**Summary: Intervention & Options**

<table>
<thead>
<tr>
<th>Department /Agency:</th>
<th>Title:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defra</td>
<td>Impact Assessment on Flood and Coastal Erosion Risk Management funding reforms</td>
</tr>
</tbody>
</table>

**Stage:** Consultation  
**Version:** 1.0  
**Date:** 27 March 2009

**Related Publications:** Draft Floods and Water Bill, Explanatory Memorandum and related consultation document(s)

**Available to view or download at:**
http://www.defra.gov.uk/

**Contact for enquiries:** Daniel Johns  
**Telephone:** 0207 238 4703

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**What is the problem under consideration? Why is government intervention necessary?**

Government invests in Flood and Coastal Erosion Risk Management (FCERM) due to a number of severe market failures that result in too much flooding and too little prevention despite increasing sums being invested. Benefits of additional investment and intervention would substantially outweigh its costs, but there is at present little discretion and incentive for local areas to fund projects beyond those the Environment Agency can afford. Also, developers are not paying in full for the future flood costs they are imposing on society and the funding system in general could be simplified.

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**What are the policy objectives and the intended effects?**

The policy objectives include (i) increase total investment in FCERM in order to realise the substantial additional benefits on offer, (ii) allow greater local discretion in where and when projects are delivered, (iii) ensure developers bear the full long-term costs of their activity, and (iv) strengthen operating authority accountability for achieving value for money, and simplify arrangements where possible. In achieving these outcomes the policy aims to achieve a better balance between preventing flooding and coastal erosion and bearing the consequences, and better alignment between who benefits from investments and who funds them.

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**What policy options have been considered? Please justify any preferred option.**

Option 1 (do nothing) would see a continuation of current funding arrangements or as enhanced by changes being introduced by wider reforms outside the scope of the current consultation and Impact Assessment. Options 2 & 3 would reform and simplify existing funding arrangements. The options can be combined to create an overall package of reform.

A combination of options 2(a), 2(b), 3(a) and 3(b) together represents the preferred scenario, to allow total investment in to rise whilst allowing greater local discretion to fund regional and local priority projects, whilst strengthening accountability and simplifying the current funding regime where possible.

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**When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects?**

Policy to be reviewed as part of future Government spending reviews.

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**Ministerial Sign-off** For consultation stage Impact Assessments:

_I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options._

Signed by the responsible Minister:

.................................................................................................................Date:
## Summary: Analysis & Evidence

**Policy Option:** 2  
**Description:** (a) Extend Regional Flood Defence Committees (RFDC) ‘local levy’ to include coastal erosion projects; (b) End Internal Drainage Board (IDB) highland water charges and RFDC precept on IDBs

### COSTS

<table>
<thead>
<tr>
<th>Item</th>
<th>Description and scale of key monetised costs by ‘main affected groups’</th>
<th>Option 2(a) expected to increase investment, with costs borne by county/unitary local authorities; and Option 2(b) reduces admin costs on operating authorities by ending inefficient exchanges of funding between them.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANNUAL COSTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One-off (Transition)</td>
<td>£ 0</td>
<td></td>
</tr>
<tr>
<td>Average Annual Cost (excluding one-off)</td>
<td>£ 3 m</td>
<td>30</td>
</tr>
</tbody>
</table>

**Total Cost (PV)**: £ 52 m

**Other key non-monotised costs** by ‘main affected groups’ Options 2(a) and (b) include attempts to monetise the main costs, such as administrative burdens & improvements in delivery efficiency, based on evidence where available.

### BENEFITS

<table>
<thead>
<tr>
<th>Item</th>
<th>Description and scale of key monetised benefits by ‘main affected groups’</th>
<th>Option 2(a) delivers benefits that relate to the damages from flood and coastal erosion events avoided as a result of increased investment in risk management activity, assumed to deliver £5 in benefits for each additional £1 invested. Option 2(b) cuts admin burden.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANNUAL BENEFITS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One-off</td>
<td>£ 0</td>
<td></td>
</tr>
<tr>
<td>Average Annual Benefit (excluding one-off)</td>
<td>£ 14 m</td>
<td>30</td>
</tr>
</tbody>
</table>

**Total Benefit (PV)**: £ 263 m

**Other key non-monotised benefits** by ‘main affected groups’ Option 2(a) increases choice to local government & RFDCs, enabling local investment in coastal erosion & other flood risk management. Additional investment benefits society, as people & property are exposed to less risk. Option 2(b) cuts administrative burdens & costs on local government, IDBs & RFDCs.

### Key Assumptions/Sensitivities/Risks

- RFDC levy would be at the discretion of local authorities. If local authorities decided not to adopt this policy then there would be no additional costs, and no additional benefits. Admin burdens on operating authorities are expected to decrease as a result of the option.
- 2(a) assumes maximum increased investment in coastal erosion in line with the proportion of national investment that is spend on coastal erosion compared to other types of flood risk management.

### Price Base

<table>
<thead>
<tr>
<th>Year</th>
<th>Time Period</th>
<th>Net Benefit Range (NPV)</th>
<th>NET BENEFIT (NPV Best estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>Years 30</td>
<td>£ 0 to 211 m</td>
<td>£ 211 m</td>
</tr>
</tbody>
</table>

### What is the geographic coverage of the policy?option?

England

### On what date will the policy be implemented?

April 2011

### Which organisation(s) will enforce the policy?

Operating Authorities

### What is the total annual cost of enforcement for these organisations?

£ zero

### Does enforcement comply with Hampton principles?

Yes

### Will implementation go beyond minimum EU requirements?

Yes

### What is the value of the proposed offsetting measure per year?

£ 0

### What is the value of changes in greenhouse gas emissions?

£ 0

### Will the proposal have a significant impact on competition?

No

### Annual cost (£-£) per organisation (excluding one-off)

<table>
<thead>
<tr>
<th>Micro (Not quantified)</th>
<th>Small (Not quantified)</th>
<th>Medium (Not quantified)</th>
<th>Large (Not quantified)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Are any of these organisations exempt?

No

### Impact on Admin Burdens Baseline (2005 Prices)

<table>
<thead>
<tr>
<th>Increase of</th>
<th>Decrease of</th>
<th>Net Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>£ 0</td>
<td>£ 0</td>
<td>£ 0</td>
</tr>
</tbody>
</table>

Key: Annual costs and benefits: Constant Prices  (Net) Present Value
Summary: Analysis & Evidence

Policy Option: 3

Description: (a) reform Internal Drainage Boards’ (IDBs) ‘special levy’; (b) repeal Environment Agency’s Special Drainage Charge powers; (c) repeal EA’s General Drainage Charge powers.

Costs

**ANNUAL COSTS**

<table>
<thead>
<tr>
<th>Description</th>
<th>One-off (Transition)</th>
<th>Average Annual Cost (excluding one-off)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£0</td>
<td>£0</td>
</tr>
</tbody>
</table>

**Total Cost (PV)** £0

Other key non-monetised costs by ‘main affected groups’ This IA attempts to monetise other costs, such as administrative burdens & improvements in delivery efficiency, based on evidence where available.

Benefits

**ANNUAL BENEFITS**

<table>
<thead>
<tr>
<th>Description</th>
<th>One-off</th>
<th>Average Annual Benefit (excluding one-off)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£0</td>
<td>£6 m</td>
</tr>
</tbody>
</table>

**Total Benefit (PV)** £105 m

Other key non-monetised benefits by ‘main affected groups’ Benefits are gained by individual property and land owners, infrastructure operators, Government and society at large, and increased choice to operating authorities with the flexibility of business planning and spending decisions.

Key Assumptions/Sensitivities/Risks It is assumed that reform and simplification of funding/charging policies will increase transparency, efficiency and choice for operating authorities which would lead to a more efficient delivery; greater choice might not mean wiser investment. It is assumed that proposed changes would not increase cost and burden to the system as a whole. Admin burdens will be assessed during consultation exercise.

<table>
<thead>
<tr>
<th>Price Base Year</th>
<th>Time Period</th>
<th>Net Benefit Range (NPV)</th>
<th>NET BENEFIT (NPV Best estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>30 Years</td>
<td>£0 to 105 m</td>
<td>£105 m</td>
</tr>
</tbody>
</table>

What is the geographic coverage of the policy/option? England

On what date will the policy be implemented? April 2011

Which organisation(s) will enforce the policy? Operating Authorities

What is the total annual cost of enforcement for these organisations? £0

Does enforcement comply with Hampton principles? Yes

Will implementation go beyond minimum EU requirements? Yes

What is the value of the proposed offsetting measure per year? £0

What is the value of changes in greenhouse gas emissions? £0

Will the proposal have a significant impact on competition? No

Annual cost (£-£) per organisation (excluding one-off) Micro: Not quantified Small: Not quantified Medium: Not quantified Large: Not quantified

Are any of these organisations exempt? No No No No

Impact on Admin Burdens Baseline (2005 Prices)

Increase of £0 Decrease of £0 Net Impact £0

Key: Annual costs and benefits: Constant Prices (Net) Present Value
### Summary: Analysis & Evidence

**Policy Option:** Preferred scenario: 2(a), 2(b), 3(a), and 3(c) combined

**Description:** A combination of 2(a) extend Regional Flood Defence Committees’ ‘local levy’ to include coastal erosion projects; 2(b) end ‘highland water charges’ & ‘precept’; 3(a) reform ‘Internal Drainage Boards’ ‘special levy’; & 3(b) end Environment Agency’s ‘special drainage charge’.

#### ANNUAL COSTS

| Description and scale of key monetised costs by ‘main affected groups’ Costs relate to the value of additional investment by means of Regional Flood Defence Committee levy, to be extended to cover coastal erosion; those costs would relate to investment by local authorities in their areas. Other costs expected to be negligible because business planning, project appraisal and delivery costs would be similar to those at present. |

<table>
<thead>
<tr>
<th>COSTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>One-off (Transition) Yrs</td>
<td>£ 0</td>
</tr>
<tr>
<td>Average Annual Cost (excluding one-off)</td>
<td>£ 3 m 30</td>
</tr>
<tr>
<td><strong>Total Cost (PV)</strong></td>
<td>£ 52 m</td>
</tr>
</tbody>
</table>

**Other key non-monetised costs** by ‘main affected groups’ None - the FCERM project appraisal process requires all key costs relating to individual defence schemes to be monetised. An attempt has also been made in this IA to monetise other costs, such as administrative burdens & improvements in delivery efficiency, based on evidence where available.

#### ANNUAL BENEFITS

| Description and scale of key monetised benefits by ‘main affected groups’ Benefits relate to the damages from flood and coastal erosion events avoided as a result of additional risk management activity (expected to be worth at least £5 for every £1 invested) under Option 2(a). More effective use of funding, prioritisation and efficiency gain under Option 2(b) and 3(a); overall amount of funding unaffected under 2(b), 3(a) and 3(b). |

<table>
<thead>
<tr>
<th>BENEFITS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>One-off</td>
<td>£ 0</td>
</tr>
<tr>
<td>Average Annual Benefit (excluding one-off)</td>
<td>£ 19 m 30</td>
</tr>
<tr>
<td><strong>Total Benefit (PV)</strong></td>
<td>£ 349 m</td>
</tr>
</tbody>
</table>

**Other key non-monetised benefits** by ‘main affected groups’ Benefits are monetised at a project appraisal level, but not in this Impact Assessment, include economic, environmental and personal health and welfare benefits arising from fewer flood events. Benefits are gained by individual property and land owners, infrastructure operators, Government and society at large. Operating authorities should benefit from greater choice over investment decisions.

### Key Assumptions/Sensitivities/Risks

Local authorities assumed to utilise expanded levy; benefit is dependent on actual uptake. Assumed that reform and simplification of funding/charging policies would lead to a more efficient delivery.

### Price Base

<table>
<thead>
<tr>
<th>Year</th>
<th>Time Period</th>
<th>Net Benefit Range (NPV)</th>
<th>NET BENEFIT (NPV Best estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>30</td>
<td>£ 0 - 297</td>
<td>£ 297</td>
</tr>
</tbody>
</table>

### What is the geographic coverage of the policy/option?

England

### On what date will the policy be implemented?

April 2011

### Which organisation(s) will enforce the policy?

Operating Authorities

### What is the total annual cost of enforcement for these organisations?

£ zero

### Does enforcement comply with Hampton principles?

Yes

### Will implementation go beyond minimum EU requirements?

Yes

### What is the value of the proposed offsetting measure per year?

£ 0

### What is the value of changes in greenhouse gas emissions?

£ 0

### Will the proposal have a significant impact on competition?

No

### Annual cost (£-£) per organisation (excluding one-off)

<table>
<thead>
<tr>
<th>Micro Not quantified</th>
<th>Small Not quantified</th>
<th>Medium Not quantified</th>
<th>Large Not quantified</th>
</tr>
</thead>
</table>

### Are any of these organisations exempt?

No

### Impact on Admin Burdens Baseline (2005 Prices)

**Increase of** £ 0 **Decrease of** £ 0 **Net Impact** £ 0

**Key:**

*Annual costs and benefits: Constant Prices* 

*(Net) Present Value*
Funding for Flood and Coastal Erosion Risk Management (FCERM)

1. Introduction and objectives

This Impact Assessment (IA) examines why and how Government invests in managing the risk from flood and coastal erosion, explains the background to existing policy, and considers new policy options for full public consultation. The policy options aim to achieve a series of objectives, as follows:

**Objective I. Increase the total amount invested in FCERM** in order to realise the substantial social, economic and environmental benefits that could be achieved, and in doing so gain a more efficient balance between preventing flooding and bearing the consequences of events when they occur. Projects that would deliver benefits five times greater than costs cannot currently be afforded by the Environment Agency, meaning that at present there is too much flooding and too little prevention despite increases in Government investment.

**Objective II. Allow greater local discretion in where and when projects are delivered**, as at present communities have only a limited say because projects are almost entirely funded by the taxpayer and therefore need to help achieve national outcome measure targets, as opposed to what would be most desirable locally. This can cause frustration and anger, and can slow the progress of schemes that would deliver substantial local as well as national benefits.

**Objective III. Ensure developers bear the full long-term cost implications of their activity** that results in more people and property placed in areas at risk of flooding. Developers typically pay for any defences needed to protect the new properties, but do not typically pay for their ongoing maintenance or upgrades. New developments in areas already defended do not typically make any contributions at all towards future flood management costs.

**Objective IV. Simplify the funding regime whilst strengthening accountability and value for money** by allowing greater regional and local prioritisation of funding, and more transparent delivery of outcomes for the funding provided. At present there are charging powers that lack transparency and mean operating authorities can require money to be paid by parties that might be better spent on other priorities.

Annex A provides a summary of commonly used terms in this impact assessment.

2. Background

Flooding directly affects a significant minority of the population, with flood events capable of severely damaging, even blighting, properties and displacing people from their homes, and in the worst instances causing loss of life. Coastal erosion, whilst potentially affecting only a small number of properties, can cause those properties to be permanently lost, uninhabitable, or blighted.

In England, there are around 2.1 million properties on the floodplain, with almost half of those at significant or moderate risk of flooding, with the economy as a whole bearing estimated annual damages of £1.1 billion a year\(^1\). Further properties are at risk of surface water pooling, with a recent study by Risk Management Solutions suggesting that overall, up to a quarter of all

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\(^1\) Based on the Environment Agency’s National Flood Risk Assessment 2006 Project Report of March 2007. ‘Significant’ means a property at a 1 in 75 risk of flooding each year or greater, ‘moderate’ means a 1 in 200 risk of flooding each year, or greater.
homes in Britain may be at risk from 1 in 1000 rainfall events\(^2\). If this proportion holds for England, it would mean any of over 5 million properties and over 10 million people could be affected by flooding from the most extreme rainfall events.

Government intervenes in flood and coastal erosion risk management due to several severe market failures that would otherwise result in significant underinvestment in flood and coastal erosion prevention, and poor efficiency and widespread inequity in how investment choices would be made. Annex B describes in more detail the rationale for government intervention.

The Government is to invest £650 million in the management of flood and coastal erosion this year (2008/09). This funding almost entirely comes from the Exchequer (around 97%, remainder comes from council tax) and is allocated to the Environment Agency (EA) through Grant in Aid (£559m forecast for 2008/09), and to local authorities through revenue support grant (£86m spent in 2006/07). An additional ~3% is raised by Internal Drainage Boards and to a lesser extent by the Environment Agency through charges on farmers and agricultural land owners in areas that directly benefit from flood prevention and water level management for agricultural purposes, and because farmers are exempt from business rates which help pay for government’s investment in flood risk management more generally.

In line with Objectives I and II, the EA is introducing an external contributions policy which aims to raise £44m per year from 2010/11 from major beneficiaries. When this is the case it will result in a total of around £850m being invested in that year in total, with around 90% paid for by the Exchequer and the remaining 10% from local sources.

The following diagram illustrates the main flows of funding through the system. Annex C provides further details of current funding arrangements.

**FCERM funding arrangements**  
Figures are forecasts for 2008/09 apart from 2007/08 outturns & estimates

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Investment in FCERM supports the work of all operating authorities\(^3\), allowing them to invest in projects and schemes that reduce the likelihood of flooding and coastal erosion and/or reduce

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\(^3\) ‘Operating authorities’ refers to bodies with statutory powers and responsibilities for flood risk and coast management, and includes any or all of the following: the Environment Agency, Internal Drainage Boards, Local Authorities (district, council and unitary), and Regional Flood Defence Committees.
the consequences of flooding when it does occur. Schemes can be varied and can include physical defences, managed drainage systems and other environmental works. Physical defences can include the construction and maintenance of defences that protect against flooding from rivers, the sea and watercourses, and to manage erosion. The investment also reduces the consequences of flooding in other, non-asset based ways, by helping to control the amount and nature of development on the flood plain, by providing better risk mapping, more accurate forecasting of flood events, and providing warnings to emergency responders and those potentially affected by events so that they can take action to move people and possessions away from harm.

Individuals can purchase insurance to cover for floods and this is standard in most buildings and contents policies. This smoothes the financial cost of floods for individuals between years, but does nothing to prevent their occurrence in the first place. With better information becoming available on the nature and extent of flood risk, insurers are becoming better able to make premiums and excesses reflect actual risk in each locality. Government has an agreement with the insurance industry, called the ‘Statement of Principles’, that helps ensure the widespread availability of insurance even in areas at significant risk of flooding under certain circumstances.

3. The benefits of flood and coastal erosion risk management

A core principle underlying this impact assessment is that flood and coastal erosion risk management activity can deliver substantial long-term benefits far greater than the costs involved.

Investment in FCERM results in less flooding and coastal erosion than otherwise would be the case, and where it does occur it will be less severe than it would have otherwise been. Benefits from reduced flooding and coastal erosion broadly fall into the ‘sustainable development’ headings: social, economic and environmental. Social benefits include the avoided loss of life from flooding as well as the mental and physical wellbeing of those living in the area. Economic benefits include avoided damages to property and their contents, and loss of earnings. Environmental benefits include the protection and creation of wildlife habitats, including sites of special scientific interest (SSSIs), some of which can only be maintained through flood risk management. The benefits of individual risk management projects and schemes are assessed before funding is awarded, using a standard appraisal methodology based on HM Treasury ‘Green Book’ guidance. Benefits of projects typically exceed their costs by between 5 and 20 times, with benefit to cost ratios (BCRs) of over 50 to 1 in some cases.

The average BCR of schemes within the Environment Agency’s capital programme for new and improved defences is around eight, meaning that at the moment every £1 invested achieves an average of £8 in long-term benefits across the life of the scheme.

A growth in investment in FCERM would:

- enable schemes with BCRs of 5:1 to be realised, which would not receive funding under current arrangements and available funds
- mitigate against the risk that increasing pressures of climate change will increase damages from flooding on the UK (see next section for more detail).

Even at present there is considerable scope to increase investment in FCERM before the potential projects for which benefits outweigh costs are exhausted (i.e. to bring the marginal BCR down to 1).

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4 Evidence on benefit to cost ratios is based on Environment Agency assessment of the content of its medium term plan
5 The current average benefit cost ratio in the Environment Agency’s medium term plan
6 An estimate of the benefit cost ratio of the ‘marginal scheme’ in the Environment Agency’s medium-term plan (the marginal scheme is the next priority one that would be delivered if more funding were available.)
For the purposes of this IA it is assumed that any efficiency savings realised by the options would be reinvested in FCERM activities and deliver on average £5 in benefits for every £1 released in line with the estimated marginal benefit cost ratio within the Environment Agency’s medium term plan. The Long-Term Investment Strategy, referred to in the next section, will provide a more robust assessment of marginal benefit cost ratios now and into the future, for given levels of investment.

4. Impact of climate change on future funding requirements

Climate change, asset deterioration and new development will increase the pressure on FCERM expenditure, with scenarios published in 2004 suggesting the expected annual economic damages from flooding for the UK may rise from £1.4 billion a year to as high as £27 billion per year by 2080 under one scenario\(^7\). In the least-cost scenario, costs were modelled to increase to £2.3 billion, which suggests that pressure is unlikely to decrease under any scenario. It also suggests that effective action can be taken to mitigate the increasing risk. The Foresight study suggested a real annual increase in investment of £18 to £30 million per year would be required to keep pace with the impacts of climate change, with more required to reduce the damages caused by flooding over time.

Since the Foresight project, evidence considered by the Stern Review has suggested that whilst there remain uncertainties about the nature and scale of climate change it is likely to be more significant than previously thought. The climate change scenarios used by Foresight may therefore underplay the potential impacts, and the investment required to counter them. The Environment Agency’s Long-Term Investment Strategy, due in Spring 2009, will provide an up to date assessment of future funding needs for the next 25 years.

\(^7\) From DTI Foresight Future Flooding Report of 2004 (www.foresight.gov.uk). Figures are for Great Britain.
5. Options appraisal

5.1. Summary

Government policy and legislation is well established, and is designed to overcome market failures and deliver efficient risk management. Despite this there are further reforms that are considered as options within this IA which are summarised in the table beneath. Options 2 and 3 can be combined to create an overall package of reform.

<table>
<thead>
<tr>
<th>Option</th>
<th>Title</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>Do nothing</td>
<td>Assumes existing funding investment level continues (i.e. £800m/yr in total by Government). The funding regime (i.e. who gets paid how to do what), other than by reforms already announced, continues unchanged.</td>
</tr>
</tbody>
</table>
| Option 2 | Reform Regional Flood Defence Committee (RFDC) charging arrangements | a) Extend the scope of the RFDC 'local levy' to allow funding to be raised from local authorities for coastal erosion projects  
  
  
b) End Internal Drainage Board (IDB) highland water charges and the related RFDC precept on IDBs |
| Option 3 | Reform IDB and agricultural land owner funding arrangements | a) Remove IDB powers to require local authorities to part-fund business plans through the ‘special levy’  
  
  
b) Repeal the EA’s Special Drainage Charge, which is unused  
  
  
c) Repeal EA’s General Drainage Charge currently only used in one part of the country |

Option 2 should be read in conjunction with the IA on future roles and responsibilities that considers the future role of Regional Flood Defence Committees.

Option 3 should be read in conjunction with the IA on the future role of Internal Drainage Boards.

Administrative burdens

A statement on administrative burdens is included under each option in this impact assessment.

Administrative burdens are not expected to change significantly overall as a result of the funding options being considered, and in particular there are not expected to be any additional administrative burdens on the private sector. Where there is potentially a new compliance burden, as a result of increased local funding for coastal erosion projects through the RFDC levy, the benefits realised from doing so are expected to substantially exceed costs.

The preferred option as presented in the summary sheet at the beginning of this IA is a combination of option 2 (a) and (b), and option 3 (a) and (b). The preferred option would:

- Widen the scope of the RFDC levy to allow additional local discretion and funding to be raised for coastal erosion projects that cannot be afforded by the Environment Agency (option 2(a)). These additional projects are worthwhile taking forward as benefits will exceed costs, but are not as beneficial as the projects selected for funding by the Agency. However, it is important that the funding available to the Agency does not
prevent other beneficial projects from going ahead, with increased local discretion to fund projects locally.

- End the system of circular charges between IDBs and RFDCs to reduce administrative burden and improve transparency (option 2(b))
- End the right of IDBs to require local authorities to part-fund their business plans through the ‘special levy’, and instead adopt a more transparent agency or contractual relationship between local authorities and each Internal Drainage Board (option 3(a))
- Repeal EA’s ‘special drainage charge’ which is not used in practice (option 3(b)).

5.2. Detailed option appraisal

Option 1 – Do nothing

This option assumes funding arrangements continue as they are now, or as already announced but are yet to be implemented, such as within the Government’s response to the Pitt review.

Option 1 entails:
No new government intervention under primary legislation, however some change will be brought about as a result of planned initiatives such as the Community Infrastructure Levy, Business Rate Supplements, the Environment Agency’s external contributions policy, as well as market forces such as greater risk pricing within flood risk insurance premiums.

This option assumes local authorities are funded as planned to take forward surface and groundwater flood risk management, and in general take on the local flood risk leadership role announced as part of the Government’s response to the Pitt review. It also assumes implementation of EA’s external contributions policy, the Community Infrastructure Levy (CIL) and Business Rate Supplements, and the continuation of Section 106 agreements in parallel with CIL. All of which could be used to increase funding for FCERM and allow additional local discretion over what and when projects are delivered in return for the funding provided. These four policies are described in more detail in the boxes that follow.

It is assumed that the introduction of the Community Infrastructure Levy, used in tandem with continuing powers for Planning Authorities to impose planning obligations (s106 agreements), means that the burdens imposed on the public purse as a result of more people and property being placed in at-risk areas are fully compensated for as part of the planning process. This means that Objective III is assumed to be satisfied by the ‘do nothing’ option. This assumption will need to be reviewed as the Community Infrastructure Levy begins to be implemented by Planning Authorities.

Environment Agency External Contributions Policy

EA’s policy, currently being finalised, seeks:

- Contributions from private, public or voluntary organisations or communities who will benefit the most from planned work;
- To make sure that these contributions reduce costs for creating, extending and maintaining planned assets and services. This will allow investment in more FCERM than would otherwise be possible;
- To obtain contributions where new housing or commercial development or regeneration requires changes to existing FCERM assets or service arrangements. These contributions will cover the cost of creating, extending and maintaining the required assets or services;
- To look for contributions from major existing beneficiaries where plans will further reduce the risk of flooding or coastal erosion. These contributions will be in proportion to the benefits received.

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9 Official Record, 17 December 2008, Column 1098
Little data has been collected to date on total level of contributions accrued nationally by EA however they estimate an annual contribution of £44m by 2010/11.

**Planning obligations** (or “s106 agreements”)

These are private agreements negotiated, usually in the context of planning applications, between local planning authorities and persons with an interest in a piece of land (or “developers”), and intended to make acceptable development which would otherwise be unacceptable in planning terms. Obligations can also be secured through unilateral undertakings by developers. For example, planning obligations might be used to prescribe the nature of a development (e.g. by requiring that a given proportion of housing is affordable); or to secure a contribution from a developer to compensate for loss or damage created by a development (e.g. loss of open space); or to mitigate a development's impact (e.g. through increased public transport provision). The outcome of all three of these uses of planning obligations should be that the proposed development concerned is made to accord with published local, regional or national planning policies. The relevant planning circular also provides that payments of money can be made, either of a specific amount or by reference to a formula, and require periodical payments to be paid indefinitely or for a specified period.

Clearly this allows for both site specific flood and coastal defences and commuted sums to be collected by EA (through LAs) for provision of flood management services – but at present can only be applied where necessary for the development to be acceptable.

Our data on what this actually accrues is, however, virtually non-existent: EA have been able to identify only a small amount of funding/works directly accrued from s106 agreements.

Rather than formalised s106 agreements, it is more usual that engagement between EA and developers lead to changes to design and siting, agreed informally rather than as part of a formal s106. ADA (who represent drainage authorities) have reported similar “in-kind” agreements with developers.

Introduction of the Community Infrastructure Levy (see below) is likely to mean a tightening of guidance to rein back s106 to its original intention i.e. to pay for things that are specifically needed for a development to take place rather than e.g. a new sports hall. EA are clear that funding issues should not influence their consideration of whether a development is appropriate or not in planning terms. But the terms of a s106 should allow LAs to agree that a commuted sum is payable to ensure that the ongoing costs of maintenance are covered. S106 agreements cannot be made retrospective to planning consent meaning that those already benefitting from the defences will not be contributing. It is perfectly acceptable for EA to contend that providing maintenance of defences, and also to extend flood risk mapping and warning services, is a necessary additional cost arising from a new development.

**Community Infrastructure Levy (CIL)**

Powers to introduce CIL are contained in The Planning Act 2008. The detailed enabling regulations are still being drafted, however flood defence works were specifically identified as a type of infrastructure for which CIL receipts could be utilised.

The Impact Assessment published at Royal Assent shows that CIL could raise over £600m additional funding for infrastructure a year. However, this figure is of course subject to the level of take-up of CIL among local authorities and the levels at which they set their CIL charge. It is impossible to predict what percentage of an authority’s CIL income will be spent on environmental infrastructure, such as flood defences. It will be for local authorities to set their level of CIL and allocate monies to projects in accordance with the development needs of their area, with particular regard to their infrastructure plans.

Thus, it is important for infrastructure providers, such as the Environment Agency to ensure that they are engaged in local discussions that shape development plans and influence how authorities identify and prioritise their infrastructure needs.

Detailed arrangements about the flow of CIL monies will be worked-up as regulations are drafted. The Act has provision for charging authorities to pass CIL revenues to third party delivery agents, and as said in the August 2008 CIL policy statement, it will be possible for authorities to pass CIL to the EA.

As a matter of principle there will be no sub-hypothecation of CIL revenues.

Communities and Local Government’s impact assessment on CIL can be accessed on-line at: [http://www.communities.gov.uk/publications/planningandbuilding/communityinfrastructurelevyia](http://www.communities.gov.uk/publications/planningandbuilding/communityinfrastructurelevyia)
Business Rate Supplements

This is a proposal currently seeking Parliamentary approval that would allow county/unitary local authorities at their discretion and in consultation with local businesses to add up to a 2p supplement on local business rates to raise money to pay for additional local infrastructure and economic development than would otherwise be possible. Such infrastructure could include community flood and coastal erosion defences, in return for the specific benefits to businesses (and other sectors) that such defences can bring.


Option 2 – Reform RFDC charging arrangements

This option would implement previous proposals to extend the scope of the RFDC ‘local levy’ to include coastal erosion projects, and to simplify the levying arrangements between the Environment Agency and Internal Drainage Boards.

Option 2 entails:

- Broadening the RFDC’s revenue raising powers to include sums for coastal erosion projects
- Discontinuance of IDB’s highland water charges on EA, and the EA’s precept on IDBs.

This option would require new primary legislation. Clauses to achieve part (a) are included within the draft Floods and Water Bill. Part (b) is not currently included in the initial draft for consultation.

Option 2 (a) aims to implement proposals contained in the Defra consultation ‘Making Space for Water’ (2006), which covered measures to strengthen our strategic approach to sea flooding and coastal erosion risk management. The consultation included questions on the roles and responsibilities of the Environment Agency and its Regional Flood Defence Committees.

Following the Government’s response to the Pitt Review the Environment Agency will have a strategic overview role for all types of flood risk and coastal erosion. However, the existing legal provisions for Regional Flood Defence Committees do not include coastal erosion matters (only flood defence). This also means that the Committees do not have the appropriate powers to extend the existing levy on local authorities (the ‘local levy’) to cover coastal erosion projects.

The ‘local levy’ is decided upon by RFDCs and can be used to raise funding for local and regional priority projects where they would not meet the criteria of the Environment Agency’s project appraisal; for example, if the benefit cost ratio is lower than other schemes that are competing for investment or they do not sufficiently contribute towards the national outcome targets, and therefore are turned down for funding by the Environment Agency, but would still deliver benefits far greater than costs. The levy, once set, is paid by all county/unitary local authorities (who themselves are members of the committees) within the region in proportion to the number of Council Tax Band D properties within their boundaries.

Costs of this part will be negligible because the same process would be followed through the same committees, but with an increased choice of projects spanning both flooding and erosion. The option may result in additional local investment in FCERM, assumed in this case to be £3m per year (i.e. 10% on top of the average levy receipts of £27m; this mirrors the split in overall investment at a national scale for main river flood management versus coastal erosion risk management). Local authorities may also choose collectively not to invest in coastal erosion projects at all, in which case there would be no change to current practices. Therefore, the range of costs for option 2 (a) is £0 to £3 million per year on county/unitary local authorities.
Benefits would result from an increase in money available for investment, if local authorities did vote to increase their levy payments. As per the evidence presented above, it is assumed that the additional money would be invested in projects with a BCR of 5:1 within Environment Agency’s current investment programme. If local authorities did not increase the levy (i.e. where costs are zero) then there would also be no additional benefits from option 2 (a).

Net Present Values (30 years) for Option 2 (a):

<table>
<thead>
<tr>
<th></th>
<th>(£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPV cost</td>
<td>52</td>
</tr>
<tr>
<td>NPV benefit</td>
<td>262</td>
</tr>
<tr>
<td>NPV</td>
<td>210</td>
</tr>
</tbody>
</table>

Average annual cost and benefit (based on 30 year projection):

<table>
<thead>
<tr>
<th></th>
<th>(£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average annual cost</td>
<td>3</td>
</tr>
<tr>
<td>Average annual benefit</td>
<td>14</td>
</tr>
<tr>
<td>Net benefit (annual average)</td>
<td>11</td>
</tr>
</tbody>
</table>

NPV calculation is over 30 years, with a discount of 3.5%. If less revenue is raised than assumed in the model, the benefit would be reduced proportionally.

Administrative burdens
Under this option, administrative burdens would be borne by members of RFDCs, which include local authorities and the Environment Agency. It is not anticipated that administrative burdens would be affected under the option or by any change to legislation that it entails, because the mechanism to consider projects and raise funds are already well established.

Option 2 (b) aims to simplify the exchange of money between Internal Drainage Boards and the Regional Flood Defence Committees. The amounts of money involved are relatively small (totalling about £12 million a year), but cost money to administer. With between £2m and £4m (the average is about £2m) being paid by RFDCs to Internal Drainage Boards, and £8m by Internal Drainage Boards to RFDCs, the net gain will be for Internal Drainage Boards if money ceases to change hands as a result, freeing up Internal Drainage Board revenue for additional risk management activity, or allowing IDBs to reduce their special levy on district/unitary local authorities, or their charges on farmers, whilst having a relatively small net effect on the funding available to the Environment Agency overall.

The case to end these payments would be strengthened if IDBs are allowed to extend their boundaries beyond those set out in the Medway Letter (see IDB IA) to incorporate fuller river catchments. This would mean that IDB districts would include the source of the water flowing through their areas, ending the need for highland water charges.

Making these changes would require a change to the legislation, to revoke the following powers:

- under s.57-58 of the Land Drainage Act 1991, Internal Drainage Boards can request highland water charges from RFDCs (the legislation refers to the Environment Agency of which RFDCs are executive committees at present)
- under s.139-141 of the Water Resources Act 1991, RFDCs can require Internal Drainage Boards to pay a precept.

It is possible for payments to be made between the Environment Agency and Internal Drainage Boards on a voluntary basis, suggesting that deregulation of this aspect of the funding model is sensible, allowing a light-touch approach in its place.
Costs of this option are assumed to be zero as this is about simplifying payment systems and total resource allocation would not change.

Benefits of this option are, firstly, costs avoided (i.e. administrative savings) and, secondly, possible increase in funds for FCERM, depending on whether or not the administrative savings were reallocated in this way. The simplification of the funding system should lead to administrative savings; both to IDBs and to the EA and its RFDCs. This should result in better use of the available money and lead to more risk management being undertaken, or the financial burden on district/unitary authorities or agricultural land owners to decrease. Where works are needed outside an Internal Drainage Board’s boundary they can still come to a voluntary agreement with the Environment Agency (or possibly carry out the works themselves if separate proposals are taken forward to relax the geographical operating constraints of Internal Drainage Boards – see IDB IA). Taking a lighter-touch approach should not carry significant additional administrative burden other than that which might be required to establish contracts or partnership working arrangements, which would be part of the operating costs of operating authorities anyway.

**Administrative burdens**

Under this option it is expected that administrative burdens would be reduced, benefitting RFDCs and the Environment Agency, and Internal Drainage Boards. It is not anticipated that any administrative burdens will increase as a consequence of the option. It is possible that the operating authorities will re-invest any financial saving into other activities, which could mean that the overall saving nets to zero, but choice and ability to prioritise activity and achieve benefit and local choice is increased.

For the purposes of modelling it is assumed that £2m a year is paid in highland water charges from RFDCs to Internal Drainage Boards, and £8m a year in precept from Internal Drainage Boards and RFDCs. The total amount of funding available to operating authorities collectively is unaffected, but a small administrative saving is factored in (at ½ %). The discount rate is 3.5%, and net present value is given as 30 years.

Net Present Values (30 years) for Option 2.(b):

<table>
<thead>
<tr>
<th></th>
<th>NPV Cost</th>
<th>(£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPV Benefit</td>
<td>1</td>
<td>(£m)</td>
</tr>
<tr>
<td>NPV</td>
<td>1</td>
<td>(£m)</td>
</tr>
</tbody>
</table>

Average annual cost and benefit (based on 30 year projection):

<table>
<thead>
<tr>
<th></th>
<th>(£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average annual cost</td>
<td>0</td>
</tr>
<tr>
<td>Average annual benefit</td>
<td>0.05</td>
</tr>
<tr>
<td>Net (annual average)</td>
<td>0.05</td>
</tr>
</tbody>
</table>

**Option 3 – Reforming Internal Drainage Board and landowner funding arrangements**

An option to reform Internal Drainage Boards’ revenue raising powers to make them more accountable to local authorities as the customer for IDB services. The option would also reform EA’s powers to charge agricultural land owners for risk management services.

Option 3 entails:

a) An end to the IDB ‘special levy’. County and unitary local authorities would fund IDBs under contractual or agency arrangements to deliver an agreed business plan, within and potentially outside current IDB districts.

b) Repeal EA’s Special Drainage Charge powers (which are not used in practice); these are powers to raise money from agricultural land owners.
c) Repeal EA’s General Drainage Charge powers, which are used only in one region (Anglian) to raise money from agricultural land owners for projects they benefit from.

This option would require new primary legislation. Revocation of the Special Drainage Charge is within the initial draft published for consultation. Clauses to achieve the other aspects are not currently within the draft at this stage.

Option 3 (a) involves a realignment of funding streams between local government and Internal Drainage Boards, with a clear lead coordination role for county/unitary local authorities. For this to take effect, it would require a discontinuance of Internal Drainage Boards’ special levies.

Ministers announced on 17 December 2008 that local authorities will be responsible for ensuring that arrangements are in place to assess and manage local flood risk, from all sources, including surface water. It is proposed here that the funding arrangements for Internal Drainage Boards are therefore aligned with those new roles and responsibilities.

It is proposed that in place of Internal Drainage Boards imposing levies on local authorities to pay for schemes delivered by the IDBs (and which are currently paid by district/unitary authorities), IDBs would instead prepare a business plan that the county/unitary local authorities would decide whether to fund, and by how much, as is common practice for other delivery bodies funded by government. Doing so would allow for greater transparency and accountability for IDB delivery against desired economic, social and environmental outcomes, and introduce greater scrutiny. It would mean the end of special levies causing budgetary problems for small district authorities, where Internal Drainage Boards’ levies presently form a large proportion of some district authorities’ expenditure, with increases running the risk of local authority budgets being capped by central government and having a negative effect on the delivery of local authorities’ other priorities. Ending the levy would give local authorities the ability to prioritise funding between IDBs and other local needs, and live within any constraints on total budgets imposed by central government.

Similarly it is proposed that revenue support grant funding for FCERM that is allocated at present to district/unitary local authorities is instead channelled through county/unitary local authorities to simplify arrangements and to ensure that schemes are delivered in accordance with an agreed business plan. This would allow activity to be properly co-ordinated, in line with the new leadership role and responsibility of county/unitary local authorities.

Costs are expected to be negligible because business planning, project appraisal and delivery costs would be similar to those at present.

Benefits will include better use of money, delivering more benefits from a joined up, co-ordinated approach, which has its focus on risk management.

Option 3 (b) EA’s Special Drainage Charge powers. The powers can be found at s.134 of the Water Resources Act 1991, and are not used, and there appears to be no intention to use them in the future.

Costs are unaffected by pursuing 3 (b) as the special drainage charge is not used in practice.

The benefit of 3(b) would be by removing a unused piece of legislation from statute.

Option 3 (c) entails an end to the Environment Agency’s General Drainage Charge (GDC) powers, which are currently used in EA’s Anglian region and help fund projects that those paying the charge will benefit from, and that otherwise could not be afforded or delivered by EA. The existence of a legislative charge combats any ‘free-rider’ issues, whereby some beneficiaries may try to avoid paying for the works if contributions were sought on a voluntary
basis. The charge is not used in areas where there is an Internal Drainage Board, and so individual farmers are not asked to pay two separate charges for similar types of work. There may be a case for EA to start using the powers in other regions to help raise money for additional work that will benefit those paying the charges, but could otherwise not be afforded by the Environment Agency.

Costs arise from the increased flood risk (particularly to those farmers who cease paying the charge), assuming that ending the charge would reduce the amount of money available to EA and therefore reduce investment in FCERM. The costs of increased flood risk may also affect a wider group of people and business than the group of farmers who bear the direct cost of the charge.

Benefits are the reduced cost to farmers who would cease paying the charge. However, the reduced direct cost is likely to be outweighed by the heightened risk of flooding from reduced protection. For example, assuming a benefit to cost ratio of 5:1 for these GDC-funded projects, for every £1 saved in reduced charges, there would be a £5 loss of benefit including for those currently paying the charge.

Option 3 (c) is therefore not part of the preferred scenario.

<table>
<thead>
<tr>
<th>Administrative burdens</th>
</tr>
</thead>
<tbody>
<tr>
<td>A move to agreeing risk management activities under business plans that are agreed by the relevant county or unitary local authority and the relevant district/unitary local authorities and Internal Drainage Boards in the area would be expected to maximise transparency, join-up approaches, share local knowledge and minimise rework, all making it easier to broker collective agreement on the risk management activity that should be carried out within an area. This option would entail a move of funds historically given to IDBs (from within revenue support grant settlements) from district authorities to the relevant county/unitary authority. This could be achieved without primary legislation. There would be a new role for county/unitary local authorities to agree business plans and to allocate funding; and is likely to involve some administrative burden, but overall the total burden is unaffected as districts would no longer be performing this role. And any increase in administrative burden for county/unitary local authorities should be more than exceeded by better use of money, a clearer, simpler overall administrative process, and the fact that local authorities will be funded for their new leadership role as a consequence of the Pitt review.</td>
</tr>
</tbody>
</table>

For the purposes of modelling, option 3 (c) is excluded as it has been shown above that this is not a viable option.

In modelling option 3 (a) and (b), it is assumed that the total amount of funding available to operating authorities is not affected under this option, and that payments from farmers towards the schemes they benefit from remains constant. An efficiency gain is factored in (as operating authorities make better use of money and administration over time) starting at 1% a year, and increasing to 5% a year in year 5, continuing at 5% in years 6 to 30. The discount factor is 3.5%. The quantified benefits can be attributed to more efficient use of funding. It is possible that this would allow greater investment in flood risk management, which can be assumed to deliver £5 in benefits for each additional £1 invested (the benefit cost ratio of marginal schemes within the Environment Agency’s medium term plan) or could be considered as cash savings; this would be at the discretion of operating authorities. Costs are negligible, as the overall costs of administering risk management under this option are not expected to be affected significantly.
Net Present Values (30 years) for Option 3 (a) and (b):

<table>
<thead>
<tr>
<th>NPV Cost</th>
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</thead>
<tbody>
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<tr>
<td>NPV</td>
<td>105 (£m)</td>
</tr>
</tbody>
</table>

Average annual cost and benefit (based on 30 year projection):

<table>
<thead>
<tr>
<th>Average annual cost</th>
<th>0 (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average annual benefit</td>
<td>6 (£m)</td>
</tr>
<tr>
<td>Net (annual average)</td>
<td>6 (£m)</td>
</tr>
</tbody>
</table>

Preferred option -- summary of costs and benefits

The preferred scenario entails a combination of:

Option 2 (a) Broadening the RFDC’s revenue raising powers to include sums for coastal erosion projects;

Option 2 (b) Discontinuance of IDB’s highland water charges on EA, and the EA’s precept on IDBs;

Option 3 (a) An end to the IDB ‘special levy’. County and unitary local authorities would fund IDBs under contractual or agency arrangements to deliver an agreed business plan, within and potentially outside current IDB districts; and

Option 3 (b) An end to the EA’s ‘special drainage charge’ which is not used in practice.

Net Present Values (30 years):

<table>
<thead>
<tr>
<th>Option</th>
<th>2(a)</th>
<th>2(b)</th>
<th>3(a)</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPV Cost</td>
<td>52</td>
<td>0</td>
<td>0</td>
<td>52 (£m)</td>
</tr>
<tr>
<td>NPV Benefit</td>
<td>262</td>
<td>1</td>
<td>86</td>
<td>349 (£m)</td>
</tr>
<tr>
<td>NPV</td>
<td>210</td>
<td>1</td>
<td>86</td>
<td>297 (£m)</td>
</tr>
</tbody>
</table>

Average annual cost and benefit (based on 30 year projection):

<table>
<thead>
<tr>
<th>Option</th>
<th>2(a)</th>
<th>2(b)</th>
<th>3(a)</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average annual cost</td>
<td>3</td>
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<td>0</td>
<td>3 (£m)</td>
</tr>
<tr>
<td>Average annual benefit</td>
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<td>Net (annual average)</td>
<td>11</td>
<td>0.05</td>
<td>5</td>
<td>16.05 (£m)</td>
</tr>
</tbody>
</table>

Option 3(b) is expected to have a negligible impact because it is not used in practice, and therefore does not present cost nor benefit implications.
6. Additional tests

**Competition Assessment**
It is not anticipated that competitiveness is affected by any options under this impact assessment.

**Carbon Impact Assessment**
The proposals in themselves do not affect an activity or sector that may have a significant impact on emissions of greenhouse gases, and therefore a full carbon impact assessment has not been completed.

**Disability Equality Impact Assessment**
The policy proposals do not have any disability equality impacts.

**Gender Equality Impact Assessment**
The policy proposals do not have any gender equality impacts.

**Health Impact Assessment**
The policy proposals will not have an impact on health or health inequalities as outlined under the Department of Health’s screen questions for health impact assessment.

**Human Rights**
There are no human rights issues raised by these proposals.

**Legal Aid**
This proposal does not introduce any new criminal sanctions or civil penalties.

**Other Environmental Issues Assessment**
The proposals could be affected by the predicted effects of climate change. A Long-Term Investment Strategy, to be published this spring, will estimate how much funding will be needed over time to counter the impacts of climate change. The proposals do not cause other issues to arise as indicated by the other environment issues checklist.

**Race Equality Impact Assessment**
This proposal does not have any race equality impacts.

**Rural Proofing**
The policy proposals would not introduce inequality in rural areas under the rural proofing checklist.

**Small Firms**
It is not anticipated that there will be any adverse impacts on small businesses. Where costs might be incurred, these would only be in return for significant additional risk management, and would help to ensure that other costs, such as flood damages and insurance costs, are kept to a minimum.

**Sustainable Development**
The proposals do aim to contribute toward the five principles of sustainable development.
Specific Impact Tests: Checklist

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

<table>
<thead>
<tr>
<th>Type of testing undertaken</th>
<th>Results in Evidence Base?</th>
<th>Results annexed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competition Assessment</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Small Firms Impact Test</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Legal Aid</td>
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<td>No</td>
</tr>
<tr>
<td>Sustainable Development</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Carbon Assessment</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other Environment</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Health Impact Assessment</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Race Equality</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Disability Equality</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Gender Equality</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Human Rights</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Rural Proofing</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Contents:

Annex A – Commonly used terms
Annex B – Rationale for Government intervention
Annex C – Current funding arrangements

Annex A  Commonly used terms

‘Beneficiary’ means a person or entity that enjoys a positive financial or non-financial return or benefit from a reduction in flood risk and/or coastal erosion risk.

‘FCERM’ or ‘Flood and Coastal Erosion Risk Management’ includes activities that manage risk through reducing the likelihood and/or the consequences of flooding and coastal erosion, such as through engineered defences, providing flood warnings, etc.

‘Flood plain’ means an area of land over which river or seawater flows, or is stored in times of flood. Flood plains usually extend beyond the land immediately next to a watercourse.

‘Operating authorities’ refers to bodies with statutory responsibilities for flood risk and coast management, and includes any or all of the following: the Environment Agency, Internal Drainage Boards, Local Authorities (district, council and unitary), and Regional Flood Defence Committees.

‘Internal Drainage Boards’ (IDBs) are independent bodies responsible for land drainage in areas of special drainage need (generally very low-lying land that requires active management of water levels).

‘Regional Flood Defence Committees’ (RFDCs) are flood defence committees of the Environment Agency

‘Schemes’ are defences or other physical community-based risk management projects or interventions for the purpose of managing flood and/or coastal erosion risk.

‘Main rivers’ are usually larger streams and rivers. However, they do include smaller watercourses of local significance. A main river is a watercourse marked as such on a main river map. This is an official document. A main river can include any structure or appliance that controls or regulates the flow of water in, into, or out of, the main river.

‘Ordinary watercourses’ covers every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows and which does not form part of a main river.
Annex B  Rationale for Government intervention

Government intervenes to manage flood and coastal erosion risk as otherwise there would be systematic underinvestment and poor decisions taken, resulting in too much flooding, too little prevention, and macro inefficiency. In economic theory, fully-functioning free markets are the most efficient way of delivering outcomes as they make sure resources are utilised optimally. In reality, ‘market failures’ can mean resources would not be used efficiently and desired outcomes would not be achieved. In simple terms, market failures result where individuals’ pursuit of pure self-interest leads to a scenario that can be improved upon from the societal point-of-view. There are several, substantial, market failures that exist in relation to flood and coastal risk management that justify Government intervention. Such intervention is currently funded almost entirely by Government, whilst the benefits from investment are realised by a relatively small proportion of the population. These issues are described further in this annex.

A free market would fail to protect against flooding and coastal erosion

HM Treasury’s “Green Book” suggests that Government intervention can be justified if there is a market failure or the market would distribute benefits in a way that is incompatible with social equity. Any intervention to correct the market failure or issues about distribution should not lead to negative impacts that outweigh any benefits brought about.

The main justification for Government intervention in FCERM is that in a free market there would be excessive flood risk i.e. too much exposure to flooding and too little done to prevent and protect against it.

These market failures can be attributed several factors including: the nature of public good; unevenness of information; and the presence of externalities and social impacts. Market failures are summarised in the table beneath, and explored under the subheadings that follow.

---

10 The Green Book, published by HM Treasury, presents the techniques and issues that should be considered when carrying out assessments of all new policies, programmes and projects.
<table>
<thead>
<tr>
<th>Market failure</th>
<th>Nature of market failure</th>
<th>Implication of failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Public Goods</td>
<td>Large number of individual beneficiaries that need to act together for the collective good of flood risk management</td>
<td>Beneficiaries fail to reach collective long-term agreement on what to do about flood risk and who should pay for it</td>
</tr>
<tr>
<td>(b) Negative Externalities</td>
<td>Individuals actions affect others in a negative way – actions in one area can cause bigger problems elsewhere</td>
<td>Too much exposure to floods and excessive costs brought about by individual actions by ‘polluters’, e.g. those paving front gardens</td>
</tr>
<tr>
<td>(c) Imperfect information</td>
<td>Decisions on flood risk are based on information, and the market would under-provide such information as it is costly to produce</td>
<td>Under-estimate of risk and inconsistent information would lead to poor decisions and an excessive exposure to risk</td>
</tr>
<tr>
<td>(d) Moral Hazard and asymmetric information</td>
<td>Those insured have less incentive to prevent flooding from occurring (“moral hazard”). One party has more information than another and uses it to their own advantage (“asymmetric information”)</td>
<td>Too great a flood risk is borne and there is a lack of incentive on individuals to protect themselves against risk or pay for others to do so on their behalf.</td>
</tr>
<tr>
<td>(e) Incomplete markets</td>
<td>Failure to provide a comprehensive solution to uncertainty</td>
<td>A lack of a basis for risk-pooling and potential inequity from a more competitive insurance market</td>
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</tbody>
</table>

(a) **Public good**

Pure public goods are said to be ‘non-rival’ and ‘non-excludable’. Non-rival means that consumption of a good by one person does not affect its availability to another person to consume. Non-excludable means that it is technically impossible, or prohibitively expensive, to exclude others from enjoying the benefits of a good.

Most aspects of flood defence are non-rival and non-excludable collective public goods. A household benefiting from a flood defence does not materially affect the availability of defence to its neighbours, and it is practically impossible for a provider to set out to make the defence available to some property owners but not to others within the area to be afforded the defence.

This will not be a universal truth, for example resilience measures (such as domestic floodgates and water resistant building materials) or the availability of information on flooding (such as warning systems) could represent rival goods. The circumstances under which these sorts of good are excludable is likely to be less, but it is technically possible that developers could offer flood protection to some properties and not to others, and such practice could be considered excludable.

For those aspects of flood defence that are non-rival and non-excludable the market will under-provide because it will be difficult for providers to recover costs from those that benefit. In terms of market failure, this means that people that share benefits with others fail to reach a collective agreement on the public good and commit to appropriate cost-sharing. People will want to avoid the costs of preventing floods, and want to ‘free-ride’ on any investment made by others.
Flood and coastal erosion risk management offers protection which is potentially long-term, making collective agreement on new defence problematic as future beneficiaries are unknown. The public good problem may be less severe in smaller groups (i.e., where there are fewer beneficiaries that need to reach collective agreement). There is evidence to suggest that smaller groups might be able to foster greater co-operation and face less incentive to ‘free-ride’ on the public good.

(b) Negative externalities

A ‘negative externality’ is something that is brought about as a consequence of an individual taking a decision but not thinking about the direct, and negative, effect that their actions will have on another. In flood and coastal erosion risk management, the risk of causing negative externalities is a very important consideration and must be identified before any activity takes place. For example, general effects could be as a result of introducing impermeable surfaces to an area which in turn increases surface water run-off. There is clear evidence about the impact of development and ‘urbanisation’ to this end.

In terms of market failure, ‘polluters’ bring about too much flooding and excessive costs by not taking into account the impact of their actions, from the perspective of all in society. Impacts that will mean that exposure to risk and associated costs must be borne by others.

New developments increasing flood risk management costs constitute such an externality. This has led to the need for PPS25\(^\text{11}\) and for the Environment Agency’s new contributions policy to ensure that inappropriate development is avoided and that developments pay for any such additional flood risk management costs – rather than them falling externally on others or the public purse.

Also, externalities can arise where a flood risk management scheme in one area could cause increased flood risks and flood risk management costs in another locality (e.g. upstream or downstream). Consequently, the Environment Agency plays an essential strategic central overview role in preparing FRM strategies to ensure that such external impacts are avoided or duly taken into account.

(c) Imperfect information

Decisions about flood risk will be based on the information available or obtainable. Decisions in this context can include those such as where to live, where to develop and where to defend. Information relevant to those decisions could include the probability of flood events, the expected costs of flood events, the effectiveness of defences and the availability of warnings about flood events. In reality, the supply of information will be constrained. This is because it is expensive to produce information on flooding because it is a complex phenomenon, and the demand is constrained because flood events are rare. Householders, for example, might not have access to long-term information that could help inform decisions. In general, information can be said to hold the characteristics of a public good; and this implies that private providers have little incentive to develop good risk information.

In terms of market failure, this means that assessment of risk might not be fully informed with the best possible information, and poorly-informed decisions could lead to an under-estimation of risk. This could in turn lead to excessive exposure to, and consequential costs of, flooding.

There are a number of ways that this market failure can manifest itself. Householders, developers and others may choose to live, work and develop on flood plains unaware of the risk and consequences. Markets (including housing and insurance) will not fully reflect the actual

\(^{11}\) Planning Policy Statement 25: Development and Flood Risk; it sets out Government policy on development and flood risk, so that flood risk is taken into account at all stages in the planning process. Available from [www.communities.gov.uk](http://www.communities.gov.uk)
risk of flooding in their prices, and provide little disincentive for living and developing in the floodplain. This also means that there will be limited motivation for individuals to defend property that is exposed to risk; and demand for and local contributions towards flood defences will be too low as the benefits are not understood. Evidence on house prices and flooding suggest that there is under-estimation of risk; house prices have been shown to fall after a flood event, but to return to pre-flood levels after a duration of 3-5 years depending on the severity of the flood event, and not reflecting the ongoing exposure to risk.

Problems can be overcome in a competitive insurance market, where insurers demand information and recover costs through premiums. Historically though, the specific coverage for flood risk in insurance premiums has not reflected the risk; with floods cover being offered as a standard component of insurance policies. When the terms on which insurance is offered are relatively insensitive to risk there is a limited reason why insurers would collect detailed information, and also a market failure to respond to any insensitivity (such as property owners investing in defences in one form or another in return for advantageous insurance policy terms).

 Imperfect information prevents insurers from charging risk-based premiums. This could lead to inefficient and inequitable outcomes, depending on how insurers respond to this problem. Insurers could be risk-averse and refuse to provide insurance, rather than charge a high premium. Historically, insurers have not taken this approach but provided relatively comprehensive coverage by cross-subsidisation, i.e. by charging those at no risk. This leads to inefficiency because householders do not face the true costs of their decision to live in the floodplain and they face no incentive (in insurance terms) to reduce their exposure to risk. This approach may be perceived as ‘unfair’ or ‘inequitable’ to those at minimal risk because they are contributing to the costs of paying for the exposure to a risk that they themselves do not face.

Since 2000, a ‘statement of principles on flood insurance’ committed insurers to continue to provide flood insurance under certain scenarios and the Government to manage the risk from flooding. The Association of British Insurers and the Government have jointly agreed to a revised statement of principles to operate from 2008 until 2013, by when long term measures to improve information provision will have been taken. The agreement includes continuing to make standard insurance available in areas of significant risk in certain circumstances. The insurance industry has announced its general intentions on insurance and flood risk, including for example its intention to align provision/premiums with risk and what it will be expecting of new developments\(^\text{12}\) built on the floodplain.

(d) Moral hazard and asymmetric information

Moral hazard and asymmetric information is a phenomenon that occurs when one party has more information than another, and uses the information to its advantage. This is a particular problem of insurance markets, where insurance leads the insured to take less care than they should. Excess and conditions of insurance are devices to mitigate against this problem. Historically, moral hazard has been a severe problem in flood risk management; there is a lack of incentive for individuals to invest in flood risk management when costs are borne by the insurance market, and insurers do not have an incentive to reduce risk because they are protected from a competitive environment (since floods cover has been standard element of insurance policies). In terms of market failure this means that too great a flood risk is tolerated whilst not enough is done by individuals to reduce the risk they are exposed to.

Past research, such as has been carried out by OXERA\(^\text{13}\) supports the existence of this market failure. It suggests that historical factors on financial restraints of operating authorities, and a distortion between capital and maintenance expenditure can limit operating authorities ability to respond to risk, and lead to an overreliance by society on accepting the defences that the state

\(^{12}\) More information available at www.defra.gov.uk and www.abi.org.uk

\(^{13}\) OXERA (Oxford Economic Research Associates), The Flood and Coastal Defence Funding Review, August 2001
has determined should go in place, and then relying on insurance to pay for replacement of articles damaged by flooding. This disincentivises investment in private defences and resistance and resilience measures because affordable insurance is available that does not fully reflect the risk. The OXERA report goes as far as to say that society spends more on insurance, replacement of damaged goods and other costs of flooding than the defences would cost to build and operate; it would be in society’s interest to increase investment in flood defences, funded by the individuals, businesses, land owners and others that will benefit as a result, as well as by Government from general taxation revenues.

(e) **Incomplete markets**

Even well-informed competitive insurance markets which mitigate against moral hazard may fail to provide a comprehensive solution to uncertainty. Where there are small segments of the market at high probability of experiencing flooding, there may be no basis for risk-pooling and incentive for provision of insurance (e.g., those at risk of coastal erosion).

**Who should pay for Government intervention?**

There are significant benefits that flow to individuals as a result of Government intervention to manage the risk of flooding and coastal erosion. For example, a reduced exposure to flood risk means lower costs will be borne by property and land owners that would otherwise suffer flooding more frequently. They should also be able to access better insurance terms (such as reduced premiums and excesses) and potentially improved property, land and rental values. There are also significant health and welfare benefits – flood events are incredibly traumatic for those affected. The local economy benefits too, protecting businesses and profitability from flooding; with SMEs in particular finding it more difficult than larger businesses to remain in business after being flooded.

Where benefits are localised, or concentrated on a limited number of individual beneficiaries, economic theory suggests that those localities should pay for the actions taken, or at least contribute more towards the work they will directly benefit from than those who will not. Very few beneficiary contributions towards community defences are made in practice, meaning that when defences are built and maintained those in the local area enjoy the benefits for free, or at least at no additional cost, even though the costs and benefits involved are significant. Presently the Exchequer pays for around 94% of the total invested in flood and coastal erosion risk management. This means that taxpayers across the country are paying 94% of the investment that benefits a relatively small proportion of people – around 10% of the population are at risk of river or coastal flooding – with each £1 spent on new and improved defences delivering on average £8 of long-term benefits for the areas concerned.

There are societal benefits from reducing the nation’s exposure to risk, and Government itself is a beneficiary by reducing its own flood response and recovery costs, and helping to safeguard the population, the environment and the economy. This justifies continued Government investment in FCERM. But Government should not be seen as the only possible funder of activity, and constraints on Government investment should not prevent other beneficial interventions from going ahead, funded wholly or partly by those that will benefit as a result. A equitable balance between national and local sources of funding would allow total investment to increase whilst allowing greater local discretion in what and when projects get delivered.

In addition, ‘Polluters’ such as new developments do not typically pay for the negative externalities caused, such as any increased local flood risk and increased response and recovery costs for the local authority concerned; instead they ‘free-ride’ on existing defences and related services paid for by others, including taxpayers. Developments should compensate the Exchequer for any additional future burdens placed upon it as a result of their activity.

14 The average benefit cost ratio of Environment Agency’s medium-term plan is around 8.
These market failures demonstrate that Government intervention is necessary to ensure effective and equitable flood and coastal erosion risk management happens across the country. Such intervention should be paid for by a balance between national and local sources of funding, in line with who benefits.
Annex C  Current funding arrangements


Operating authorities are responsible for delivery and maintenance of flood and coastal erosion schemes. Under existing arrangements, the largest fiscal contributions take the form of Grant-in-Aid from Defra, which Ministers issue to the Environment Agency, and Revenue Support Grant from Communities and Local Government to local authorities (to both county/unitary and district/unitary authorities).

Aside from Exchequer funding (around 94% of the total), investment for flood defence is also generated from local authorities’ council tax receipts and charges on farmers (together around 6% of the total).

By law, the Environment Agency has general supervision for all matters relating to flood defence. In practice, the Environment Agency takes the lead on strategic planning and allocating of grant to schemes, having consulted with the appropriate Regional Flood Defence Committees. By far the greatest investment made by the Environment Agency relates to main rivers and sea/tidal flooding. The Environment Agency also allocates capital grant for flood works and coastal erosion works to local authorities and Internal Drainage Boards, which it does under delegation from Defra Ministers.

Internal Drainage Boards have powers:
- to raise funding through drainage rates made on agricultural land and buildings
- to levy local authorities
- to request that the Environment Agency contributes to the costs of handling water that arrives in an Internal Drainage Board’s catchment from upriver

The Environment Agency has the power to make a ‘fair contribution’ to the expenses on an Internal Drainage Board. In turn, Internal Drainage Boards that benefit from the Environment Agency’s works are required to make a fair contribution to the expenses of the Environment Agency; this is known as ‘precept’. Local authorities can also contribute to the expenses of an Internal Drainage Board.

In general, operating authorities can agree to deliver schemes (or parts thereof) on another’s behalf, including in return for payment. It is possible, certainly in principle, for members of the public to invest in schemes. This could be through the normal planning system, under which the Environment Agency is a statutory consultee (to help ensure schemes would be fit for purpose and would not create adverse affects on others), or by agreeing a project to be undertaken by an operating authority in return for payment or otherwise (which is not believed to be the case very often). If a main river is involved, most works can only be carried out with the consent of the Environment Agency.