences.

Research participants did not express clear preferences on these approaches. They indicated, and other research supports this view (Harries 2007), that people may be resistant to adapting their homes for reasons other than lack of information about the devices and their cost. People may not believe, or want to believe, that flooding will happen, or happen again. They may not want to identify their property as at-risk for fear of what this might do to its saleability or value; they may simply want their home back as it was before the flooding, or have aesthetic reasons for rejecting devices.

5.7 Adaptation at the coast

Government policy (Defra 2005) is committed to a strategy of managing flood and coastal erosion through, where possible, working with natural processes in order to accommodate climate change and solutions that are sustainable in the long term. In some areas, this will involve the removal or abandonment of existing defences - where maintenance can no longer be justified - to allow erosion to take place and to make space for water in the environment.

Responses to MSW (Defra 2005) suggested that new tools were needed to help coastal communities adapt to a changing coastline. A project (SD2) was set up to consider the options available for helping communities adapt to the threat of increased erosion or flood risk; particularly in coastal areas where traditional forms of defence may not be cost effective or sustainable. Preliminary research has identified a wide range of approaches and tools that might be employed over time (Taussik *et al.,* 2006).

The challenge for FCERM is to find options that are in accordance with principles of social justice. Using the planning system to prevent *new* development occurring in coastal areas affected by flooding, and more particularly coastal erosion (though time limited consents, s106 agreements to protect against future demands for defences, zones/policies in spatial plans, buffer zones), is uncontentious in social justice terms. However, the need for updating current guidance on coastal planning - PPG 20 dating from 1992 - to facilitate procedural justice was indicated.

What is more contentious is what would constitute a just way of dealing with existing properties under threat, particularly from coastal erosion. A utility approach to social justice would indicate that where the benefits to society of providing or maintaining defences are insufficient, abandonment is justified. However, for fluvial and coastal flooding, it is current policy to provide at least some risk management through flood warning systems, emergency planning, and the provision of state supported resistance and resilience measures is under consideration. In addition, those in flood risk areas may be able to obtain insurance. Thus, an equality approach is supported because those at risk have an opportunity to have their risk managed in some way.

However, these options are not available in the long term for those affected by coastal erosion, where the adaptation required in time may be the abandonment of property and where, on rivers, making space for water may involve inundation and relocation. There appears to be unfairness between those affected by flooding, who have their risk managed in some way, and the latter groups. Furthermore, in the UK, as in the world, the impacts of, and

requirements to adapt to, climate change fall unevenly on groups within society and according to geography, and this raises issues of social justice as Adger and Paavola (2006) and Adger *et al.* (2006) have noted. Both these points argue for some new risk management options. The question, then, is who should benefit from a different model of local or state support?

> *All those affected by erosion at the coast that would lose their property (equality principle)?*

Care would be needed to ensure that this arrangement was not exploited by speculative property buying.

> *Those who had previously had defences or a policy for defences but where the policy has changed rendering them vulnerable? (a form of the vulnerability principle)?*

Those who had never had defences, or a policy, would not be eligible because they would have made a decision to occupy their property in full knowledge of the erosion risk. Where defences had been provided, or plans had included a 'hold the line' policy, it was argued, property holders could reasonably expect that policy to continue in the future. Taussik *et al.,* (2006) have examined whether an issue concerning a change to property protection policy could be raised under the Human Rights Act 1998. The policy change could be regarded as having rendered people vulnerable. A clear definition of what counted as having existing defences would be required.

> *Deprived or low income groups or other special groups e.g. elderly or disabled defined as lacking the ability or resources to adapt and relocate (vulnerability principle*)?

Means tests or other eligibility tests would be required.

The present situation represents the utility principle; in that state support for FCERM in terms of structural defences is only forthcoming where: the benefits offer the greatest gain to society; the costs of adaptation are borne by individuals in property loss and relocation; and the costs are borne by communities in terms of social and economic blight, that may affect an area subject to erosion or flooding.

An alternative to some form of state funding to support adaptation would be to allow individuals and communities to fund their own defences. However, this 'beneficiary pays approach' could be in conflict with the policy of working with natural processes at the coast and on rivers. Individuals and local groups might want and be able to afford defences that are incompatible with long term sustainability and with policies in SMPs and CFMPs. It would also be incompatible with the justice principles of equality and vulnerability; since wealthier individuals and communities would be better able to fund their own defences.

Procedural justice would call for clear, accessible and consistent guidelines for the provision of options. However, equally, procedural justice would require that local authorities and other stakeholders engage with the affected communities

to gain an understanding of their strengths, wishes and needs and to help them to understand the sustainability rationale for SMP and CFMP policies and policy changes. Stakeholders would then have to work together with communities to establish which of a suite of options would be most appropriate for the local situation.

Among options under consideration for state, or local authority, supported adaptation presented by Taussik *et al.,* (2006) and mentioned by some research participants are:

- Using local authorities' 'well-being powers' under the Local Government Act 2000 to promote or improve the environmental, social and economic well being of their area. The powers allow the local authorities to incur unlimited expenditure and give financial assistance although they are not backed up by additional funding.
- Land/property acquisition: for 'rollback' of properties/ communities at risk; converting properties to short term use.
- Financial assistance to individuals or communities for loss/relocation costs

5.8 Insurance

Insurance is an individual risk-bearing strategy, which works alongside the provision of flood defences, by way of damage compensation. As a private risk management strategy it is not national policy *per se*. However, because of the close association between flood and coastal defence and the provision of commercially available insurance, the fairness of insurance provision is a key issue in FCERM. Through the gentleman's agreement - that characterises the relationship between the government and the insurance industry - insurance is the government's compensation provider.

A number of high-level stakeholders recognised the inherent unfairness of this system, where:

- insurance is not guaranteed for those living in flood risk areas where their annual probability of flooding is 1.3% or more;
- only those who can afford insurance premiums can access this compensation mechanism; and
- where those living in high-risk areas may not be able to afford insurance due to prohibitively high premiums.

From the government's perspective, it was argued that the insurance industry should be leading, or encouraging, homeowner adaptation (through the provision of resistance and resilience measures) - either as a condition of insurance in high risk areas, or in the recovery costs afforded; although it was recognised that individual insurance companies are constrained by the competitive nature of the industry and that homeowner adaptations might adversely impact on property values.

The offering of resistance and resilience measures in the aftermath of the Carlisle floods is seen as evidence of a lack of consistency within insurance. There was also seen to be unfairness in the different ways in which insurance

companies deal with those who have been flooded. This lack of consistency was thought to be unfair.

From the insurance industry perspective, the government should be encouraging, further, the provision of flood warnings on an opt-out basis, as well as the more traditional calls for consistent minimum standards of protection and increases in the defence budget. Indeed, the insurance industry also felt that - in comparison with other national priorities - flood defence received an unfair share of the total budget. In addition, they regarded the management of different types of floods as being inequitable.

In addition, it was the insurance industry perception that the vulnerable were penalised twice – because they can't afford to mitigate (homeowner adaptations) and because they can't afford to recover (insurance). A similar double penalty was expressed in that where decisions are taken not to provide defence, communities may also be penalised by not being unable to get insurance. One suggestion was that government should target those communities that insurers are abandoning; although this would require a very different model of FCERM prioritisation.

5.9 Conclusions: the fairness attitudes of key stakeholders

This chapter has sought to elucidate the attitudes of key national-level stakeholders concerning the fairness of FCERM policies and practices. By way of summary, the following four general conclusions can be drawn:

- The utility approach is, and should remain, the dominant fairness model guiding FCERM policy and practice in the appraisal and prioritisation process. However, because of the inequalities in outcomes that a utility approach delivers - and because not all communities have, in practice, an equal opportunity to engage with this process - a model which places greater emphasis on principles of procedural justice and vulnerability was thought to be fairer.
- There was general agreement that the current system of FCERM does not prioritise the needs of the most vulnerable and that a social justice model that targets resources towards the vulnerable would be fairer. However, the multi-faceted nature of vulnerability was seen as a barrier to this.
- Procedural justice is seen as a key issue for FCERM; the process by which decisions are made must be seen to be fair even if the outcomes are not; transparency and understandability were seen as critical issues. Potential barriers to this include: time, money, skills, consultation fatigue and the conflict between national consistency and stakeholder engagement.
- Most national-level stakeholders considered that, although there is a lot of 'rhetoric about fairness', FCERM is becoming fairer.

More specifically, the following key points can be made.

- National funding mechanisms are perceived to be fair because they offer national consistency and rational criteria for the allocation of resources.

However, they do not facilitate local involvement and stakeholder engagement and they are, therefore, simultaneously, perceived to be unfair. A balance needs to be struck between national consistency, on the one hand, and local decision-making on the other; this would require a different model of resource allocation and prioritisation than is currently practised.

- Applying the beneficiary-pays principle was thought to offer a potential solution to this problem. The majority of national-level stakeholders did not regard this as a fair approach because of difficulties in: determining what beneficiaries could be 'reasonably expected' to know of the risk in the choices that they have made; defining who the beneficiaries are; and difficulties in incorporating 'polluter pays principles' across space and time. However, those favouring the beneficiary pays principle argued that the use of national taxes for the benefit of a minority of the population was in itself unfair.
- Fairer funding models included the suggestion for national funding to cover limited basic needs with top-up funding from local, or alternative, sources; for national funding to focus on lower income areas, with wealthier areas encouraged to secure their own funding; and for national funding to target people rather than property and, thus, specifically target the most vulnerable.
- Ultimately, most stakeholders regarded a fairer system to be one in which national funding could be topped-up by additional contributions from other sources. There are, however, two important caveats to any suggested model of co-funding. Firstly, schemes able to attract external funding should not be able to gain priority; although such schemes should be encouraged because it would allow government funding to cover more schemes which would be fairer for communities with marginal schemes. Secondly, the wider implications of external contributions needs to be considered; the installation of resistance and resilience measures should not, for example, reduce the likelihood of national funding in a wider area because of the reduced benefits such measures might produce.
- A number of stakeholders questioned the fairness of funding allocations between coasts and rivers which in the past have been regarded as unfair in favour of coastal projects. One perception was that funding should be allocated on the basis of risk; hence no differential between coasts and rivers. However, due to the different nature of the risks involved, the majority of national-level stakeholders thought this problem to be intractable; hence, ultimately, the responsibility of Ministers - as democratically elected decision-makers - to decide.
- The focus of FCERM on urban dense areas was thought to be unfair because the cost-benefit approach was unable to account for the wider community benefits of protection. This was thought to be particularly important for community well-being, blight, decay and abandonment.
- The treatment of rural areas was also considered unfair because the scale of analysis often meant that relatively small pockets of deprivation may be masked by wealthier areas.
- The move towards multi-benefit solutions - with the broadening of risk management tools - was seen as a fair way of ensuring that all those at risk could have their risk managed in some way.

- In seeking to manage risks from all sources of flooding, stakeholders thought that policy is shifting towards a more socially just system. However, there are significant barriers to the practical implementation of this policy, including; knowledge, expertise, institutional, financial, legislative, predictability, and differential levels of protection - particularly for sewer flooding.
- There are inconsistencies in how the longer-term is accounted for in decision processes. The EA considers futures over 50 years (and up to 100 years in CFMPs and SMPs), project appraisers do similarly (75-125), but spatial planners operate at much shorter time scales (15-20 years). Stakeholders felt that a longer term view in spatial planning would be required if inter-generational equity considerations are to be fairly incorporated into FCERM; particularly where regeneration and redevelopment leaves a maintenance legacy for future generations.
- The current model - where approximately 5% of the amount spent of FCERM each year is directed to the funding of flood warnings - was seen as important to ensure that all those at risk can have their risk managed in some way. Unfairness in the system was thought to exist because of: difficulties in forecasting and providing lead times across different river and coastal settings and events; the lack of warnings for sewer, pluvial and groundwater flooding (although recognising the problems associated with this) and the lack of warnings for coastal erosion.
- Flood warnings are generally thought to be fair; in that they are consistently applied and are transparent. However, engaging with local authorities, making the service more responsive to local requirements and to the needs of vulnerable groups, were all areas in which stakeholders thought improvements could be made to enhance the fairness of the service provided.
- The spatial planning system was generally regarded as procedurally just; offering clarity, consistency and coherence at all levels of decision-making. However, this system does not treat all those at risk equally; with PPS25 focusing on fluvial and coastal flood risk and significant differences in the interpretation of national guidance and the Exception Test. Here again there are conflicts between securing a nationally consistent approach whilst simultaneously allowing local flexibility.
- One stakeholder regarded the planning system to be inherently unfair because planning permission provided a gateway for private gain. Others felt that a fair system was one in which developers would be expected to contribute to flood mitigation measures.
- Resistance and resilience measures were regarded as important risk management options. However, homeowner responsibility to provide, and pay for, these measures (an example of the beneficiary pays principle) was considered unfair in that only those who own, or are buying, their property - and can afford these options - can implement them. However, those adhering to the benefit-pays principle thought the use of national resources for household level measures is itself unfair.
- Clearly, however, Defra sees that fairness issues are raised by not offering some of those at risk any management of their risk apart from flood warnings (on equality grounds). However, stakeholders did not offer any clear preferences about the fairness principles upon which the provision of resistance and resilience measures should be based.

- In relation to coastal areas, particularly for coastal erosion, dealing fairly with properties at risk is a highly contentious issue. There appears to be unfairness between at-risk populations which are having their risk managed in some way and those being abandoned, asked to relocate or being asked to make space for water. Under the present situation, coastal defences are provided where they can offer the greatest gain to society; the costs are borne by individuals in property loss and relocation and by communities in terms of social and economic blight – the fairness of this model was questioned by stakeholders. Alternative models were suggested:
    - to adopt the beneficiary pays principle and allow individuals to fund their own defences – although it was recognised that this could be in conflict with long-term sustainability of coastal processes and it would be unfair on equality and vulnerability grounds - because wealthier individuals and communities would be better able to fund their own defences.
    - to use LA 'well-being' powers to enable them to finance local defence schemes; albeit without additional funding.
    - to purchase land/property for the rollback of properties or converting properties to short-term use; and
    - to provide financial assistance to individuals or communities to cover loss/relocation costs.
- Finally, stakeholders recognised the inherent unfairness of insurance as the compensation mechanism; where affordability and level of risk are critical factors in its provision and take-up. Criticisms from the government included a lack of consistency and the failure of the insurance industry to encourage homeowner adaptations. Criticisms from the insurance industry included inadequate funding, defence provision and a failure to adequately address vulnerability in government policy.

III CASE STUDIES

So far, this report has examined the fairness of policies, guidance and the attitudes of key stakeholders towards FCERM at the national level. However, in terms of actual FCERM interventions – as opposed to policies and plans – it is the way in which this guidance is interpreted and implemented through local/regional level decisions - and the attitudes of stakeholders to these decision processes and outcomes - that really counts. These decisions can be relatively broad-brushed (e.g. regional spatial strategies) or finely detailed (e.g. project appraisal reports). Ultimately, however, it is the manner in which these decisions are combined 'on the ground' that is important.

Only 'real' examples can illustrate the difficulty of implementing fair FCERM policy in practice. In this research, four such 'real' examples were examined:

- Lewes flood management strategy;
- Felixstowe coastal defence strategy;
- East Riding coastal erosion risk management;
- Leeds urban flood risk and integrated drainage.

The examination of these case studies offers an insight into four key areas of FCERM policy and practice:

- Fluvial flood defence (Lewes): chosen to illustrate the fairness issues that arise in the implementation of the Treasury Green Book and Defra's project appraisal guidance for fluvial defence;
- Coastal defence (Felixstowe): chosen to illustrate the fairness issues that arise in the implementation of the Treasury Green Book and Defra's project appraisal guidance for coastal defence;
- Coastal erosion (East Riding): chosen to illustrate the fairness issues that arise in the differential management of coastal reaches. In particular, to illustrate the fairness issues which arise in the implementation of a roll-back policy: an alternative strategy promoted for areas where coastal defence cannot be justified.
- Urban flood risk (Leeds): chosen to illustrate the fairness issues that arise in the management of urban flood risk and integrated drainage.

The primary purpose of these case studies is to examine, firstly, how national policy is implemented in practice and, secondly, to examine the fairness attitudes of regional and local stakeholders. In this way the case studies address objectives (2) and (3) of the research at the regional/local spatial scale:

(2) To examine planning tools and guidance in the context of social justice.
(3) To provide insights into the attitudes of key stakeholders to the fairness, or otherwise, of current policy and practice.

Chapters 6 to 9 provide the evidence and attitudes of stakeholders in each of the case studies, with a specific focus on:

- the funding mechanisms involved and the perceived fairness of these;
- the fairness principles embedded in key local/regional policy documents;

- the decision processes involved and their perceived fairness;
- the decisions made and their perceived fairness; and
- evidence of, and attitudes towards, inter-generational equity.

The findings from these case studies are then summarised in the concluding chapter of this section, chapter 10.

6. Leeds: urban flood risk and integrated drainage

6.1 Introduction

Urban flood risk and associated drainage issues have increasingly caught the attention of policy makers. This is reflected in the commitment, in MSW, to manage flood risk from all sources of flooding, and to encourage participative decision-making. Flood events in the UK - such as in Hull (2007) and in Boscastle (2004) - have brought some immediacy, and focusing of minds, on these 'other forms of flooding'. However, as yet, there is no national guidance in this respect; although local authorities are exploring ways to manage urban flood risk through integrated drainage and integrated water resource management (WFD).

This chapter explores fairness issues in relation to urban flood risk in general and, more specifically; it questions the fairness of riparian ownership in this context. It is based on research in one of the Defra Integrated Drainage Pilot areas set in West Garforth Leeds (Project Code: TRE 344). The main objectives of which are to:

'confirm the status of drainage assets and provide working definitions of responsibilities;
develop collaborative solutions in cases where flooding problems appear to fall outside clearly accepted operational responsibilities of any single competent EA*;*
develop practical procedures to demonstrate the benefits that assets provide to different stakeholders and how future pressures may affect benefits;
explore innovative approaches to funding proposed solutions' (Defra, 2007a).

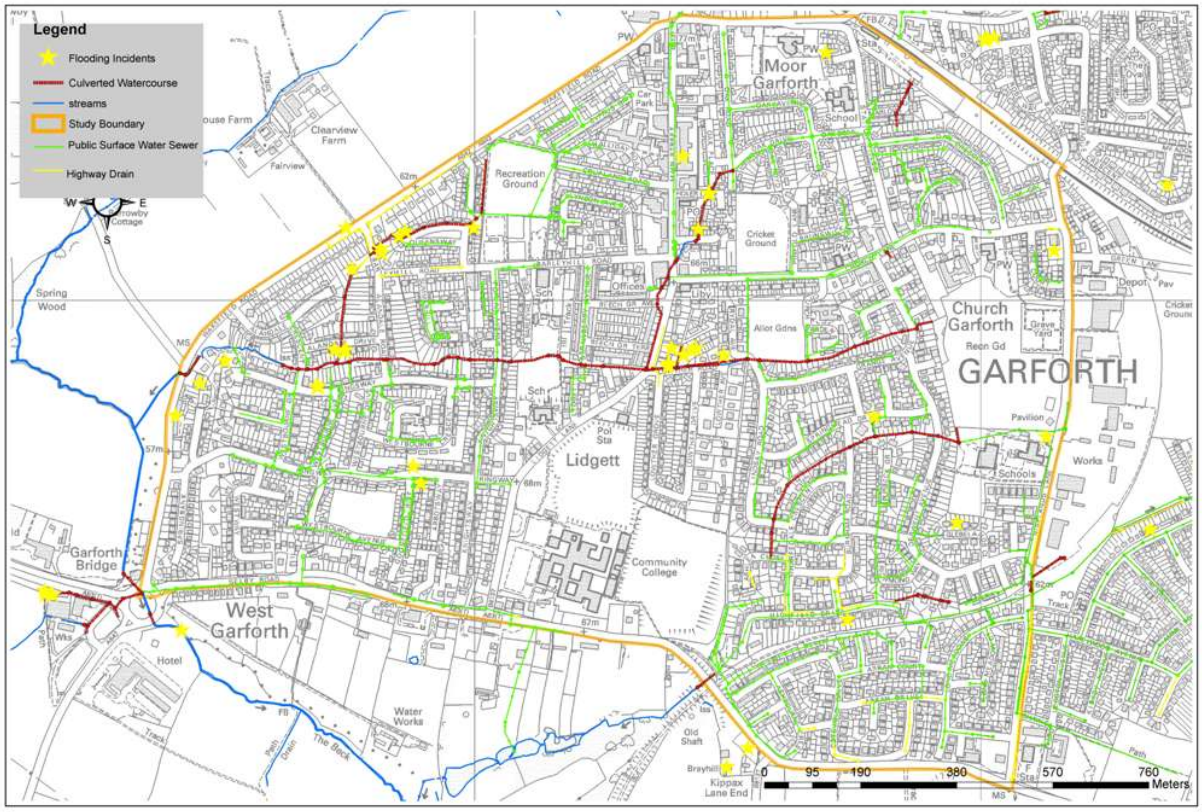
This pilot study runs from January 2007 to March 2008. At the time of the research, the pilot was still on-going but stakeholders were starting to formulate their views of how the pilot had performed, in preparation of their final report. The research has also been supplemented with early feedback on a second Defra pilot being undertaken on the Dunhill Estate in East Leeds. This pilot explores issues surrounding the provision of individual household flood mitigation measures (flood boards, airbrick covers etc).

6.2 Background

Garforth is a town that lies at the eastern edge of the metropolitan City of Leeds. The ward of Garforth and Swillington has 23,892 residents of which Garforth forms the majority (ONS, 2001). Major growth for Garforth occurred in the 17th and 18th century based on coal mining but with more recent growth in development in the 1960's the attraction to the area now is for residential commuting to Leeds. The self-contained town is bounded by the M1 and A1 roads, rural development and farmland. West Garforth is an area of two to three thousand residential properties, a few small businesses, local shops and schools.

The pilot locality of West Garforth is geographically defined and bounded by major roads, fields and a railway line (Figure 6.1 outlined orange line). It is also a fairly self-contained in-drainage network with almost no ground flows into the area. The pilot boundaries contain the bulk of the historical flooding that has occurred in Garforth and the flooding is associated with privately owned watercourses. The flood risk in West Garforth is an example of where watercourses, that used to exist when the area was pastures, have been subsumed over time by development.

Figure 6.1 West Garforth pilot area indicating drainage channels and flood incident locations



Source: Defra, 2007a

Records of flooding problems in West Garforth date back to the 1980's; although this is not to say that flooding problems had not occurred before this time. It was reported that a more efficient approach to record keeping was established from 1974 with local government reorganisation. What was Garforth Urban District Council was incorporated into Leeds and came under the control of Leeds City Council. Such changes in institutional arrangements, over time, are considered by stakeholders to have contributed to the lack of progress in implementing a solution in this locality.

There have been seven flood events documented since 1997 and the current return period for some properties was reportedly estimated to be one in two years; or even more frequent as a result of continuing events. The most recent

flood on the 25th June 2007 (during the pilot study) entered a dozen homes and affected the outside property of an estimated additional fifty homes. In one house floodwater reached the top of their kitchen work surfaces. Flood waters usually originate from a culvert drainage channel (Figure 6.1: illustrated as red lines) and flooding results from culvert surcharge backing up and exiting through manholes or, in some cases, the pressure of surcharge has blown holes up out of the culvert into residents' gardens.

This largely culverted drainage system was modelled in the early 1990s when insufficient culvert capacity was identified as a key cause of flooding. In addition to increased flow capacity demands on the culvert - due residential development of the area over time - there are also system design and maintenance issues.

There is a lack of uniformity in urban drainage systems. For West Garforth it was reported that the culvert changes in diameter and direction through the system, and sometimes has other utility functions such as pipes and cables running through it. These are unregulated changes to the culvert which have been added over time. For this case study, maintenance issues were reinforeced by the fact that in order to be able to inspect some sections of the culvert, sediment had to be jetted out so that the CCTV equipment could be introduced.

The culvert is acknowledged by stakeholders to be the physical source of the flooding but, as a common issue of urban drainage, responsibility for implementation and funding of a solution is contested. The process of arrival at a point of implementation is not formalised into specific processes and procedures because there are few precedents in urban drainage and the situations are often complex, and specific, to the localities. It is procedure rather than outcomes that are contested.

6.3 Procedural Justice

A number of diverse stakeholder organisations are brought together by responsibilities in urban drainage flood risk management. Diversity in duties, abilities and their views on procedural justice, and fairness, informs the decision they make. In West Garforth these include decision-making organisations in the form of Leeds City Council and Yorkshire Water. The residents make up a stakeholder group comprising riparian owners and those at risk. The latter don't necessarily have to be riparian owners and visa-versa. In relation to the pilot study, there are additional advisory stakeholders in the form of the EA, the Pennine Water Group and the University of Bradford. Common to all urban drainage contexts there are a number of stakeholders and their responsibilities are related to the legislative definition of the source of the flooding. In terms of responsibilities, the relevance of some stakeholders, such as the EA, will vary dependent on the situation in a particular locality.

6.3.1 The legislative context and responsibilities

The roles and responsibilities of the stakeholders in the urban drainage context are defined by legislation and refined by the decision-makers. In West Garforth the mostly buried culvert is acknowledged by stakeholders as the physical

source of the flooding. The culvert passes through residents' land and so, legally, the residents are considered the riparian owners of that culvert. Based on legislation (Land Drainage Act 1991), riparian owners have responsibility to maintain flows in a watercourse. Blockages in terms of sediment, and larger objects, are the clear legally responsibility of these residents. On the other hand, riparian owner responsibility, as regards the requirement for greater culvert capacity due to increased inflows, rather than blockage, was considered by stakeholders to be vague.

For urban drainage, the sources of water can be from accumulation at premises (cartilages) or surface water runoff. Landowners and developers have a right (Public Health Act 1936) to connect drainage to a public sewer (for trade premises Public Health Act 1937). The waste water companies have a responsibility for the effectual drainage of its areas and so to extend, and maintain, a system of sewers so as to do that (Section 94 of the Water Industry Act 1991). The water companies own, and have responsibility for, surface water public sewers into which landowners and developers connect. In turn, the water companies can connect their sewers to a watercourse provided the outflow is not 'polluted'. Sewers are defined as:

'a pipe or channel taking domestic foul and/or surface water from buildings and associated paths and hard standings from two or more cartilages and having a proper outfall; a proper outfall being defined as "an outfall to a watercourse, public sewer and in some circumstances an adopted highway drain' (Defra, 2005b:22).

This excludes land run-off and overland flow. So, in effect, both landowners and water companies are able to connect, and have rights to transmit water into, watercourses. Equally, drainage from highways can feed into watercourses (Highways Act 1980). But, the burden of flow maintenance responsibility for those collecting water courses can lie, as in West Garforth, with the residents who are riparian owners.

For West Garforth the water company is Yorkshire Water. The majority of flows into the culvert are from the surface water public sewer system; owned by Yorkshire Water. There was reported to be very little land run-off or overland flow contribution. The flooding, on the other hand, originates from the culvert; which is not defined as a sewer and so does not legally fall under the remit of Yorkshire Water. If, however, funding was permitted from Yorkshire Water, then funding decisions would operate on the principle of maximum utility. A cost-benefit risk matrix would be applied in order to prioritise spending; in order to meet flood resolution targets set for the organisation as a whole. Even so, this is not the case for West Garforth. It was reported there are currently no properties on the water company's flooding register in West Garforth due to inadequacies in the public water sewers. The water companies came under the direction of OFWAT, an office of the Water Services, and a regulatory body supervising the operation of the water industry. As such, under OFWAT guidance, water companies are not permitted to use monies raised through the sewerage rate for mitigation of non-sewage flooding.

The EA is a key stakeholder, and decision-maker, in coastal and fluvial flood risk management. However, in the urban drainage context, their involvement is

limited and is again legislated by a predefined typology of the watercourse in question. The EA are permitted to manage water courses termed Main Rivers; as marked on a Main River Map. Critical Ordinary Watercourses, which were once the responsibility of the Local Authorities, have now become reclassified as Main Rivers. Through legislation (Section 165 of the Water Resources Act 1991) the EA has permissive powers to maintain, improve and construct in relation to Main Rivers. However, such powers do not extend to non-Main and ordinary watercourses. The EA does have some statutory regulatory powers in the urban drainage context; through their planning duties under PPS25 and the different forms of local authority flood risk assessments. This planning function is the urban drainage link between the EA and the Local Authorities. However, these powers do not extend to direct remediation of an on-going problem - as is the case in West Garforth.

Councils, in this case Leeds City Council, could take action utilising their permissive powers (not duty) - under the land drainage act - to undertake a flood alleviation scheme. But, a strong enough case needs to be presented before resources and funds are committed to a council backed project.

The EA have taken an advisory role as a stakeholder in the pilot study. Their involvement has been with a view to the future. As pointed out by the EA respondent, responsibilities could change in the future, extending beyond Main Rivers. Also with advisory roles in the pilot study were the Pennine Water Group - providing hydrological technical input and project design - and the University of Bradford - responsible for the management and design of the engagement process with residents. The involvement of such organisations in the pilot highlights the requirement of specialised technical knowledge in urban drainage and flood risk management generally.

6.3.2 Local discretion and issues of choice

Across all types of flood risk management, the attribution of drainage responsibilities to the various stakeholders necessitates that the relationships between the stakeholders, the individual parts of the drainage system and the source(s) of flooding, are clarified. However, in the urban drainage context it appears that clarity of responsibilities does not necessarily lead to the implementation of a solution. Interpretation of final responsibility may not be so clear cut.

In West Garforth riparian responsibilities were lifted by the enforcing stakeholder; based on considerations of fairness and a pragmatic desire to progress to an achievable solution. But, conversely, the adoption of the riparian owners' responsibilities is now contested by the decision-makers; thwarting progress to implementing a solution. This case study illustrates how, when legislation is ignored, responsibilities can then become muddied by the apparently more nebulous considerations of what is fair rather than following further legislative guidance. In the case study, stakeholders adopt arguments based on either, which elements are dysfunctional in the current drainage system (based on legislation), or on wider arguments of historic causal culpability (based on fairness).

The legal responsibilities of riparian owners might be considered unjust; both by the owners and decision-making organisations involved. For the riparian owners, the decision-makers framed their responsibilities as unjust both with regard to the management of blockages and because of increasing demands on capacity because of development (the attitudes of riparian owners was not undertaken in this research).

For riparian owners to meet their responsibilities of maintaining watercourse flow they need to be aware that a watercourse exists, be aware of their responsibilities associated with it and to have the ability to take action. It was proposed, by the stakeholders, that the lack of choice regarding responsibilities was a fairness issue for these riparian owners. In the case study, the culvert is mainly buried, running under residents' gardens, and so is, effectively, hidden from sight. Stakeholders reported that often residents had been unaware that the culvert was present on their property and/or did not understand their riparian duties. With inadequate access to drainage records it was considered, by stakeholders, unlikely that some of the drainage systems would have appeared in house buyer searches. So, the watercourse would not have been part of their initial property purchase decision. For some residents there are inspection manhole covers in their gardens but these are intermittent. Finally, a watercourse can have a large number of riparian owners which might affect a riparian owners' ability to take action. And, the ability of riparian owners to organise and finance what could be a complex and expensive solution is questioned. This was the case for the culvert, where Leeds City Council held this opinion, but that opinion had not emerged from, or been tested through, legislative enforcement.

Enforcement of legislation can be a matter of considered choice on the part of the enforcing organisation. In the case of urban drainage this can be the council or the water authority. This has been illustrated by local discretion exercised by Leeds City Council; where although the riparian owners are responsible for the culvert it was reported as unlikely that the owners duties would be enforced. It was reported that Leeds City Council do, but rarely, take legal action against riparian owners under Section 25 of the Land Drainage Act (to keep a watercourse free of impediment). This was because such action was reported to be unproductive:

'there is a large amount of administration and legal work required and the courts give such small fines'. (WG1)

Councils present their activities, motivated in terms of social responsibility as public servants, with funding decisions spoken about in terms of 'strong arguments' rather than based on calculated financial outcomes. This was the case for Leeds City Council, where the 'argument' for non enforcement was presented in pragmatic terms: considering riparian owners' abilities to fund and deliver a solution and the effectiveness of legal action in enforcement. But issues of fairness were also equally presented as informing the Council decision in terms of riparian owners' choice: in the ownership of their responsibilities and their ability to control increasing demands being made on their watercourse. For decision makers, by taking responsibility away from the riparian owners, both legislative and fairness issues become the basis for contention.

6.3.3 Temporal dimension and redefining responsibilities

The key challenge facing stakeholders in resolving urban drainage flooding revolves around defining an achievable solution. Such a solution is secured in terms of stakeholder agreements of who and how a solution will be undertaken and financed. From the decision-makers point of view, fairness is raised as an issue in terms of rightful demands being placed on their organisations. Fairness is questioned when historic relationships and agreements made between the stakeholder organisations have changed over time.

Stakeholders framed their explanation of the continuation of West Garforth's flooding problems, originating from changes in organisational responsibilities, and maintained through the legislation thereafter. A solution was reported as being scuppered by the privatisation of water companies in the late 1980's. Under the, then different, context of organisational responsibilities, a solution had been developed and was about to be implemented. Leeds City Council was the sewage agent of Yorkshire Water. On behalf of Yorkshire Water, the council developed a solution to the flooding problem. The solution again focused largely on the culvert which was considered to be acting as the inadequate backbone of drainage in the area. The solution devised took the form of a main trunk sewer that picked up all the sewers currently feeding into the culvert and was planned to run down the centre of the catchment. This was termed the 'big pipe' solution and, at that time, cost close to £0.5 million. It would now cost considerably more.

'Yorkshire Water asked Leeds City Council to promote the scheme as sewage agent of Yorkshire Water because most of the flows in the culvert were from public sewers'.(WG1)

It was argued that, since privatisation of Yorkshire Water in 1989, the attitudes regarding the water company's responsibilities to flood mitigation in the area had gradually changed. The majority of the contribution to the culvert is from surface water public sewer system owned by Yorkshire Water. But the water company's responsibilities are now squarely focused on the sewer system through legislation, and OFWAT restrictions removing them from a potential solution. Even so Yorkshire Water reported:

'we have not yet made a final decision regarding our involvement in West Garforth' (WG2)

Interestingly, when the original 'big pipe' scheme was turned down, the residents and Leeds City Council appealed to OFWAT for continued involvement of Yorkshire Water; but that appeal was also turned down. The grounds for this decision were considered unfair by the council. A further funding channel was explored when redefining the watercourse. It was explained that, in 2004, Leeds City Council 'tried to persuade' the EA to 'e-main' the culvert (redefine as a Main river). With redefinition, the solution would gain EA permissive powers, and a possible budget to achieve it. But, the EA representative reported:

'We questioned the watercourse status of the culvert and it could not be redefined as Main because of the amount of sewers discharging into it.' (WG3)

However, as part of the pilot study, and in support of their case, Leeds City Council found records in the form of old ordinance survey maps that show open watercourse channels on exactly the same routes as the culvert system; addressing the first of the EA objections and possibly bringing EA powers in relation to the culvert a step closer.

Whilst the council has decided not to enforce riparian ownership legislation, it was reported that they also do not consider that their organisation should commit resources to, what they view as, building a trunk system for the sewer network. The Council consider Yorkshire Water to be the custodians of the sewer system and with a general duty to effectually drain the area. Such attitudes are likely to be based on historic organisational arrangements of the original 'big pipe' scheme. The definition, and legal status of the 'pipe', set within the institutional context, has contributed to constraining decisions, funding and progress for over a decade. This has resulted in the continued disruption of residents' lives in the area.

In an attempt to break this deadlock new innovative approaches to urban drainage, in the form of SUDS (sustainable urban drainage systems), have been proposed. These not only present a new solution but also, as in the case of West Garforth, open up the possibility of shared ownership and funding of the solution between stakeholders. This alternative approach to the 'big pipe' solution may also serve to break entrenched positions adopted by stakeholders over time and the injustices felt by some stakeholders. The fact that a 'proper outfall' would legally exclude many SUDS technologies from some stakeholder funding was not mentioned in stakeholder interviews. This was most likely to be due to the stage the pilot had reached; where stakeholder responsibilities for various solutions had not yet been discussed. But, it is a further example of a possible legislative constraint on future progress.

It was reported that SUDS approaches are limited as there is not much scope for infiltration in the area because the ground is mostly clay. So, pond storage, or underground tanks, day-lighting the culvert, greening of roofs and water buts were some of the considered options. Water buts, as an approach, re-involves residents in a solution. Residents need to maintain the effectiveness of this approach through periodic emptying of buts and also may have to purchase water buts for their property. Fairness issues here are related to the widening of responsibility, beyond just riparian owners, to those deemed contributing water to the culvert and giving additional duties to residents who already have riparian responsibilities. Also day-lighting, or uncovering the culvert, is a way of facilitating riparian duties. This may appear contrary to arguments of fairness supporting the current lifting of responsibilities from the riparian owners.

6.3.4 Beneficiaries and issues of fairness

The council focuses fairness issues on the beneficiaries of any flood mitigation action - the residents. But, equally, this is balanced against the council's requirement to support their position based on issues of fairness in terms of *just* demands on their organisation (responsibilities for implementing a solution). Decisions, in terms of local discretion and the lifting of riparian duties, were based on fairness but also pragmatically considered constraints concerning

what was achievable, or unachievable, by the residents. In fact, to gain an achievable solution, and a fair outcome, decision-makers felt legislative constraints needed to be resolved rather than the technical ability to deliver it. This is illustrated in the following text taken from the pilot study inception report:

Whilst a solution to this problem is technically feasible, and the seriousness of the flooding problem is acknowledged, there are issues relating to the legal status of the drainage assets, the level of acceptable risk and organisational responsibility. (Defra, 2007a)

However, the case study highlights how legislation is but one issue. Residents could have a strategic role in the resolution of an urban drainage problem. A resident (affected by the flooding) who had volunteered to be an active member of the pilot steering committee indicated willingness to pursue other funding streams. For example, lobbying the council for funds from the recent sale of an airport, which had been earmarked for a big sports arena (to benefit many), could help their area (to benefit a few). The resident was also investigating Lottery funding and local business (Co-op) community initiatives to help financially. One decision-maker pointed out that such an approach would not be a sustainable option for other urban drainage areas because residents are focused on their local situation rather than the wider concerns of decision makers. In fact, for this resident, resolution of the problem takes precedence over issues of fairness:

'it might not be fair but sometimes its not just a matter of what might be fair or what you perceive to be fair sometimes it's a matter of what is expedient really.' (WG4)

It is important to note that this resident emphasised that she had experienced a range of opinions amongst the West Garforth residents from 'do nothing the authorities should be doing it' to her proactive approach. Supporting her attitude, the resident also explained interest and willingness to self-fund (up to a budget) individual household measures to improve resistance and resilience of her home. But, lack of awareness of the types of products that were available, sources for purchase and advice, were all considered as constraining action on her part.

In a different pilot, again in East Leeds but on the Dunhill Estate, an investigation is being undertaken into the implementation of individual household approaches. Funded to a sum of £240,000 (Leeds City Council contributing £150,000 and DEFRA £90,000) resistance measures are being supplied to about seventy houses that have been flooded three times in the last three years. It was reported that, even with this frequency of flooding, most residents have been unwilling to take any physical actions. Early feedback from the pilot, to decision-makers, highlights problems rather than benefits with the approach.

Some residents who have put measures on their houses reported that they are unable to sell their houses even if they reduce the price by half... They feel like they are imprisoned, not being able to move even for a new job. (WG5).

From the point of view of decision-makers, the effectiveness of such measures was also questioned; because residents had to be at home and have sufficient warning to fix them in place (e.g. air brick covers and flood boards). The depth gauge warning being developed in this locality was reported to provide a ten minute warning only.

As well as concerns regarding effectiveness, decision-makers also questioned issues of fairness regarding such measures. It was felt that, again, responsibility was being placed on those at-risk and the flooding was not being tackled at source. There was a concern that if such measures were effective for most residents, this would give the impression that an effective solution had been achieved for all residents, and flood management attention for the area would fade. Also, if priority scoring informed funding decisions, successive reduction in damages with such measures could reduce the priority score and ranking for the area. This was not regarded as sustainable in the long term.

6.3.5 The West Garforth pilot as a fair process

The West Garforth pilot had brought organisations together but not for the first time. Not only do local stakeholders meet on other issues, the urban flooding in West Garforth is a long running problem where issues have been investigated and clarified over time. Stakeholder responsibilities were already clear to them but progress was not being made. It was reported that the pilot did, however, provide a funded forum (Defra budget of £75,000) for fresh approaches to be pursued.

- Stakeholders had pooled new information such as GIS and Lidar data.
- The pilot had acted as a catalyst ensuring even more flood related information had been gathered eg: Leeds City Council has started a survey of every highway gully where, until recently, there were very few records.
- The culvert network had not been internally surveyed for a long time so the pilot funded a CCTV survey.
- The act of surveying the system had, in itself, reduced flood risk; the council found they had to clear the culvert to get the camera down.
- Yorkshire Water, through a funded in-depth investigation, were able to resolve a few problems of conveyance in their sewer network.
- The pilot highlighted West Garforth's situation which attracted funding for further initiatives.

The process of undertaking the West Garforth pilot study was considered, by the stakeholders, to be a fair mechanism up to a point. However, as a facilitation mechanism, to be employed to help resolve other urban drainage flooding problems, it was not considered sustainable. Most stakeholders explained that they had expended more time on the pilot than had been budgeted for; which could be viewed as unfair if sustained. However, for the Council, such additional time could be deemed to be part of their 'day job' and justified.

It was reported that care was taken that specific initiatives (flow survey and CCTV survey) were fully funded. Even so, all the stakeholders were agreed that

they didn't think the pilot would deliver a solution that would be immediately deliverable because the legislative, and attitudinal constraints, remained unchanged. As a fairness issue for the residents, stakeholders attempted to manage the residents' expectations of the pilot and hoped to report back any outcomes at the end of the pilot to residents; although funding may be a constraint to this.

6.3.6 Consultation and engagement

Active stakeholder engagement is encouraged in river basin management and planning (Water Framework Directive 2000/60/EC, EU (2000)) and was a component of the West Garforth pilot process. Local residents were invited to take part in two workshops held locally (miners club and a primary school). The first workshop was intended to collect information about flood experiences and the second workshop to facilitate resident engagement with possible drainage solutions.

The last flood related engagement, for the residents, was thought to have been in the 1980's with the proposed building of the 'big pipe' solution. In introducing the workshops, attended by all the stakeholders, it was stressed that great efforts were made not to raise residents' expectations that a solution would be directly implemented from the workshops. The workshops represented an exploratory exercise into the options that might be available to the residents.

Inclusive participation in the workshops was encouraged. Riparian owners directly received an individual notification of the meeting, in the form of a leaflet, as did anyone who had been flooded. Leaflets were placed in local shops, libraries, post offices and an announcement was made in the local newspaper. Also, a newsletter was produced to inform residents of the pilot activities. Both workshops were considered to be well attended with roughly fifty residents attending each. It was reported that, due to the limited budget, no special arrangements were made to encourage groups that might find it difficult to attend e.g. older people and those with children. However, the halls did have disability access and facilities. It was reported that West Garforth is predominantly white, middle class, not requiring attention to particular ethnic groups.

Engagement of the public meant that the stakeholders received a large amount of information particularly after the flooding that occurred in June. Information took the form of descriptions of the flooding, sketch maps, mobile video's etc. In the second workshop, the residents were presented with SUDS approaches and then, facilitated in small groups, residents indicated on maps where they thought such solutions could be applied. It was considered by the stakeholders that an open approach to developing a scheme could allow value to be added to options e.g. land highlighted as possible storage was found from the workshop to be planned for development and so could be lowered slightly to store more water.

'You might not produce a completely technically viable solution but you do gain legitimacy for solutions with the residents.' (WG6).

It was commented that stakeholders' aspirations were that residents would suggest the same solutions as the experts and so ownership of the scheme would ensue. However, it was pointed out that there was a tendency towards more expensive solutions, being preferred by residents, because those solutions tended to satisfy the most issues e.g. underground storage vs surface storage and possible local disruption. Issues of cost were not introduced into these workshops.

The workshops were viewed by stakeholders as a means of inclusive decision-making, information exchange and managing expectations for the various investigative activities the stakeholders were going to undertake in the area. However, as with any stakeholder engagement exercise issues of fairness are raised:

- Adequate representation of the community
- Adequate representation of the range of those affected by the flooding (those unaffected by flooding would be hardest to recruit but could be affected by planned options)
- Good facilitation so that all participants have an equal voice
- Residents were commenting on the location of options that may affect those residents not present at the workshop
- Inclusion of retail and business interests

Importantly, such engagement, although a form of deliberation, might be considered consultation rather than participation; a particular SUDS strategy was introduced and other options left out ('big pipe', riparian duties, individual household measures and alternative funding issues). In fairness terms, it might be considered residents were not given choice in all options.

6.3.7 Vulnerability

With regard to the urban drainage case in West Garforth, vulnerability had not been raised at that stage in the process. This was considered, by decision-makers, to be due to the stage at which the pilot had reached. It was felt that later, when more detailed investigation of options was required, vulnerability might be introduced.

More generally, the issue of vulnerability and how stakeholder organisations dealt with it on a daily basis revealed possible future attitudes. For the decision-makers, it informed how they approached and resolved residents' problems. The principle of maximum utility appears to direct the financial and procedural decisions of Leeds City Council in this matter. It was reported that distinctions are made between residents and the Council didn't agree that everyone should be treated equally.

'We make a distinction about how to approach it from a wealthy business man, a healthy young man or a frail old lady who might suffer from just the worry… staff are aware of the need to differentiate.' (WG1)

Council decisions are based on 'strong arguments' which can be informed by a combination of financial and social considerations. Water companies, on the

other hand, are private commercial companies and appear, from interview, to operate on the principle of maximum utility. Decisions are informed by cost-benefit calculations for the prioritisation of spending; in order to meet flood resolution targets set for the organisation as a whole. Here, residents would be treated equally with an attempt to distribute limited funds equally across their customers. There are two quite different approaches from the key stakeholders in any urban drainage context.

For the advisory stakeholders, such as the EA, there was a view that, at this stage, all those who were at risk of flooding were the vulnerable and the responsibility concerns of the stakeholders should not impact on those at risk:

'its people being flooded at the end of the day it doesn't matter where its (flood water) coming from its people that matter they are the tax payers'.(WG3)

In the case of the University of Bradford informant, who managed engagement with West Garforth residents, urban flooding impacts on everyone to some extent; not just those directly affected with water entering their homes. As such, a wider population of residents would be included in her assessment of vulnerability. It would appear that for the council, as lead stakeholder in future options development, vulnerability should have a greater chance of inclusion in the urban drainage mitigation decisions.

6.4 Intergenerational equity

In urban flood risk it is clear that where a flood issue already exists it is considered by stakeholders that intergenerational issues of the past have contributed to the current situation; but consideration of such issues for the future are limited.

The Leeds City Council informant described a legislative past that has contributed to the current flood problem in West Garforth: a change in the institutional map and responsibilities brought about by the water company privatisation. This has meant legislation favouring one stakeholder whilst for riparian owners and the Council, an injustice is perceived to exist.

The council questioned if it was fair that they should put right decisions made outside the control of riparian owners. Here, reference was made to increased development in the area and to automatic sewer connections by the Water Company, to the culvert, overburdening the system for which the riparian owners were ultimately responsible. Equally, it was reported that poor access to information in the past has, in many cases, meant that residents have taken on riparian responsibilities without realising it, or having control over that choice.

On the other hand, it could be argued that past development planning control had contributed to the culvert capacity problem. Also, the council decision to not enforce riparian duties has contributed to the current lack of progress in implementing a solution. The lifting of riparian duties was informed by an untested, if apparently reasonable, proposition that the riparian owners would not be able to fulfil their duties and resolve the problems of the culvert.

Looking to future generations, it is clear that issues of climate change are not currently taken into account in standards set for the sewer network. Any sewer drainage solution was reported to be built to a 1 in 30 year return period standard and, as water companies are regulated, that is the minimum standard that has to be met.

The inadequacies of record keeping were reported to have started to be addressed but only for this pilot area rather than generally. As an example, some highway drains do contribute to culvert flow but their contribution is unclear because no one has had a statutory responsibility for keeping records of highway drains.

Finally, it might also be argued that inclusion of sustainable approaches, in the form of SUDS, could be addressing the issues of future generation in the area. However, it was indicated by informants that this was not the primary reason for this approach being adopted but the pursuit of an achievable, and fundable, solution was the priority. SUDS approaches were mainly viewed as a fresh, innovative, way forward.

6.5 Summary

The management of urban flood risk is clearly complex, both legislatively, and as a result of the different stakeholders that can come into play; dependent upon the physical characteristics of the different urban flood contexts. The case study in West Garforth illustrates that, while there is a level of clarity in legislative responsibilities, such legislation may not be viewed as fair by those organisations that have to enforce, or abide by, it.

As a result, as in this case study, local discretion can be supported both on the grounds of fairness to those affected and in consideration of a just outcome of demands on the organisation deemed responsible. Equally, the local discretionary decision can be informed by pragmatic considerations that the legislative enforcement route will not result in a solution that is eventually achievable. In this particular urban situation, fairness and pragmatism have combined but have still resulted in a lack of progress in the implementation of a solution. An impasse has been reached that has lasted more than a decade.

The Defra pilot study, itself, has become a mechanism for stakeholders to further explore ways of addressing this impasse. Fairness issues were raised based on historic legislative relationships, which have now changed, and feelings of unfairness, or fairness in duty, among stakeholders, depend on where responsibilities now fall.

The duties of riparian owners were highlighted to be unfair by decision-makers if they did not have the ability either for informed choice in taking on, or undertaking, those responsibilities.

Issues of vulnerability are not currently a consideration, and future considerations appear to be dependent upon the fairness culture of the enforcing organisation involved. Innovative approaches to solutions were explored but, again, fairness issues were raised in the form of further responsibilities being placed on those at risk, issues of housing blight with their

adoption, and in the approaches adopted; ultimately reducing the ability of the area to get a long term solution.

The pilot illustrated that a beneficial engagement process with residents could be employed in the urban drainage context but there are fairness considerations associated with such approaches. It was questionable whether a process of participation was undertaken with residents.

Finally, while intergenerational issues from the past are more likely to be used to support the current contested positions adopted by stakeholders, issues for the future receive little attention in the urban drainage context; either in standards or planning.

7. Lewes: flood management strategy

7.1 Introduction

This case study focuses on the process and outcome of the development of the Sussex Ouse Flood Management Strategy - as it affects the urban area of Lewes, East Sussex. It was chosen to illustrate the social justice issues that arise from the application of the Treasury Green Book (HM Treasury, 2003) and Defra's Project Appraisal Guidance (MAFF/Defra (1999-2006)). It also addresses, to a limited extent, the fairness issues relating to spatial planning, development and flood risk in Lewes arising from the Strategy outcomes.

7.2 Background

7.2.1 Flood event of October 12, 2000

On 12 October 2000, the towns of Uckfield and Lewes in East Sussex, and the surrounding rural areas, suffered devastating flooding from the river Ouse and its tributaries. The flooding was preceded by three days of storms and heavy rainfall which saturated the catchment, before particularly intense rainfall fell overnight on the 11th to 12th October. The quantity, and speed, of the resulting run-off caused the catchment's rivers and streams to overwhelm their natural channels and overtop their flood defences, inundating about 2000 hectares of flood plain, and over a 1,000 properties, in the Ouse Valley (613 residential and 223 other properties in Lewes); causing an estimated financial loss of £130 millions across the catchment. However, outside the urban areas of Uckfield and Lewes, only 60 properties were damaged (EA, 2001).

Following this flood event, the EA, Southern Region, commissioned Binnie Black and Veatch to provide a factual report on the: background, causes, and return period of the event; its impact; and on the flood warning and emergency response (EA 2001). Although flooding in Lewes is infrequent - the last flood before the 2000 event occurring in 1960 - the damages can be significant; with 302 residential and 172 other properties at risk of flooding in a 1 in 50 year event; the approximate standard of protection provided by the existing defences.

The main causes of the flooding in Lewes were identified as development in the flood plain through Lewes, and the narrow river channel through the town constricted by the Cliffe Bridge, as well as the very intense rainfall on an already saturated catchment. The average rainfall over the four day period, from 9-12 October, over the River Ouse catchment to Lewes, exceeded the 1 in 200 year event (EA, 2001).

7.2.2 Sussex Ouse Flood Management Strategy

A flood management strategy for the Sussex Ouse had been planned for some years but it was advanced by the flood event. The EA, Southern Region, undertook pre-feasibility studies into potential flood mitigation measures, following the flooding in autumn 2000. These studies recommended a strategy

study for the Sussex Ouse. Binnie, Black and Veatch were commissioned to produce this strategy ahead of the Catchment Flood Management Plan (CFMP) programmed for 2006-07.

The following aims and objectives were set for the strategy, at its inception in 2001, and remained the same throughout the strategy development:

- To develop a policy for flood risk management for the Sussex Ouse catchment, which includes; Lewes, Uckfield and other settlements at risk from flooding, in partnership with the local statutory and non statutory organisations;
- To ensure that flood risk management of the Sussex Ouse contributes to sustainable management of the river basin;
- To provide the best value considering capital, maintenance and emergency expenditure, and the risk of flood damage and erosion, over the lifetime of the strategy;
- To propose a five year detailed programme of works, within a 50 year (100 year for the updated strategy) outline programme, to contribute to flood risk management in the river basin;
- To work with Local Authorities and other key interest groups to ensure that their aspirations are considered and, where possible, accord with the options promoted.

The strategy was intended to cover the Sussex Ouse catchment as a whole. However, more limited upstream and downstream boundaries were identified and the study, therefore, extends from Piddinghoe north of Newhaven, upstream to Goldbridge on the River Ouse, and from the Uck/Ouse confluence to the north-east of Buxted' (EA 2004b, p.1) (Figure 7.1). Inevitably, it focused to a considerable extent on the urban areas; where the property flooding occurred. Both the original, and the updated strategy, examined, and made recommendations on, Lewes-wide options such as; upstream and downstream storage, by-pass channels as well as options within Lewes itself; such as wall raising and combinations of the two (Figure 7.2). For the wall raising option within Lewes, Treasury and Defra Project Appraisal Guidance in economic evaluation indicated that where an investment benefits a single flood cell, the costs and benefits should be applied to that individual cell to determine its viability (Figure 7.3).

Within Lewes, eight discrete hydrological flood cells were identified by the EA and their consultants. The boundaries of the four central cells were provided by natural and man-made structures: chiefly, the river and by the Phoenix causeway because flood waters do not overtop this structure. Thus, from the initial strategy development, in terms of wall-raising, the town centre was not treated as a homogeneous community and from this, it followed that, common standards of defence were not proposed for the different cells of the town (Figure 7.3). Thus, the rejection of the Lewes-wide options (upstream, downstream storage, and by pass channels) was a key decision from which social justice issues flowed.

The decision process took place over an extended period, and is on going:

- June 2001: the initiation of the Sussex Ouse Strategy;
- August 2002: its first strategy report produced;
- February 2003: Defra advised that further work was required but agreed to Malling Brooks going forward to detailed design on the basis of its benefit cost ratio and priority score;
- May 2004: following further investigations, required by Defra, an updated strategy report was produced with recommendations;
- January 2004: outline design and Project Appraisal Report for the Malling Brooks works approved by Defra, following review by the EA's National Review Group;
- 2004-5: Malling Brooks scheme completed;
- January 2006: SRFDC agreed to fund the Cliffe cell scheme through the local levy;
- On going: consideration of developer funded defences for parts of Lewes.

Defra, in February 2003, identified six areas, within the original strategy, that required further attention:

1. To continue with the existing site investigations work in, and around, Lewes (e.g. flood walls) and incorporate the findings and impacts into the strategic proposals.
2. To consider the strategy in the light of recently updated economic data and guidance to ensure compliance.
3. To continue to seek contributions, and formalise negotiations, with third party and riparian owners.
4. To continue investigations of impacts on water levels of change in land management downstream of Lewes (addressed in the 'Lewes to Newhaven Study' not the strategy).
5. To continue to press for longer-term considerations of land use matters, within the floodplain, with the appropriate authorities; particularly the siting of properties in Uckfield.
6. Take the strategy forward in a way which separates Lewes and Uckfield; recognising that the impact of works in either location does not have an adverse impact on the other.

Figure 7.1 Extent of the Sussex Ouse Flood Management Strategy area

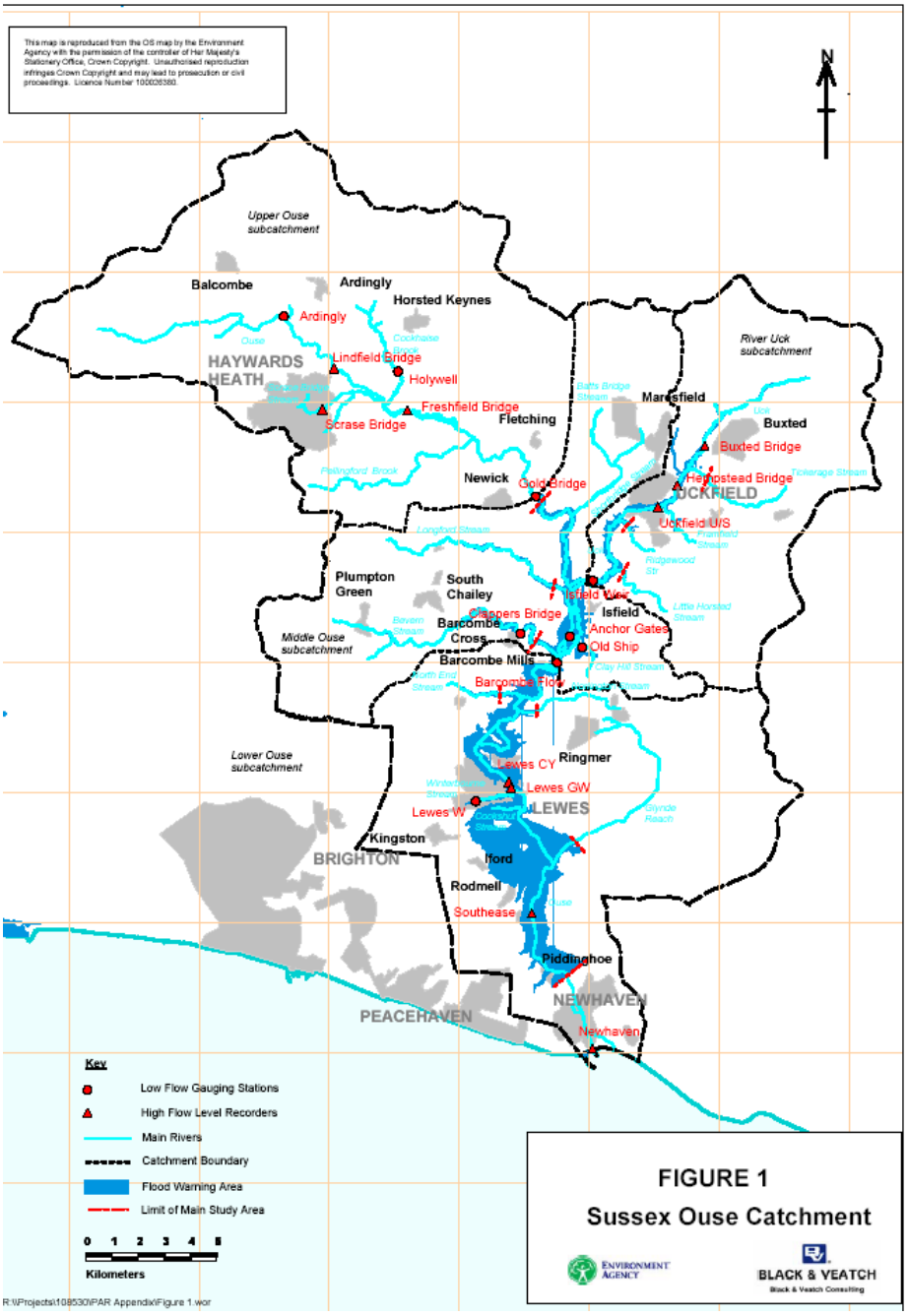


Figure 7.2 Improvement Options for Lewes flood management (EA 2004b)

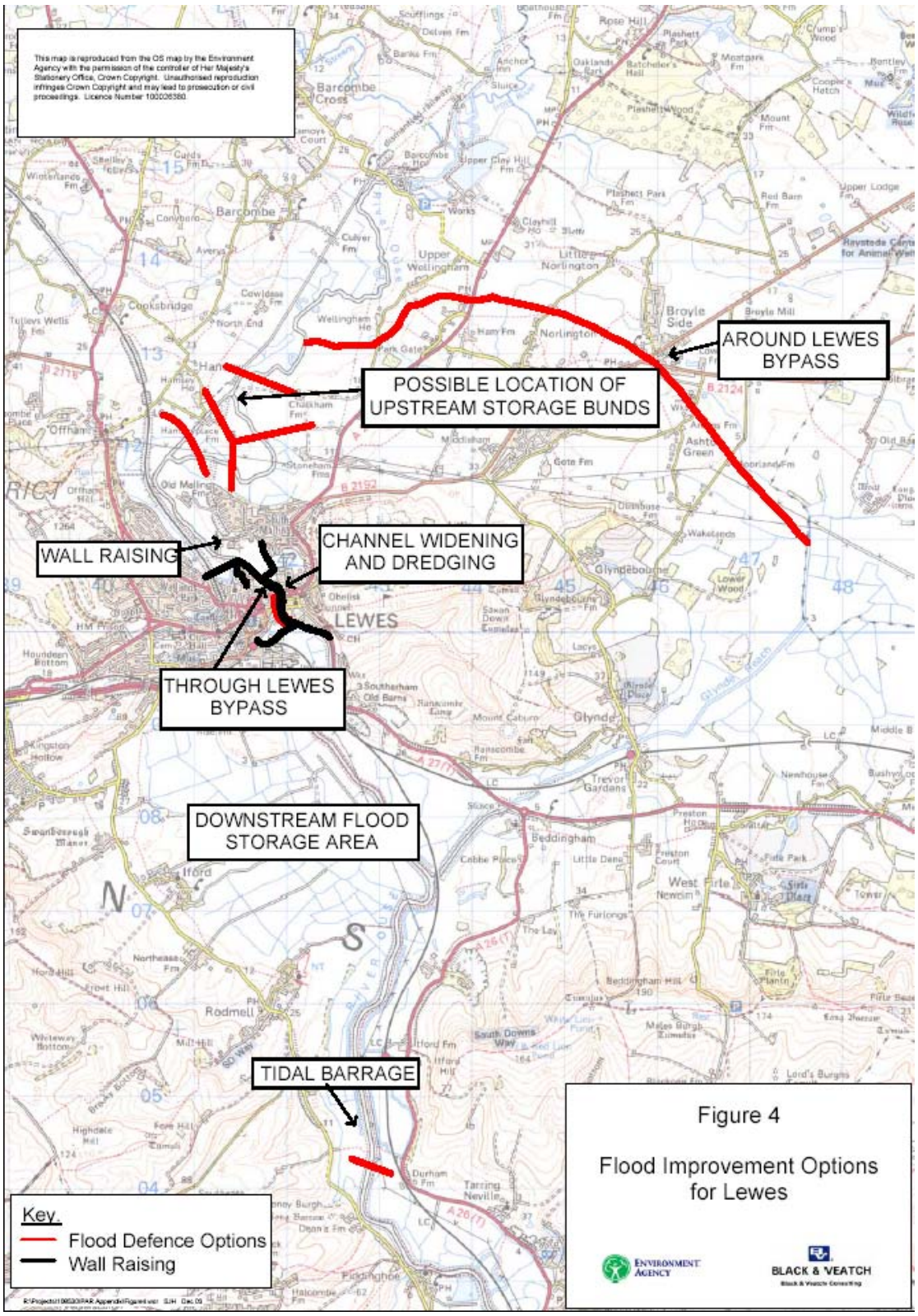


Figure 7.3 Flood cells in Lewes

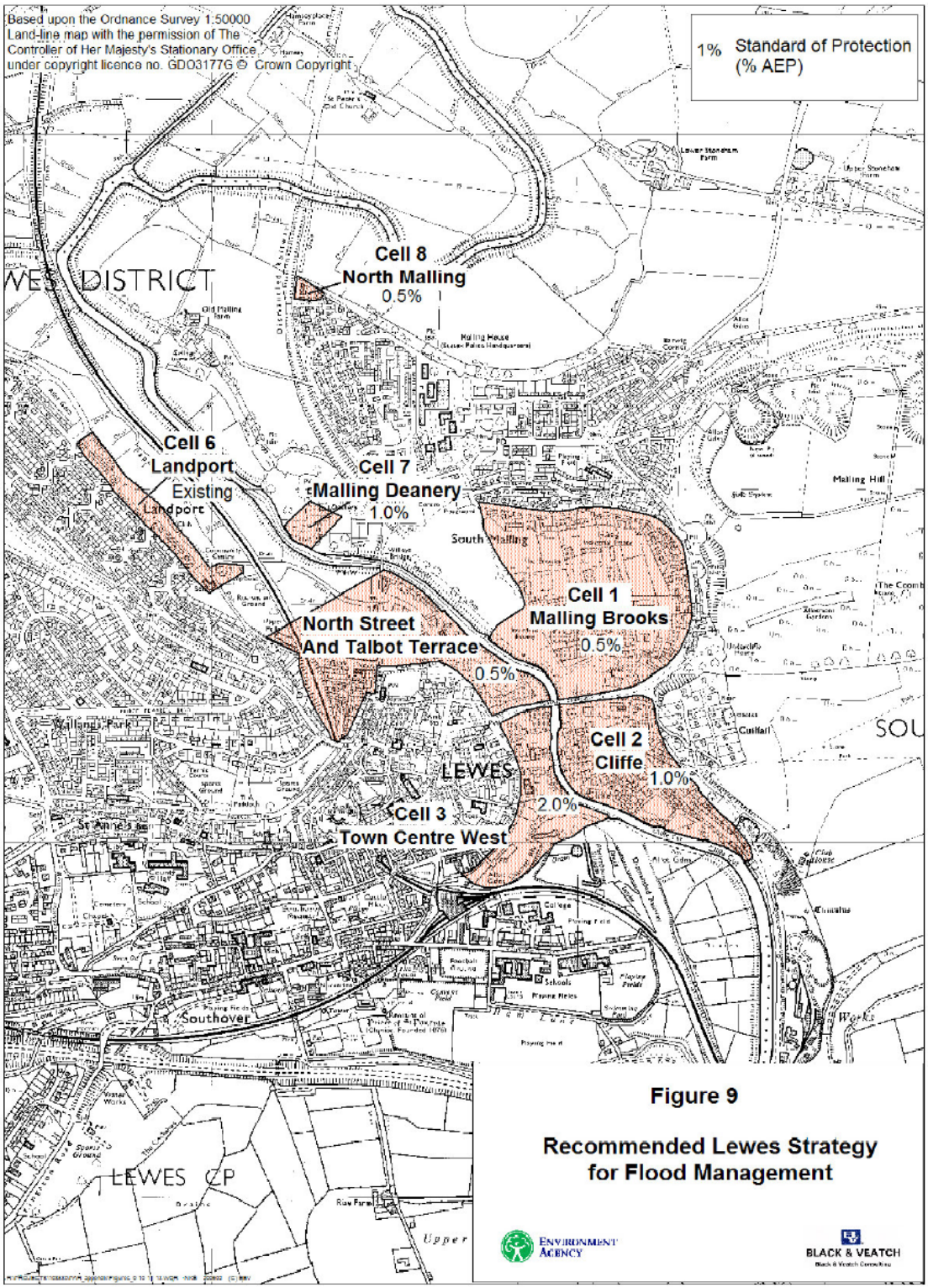


Table 7.1 Options for flood defence in the Sussex Ouse Flood Management Strategy

Option	Description
L1	Do Nothing
L2	Do Minimum
L3	Sustain Existing (2% standard of protection)
L4 *	Wall raising
L5 *	Downstream storage + wall raising
L6	Upstream storage + wall raising
L7 *	Upstream storage + downstream storage + wall raising
L8	Channel widening + downstream storage + minor wall raising
L9	Dredging + wall raising
L10	Tidal barrage + wall raising
L11	Tidal barrage + downstream storage + wall raising
L12	Through Lewes bypass + wall raising
L13	Around Lewes bypass + wall raising

* Short listed options

The updated strategy had to take account of changes in appraisal methodology since preparation of the original strategy:

- A reassessment of flood damages in light of recent flooding and the reassessed damages in the Multi-coloured Manual;
- Revisions to the Treasury 'Green Book', as applied to flood and coastal defence Projects, had reduced the discount rate from: 6% to 3.5% for years 0-30; 3% for years 31 – 75; and to 2.75% for year 76 onwards;
- The new guidance required strategies to be appraised over a 100 year period; rather than the 50 years used in the original strategy;
- The reassessment of scheme costs; following a comparison of outturn costs in comparison with initial estimates. The update included: a 60% optimism bias; an addition to all costs required for the strategic level - replacing the 25% contingency applied in the original strategy.

This meant that the first cell, Malling Brooks, taken forward after the original strategy was produced, was approved under a somewhat different appraisal process than the cells considered as part of the updated strategy.

The updated strategy (EA 2004b) confirmed that the works for Malling Brooks should be carried out as swiftly as possible. It also recommended that works for another cell, Cliffe, should be carried out within 5 years; despite the low priority score because of the high costs that were likely to be incurred if the works were delayed, or walls were allowed to degrade, collapse such that they needed to be replaced in the future, rather than now. The possibility of works for the other cells was considered, throughout, as part of the strategy. However, the updated strategy (EA 2004b) concluded that: delaying the works on the other cells for up to 10 years might be acceptable given their low priority scores.

7.3 Funding

7.3.1 Costs, funders and beneficiaries

Initial total capital costs of the wall-raising works for the separate cells in Lewes, as presented in the updated strategy document, are shown in Table 7.2.

Table 7.2 Initial capital works costs according to the updated strategy (EA 2004b)

Cell Number	Name	Total initial capital cost (millions)
1	Malling Brooks	2.750
2	Cliffe	2,384
3	Town Centre West	1.777
4/5	North Street and Talbot Terrace	4,485
7/8	Malling Deanery and North Malling	0.473
Total capital cost		11.869

Funding for flood defence works in Lewes may derive from three different sources:

1. Funding for Malling Brooks was forthcoming, from Defra - thus deriving from the national tax payer - because the priority score for that cell was high (Table 7.3).

2. In January 2006, it was announced that the Southern Regional Flood Defence Committee (SRDFC) had authorised funding, via the local levy, for the Cliffe cell, whose priority score was too low to qualify for national funding (Table 7.3):

    - 2006/7 £400, 00
    - 2007/8 £285,000
    - 2008/9 £900,000
    - 2009/10 £800,000

    A total just under £2.4m over 4 years, will be spent on repair and improvements to the flood walls in the area. The plan is a five year one, to be reconfirmed each year, and, therefore, might be eroded by other financial demands for local authority finance.

3. A third source has been under discussion as a way of securing funding from developers. This remains the only hope of securing flood defences for the some parts of the town centre in the coming years.

7.3.2 Attitudes to funding

Many of those interviewed were of the view that the low level of funding, available for flood defence at the national level, was at the heart of the social justice issues in Lewes and elsewhere. This was seen to be due to Defra's weakness in the face of the Treasury and other powerful ministries. So long as funding for flood defence remained constrained, it was argued that communities, like Lewes, that deserved increased protection, would be denied it.

For example, Lewes Flood Action (LFA) - in its response to the original strategy in 2002 - cited Sir John Harman (EA Chairman addressing the EFRA Select Committee on 28 November 2001) and endorsed his call for £140m additional expenditure on flood defence and for further investment to counter the impact of climate change in Lewes (Lewes Flood Action, 2002a), The constraints on funding were also thought, by some, to limit the kind of options considered feasible.

'They need to put more money into it and do it properly. (Flood walls were) A patch. Not a waste of time but a palliative…' (Lewes 2)
'

'We are spending billions on things that are a complete waste of time' (Lewes 2)

'Basically there is not enough money to do the job properly' (Lewes 8)

Indeed, according to one informant, there was inequity in that other government projects, such as road projects, as compared with flood defence, were funded with lower benefit cost-ratio's, yet, more generous funding.

The RDFC funding for the Cliffe cell was 'a pleasant surprise' (Lewes 4) but it was generally agreed, among those interviewed, that this outcome was only achieved because of some inspired campaigning by one County Councillor, and a few others, who managed to persuade their fellow local authority representatives to support the funding for Lewes. It was also accepted that further funding from this source would not be forthcoming for any other area of Lewes in the near future because the SRFDC would see it as the turn of other areas (e.g. Kent, Sussex and Hampshire) to receive funding. One viewpoint was that the change from local FDCs for Sussex, Kent and Hampshire - to one large Southern Region Committee - had made it more difficult to reach a consensus.

The local levy was seen as useful *'in allowing us to make a few more choices'* (Lewes 6). This funding, although small, enables the RDFCs to address local issues and these often come out of flood events; whereas the national scheme looks at flood risk. There was some feeling that areas in the north, through their grant, had more money available for the levy than those in the south; this was perceived to be inequitable. There was, however, no support among those interviewed for a return to a situation where the local levy played a larger part in flood defence expenditure.

Attitudes towards developer-led funding are considered separately as part of the discussion of wider spatial planning issues arising out of the Sussex Ouse Strategy (see Section 7.9).

7.4 Fairness in key documents

Given that funding for flood defences in Lewes may be derived from three different sources, a range of different national policy and guidance documents are relevant to the realisation of flood management in this case study.

For the production of the Sussex Ouse Flood Management Strategy, the following national documents were relevant in 2002, or later in 2004:

- Defra Flood and Coastal Defence Project Appraisal Guidance (FCDPAG) documents - especially those relating to strategies, economics and risk (PAG2, PAG3 and PAG4);
- Relevant EA guidance relating to the production of Strategic Environmental Assessment (SEA);
- Defra approved methodology for assessing flood damages and Present Values;
- Treasury 'Green Book' Appraisal and Evaluation in Central Government (HM Treasury 2003) and a guidance letter on its use;
- Defra supplementary note on Climate Change consideration for flood and coastal management, April 2003;
- Multi-coloured Manual (Penning-Rowsell *et al.,* 2003) for updating of damage figures.

Of these, the FCDPAG documents, and the Treasury Green Book, were key in guiding the development of the original, and updated, strategy.

At the regional and local level, the strategy was brought forward, ahead of the Sussex Ouse Catchment Flood Management Plan, so this document was not available to guide the strategy development; there were no fluvial strategies that interfaced with the strategy.

The South Downs Shoreline Management Plan (SMP) covered the coast at the mouth of the Ouse and was, therefore, of limited relevance to Lewes; although it was under review at the time of the updated strategy and would replace the earlier SMP (EA 1997).

A River Ouse Flood Plain Study (EA 1998) had involved a six year study of the tidal embankments between Newhaven and Lewes. However, this strategy study was unable to identify an acceptable way forward. At the time of the completion of the updated strategy document, the EA and English Nature had commenced a further study to enable a sustainable management plan for the area to be developed.

For developer funding, current Communities and Local Government (CLG) guidance on development and flood risk: Planning Policy Statement 25, December 2006 (CLG 2006c) and the associated Practice Guide, February 2007 (CLG 2007), and CLG guidance on planning processes generally, are relevant to the issue of developer contributions to flood defence.

At the local level, the Local Development Framework (LDF) and the Strategic Flood Risk Assessment (SFRA) for Lewes District were still under development

in December 2007. These, together with national guidance, will be key documents providing the framework within which decisions on developer-led defences will be made. As no development proposals have been brought forward, as yet, none of these documents are considered in this case study.

7.5 Fairness and social justice of outcomes

7.5.1 Outcome equality

Table 7.3 shows the outcomes for the different cells in Lewes; as presented in the original, and updated, strategy documents (EA 2002 and 2004b). Lewes already benefited from structural flood defences i.e. flood walls erected after the 1960 flood. As a result, the current standards of protection differed in different parts of the town and the different areas were not equally at risk to start with (Table 7.3).

Table 7.3 Properties at risk and standard of protection for Lewes Cells

Cell No	Cell Name	Resident-ial at risk 1% AEP (0.5% AEP)	Other propert-ies at risk 1% AEP (0.5% AEP)	Current SoP	2002 strategy wall raising SoP	2002 strategy wall raising, down stream storage SoP	2004 strategy wall raising only SoP
1	Malling Brooks	218 (237)	45 (49)	125	200	200	200
2	Cliffe	166 (230)	58 (93)	50	100	170	100
3	Town Centre West	2 (137)	35 (42)	50	100	170	50
4	North Street	0 (0)	59 (59)	50	200	200	200
5	Talbot Terrace	7 (24)	1 (1)	75			
6	Landport	18 (40)	2 (3)	50	50	50	50
7	Malling Deanery	4 (4)	0 (0)	25	25	25	100
8	North Malling	11 (13)	0 (0)	37	37	37	50

The outcomes, for those at risk within Lewes, were not the same in a number of ways (Table 7.3). The variation in outcomes was the result of decision processes that followed FCDPAG guidelines (see Section 7.6):

- The benefit cost analysis for each cell resulted in different standards of protection being recommended;
- Due to low prioritisation scores - only one cell - Malling Brooks, attracted national Defra funding (Table 7.4);
- Paradoxically, the Malling Brooks cell with the highest current Standard of Protection (SoP) was prioritised for further protection to a higher level than some other cells;
- Cliffe is the only cell, so far, to have been awarded funding from the SRFDC and, thus, will achieve an enhanced SoP - albeit at a lower level than Malling Brooks;
- Some cells/people at-risk are unlikely to achieve funding from SRFDC sources - although developer funded defences are a possibility (for cells 3, 4, and 5);
- Others have no possibility of funding from any source (e.g. cell 6);
- There is a time lag in achieving an enhanced SoP and, for those who will do so, there is no certainty regarding the timing of possible enhanced protection.

Reactions to the unequal treatment of residents, in the different cells, varied according to informants' perspectives and experience. Those with wider than local experience of flood risk management were aware that Lewes, with some existing flood defences (Table 7.3), was better off than some other areas at-risk, that had no defences of any kind. Others noted that the two cells that would achieve an enhanced SoP contained the largest number of residential properties. Furthermore, Malling Brooks sustained the greatest damages, had the deepest flooding and, thus, posed the greatest risk to life (Table 7.2). As one informant commented:

'I do not have an issue that it (Malling Brooks) was most deserving of protection (Lewes 7)

Distributing resources equally according to the risk would involve ignoring the differing costs of mitigation for people facing the same risks. For some this was problematic.

'Some would say that everybody should have the same standard of protection. I have huge problems with that because of the huge inequality in costs of providing it'. (Lewes 3).

To others, it seemed unfair that whether or not people received improved defences depended upon the ease, and costs, of carrying out works in particular locations. In Lewes,

'Malling Brooks….it was easy to implement as it involved a bund around a recreation ground all in Council ownership and also a wall defence' (Lewes 4).

One informant pointed out how history and geography affected the costs of works in central areas of Lewes.

'Listed buildings right on top of the walls, you are having to maintain and replace those walls in a restricted conservation area, very expensive to maintain and replace those walls in a restricted working area so it puts up costs. It is quite narrow so each metre of defence is not protecting much property. There are more benefits in a wider flood plain area' (Lewes 7).

A system that meant that people facing the same level of risk had very different outcomes was very difficult to justify for many:

'In terms of social equity, it is hard to argue why that area (Cliffe) is protected to a lesser degree than that one (Malling Brooks).....Some of the fall out from that (PAG guidance) is that people at similar levels of risk are treated very differently in terms of a) their prospects of attracting flood defences and b) in terms of the standard to which those defences are provided..... it is not equitable and does not seem equitable to the people involved.' (Lewes 4)

Lewes District Council, the County Council, LFA and the local MP, and others, had campaigned for a comprehensive approach for the town. LFA, in its presentation on the 2002 strategy (Lewes Flood Action 2002a), noted that the EA's Draft Corporate Strategy of July 2002 had contained the statement:

'Ensuring consistent standards of flood defence for the same community will be in place taking account of social and environmental issues and meeting the challenge of climate change'.

LFA welcomed this statement; which does not appear to have survived into later strategies. The organisation campaigned, throughout, for a consistent standard of protection of at least 1 in 200 throughout the town and against, what it called, 'these unfair and unjust policies' (Lewes Flood Action 2002b). There was some sympathy from practitioners for this point of view.

' The issue of consistent standards in Lewes, if you have communities linked even if in different cells, I can see the case for looking at them as one community rather than one cell to one standard and one to another. I am torn on it, you have the economics. May be you have the flexibility to put it to the community: Malling Brooks now or all cells later?' (Lewes 5)

'If we had not done them separately, if we hadn't adopted the (cell-by-cell) approach, it would have meant that nothing would have been done at least for many years'

Personally I would prefer to see a consistent standard throughout the town. But that is not always practical or within out gift (Lewes 5)

The EA, and their consultants, were faced with a dilemma and they were under pressure to produce some results for Lewes. It was argued that:

'If you go for a Lewes-wide solution, then you will go so far down the priority score that you will get nothing, whereas if you go for separate cells, I will get you something' (Lewes 3)

Another informant considered the more important issue to be the question of minimum standards. There was a standard of 1 in 200 for new build and, perhaps, that was the point towards which policy should move? A minimum standard, at the 1 in 200 level, would be tantamount to a consistent standard across Lewes and the nation.

For some, a major inequity was: in the time taken to get any work done; the fact that some people had the benefit of raised defences much sooner than others; and in the overall length of time people had to wait, in fear and anxiety, without any certainty that they would get some enhanced protection. The discontent was with the time-consuming process as well as with timing of the outcomes.

'They have come out with a series of cells and one finishes and then they stop, its silly in economic terms taking people off the site. Here, we spend so much time talking and arguing about what we should or shouldn't do and as a result people suffer' (Lewes 8)

' there is anger and resignation that, in the perceived failure of the government to put in flood defence for the town, only one cell dealt with in 8 years, and another no thanks to the government… there was a perception after 2000, a wake up call John Prescott said and people feel let down and betrayed' (Lewes 1)

These feelings were encapsulated in LFA's (2007) annual review:

In the bleak winter of 2000/1 we thought that the weakness of our flood defences was an unfortunate oversight. "They" would be along in the spring to fix things by building better flood walls. Seven years on we are beginning to know just how badly we misjudged the situation.' (Lewes Flood Action, 2008)

7.6 Procedural justice

Procedural justice is concerned with the decision processes whereby outcomes are produced and the degree to which these processes are judged to be fair by those involved, authorities, stakeholders and the public. This may be affected by the extent to which decision-making is open and transparent and the extent to which opportunities are provided for consultation and engagement within the decision-making processes.

7.6.1 Procedural equality

Although the outcomes were different for different parts of Lewes, the application of the benefit-cost analysis, Strategic Environmental Assessment (SEA) and prioritisation processes - to all the options and cells in Lewes - meant that there was procedural equality to some degree in this case study.

Key decisions processes involved in the strategy were:

- The development of a long list of 10 options (in addition to the do nothing/do minimum/sustain existing options) (Table 7.2);

- The choice of a short list of options: three options were considered in the updated strategy on the basis of initial project appraisal and Strategic Environmental Appraisal. The options were evaluated technically, economically and environmentally according to the Strategic Environmental Assessment (SEA) procedures. European law (EC Directive 2001/42/EC) requires this procedure to be undertaken as an integral component to the development of all strategies (Binnie, Black and Veach 2002a&b). The aim of the procedure is to reduce the risk of considering environmentally unacceptable options and maximise the chances of identifying potential environmental benefits. Although none of the ten options (excluding, do nothing, do minimum, and sustain the existing) achieved such low scores as to justify their outright rejection, three had higher scores for achieving the environmental objectives: L4 Wall raising; L5 downstream storage and wall raising; and L7, upstream storage, downstream storage and wall raising.
- Then the selection of a preferred option of wall raising for Lewes, and the cell-by-cell approach that followed from that decision;
- The project appraisal and prioritisation for the cells.

There was a consensus, among informants, that the key decisions were taken by the EA, their consultants, and Defra, with limited input from: an External Project Board, stakeholder group and others. Many informants were supportive of the EA, and their consultants, and identified the key difficulty in delivering fair processes and outcomes to lie in the constraints imposed by Defra guidance and in the rationing process required by limited national funding for flood defence.

A radical view was expressed by one informant on the current decision processes in which decisions were assumed to be taken by the EA and their consultants in accordance with Defra guidance:

'What I would prefer if starting with a blank piece of paper is that named and known and removable local councillors would make the decision with the EA as technical advisers, statutory advisers like when officers make recommendations to councillors. I like decisions to be taken by people who are accountable….it would be highly unlikely that councillors would ignore advice. (Lewes 1)

The current decision-making arrangements were seen, by this informant, to be part of a general trend to take responsibility away from elected and accountable bodies and to give it to unaccountable agencies, remote from local communities. Another informant also saw a tendency, in some parts of central government, to reduce local input into decision-making; citing the example of the abolition of local flood defence committees and their replacement with a small number of RDFCs.

Consultation

At the outset, after the flooding, there were some highly charged public meetings. During the development of the original strategy, consultation with stakeholders, and the public, took place on five levels:

- Formal written consultation with stakeholders at the start of the Sussex Ouse Flood Management Strategy (EA 2004c, Appendix H);
- Meetings of an External Project Board comprising officers representing the 3 local authorities affected: LDC, Wealden District Council and East Sussex County Council with English Nature and Defra;
- Meetings of a Working Group comprising 12 representatives of the local community, including; County, District and Parish Councillors, business and community representatives covering a wide range of interests and the whole area;
- Public meetings, and exhibitions, were held in Uckfield and in Lewes in, September 2002, to launch the original strategy;
- Consultation with stakeholders in preparation of the SEA.

During the preparation of the Updated strategy, more limited consultation took place (EA 2004b):

- Meetings with the External Project Board;
- One key stakeholders meeting was held;
- 5 Newsletters prepared jointly by EA, ESCC, LDC, Wealden DC were distributed (July 2003, September 2003, November 2003, January 2004, May 2004).

Throughout the strategy process there were occasional meetings, and written communications, between community organisations - chiefly LFA and the EA - and their consultants. LFA itself organised public meetings which were, on occasions, attended by representatives from the EA and their consultants.

Informants had some difficulty in recalling these consultation processes; as they took place some years earlier. Therefore, what emerged was their general impression of the processes. None of those interviewed was wholly satisfied with the consultation that took place. There was agreement that what took place was an information and consultation process not public engagement and real influence on decisions. There was a recognition that things have changed and could, or would, be done better today:

'Back then you were in a slightly different climate… Now we go out to consultation before we have started even to write a strategy, it is a new way of working with the community. This was not done that way. But there were huge pressures to get something done. We now do things differently recognising that we need to bring communities with us' (Lewes 5).

'They were reasonable if you wanted to do them in a conventional way. If you wanted to get a result you would go about them in a different way, you would build a bond with the community' 'Good practice for the day' (Lewes 3).

There was recognition, too, that consultation and engagement is difficult and, since people are often apathetic, only a vocal minority may participate and it is difficult to ensure that you reach the people you need to reach. These processes were also considered to be time consuming and there was time pressure to deliver results. Additionally, the costs of engagement had to be weighed against the need to produce results. It was noted that it was

particularly difficult to engage with a community when you are not able to offer them defences.

One rather different view on consultation was that:

'The prime objective is have we got the right information. The other is, do the local people feel that they have enough involvement and encouraging people to come along side?….Getting the decision right was the key criterion for consultation and engagement' (Lewes 7)

However, there were highly critical voices - and they were not just from the community organisations:

'In my view (stakeholder engagement) is a bit of a charade, they know what they are going to do before they start and they go through this consultation process…. They tell you, you can't have this; you can't have that because it is outside the budget. In the end they just go ahead and do what they want' (Lewes 2).

'It's a bit of a joke, the way the system works, they do all those reports and listen and write it all down but in effect there is only two things that count….it depends on what you can afford. The EA in the end frankly it goes its own way' (Lewes 8).

Transparency

Some considered that the decision processes were not at all open and transparent. The difficulty of communicating detailed, technical, information to the public was noted by several of those interviewed. However, an alternative view that the public is capable, given time and effort, of understanding quite complex technical details, was also expressed:

'I don't think it is open. Defra guidance is hideously complicated and the lay person will struggle with it….people are impatient, they are interested in outcomes not processes and they are not interested in scoring systems… a dislocation between professionals and the public…a communications issue…more could be done to communicate how decisions are made' (Lewes 4)

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'It's difficult to involve the public when it's technically and economically driven' (Lewes 5)

Others thought that those responsible had generally done their best to provide the necessary information, particularly to the local authorities, stakeholder groups and LFA.

Quality of information, political influence and bias

Both practitioners, and other key informants, felt that the evidence base for the decision-making was satisfactory:

'I think we did have enough information, you can never have absolutely enough information, we had pretty good records, good data from the 2000 floods, expert consultants, we did have enough information to make a decision' (Lewes 5).

On political influence, there were divergent opinions. The strategy was prioritised because of the 2000 floods by perhaps a couple of years and ahead of the CFMP for the River Ouse. There was a lot of political pressure to get something done for Lewes from the local M.P, and it was thought, from Ministers. One informant's view was:

'Lewes is almost the last reactive flood, a big watershed between reactive flood defence and evidence based risk management…. They (Ministers) are still terribly locked into reactive flood defence.' (Lewes 3)

Others recognised the benefits but also the potential disadvantages of this effect:

'A huge effort lobbying Ministers and the EA as well. We kept our name up in lights… a genuine fear, with some basis, in that we always pay attention to the last incident, a feeling that Lewes will have gone down the list (as a result of the summer flooding)' (Lewes 1).

'We were top of the pops for a while…you have your moment in the limelight so to speak…..there is concern that with the limelight shifting to other more recent floods….' (Lewes 4)

Others considered that political pressures had been resisted and that the processes had been carried out according to the guidance. Defra agreeing to the Malling Brooks project, ahead of its agreeing the rest of the strategy, was considered to be the only way in which the decision-making had deviated from the rules.

Decision processes: the cell-by-cell approach

There were a number of ways in which the decision processes, for the Sussex Ouse Flood Management Strategy, were not thought to have delivered procedural justice by those interviewed. As one informant summed up in relation to his feelings on decision processes, consultation and engagement:

'I don't think they were adequate as I would not be unhappy if they were'. (Lewes 1).

There was considerable unease about the decision processes among the informants generally and, in a few cases, real feelings of outrage.

On the key issue of the cell-by-cell approach, required by the PAG guidance, the EA took the view that had a Lewes-wide approach been adopted, then the priority score would have been so low that Lewes, as a whole, would have got nothing; whereas the cell-by-cell approach meant that something could be achieved for Lewes, and there was political pressure to achieve something for Lewes. There was awareness, among some informants, that the decision processes were heavily constrained by Defra and Treasury guidance.

However, others did not understand - or remained unconvinced - about the reasons for abandoning more strategic, Lewes-wide solutions:

'One of the solutions for Lewes might have been to allow the floodplain south of Lewes to be reinstated. And something I have been arguing about for years and never got a satisfactory answer on from the EA as to why they can't do it.' (Lewes 1)

' The concept of defending Lewes from flooding is a joke, they do not think big enough, you have to put it within bounds of what is possible within the budget, and what is possible and fair to other places that are flooded.….If you had 30 million you might consider a tidal barrier, up river and down river storage… (Lewes 2)

The EA explained that upstream storage was rejected because it would require a large and expensive dam structure - similar to the Leigh Barrier near Tonbridge in Kent - and increased flood risk to some upstream properties in an extreme event (EA 2004b). Downstream freshwater, and especially inter-tidal, storage was problematic because of its potential impact on the Lewes Brooks freshwater SSSI, and its raft spider, and this required further investigation for technical reasons. Furthermore, its impact on flooding in Lewes was mainly limited to downstream of Cliffe Bridge which caused constriction on flows above it.

A separate study, the Lewes to Newhaven Study, is being undertaken - in consultation with English Nature (as it then was – now Natural England) - to determine the feasibility of downstream storage. If this were to prove feasible, there would be an opportunity to lower flood levels in Lewes further and, thus, improve the SoP there (EA 2004b).

LFA has continued to press for a consideration of wider options:

'The enhanced flood walls give us a breathing space but the standards of protection that they give are only modest protection…. The EA *looked at wider options in 2003 but discounted them because of cost or technical difficulty. We need to revisit these options in the light of the growing threat of climate change. Many things are relevant, channel widening and deepening in the town, diversions, a tidal barrier and changes to land use and water storage in the Ouse Valley.* (Lewes Flood Action 2008)

The cell-by-cell approach, and the abandonment of Lewes-wide approaches, was an aspect of the decision-making process that was widely considered unfair. There was a highly critical response to this process from some informants. This reflected a view that, in principle, the town should be treated as a whole; as well as concern because the resulting outcomes were different for different parts of the town:

'Lewes in 2000 reacted as a community and the whole town rallied around and saw it as a town wide problem. The government's response was to analyse on a cell basis and there was a lot of anger that it should be done on a cell-by-cell basis. The response was to divide the town into cells to study what was to be

done, it was putting one bit of Lewes against another. One part was going to benefit and not another and it was seen as divisive' (Lewes 1)

Another informant recognised that because the whole town had been through the experience of flooding, this made a difference:

'A huge difference between a town that has experienced flooding and one that has not experienced it recently and (in the first case) there is a solidarity of suffering for people who have had a common experience. It is not an economic argument, an emotional one.' (Lewes 6).

Furthermore, it was argued that as local authorities, and others, are now charged with promoting 'social cohesion' - according to the guiding principles for delivering sustainable development in the government's policy (HM Government, 2005, p.16) - the cell-by-cell approach was counterproductive:

'Very divisive when trying to come up with a comprehensive approach. It's only a town of 15,000…seen as almost setting one part of town against another.' (Lewes 4).

The interdependence of different parts of the town was noted by one informant:

'Coming back to the community spirit, the town centre belongs to all of us, it is where we all shop, it is where we all meet, its where the businesses all are and if the businesses don't open we all suffer. There is a failure to appreciate the significance of the town centre to the community. The community wants the town centre protected and that was not recognised as important by government'. (Lewes 1)

7.6.2 Maximum Utility

Benefit-cost analysis is a key element in the project appraisal and priority scoring process. Thus, the maximum utility principle - and its fairness rule that the units chosen should be those that secure the greatest risk reduction per unit of resource input – is a major element in the strategy and its outcomes.

A comparison of the costs of the three short listed Lewes-wide options (L4 Wall raising in Lewes; L5 wall raising with downstream storage; and L7 upstream plus downstream storage with wall raising) was used to identify the preferred option: wall raising in Lewes. Upstream storage added £20 to £25 millions to the Present Value costs. The costs of downstream storage. combined with wall raising. were a little higher for most standards of protection than those for wall raising alone. However, it was technical and environmental issues that required further investigation, and ruled out the downstream storage option, leaving wall raising as the preferred option (EA 2004b).

The results of the benefit-cost analysis and prioritisation, in the updated strategy, on a cell-by-cell basis - as required by PAG guidance - are shown in Table 7.4 and Table 7.5.

Among many informants, there was recognition of the need for a rational system, and grudging support for the approach embodied in project appraisal process and prioritisation, as a way of allocating scarce resources. However, there was also a widespread demand for the processes to be modified to take more account of people issues - such as vulnerability and health impacts - than was possible under the present system:

'Project Appraisal Guidance is essentially a rationing system' (Lewes 4)

'I think it is certainly a relevant factor (Benefit-cost), it would be foolish to abandon that, it is a major part of any consideration but not the only one.' (Lewes 1)

'BCA is an essential part of the assessment but the people part is underplayed' (Lewes 4)

'As fair a system as you will get as long as there is a fair amount of discussion around the bits it does not cover'. (Lewes 8)

The view was expressed that heritage factors, which add to the costs of works, were not adequately taken into account within the prioritisation system - which allows a maximum of 2 points to be added to the prioritisation score; regardless of the number of listed buildings involved. The many listed buildings in the centre of Lewes, many close by the river, added to the costs of works there.

Table 7.4 Benefits and costs of the preferred Lewes strategy (EA 2004b)

Cell No	Cell Name	SoP % AEP	Present value costs £k	Present value benefits £k	Net Present value £k	Benefit-cost ratio
1	Malling Brooks	0.5	3,697	45,096	41,399	12.2
2	Cliffe	1.0	5,622	15,446	9,825	2.8
3	Town Centre West	2.0	3,702	9,719	6,017	2.6
4	North Street	0.5	6,526	29,378	22,853	4.5
5	Talbot Terrace					
6	Landport	Existing	NA	NA	NA	NA
7	Malling Deanery	1.0	337	493	156	1.5
8	North Malling	0.5	232	325	93	1.4

Table 7.5 Prioritisation scores for the preferred strategy for Lewes (EA 2004b)

		Prioritisation score			
Cell No	Cell Name	Economic	People	Environment	Total
1	Malling Brooks	20.0	6.8	1.0	27.8
2	Cliffe	4.5	3.2	2.0	9.7
3	Town Centre West	4.3	1.0	2.0	7.3
4	North Street	8.0	0.3	0.0	8.3
5	Talbot Terrace				
6	Landport				
7	Malling Deanery	1.9	0.9	0.0	2.8
8	North Malling	1.8	4.2	0.0	6.0

7.6.3 Targeting the most vulnerable

There is no evidence that the processes used to determine the outcomes of the strategy resulted in resources being targeted to the most vulnerable to flooding - or the most vulnerable generally - in any way. Indeed, consideration of vulnerability is a relatively recent component in appraisal and prioritisation processes. The Treasury Green Book (HM Treasury, 2003) - current at the time of the updated strategy (EA, 2004b) - suggests that distributional weights should be used to make adjustments in relation to income; where necessary or practical. However, this advice was not translated into a Defra Supplementary Note to Operating Authorities until July 2004, and the distributional weighting was not applied in the updated strategy.

The priority scoring system has three components: economics, people and environment (Defra 2005c). It gives a maximum of 20 points to an economics component, based on the benefit-cost ratio. The 'people' component has a maximum score of 12. The major element in the 'people score' is the number of residential properties at-risk per £k of project cost with a standard adjustment (8 points maximum or two thirds of the people score). In addition, within the 'people score there is an adjustment for vulnerability based on Government rank of deprivation by ward. In this, scores range from +2 to - 2. Further points can be added as a public safety adjustment where the risk is very high (2 points) or high (1 point). The Environment component also has a maximum score of 12. Thus, the adjustment for vulnerability is numerically a small part in the prioritisation score overall and there is no indication that the priority scoring

of the Lewes cells reflected vulnerability; apart from the number of residences there (Table 7.5).

The CFMP process involves a consideration of vulnerability via the Middlesex University Social Flood Vulnerability Index (SFVI) (Tapsell *et al.,* 2002) and, had the River Ouse CFMP been produced prior to the strategy, information on vulnerability - as measured by the SFVI - would have been available to decision-makers. Its Consultation Scoping Report (EA 2006b) - examining the SFVI in relation to the whole Ouse catchment - noted that the most vulnerable areas were parts of Lewes which were placed in category 4 (high vulnerability); meaning that flooding in these areas would have higher social consequences than flooding in other parts of the catchment.

An MSc dissertation (Puvacharoen, 2003) identified five Lewes cells (2, 3, 5, 7 and 8) as having high SFVI scores; while Malling Brooks had a low score and Landport, regarded by many as a vulnerable area, had a very low SFVI score. It has not been possible to examine the SFVI calculations reported here for Lewes in detail, therefore, these results must be treated with some caution. This work also noted the lack of agreement between the SFVI, and the Defra 'people score', on the priority scoring system for the Lewes cells.

The 'people score' for Malling Brooks was 6.8, and for Cliffe, 3.2, out of a possible 12; mainly reflecting the number of residential properties in these cells. The 'people' scores for cells 3, 4 and 5 together were 1.0 and 0.3 while their SFVI scores were very high.

None of the informants in the case study was aware of any efforts being made to target vulnerable groups in the strategy. There was qualified support for the idea that more account should be taken of vulnerability in the decision-making process and outcomes. However, there was also concern as to how the 'vulnerable' could, or should, be defined and identified and on the availability of data. Introducing vulnerability factors might make the decision process more subjective and susceptible to political influence:

'I think in society there should always be that, with anything as far as I am concerned….. Sadly I don't think there was that breadth….I am not blaming the EA, they don't have enough people who think in those terms. (Lewes 8)

'I don't think it is very fair as people are vulnerable by age or infirmity and do need more care than others. It is a basic principle of equality and diversity that in order to treat people as equal you sometimes have to treat people differently almost by doing things that reflect their background and needs. It would be a useful addition to this process. The PAG system would then be even more complicated but at least we could demonstrate that those factors had been given due consideration and there was an attempt to deliver social equity from the considerable sums spent on flood defence.' (Lewes 4)

'I think it (vulnerability) should (be taken into account). I think there needs to be factors taken into account that are sometimes difficult and subjective to measure. Just because it can be measured doesn't mean it should be measured. It doesn't measure the value of a town centre or the fact that in Landport, there are people who are poorer and can't afford to get flood

defences or even insurance or that an old people's home down the road was flooded. Those sort of factors are subjective and you can argue would make political influence more prevalent but nonetheless the present arrangements are rather mathematical' (Lewes 1)

The Landport cell - an area of social housing, where a limited number of dwellings at-risk would require a long wall to protect them - was singled out as a social justice concern by a number of informants:

'Landport is occupied by DEs, the social justice case is enormous, they are vulnerable people, it's a huge injustice when there is huge vulnerability. The properties there are not valuable enough and the people score is too low. (Lewes 3)

On this, it was pointed out by one informant: that defending properties (such as those in Landport) may not be the answer to the problem; that it may be possible to deliver social justice solutions in other ways (e.g. resilience grants); and that there was a need for more integrated solutions - reflecting the view it will not be possible to solve flood risk problems just by building defences.

This point linked with another view, that was more sceptical on the issue of taking vulnerability into account in decisions on flood defence, and an argument that vulnerability was best taken account of through other flood risk management processes - such as emergency planning and response, resilience measures and spatial planning to exclude vulnerable uses and users from flood risk areas - rather than through targeting flood defence resources towards the vulnerable.

The point was made that populations are not stable over the lifetime of defences and, an economically deprived or elderly population, may be replaced by less vulnerable groups in time. A general point was made, by a practitioner, that the Weighting Factors by social class intended to take account of distributional impacts (not applied in Lewes), did not discriminate as intended by the policy maker because, it was argued, the retired - whether wealthy or poor - were categorised in the same way.

None of the informants, who considered the matter, thought that any special efforts were made to involve vulnerable, or hard to reach groups, in the consultation processes. Some thought efforts should have been made to include such groups but others had a different view on whether this mattered:

'Would we have made a better decision if we had done it, I don't think so. The hard to reach groups, what would they add to the understanding of the problem and its solution in flood risk management terms? (Lewes 7)

Others expressed the opinion that it was the role of the local authorities, who were on the External Project Board and in the Working Group of stakeholders, to communicate with, and consider the interests of, special groups in their communities. One informant felt that the situation would be different if local authorities had greater responsibility for flood risk management decisions.

'If (flood management decisions) were handled through local authorities, a different result. Local authorities understand their communities better than most people and if there is a gaping hole in a process or consultation, a local councillor will stand up and shout about it, they will stand up for their community. How can people in Worthing or Guildford take all these factors into account? It's too top down. Local councillors know their own wards, they know who the vulnerable are'. (Lewes 1)

7.7 Flood defence as a human right

Operating authorities generally have only permissive powers to provide flood defence; although there are exceptional locations where they have an obligation to maintain defences. There is no legislation that confers, on those at-risk, a right to 'protection' from flood risk. The Human Rights Act 1998 has never, as yet, been applied in this context. Operating authorities argue that while they can mitigate the risk they cannot eliminate it.

Despite the lack of a legal basis, one informant argued this 'human rights' position strongly and it is likely that others in the Lewes community shared this way of thinking. The view was that where property has been built in the flood plain, and planning permission has been granted by the planning authorities for its construction and it has been accepted as a part of the country's housing stock, then the authorities who sanctioned the construction should take responsibility for ensuring that it is a safe place to live:

'The main fairness issue is that if people have a house built in a flood risk area, that house has had planning permission to be built there and its completely your problem and that seems to me outrageous. It is completely and utterly their problem. Houses haven't been built illegally…'

'The government is out to make everyone's life acceptable and it is not acceptable for someone to be at-risk and not be protected'.(Lewes 2)

When the issue of the standard of protection, to which people should have a right, was raised, the informant argued that people should be protected against the kind of flood they had experienced i.e. 1 in 150 or, thereabouts, for Lewes. Although it was noted that:

'You might be serious ungrateful to reject 1 in 100 when others have got none.'

7.8 Intergenerational equity

For the 2004 updated strategy, the project appraisal process required an outline programme of work over a 100 year period; rather than the 50 year outline programme specified for the 2002 strategy. This longer perspective is the main way in which consideration is given to future generations in the strategy.

There was general agreement among informants that the strategy process did not take account, or at least take sufficient account of, future generations. It was argued, by one informant, that the process was not designed to be a long-term planning exercise so this was not surprising:

'There is an argument that raising flood walls higher and higher, isn't the long term answer and I can sympathise with that, but that is not going to deliver the answer in the short term. It's adequate for the next 50 years but thereafter ….we may want to give the river more room to breath.' (Lewes 5)

Most informants were critical of the process for not taking a longer view; particularly in the light of climate change and sea level rise:

'Very short term. Not even touching it, or addressing the problems we have now let al.,one the future. We're not up to speed with the situation as it is now. Its huge with global warning and we don't really know what will happen in 100 years time,' (Lewes 2)

In particular, it was argued that the strategy, in dropping catchment-wide approaches, such as upstream or down stream storage and by pass channels, had missed an opportunity to develop longer-term solutions to the future problems posed by climate change and sea level rise. The fact that the CFMP for the Sussex Ouse, which will involve long-term planning for the catchment over a 100 year period, had not been completed may have been a disadvantage in this respect. Some advocated radical solutions:

'If I had my way I would have bought up all the properties that flooded to a certain level and recreated the flood plain… what we are doing is building up walls and that is just sticking plaster.' (Lewes 8)

'With climate change, there would be a case for restoring the Lewes floodplain as a place to risky for people to live.' (Lewes 7)

LFA, in commenting on the 2002 strategy, suggested considering restoration of the functional flood plain and in the light of climate change 'thinking the unthinkable now to save our descendants grief.' (Lewes Flood Action 2002b).

Others commented that as buildings came to the end of their life, it might be possible, over many decades, to make the river frontage more open and the buildings more resistant and resilient. However, it was noted that the flood plain in Lewes is very constricted; there are few flat land locations and there are constraints on the conservation area, listed buildings, the AONB and the National Park, so that setting back and restoring flood plain there is a very problematic proposition. At the same time, there are pressures in the opposite direction, for development in Lewes and for developer-led flood defences and planning policy decisions that would be crucial for the long term.

7.9 Development and flood risk in Lewes

As the possibility of funding from central government or local levy sources had receded, the attention of community organisations and other has turned to the possibility of developer funding for flood defences and the wider issue of development and flood risk in Lewes. Lewes, as an attractive place to live within reach of employment in London and Brighton, is under pressure from developers. According to LFA, applications for about 1,000 properties within the floodplain are being considered by developers (Lewes Flood Action, 2008).

Like all local authorities, Lewes has housing targets to meet. For example, SEERA's South East Plan Draft Section D3 suggested that between 2006 and 2026, 50 houses per annum or a total of 1,000 for the period should be built in Lewes itself and a total of 4400 for the District as a whole.

The possibility of developer financed defences has been under consideration for the North Street area for some years. A commercial property developer, Angel Property had by 2007 already acquired a large amount of land in that, in the town centre and is suggesting a comprehensive development with a mix of housing shopping, and other uses. However in April 2007, no planning application had as yet been received by December 2007. Lewes District Council itself owned land in the North Street area and there has been public concern that the Local authority might sell its land to the developer.

In terms of processes, local planning authorities are constrained by central government guidance on planning processes generally and on development and flood risk in particular. Over the period since the flood of autumn 2000 this guidance has been strengthened, first, with the publication of PPG 25 in July 2001 and subsequently with PPS25 in December 2006 and its Practice Guide in February 2007. However, there remains some scope for interpretation of these documents, particularly in the early stages after their publication by local authorities and the EA and for developers to manipulate the situation in a local area. In addition, key documents that will guide development in Lewes, a Strategic Flood Risk Assessment and the Local Development Framework had not been completed by December 2007 although Lewes had commissioned a Strategic Flood Risk Assessment from specialist engineers, Faber Maunsell to aid its decision-making.

Planning legislation and guidance aim to ensure that, generally, planning processes are open, transparent and provide opportunities for community consultation and engagement. In Lewes, planning applications received are now posted on the Council's website and other relevant documents such as minutes of planning committees, and special documents such as a 'Planning Vision for the North Street area' which drew on community engagement are made available in the same way once approved by the Council's cabinet. However, pre-application discussions with developers are not open to public scrutiny in the same way. In relation to the North Street area, rumours and suspicions within the local community about the Council's negotiations with a developer were such that Lewes DC felt the need to issue a newsletter on 'Flood defence and development proposals in Lewes' (Lewes District Council, 2007) to clarify the situation and reassure local people that the Council 'would not approve a development proposal that was wrong for the town just for the sake of getting private money for flood defences'.

Local authority planners face a dilemma: two planning strategies were seen as possible for Lewes DC. Development within Lewes is severely constrained into the floodplain, by the Downs AONB and the National Park. Most brownfield sites in Lewes such as those in the North Street area are within the flood plain. Another option would be to develop to the North of the Downs and to expand significantly some villages there lacking facilities. This would be less sustainable in terms of traffic generation and facilities than developing within the Lewes urban area.

In terms of outcomes, many of those active in LFA were dead set against any further flood plain development. However, some members recognised the need for the town centre to be redeveloped in order to maintain its vitality. The organisation opposed and continues to campaign against a recent planning consent for 125 houses and offices in the flood plain on the grounds that it could not yet be shown that the flood risk to occupants would be acceptable and the risk outweighed by sustainability gains, citing the threat of rising sea levels as a key reason. LFA's policy remains that decision on major planning applications should be deferred until the River Ouse CFMP had been completed and a Local Development Framework informed by a SFRA had been produced (Lewes Flood Action 2008). For some within LFA and its membership this issue is becoming the key fairness issue facing flood risk management in the town.

'The main fairness issue is really in relation to development'. (Lewes 3)

On developer lead flood defences as a process and outcome, there was considerable unease and opposition reflected in the informants' responses. There was concern about the long term implications of this approach particularly in relation to climate change and sea level rise and for future generations. There was recognition that gaining a benefit in increased protection for existing residents by introducing additional residents into an area who would face residual risks itself raised social justice issues.

A view was expressed that under the deals on offer from developers would gain the right to develop at too small a cost in terms of the flood defence costs incurred, standards of protection and resilience measures offered and the maintenance arrangement agreed by developers and community benefits provided. These deals thus would not deliver a fair outcome.

'The real way ahead is this emerging picture of the development charge and the point I really want to get across is that the bargains that are being put on the table are just not good enough….. The (flood defence) scheme for cell 4 is only about £2 million and he (developer) is looking for about 750 planning permissions…. What you are really looking for is affordable housing and resilient housing is not cheap. (Lewes 3)
'People right up to Yvette Cooper (then Housing Minister) have just not latched onto the idea that flooding is dangerous….without dry access they are dangerous, a relatively short warning lead time, four hours is all you are going to get (in Lewes),' (Lewes 3)

'there is a feeling in some quarters, that this (developer funded defences) is cheating the town, the government is waiting for a developer who may or may not turn up and so people's protection is based on the whims of a private developer and people do not know who the developer is and normally there would be planning gain e.g. a cinema which Lewes very much wants but if all the money is redirected towards flood defence that local people feel should be provided by the government, then planning gain will be lost for some unwelcome development so we will end up with nothing as community gain as people see it' (Lewes1).

7.10 Other social justice issues in Lewes

It was reported that many in LFA had felt that the focus of campaigning should remain on a consistent and high standard of protection (I in 200) for structural flood defences for the town and that it would be a betrayal of those for whom the strategy has offered little or nothing in terms of enhanced flood defences. However, there was a growing recognition among many in the organisation of the need to embrace a wider range of options and for a more balanced approach to flood risk management as indicated by the most recent Annual Report from LFA (Lewes Flood Action, 2008).

The fact that the policy and funding focus was still on structural flood defences despite the arguments in 'Making Space for Water' was seen by some as an overarching and important unfairness in flood risk management.

'The secondary (main) fairness issue is the failure to implement and to have a proper framework for proper appraisal in the balance between structural and non structural (in government policy) (Lewes 3)

LFA indicated in its most recent annual report that it was broadening its approach and giving attention to management options such as resilience measures, public awareness and enhanced flood warnings and resilience measures.

7.11 Summary

This case study illustrates the social justice issues that arise in applying Treasury and Defra project appraisal guidance at the local strategy level. It also addresses to a limited extent fairness issues relating to spatial planning and development and flood risk related to the development and implementation of a flood management strategy.

It focused on the development and implementation of a Sussex Ouse Flood Management as it affected the town of Lewes, Sussex which experienced an extreme flood event in October 2000. The strategy was developed over a period from June 2001- May 2004 and implemented in part in the years following.

An initial strategy document was produced in August 2002. In February 2003, Defra advised that further work was required to confirm the robustness of the strategy e.g. further investigation of the condition of the walls in Lewes. Defra, however, considered that there was prima facie evidence for proceeding with the work in one of eight discrete hydrological cells in Lewes, Malling Brooks. An updated strategy was completed in May 2004.

The strategy decision process involved economic, technical and environmental appraisal and Strategic Environmental Assessment for a long list of 10 options including Lewes-wide options such as upstream and/or down stream storage, and by pass channels as well as wall raising within Lewes in addition to the do nothing, do minimum and sustain the existing standard options, the short listing of three options and the choice of a preferred option of wall raising within

Lewes. The main reasons given for rejecting Lewes-wide options were the cost (upstream storage and by-pass channels) and technical difficulties and uncertainties and the need for further investigation of downstream storage.

For the wall raising option within Lewes, the Treasury and PAG guidance on economic evaluation indicated that where an investment benefits a single flood cell, the costs and benefits should be applied to that individual cell to determine its viability. Thus the town was not treated as a homogeneous community and the outcomes were different for different parts of town. Different enhanced standard of protection were recommended for different cells and for three cells no improvement could be justified. Furthermore, only one cell, Malling Brooks had a high enough Defra priority score to benefit from national funding and the works there were completed between 2004-5. For another cell, Cliffe, funding was to be provided between 2007 and 2010 by the Regional Flood Defence Committee. There was a possibility that funding might be forthcoming through grants from a developer for three central parts of town. For the remaining three cells, there was no likelihood of funding from any of these sources for many years.

The EA and its consultants with Defra and latterly the RDFC were seen as the key decision makers in the strategy process. They consulted and engaged with stakeholders and the community through formal written consultations, an External Project Board comprising local authority officers, English Nature and Defra representatives, a wider stakeholder body with councillors and community representatives, through public and other meetings and exhibitions and through newsletters.

There were a number of ways in which these decision processes were perceived by our informants not to have delivered procedural justice.

Many of those interviewed were of the view that the low level of funding available for flood defence at national level was at the heart of the social justice issues in Lewes and elsewhere. This was seen as due to Defra's weakness in the face of the Treasury and other powerful ministries. The allocation of national funding for flood defence as compared with other areas of government responsibility was considered inadequate and unfair given that benefit cost ratios for flood defence projects were very high. In this way, locations deserving of increased flood protection did not receive it.

Processes of consultation and engagement although recognised by some to have been typical of what was normal at the time, were seen as mere information transfer or at best consultation and not real engagement. The openness and transparency of the processes was questioned by some although the difficulty of communicating complex technical processes and information to lay people was also noted.

The rationale for rejecting Lewes-wide options was not well understood and accepted. It was argued that wall raising was a short term measure providing only a modest increase in the standards of protection in Lewes and that this approach did not take sufficient account of climate change, sea level and the needs of future generations.

Dissatisfaction among informants with the cell-by-cell approach as a process was strongly linked with dissatisfaction with the outcomes of that process. While the application of the appraisal process and the priority scoring system ensured that the different parts of Lewes were subject to the same decision processes, the outcomes for those at-risk within Lewes were very different in different locations. This aspect of the strategy was seen as unfair and divisive when sustainable development policy looked to authorities to develop strong and cohesive communities. There was substantial support for a community wide approach and for consistent standards of protection for those at-risk in Lewes.

Among the informants there was the recognition of the need for a rational system as embodied in the project appraisal process and Defra priority scoring in which benefit cost analysis was a key element as a way of allocating scarce resources. However, there was also a demand for processes to be modified to take more account of a wider range of issues particularly people issues such as health impacts and heritage factors.

Although the project appraisal process requires an outline programmed of works over a 100 year period, there was general agreement among Lewes informants that the strategy process and its outcomes did not take sufficient account of the needs of future generations and the likely impacts of climate change. The fact that the strategy has preceded the CFMP for the Sussex Ouse may have been partly responsible for this.

There was considerable opposition with Lewes to funding defences for existing development through developer grants associated with additional building within flood risk areas. This was both because it was seen as unfair to introduce additional residents into flood risk areas where they would face residual risks and because the benefits to the community were seen to be greatly outweighed by the benefits to the developer in the deals that were on offer. Further flood plain development was also seen as unfair for future generations who would face the increased risks and increased maintenance costs associated with climate change and sea level rise.

The fact that the policy and funding focus was still on structural flood defences despite the arguments in ‘Making Space for water’ was seen by some as an overarching unfairness in flood risk management. This focus was shared by many in Lewes and in the community organisation LFA, some of whom had felt that consideration of other management options such as enhanced flood warnings and resilience measures was a betrayal of those offered little or nothing in terms of enhanced flood defences by the strategy. However, there was a growing recognition of the need to embrace a wider range of options and for a more balanced approach to flood risk management as indicated by the most recent Annual Report from LFA (Lewes Flood Action, 2008).

8. Felixstowe: coastal defence strategy

This case study focuses on the process and outcome of the development of the Southern Felixstowe Coastal Strategy and the associated Felixstowe South Flood Alleviation Scheme. It was chosen to illustrate the social justice issues that arise from the application of the Treasury Green Book,and Defra's Project Appraisal Guidance, ithin the context of coastal flooding and coastal erosion.

8.1 Introduction

Felixstowe (located on the Suffolk Coast, Figure 8.1) has a number of coastal management issues; with the town suffering from both coastal erosion and coastal flooding; although arguably coastal flooding is considered to be the most significant threat. The North Sea flooding of 1953 had serious impacts along this coastline. In Felixstowe itself, this event caused large areas of the town to be inundated, leading to the flooding of 700 residential properties and the death of 39 people (Black and Veatch, 2007a). The fear that flooding of this magnitude might again occur is a major driving concern of flood and coastal managers. It is, similarly, reflected in the strong feelings about coastal defence.

Felixstowe's coastal zone is divided into three adjacent strategies; the South, Central and Northern coastal strategies. The frontages of each of these areas can be viewed in Figure 8.1. Although this case study primarily examines the Southern coastal defence strategy, the wider context of coastal management in Felixstowe (and the division of the coast into these three separate strategy areas) will also be investigated; as the treatment of each of the areas, and how they differ, has important social justice implications. In addition to the coastal strategy for Southern Felixstowe, this case study will also examine the urgent scheme of works developed in parallel with this Strategy; the Felixstowe South Flood Alleviation Scheme (FAS).

8.2 Background

8.2.1 Southern Felixstowe Coastal Strategy

The Southern Felixstowe Coastal Strategy, and the subsequent Felixstowe South Flood Alleviation Scheme, has undergone a number of different iterations over the previous five years. The different phases of the strategy are as follows:

- June 2003: Halcrow completes the Southern Felixstowe Coastal Strategy;
- June and December 2004: Additional economic reviews;
- 2004: Black and Veatch were appointed by Suffolk Coastal District Council (SCDC) and the EA (EA) to examine the potential options and complete a Strategy Implementation plan;
- 2005: Strategy executive summary produced;
- January 2006: Southern Felixstowe Coastal Review was submitted to Defra, but was not formally approved or accepted" (Black and Veatch, 2007a, p1). A scheme of rock fishtail groynes was recommended;

- May 2006: The scheme that was recommended was rejected. Black and Veatch were commissioned to undertake a strategy review;
- November 2007: Completion of the Southern Felixstowe Strategy Review;
- December 2007: Strategy approved by EA Board (by sub-delegation);
- January 2008: Defra Approval;
- March-August, 2008: Planned construction works to the Felixstowe South FAS.

There is some disagreement about why the 2003 strategy was not able to go ahead and why the scheme of work on the front was rejected. Various reasons have been proposed by those interviewed. One suggestion was that funding cuts, within Defra and the EA, meant that there was insufficient funding available for this scheme to be adopted. This has been contradicted by other stakeholders who suggested that not gaining appropriate approval for the strategy was to blame. As the scheme was partly being funded by the local council, and partly through the EA, it was necessary to obtain EA and Defra approval for the strategy; so that the ES's proportion of the funding could be secured. It was argued that this approval was never correctly achieved. In addition, there appear to be some confusion about whether the council was required to gain full approval for the scheme, or whether it just had to be submitted and 'noted'. In addition to this, on inspection of the strategy, there were concerns about the robustness of the business case in the old strategy. The strategy only appraised the costs and benefits over a 50 year time period, and new climate change guidance was not considered. However, it was stated that it is difficult to find fault with one organisation or another; as all organisations should have been working more closely together to satisfy the Defra guidance and present the best business case. Since the original Halcrow strategy *"did not meet the requirements of the day"* (Felixstowe 3) it was necessary to undertake another strategy.

There are a number of differences between the 2003 strategy and the review of the strategy completed in 2007. Firstly, the lead authority changed from Suffolk Coastal District Council (SCDC) to the EA. Black and Veatch (2007a) report that the priority score was reduced within the review; from an original score of 32 to 26.2. This is mainly due to the need to complete the strategy using updated Defra guidance and an increase in the PV strategy costs. Changes of particular importance are:

- The extension of the appraisal period from 50 to 100 years;
- Asset replacement costs have been included over the 100 year appraisal period;
- More realistic costs have been included (such as replacement of the seawall over the SCDC frontage with a sheet-piled structure rather than a simple concrete crest wall);
- Increased sea level rise allowance in the future has led to the need for higher structures. In addition, consideration of sea level rise over 100 years has led to works being required during the strategy time frame to defence assets that were not required under the previous strategy. (Black and Veatch (2007a, p32)).

The defence from flooding in this area is provided by a flood wall that is set back behind the promenade. However, the integrity of these flood defences is reliant upon both the health of the beach (currently protected by timber and concrete groynes) and a sea wall; built in 1903 which prevents erosion of the defences behind it. Current standards of flood protection vary from a 1 in 50 year to a 1 in 500 year event; although the current overall standard of protection is considered to be a 1 in 50 year event (Black and Veatch, 2007a). Despite this standard of protection, if no action were taken, the condition of the defences suggests that a failure is expected within the next 5 years.

There are a number of different stakeholders involved in managing the coastline around Felixstowe. Specifically, there are a number of different organisations which have responsibilities for different parts of the frontage of the Southern area of Felixstowe (Figure 8.2). These organisations include SCDC, who have responsibility for coastal erosion and management of the sea wall; the EA, who are the lead authority for flood defence, and thereby have responsibility for the flood wall; and the Port of Felixstowe which has its own frontage and coastal defences. In addition to the stakeholders with specific responsibilities, there are a number of other groups and individuals who have a vested interest in the management of the coastline; not least those living and working close to the coastal edge. The Shoreline Management Plan for this area (Lowerstoft to Harwich), completed in 1998, is currently undergoing a review. This review process has a range of organisations involved in this process including; Natural England, Felixstowe Port Users' Association, British Energy and the Joint Nature Conservation Committee.

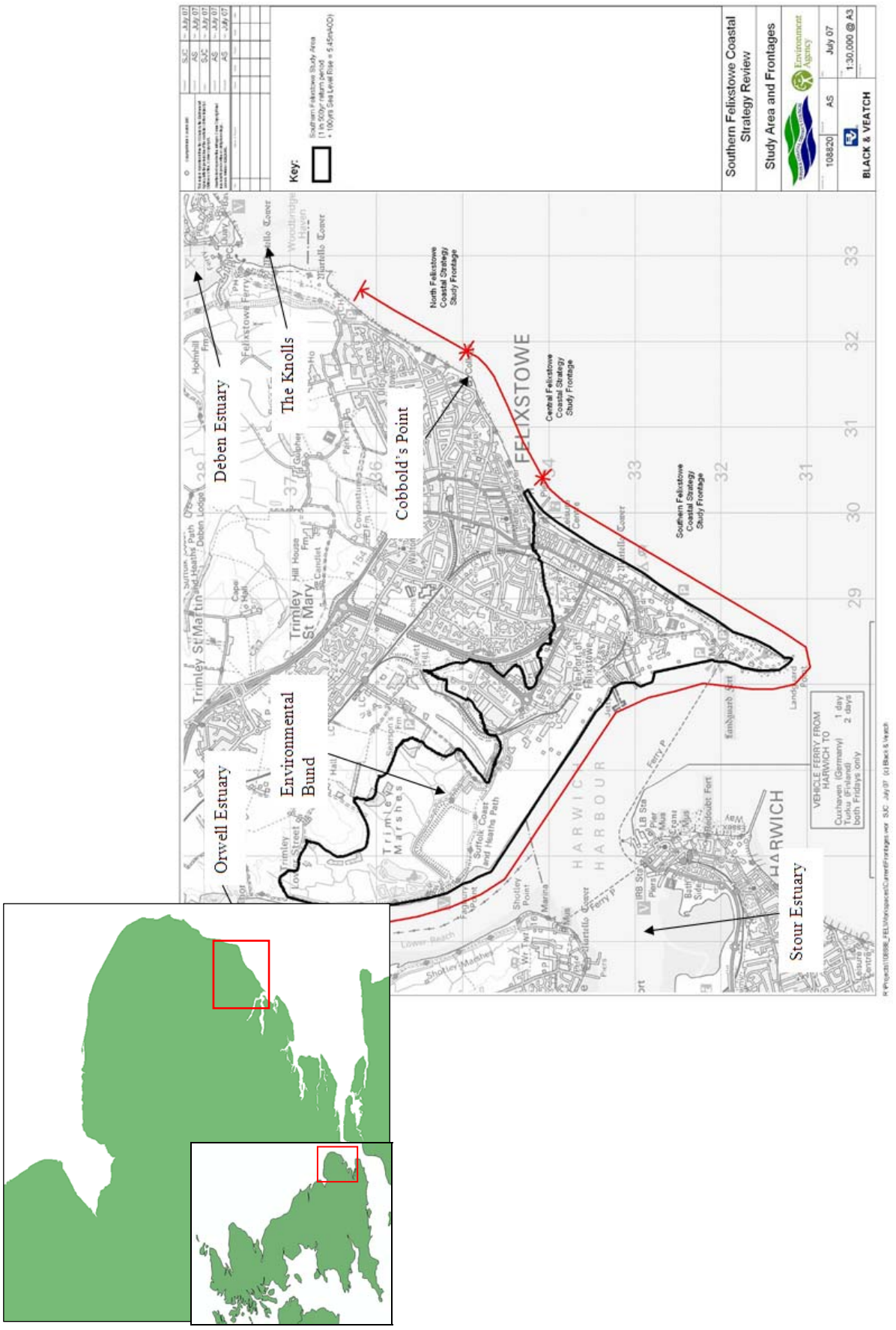

Figure 8.1: The three adjacent coastal strategy frontages in Felixstowe: Northern, Central and Southern (Black and Veatch, 2007a; p22)

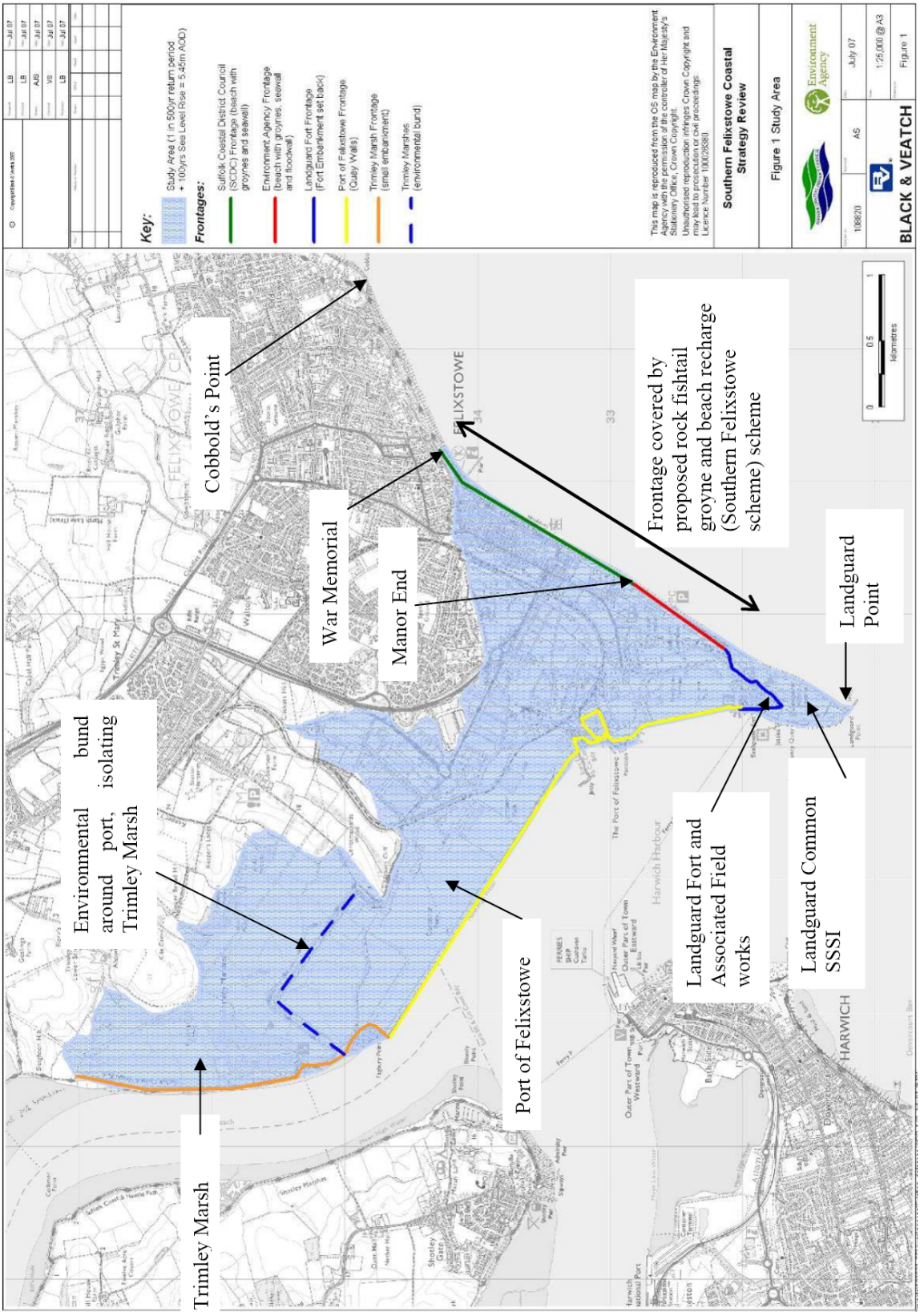

Figure 8.2: Area covered by the Southern Felixstowe coastal strategy review (Black and Veatch, 2007a; p2)

8.2.2 Southern Felixstowe Coastal Strategy Review

The main objectives of the EA's Strategy Appraisal Report are threefold:

- *To reduce risk to life of human beings, protect and enhance their well-being;*
- *To protect property (commercial and residential) and existing infrastructure;*
- *To protect and enhance biodiversity, cultural heritage and landscape.*

(EA, 2007a:1)

The review itself covers the area coloured in blue in Figure 8.2 and includes a number of assets at-risk from flooding. These assets include: 960 residential properties; 468 non-residential buildings; amenities such as the beach and other leisure facilities; historical buildings (such as the war memorial and Landguard Fort); and importantly, the area covers the Port of Felixstowe. In addition, the Landguard SSSI and a local nature reserve are within the study area, as are Trimley Marshes - an SPA and important nature reserve.

Two options were reportedly taken forward from a longer list for further consideration. These were to do the minimum amount to the frontage, through maintenance work to hold the line of existing defences (the recommendation for the area from the SMP completed in 1998); or improve the defences through the completion of work both now and in the future. This would account for current flood risks, as well as increasing risk due to sea level changes. Following economic analysis and consideration of the potential consequences of flooding in Felixstowe, it was decided that the latter approach was the most appropriate.

Many different benefit-cost analyses were carried out, looking at various standards of protection. Initially, the output of these analyses was the recommendation of a defence standard of 1 in 100 years. However, following sensitivity analysis concerning the risk to life from flooding, and the optimisation of the standard of protection, a 1 in 150 year level of protection was justified and recommended. This is discussed in more detail in Section 8.6.3.

The preferred option that the strategy review recommends is described as;

"is to improve the standard of protection to a 1 in 150 (0.67%) chance of flooding each year throughout the strategy period of 100 years (including for sea level rise over 100 years). The implementation of this strategy will involve the following interventions:

- *Construction of a rock fishtail groyne and beach recharge scheme from the War Memorial to Landguard Common as soon as possible;*
- *Replacement of the existing defences at the end of their design life;*
- *Raising of defences (if required) prior to planned replacement;*
- *Maintenance throughout the strategy of existing and any new defences and continuation of the flood warning system."*
  EA (2007a p2-3).

8.2.3 Other Felixstowe Coastal Strategies

It is important to consider the management of the coastline of Felixstowe as a whole, in order to truly understand the social justice implications of any decisions. The Northern Felixstowe Coastal Strategy was completed in 2004 (by Royal Haskoning on behalf of SCDC) and covers the frontage from Jacobs's ladder close to Cobbold's Point in the South, to the Felixstowe Ferry in the North (see Figure 8.1). Black and Veatch (2007a, p20) suggest that the Northern frontage has "strategic importance in maintaining the current processes to the coastal frontage in the South"; because the area experiences a southerly drift of sediment. Defra have officially 'noted' that this scheme meets its required standard, and a 'do minimum' approach has been adopted.

The Central Felixstowe Coastal Strategy was completed in July 2007 by Halcrow, on behalf of SCDC. As illustrated in Figure 8.1, the area covered by this scheme runs from Jacob's ladder in the North, to the War Memorial in the South, covering the frontage between the Northern and Southern coastal strategies. Those interviewed explained that this area has higher ground, and therefore, unlike the Southern area is not at-risk from flooding. It does, however suffer from coastal erosion. The approach preferred here contrasts with the approach in the North, because works are considered necessary. The approach recommended in this area is similar to that in the South; namely constructing fishtail groynes, alongside beach recharge. This would ensure that the area is protected to a 1 in 100 year standard, as well as building a crest sea wall in an attempt to prevent overtopping.

Black and Veatch (2007a) report that the benefit-cost ratio for this option (of increasing the protection to a 1 in 100 year standard) was 8.57 (economic score of 16.1) and it had a priority score of 21.1. However, these figures include the benefits from tourism. Without these being included, the preferred option reverts to 'sustain' which includes maintaining the current variable standards of defence (between 1 in 10 and 1 in 100 year). When this scenario is considered, the benefit-cost ratio drops to 5.62 (economic score 10.2) and the priority score falls slightly to 20.2. Similar to the Northern strategy, Defra have 'noted' this scheme and have agreed that the tourism benefits can be included, therefore recommending the increased standard of protection, although *"it may be some time before this scheme is implemented"* (Black and Veatch, 2007a, p21).

Although all of the strategies mentioned have been independently produced, none of the schemes are considered to be detrimental to those adjacent to them.

8.3 Funding

As the whole life costs of the Southern Felixstowe Coastal Strategy are greater than £50 million, it required the approval of the Flood Risk Management Strategy EA Board prior to being sent for Defra approval. The urgency of the works required in Felixstowe (and the high possibility of defence failure) has led to the strategy, and the flood alleviation scheme, being developed in parallel. This was to ensure that the programme of works was met; as there was real concern that if they did not commence in Spring 2008, then it would be another year before it could be completed. This urgency also meant that, due to timing

issues, there was not sufficient time to wait for the strategy to be approved by the EA board. Instead, it was granted board approval by sub-delegation; where the strategy was approved by both Barbara Young and John Harman. It was reported that this only occurs in exceptional circumstances and is a reflection of the state of the existing defences and the high potential for defence failure.

8.3.1 Costs, funders and beneficiaries

The costs of the proposed flood alleviation scheme are shown in Table 8.1 below. This table highlights that the short-term emergency measures and enhancements over the next 5 years will cost in the region of £12 million, with the total strategy costs estimated to be £99.7million (with £23.6million contingency). It is important to recognise, however, that there is more than one funder for this strategy and many beneficiaries. The figures presented in the table illustrate that many (£38 million) of the total life costs of the scheme are attributable to the frontage of the Port of Felixstowe, which understandably would directly benefit from any works undertaken. The Port, in the past, has paid for all of the flood defences along its frontage; something that they will continue to do in the future, particularly in relation to the developments to the port that are proposed under the Felixstowe South Reconfiguration Scheme

Table 8.1: Costs of the South Felixstowe scheme over the next 100 years.

	Cash costs (£k)			
Item	**Felixstowe South scheme (yrs 0 - 5)**	**Total Strategy (yrs 0 - 99)**	**Strategy costs for Port**	**Strategy costs without port**
Agency/SCDC costs	96	561	151	410
Preliminary costs	33	88	25	63
Consultants costs	318	2,200	654	1,546
Construction costs	8,433	65,421	26,266	39,155
Environmental enhancement costs	95	210	0	210
Cost consultant fees	40	105	0	105
Compensation	521	797	0	797
Other costs (Land Agent)	51	51	0	51
Contingency (optimism bias for strategy, 95%ile for scheme)	2,592	23,587	9,040	14,547
Inflation @ 5% pa	218			
Total capital cost	**12,398**			
Future construction costs		as above	as above	as above
Maintenance costs		6,716	2,008	4,708
Whole life cash cost (inc. maintenance but not inflation)		**99,737**	38,145	61,592

EA (2007a, p4.)

The other costs of the strategy (£61.6 million) - which cover works to all the other frontages which would directly benefit the public and businesses in Felixstowe - will be funded through the Flood Defence Grant-in-Aid. The sea wall - that is essential to ensuring the protection standard of the flood defences - will be repaired and improved as part of the first phase of the strategy. However, as it is the responsibility of SCDC, the future maintenance costs for this structure will revert back to the council.

8.3.2 Attitudes to funding

Interviewees stated that although funding, and the use of resources are important when making decisions - because of the state of the defences, and the real possibility of defence failures - the costs were considered secondary to the urgency of the works and the need to ensure the integrity of the defences. One of those interviewed suggested that although it is recognised that there is the need to make some difficult decisions about the allocation of coastal management resources, currently there are cases (such as the Central Felixstowe strategy) which have a very healthy positive benefit-cost ratio, but there is no budget to fund them. Some of these strategies, in national terms, are clearly worth investing in and, therefore, other ways should be examined which might be able to provide more resources so that these 'worthy' cases can be funded.

8.4 Fairness in key documents

Coastal management in Felixstowe is affected by various policies, guidance and overarching legislative frameworks (Figure 8.3) (Appendix 5). At a national level, the Land Drainage Act (1991) governs flood management and flood defence and the Coastal Protection Act (1949) legislates the issue of coastal erosion and sets out the responsibilities for managing this risk.

The Southern Felixstowe Strategy, and the associated flood alleviation scheme, has been guided, at a national level, by a number of strategies. The approach adopted is required to adhere to the guiding principles of *Making Space for Water* (Defra, 2004; 2005a). However, the key national documents of interest are the Flood and Coastal Defence Project Appraisal Guidance (FCDPAG). These documents are complemented by the Treasury Green Book (HM Treasury, 2003), alongside supplementary guidance to the FCDPAG (Defra, 2004a).

At a regional scale, the Lowersoft to Harwich Shoreline Management Plan (SCDC, 1998) sets out the strategic vision for coastal defence and recommends a 'hold the line' strategy for the Southern frontage of Felixstowe. The Southern Felixstowe Coastal Strategy and the review document are, therefore, being guided by these strategic recommendations. The Shoreline Management Plan is currently undergoing a review; however some of those interviewed state that the SMP2 is unlikely to lead to a change in the policy for this frontage of Felixstowe; the main issue in the future may be whether there are sufficient funds available to complete any works that are recommended.

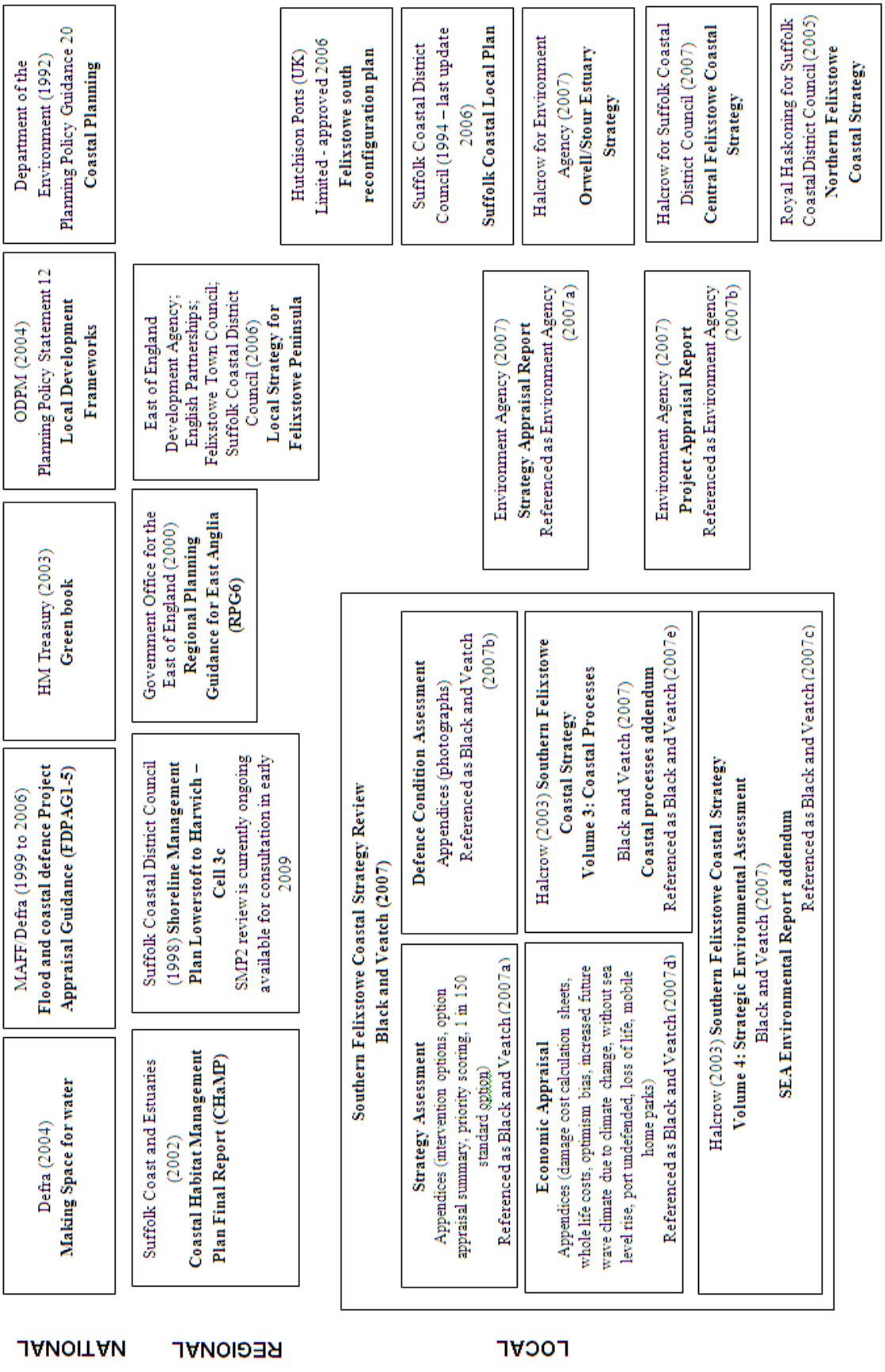

Figure 8.3: Guidance and documents relating to the coastal management of Felixstowe

8.5 Fairness and social justice of outcomes

Those within the area covered by the Southern Felixstowe Coastal Strategy (once the works are completed) will have a standard protection of defence from flooding of 1 in 150 years. For the majority, this is an increase in the current overall standard of defence from 1 in 50 years. Works are expected to begin almost immediately (Spring 2008) and be completed by the end August 2008. For those residing in the area covered by the neighbouring Central Felixstowe

Coastal strategy it has been recommended that protection from coastal erosion is developed to a standard of 1 in 100 years. However, although Defra have noted the strategy, the funding for these measures is yet to be secured and is unlikely to be in the near future. Therefore, in the short-term the only improvements that these areas will get are emergency works undertaken by the SCDC.

8.6.1 General attitudes towards the fairness of outcomes

In general, the new strategy, and the flood alleviation scheme proposed, over the short term, was welcomed in Felixstowe. The problems with the current defences, which in places are visually damaged, resulted in general attitudes that something needed to be done.

In addition to the poor condition of some of the current defences, there is an area of land between the sea wall on the frontage and the flood defence wall. This land houses some amusement arcades and gardens. It was reported that these areas suffer relatively frequent flooding and, therefore, serve as a reminder to the local population about flooding and the need for defences.

However, the new scheme only protects the Southern area; therefore, those outside this area live at a continued risk of coastal erosion and have different views about the outcomes of coastal management in Felixstowe.

8.6.2 Outcome equality

All those that live or work within the area protected by the Southern Felixstowe Coastal Strategy will be protected to the same standard of 1 in 150 years. Therefore, in this regard, the scheme does permit outcome equality. It could be argued that this is an improvement from the current situation, where the standards of defence vary. However, although following the completion of the imminent scheme, all those within the protected area will have the same defence standard; the negative impacts that people will suffer (both short and long term) might not be equal. The following section explores the different costs that individuals and businesses might suffer.

Same benefit, different costs

A minor consideration might be the noise, disruption and lost revenue that will be experienced during the construction phase of the scheme, as well as the loss in amenity value through beach closures. The strategy costs include

compensation for those businesses that will lose revenue because of the works, and it is intended that in general the disruption and inconvenience, should be kept to a minimum.

Perhaps more importantly are the different costs experienced by different residents and businesses, when future works become necessary. It is likely that, due to expected rises in sea levels, it will be necessary to raise both the sea wall and the flood wall in the future; in order to maintain a 1 in 150 year protection standard. When raising these walls the aesthetic appearance of the frontage might be altered and the views from some properties will be negatively affected. Therefore, it might be argued that some people may lose out as a result of the need to maintain the standard and integrity of flood defences for all those within the protected area. One interviewee argues that the public are:

'pleased that they have secured the strategic vision of raising the defences in line with sea level rise and increased the standard of protection, but [he] doubts that they have thought through the consequences of that, in that if you raise the wall by a metre, will you still have the same view from the lounge?' (Felixstowe, 3).

The main concern, in relation to outcome equality, however, is the disparity between those that are protected to a 1 in 150 standard - within the Southern strategy - and those that are outside this area; this is directly related to the division of the coastline.

Assignment of geographical boundaries

Black and Veatch (2007a) indicate that the decisions about where to split the coastal strategy areas were made during the original 2003 strategy. The study area was originally due to encompass the length of frontage from Cobbold's point in the North to the foot ferry, within the Port of Felixstowe development, in the south. However, during the original strategy this area was extended westwards to cover the area of the Trimley Marshes; as it was felt that the flood risk also extended into these areas. Perhaps more importantly, during this strategy, the northern boundary was moved southwards from Cobbold's point to the War Memorial, "to cover the flood risk area *only* with the predominant erosion risk shoreline being covered by the Central Felixstowe Coastal Strategy" (Black and Veatch, 2007a, p5, *emphasis added)*. This decision was taken to reflect the different types of risk (coastal erosion and coastal flooding) and, therefore, also the different lead organisations responsible for managing these risks; namely the SCDC (under the Coastal Protection Act 1949) and the EA (under the Land Drainage Act 1991) respectively. It was also stated that this decision was taken to reflect the need to focus on the Southern frontage because this area was more in need of urgent attention.

When the initial strategy was developed in 2003, it seemed that this division was justified because, at that time, the majority of the pressure was on the Southern Frontage. However, since the original strategy (and the review) has been completed, there have been some changes to the condition of defences in the Central area. Similar to the Southern area frontage, this area has suffered a reduction in beach levels and existing groynes have been undermined. In particular, this area suffered quite badly during the November 2007 storm surge

and the council have felt it necessary to declare an emergency for this area, and undertake urgent repairs. With hindsight, it has been argued that perhaps the division of the two areas was a mistake because the Central area is now also under a similar threat to the Southern area. In fact, one interviewee reported that the EA's National Review Group (NRG) was asked if it would be possible to add the Central strategy to the Southern scheme and deal with them together. The NRG's view was that they would look at it like any other project if the benefits could be proved. This proved to be largely infeasible, however, because the Central Coastal Strategy was considered to be too far behind the planning stage of the Southern scheme. If they were to be joined together it would have meant holding up the completion of the Southern scheme where urgent maintenance work is required.

As reported previously (Section 8.2.5), the Central strategy (with the tourism benefits included) achieved a cost benefit score of 8.57 (economic score of 16.1) and a priority score of 21.1. Although it has been noted, and approved, by the EA and Defra, the benefits of the scheme are lower than those in the Southern area and there is no funding available, at the moment, for the works to go ahead. Therefore, at present, the council are only able to fund and complete emergency measures. There is, therefore, a disparity in outcomes between the different areas; however, had the boundaries been drawn differently, and the two strategies been combined, it may have had a healthy benefit-cost ratio and there is the possibility that a strategy for the whole area would have been funded. Despite this, it was argued that this would have led to a very large scheme which would have needed to be phased anyway. Combining the strategies might not only have solved the issue of different outcomes with regard to funding, the combining of the works might also have saved public monies through a reduction in consultants' and construction costs.

In summary, therefore, inequalities in outcome between those who reside in the 1 in 150 year protected level in the Southern area, and those who reside in the unfunded Central area, have in part been created by the positioning of the strategy boundaries. One interviewee (Felixstowe 1) argued that this division is created by artificial boundaries; namely the Coastal Protection Act (1949) and the Land Drainage Act (1991).

In addition, this example has highlighted how the appraisal process itself favours one type of risk over another; due to the flood risk benefits that are able to be accrued over the short term. In the Central area of Felixstowe there is open space behind the promenade and properties that would be threatened by coastal erosion. A coastal consultant argued that these community assets are regarded as being sacrificial and also the full benefits of the properties themselves do not become an influence until they are immediately threatened; therefore, the value of the property is discounted until the point at which it becomes directly in danger. This is not the case with flooding; whereby a property can immediately accrue benefits in accordance with its full value.

The decision to split these areas, and where this division is made, is one of the key factors affecting the fairness of outcomes within this case study. Although at first glance, this decision may appear to be sensible - and an appropriate one to take – it has a significant impact upon the outcomes for the Central Strategy

area. The following section discusses other types of procedural justice and the real and perceived fairness of the decision processes.

8.6 Procedural justice

8.6.1 Procedural equality

Although there are clear differences in outcome between the Southern and Central strategies; there does appear to be some evidence of procedural equality in this case study. All of those at-risk from flooding, and/or coastal erosion, have been included within schemes that have been through a similar process; via the benefit-cost approach and Defra's priority scoring system. In this way, the procedural equality principles are similar to those expressed in these policies.

Assessing the consultative approach within this case study is quite difficult for a number of reasons. Firstly, consultation on the available options, and the preferred approach, have stretched over a long period of time; beginning with the initial Halcrow strategy in 2003 and continuing through to the options recommended by Black and Veatch in 2005. Secondly, out of necessity to undertake works as soon as possible, the strategy review and the initial scheme of works have been developed in tandem. Therefore, it is difficult to differentially evaluate views and opportunities for consultation between the coastal strategy and that of the flood alleviation scheme.

The EA took the lead on the consultative processes and, during the development of the strategy in 2005, consultation letters were sent out to the many organisations that were considered to be interested. A liaison group was then established, with those considered representing the interests of local councillors, local landowners, the local chambers of commerce and businesses, as well as those with interests in tourism and leisure. The council regarded themselves to be representing the interests of local residents at this forum. Information was then presented to the public, via an exhibition held over two days at the local leisure centre. This represented the different options, the coastal processes and the recommended flood alleviation scheme. Recruitment to this exhibition was conducted through the local media (radio, television and newspapers) as well as via public notices at the town hall.

The focus of the public consultation was on the selection of the type of groynes that will be developed and, in particular, decisions about the head of the groyne. The public were reported to have preferred that the head of the rock groyne be buried - so that it was possible to step directly from the promenade onto the beach - rather than having timber groynes at the landward edge. It was argued that it was difficult to provide the public and other stakeholders with a large number of choices, as it was necessary to restrict decisions to those options that are both technically and economically feasible (Felixstowe 3). Another interviewee stated that there was a: "*fairly non-controversial set of options presented, which involved variations on the same theme" (Felixstowe 4).*

Some concern was raised by interviewees about the possibility of fully involving the public within a consultative process. It was argued that much of the effort had to be put into explaining the complexity of the problems, as well as the

technical aspects of risk, the processes of decision-making and the procedures that are in place. In addition, despite there being a liaison group representing a range of different interests, it is the case that the "*vociferous minority*" *(Felixstowe 1 and 3)* often have a great deal of influence on the outcomes. They also stated that the presence of this liaison group, the media interest and the support of the local MP, John Gummer, have been beneficial in putting pressure on the authorities to approve both the strategy, and scheme, quickly. The urgency of the works was a key factor in this regard. One interviewee went so far as to state that:

'*the reason that this scheme is going ahead at the beginning of 2008 was not the high priority score, but because of the pressure exerted politically and by the local community*' *(Felixstowe, 1).*

Generally, it was considered, by those interviewed, that the consultation process was fair and open; despite the problems concerning public understanding of the issues and ensuring that all groups of society were represented. Part of the difficulty in achieving a full consultation of the issues is that, in general, both the public and businesses are keen for a flood alleviation scheme to go ahead and are arguably more concerned with the timing of the scheme (i.e. wanting it to begin as soon as possible) than the specifics of the options. From a tourism perspective, it was suggested that the aesthetics and landscaping of the scheme was important; including how to do the work sympathetically, as well as ensuring continued direct access to the beach from the promenade. A further concern that was expressed was the noise during the construction phase of the works and the closures that are likely. To combat this, and allay the fears of the public and businesses, the contractors are aiming, where possible, to phase the works so that not all areas of the beach will be closed at the same time, as well as provision of compensation for lost revenue.

8.6.3 Maximum Utility

A maximum utility approach has dominated the decision-making process and the resultant outcomes in this case study. As discussed above this has led to the inconsistency in standards of defence between the adjacent areas of the Southern and Central strategies.

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Table 8.2 Economic case and priority score for the Southern Felixstowe Coastal Strategy (EA (2007a, p3)).

Present Value benefits	£962,000k
Present Value costs	£33,000k
Net present value	£929,000k
Benefit cost ratio	**29.1**
Cost per residential property (PV)	£34.5k
Defra priority score	
Economics	20
People	4.2
Environment	2
Total	**26.2**

The development of the strategy, and the related scheme, has been developed in accordance with Defra's FCDPAG guidance (described in Section 4.4.1). The economic case over the 100 years of the strategy is summarised in Table 8.2; whereas the specific details of the priority scoring can be seen in Table 8.3

Table 8.2 highlights the high benefit-cost ratio of 29.1 and the Defra priority score of 26.2. A criticism of the strategy is that many of the benefits are associated with the Port of Felixstowe and that this is unfairly inflating the benefit-cost ratio. Firstly, it is important to consider that the port at Felixstowe is the major container port for the UK and can, therefore, be considered to be a national asset; its national and regional influence goes far beyond the port itself and the local area. However, as part of the sensitivity analysis of the economic case for the strategy, the benefits of the Port of Felixstowe were removed, and the economics were repeated. When the port is not included, the benefit-cost ratio reduces considerably to 10.5; however, because of the capping of the benefit cost ratio (at 10.5), within the priority score system, these changes only have a minor impact on the priority score, changing it by 0.1. Despite this reduction, this strategy remains sufficiently beneficial to be put forward for prioritisation.

Despite the majority of decisions being undertaken using a maximum utility approach, the EA asked the consultants preparing the strategy to look at the risk to life from flood events. Felixstowe suffered badly from the flooding in 1953, and 39 people lost their lives. Although risk to life has not been included within the economic justification, it has been examined through sensitivity testing. The *Risk to People* methodology (HR Wallingford, 2005) was used to assess the potential risk to life from flooding. For a 1 in 100 year event it was estimated that 12 lives would be lost if the current situation was maintained. However, with the influences of sea level rise, this would increase to 32 lives lost in 100 years time. This was judged to represent a *very high risk* to life and, therefore, a score of 2 was added to the people component of the priority scoring (Table 8.3). As a result of this, the preferred standard of protection was raised from 1 in 100 years to a protection standard of 1 in 150 years:

'Due to the real risk to life at Felixstowe and the high value assets at-risk of flooding there is justification for providing a higher standard of protection than 1 in 100...This option also provides a better optimisation of the cost versus benefit relationship in the economic appraisal. With the inclusion of the loss of life damages, the preferred option (1 in 150 standard of protection) has a BCR of 29.1' (EA, 2007a; p34).

The use of risk to life as a justification mechanism might be considered to be controversial, in that it is 'outside' the remit of government guidance. One interviewee reported that it was necessary to seek guidance from the NRG because, currently, the use of the *Risk to People* method had not been approved by Defra and, therefore, should not be used to justify strategies. Despite this, the NRG recommended its use in this case because of the desire to maximise the standard of protection.

Table 8.3: Southern Felixstowe coastal strategy priority score

Component	Score
Economics	
Based on the benefit Cost ratio, calculated in accordance with Defra's Project Appraisal Guidance. Calculation = (BCR x 2) – 1 (maximum of 20 points) *In the case of southern Felixstowe, the BCR = 29.1*	**20**
People	
Recognises that there are often impacts on those living in risk areas that are not reflected in the economic assessment that should be taken into account. Broken down as follows:	
Base people score: This is the number of residential properties affected per £k of project cost, multiplied by a standard adjustment factor. Calculation = no. of residences protected x 75 / PV cost (£k) (maximum of 8points) *In the case of southern Felixstowe, there are 960 residential properties within the flood risk area and the PV cost is £33,107 k*	2.2
Public safety adjustment: The people score can be increased in situations where it is reasonable to assume there is a significantly increased level of risk to public safety. Additional points can be added for risk as follows: Add 2 points if 'very high risk' Add 1 point if 'high risk' Where for flooding: 'Very high risk' covers situations of very fast onset of flooding, little chance of effective warning, deep (>2m) water, or high velocity flows – without the project there is a high risk of loss of life if an event occurs. 'High risk' cover situations where without the project there would be fairly fast rising floodwater with practical warning times generally less than two hours. Where for coastal erosion: 'Very high risk' should not be applicable (building should have been abandoned before they are lost). 'High risk' cover situations where there is a recognised probability of failure causing risk to public safety that would require evacuation, but complete property abandonment is not necessary. *In the case of Southern Felixstowe, once the defences are exceeded or breached, there will be rapid inundation of the low lying area in which may elderly people live. There was loss of life during the 1953 surge event at Felixstowe. Therefore, the study area is considered to be 'very high risk'*	2
Vulnerability adjustment: The people score is further adjusted to take account of the degree of vulnerability within the population at-risk. This is measured using the Government's 'scale of economic deprivation', which ranks the electoral wards according to deprivation (from 1 being the most deprived to 8414 being the least). Additional point can be added (or taken away) for deprivation as follows: Add 2 points if rank is between 0 and 300 Add 1 points if rank is between 301 and 1500 Add 0 points if rank is between 1501 and 6664 Add -1 points if rank is between 6665 and 8114 Add -2 points if rank is between 8115 and 8414 *In the case of Southern Felixstowe, the study area covers several wards, as follows (Deprivation rank in brackets):* *Felixstowe South (2050) Felixstowe West (4374)* *Trimley (5683) The majority of the residential houses are in the Felixstowe South ward.*	0
Total People Score	**4.2**
Environment	
Gives greater priority to those schemes that are expected to provide additional benefits to the natural environment and recognises Government targets to enhance the environment. Broken down as follows:	
BAP score: This is the net BAP habitat area gain per £k of project cost, multiplied by a standard adjustment factor, and multiplied by a weighted factor. Calculation = net gain in BAP area (Ha) x 25 x 2 / PV cost (£k) *In the case of Southern Felixstowe, it is not envisaged that the Strategy will lead to the creation of any BAP habitat.*	0
SSSI score: This is the area of SSSI protected per £k of project cost, multiplied by a standard adjustment factor, and multiplied by a weighted factor. Calculation = area of SSSI protected (Ha) x 25 x 1.5 / PV cost (£k). *In the case of Southern Felixstowe, Landguard Common SSSI (30.5ha) will be protected. PV cost = £33,107 k*	0
Other designated areas score: This is the area of other designated areas protected gain per £k of project cost, multiplied by a standard adjustment factor. Calculation = area of other designated sites protected (Ha) x 25 / PV cost (£k) *In the case of Southern Felixstowe, the County Wildlife Site (0.05ha) will be protected. PV cost = £33,107 k*	0
Heritage score: Additional score is added to designated heritage sites protected, as follows: Add 2 points if Grade I or II* or Scheduled Monument protected Add 1 point if Grade II (or equivalent) protected (maximum 2 points added) *In the case of Southern Felixstowe, Landguard Fort and the Martello Tower are both Scheduled Monuments, and there are several other designated sites within the study area.*	2
Total Environment Score (maximum of 12)	**2**
Total Priority Score	**26.2**

Black and Veatch (2007a, Appendix C, p1-2)

8.6.4 Targeting the vulnerable

Vulnerability was taken into account within the benefit-cost approach. Defra's procedure, from the supplementary notes to FCDPAG3 (Defra, 2004a), suggest that social equity considerations should be included through the use of a Distributional Impacts (DI) analysis; as suggested by the Treasury's Green Book (HM Treasury, 2003: Appendix 5). Table 8.4 highlights the distribution of social classes in Felixstowe, and calculates the weighted average according to the Defra guidance. This has been applied to the residential damages.

Table 8.4: Social class distribution in Southern Felixstowe

Social Class	AB	C1	C2	DE	Total Weighted Average
Number of population	3420	12054	5528	19608	**1.35**
Percentage of total	8%	30%	14%	48%	
Weighting factor	0.74	1.12	1.22	1.64	

Black and Veatch (2007d, p8).

This table illustrates that there is a high percentage of the population in the D/E band and the weighting that has then been applied recognises the vulnerable (as defined by social class) within the benefit-cost ratio. However, because of the already high benefit-cost ratios, and the fact that for the priority scoring this is capped at 10.5, the inclusion of these social equity scores has had little impact upon whether the strategy was approved.

In addition to the Distribution Impacts, the people component of the priority scores also recognises 'vulnerability' through the application of deprivation indices. Table 8.3 highlights the results of this analysis for Southern Felixstowe; a value of zero was assigned to this component. There does appear to be some discrepancy between the results of this analysis, where it was considered not to be a factor (i.e. no value was added or removed from the priority score), and the weighted average from the distributional impacts, which appears to show a relatively high vulnerability of the population on the basis of social class. One interviewee (Felixstowe 2) felt that this might be due to the presence of higher numbers of retired people within this coastal town. The DI analysis is based upon social class which is based upon profession, thereby retired people will be categorised as D/E and of a lower social class irrespective of their income. Another potential explanation for this discrepancy is the geographic scale of measurement; the deprivation indices being measured at the ward scale.

Vulnerability was also recognised within the risk to life calculations; the percentage of elderly and disabled people within the population is included within the Risk to People formula which, therefore, incorporates the high numbers of elderly residing in Felixstowe.

It was also suggested, by the EA, that attempts were made to engage with vulnerable people within the consultation phase for the flood alleviation scheme. In particular, one of the key issues with the scheme was the continued and improved access to the beach; groups representing those with physical or visual impairments were targeted for their opinions. Others interviewed, however,

were unconvinced by the attempts to engage the public and the efforts made to target vulnerable or hard to reach sections of the community. It was universally acknowledged, however, that it is difficult to ensure a representative sample of the population during the consultative process.

8.7 Intergenerational equity

There is one issue in relation to intergenerational equity, relating to the fact that, at present, only the imminent scheme of works has been consulted upon and is in the consciousness of the public. Generally, the scheme has been welcomed by both the public and business organisations alike. This enthusiasm might be tempered in the future if some of the negative aspects (mainly aesthetic) need to be undertaken. However, it was stated that additional consultations will occur in the future to seek attitudes about any additional works.

8.8 Summary

This case study presents a number of issues related to the fairness of how Defra's current FCDPAG guidance are applied in practice. Procedural equality can be seen to be occurring in the case of Felixstowe; because the different strategies developed clearly follow the process described within the FCDPAG series and from the Treasury's Green Book. Outcome equality is achieved within the Southern Felixstowe strategy area because, once the works are completed, all those within the area will be protected to the same 1 in 150 year standard.

However, there are key points in the decision-making process that have fairness implications. One such stage is the drawing of the geographical boundaries that define the areas subject to different coastal strategies. In Felixstowe, the Southern and Central Coastal Strategies have been divided along the lines of risk and responsibility. The Southern area encompassing all the coastal flooding issues and the Central area being coastal erosion dominated. This has proved to be a critical decision leading to the inequality in outcomes between the two areas; as the Southern area will gain defences and a raised standard of protection, whilst the Central area will not funded at the current time.

There are many reasons for this difference in outcome, not least important of which is the very high priority score achieved by the Southern area (both with and without the Port of Felixstowe benefits). This outcome is also partly related to the prioritisation of areas - the Southern area being seen at the time as needing works more urgently - but may also be seen to be related to the need to protect the safety of the public; because risk to life from flooding was considered to be a significant issue in the Southern area.

Another fairness issue raised relates to the benefits that were able to be generated from flooding (which although discounted into the future) were able to be counted immediately; whereas for coastal erosion the full benefits for property threatened are only fully realised when they are in immediate danger of loss. This can be argued to be a point of unfairness in the way that different assets are treated.

Within the development of the Southern Felixstowe strategy, the vulnerable have been included through the calculation of both Distributional Impacts and through the 'people' component of Defra's priority scoring. Although this is an attempt to include vulnerability within the assessment process, it is still dominated by economics. In addition, the vulnerable have not received any special provision or different outcomes.

Defra's project appraisal guidance requires the development of strategies and schemes over a period of 100 years and, therefore, aims to be both long-term and sustainable. This does appear to have been successful in some respects. But it was argued that, although the public were consulted about the whole of the strategy, it was difficult to engage the public over these timescales and for them to appreciate the longer-term implications of the strategy.

Many of the stakeholders interviewed felt that although difficult funding decisions were always going to be necessary, they considered the quantity of funding available for flood management at a national level to be insufficient. This meant that strategies such as that of Central Felixstowe, which now requires urgency works, are not necessarily able to be funded.

9. Coastal erosion risk management East Riding, Yorkshire

This case study focuses on the social justice implications for coastal communities that do not make a justification for defences. It was selected to illustrate the social justice issues that arise when some communities are defended and other communities are not. Specifically, it examines fairness within the context of a roll-back scheme implemented within East Riding, Yorkshire which gives individuals, and businesses, affected by coastal erosion preferential planning permission to move their properties.

9.1 Introduction

The coastline of East Yorkshire is one of the most rapidly eroding coastlines in the UK, with erosion rates of up to 2.7m per year being estimated (ERYC, 2007a). The coastal erosion in this area is well studied, with erosion monitoring being conducted since 1951 (ERYC, 2004). In addition to this, the loss of properties over hundreds of years is well-documented, with around 30 villages thought to have been lost since roman times (ERYC, 2005).

The character of the coastline is important to its economic status; as much of the coastline relies heavily on tourism. This is very important to the coastal erosion management debate. The need to continue to attract, and retain, visitors within the area is central to the economic sustainability of the area.

Coastal management is further complicated by the type, and arrangement of, properties within the region. Large parts of the East Riding coastline are rural; which although beneficial to the attraction of visitors, due to its scenic appearance, does mean that the density of the population is low. This creates an issue for managing small numbers of quite isolated properties and businesses, as well as more densely populated villages. In addition to the rural nature, and scattering of properties along the coastline, the area is also considered be a number of interviewees to have areas of high deprivation (East Riding 6 and 7).

This case study will examine social justice with regard to a roll-back policy that was adopted by the East Riding of Yorkshire Council (ERYC) in 2005 (although this was active prior to the policy being formally documented). Alongside this policy, it is necessary to examine the wider coastal erosion and flood management strategies because these greatly impact on notions of fairness along the coastline.

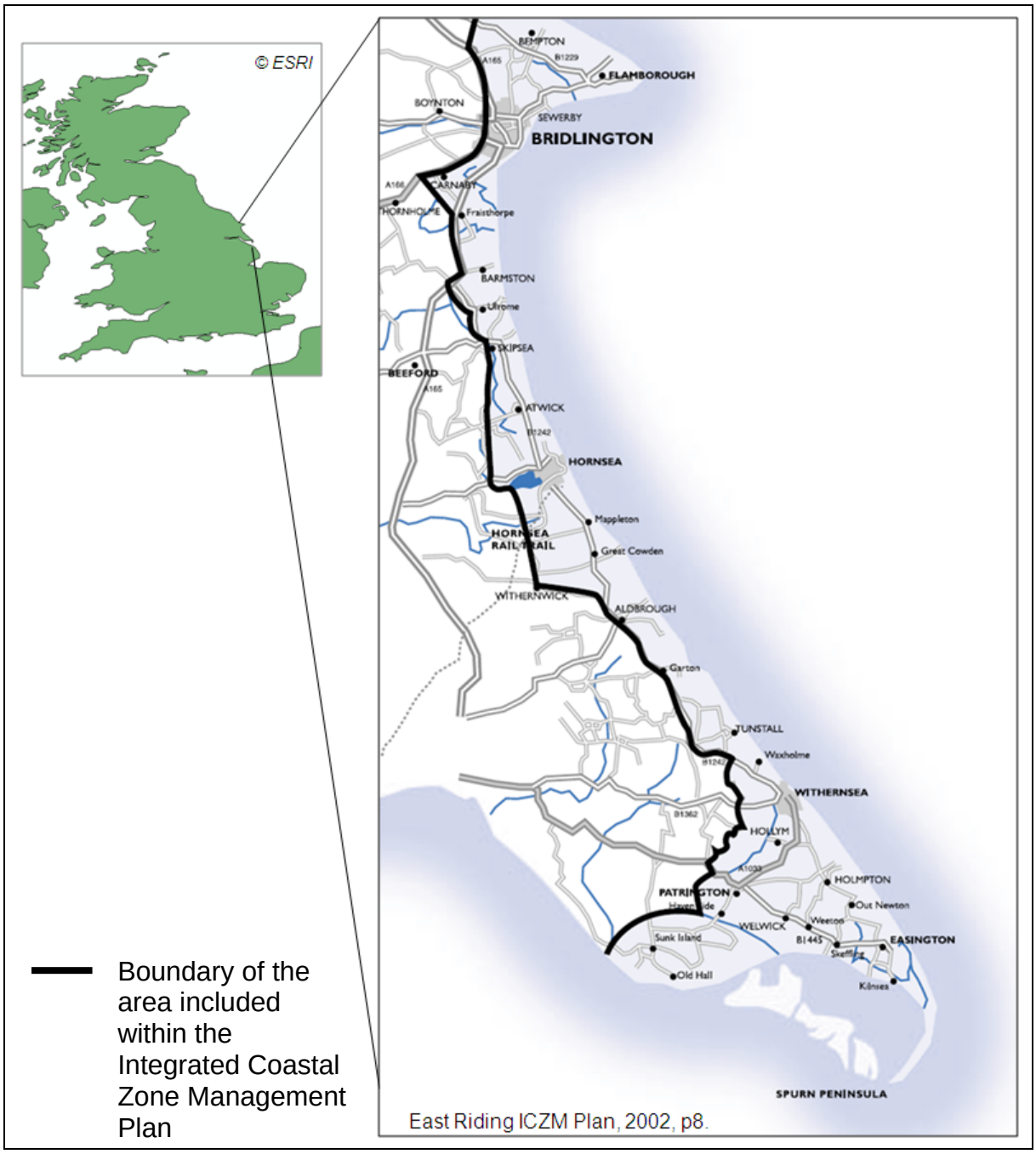

Figure 9.1: Area covered by the East Riding Integrated coastal management plan and, therefore, the area eligible for the roll-back policy

9.2 Background

The area of interest in this case study is covered by the Integrated Coastal Zone Management Plan (Figure 9.1). This case study will examine an 84km stretch of coastline of which 11km is defended and 73km is undefended (ERYC, 2007b). There are many properties and businesses that are at-risk from coastal erosion along this coastline. In March 2007, the ERYC (2007b) presented information about the value of residential properties that were at-risk from erosion over the next 50 years (Table 9.1). The figures are produced from the Council Tax bands of 1991 and then inflated - using a house price index of a mortgage provider - to estimate the prices as of the 1st October 2006.

Table 9.1: Estimated value of properties affected in each life span period

	0-5 years	5-10 years	10-25 years	25-50 years	Total
No. of properties	11	7	11	38	67
Estimated Value	£840 411	£534 807	£881 160	£3 066 234	£5 322 612

(ERYC, 2007b)

The estimates highlight that the value of the 67 properties at-risk is £5.3 million (as of 1st October 2006). Although these figures have not taken account of the impact '*that coastal erosion rates may have had on individual property values'* (ERYC, 2007b); nor do they include any businesses (mainly agricultural land and caravan parks) or public infrastructure.

This stretch of coastline is well monitored and historical data on past rates of erosion are good. Since this work was completed in March 2007, a more comprehensive look at the numbers of properties at-risk from flooding has been conducted; reassessing those at-risk within the next 50 years, as well as those likely to be affected within 100 years (Table 9.2)

Table 9.2: Numbers of properties and businesses threatened over the next 100 years

	0-5 years	5-10 years	10-25 years	25-50 years	50-100 years	Total
No. of houses	13 houses/shacks	11	12	57 (plus 1 hotel)	55	148 houses plus 1 hotel

(ERYC, 2007a)

The estimates of properties threatened in the next 50 years have risen to 93 houses plus 1 hotel. This rises to 148 houses over the next 100 years. In addition, in the order of 25 caravan parks and other business-related buildings

or land, are under threat over the 100 year timescale. It is important to recognise that these estimates are based on historical and current erosion rates and do not take into consideration any potential erosion rates caused by potential sea level rises. Therefore, the level of risk might be underestimated.

9.2.1 Key coastal management stakeholders

There are a large number of stakeholders along this section of the coastline, with different responsibilities and interests. There are two main organisations responsible for coastal management: the EA and ERYC. The local council is the lead authority for coastal management based on their obligations under the Coastal Protection Act 1949. They liaise with the EA on special projects such as the coastal defences that were built in Kilnsea. In addition, the EA has interest, and responsibilities, for the southern end of the coastline where it joins into the Humber Estuary system. The council are also responsible for planning along the coastline; of particular importance because the roll-back policy is a planning-based initiative.

With regard to coastal management, the organisations along the East Riding coast might be seen as forward thinking. Following the completion of the Shoreline Management Plan in 1998, concerns about its content (specifically that it did not *"recognise or address the concerns of the communities and businesses in the coastal zone"* (ICZM plan, 2002; p2)) led to the desire, by the authorities, to engage in a process of Integrated Coastal Zone Management and to the development and implementation of an Integrated Coastal Zone Management Plan (2002). This attempted to bring all of the different partners and coastal-related issues together. These different plans will be discussed in more detail in section 9.4.

This integrated approach recognised the need for a large group of stakeholders to be involved, including; local and nationally established groups (such as Yorkshire Wildlife Trust, English Nature; businesses and business organisations (Associated British Ports, North Eastern Sea Fisheries Committee, Seaside Caravan Park); as well as individuals and their representative groups (Atwick Parish Council, Aldbrough Village Hall Committee).

9.2.2 Coastal protection

This case study is primarily examining the roll-back policy that has been adopted along this coastline. However, it is necessary to consider the wider background of coastal protection to place the roll-back scheme within this context. The decisions about defending, or not defending, parts of the coastline are fundamental when considering the roll-back policy; not least because these decisions govern: who might need to take advantage of the scheme; attitudes concerning the protection of property; and perceptions of fairness in both the process of coastal management and the outcomes.

This stretch of, mainly rural, coastline is characterised by a small number of larger towns and villages (such as Bridlington, Hornsea, Withernsea, Easington), interspersed with smaller settlements comprising individual, or small numbers of, properties. There are also a number of caravan parks either directly on the cliff top or close to it.

There are a number of structural coast protection features that are present along this coastline. These vary in age, their state of repair and in their ownership. The major settlements of Bridlington, Hornsea, Mappleton and Withensea have publicly provided protection. In addition, there are also some privately-funded defences (mainly at Skipsea and Ulrome) that were granted temporary planning permission (ICZM plan, 2002). There are other locations on the coast, such as at Barmston, where coastal protection is provided without proper permission; through the dumping of rubble and aggregates. These defences are of different standards and are in various states of repair.

In addition to the use of official structural defences, and other measures, to protect property, there are two main assets protected along this coastline. The first is the privately-funded defence protecting the gas terminals found in Easington towards the south of the study area. This is considered to be an important economic asset to the area and has, therefore, been granted the necessary planning permission by the local council. The second defence maintains the integrity of a land drain which enters the sea just south east of Barmston. This outlet provides drainage to a vast area and, therefore, maintaining this is considered essential for the prevention of flooding to both land and property. This defence has been built, and is maintained, by the EA. Where the defences have been provided by public money to protect property it has been done according to the guidelines set out by Defra in the FCDPAGs (see Section 4.4)

9.2.3 Roll-back policy

The ERYC (2005, p2) define roll-back as *"a term used to describe relocating property and infrastructure further inland from the eroding coast"*. There is a long legacy of roll-back along this section of coastline and it has been occurring for many years. Local planning officers have planning applications, from the 1970s and 1980s, which show instances of properties being relocated back from the coastal edge; mainly in a ribbon-like fashion. In the more recent past, a handful of individual properties - mainly farms - have been granted permission to relocate away from the eroding coastline. These instances of roll-back were not governed by any policy. However, their situation and their need to be close to the land that they farmed, was looked upon favourably by the planning authorities. In order to provide some clarity about the scheme - to ensure that all knew that roll-back was available, and to tackle concerns from opponents of the council that the strategy was not transparent or available to all - the ERYC decided to formalise the strategy of roll-back into a policy.

The formally written roll-back policy initially only applied to caravan parks and holiday homes - which in 2003 was written into the document entitled: *The rollback of caravan and holiday home parks from the eroding East Yorkshire coastline* written on behalf of ERYC. The policy was extended to residential properties and agricultural property in 2005, in the policy document: *Roll back of residential and agricultural dwellings at-risk from coastal erosion in the East Riding of Yorkshire*. Although both of these documents post-date the local strategic plans, and the Local Development Framework for this area has yet to be finalised, in practical terms these documents and their contents are now adopted as policies.

Details of the policy

The policy, in essence, gives those who are undertaking roll-back (and are who are eligible within the policy) preferential planning permission when they are relocating their property. The policy applies to all of the geographic area covered by the Integrated Coastal Zone Management plan as highlighted in Figure 9.1; although the dwelling's (or caravan parks) life expectancy is another criteria that needs to be met to determine eligibility. Only those properties deemed likely to be affected over the next 50 years (and over the next 100 years for caravan parks) will be considered - and since the policy is aiming to ensure sustainability - the new sites must be those that will not be affected within the next 100 years.

The policies (of 2003 and 2005) also have a number of other criteria aiming to make the measures taken sustainable; to ensure "sustainable patterns of development" and to ensure a fair and consistent approach. These criteria, for both the 2003 policy relating to caravan parks, and the 2005 policy for agricultural and residential dwellings, can be seen in Figure 9.2, where the roll-back policies and their conditions are specified. For instance, the council is keen to prevent further instances of ribbon development because of those properties that relocated by these means in the 1980s are today again under threat. Therefore, the policy advocates that residential properties are relocated within existing development limits or adjoining them; although agricultural buildings, for practical reasons, are permitted to be relocated on the land being farmed. In addition, there are fairness related regulations which aim to ensure that those who have taken advantage of the roll-back scheme do not unfairly gain from the process. These criteria include the fact that the new property retains the same development rights as the old and that it should be an equitable size as before.

Uptake of the roll-back policy

When considering the success of the roll-back approach it is important to consider both the pre-policy roll-back, as well as that undertaken since the policy itself was implemented. Interviewees indicated that, in general, the policy is considered successful, because of the caravan sites that have moved; many under the guidance of the 2003 policy. The roll-back of caravan parks is the most successful element of the roll-back policy so far. Many caravan parks have had the advantage of being able to stagger the roll-back of their pitches, and other solid buildings, effectively by 'leapfrogging' their current site and replacing the front caravans adjacent to the coast to the rear of the park. This has been achieved either by utilising more of their own land, or through the purchase of adjacent land to their site. In most cases, the caravan park owners have not been permitted to increase the number of pitches, but have taken the opportunity to 'upgrade' their site during the process of roll-back. The increased amenities, changes to layout, and more pleasant landscaping, that occurred as part of the upgrade and roll-back of the site, meant that many park owners could charge increased rents for their pitches. This increased rental income (over the short term), in many cases, paid for the majority, or all, of the investment in upgrading and moving the pitches.

In addition, a number of isolated properties have successfully relocated away from the coast. However, all of these occurred prior to the policy being finalised. It was reported that there is a small group of residents of holiday-style homes that are part way through the process of roll-back. These are permitted to roll-back as a ribbon development because the planning permission was granted pre-policy. If these residences applied for planning permission under the current policy they would be required to relocate to a more sustainable location adjacent to a village (East Riding 7) However, currently no homeowners have successful completed roll-back under the guidance of the 2005 policy.

The interviewees felt that one of the reasons that the policy has not been adopted more widely was because, to many, the threat (or the perceived threat) of coastal erosion was not sufficiently imminent. It was stated that this situation is changing and the roll-back policy is becoming more important and relevant.

A lack of immediacy of the problem is not the only reason that the uptake of the roll-back policy has been low. There are a number of other barriers to the policy, including; financial, awareness of the policy, organisational, and the reluctance to accept coastal management decisions. These barriers will be discussed in more detail below (in Section 9.6.1).

Replacement provision for caravan sites at risk from coastal erosion within the next 100 years (see table) will be permitted where:

(a) it can be established that the proposals would present net sustainable development benefits beyond the present situation; and
(b) the whole of the resultant site would no longer be at risk within 100 years; and
(c) any current coastal protection works associated with the existing site are removed; and
(d) proposals provide for the appropriate clearance and restoration of vacated areas, with enhancements to nature conservation resources, and provision of public access to the coast where appropriate; and
(e) the development is undertaken according to a programme and timescale which does not unduly prolong construction impacts or delay the realisation of sustainable benefits.

Replacement provision in the Coastal Zone may be in the form of:

i. An entirely new site to replace the whole of the site at risk; or
ii. An inland extension to the site at risk; or
iii. An extension to another existing site beyond the area of risk.

Increases in site area and / or the number of pitches will be permitted, where it can be demonstrated that these are necessary to secure the relocation or replacement of the site at risk and an improvement in its provision.

Proposals at the new site should seek to:

- Ensure a net reduction in the impact on the character and landscape of the area;
- Achieve improvements in accommodation provision, layout, design and landscaping
- Not result in a significant worsening of traffic congestion or highway safety on the local network
- Have an acceptable relationship with existing settlements with regard to their character, setting, residential amenity and local services
- Safeguard any existing nature conservation resources.

Planning conditions and obligations will be used to secure any or all of these factors, as appropriate.

The rollback of caravan and holiday home parks from the eroding the East Yorkshire

A. Proposals for the replacement of residential dwellings considered to be at risk from coastal erosion within the next 50 years will be permitted where:

v. the Council is satisfied that the dwelling is a permanent structure and is occupied on a permanent residential basis;
vi. the application secures the demolition of the existing dwelling and restoration of the site within three months of occupation of the replacement;
vii. the design of the replacement dwelling reflects the character and appearance of the new locality;
viii. the gross volume of the replacement dwelling is no larger than the dwelling it replaces, taking into account permitted development rights associated with the existing property.

In order to secure more sustainable patterns of development, this will be in the form of replacing the dwelling on a site that is judged to have a life expectancy of at least 100 years:

ix. within the development limit,* or adjoining it, of a settlement within the Coastal Zone**;
x. within or adjoining the built up area of a smaller settlement (that does not have a development limit) within the Coastal Zone.

B. Proposals for the replacement of agricultural dwellings/farmsteads considered to be at risk from coastal erosion within the next 50 years will be permitted within the existing holding to a site that is judged to have a life expectancy of at least 100 years, provided:

i. the dwelling/farmstead is expected to remain in agricultural use;
ii. the application secures the demolition of the existing dwelling and restoration of the site within three months of occupation of the replacement;
iii. the gross volume of the replacement dwelling is no larger than the dwelling it replaces, taking into account permitted development rights associated with the existing property;
iv. the design of the replacement dwelling reflects the character and appearance of the new locality.

* The existing Local Plans both draw 'development limits' around certain settlements, within which development should normally be focused. Other (general smaller settlements) have no defined development limits. In accordance with the recently adopted JSP, this approach is being re-visited through the preparation of the LDF. The terminology used in this policy may therefore subsequently be changed.
** The Coastal Zone is defined in the Integrated Coastal Zone Management Plan

Figure 9.2: **Roll-back policy criteria and specifications from both the 2003 and 2005 policies**

9.3 Funding

9.3.1 Costs, funders and beneficiaries

The funding arrangements of the roll-back policy are quite straightforward. The individual (or business owner in the case of agricultural buildings or caravan parks) is required to pay for all of the costs of the relocation. This includes the actual reconstruction of the property itself, the land that it is built on, and any additional infrastructure (such as service provision, roadways etc.) that is required. Therefore, the roll-back scheme is a practising example of the beneficiary-pays principle. In the original 2003 policies, the use of public funds for some elements of the roll-back policy was examined. However, to date, finance has not been made available.

In addition to expenditure on new property - as highlighted in Figure 9.2 - property-owners are also required to demolish their existing properties and restore the site. Indeed, property owners are required to make safe their properties even if they are not undergoing roll-back and their buildings become too dangerous for habitation.

9.3.2 Attitudes to funding

From a funding perspective it is perhaps wrong to consider the roll-back policy in isolation, because the consequences of other funding decisions impact heavily on whether an, individual or community, are required to take advantage of the preferential planning permissions.

Attitudes about funding are various; depending upon the circumstances of the people involved. Many of the stakeholders in charge of implementing and overseeing the roll-back approach were sympathetic to the fact that individuals did not receive any financial assistance to relocate their properties. This was seen to be a major barrier to uptake of the policy for both individuals and businesses; something that is acknowledged within the policy documentation:

"*For each site undertaking rollback or relocation, there will be a very large capital outlay and loss of income to be incurred over the transitional period. Without question, the economics of such proposals are prohibitive to small sites operating at the lower end of the market"* (ERYC, 2003, p11).

Those interviewed considered there to be a difference between the attitudes of individuals affected. Attitudes were generally divided between those residents who had lived on the coastline long-term - and who after many years of residence were now threatened by erosion - and those residents who had moved in more recently. It was argued that those who had relocated to the coastline in the shorter-term either were aware (or perhaps should have been aware) that coastal erosion was an issue, or would become one. Some of those who had bought properties more recently are likely to have benefited from lower priced housing because of the erosion problem. Although this rationale appears justified, it was conceded that some people do claim that they were unaware how serious the erosion problem was prior to relocating to the coastline or that they did not realise how quickly their property would become

threatened.

It was reported that the attitudes of those affected concerning solutions to their problems differed. Here again, these attitudes were often reported to vary to some extent by the length of residency along the coastline. It was felt that most of the individuals affected by coastal erosion believed that more could be done to assist people financially; although different mechanisms were favoured.

Most interviewees argued that the majority of people who have moved in more recently wanted to see some return on their (relatively recent) investment; either through compensation, or through the maintenance of the value of the property through defences. A couple who had been living at the coastline for a longer period of time (and who had lost their property to erosion) had commented to a coastal manager that they did not think that compensation was the answer because they wanted to remain in their property and, ultimately, in the area. They believed that more imaginative answers were required to assist those who had lived along the coastline to remain in their family homes.

It was suggested, by one member of the council, that different funding schemes had, and would be, considered in the future by the council to assist those affected by coastal erosion (East Riding 5). These options included shared equity, whereby the council would purchase a house and then lease it back to a tenant while the property remained safe. This would permit the council to recoup some of the outlay (through rental income), but would also permit the resident to gain back some of the cost of the property. Another option mentioned was the provision of grants or loans to assist more people to take advantage of the existing roll-back policy. Council resources were considered to be a barrier to this at the moment and the council were looking to the government to either provide more resources to assist this type of venture or provide a mechanism for the council to introduce this type of approach.

Those interviewed who had responsibility for coastal erosion management, were very positive about the work going on under Defra's *Adapting to changing coastlines and rivers* research (Defra, 2006a), because they felt that some of the ideas coming from this approach were complementary to their own. They were hoping to be part of a pilot exercise as part of this research to use the adaptation toolkit being developed. However, it was clear that some interviewees felt that the government should be looking to provide more funding resources to make different options open to councils managing at the local level (East Riding 1; 4).

Broader ideas about the funding of the roll-back policy are tied up with the wider debates within coastal erosion risk management about how to allocate resources. These wider issues will be revisited when considering the maximum utility approach in Section 9.6.4.

9.4 Relevant documents

In essence, the "roll-back" strategy adopted on this stretch of coastline is a planning policy adopted within the wider context of flood erosion risk management. The guidance and policy relating to both of these main topics

(coastal management and planning) is influencing coastal decision-making (Figure 9.3). An analysis of the social justice references within these documents are provided in Appendix 5.

Firstly, it is important to consider the legislative arrangements governing approaches adopted because these not only designate the responsible organisation but also priorities for action. The Coast Protection Act 1949 is the overarching legislation governing coastal protection and allocates responsibility for coastal protection and management of coastal erosion to the local authority (in this case the ERYC). The Land Drainage Act 1991 is semi-important in this area because small areas in the south of the study area, mainly close to the Humber Estuary, are at-risk from coastal flooding. This legislation also deals with flooding and drainage issues in the inland area of the coastal zone, under the responsibility of the EA. In addition, other legislation sets priorities for management, in particular, EU legislation relating to the preservation and creation of habitats (Council Directive 92/43/EEC). This is examined in fairness terms in Section 9.6.2.

At the highest level, the policies and strategies being implemented on this stretch of coastline - as with any - should be influenced by national overarching government strategies. The government's Sustainable Development Strategy (HM Government, 2003) *Making Space for Water* (Defra, 2004), and *The Green Book: Appraisal and evaluation in Central Government* (HM Treasury, 2003) (see Section 4) are important here.

Strategies specific to East Riding are presented in both the *Shoreline Management Plan* (Humber Estuaries Coastal Authorities Group, 1998) and *East Riding Integrated Coastal Zone Management Plan* (ERYC, 2002). It is important to state that the SMP was never fully accepted as the council refused to sign-off on the document because they felt that it did not consider, in sufficient detail, the concerns of those living and working at the coastline. Of particular concern was the use of the phrase "do nothing," which was considered to be negative. In addition, the SMP did not take full account of the *"socio-economic aspects of coastal management and the value to local communities of tourism infrastructure, not just economically but socially"* (ICZM plan, 2002, p17). Despite this, the SMP was given Ministry support and it was 'signed-off' by other stakeholders.

In spite of the problems described above, the ICZM plan (2002, p5) still recognises "*that the SMP…and its forthcoming review, will remain the coastal defence plan for the coastal cell in which the East Riding coastline is situated."* This is important to consider because it provides the preferred strategic coastal defence policy options (Table 9.3) for each of the management units. Therefore, it provides the background context for those areas that might need to utilise the roll-back policy. The decisions made, at this regional level, are steering the implementation of coastal defences at the local level and effectively setting the priorities for local defences. With regards to fairness, this approach is consistent with the national approach and each of the adjacent management units have been approached in the same way.

Table 9.3 Preferred strategic coastal defence policy options

Unit No.	Title	Preferred Option for Lifetime of SMP
1	Flamborough	Do Nothing (1) (5)
2	Bridlington	Hold the Line (2) (3) Do Nothing on unprotected length except to prevent outflanking
3	Wilsthorpe/Fraisthorpe	Do Nothing (2) (4) (5)
4	Barmston/Atwick	Do Nothing (1) (2) (5) Hold the Line when needed at Atwick gas storage facilities. Hold the Line at Barmston Drain in the short term pending more detailed economic analysis
5	Hornsea	Hold the Line (2) (5) Do Nothing on unprotected length except to prevent outflanking
6	Rolston	Do Nothing (2) (4) (5) (6)
7	Mappleton	Hold the Line (2) (5)
8	Aldborough/Tunstall	Do Nothing (2) (4) (5) Hold the line at Tunstall Drain in the short term pending more detailed economic analysis
9	Withernsea	Hold the Line (2) (5) Do Nothing on unprotected length except to prevent outflanking
10	Holmpton	Do Nothing (1) (2) (5) (7) (5)
11	Easington Gas Terminals	Hold the Line (to be reviewed in 25 years) (2) (5) (5) (7)
12	Easington/Kilnsea	Do Nothing on eroding coast (2) (5) (7) (8) (5) Retreat the line periodically at New Bank flood defences (2) (5) (7) (8)
13	Spurn Peninsula	Do Nothing (2) (5) (5) (7) (8) Intervention where monitoring indicates this is necessary.
14	Sunk Bight	Hold the Line (5) (7) (8) (5)
15	Sunk Island	Hold the Line (5) (7) (8) (5)
16	Immingham	Hold the Line (5) (7) (8)
17	Grimsby and Cleethorpes	Hold the Line (5) (7) (8)
18	Humberston/Donna Nook	Hold the Line (5) (7) (8) (6)

Humber Estuaries Coastal Authorities Group (1998, p154).

The roll-back policy has been developed at the local level by the ERYC and, therefore, reflects a bottom-up approach to providing management solutions for those who are not going to be defended. This provides those at similar risk from coastal erosion with preferential planning permission for relocating their properties or businesses. As discussed above (Section 9.2.3), the document advocates adopting a long-term and sustainable approach to development in coastal areas. In particular, in most cases, individual residences are required to relocate to areas within the development zone adjacent to existing development. This, and the stipulation that properties should not be threatened within the next 100 years, is reflecting national-level sustainable development strategies.

The Department of the Environment (1992) in its *Planning Policy Guidance 20: Coastal Planning* argues that within undeveloped parts of the coast new development is best placed within existing development; "*Where new development requires a coastal location, the developed coast will usually provide the best option, provided that due regard is paid to the risks of erosion or flooding*" (Department of the Environment, 1992, p10). The guidance goes on to say that "*A precautionary approach is also required for policies relating to*

land affected, or likely to be affected, by erosion or land instability. In the case of receding cliffs, development should not be allowed to take place in areas where erosion is likely to occur during the lifetime of the building" (Department of the Environment, 1992, p11).

The roll-back policy which applies to caravan parks is in direct agreement with the ODPM's (2004) *Policy Planning Statement 7: Sustainable Development in Rural Areas* which states that:

'*In considering planning policies and development proposals for static holiday and touring caravan parks and holiday chalet developments, planning authorities should…carefully weigh the objective of providing adequate facilities and sites with the need to protect landscapes and environmentally sensitive sites, and examine the scope for relocating any existing, visually or environmentally-intrusive sites away from sensitive areas, or for re-location away from sites prone to flooding or coastal erosion'* (p19, paragraph 39).

This policy guidance is also of interest when considering the permission for certain types of buildings (namely caravan parks, farm houses and other agricultural buildings) to roll-back to sites not adjacent to land where business requirements outweigh other considerations about sustainable patterns of development. The policy states that:

'The Government is also supportive of the replacement of suitably located, existing buildings of permanent design and construction in the countryside for economic development purposes' (ODPM, 2004).

In essence, the regional and local planning documents are echoing the approaches advocated by the national level guidance. The local plans both state that defence works should only be considered as a last resort, or where there is no other options, to protect existing concentrations of development. For instance, the East Yorkshire Borough Wide Local Plan (1997, policy CZ3) indicates that:

'*Where permanent, occupied property is at serious risk of loss, defence measures will only be permitted where it is demonstrated that there are no suitable opportunities available for relocation and the scheme is technically, economically and environmentally acceptable.'*

In summary, although the roll-back scheme has been led and developed by the ERYC, it is guided by a whole host of national, regional and local level guidance, as well as governing legislation. Therefore, although there is some discretion that can be applied at the local level when planning decisions are taken - and the introduction of the policy itself is a reflection of local problems and local circumstances - it is still consistent with the general principles set out by national government.

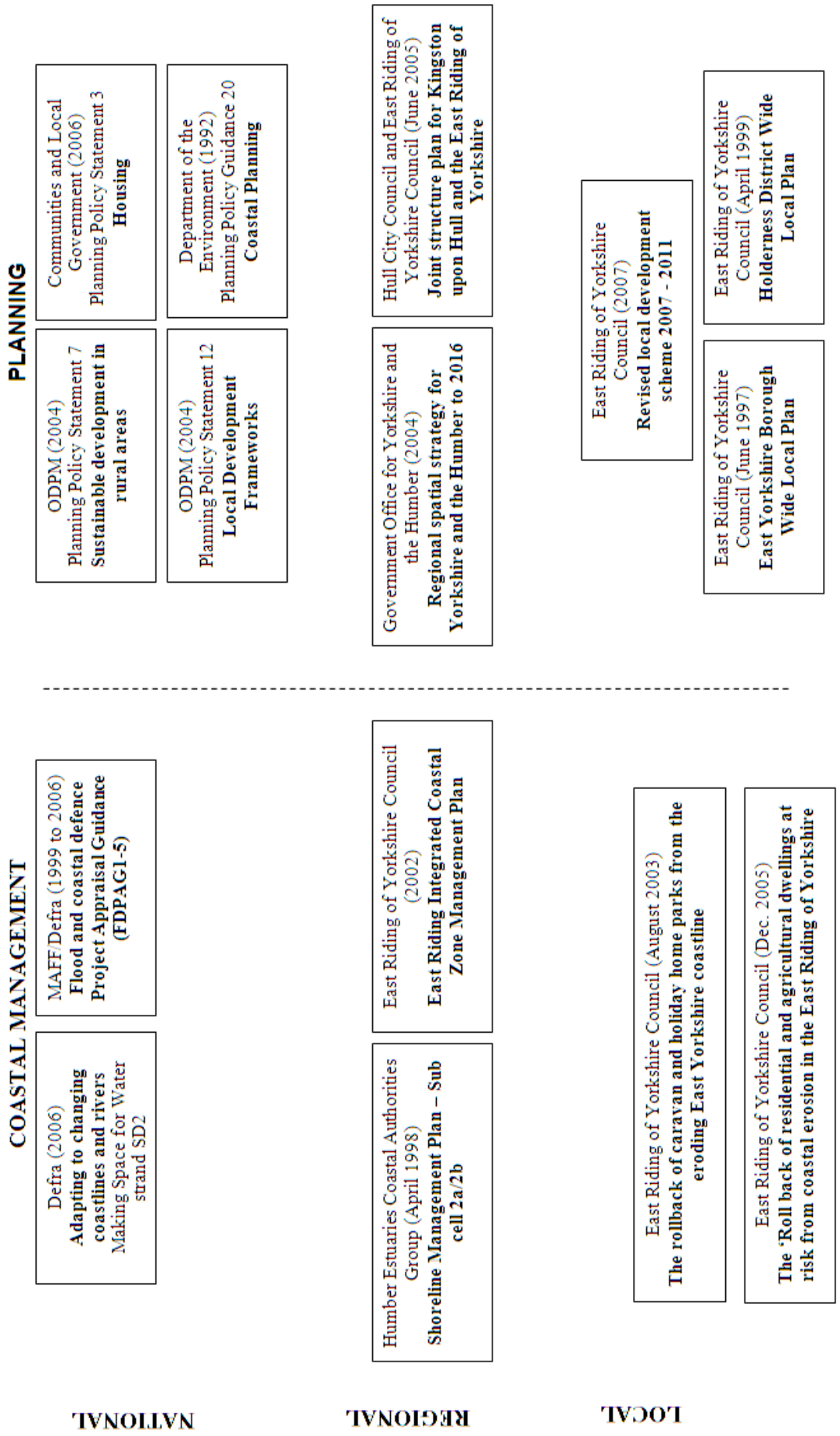

Figure 9.3: Guidance and documents relating to the coastal erosion management in East Yorkshire

9.5 Fairness and social justice of outcomes

Outcomes on this stretch of coastline are mixed. There are a number of settlements which have been defended; although more isolated communities do not have a high enough benefit-cost score and, therefore, will not be defended. Those who are not defended, and will be threatened by erosion in the next 50 years (100 years for caravan parks), have the chance to participate within the roll-back policy and effectively change their outcome.

9.6.1 Outcome equality

It is clear that there is no equality of outcomes. Locals at the coastline recognised that it would cost a great deal to protect everyone at the coastline. However, outcome equality remains a desire of many residents. They see unfairness in some areas being defended and others not. They argue that they pay the same taxes as everybody else, so why should they not get the same benefit? The inequalities in provision are quite pronounced locally, with different local areas benefiting from both coastal erosion defences and flood defences. One resident argued, in relation to the allocation of resources and the provision of defences; "*why are the people of Hull better than we are"* (East Riding 8).

9.6.2 General attitudes about the fairness of outcomes

Attitudes towards the outcomes along this stretch of coastline are mixed. There is much dissatisfaction amongst those whose homes are threatened that they are being "abandoned" by the council, whereas others are protected, or are permitted to erect their own defences.

The attitudes of planners towards the roll-back policy is that, although it is not perfect in terms of financing the approach, it is allowing people to have another option to remain in the area in a sustainable way. The attitudes of residents might be somewhat different. They are clearly concerned about the financing of roll-back and the unfairness of having to organise and pay for their own solutions; whilst others on the coastline are defended. It was reported during the interviews that many residents were not accepting that building structural defences was not going to be justified, one resident does not see roll-back and the movement of properties to local villages as an appropriate outcome:

'*the problem with roll-back is that it does not solve the problem, if you move people to villages they will be in the same position in 100 years'* (East Riding 8).

9.6 Procedural justice

9.6.1 Procedural equality

The potential for outcome equality appears to be one of the central goals of the roll-back policy. In theory, this approach provides all residents at a similar degree of risk (i.e. whose properties will be threatened in the next 50 years) with an equal opportunity to participate in the policy:

"Proposals for the replacement of residential dwellings considered to be at-risk from coastal erosion within the next 50 years" (ERYC, 2005, p9).

However, caravan parks and holiday home parks are permitted to participate in the roll-back scheme if they will be threatened within the next 100 years. This disparity is due to the history of the policies. The first policy issued in 2003 suggested the 100 year timeframe. However, on further reflection, it was considered important that properties were not moved too early, because the erosion rate is not always consistent, and the council was keen to avoid properties moving when they did not have to. Therefore, within the 2005 policy, the time-period was revised from 100 years to 50 years. The council did not revisit the 2003 caravan roll-back policy, so, the policy for this land use remains at 100 years. This is obviously a disparity in the treatment of these businesses and residential properties. Although different eligibility criteria have been provided for residential properties and caravan parks, it was stated that, to date, this had not caused any problems along this stretch of coastline. Residents had not suggested that they were being unfairly treated. One interviewee stated that this:

'probably isn't an issue as most sites are so close to the coast that they would still come within the 50 year band if that was adopted rather than 100 year' (East Riding 7).

Of a similar nature is the fact that caravan parks are permitted to remain at the same location through "an inland extension to the site at-risk" (ERYC, 2003; p27), whereas residential buildings are subject to more stringent rules ensuring that the "patterns of development are sustainable and that property relocates to "within the development limit, or adjoining it, of a settlement within the Coastal Zone" (2005; p10). Proposals for a single house to setback on the same plot, or the ribbon setback of properties, would not be viewed favourably. As stated in Section 9.4 above, these decisions appear to reflect national-level policy guidance.

There are two major attitudinal issues concerning the equality of processes: the first relates to the roll-back policy; and the second relates to the wider processes of coastal management. Although, in theory, those at higher risk of the coastal erosion are all eligible to take part in this policy, in reality; the financing of the purchase of land; designing of the property; planning permission; building of a new property; the building and installation of necessary infrastructure; and the demolition and clear up of the old site, are all barriers to its implementation. In addition, interviewees mentioned other major barriers to this approach; organisational; absence of relevant skills and experience; and securing collective agreements. The type of activities required by the roll-back policy, such as: the securing of a piece of suitable land; applying for planning permission; and going through the whole process of designing and building a new home; was viewed as quite a challenge and a stressful experience for many people.

It has been viewed by the council to be more appropriate, and economically more viable (due to the infrastructure costs), for a group of residents to work together and move to a new location as a group. Therefore, instead of having to move one property, residents are required to co-ordinate with others; this, it

was reported, raises further barriers to the uptake of roll-back. A number of properties have been granted planning permission to 'roll-back' in a ribbon-like development. It was reported that a band of property owners had purchased a piece of adjacent land although now there were conflicts about dividing the costs of the infrastructure, how the plots would be divided, and other organisational issues. This has caused the roll-back to be put on hold.

One interviewee (East Riding 5) raised this skill-related issue during the East Riding interviews. It was stated that the council cannot be seen to become involved within this process of the organisation of an individual's or group's roll-back, nor could they be involved in processes of negotiation or mediation. However, it was also recognised to be a major barrier to the success of the roll-back policy. And one interviewee (East Riding 7) went so far as to state that in order to undertake the roll-back, in the most successful manner, it was worth groups, such as these, employing a professional to coordinate these aspects.

It might be argued that because the value of their property does not reach the minimum priority score, they are losing out on two fronts: not only are they having to lose their existing property and pay for their own coastal management strategy (through the roll-back policy) but they are also missing out on the professional expertise, which is provided as standard when a structural measure is introduced. One mechanism that might be introduced to assist these people, and encourage a fairer system, might be to provide free professional advice for those undertaking roll-back.

A further aspect, when considering the equity of outcomes of this process, is where people are permitted to roll-back to. As illustrated above, in Figure 9.2, when residential buildings are rolled-back, there are conditions about where these buildings are able to relocate to:

In order to secure more sustainable patterns of development, this will be in the form of replacing the dwelling on a site that is judged to have a life expectancy of at least 100 years:

v. within the development limit, or adjoining it, of a settlement within the Coastal Zone**;*

vi. within or adjoining the built up area of a smaller settlement (that does not have a development limit) within the Coastal Zone.

ERYC (2005, p10).

This is to ensure that the patterns of development are sustainable and that the new property has greater access to services. However, the same restrictions are not placed upon businesses, or those residences (such as farmhouses), that are tied to land. These must only meet the criteria of not being at-risk within the next 100 years. Although there are few residential properties that have utilised the roll-back policy, this creates the potential for inequality in the way in which different types of properties are treated and in inequitable outcomes. Some of those who have moved to this section of the coastline have done so because of amenity values associated with isolated coastal living and, therefore, desire to remain in this setting. This may, however, lead to issues concerning the sustainability of the approach.

Consultation and transparency of the approach

Consultation was considered to be important within the development of the *East Riding Integrated Coastal Zone Management Plan* in 2002; following the considered failure of the Shoreline Management Plan (Humber Estuaries Coastal Authorities Group, 1998) to address the concerns of people and businesses along the coastline. However, although the principle of sustainable management, and the approaches adopted within the ICZM plan, will have been discussed within this consultative process, there was no public consultation of the roll-back policies themselves.

One interviewee questioned the effectiveness of the consultation processes. Firstly, it was stated that people were expected to travel to meetings; an important barrier to successful consultation and the number of people participating. Secondly, the type of consultation was seen to be ineffective:

'Fancy presentations don't tell them anything....we need to send more people out to parish councils and the like...this would lead to more face-to face discussion and they will feel like we are talking to them, not at the' (East Riding 6, emphasis added).

Although there does appear to be dialogue between those who are subject to the coastal management decisions taken (e.g. the decisions not to defend specific isolated settlements) - through correspondence with the local council and the elected councillors - there is some question about whether this is effective. One local resident (East Riding 8) argued that although the council were listening to their concerns they were only paying 'lip service' and were not really taking their problems seriously:

"*communities round here feel that they don't have the weight that other communities* (towns) *might have, the council are only trying to do enough to keep us happy."*

This may not actually be a true reflection of the situation, as the resident did seem to understand why the decision had been taken not to defend (e.g. the high cost of the measure). However, this had not really been accepted as the correct decision and a reason not to defend. He argued that the process of decision-making is not taking into account the fact that the whole way of life of the community is under threat, not just the assets. Trust appears to be a real issue when the authorities making decisions that those affected do not agree with. This is partly due to a lack of communication between locals and organisation. It was suggested that locals think that some authorities are:

'basing decisions on poor information and a lack of understanding and that we don't go out and see and don't go and talk to them as much as they think that we should...this could benefit from better communication' (East Riding 6).

In this case, more effort might be needed to better inform the local population about the decision process and ensure the transparency of the approach. However, because of the need to make difficult decisions with regard to resources, it is hard for local authorities to encourage communities to accept these decisions. This view was echoed by an interviewee who stressed the

importance of spending:

'*a lot of time explaining the reasons and saying 'you might not like it* (the decision) *and it is unfortunate, but this is why, you may never like it, but please try to accept it so we can move forward and try to do something useful'* (East Riding 6).

A further issue is raised about, when decisions are taken, and the timing of intervention. Decisions about whether to defend for coastal erosion, include discounting (i.e. the true value of properties at-risk from erosion are only maximised when the properties are immediately threatened.) Therefore, there will be a threshold point whereby a group of assets will achieve a high enough priority score and be put forward for consideration in the prioritisation process. This issue is discussed further when considering intergenerational equity in section 9.6.5.

The high costs of undertaking full benefit-cost assessments is also, in some cases, preventing full transparency to the public about the decisions being taken. For instance, in many areas, coastal managers understand that certain communities will never make the priority score necessary for building defences and, therefore, a complete benefit-cost appraisal is seen as a waste of resources. Therefore, the costs of being completely transparent are prohibitive. This, to some, may seem unfair because not only do these communities lose out with regards to being defended, in some cases they also do not even have their situation completely assessed. This may change in the near future when the future management of the coasts are assessed within the Shoreline Management Plan review.

The completion of this process raised another issue concerning the use of resources. Some of the residents were unhappy about the amount of money being spent on reports and talking about the issues. In particular, one interviewee (East Riding 8) was unhappy about £270 000 being spent on the SMP review process when that money could be put towards measures to help communities.

9.6.2 Maximum Utility

In many respects, a maximum utility approach - through the decisions taken by coastal managers - is overarching many of the decisions taken along this section of coastline. Decisions about whether areas are defended ultimately govern whether residents and/or businesses need to undertake a roll-back approach; and the roll-back policy itself is a maximum utility approach.

The case study of East Riding also highlights one of the major arguments concerning the fairness of the flood defence priority scoring system; how rural areas and, in particular, isolated communities and properties, are managed. Smaller numbers of isolated properties - such as are to be found on this coastline - are never going to have sufficient assets to gain a high enough priority score to warrant defences. However, in addition to not being eligible for flood defence, there are also few other options available for these communities to manage their risk, particularly in the provision of financial assistance. This issue is raised again when discussing a vulnerability-based approach.

Many of the social justice arguments stem from the decisions taken as a result of Defra's priority scoring system. Not only is the presence of a maximum utility approach important, but the perception that defending the coastline is the best approach, is influencing the expectations of those at-risk and their views of the roll-back policy. Many people, whose properties are threatened by coastal erosion, have been unwilling to engage with a roll-back approach because they have not accepted that the council has refused to provide defences or compensate them for their losses.

There was concern about whether private defences were affecting unprotected areas around them, and whether it was a fair system that permitted people to defend their property to the detriment of others. One of the controversial areas, in this respect, is North East of Skipsea. There was some concern expressed by the property owner in the undefended section about whether the presence of defences (and in particular defences that were in a poor state of repair) had increased the erosion on their frontage. Coastal managers are convinced that this is not the case. However, the perception that this is occurring raises issues about who is allowed to defend their property and the regulation and fairness of these processes.

A further area of controversy is the protection of, and investment in, other assets. Residents expressed their displeasure to the council about other assets being favoured over their properties in the permissions granted for defences. For instance, although it is considered to be a national asset - and the defences were paid for by BP - discontent was raised about why this business was permitted to protect its property when others were refused (East Riding 8). The permission stated that the site be monitored, and was granted on the basis that the gas terminals will be redundant after this 25 year period and the defences removed. This is adopting what the SMP refers to as finite line defences (Humber Estuaries Coastal Authorities Group, 1998). However, an extension of planning permission has been granted for a further 25 years as additional gas reserves have been exploited.

This raises questions over procedural justice because at the same time as this planning permission is extended; other private defences protecting other businesses (caravan parks) have been refused. It may be argued this is because of the importance of the gas terminals as a national asset:

'Given that the site supplies 25/30% of the gas for the whole of the UK the impact of removal before the terminal is redundant would not be in the national interest' (East Riding 7).

However, in the future these defences should be removed once the terminals are no longer required. In June 2007, BP announced that, as part of a wider expansion of the adjacent Dimlington terminal, the Easington terminal will indeed be phased out and closed in the future (BP, 2007).

An area in the south of the study area, between Kilnsea and Easington, is a significant location for birds. Under the EU Habitats and Birds Directives (Council Directive 92/43/EEC; Council Directive 79/409/EE), the EA have responsibilities to maintain these habitats. Some expensive defence and

habitat creation work was considered by the EA in this area; although a less expensive and less intrusive option was eventually selected. This has caused anger by those faced with losing their properties, as they are again confronted with a situation where other assets, in this case bird habitats, are being protected and invested in, rather than their properties.

It is important to recognise that there are a number of different types of legislation governing both the processes of assessment and the action implemented. The ERYC and the EA are not only making decisions about managing their coastline from their own guidance and policies, but they are also required to follow both national and European policies and procedures. The disparity in the approach to how birds, and other habitats, are treated and decisions concerning property and other assets, are guided by different legislation, investment priorities and funding sources.

The EA has invested in a small sea defence to protect the integrity of a land drain; thereby preventing the flooding of both property and agricultural areas in land. Although this was not raised as an issue by those living at the coastline, it might be argued that one aspect of FCERM is taking precedence over another. The issue was raised with some interviewees about whether there was any discontent about the attention being paid to, and the investment in, inland flood defence and mitigation, that was occurring elsewhere in the county. Again, the decisions being taken are following a maximum utility approach. At the present time, this was not considered to be a concern of people affected by coastal erosion, though it was suggested that there was more public sympathy for those at flood risk than those at coastal erosion risk. This was, rightly or wrongly, because it was considered that those affected by inland flooding were less to blame for their predicament.

9.6.3 Targeting the most vulnerable

It is acknowledged that, in theory, the roll-back policy provides an equal opportunity for all those at the same risk to participate in the scheme. However, cost is a major barrier to uptake. At present, little is being done (either through grants and/or loans) to try to make the scheme more accessible to more vulnerable members of the population. This section of coastline has a number of isolated communities and is home to a large number of vulnerable members of the population. For instance, there are large numbers of retired people residing in this region and - even within the larger urban areas - many people are reliant on seasonal employment, or other industries that are considered to be in decline; including agriculture and fisheries.

9.7 Intergenerational equity and other fairness issues

Through ensuring that people do not move to areas that will be threatened in the next 100 years, the roll-back policy is aiming to promote a sustainable approach. The fact that-risk levels (e.g. 1 in 50 year and 1 in 100 year levels) are used means that both current, and subsequent, generations are treated equally, over this time scale, with regard to their eligibility to participate in the scheme.

Interviewees raised an interesting issue concerning the treatment of different

groups of people at the coast: There was concern that if the decision was taken in the future to offer some kind of assistance, would this assistance be universally available, or, would it be based on length of residency? There was concern that it was necessary to ensure that whatever support was provided did not make it attractive for people to move into unsustainable properties. It was also argued that those who had bought properties recently (i.e. within the last 10 years or so) would have gained advantage from the lower property values and, therefore, it may be questioned whether these people (who should have known about the situation) should be helped in the same way as those who had been living there for a longer period. This situation would raise interesting social justice questions if the decision was taken to treat people differently. It would also be potentially problematic for those individuals who had already paid for their own roll-back.

In addition, the issue of private defences has also caused some controversy. In the past, some owners have taken action to erect flood defences to protect their own land. Some of these defences were retrospectively granted temporary planning permission - some of which have now expired; although landowners have not been forced to remove the defences. This is a very sensitive situation because, technically, the defences should be removed. However, it would be expensive for the council to force the landowners to do this through the courts. Some of those at the coastline argue that because landowners, in the past, have been able to protect their land, through the establishment of defences, this set a precedent for the protection of property now. It is important to recognise that in some respects those decision-makers at the local level, in this case the council, are guided by national level and nationally-accepted strategies, and are required to conform to pre-set approaches. Therefore, to some extent, the actions of the council are largely tied by the broad recommendations of national policy; in this case not to defend.

9.8 Summary

The roll-back strategy appears to work in isolated cases; although it could be said to be having little impact except for caravans; finance being the main barrier. In addition, there are problems regarding the failure of those who are threatened by coastal erosion to accept that the council are not going to act to protect them (through defences) and then take alternative action. The feeling of abandonment, and the expectation that the council will take action to prevent them losing their investment, is a difficult barrier to break-down; especially because, for many, their investment in the region might be quite recent and they are seeing other infrastructure (property, business and habitats) along the same stretch of coastline being protected.

In principle, the roll-back policy provides equality of opportunity for those at-risk to participate. The major fairness issues experienced in East Riding are not related to the roll-back scheme *per se* but the differential treatment between communities that are defended and those that are not. The East Riding case study is a typical illustration of the divide that is created between urban areas - which often have an economic justification for defences - and isolated rural areas – which will never secure a high enough priority score to be defended.

This situation is being reinforced in East Riding by development strategies;

where resources are concentrated on existing urban areas to reinvigorate the tourist industry. It is acknowledged that resources are not available to defend all areas. However, this case study illustrates that these communities lose out on a number of grounds, including: no comprehensive assessment of their risk; no financial assistance (whether through grants or loans); and no professional guidance assisting them to manage their risk.

No special provision has been made to target the vulnerable and the case study illustrates the conflicting management priorities at the coast. In one area, the council is promoting more sustainable management practices and refusing permission for private defences, whilst further along the coastline, the council allows another business (the Easington gas terminals) to protect its site. In a third area, the EA is required to undertake measures (including potentially building defences) to create bird habitats; evidence of the need to fulfil competing legislative commitments. The need to meet different goals and requirements at the coastline are all contributing to feelings of perceived unfairness, in terms of both process and outcome.

10. Case study summary: the fairness of FCERM in practice

The case studies, in chapters 6-9, examined the 'reality' in which government policy and guidance is implemented in practice and the attitudes of local/regional stakeholders to this policy and 'reality'. In this section, we provide a summary of these four case studies, firstly, by providing an overview of the general attitudes of local/regional stakeholders to the fairness of FCERM policy and practice in general, and secondly, by providing an assessment of their attitudes to the fairness of decision outcomes. This is then followed by more detailed analysis of the key fairness issues raised during the case study analysis; particularly in respect to the process by which decisions are made. Finally, section four examines the extent to which the principles of inter-generational equity are incorporated into decisions in practice.

The Leeds case study did not evaluate the implementation of policy *per se* (as no direct policy exists in this context). Because of this, the findings from this case study are not as widely applicable as the other three case studies. The reader is not, however, to misinterpret this as an indication of the reduced importance of urban flood risk; rather, it is an indication of the reduced significance of urban flood risk within current policy at present – something that MSW is attempting to address.

10.1 General attitudes to the fairness of national policy and guidance

Unsurprisingly, stakeholders at the local level were keen to articulate the inadequacy of national funding for FCERM. This was seen as a critical factor influencing attitudes to the fairness of FCERM at the local level. Indeed, the different models of funding - across different flood types and contexts - were, in themselves, considered to be causes of this perceived injustice. In some contexts, it is the unfairness of legislative and institutional arrangements that is seen to be the cause; in others, it is the policy and guidance from national government. Whilst the appraisal and prioritisation process was recognised to be an important mechanism for distributing government funding, it was also seen as a mechanism for the creation of unfair outcomes. In particular, the following general conclusions can be drawn:

- The allocation of funding for FCERM was seen as inadequate and unfair when compared with other areas of government expenditure. This was seen as a particular weakness of Defra in the face of Treasury and other ministries. The benefit-cost ratios of flood defence projects, in particular, were considered to be extremely high when compared with other areas of government funding (i.e. roads). This perceived unfairness was thought to result in a number of deserving projects being denied funding and in limiting the range of options available for FCERM.
- The different models of funding were thought to be a source of unfairness: with the cells in Lewes being funded by government (the national taxpayer), by local levy (the local taxpayer) and, potentially, by developers; in East Riding, the coastal defences were being funded by

government (the national tax payer), by private contributions (granted by the Council) and by the EA (via the land drainage act); whilst the roll-back policy was being funded by homeowners and businesses (beneficiary pays principle). In Leeds, the apparent intractable problem of determining financial responsibilities for managing urban flood risks was seen as a major cause of the failure to find a solution to the risk management problem. For one resident, this has necessitated attempts to find a different model of funding (lottery, local businesses), in the recognition that fairness is being sacrificed for expediency.

- A particular perceived unfairness, in using different models of funding, was the different guidelines used - and hence social justice principles incorporated into - the decision process; without clarity or consistency in approach.
- In Leeds, the legislative and institutional arrangements for urban drainage were in themselves regarded as unfair. In this case, it is failures in the legislation - upon which stakeholders draw their risk responsibilities - that is perceived to be the cause of the inability of stakeholders to find a solution to the flood risk problem; not least significant of which is the definition of a sewer, the privatisation of the water companies and the discouragement, by Ofwat, in the use of sewerage monies for the mitigation of non-sewerage flooding.
- National policy was also regarded as a constraining factor in managing the flood and coastal erosion risk in both Lewes and East Riding. In the former, it was Treasury and Defra policy and guidance, and the rationing process, which was perceived to be causing the unfairness. In the latter, it was policies and legislation favouring: the protection of some properties over others; the protection of birds over people; and the protection of urban over rural/isolated communities.
- The project appraisal process was itself seen as a cause of unfairness by some respondents.
    - Firstly, where Local Authorities are charged with promoting ‘social cohesion’, the project appraisal process was argued to be counter-productive to this.
    - Secondly, benefit-cost analysis means that people facing the same risk receive different outcomes; a perceived unfairness seen to result from the FCDPAG system.
    - Thirdly, the implementation of distributional impacts was regarded as unfair because – due to the social class classification – it is not thought to discriminate as the government intended (e.g. the retired are classified as the same whether rich or poor).
    - Fourthly, there is a perceived unfairness in the appraisal process where one type of risk (coastal flooding) is favoured over another (coastal erosion); in this case, the benefits of the former are gained immediately and the benefits of the latter are dependent on the immediacy of the risk.
- Not all respondents regarded national policy to be unfair *per se*. It was recognised that funding would always require some form of rationing process, and the appraisal and prioritisation process was supported in this regard. However, a modified system which incorporated people, health and heritage impacts was requested.
- Finally, the Lewes and Leeds case studies, in particular, illustrated the

cross-policy barriers between development planning policy and FCERM policy. In Lewes, for example, the council is, on the one hand, under pressure to develop (with associated targets), whilst on the other, it is under pressure to manage the flood risk.

10.2 Attitudes to the fairness of decision outcomes

The fairness of decision outcomes have been somewhat difficult to evaluate because either no outcomes are available (Leeds), or those that are, are so closely associated with the decision process, that a clear differentiation between decision processes and outcomes has been difficult. In Felixstowe and Lewes, for example, the outcome of the utility approach dominates the perceptions of the fairness of the project appraisal and prioritisation process. The following general conclusions can be drawn:

- The perceived unfairness with the outcome of the cell-by-cell approach strongly influenced the perception of the fairness of the Lewes fluvial flood defence strategy.
- In areas of outcome equality - such as in the Southern Felixstowe strategy - these outcomes were, unsurprisingly, considered to be fair. However, when compared with spatially adjacent outcomes – e.g. with the Central Felixstowe strategy – the outcomes were not similarly regarded as unequivocally fair.
- The perception of the fairness of different standards of protection was a key issue in the perceived fairness of decision outcomes. In Lewes, for example, the appraisal process led to different standards of protection being afforded to 8 cells: where they meet the priority score they are funded nationally (e.g. Malling Brook); where they are seen as locally important, they are funded locally (e.g. Cliffe); and the other 6 cells have been offered no defence funding – although a developer led initiative is under consideration. This outcome is considered unfair, at this spatial scale, because different parts of the town are being offered different defence options; thus deviation from consistent standards in Lewes was seen as unfair and unjust. And – although the practical difficulty of applying consistent standards was recognised – a community view, rather than a cell-by-cell approach, was considered fairer.
- Not all respondents in Lewes regarded the outcome to be unfair. One respondent recognised that with some defences, Lewes was better off than other areas at similar risk with no defences. It was also noted that the cells getting defences contained the largest number of residential properties, had the greatest potential damages, deepest flooding and greatest risk to life. Similarly, it was recognised that applying consistent standards, according to risk, would take no account of the cost or provision; this would be unfair to the taxpayer.
- Different standards of protection are also a concern in Leeds, where the comparison between fluvial (1:100 year) and sewer (1:30 year) standards is indicative of this unfairness.
- In East Riding, attitudes to the fairness of decision outcomes (to defend or not) strongly influenced the perception of the fairness of the decision process. In particular, the abandonment of some homes, on the one hand, and the defence - through national, local, or private, funding - on

the other, was regarded as an unfair outcome.

- The timing of works - hence the implementation of decision outcomes - was also considered to be potentially unfair and cost inefficient, with Southern Felixstowe undertaking works before Central Felixstowe. Similarly, in Lewes, action for Malling Brooks (2004-5) commenced before Cliffe (2008-), and there remains uncertainty concerning the other cells. Some respondents felt that the unfairness was in the time taken to get work done, whilst others thought the unfairness lies in the variation in the overall time people have to wait. This was partly directed to the time-consuming process of appraisal and partly to the timing of decision outcomes.
- Ease and cost of carrying out works was seen as an unfair factor in the decision to defend or not; this was thought to be particularly important where listed buildings were concerned. It was also illustrated by the roll-back scheme in East Riding; where the roll-back of caravans was particularly successful because of the ease of undertaking this when compared with the roll-back of businesses and residential property.
- Developer-led deals were questioned in the Lewes case study for their ability to deliver a fair outcome. In particular, there is concern that the provision of developer-led defences would introduce additional residents into the risk area; which in itself was regarded as an unfair outcome.
- The inclusion of criteria to ensure that private gain is not an outcome of roll-back policy was considered to be a fair approach.
- By contrast, the questionable effectiveness of resistance and resilience measures, in the Leeds case study, raises concerns as to whether the outcome of a policy in favour of these measures will in fact be fairer in reality.

10.3 Key fairness issues in decision processes

The findings from the case studies illustrate the importance of the decision process in determining whether a policy, as implemented in practice, is considered to be fair. Critical issues embedded in this fairness perception appear to be influenced by a number of important factors which operate in addition to the procedural equality considerations highlighted in chapter 3. These include: the timing of decisions, evidence of critical decision junctures; perceptions of the urgency of decisions; the demarcation of boundaries in the appraisal process; the existence of policy champions and the role of local discretion and legislation. In addition, the case studies have illustrated key fairness issues in how the vulnerable are targeted, and the barriers to implementing a beneficiary pays principle in practice.

10.3.1 Evidence of procedural justice

The cost of appraisal means that only those with the potential to be funded are likely to have their risks evaluated in the decision-making process. Stakeholder engagement tends to be focused on consultation and the provision of information; rather than participatory stakeholder engagement *per se*. Barriers to effective stakeholder engagement included: the existence of a vocal minority; time; cost; and difficulties in explaining complex, technical issues, processes and procedures.

It was also argued that engaging with the public in FCERM is particularly difficult where the provision of defences is not an option. This is underpinned by the more general expectations of the population that remain dominated by defence attitudes to ‘get something done’.

The consultation period for Lewes and Felixstowe occurred over a long time period which was in itself regarded as a problem. In Felixstowe, this has focused predominantly on the selection of preferred options for the immediate works, rather than focusing on the strategy as a whole.

The Leeds case study has attempted a more participatory process in the pilot project but many of the intractable issues about: how much potential solutions would cost; who would be responsible for their maintenance; and the viability of these options, were not included.

The appraisal and prioritisation system was generally regarded as procedurally fair, in that it was consistently applied; however, the abandonment of a Lewes-wide approach in favour of a cell-by-cell approach was considered unfair.

The formalisation of the roll-back policy is East Riding is evidence of an attempt to provide fairness through transparency, openness and consistency of approach. Interestingly, the different roll-back criteria for holiday homes/caravan sites and residential property/businesses has not, to date, been considered unfair by residents; the unfairness is in the affordability of the financing of this as a risk management option.

In Lewes, the legislation and guidance that characterises the planning system was generally regarded to be open and transparent, offering opportunities for consultation and engagement. However, per-application discussions were not regarded as open and transparent.

The process by which options are selected in the appraisal process is recognised to be constrained both technologically and economically; this was not regarded as unfair.

10.3.2 Timing of decisions

There is no consistency in the timing of decisions in the project appraisal process; yet, this appears to be a critical factor in the perceived fairness of the outcomes of these decisions. Where residents have not significantly changed during the decision process, the changing nature of legislation and guidance may be perceived to be unfair in that the ‘rules of the game’ are seen to shift. Where these changing rules lead to perceived negative outcomes, residents may think an injustice has occurred.

In Lewes, for example, the decision to proceed with the Malling Brooks cell resulted in the perceived unfairness that this cell was prioritised under a different set of rules to other cells (different MCM figures, discount rates, appraisal time frame, optimism bias). A similar difference was observed in Felixstowe, where the second strategy was developed under different guidance rules than that which preceded it.

In Central Felixstowe, the timing of the decision to apply for coastal defence works is critical because coastal erosion properties have to be immediately threatened for the benefits to be counted. However, the appraiser must judge the length of the appraisal process itself, plus the schedule of works, to ensure that the outcome is completed before the benefits are lost to erosion; clearly the accuracy of coastal modelling is important here.

In East Riding, the timing of intervention is similarly important. If coastal erosion continues to threaten larger settlements these may make the priority score for defence. Therefore, the timing of the decision ultimately determines which properties are sacrificed.

10.3.3 Critical decision junctures

The case studies have also illustrated the importance of key decisions in the project appraisal process affecting the decision process, outcome and perception of the fairness of this process and outcome.

In Lewes, for example, the decision to undertake a cell-by-cell approach rather than a Lewes-wide approach fundamentally influenced the perceived fairness in this case; as did the decision to proceed with works for the Malling Brooks cell. Whilst the latter decision can be argued to be fair based on maximum utility principles, the former was heavily influenced by the EA and Defra, with limited stakeholder engagement - the fairness of this is, therefore, more questionable. The rationale for rejecting the Lewes-wide option was not well understood or accepted by local stakeholders.

In Felixstowe, the decision to demarcate the boundaries of the Southern and Northern Strategy's was an important factor affecting the perception of their comparative fairness.

10.3.4 Urgency of works

In Felixstowe, some of the works to be undertaken in the Southern strategy were regarded as particularly urgent and, as such, the strategy was approved by a sub-delegation of the Environment Board; rather than by the Board itself. This 'bending of the rules' was based on the premise that the failure of defences was a real possibility; leading one respondent to comment that cost was a secondary consideration to the urgency of the works. This is unfair on the basis of consistency, and economic efficiency, at the national level.

The recent storm surge (November, 2007) has left the coastal erosion defences in the central Felixstowe region in a similar state of disrepair to those under the Southern strategy; yet this has not received a similar favourable treatment in the appraisal process. The council did attempt to use this condition as a reason for the two strategies to be combined, but this was rejected because of its potential to hold-up the immediate works incorporated into the Southern strategy.

10.3.5 Demarcation of boundaries

The demarcation of boundaries in the appraisal process is a key factor in the

perception of the fairness of the decision process and the outcomes of this process.

In Lewes, the selection of the 8 hydrological cells was a critically important decision in that the town was not to be treated as a homogenous community; thus different standards of defence were proposed for different cells in the town. This decision critically affected the perception of the fairness of Lewes' risk management options.

Similarly, in Felixstowe, the decision to demarcate the three coastal strategies based on geographic principles of flood risk and erosion risk influenced the decision outcomes. Had the Southern and Central Strategies been combined, there is the possibility that the benefit-cost ratio would have been high enough for both strategies to receive funding at the same time; although the strategy area would have been so large that any schedule of works would have had to be undertaken in order of priority. The combining of the two strategies would also have saved public money (hence been fairer to the taxpayer) because it would have reduced consultation and construction costs. This decision to demarcate the boundaries between flood risk and coastal erosion risk was considered by one informant to have been, in hindsight, a mistake. However, another argued that this was the result of the artificial division that exists between the Coastal Protection Act (1949) and the Land Drainage Act (1991).

10.3.6 Policy champions

In two of the case studies, the existence of key policy champions was thought to be a critical component in the prioritisation of their projects, for securing national funding, and facilitating agreement for local levy funding.

10.3.7 Role of local discretion

In all four case studies, some 'bending of the rules' was considered necessary; either in the non-enforcement of legislative responsibilities or in the allowance of decisions against formal rules and guidance. The use of local discretion in this way influenced the perceived fairness of decision processes and outcomes.

In Lewes, there was a 'lot of political pressure to do something' after the 2000 floods. This, it was argued, influenced the minor deviation of the appraisal rules so that Malling Brooks could go ahead.

In Felixstowe, respondents argued that the media interest, presence of a liaison group and the high level support from the local MP John Gummer, was highly beneficial in exerting pressure for the strategy, and then the scheme of works, to be approved quickly. One respondent went further to argue that the scheme was going ahead in 2008, not because of the priority score, but because of the pressures exerted politically. Certainly, the approval of the scheme by a sub-delegation of the EA board, rather than waiting for full board approval, would appear to corroborate elements of this argument.

The use of a 'risk to people' methodology in the Felixstowe appraisal process similarly illustrates the 'bending of the rules' in this regard; not least because it resulted in the preferred standard of protection being raised from 1:100 to 1:150

years. The use of this methodology is not endorsed in national guidance; even though it was claimed that the NRG recommended its application because of its desire to maximise the standard of protection.

In East Riding, local discretion focuses on the non-enforcement of legislation for the removal of rubble and aggregates at a number of sites; most notably Barmston. This means that coastal protection along this stretch of coastline includes private defences without current planning approval. This, in itself, influences perceptions of the fairness of coastal defence policy.

Similar non-enforcement examples were illustrated by the Leeds urban drainage and flood risk case study. In this context, the duties of riparian owners are unlikely to be enforced by the council due to administration and legal costs and the small benefits (in fines) that this process is thought to yield. In this way, the maximum utility principle appears to directly influence the decision over the enforcement of compliance with national legislation. Thus, instead of enforcement, where problems with the blockage of culverts arise, the council encourage its officers to use local discretion in the enforcement of these duties. This is illustrative of the council's perceptions of the differential ability of riparian owners to undertake their duties in this regard; hence they are not of the opinion that all riparian owners should be treated equally.

10.3.8 Targeting the vulnerable

There was a mixed reaction to the targeting of policies in favour of those most vulnerable to flooding. Across all four case studies there was general agreement that vulnerability is not adequately accounted for in FCERM decision processes. But, this conclusion was tempered by the reality-driven perception of the difficulties associated with the implementation of such a policy.

The current appraisal and prioritisation process, through the application of distributional impacts and social equity scores, was not thought to adequately account for vulnerability. In Lewes, for example, the greatest benefits in the 'people score' reflect the total number of residents in the benefit area rather than vulnerability *per se*. Indeed, the SFVI scores were not found to correlate with the people score used in the prioritisation process.

In Felixstowe, although attempts were made to target the disabled for their opinions in the decision process (because of beach access issues), time and cost constraints meant that the vulnerable did not receive any 'special treatment' in their opportunity to access the decision process.

Defining vulnerability is in itself contentious; in that although there was support for the idea that vulnerability should be accounted for in the decision-making process, there was similar concern about how to define and identify the vulnerable; particularly considering the inadequacy of information in this regard.

There was also concern about how to incorporate vulnerability into the appraisal processes, as populations are not stable; hence vulnerable groups may be replaced by less vulnerable groups over time.

For one respondent, introducing vulnerability factors in the decision process

would add subjective elements, leaving the decision process susceptible to political influence.

In the Lewes, East Riding and Felixstowe case studies there was, however, a general perception that where the vulnerable cannot be provided with flood or coastal erosion defence structures, they should be provided with other risk management options, such as: emergency planning, resilience measures, or spatial planning to exclude the vulnerable from high risk areas.

Where coastal erosion is the issue, however, the finality of the risk being managed resulted in a greater concern that the elderly and low-income (traditional occupants of the houses in the East Riding area) do not have any opportunity to access the decision-making process; the rural/isolated nature of these communities means that they will never be considered for national defence expenditure. This was seen as a particular unfairness, compounded by the fact that the cost of alternative solutions (such as the roll-back policy) means that the vulnerable are least likely to be able to afford to participate in the schemes on offer.

10.3.9 Barriers to implementing the beneficiary pays principle

It has been suggested, in the literature, that the beneficiary pays principle would be a fairer approach for the management of flood and coastal erosion risks (NERA, 2007). This has not, however, been corroborated by the case studies investigated in our research.

In East Riding, where the beneficiary pays principle is the underlying principle adopted in the roll-back policy, there are significant barriers to the uptake of this policy including: a lack of awareness of the immediacy of the threat; significant financial constraints of those at-risk; reluctance to accept coastal management decisions not to defend; and organisational constraints - not least significant of which is the lack of skill and experience in securing collective agreements.

In this way, the beneficiary pays principle in East Riding has highlighted two key fairness concerns. Firstly, that it is seen as unfair that those who are defended receive funding from national government for these defences; yet those who are not have to finance the ‘roll-back’ themselves. Secondly, that those receiving defences have access to the full array of management assistance; yet no such management assistance is provided for those ‘rolling-back’.

It is also regarded as unfair that the roll-back policy requires homeowner and businesses to, not only finance the rolling-back of their properties, but also to finance infrastructure and the restoring of the original site.

The sense of unfairness in the implementation of the roll-back policy in East Riding is also compounded by perceptions concerning the length of residency of the household occupants. Recent residents were thought to have benefited by lower house prices and, hence, were perceived to be less deserving than those who had resided in the area for many years. The issue here then becomes one of thresholds: is there a threshold above which the beneficiary pays principle is thought to be fair and below which it is not?

A similar issue arises in perceptions of the attitudes of respondents to compensation. In East Riding, this could again be divided by the length of residency argument; with 'new' arrivals wanting to see a return on their investment whereas 'older' residents did not see compensation as a solution; preferring instead to seek solutions based on continued residency.

Length of residency was also seen as influencing perceptions of knowledge expectations; those residents who have lived in the area for many years were not expected to have known about the erosion risks in the same way as more recent arrivals. Here again, a threshold above and below which knowledge of the risks would be anticipated would be important.

Three potential solutions to countering the perceived unfairness with the roll-back policy were formulated by respondents in the East Riding case study: the application of shared equity through a council funded sale and leaseback scheme; the provision, by the national government, of grants and loans to facilitate roll-back; and the provision of management assistance for securing, and implementing, collective agreements.

The Leeds case study is similarly influenced by perceptions of the fairness of the beneficiary pays principle in that the risk management options being considered in the pilot study, at the household level, will result in both financial and maintenance costs for householders.

The Leeds case study also highlights issues of knowledge expectations in that the culverts for which riparian owners have legislative responsibility are largely buried and hidden, so residents are often unaware of, or unable to undertake, their riparian duties. This lack of awareness is not necessarily thought to be the fault of the riparian owners because, historically, there has been a lack of information concerning drainage records and drainage systems, so culverts have not necessarily appeared in house buyer searches.

The Leeds case study also highlights difficulties in organising and financing solutions for managing urban flood risk and illustrates the complexities in applying the beneficiary pays principle in this context; not least because not all riparian owners would agree to, or be able to contribute to, complex and expensive solutions.

10.4 Incorporation of inter-generational equity in practice

Inter-generational equity requires us to look both backwards – to examine the impact of past decisions on current risk contexts – and forwards – to examine the potential impact of today's decisions for future generations. In each of the four case studies both the legacy of previous interventions and the requirement to account for the needs of future generations was recognised; where there was variation was in the extent to which inter-generational equity was integrated into decision processes.

For Lewes and Felixstowe, applying the discount rate in the appraisal process effectively places significantly greater value on today's benefits than those in the future.

In East Riding, the criteria of no 'betterment' attached to the roll-back policy effectively ensures that decisions taken today do not result in private gain for those undertaking roll-back now, or in the future. This is seen as important for ensuring fair outcomes.

Coastal erosion issues are particularly interesting in terms of inter-generational equity because of the irreversible nature of decision outcomes. Three issues, in particular, arise from the East Riding coastal erosion case study. Firstly, the idea that current decisions not to defend may not be the preferred option of future generations is not accommodated in today's decision processes. Secondly, if the council could find a mechanism to assist those undertaking roll-back – either financially or in terms of management assistance – this would arguably be unfair for those who have already undertaken roll-back under the current beneficiary pays policy. And, thirdly, certain private defences along the East Riding coastline were provided with (albeit retrospective) temporary planning permission; this has now expired and there is no intention for permission renewal. There is, therefore, an inherent unfairness between generations here. This is somewhat countered, however, by the lack of enforcement for the removal of private defences; either those with lapsed planning or those built illegally.

In Lewes, the general attitude of respondents was that the strategy did not take sufficient account of future generations; particularly in light of climate change and sea level rise. Dropping the catchment-wide approach was seen as a missed opportunity in this regard. The fact that the CFMP for the Sussex Ouse had not been completed was a disadvantage in this respect. This was regarded as particularly important in that previous development decisions means that any future setting back of defences, or restoring of floodplains, is seen as a particularly problematic policy option for the future.

Building on the floodplain was regarded by some to be a problematic issue in Lewes; where value could be seen in the use of developer-led flood defence to secure flood defence funding today but there was concern that this would lead to the exposure of future generations to increased risk.

The differential time horizons of the various plans and strategies was also thought to be unfair; in that some of today's decisions were made on the basis of a 1:100 time horizon with others operated on a 50 year time frame.

The requirement to protect property today was seen as expedient in the Felixstowe case study; where the raising of the flood wall to a 1:150 year standard today was suggested with the full knowledge that – due to sea level rise – future increases would be expected. This could lead to potential inter-generational unfairness in that certain people will lose out in the future in order that the majority can maintain the 1:150 standard agreed today.

In Leeds, the fact that the 1:30 year standard of protection for sewers does not include allowances for climate change is indicative of a lack of forward thinking.

By contrast, the Leeds case study illustrates how a combination of previous planning decisions, and drainage decisions, have resulted in the flood risk legacy for which stakeholders are currently seeking a solution. There is no

direct evidence, as yet, that future generations will be accounted for in the development of these solutions.

IV CONCLUSIONS

11. Insights and recommendations

This section provides insights and conclusions concerning the fairness challenges highlighted by the research. These findings are then used to address the final objective of the research:

(4) To provide insights into how different model(s) of social justice might inform future FCERM decision-making policy and practice.

To begin, an overview of the fairness of FCERM policy and practice is provided. This is followed by an evaluation of the social justice insights from the research; not least significant of which is the recognition that there is no single model of social justice that can adequately integrate the social justice concerns of all stakeholders. Rather, the question should be: How can government manage the range of social justice concerns in a fair and equitable way?

The FCERM 'reality' suggests that the distinction between decision processes and decision outcomes is less clear-cut than the theoretical model in chapter 3 would lead us to believe. Ultimately, we conclude that the process by which decisions are made is the critically important factor for determining whether FCERM is perceived to be fair or not; although outcome injustices remain important, particularly for those at-risk.

The final section focuses on some practical recommendations, for Defra and the EA, into how they might seek to manage the range of social justice concerns that characterise FCERM.

11.1 The fairness of FCERM policy and practice

At present there is no joined-up approach to social justice across government, organisations, departments or policy. At the highest level, there is a marked difference between policy that favours equality and vulnerability principles (HM Government, 2005) and those favouring utility (HM Treasury, 2003). This is partly because of the 'newness' of these later policies and partly because the tools for incorporating equality and vulnerability principles into FCERM decision-making are not adequately developed. For project appraisal, Outcome Measures and Multi-Criteria Analysis offer a potential here, but this has yet to be realised.

There are, similarly, important institutional differences in the application of social justice principles. The Treasury and Defra, for example, favour utility principles (although vulnerability and equality are increasing in importance for Defra), whilst for the CLG and EA (excepting their appraisal role), vulnerability and equality are the main social justice principles of concern.

Recognising these differential fairness preferences goes some way to understanding the potential conflicts that may emerge between stakeholders in the practice of FCERM. For example, Defra's policy not to defend areas of coastal erosion - based on utility principles – is in conflict with CLG's policy

towards social cohesion – based on vulnerability principles. Likewise, because Defra's appraisal process leads to outcome inequalities in flood defence this similarly conflicts with the CLG's policy towards social cohesion. This becomes important because these conflicts have the potential to result in a perceived unfairness in practice. Udefended coastal communities may argue that abandonment policies are unfair because, in part, they have the potential to damage community cohesion, lead to community blight and, in the worst case scenario, may result in community abandonment. Undefended urban areas may argue that policy is unfair because areas within a community receive differential standards of protection. Similarly, inconsistency in how the longer-term is accounted for in national policy has important fairness implications. The short time horizon of spatial planners (15-20 years) is considered particularly important in this respect.

The model driving much of the FCERM spend, at the national level, is based on the principle that it is fair for the majority (national taxpayers) to fund the risk management of the minority (those at-risk). Those who believe this not to be so provide the counter-argument that applying the 'beneficiary pays principle' in the FCERM context would be fairer. The majority of respondents in our research did not regard the 'beneficiary pays principle' to be a positive solution in this respect because of the difficulties in: determining what the beneficiaries could have reasonably be expected to have known of the risk in the choices they have made; defining who the beneficiaries are; and in incorporating the 'polluter pays principles' across space and time.

An important consideration, however, is that whilst the appraisal process was recognised as an important mechanism for the distribution of government funding, the allocation of funding for FCERM was seen to be inadequate and unfair when compared with other government departments. The benefit-cost ratios of flood defence projects, in particular, were considered to be extremely high when compared with other areas of government funding (i.e. roads). This perceived unfairness was seen to result in a number of deserving projects being denied funding and in limiting the range of options available for FCERM.

Within FCERM, utility remains the dominant fairness principle currently applied in practice; with scant evidence of decisions being made on the basis of vulnerability principles, other than as a utility add-on in the appraisal process - through the application of distributional impacts, deprivation indices and the SFVI - and in the provision of flood warnings and emergency management. Targeting the vulnerable is not, currently, embodied in the policies and practices towards the provision of insurance, spatial planning, homeowner adaptation, land use control and management.

There is strong ambition for policy and practice to be consistent, neutral, transparent and clear. However, at present, this is achieved through the appraisal process rather than a more deliberative process with 'real' stakeholder engagement.

There is support for all those at risk of flooding to have an equal opportunity to access the decision-making process but the 'reality' is that it is only those areas that are expected to attain Defra's priority score that are put forward by local decision makers. This is a significant barrier to achieving fair FCERM in

practice.

It is evident that advances have been made in the past 3-4 years to recognise the importance of, and seek to address, fairness concerns in FCERM. Indeed, most national stakeholders considered that, although there is a lot of 'rhetoric about fairness', FCERM is becoming fairer. The commitment in the MSW documentation to: national and local participative decision-making; to managing flood risk from all sources of flooding; and to recognising the fairness concerns for those whose risks cannot be managed through capital schemes, is illustrative of this change. Our research has shown, however, that for decisions about structural measures, in particular, we don't yet have the tools to take account of this; although in theory SMPs and CFMPs are designed to do so, they are currently under development and in their infancy. Until developed, this may be a barrier to achieving fair FCERM in practice.

In general, stakeholders at the national level recognised that the utility approach - driving decisions concerning structural measures - leads to inequities in outcomes and - although this was thought to be the 'fairest' approach to apply - enthusiasm was tempered by concerns for procedural justice and vulnerability. This perception was endorsed by some local-level stakeholders; albeit whilst recognising inadequacies in the appraisal system, not least in its incorporation of people, heritage and health impacts.

As would be expected, a percentage of those at-risk generally regarded outcome inequality associated with structural measures to be unfair; particularly where the outcomes result in different standards of protection within communities. An additional unfairness was perceived to exist, at this spatial scale, in the differential standards of protection afforded to sewer and fluvial flooding.

For non-structural strategies, stakeholders recognised the procedural fairness embedded in flood warning, awareness raising and spatial planning policies. However, other than a commitment to vulnerability principles in the provision of flood warnings, these strategies were not see to be influenced by vulnerability principles. It was generally agreed that the vulnerable are not adequately accounted for in FCERM decisions, with both national and local stakeholders agreeing, in principle, that targeting the vulnerable in FCERM would be fairer. However, this finding was tempered by the reality-driven perception of the difficulties in implementing such a policy. The multi-faceted nature of vulnerability was seen as a major barrier to the successful implementation of policy in this regard.

Procedural justice is seen as a key issue for FCERM. But, cost, time, vociferous local minorities, and conflicts between procedural justice and 'other' social justice elements are important barriers to its implementation. It was also argued that because the general expectation of the population remains defence-orientated, engaging with the public when defence solutions are not an option is particularly difficult.

Overall, the appraisal and prioritisation process was recognised as procedurally fair in that it is a consistently applied rationing process. However, when implemented, the appraisal process was itself seen as a cause of unfairness

because: it runs counter-productive to policies of social cohesion and well-being; people facing the same risk receive different outcomes; distributional impacts do not discriminate as originally intended; coastal flooding is perceived to be prioritised over coastal erosion; and because only those with the potential to be funded have the opportunity to be considered. This latter point was thought to be particularly unfair because it effectively means that those for whom capital schemes will never be an option have neither an equal opportunity to engage in the decision process nor to have their risks managed by the state; other than through flood warnings, awareness raising and development planning decisions.

At the local level, perception of the fairness of decisions is influenced by the timing of the decision; particularly where the outcomes are influenced by changes in government guidance. Managing this changing policy context is, therefore, important if the outcomes of FCERM decisions are to be considered fair.

This has important implications for any policy changes that might be implemented in line with the policy ideals set out in MSW. Taking the roll-back policy as an example, if the government changed its policy in this regard so as to provide either financial or managerial assistance for those at-risk, this may appear fairer. But, for those coastal residents who have already rolled-back, under the beneficiary pays principle, this may be considered far from fair. Change is inevitable, the question is: how fairly can these changes be implemented in practice?

Additional factors influencing perceptions of the fairness of decision processes at the local level appear to be influenced by the demarcation of boundaries in the appraisal process and the role of champions in securing national funding. In addition, FCERM at the local-level includes an element of 'rule bending' either in the non-enforcement of legislation or in the deviation from appraisal rules. Whether this is due to perceived unfairness or simply a function of cost and time constraints is unclear. What is clear is that flexibility in local decision-making – that seeks funding from the national 'pot' – is constrained by the rules at this spatial scale.

The issue of inter-generational equity, and the balance between inter- and intra-generational equity, is an area of social justice that requires further attention. It is not clear that policy makers - particularly within the planning system – are as yet giving sufficient attention to the needs of future generations in the incorporation of long-term equity issues in today's decisions. The shorter time scales in planning compared with other areas of FCERM, in particular, is considered to be a serious constraint in embracing inter-generational equity concerns in FCERM.

11.2 Alternative models: possible implications?

This research has illustrated the multi-faceted nature of social justice and the multi-faceted nature of FCERM. Because of this, there can be no "correct" model of social justice which can be applied in the FCERM context. The question, therefore, is not: how can different model(s) of social justice inform future FCERM decision-making policy and practice? But, how can we ensure

that the range of social justice concerns is adequately accounted for in FCERM policy and practice?

The key fairness issues in FCERM today appear to question the appropriateness of the current model of FCERM in terms of:

- The balance between national, local and individual funding of FCERM;
- The balance of resource distribution between coasts and rivers;
- The favouring of urban areas over rural, isolated communities;
- The overemphasis on defence options with a greater emphasis required in areas such as flood warnings and response; planning liaison and development control and the incorporation of homeowner adaptation measures;
- The barriers in managing flooding from all sources;
- Inadequacies, and inconsistencies, in its inter-generational focus;
- Its balance between the perceived value of risk management options (particularly between defence, warnings, spatial planning, homeowner adaptations and insurance) and the principles underpinning the financing of these options (i.e. insurance, roll-back and homeowner adaptations (beneficiary pays), defence and warnings (nationally and/or locally funded));
- The outcome of policies focusing on parts of communities rather than adopting a whole community approach; and
- The differential importance of legislation in the ‘actual’ management of risks (e.g. in determining urban drainage responsibilities and in the perceived preferential protection of birds and habitats over people);

Any alternative model would, therefore, as a minimum, need to address the following key questions:

- What are the social justice implications of any alterations to the funding model for FCERM (particularly recognising the implications of external funding)?
- Is the balance between the funding, and implementation of, FCERM options the fairest that can be applied?
- Would a model of funding which embraces further the ‘beneficiary pays principle’ be fairer in practice?
- Would a funding model which provides basic limited needs for all at-risk (based on procedural equality principles) - with areas allowed to top-up with local, or alternative, funding - be fairer?
- Would a funding model which targets resources to manage the risk of the ‘neediest’ (based on vulnerability principles) be fairer?
- What is the fairest division of funding between rivers and coasts?
- What changes are necessary to provide a fairer process of FCERM which incorporates the social justice concerns of the majority of stakeholders, at the national, regional and local level? What are the potential barriers to the implementation of this in practice?
- Would a community well-being approach - which accounts for wider community benefits in FCERM appraisal processes - be a fairer model to apply for those currently excluded from the appraisal process i.e. rural, isolated communities?

- Would a community approach to project appraisal be fairer in practice?
- What changes to legislation are required in order to break-down some of the barriers in implementing fair policies in practice?
- What are the social justice implications for managing flooding from all sources?
- How, and in what capacity, should the needs of future generations be accounted for in today's decisions?

The different options currently implemented in FCERM are illustrative of the range of fairness concerns currently embedded in FCERM policy and practice. Hence, they illustrate the range of fairness concerns that might be applied by stakeholders in addressing the above questions.

The perceived fairness of FCERM options depends on the social justice principles favoured by different stakeholders. Flood defence, for example, is regarded as fair by those valuing maximum utility yet unfair by those valuing equality and vulnerability principles. For those at-risk of flooding, insurance – as the national compensation mechanism – is perceived to be fair on utility grounds but unfair on vulnerability and equality grounds. Similarly, flood warnings and awareness raising may be fair on the basis of procedural equality - and there is a commitment to targeting warnings and emergency management to the most vulnerable - but these options are not fair on the basis of maximum utility. Spatial planning is similarly procedurally fair; although targeting the vulnerable and treating all those at-risk equally is not necessarily the aim here (as illustrated by the Exceptions Test).

Pluvial and groundwater flooding remain an area of significant uncertainly both in terms of our understanding of the processes involved, and the management of these processes. Defra is currently examining the value of homeowner adaptation options as important risk management tools in this context. These are currently implemented under the beneficiary pays principle; thus they embrace many of the fairness issues associated with the provision and uptake of insurance. However, the extent to which they will be fair from a vulnerability perspective is largely dependent on how they are implemented in practice. Grants and processes which target resistance measures to the most vulnerable would clearly be beneficial in this regard. However, the effectiveness of these as risk management options remains debateable.

Ensuring that the fairness concerns highlighted by our research are adequately accounted for in FCERM policy and practice requires Defra and the EA to, firstly, determine the appropriate balance in the implementation of FCERM options, and, secondly, to examine the appropriate mix of state, local, corporate and individual funding in this process. Decisions of this nature will, ultimately, influence the extent to which government policies incorporate the social justice concerns of all stakeholders and are, in turn, regarded by these stakeholders to be fair. Three issues appear to be critically important in this respect:

1. There must be an open and transparent account of the weight being applied to different social justice principles in policy, guidance and practice across the range of FCERM options;
2. There needs to be a clear account of the trade-offs that are required in

the balancing of requirements for national consistency with those for stakeholder engagement; and

3. The current model of resource distribution which favours the distribution of national resources through the appraisal process should be re-evaluated; particularly for those who have no equality of opportunity to access this decision process.

At present, there is no open and transparent account of the weight being placed on FCERM options, or the social justice principles they engage. FCERM is dominated by utility principles, many of which are complex and largely hidden from the general observer. It is far from clear what weight is being applied to different risk management options, and in turn the social justice principles they embody. Indeed, it appears that current decision-making practices fail to fully account for the social justice concerns of all stakeholders; particularly in the dominance of utility principles which neither offers procedural equality nor targets resources in favour of the most vulnerable. By clearly articulating the manner in which principles of utility, vulnerability and procedural equality are incorporated into FCERM, this will significantly improve the perceived justice of FCERM.

11.3 Recommendations

This research has evaluated the manner in which social justice is currently accounted for in FCERM policy and practice; whilst also examining the potential social justice implications of recent developments in Outcome and Performance Measures.

The findings have highlighted that no one model of social justice can adequately incorporate the social justice concerns of all those at-risk and those responsible for managing these risks; nationally, regionally and locally. What appears to be fair at a national level is not necessarily regarded equally so at the local level. Similarly, where most national and local decision-makers recognise that outcome equality is not achievable; this is not necessarily the perception of stakeholders and at-risk populations at the local level.

The research has also illustrated the importance of funding streams which highlight the priority attached to different social justice principles in the distribution of resources between coasts and rivers, in the management of risks in urban and rural areas and in the priority afforded to different risk management options. Any changes to this system will, ultimately, lead to a different balance between the prioritisation of social justice principles.

Ultimately, different stakeholders bring different models of justice to the decision process; influencing whether they regard the policy and practice of FCERM to be fair or not. The evidence seems to suggest that: maximising utility is important in the allocation of taxpayers money; prioritising vulnerable groups is valuable but difficult to operationalise; and given funding constraints, ensuring procedural justice is, arguably, the most important criteria for determining the fairness, or otherwise, of decision processes and decision outcomes.

A fairer approach to FCERM appears to be one in which there is active involvement of all stakeholders in a decision process that is open, transparent

and accountable. Clearly, however, ensuring deliberative and participatory decision processes is no panacea; not least because there are trade-offs to be made, and barriers to be dismantled, between ensuring national consistencies whilst simultaneously engaging the concerns of those at-risk. The request for outcome equality in some local contexts is illustrative of one such barrier.

Rather than providing an alternative 'fairer' model of FCERM, what is critically important is that decision-makers at all levels need to be able to illustrate how social justice issues have been addressed in the decision-making process. At present, the social justice principles being applied are hidden within a complex decision-making system which is anything but explicit. This lack of transparency about how social justice concerns are being accounted for in FCERM creates the potential for conflict and confusion; particularly when the outcomes of FCERM decisions are not perceived to be fair.

This research has provided 'first insights' into the fairness of FCERM policy and practice and there appears to be value in using the social justice framework employed; even though the process and outcome distinctions may be less clear than is theoretically suggested. However, it is equally important to recognise that the research is based on four case studies and offers a snap-shot in time which cannot account for the rapidly changing context which characterises FCERM policy and practice. Bearing this in mind, there are three important practical recommendations which emerge from this research. Defra and the EA should:

1. Keep under constant review their policy, procedures and funding models, using the framework, to examine the extent to which they embody the social justice concerns highlighted by this research.
2. Explicitly recognise and actively incorporate a framework for systematically identifying and evaluating social justice concerns within their decision-making processes and procedures.
3. Review and evaluate decision outcomes with a social justice 'lens' in order to illustrate how social justice concerns are embedded in decision outcomes. This will make social justice less of a theoretical concept but more tangible in terms of outcomes and policy measures.

The evaluation tools provide the opportunity for Defra and the EA to monitor explicitly how social justice is embedded into policy decisions and outcomes: thus moving away from the current system where social justice concerns are arbitrarily incorporated at best, and hidden, or unaccounted for, at worst; needless to say there will remain those who believe that an injustice has occurred. Ultimately, what is important is that the social justice model applied in FCERM is transparent and consistently applied; and seen to be so.

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Ergon House
Horseferry Road
London SW1P 2AL

www.defra.gov.uk