WATER MANAGEMENT ALLIANCE

OPERATIONS

SUSTAINABILITY POLICY

BROADS IDB

EAST SUFFOLK IDB

KING'S LYNN IDB

NORFOLK RIVERS IDB

SOUTH HOLLAND IDB

Version: 1

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Section 27 of the Flood and Water Management Act 2010 requires Internal Drainage Boards to aim to make a contribution towards the achievement of sustainable development when exercising their flood and coastal erosion risk management functions. It also requires the Secretary of State to issue guidance on how we are to discharge this duty and explain the meaning of sustainable development in this context. This policy has given due regard to the guidance and sets out how we will discharge this duty.

Sustainability Policy

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Sustainability Policy

1. Introduction

1.1 The Water Management Alliance has a vision to deliver appropriate water level management in an efficient, cost effective manner to the communities served within its catchments, in a way to minimise impact on the environment and protect and enhance ecological diversity for future generations.

1.2 Section 27 of the Flood and Water Management Act 2010 requires Internal Drainage Boards to aim to make a contribution towards the achievement of sustainable development when exercising their flood and coastal erosion risk management functions. It also requires the Secretary of State to issue guidance on how those authorities are to discharge this duty and explain the meaning of sustainable development in this context. This policy has given due regard to the guidance and sets out how the WMA Member Boards will discharge this duty.

2. Principles

2.1 The Water Management Alliance is a non-profit making consortium of 5 Internal Drainage Boards committed to being a responsible business; conducting ourselves according to thorough ethical, professional and legal standards.

3. Boards' commitment to these Principles

3.1 The WMA Members Boards will do the following to comply with these principles:

3.2 People:

3.2.1 Stakeholders

We strive to work in partnership with ratepayers and other organisations to deliver watercourse maintenance and projects efficiently, safely and with due regard to the environment. We endeavour to provide low carbon options

where we can and choose sustainable design, material and construction methods where possible to do so.

3.2.2 Community

We aim to carry out our maintenance, construction and refurbishment practices in a manner designed to minimise disruption to our neighbours and lessen any impact upon the local environment, end users and the wider community.

3.2.3 Supply Chain

We treat our supply chain partners fairly and responsibly and work with our contractors and suppliers to ensure they operate in a safe and environmentally responsible way.

3.2.4 Employees

We create a safe and inspiring environment for our employees, enabling them to develop skills and contribute to the success of the business. The commitments to our staff and workforce are as follows:

- Health and Safety - Health and Safety is our top priority. We are committed to continually improving the Health and Safety of our employees, contractors and those affected by our activities, including members of the public.

- Learning and Development – We promote training and learning opportunities for our staff to ensure they are equipped with the right knowledge and skill-set. This helps the business to run smoothly and allows the individual the scope for personal development.

- Equality and Diversity – We provide an inclusive working environment where everyone feels valued and respected. We are committed to equal opportunities and do not discriminate against anyone on the grounds of gender, race, colour, marital status, ethnicity, sexual orientation, disability or age.

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3.3 The Planet:

3.3.1 Energy

We strive to improve our energy efficiency, reduce our carbon dioxide emissions and work with our stakeholders to provide low carbon solutions to capital projects and maintenance activities.

3.3.2 Resources

We will promote measures to recycle and minimise waste and reduce the consumption of natural resources during our business activities.

3.3.3 Environment

We will take all reasonable steps to ensure that our operations are conducted in a manner that minimises our impact on the local environment. We promote good environmental practice and seek opportunities to promote and enhance biodiversity during our day to day activities.

3.4 Economic Viability:

3.4.1 Balanced sustainable solutions

We aim to work with ratepayers our partners and stakeholders to provide sustainable solutions, as part of our daily operations and special projects that balance environmental, economic and social interests. We aim to ensure the effective use of resources and achieve value for money whilst undertaking our activities.

3.4.2 Transparency

As a public authority we are open and upfront about our income and expenditure. Such Information is published regularly and is accessible to the public on our website or can be sought at source via a Freedom of Information Act request.

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3.4.3 *Quality Management*

We are committed to the use the accredited ISO 9001 and 14001 Quality Management Systems to continually monitor and identify areas for improvement within the social, economic and environmental aspects of the business model.

www.defra.gov.uk

Guidance for risk management authorities on sustainable development in relation to their flood and coastal erosion risk management functions

October 2011

defra
Department for Environment
Food and Rural Affairs

This document/publication is also available on our website at:
http://www.defra.gov.uk/environment/flooding/legislation/publications-documents/

Any enquiries regarding this document/publication should be sent to us at:
floodwateract@defra.gsi.gov.uk

PB13640

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1. Introduction

1.1 There is a strong body of support for sustainable development. Our challenge is to change that into action in all aspects of our lives and work. The public consultation[1] on the draft Flood and Water Management Bill included the question "should all operating authorities be required to contribute to sustainable development objectives when carrying out flood and coastal erosion risk management?"- 96% of the responses were supportive. However, many respondents requested a clearer definition of sustainable development and what is expected of authorities when carrying out their flood and coastal erosion risk management functions.

1.2 Section 27 of the Flood and Water Management Act 2010 requires certain flood and coastal erosion risk management authorities to aim to make a contribution towards the achievement of sustainable development when exercising their flood and coastal erosion risk management functions[2]. It also requires the Secretary of State to issue guidance on how those authorities are to discharge this duty and explain the meaning of sustainable development in this context.

1.3 The authorities to which this guidance applies are:

- lead local flood authorities,
- district councils,
- internal drainage boards, and
- highways authorities.

1.4 The duty in the Flood and Water Management Act covers England and Wales but this guidance only applies to England. Guidance for Wales will be provided separately by Welsh Minsters.

1.5 Local authorities already have significant experience in sustainable development through the production of various local plans, Sustainable Community Strategies and initiatives such as Local Agenda 21. The people that have worked on these projects within the authority should always be the first point of contact for an authority. Joining up with local specialists will help ensure that the flood authority focuses on the delivery of sustainable development actions that are most fitting for the local environment and support the appropriate local approach.

1.6 The National Flood and Coastal Erosion Risk Management Strategy for England developed by the Environment Agency provides the overarching framework for future action by all risk management authorities to tackle flooding and coastal erosion in England.

1.7 The Act requires lead local flood authorities to develop and maintain a local flood risk management strategy which specifies, amongst other things, how it contributes to the achievement of wider environmental objectives[3].

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[1] See http://www.official-documents.gov.uk/document/cm75/7582/7582.asp

[2] The Environment Agency already has such a duty under the Environment Act 1995.

[3] Flood and Water Management Act 2010, Section 9(4)(i).

1.8 Table 1 summarises some of the ways in which a local flood authority can make a positive contribution to sustainable development and contribute to wider environmental objectives. The table is based on the Government's vision for sustainable development outlined in section 2.2, starting with a brief description of the principle followed by a list of actions that authorities could take to contribute to sustainable development in their areas.

1.9 This guidance is intended to support the National Flood and Coastal Erosion Risk Management Strategy published by the Environment Agency[4], Defra's Policy Statement on Appraisal of Flood and Coastal Erosion Risk Management[5], and the Flood and Coastal Erosion Risk Management Appraisal Guidance provided by the Environment Agency[6].

2. What is sustainable development?

2.1 Definitions of sustainable development often centre on the theme of striving to live a better life now in ways which do not restrict the ability of others, now or in future generations to do likewise. Thus the definition developed by the Brundtland Commission (1987) "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" used at the 1992 United Nations conference on environment and development held in Rio de Janeiro [7,8].

2.2 In February 2011 Defra published 'Mainstreaming sustainable development; The Government's vision and what this means in practice'[9], which outlines the Government's commitment to sustainable development. This means making the necessary decisions now to realise our vision of stimulating economic growth, maximising wellbeing and protecting our environment, without negatively impacting on the ability of future generations to do the same.

2.3 Our refreshed vision and commitment build on the principles that underpinned the UK's 2005 Sustainable Development strategy, by recognising the needs of the economy, society and the environment, alongside the use of good governance and sound science.

2.4 Sustainable development recognises that the three 'pillars' of the economy, society and the environment are interconnected. Our long term economic growth relies on protecting and enhancing the environmental resources that underpin it, and paying due regard to social needs.

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[4] *http://www.official-documents.gov.uk/document/other/9780108510366/9780108510366.asp*

[5] *http://www.defra.gov.uk/environment/flooding/information-for-practitioners/appraisal-guidance-scrutiny/*

[6] *http://www.defra.gov.uk/environment/flooding/information-for-practitioners/appraisal-guidance-scrutiny/*

[7] *http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIChapter1.htm*

[8] see Annex B for examples of sustainable development in policy and legislation.

[9] *http://sd.defra.gov.uk/documents/mainstreaming-sustainable-development.pdf*

The recently published UK National Ecosystem Assessment illustrates strong economic and social arguments for safeguarding and enhancing the natural environment[10].

2.5 For many people, sustainable development articulates a concern that we are exceeding the capacity of the planet to provide many of the resources we rely on, at a time when many of the planet's inhabitants cannot meet even their most basic needs[11]. Climate change only increases the challenge. But sustainable development is an evolving concept that seeks to respond to these concerns in the way we manage our society, economy and environment. We cannot, and should not, try to pin it down too narrowly.

2.6 The Government's vision for sustainable development outlines ten themes that sustainable development is centred on;

- Sustainable Development in Government
- Green Economy
- Actions to Tackle Climate Change
- Protecting and Enhancing the Natural Environment
- Fairness and Improving Wellbeing
- National and International Sustainable Development
- Building a Big Society
- Business Planning
- Operations and Procurement Commitments
- Transparency and Public Accountability

2.7 The Government is working to lead by example. However, it is communities and their supporting authorities and bodies that can make some of the biggest differences. Many of the ten themes are relevant to contributions flood and coastal erosion risk management authorities can make to sustainable development through their local risk management functions. They are used in this guidance, alongside the use of sound science.

3. Sustainable flood and coastal erosion risk management

3.1 Sustainable development in the context of flood and coastal erosion risk management (FCERM) includes:

- taking account of the safety and wellbeing of people and the ecosystems upon which they depend,
- using finite resources efficiently and minimising waste,
- taking action to avoid exposing current and future generations to increasing risk, and
- improving the resilience of communities, the economy and the natural, historic, built and social environment to current and future risks.

[10] http://uknea.unep-wcmc.org/

[11] Engineering for Sustainable Development: Guiding Principles. The Royal Academy of Engineering, 2005.

3.2 The means of achieving this may be many and varied. Box 1 suggests some examples which may be used alongside or instead of standard engineering approaches. Box 2 gives an example of this approach from Gloucestershire County Council.

Box 1. Examples of alternatives to standard engineering approaches, which in many cases may be deployed alongside existing flood and coastal erosion risk management, include:

- Increasing levels of awareness of flood and coastal erosion risks among individuals, businesses, and communities.
- Increasing individual and community preparedness for flood and coastal erosion events.
- Supporting individuals, communities and businesses to build their resilience to flood events. Speeding up the recovery process by incorporating greater resilience measures into the design of new buildings, and retro-fitting at risk properties, including historic buildings, with flood resilience measures.
- Sustainable drainage systems (SuDS).
- Planning and development control to reduce the impact of new developments on flood and coastal erosion risk.
- Utilising the environment, such as management of the land to reduce runoff, harnessing peatlands and wetlands to store water, restoring and expanding salt marshes, or sustaining beaches and shingle ridges to dissipate wave energy and reduce risks to communities.
- Identifying areas suitable for inundation and water storage to reduce the risk of flooding elsewhere.
- Planning to roll back development in coastal areas to avoid damage from flooding or coastal erosion.
- Better warning systems for flooding events and high tides/stormy seas.
- Ensuring effective emergency plans are in place for flood emergencies.
- Improving the response to flooding by local emergency responders, as well as individuals and businesses.
- Ensuring effective recovery arrangements are in place.

Box 2. Gloucestershire County Council on enabling a wider range of approaches to managing flood and coastal erosion risk:

"With respect to Gloucestershire's own experience, we believe it is essential to use every approach available to manage flood risk, and should encompass adaptation, resilience, land management and working with natural processes and contribution to sustainable development. In practical terms in Gloucestershire, this has ranged from a "Fat, Oil and Grease" campaign to reduce local sewer blockages, website signposting to more information and helping the public to protect their own property, through to major hard engineering solutions."

Gloucestershire County Council response to the consultation on the draft Flood and Water Management Bill (July 2009)

4. Contribution to sustainable development

4.1 Some of the ways in which flood and coastal erosion risk management authorities could contribute to sustainable development, based on the themes in the Government's vision for sustainable development

Actions to tackle climate change & protecting and enhancing the natural environment

Climate change is one of the biggest challenges our generation will face. Cutting greenhouse gas emissions is essential, but this must be underpinned by an approach that supports fairness and economic growth. We must value nature and the historic environment; for our economy, our wellbeing, and our long term security.

Local flood authority activity that could contribute:

- Greater use of working with natural processes to reduce flood and coastal erosion risk. For example, by restoring the natural capacities of soil and vegetation to hold water or enhancing habitats such as saltmarshes that help dissipate wave energy at the coast.
- Greater use of sustainable drainage systems.
- Carbon counting and setting carbon budgets, with the aim of decreasing greenhouse gas emissions.
- Use of an environmental management system to monitor and report on resource consumption and process efficiencies. Use of a recognised environmental performance tool (such as BREEAM for buildings and estate management and CEEQUAL in construction project delivery). An environmental management system that meets the standard of an accredited scheme such as ISO14001 and/or EMAS will provide the robust approach required.
- Reducing flood and coastal erosion risk in ways which create and link habitats and promote green infrastructure, thus adding to the total stock of biodiversity, as well as conserving important wildlife sites, and the ecosystem services this provides.
- Increasing the use of resilience measures to conserve heritage assets.
- Flood defences that are adaptable and flexible as risk changes over time and resilient to extreme weather events and the longer term projected impacts of climate change.
- Use of sustainably sourced materials, as this can reduce the impact on the off-site environment.

Fairness, improving wellbeing & building communities
This means helping to improve quality of life. Many changes need to happen at a local level, ensuring communities work more closely together, using local insight, energy and knowledge to develop solutions tailored to local circumstances.

Local flood authority activity that could contribute:

- Promoting flood resilience and resistance measures at property and community level.
- Involving local people and community groups in risk assessment to raise awareness of risk from all local sources of flooding and coastal erosion and empowering them to manage those risks.
- Giving local communities a greater stake in project design and delivery at an early stage.
- Developing a register of local businesses willing to help in the event of flooding.
- Managing flood and coastal erosion risk in ways which promote safe public access to open spaces & water bodies.
- Using FCERM projects and activities to increase community health and well-being. For example, by providing access to pleasant open green spaces.
- Using good design (such as promoted by Commission for Architecture and the Built Environment) to improve the look and feel of FCERM infrastructure, enhance river, wetland and coastal landscapes and respect the setting of historic buildings .
- Seeking opportunities through FCERM to reduce inequalities and support less well-off communities.
- Ensure a good alignment between those who pay for flood and coastal erosion risk management and those who benefit from it.
- Working with partners to improve the resilience of essential services to flooding and to ensure access to emergency services is maintained. The Environment Agency and Town/District Councils can provide strong local means of securing effective liaison.
- Creating a ‘sense of place’ to help to promote sustainability.
- Making use of multiple sustainability benefits through, for example, use of open areas as both storage capacity and amenity areas.

Green economy & operations and procurement commitments

The Government is committed to sustainable growth, economically and environmentally, and there are many opportunities to move to a green economy, such as through carbon reduction, clean technologies, waste management, and sustainable use of finite resources. Green operations and procurement can be achieved, for example, through reducing carbon impact of supply chains, ensuring value for money, and efficiency.

Local flood authority activity that could contribute:

- Using whole life cycle analysis and eco-footprinting in the procurement of FCERM services.
- Complying with forest management and chain of custody certification and other sustainable procurement and fair trade measures.
- Preferentially using locally provided services.
- Seeking to reduce product miles when sourcing goods and services.
- Using sustainable local low carbon energy supplies.
- Demonstrating compliance with a sustainable waste management strategy aiming for zero waste.
- Working with partners on flood defence and coast protection schemes with multiple benefits, this could help reduce flood risk where it would otherwise be difficult to secure funds from traditional sources.
- Ensuring development planning takes account of flood risk and coastal change and that developers make a contribution to the cost of defence.
- Working with developers and local planning authorities in flood risk areas to prevent inappropriate development in areas of flood risk or design in resilience and resistance to future flooding and increase sustainable drainage.
- Ensuring that development is located in areas of lowest flood risk, away from areas at highest risk of flooding and the functional flood plain
- Ensuring that the development does not increase the risk of flooding elsewhere.
- Working with local businesses to improve flood awareness and resilience.
- Use FCERM projects and activities to enhance local economies, for example increasing local tourism through improved public access and habitat creation.
- Ensuring inter-generational equity, for example avoiding complex, expensive flood defences that future generations may struggle to maintain and replace.
- Developing economic recovery contingency plans in case the local area is impacted by flooding.

Use of sound science
Policy needs to be developed and implemented on the basis of strong scientific evidence, whilst taking into account scientific uncertainty as well as social attitudes and values.

Local flood authority could contribute through their FCERM activity by:

- Using an appropriate range of climate change scenarios (such as UKCIP Climate Change Projections) and adapting to climate change. Defra and the Environment Agency provide more detailed advice on how this can be done.
- Developing a sound evidence base for the level of local risk and an understanding of which sections of the community are most exposed to this risk.
- Basing decisions on a good understanding of local surface water, fluvial and coastal processes and how these might change in the future.
- Making best use of strategic studies and initiatives (such as River Basin Management Plans, Catchment Flood Management Plans, Shoreline Management Plans, Strategic Flood Risk Assessments, Surface Water Management Plans, Environment Agency System Asset Management Plans, and the National Strategy) to consider alternative and integrated ways of managing local flood and coastal erosion risk.
- Using environmental impact assessment techniques (including sustainability appraisal and strategic environmental assessments where appropriate) to assess the environmental impacts of management options.
- Using ecosystem services valuation in project appraisal to better understand the value of the natural environment to society and the economy.
- Making use of local experts, ecological and environmental record centres, which can hold a wealth of data on the local environment and help inform decisions.
- Base decision on a sound understanding of interconnectivity of land drainage network of culverts, ordinary water courses, sewers and highway drainage to allow a better assessment of the impact of development on the drainage network.

Transparency and public accountability
Sharing approaches and best practice in Sustainable Development as well as being open and transparent are essential to its overall effectiveness.

Local flood and coastal erosion risk management authorities could contribute by:

- Improving local accountability by being clear about who is paying for, and who is benefiting from FCERM.
- Being open about the costs and the benefits (and the distribution of those cost and benefits across social groups, generations and geographical areas) of different ways of managing risk.
- Building and contributing to knowledge sharing websites such as Local Government communities of practice.
- Setting relevant local objectives, which local people clearly understand, and publishing clear reports on progress towards sustainability.
- Working with the community to encourage innovation in defences that achieve multiple objectives.
- Engaging in cross-boundary working to develop sustainable solutions to flood risk management at a range of sub-national scales.
- Ensuring public participation is core to decision-making. This is essential to ensure that socio-environmental concerns are addressed alongside economic issues.
- Engaging in local partnership working.
- Working closely with planning authorities and ensuring FCERM and planning are effectively linked.
- Working with insurance companies prior to building so that developers are aware of the insurance assessment of the flooding ‘risk’ prior to building.
- Monitoring of flood risk management works to ensure expected performance is met.

5. How should it be done?

5.1 An awareness of the relationship between the management of flood and coastal erosion risk management and the state of the natural, historic social and economic environment is vital. However, local authorities themselves are best placed to decide exactly how they use their FCERM functions to contribute to sustainable development in their own areas with the communities that they represent. A sustainable approach to managing risk should always consider a range of alternative ways of reducing risk (as described in Box 1) rather than jumping to conclusions. Alternatives to traditional defences may be better able to address the key sustainability challenges into the future, although many authorities will recognise that there is a role for both hard and soft defences depending on the individual situation. In each case a range of solutions should be compared to establish the best and most sustainable approach.

5.2 Authorities should also consider how they could manage flood and coastal erosion risk in ways which also provide multiple benefits. For example, a flood storage area might contribute to improving water quality, improve the natural environment by creating a new wetland area, enhance the preservation of buried archaeology or provide an amenity for the local community.

5.3 In assessing potential solutions there may be conflicts between measures that are more or less sustainable. For example, the need to engage face to face with dispersed rural communities may not be compatible with the desire to reduce business mileage. It is not helpful to create rules to solve such dilemmas but authorities should be transparent about the trade-offs in both the short and long term when explaining their decisions. The reconciliation of social, economic and environmental goals is central to a sustainable approach.

5.4 Where public funds are being used, an open appraisal of the positive and negative impacts (costs and benefits) of management options should support decision making. This should include both monetised and non monetised impacts. Multi-criteria techniques can be used to make a systematic comparison between options. Defra's policy statement on the appraisal of flood and coastal erosion risk management[12] and the Environment Agency's project appraisal guidance give more information on this approach (see "Sources of information" below) which should be followed to make a business case for any central Government funding.

5.5 Sustainability development thinking should not only apply to large projects. Works to protect, maintain or monitor local drainage infrastructure, drains ditches gullies, etc, can also make a significant contribution. Decisions about the management of local watercourses should recognise the role these can play in mitigating diffuse pollution from surface water runoff (including highways runoff) and slowing down peak flows to downstream watercourses and communities.

5.6 Sustainable development may focus on outcomes but it can also involve behaviours and ways of working. Integrated working between risk management authorities, (national and local), communities, civil society groups and local communities is key to a successful outcome. Partnerships can play an important role in bringing authorities together to work more closely.

[12] http://www.defra.gov.uk/publications/2011/03/30/pb13278-erosion-management/

5.7 Flood and coastal erosion risk management authorities should establish their own priorities based on leading local issues while taking into account wider societal objectives and statutory obligations. This will include the role they play in delivering national priorities and commitments and the impacts their actions may have on other authorities as well as the need to manage flood and coastal erosion risk at an appropriate scale. Factors to consider might include:

- The carbon footprint of activities
- Early action to adapt to climate change by identify “low-regrets” options
- Engaging with and respond to local communities to secure multiple benefits
- Valuing the local environment, understand the impact that FCERM has on it, and identifying opportunities to enhance it
- Contributing to a support network and share knowledge

Box 3. A vision for Internal Drainage Boards

IDBs will:

- Promote the **ecological wellbeing** of their Districts.
- Work to help **maintain and improve all Sites of Special Scientific Interest** and other designated environmental assets within their Districts
- Develop and implement IDB **Biodiversity Action Plans**
- Work towards reducing and mitigating their **climate change** impact

A Vision for Internal Drainage Boards in England and Wales. ADA, 2009.

6. Sources of information

6.1 This Guidance is intended to encourage, enable and support flood and coastal erosion risk manage authorities to contribute to sustainable development through their own initiatives rather direct them what to do or how to do it. Priorities should be based on local needs, concerns and aspirations.
Annex A provides some sources of information from many different places and organisations, grouped under the themes covered in Table 1. This is not a definitive list or an officially endorsed catalogue. It is intended to provide a starting point for exploration and for gaining and sharing knowledge between relevant bodies.

Annex A – Glossary of weblinks

(i) Sustainable development principles and overview

Defra Information about Sustainable Development in Government http://sd.defra.gov.uk/
IDea leadership on sustainability Links to publications and websites that offer advice, best practice case studies, briefing notes and guides. http://www.idea.gov.uk/idk/core/page.do?pageId=9558384
Forum for the future Forum for the Future works with business and the public sector to create a green, fair and prosperous world. http://www.forumforthefuture.org
Commission for Architecture and the Built Environment - sustainable places Advice on helping your local area to be more sustainable http://www.cabe.org.uk/sustainable-places
Environment Agency sustainable development case studies Provides case studies to demonstrate the types of environmental enhancement that can be achieved with good partnership working and positive planning. http://www.environment-agency.gov.uk/business/sectors/109895.aspx
Ministry of Defence Sustainable Development on the MOD Estate http://webarchive.nationalarchives.gov.uk/+/http:/www.mod.uk:80/DefenceInternet/MicroSite/DIO/WhatWeDo/Property/SustainableDevelopmentsdOnTheModEstate.htm
Local Governments for sustainability Portal from which to access resources available in developing, implementing, and monitoring policies in support of local sustainable development. http://www.localsustainability.eu/index.php?id=4268
IUCN: The World Conservation Union Report on the Future of Sustainability; Re-thinking Environment and Development in the Twenty-first Century http://cmsdata.iucn.org/downloads/iucn_future_of_sustanability.pdf
Forum for the Future Sustainable cities index Index tracks progress on sustainability in Britain's 20 largest cities http://www.forumforthefuture.org/projects/sustainable-cities10

(ii) Actions to tackle climate change & protecting and enhancing the natural environment

Working with natural processes to manage flood and coastal erosion risk

Working with natural processes to manage flood and coastal erosion risk Guidance manual developed by a multi-organisation working party http://publications.environment-agency.gov.uk/pdf/GEHO0310BSFI-e-e.pdf
The River Restoration Centre A national information and advisory centre on all aspects of river restoration and enhancement, and sustainable river management http://www.therrc.co.uk/rrc_overview.php
Landscape Institute: Green infrastructure - connected multi functional landscapes Explains the benefits of Green Infrastructure including case studies http://www.landscapeinstitute.org/PDF/Contribute/GreenInfrastructurepositionstatement13May09.pdf
Convention on Biological Diversity: ecosystem approach Strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. http://www.cbd.int/ecosystem/
River Restoration Centre Interactive projects map Map of Demonstration Sites, case studies and Restoration Projects http://www.therrc.co.uk/rrc_case_studies.php
RRC Manual of River Restoration Techniques River restoration techniques including case studies http://www.therrc.co.uk/rrc_manual.php (1)
Learning to Live with Rivers Review of the technical approaches to flood risk management http://www.ice.org.uk/getattachment/6a24d082-bb88-4396-8e34-4aa561b15180/Learning-to-live-with-rivers.aspx

Use of sustainable drainage systems

Cambridge City Council SuDS Design Guide and examples of costs http://www.cambridge.gov.uk/ccm/content/planning-and-building-control/urban-design/sustainable-drainage-systems.en
Islington Council SuDS Design Guide and case studies http://www.islington.gov.uk/environment/sustainability/sus_water/SUDS.asp
CIRIA: Construction Industry Research and Information Association Project to disseminate and promote good practice in the implementation of sustainable drainage in the built environment http://www.ciria.com/suds/
Environment Agency Publication highlighting problems caused by conventional urban drainage systems and identify alternative approaches http://publications.environment-agency.gov.uk/pdf/GEHO0308BNSS-e-e.pdf
Highway Authority Design Manual for Roads and Bridges Guidance on the assessment and design of drainage systems for use on highways. http://www.dft.gov.uk/ha/standards/dmrb/index.htm
WWF: Dealing with the Deluge: Urban Water Management in a Changing Climate Report highlighting how restoring nature's capacity to deal with surface water can benefit wildlife and people, includes case studies http://www.wwfrsapartners.com/static/uploads/page_files/WWFRSA_SuDsReportFINAL.pdf

Reducing GHG emissions

Energy Saving Trust Provides a range of resources to help organisation reduce carbon dioxide emissions http://www.energysavingtrust.org.uk/business
The Carbon Trust Provides specialist support to help boost business returns by cutting carbon emissions, saving energy and commercialising low carbon technologies http://www.carbontrust.co.uk/Pages/Default.aspx
Climate Change Act 2008 Legislative framework to tackle the dangers of climate change http://www.decc.gov.uk/en/content/cms/legislation/cc_act_08/cc_act_08.aspx

Energy efficiency

DECC Mandatory scheme to improve energy efficiency and therefore cut CO_2 emissions in large public and private sector organisations http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/crc/crc.aspx

Carbon calculator

Environment Agency carbon calculator Tool to help assess and compare the sustainability of different designs, in carbon dioxide (CO_2) terms and influences option choice at the options appraisal stage. Includes case studies http://www.environment-agency.gov.uk/business/sectors/37543.aspx

Conservation and biodiversity

UK Biodiversity Action Plan Website supporting the implementation of the UK Biodiversity Action Plan (UK BAP) http://www.ukbap.org.uk/
Natural England Outline of legislation and strategies that protect and manage biodiversity http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/default.aspx
Natural Environment and Rural Communities Act Information about the public authority biodiversity duty http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/duty.aspx
Wildlife Trusts Organisation dedicated to conserving the full range of the UK's habitats and species http://www.wildlifetrusts.org
Wetland Vision 50 year vision for wetlands; information, results and conclusions http://www.wetlandvision.org.uk/
RSPB Futurescapes Developing a vision for a wildlife-rich countryside http://www.rspb.org.uk/futurescapes/

Making Space for Nature Report considering whether wildlife sites comprise a coherent and resilient ecological network http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf
Defra Information on protected sites http://ww2.defra.gov.uk/rural/protected/
Conservation principles Policies and Guidance for the Sustainable Management of the Historic Environment http://www.helm.org.uk/upload/pdf/Conservation_Principles_Policies_and_Guidance_April08_Web.pdf?1289568071
English Heritage: climate change and the historic environment Implications of climate change for the historic environment http://www.helm.org.uk/upload/pdf/Climate-change.pdf?1289568071
English Heritage: flooding & historic buildings technical advice note Advice on preventative measures as well as on the inspection, conservation and repair of historic buildings after flooding. http://www.helm.org.uk/upload/pdf/Acc_Flooding_Guidance.pdf?1289572115
English Heritage: coastal defence and the historic environment Advice on the implications of coastal and flood defence for the historic environment http://www.helm.org.uk/upload/pdf/Coastal%20Defence%20and%20the%20Historic%20Environment.%20English%20Heritage%20Guidance_2003.pdf?1309874649
English Heritage: shoreline management plan review and the historic environment information and guidance on the coastal Historic Environment, sources of advice and data, the legislative and planning background, and procedures for consultation http://www.helm.org.uk/upload/pdf/Shoreline-Management-Plan-Review.pdf?1309874649
European Landscape Convention Promotes landscape protection, management and planning, and European co-operation on landscape issues. http://www.naturalengland.org.uk/ourwork/landscape/protection/europeanconvention/default.aspx
Drainage Channel Biodiversity Manual Provides assistance for operating authorities engaged in the complex management of lowland drainage systems http://naturalengland.etraderstores.com/NaturalEnglandShop/NE121
Water Framework Directive Integrated river basin management for Europe http://ec.europa.eu/environment/water/water-framework/index_en.html
Conservation of habitats and species regulations 2010 In particular, regulation 61 http://www.legislation.gov.uk/uksi/2010/490/regulation/61/made

NFU: Why Farming matters in the Fens and Why farming matters in the Broad's Contribution that farmers and growers make to the economy, the food and drink sector, the environment, tourism and the community http://www.nfuonline.com/regions/east-anglia/news/Why-farming-matters-in-the-Fens/ http://www.whyfarmingmatters.co.uk/Latest-News/Farming%E2%80%99s-Vital-Role-In-The-Broads/
Historic environment records Alphabetical listing to find the contact details for local Historic Environment Record http://www.heritagegateway.org.uk/gateway/chr/

Environmental Management Systems

EMAS - the Eco-Management and Audit Scheme Guide to EMAS http://www.iema.net/ems/emas
Environmental Management Systems Information on EMS http://www.iema.net/ems/local_publicauthinfo
CIRIA environmental management Guidance, training and networks to help improve environmental management and achieve best practice http://www.ciria.org/service/research_information/AM/ContentManagerNet/Default.aspx?Section=research_information&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=30&ContentID=4784

Benchmarking good environmental performance

CEEQUAL Assessment and awards scheme for improving sustainability in civil engineering and the public realm http://www.ceequal.com/
BREEAM standards Design and assessment method for sustainable buildings http://www.breeam.org/

(iii) Fairness, improving wellbeing & building communities

Local flood resilience and resistance measures

CLG improving the flood performance of new buildings Guidance on flood resilient construction http://www.communities.gov.uk/publications/planningandbuilding/improvingflood
National Flood Forum website 'blue pages' Directory of flood protection products and services http://www.bluepages.org.uk/
Association of British Insurers Fact sheet on flood resilient homes www.abi.org.uk/Information/Consumers/General/15274.pdf
Defra **Developing the evidence base for flood resistance and resilience** Research project http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=14738

Supporting flood response and recovery

Cabinet Office National recovery guidance Resource for civil protection practitioners, supporting the work which goes on across the United Kingdom to improve emergency preparedness http://www.cabinetoffice.gov.uk/ukresilience.aspx

Making use of good design

Commission for Architecture and the Built Environment Advice to help people create better buildings and spaces http://www.cabe.org.uk/
Islington Council Advice on sustainable design principles, including case studies http://www.islington.gov.uk/Environment/Planning/planninginisl/plan_conserve/urban_design/sustainable/SustainableDesign/default.asp
Urban Design Compendium Upton case study http://www.urbandesigncompendium.co.uk/uptondc

Future Communities Advise on building sustainable communities, including Stories from the Field http://www.futurecommunities.net/
CIRIA-624 Development & Flood Risk Guidance Guidance for the construction industry http://www.ciria.org/service/AM/ContentManagerNet/Search/SearchRedirect.aspx?Section=Search1&content=product_excerpts&template=/contentmanagernet/contentdisplay.aspx&contentfileid=1417
The LiFE handbook Identifies ways in which flood risk management may be integrated with sustainable, zero carbon, responsible development http://www.lifeproject.info/

Promoting health and well-being

Natural England Health and the natural environment http://www.naturalengland.org.uk/ourwork/enjoying/health/default.aspx
GreenSpace Charity which works to improve parks and green spaces by raising awareness, involving communities and creating skilled professionals http://www.green-space.org.uk/index.php
RSPB Report on wellbeing through wildlife, including case studies http://www.rspb.org.uk/Images/wellbeing_tcm9-132872.pdf
Natural capital Natural capital is the stock of natural ecosystems that provide long term benefits http://www.ciwem.org/policy-and-international/current-topics/natural-capital.aspx
Incredible Edible Todmorden Growing and campaigning for local food http://www.incredible-edible-todmorden.co.uk/
CABE future health report Sustainable places for health and well-being http://www.sustainablehealthsw.org.uk/resources/future-health-sustainable-places-health-and-well-being-report-cabe-nov-09

Local involvement

SDC empowering communities Report on empowering communities to improve their neighbourhoods http://www.sd-commission.org.uk/publications.php?id=1093
Thames21 Working with communities to bring London's waterways to life http://www.thames21.org.uk/
The association of rivers trusts Facilitates partnership working to promote practical and sustainable solutions to environmental issues http://www.associationofriverstrusts.org.uk/
Transition Network Helps communities deal with climate change and shrinking supplies of cheap energy, includes case studies http://www.transitionnetwork.org/
Green Up! Provides community groups with information they need to work productively with their councils on environment and sustainability issues http://www.cdf.org.uk/web/guest/publication?id=142955

(iv) Green Economy & Operations and Procurement commitments

Sustainable procurement

Sustainable procurement information network Information relating to the sustainable procurement agenda http://www.s-p-i-n.co.uk/
IDea Guide to implementing sustainable procurement in local authorities http://www.idea.gov.uk/idk/aio/69979

Sustainable and local energy supplies

Hydropower Environment Agency information on opportunities to utilise hydropower http://www.environment-agency.gov.uk/business/topics/water/32022.aspx

Management of waste

National Industrial Symbiosis Programme A free business opportunity programme that delivers bottom line, environmental and social benefits http://www.nisp.org.uk/default.aspx
Waste and Resources Action Programme (WRAP) Work with businesses and individuals to help them reap the benefits of reducing waste, develop sustainable products and use resources in an efficient way. www.wrap.org.uk

(v) Using sound science responsibly

Adaptation to climate and environmental change

UK Climate Impacts Programme (UK CP09) Helps organisations to adapt to climate change. Includes case studies http://www.ukcip.org.uk/index.php
Climate change: a summary of the science Summarises scientific evidence on climate change, highlighting areas where science is well established, and where uncertainties remain http://royalsociety.org/climate-change-summary-of-science
Royal Town Planning Institute Climate change portal http://www.rtpi.org.uk/item/3478&ap=1
Adaptation Sub-committee of the Climate Change Committee First adaptation report http://www.theccc.org.uk/about-the-ccc/adaptation-sub-committee
Defra Policy statement on Flood and Coastal Erosion Risk Management appraisal http://archive.defra.gov.uk/environment/flooding/documents/policy/guidance/erosion-manage.pdf
Environment Agency Flood and Coastal Erosion Risk Management appraisal guidance http://www.environment-agency.gov.uk/research/planning/116705.aspx
HMT Green Book Supplementary guidance on accounting for the effects of climate change http://www.hm-treasury.gov.uk/green_book_guidance_environment.htm

Living with environmental change Identify economic and social challenges to do with environmental change http://www.lwec.org.uk/
Intergovernmental Panel on Climate Change International body for the assessment of climate change http://www.ipcc.ch/index.htm
UK CP09 Climate projections Includes information about likely changes to sea level and changes in precipitation rates as a result of climate change. http://ukcp09.defra.gov.uk/
Defra **Coastal change Pathfinder projects** Ongoing case studies looking at exploring new ways of adapting to coastal change http://www.defra.gov.uk/environment/flooding/coastal-change-pathfinders/

Environmental impact assessment, ecosystem services valuation, and Habitats Regulations Assessment (HRA)

Institute of Environmental Management and Assessment Information on Environmental Impact Assessment http://www.iema.net/
Environment Agency Environmental Impact Assessment scoping guidance http://www.environment-agency.gov.uk/research/policy/33013.aspx
Environment Agency Guidance on Strategic Environmental Assessment, including case studies http://www.environment-agency.gov.uk/research/policy/32903.aspx
Defra Ecosystem Services http://ww2.defra.gov.uk/environment/natural/ecosystems-services/ http://archive.defra.gov.uk/environment/policy/natural-environ/documents/nature-do-for-you.pdf
UK National Ecosystem Assessment Analysis of the UK's natural environment in terms of the benefits it provides to society and continuing economic prosperity http://uknea.unep-wcmc.org/
The economics of ecosystems and biodiversity Study to draw attention to the global economic benefits of biodiversity; highlight the growing costs of biodiversity loss and ecosystem degradation, and draw together expertise to enable practical actions moving forward. http://www.teebweb.org/

Institute of Environmental Management and Assessment Information relevant to climate change and Environmental Impact Assessment http://www.iema.net/eia-cc
Joint Nature Conservation Committee Habitats Regulations http://www.jncc.gov.uk/page-1379
Environment Agency Habitat Directive Guidance http://www.environment-agency.gov.uk/business/regulation/101795.aspx
Environment Agency Regional state of the environment reports http://www.environment-agency.gov.uk/research/library/publications/34019.aspx

Integrated planning

Catchment flood management plans Information on Catchment Flood Management Plans and links to the plans http://www.environment-agency.gov.uk/research/planning/33586.aspx
Shoreline management plans Find out about the SMP in your area and who is leading in its development. http://www.environment-agency.gov.uk/research/planning/105014.aspx
River basin management plans Water for life and livelihoods: River Basin Management Plans http://www.environment-agency.gov.uk/research/planning/33106.aspx
Surface water management plans Information and Guidance http://idkprod.conseq.org.uk/idk/core/page.do?pageId=13606485
Preliminary flood risk assessments Information and guidance http://www.environment-agency.gov.uk/research/planning/125459.aspx
Water cycle studies Information, guidance, and case studies http://publications.environment-agency.gov.uk/pdf/GEHO0109BPFF-e-e.pdf
Defra **Guidance on community adaptation planning and engagement on the coast** Research Project http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=1&ProjectID=16353

HM Goverment **Food 2030** Government strategy for food http://archive.defra.gov.uk/foodfarm/food/pdf/food2030strategy.pdf
Planning Policy Statements PPS1: Delivering Sustainable Development http://www.communities.gov.uk/publications/planningandbuilding/planningpolicystatement1 PPS4: Planning for Sustainable Economic Growth http://www.communities.gov.uk/publications/planningandbuilding/planningpolicystatement4 PPS 25: Development and Flood Risk http://www.communities.gov.uk/publications/planningandbuilding/pps25floodrisk
Manual for streets: well maintained highways Code of practice http://www.ukroadsliaisongroup.org/roads/code_of_practice.htm

(vi) National and International Sustainable Development and Transparency and public accountability

Sharing experience

Communities of practice for public service Community platform supporting collaborative networks for those involved in local delivery http://www.communities.idea.gov.uk/welcome.do
Local Government improvement and development Background information and guidance on flood risk management, including case studies http://www.idea.gov.uk/idk/core/page.do?pageId=12656790
Shape a better South West South-West sustainable development framework http://www.shapersw.net/
CIRIA landform Local authority network on drainage and flood risk management http://www.ciria.com/landform/index.html
Association of Drainage Authorities Vision for Internal Drainage Boards http://www.ada.org.uk/morenews.php?fs=&id=42

Annex B - 10 themes of sustainable development that apply to flood and coastal erosion risk management

Research commissioned by Defra developed nine themes of sustainable development that apply to flood and coastal erosion risk management[13]. These are:

1. Risk Management. Manage flood and coastal erosion risks to people and property, the economy and the environment.

2. Adaptation. Take account of climate change and other long-term uncertainties in decision making.

3. Resilience. Develop infrastructure and buildings which perform satisfactorily under a wide range of lifetime flood and coastal erosion loadings, without suffering permanent loss of functionality during extreme events.

4. Integration. Develop solutions that integrate flood and coastal erosion risk management as part of integrated catchment management and coastal zone management.

5. Engagement. Work with all those affected by flooding and coastal erosion, empowering those affected to take appropriate actions to reduce risks.

6. Appraisal. Adopt appraisal methods that are rigorous, coherent and open and consider long term social, environmental and economic costs and benefits.

7. Environment. Protect natural and heritage assets and enhance the environment where it is most degraded.

8. Consumption & Production. Promote sustainable consumption and production in all flood and coastal erosion risk management activities.

9. Knowledge. Develop the knowledge, skills and awareness to improve our understanding of risk and to promote sustainable solutions.

For the purposes of this Guidance we will add a further theme;

10. Well-being and social justice. Ensure that FCERM activities continue to contribute to community well-being and address issues of social justice.

[13] Sustainable Flood and Coastal Erosion Risk Management. R&D Technical Report / TR1, Defra 2007.