# Sustainable Development:

## Guidance to Risk Management Authorities Section 27 – Sustainable Development

November 2011

**Contents**

**Introduction**

1.1    Section 27 of the Flood and Water Management Act 2010[1] gives some Risk Management Authorities a requirement to aim to make a contribution towards the achievement of sustainable development when exercising their flood or coastal erosion risk management functions[2].

1.2    The Risk Management Authorities to whom this requirement applies to include:

   1.2.1  Lead Local Flood Authorities;
   1.2.2  Internal Drainage Boards; and
   1.2.3  Highway Authorities[3]

1.3    It also requires the Welsh Ministers to issue guidance on how these Risk Management Authorities are to discharge this duty and provide a meaning of sustainable development in this context.

1.4    This guidance has been developed to meet this obligation under the Flood and Water Management Act 2010 and to support both the "*National Strategy for Flood and Coastal Erosion Risk Management: Wales*"[4], published by the Welsh Government, and Local Strategies produced by Lead Local Flood Authorities.

1.5    It is not intended to prescribe a single approach that all Risk Management Authorities must follow, rather it will provide a variety of suggestions of how Risk Management Authorities can aim to make a contribution towards the achievement of sustainable development.

1.6    Whilst the duty provided within the Flood & Water Management Act 2010 covers Wales and England, this guidance only applies to Wales.  Guidance for England will be provided by the Secretary of State for Environment, Food and Rural Affairs.

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[1] The Flood and Water Management Act 2010 - http://www.legislation.gov.uk/ukpga/2010/29/contents

[2] Sections (4) and (5) of the Flood and Water Management Act 2010.

[3] A Highway Authority has the same meaning given by section 1 of the Highways Act 1980.  Local Authorities in Wales act as highway authorities in respect of local roads with the Welsh Government being responsible for trunk roads and motorways.

[4] National Strategy is available from: http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/?lang=en

**What is Sustainable Development?**

2.1     The Welsh Government has a duty to have a 'Scheme for Sustainable
        Development', setting out how it will promote sustainable development. Our
        current Scheme, One Wales: One Planet[5], was launched in May 2009 and
        defines sustainable development as:

> *"enhancing the economic, social and environmental wellbeing of people and
> communities, achieving a better quality of life for our own and future generations in
> ways which:*
>
> * *promote social justice and equality of opportunity, and;*
>
> * *enhance the natural and cultural environment and respect its limits - using only our
>   fair share of the earth's resources and sustaining our cultural legacy."*

2.2     Sustainable development is the process by which we reach the goal of
        sustainability.

2.3     One Wales: One Planet confirms that sustainable development is the central
        organising principle of the Welsh Government. It sets out our vision of a
        sustainable Wales, together with the main outcomes we seek to achieve, and the
        sustainable development Indicators[6] by which we can measure our progress
        towards becoming a sustainable society.  The outcomes we want to achieve
        include:

        2.3.1   All have access to better homes so that we reduce greenhouse gas
                emissions and tackle fuel poverty, and new homes and community
                facilities are sited in sustainable locations, free from the risk of flooding;
        2.3.2   A sustainable economy for Wales that is resilient to changes in the global
                economy; and
        2.3.3   Our land, freshwater and marine environment is best managed to provide
                the services of food, wood, water, soil, habitats and recreation.

2.4     Our Environment Strategy includes a more detailed suite of environmental
        outcomes which include:

        2.4.1   Appropriate measures are in place to manage the risk of flooding from
                rivers and the sea, and help adapt to climate change;
        2.4.2   Everyone who lives in a flood risk area understands the flood risk they are
                subject to, the consequences of that risk, and how to live with that risk.

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[5] http://wales.gov.uk/topics/sustainabledevelopment/publications/onewalesoneplanet/?lang=en

[6] http://wales.gov.uk/topics/statistics/headlines/sustaindev/?lang=en

2.5     Our approach to embedding sustainable development as our central organising principle is based around three key principles and a number of additional supporting principles. The three key principles are:

    2.5.1   **Long-termism:** ensuring that all decisions promote the long term, sustainable wellbeing of people and communities, and do not promote short term fixes that will continue to lock us into unsustainable patterns and lifestyles;

    2.5.2   **Integration:** ensuring that all decisions take full account of, and where possible fully integrate, the various social, economic and environmental outcomes that are being sought; and

    2.5.3   **Involvement:** engaging with, and involving, the people and communities that will be affected by these decisions, so that working in partnership for sustainable development becomes part and parcel of the way we work.

2.6     The supporting principles, and their relevance to flood and coastal erosion risk, are:

    2.6.1   **Low ecological footprint -** all flood and coastal erosion risk management should not overuse, but seek to work in harmony with natural resources and processes, promote resource efficiency, and minimise waste, so we are clear that flood and coastal erosion risk management will help us reduce Wales' ecological footprint;

    2.6.2   **Full costs and benefits** – Whole system thinking, and whole life costing are key approaches that should be used. Taking account of risks - especially to the economic, social and environmental wellbeing of communities - and uncertainties associated with action and inaction, should also be part of the decision-making process;

    2.6.3   **Evidence base -** An evidenced-based approach to decision-making should be used, but where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to promote sustainable approaches to flood and coastal erosion risk management;

    2.6.4   **Polluter pays** – Social and environmental costs of development should fall on those who impose them;

    2.6.5   **Reflecting distinctiveness –** Approaches to sustainable flood and coastal erosion risk management should reflect and respond to the particular needs and issues of communities, and the differing economic, social and environmental circumstances in different parts of Wales.

2.7     Sustainable development approaches are already supported by the National Strategy for Flood and Coastal Erosion Risk Management: Wales. However, all three National Park Authorities in Wales, and some Welsh local authorities, have signed the Welsh Government's Sustainable Development Charter[7], committing

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[7] http://wales.gov.uk/topics/sustainabledevelopment/uksusdev/sdcharter/?lang=en

themselves to embed sustainable development as their central organising principle and to share their best practice with others.   Environment Agency Wales has sustainable development embedded as part of its statutory remit.

2.8    Whilst sustainable development is the Welsh Government's central organising principle we have stated in our Scheme for Sustainable Development that we will encourage and enable others to make it their central organising principle. We therefore encourage Risk Management Authorities to consider signing our Sustainable Development Charter and making sustainable development their central organising principle.

**Benefits in adopting sustainable development practices.**

3.1     The benefits in adopting sustainable development practices when exercising a flood or coastal erosion risk management function include:

    3.1.1     **Future proofing -** Allow your flood and erosion risk management decisions to be future-proofed,  protecting current and future generations and meeting their needs,  ensuring decisions taken now don't risk causing significant problems in the future;

    3.1.2     **Better decisions –** basing all decision on a comprehensive and balanced view of economic, social and environmental considerations, will lead to better; more rounded decisions that are fit for purpose;

    3.1.3     **Enhance reputation –** Better decisions will safeguard and enhance the reputation of your organisation – locally, nationally and internationally;

    3.1.4     **More effective –** Using sustainable development to promote joined-up working within and between organisations, moving away from working in silos, and having more effective joined-up delivery of flood and erosion risk management  to communities and citizens;

    3.1.5     **Save costs –** Looking at all options, integrating economic, social and environmental issues, promoting resource efficiency and waste reduction, and working in partnership, can generate cost savings that can be used to fund other front line services; and

    3.1.6     **Promote innovation -** Help promote innovation and new thinking in the development of flood and erosion risk management  will set your organisation apart and allow you to take advantage of future opportunities.

**Sustainable Development and flood and coastal erosion risk management**

4.1    Sustainable development in the context of flood and coastal erosion risk management requires an approach which delivers four outcomes:

    i)    Maximises the long-term economic, social and environmental wellbeing of people and communities in Wales, whilst living within environmental limits;

    ii)   Safeguards the continued provision of ecosystem services from our natural environment;

    iii)  Avoids exposing current and future generation to increasing risk, and

    iv)   Improves the resilience of communities, the economy and the natural, historic, and social environment to current and future risk.

4.2    Suggestions of how Risk Management Authorities can contribute to each of these approaches are provided within the "Contributing to Sustainable Development" section.

4.3    Local planning authorities in Wales already have experience in embedding sustainable development, and guidance and advice is available through the Welsh Local Government Association's Sustainable Development Framework[8], which provides practical guidance at both a corporate and service level on delivering sustainable development.

4.4    In addition to this, the Welsh Government has published an Advice Note to local authorities on embedding sustainable development in Community Strategies[9] which gives a practical lead to community planning partners on the sustainable development issues they could consider when they are developing and implementing community strategies.

4.5    To achieve sustainable development in relation to flood and coastal erosion risk management the three key principles of embedding sustainable development (discussed previously in paragraph 2.5) can be used to help the early identification and consideration of alternative measures, which may be used alongside or instead of the standard engineering solutions.

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[8] http://www.wlga.gov.uk/english/sustainable-development-framework/

[9] http://wales.gov.uk/topics/localgovernment/partnership/commstrategies/advicenotes/sustainable/?lang=en

**Contributing to Sustainable Development**

5.1     Suggestions of how Risk Management Authorities can contribute to sustainable development through the four outcomes described in 4.1, are provided below:

**5.2     Maximise the long-term economic, social and environmental wellbeing of people and communities in Wales, whilst living within environmental limits.**

- Using whole life cycle analysis and eco-foot printing in the procurement of Flood & Coastal Erosion Risk Management (FCERM) services;
- Preferentially using locally-provided goods and services in so far as this is consistent with procurement law;
- Seeking to reduce product miles when sourcing goods and services;
- Using sustainable, local low carbon and/or renewable energy supplies;
- Seeking opportunities to include social clauses through FCERM procurement, to reduce inequalities and support less well-off communities;
- Working with developers and local planning authorities in flood risk areas to prevent inappropriate development in areas of flood risk;
- Working with developers and local planning authorities to design in resilience and resistance to future flooding and increase sustainable drainage;
- Use FCERM projects and activities to enhance local economies, for example increasing local tourism through improved public access and habitat creation;
- Consider plans for managed retreat in coastal areas to avoid damage from flooding or erosion.

**5.3     Safeguarding the continued provision of ecosystem services from our natural environment.**

- 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 salt marshes that help dissipate wave energy at the coast;
- Identifying areas suitable for inundation and water storage to reduce the risk of flooding elsewhere;
- Greater use of sustainable drainage systems;
- Carbon counting and setting carbon budgets, with the aim of decreasing greenhouse gas emissions;
- Complying with forest management and chain of custody certification and other sustainable procurement and fair trade measures;
- 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, Green Dragon 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;
- 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;
- Demonstrating compliance with a sustainable waste management strategy aiming for maximum re-use, maximum recycling, and zero waste to landfill;
- 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; and
- 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.

**5.4    Avoiding the exposure of current and future generation to increasing risk.**

- Ensuring development planning takes account of flood risk and coastal change and that developers make a contribution to the cost of defence;
- 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;
- 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;
- Using an appropriate range of climate change scenarios (such as UKCIP Climate Change Projections) and adapting to climate change;
- 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;
- 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;
- Working with insurance companies prior to building so that developers are aware of the insurance assessment of the flooding 'risk' prior to building; and

- Monitoring of flood risk management works to ensure expected performance is met.

**5.5    Improving the resilience of communities, the economy and the natural, historic, and social environment to current and future risk.**

- Increasing levels of awareness of flood and coastal erosion risks among individuals, businesses, and communities;
- Better warning systems for flooding events;
- Ensuring effective emergency plans are in place for flood and coastal erosion events;
- Improving the response to events by the emergency response organisations, as well as individuals, communities and businesses;
- Ensuring effective recovery arrangements are in place;
- 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, and seeking feedback at all stages;
- 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 and 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;
- Working with partners to improve the resilience of essential services to flooding and to ensure access to emergency services is maintained;
- Creating a 'sense of place' to help to promote sustainability through community buy in;
- Making use of multiple sustainability benefits through, for example, use of open areas for both flood storage capacity and public amenity;
- Increasing the use of resilience measures to conserve heritage assets;
- Working with local businesses to improve flood awareness and resilience;
- Being open about the costs and the benefits, including non-financial costs and benefits,  (and the distribution of those cost and benefits across social groups, generations and geographical areas) of different ways of managing risk;
- 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 and coastal risk management at a range of regional scales;
- Ensuring public participation is core to decision-making. This is essential to ensure that local social and environmental concerns are addressed alongside economic issues; and
- Engaging in local partnership working.

**Sustainable Development in Practice**

6.1     The ways in which Risk Management Authorities can contribute towards sustainable development are interconnected.  Whole system, long-term thinking, working across organisational and administrative boundaries and active engagement in an open and collaborative manner are critical to its successful delivery.

6.2     Authorities should consider how they could exercise their flood or coastal erosion risk management functions in ways which could provide multiple benefits. For example, the creation of a flood storage area might also contribute to improving water quality, improving the natural environment (by creating a new wetland area), and / or provide an amenity for the local community.

6.3     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 any commitments to reduce business mileage. It can prove difficult and unhelpful to create rules to try and solve such dilemmas, but Risk Management Authorities should be transparent about the trade-offs in both the short and long term when explaining their decisions, and in seeking to mitigate unavoidable negative impacts. The reconciliation of social, economic and environmental goals is central to a sustainable approach.

6.4     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.

6.5     Sustainable development should not be limited to large projects, works to protect, maintain or monitor local drainage infrastructure can also make a significant contribution to people's wellbeing.  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.

6.6     Sustainable development may focus on outcomes, but it can also involve changing behaviours and ways of working. Integrated working between Risk Management Authorities, other organisations, civil society groups and local communities is also critical to a successful outcome. Partnerships play an important and vital role in bringing authorities together to work more closely.

6.7     Risk Management Authorities should establish their own priorities based on leading local issues, 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.

**Indicators**

7.1    The annual State of the Environment report[10] provides the latest data on a variety of environmental indicators linked to environmental outcomes. With regards to flood and coastal erosion risk management these include:

- **Annual cost of damage due to flooding** (where as a proxy we report on the numbers of properties benefiting from flood alleviation schemes in Wales);

- **Probability of flooding of assets at risk** (where we report on the number of properties in Wales with a significant, moderate or low risk of flooding from the rivers or sea);

- **Percentage of new development permitted in the floodplain** (where as a proxy we report on the percentage of planning applications considered on flood risk grounds, subsequently approved by LPA or referred to the Welsh Government due to non-determination);

- **Level of use of floodline** (where we report on the number of calls to Floodline transferred to Environment Agency Wales offices);

- **Households registered for flood warnings as a percentage of total number of households at risk of flooding** (where we report on the percentage of properties able to register and actually registering for Floodline Warnings Direct in Wales); and

- **Percentage of people aware of flood risk** (where we report on the percentages of people aware of different aspects of flood risk in Wales).

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[10] http://wales.gov.uk/topics/statistics/headlines/environment2011/?lang=en

## References to Further Information

8.1     The following pages will provide you with a summary and links to further information that you may find useful.  It is by no means and exhaustive or exclusive list and has been included to provide a starting point for further research.

8.2     In appreciation of the number of references provided, they have been divided into the following themes:

Strategies and Plans                      Quality & Standards

Legislation                               Emergency Planning

Sustainable Development                   Environment

Climate Change                            Policy Making

Planning & design in the built
environment                               Further Advice
Surface Urban Drainage Systems
(SuDS)

**NB - A hyperlink has been embedded that enables you to click on the relevant theme and be taken directly to the relevant references.**

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## Strategies and plans

**National Strategy for Flood & Coastal Erosion Risk Management: Wales :**  The National Strategy is available from: http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/?lang=en

**National Strategy – Strategic Environmental Assessment (SEA) :** Copies of the SEA and associated documents prepared in relation to the development of the National Strategy : http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/?lang=en

**National Strategy – Habitats Regulation Assessment (HRA) :** Copy of the HRA completed in relation to the development of the National Strategy : http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/?lang=en

**Environment Strategy :** The Environment Strategy is the Welsh Government's long term strategy for the environment of Wales, setting the strategic direction for the next 20 years : http://wales.gov.uk/docs/desh/publications/060517environmentstrategyen.pdf

**Strategic policy position statement on water :** A statement highlighting how the Welsh Government will manage water resources sustainably and maintain and enhance water quality in Wales : http://wales.gov.uk/docs/desh/policy/090331waterpositionency.doc

**Climate Change Strategy for Wales :** The Welsh Government has a clear role to play in tackling climate change, the Climate Change Strategy for Wales and the Delivery Plans confirm this commitment : http://wales.gov.uk/topics/environmentcountryside/climatechange/tacklingchange/strategy/walesstrategy/?lang=en

**Adaptation Delivery Plan :** The Adaptation Delivery Plan sets out the specific policies and programmes that the Welsh Government expect to implement in delivering the Adaptation Framework.  The Welsh Government's Adaptation Framework (explained in Chapter 15 of the Climate Change Strategy for Wales) is the national, co-ordinated approach we are taking to ensure that Wales understands the risks and opportunities these changes present and is well-placed to adapt in a sustainable way : http://wales.gov.uk/topics/environmentcountryside/climatechange/tacklingchange/strategy/walesstrategy/?lang=en

**Wales Spatial Plan :** The Wales Spatial Plan is an integrating tool for decision makers at local, regional and national level, based on the practical application of the principles of social justice, equality and sustainability : http://new.wales.gov.uk/about/programmeforgovernment/strategy/spatial/?lang=en

**Environment Agency :** The Environment Agency website can provide links to various plans, including:
**Catchment flood management plans** - Information and links to the plans :
http://www.environment-agency.gov.uk/research/planning/33586.aspx
**River Basin Management plans** - Water for life and livelihoods :
http://www.environment-agency.gov.uk/research/planning/33106.aspx
**Shoreline Management Plans** - Find out about the SMP in your area.
http://www.environment-agency.gov.uk/research/planning/105014.aspx

**Surface water management plans :** Information and Guidance :
http://idkprod.conseq.org.uk/idk/core/page.do?pageId=13606485

**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/

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## Legislation

**Climate Change Act 2008 :** The Act sets up a framework for the UK to achieve its long-term goals of reducing greenhouse gas emissions and to ensure steps are taken towards adapting to the impact of climate change : http://www.legislation.gov.uk/ukpga/2008/27/introduction

**The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 :** These Regulations make provision for the purpose of implementing, in river basin districts within Wales and England, the EC Directive 2000/60/EC (WFD) establishing a framework for Community action in the field of water policy : http://www.legislation.gov.uk/uksi/2003/3242/made

**Water Framework Directive (WFD) (200/60/EC) :** The WFD came into force on the 23 October 2000 and is designed to improve and integrate the way water bodies are managed throughout Europe : http://ec.europa.eu/environment/water/water-framework/index_en.html

**Conservation of Habitats and Species Regulations (2010) :** These regulations transpose the Habitats Directive into UK law, with an aim to help maintain and enhance biodiversity in the UK and throughout the EU, by conserving natural habitats and protecting priority species and their habitats : http://www.legislation.gov.uk/uksi/2010/490/pdfs/uksi_20100490_en.pdf

**Habitats Directive :** The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy : http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

**Environmental Assessment of Plans and Programmes (Wales) Regulations (2004) :** The regulations transpose into UK law the EC Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, commonly known as the Strategic Environmental Assessment (SEA) Directive : http://www.legislation.gov.uk/wsi/2004/1656/contents/made

**European Directive 2001/42/EC (SEA Directive) :** The Directives aim is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development : http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:197:0030:0037:EN:PDF

**Civil Contingencies Act (2004) :** An Act, which delivers a single framework for civil protection in the UK capable of meeting a full range of challenges, such as flooding : http://www.legislation.gov.uk/ukpga/2004/36/contents

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## Sustainable Development

**One Wales: One Planet, The Sustainable Development Scheme of the Welsh Government :** The Scheme sets out our vision of a sustainable Wales and the priority we attach to sustainable development. This is a response to the economic and environmental challenges we face and is the only approach that will secure a long term sustainable future for future generations : http://wales.gov.uk/topics/sustainabledevelopment/publications/onewalesoneplanet/?lang=en

**Welsh Local Government Association (WLGA) :** The WLGA website provides a wealth of information related to sustainable development : http://www.wlga.gov.uk/english/sustainable-development-framework/ **Future Trends :** The WLGA are working with local councils and their partners to explore the impact of future social, environmental and economic trends on community needs and service provision in the longer term : http://www.wlga.gov.uk/english/futures-masterclass-resources/

**Sustain Wales :** The sustain Wales website contains a large number of case studies of local action for sustainable development : http://www.sustainwales.com/home/en/

**Training & Capacity Building for Sustainable Development :** Public Service Management Wales (PSMW) offer a series of training course and workshops explicitly aimed at increasing the SD capacity and skills base within the public sector. Walking Not Talking is aimed a senior public sector leaders. A series of workshops aimed at building capacity to deliver SD within specific policy areas : http://wales.gov.uk/psmwsubsite/psmw/?lang=en

**Measuring local economic impact :** The Local Multiplier 3 (LM3) approach enables you to measure how much your organisation or initiative impacts on the local economy, and helps you work out where you need to make changes to improve that impact : http://www.neweconomics.org/publications/money-trail

**Environment Agency :** The Environment Agency website can provide a wealth of information and links to some of which have been provided below :
**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
**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
**SuDS** – A publication highlighting problems caused by conventional urban drainage systems and identify alternative approaches : http://publications.environment-agency.gov.uk/pdf/GEHO0308BNSS-e-e.pdf

**Hydropower** - Information on opportunities to utilise hydropower : http://www.environment-agency.gov.uk/business/topics/water/32022.aspx
**Environmental Impact Assessment** scoping guidance :
http://www.environment-agency.gov.uk/research/policy/33013.aspx
**Strategic Environmental Assessment** – Guidance including case studies :
http://www.environment-agency.gov.uk/research/policy/32903.aspx
**Habitat Directive** - Guidance :
http://www.environment-agency.gov.uk/business/regulation/101795.aspx
**Regional state of the environment** – reports :
http://www.environment-agency.gov.uk/research/library/publications/34019.aspx
**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
**Carbon Calculator** – a 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

**Education for Global Citizenship and Sustainable Development :** Engagement within SD can take place through a range of opportunities, activities and schemes to meet the needs and challenges identified. These could include initiatives delivered through formal, non-formal and informal education settings such as environmental actions, international partnerships and fair trade issues which bring about the links between society, economy and environment and explore the relationships between power, resources and human rights : http://www.esd-wales.org.uk/english/welcome.asp

**Sustainability Appraisal (SA) :** SA is already a legal requirement for Unitary Development Plan and Local Development Plans (S62 (6) of the Planning and Compulsory Purchase Act 2004) and guidance is available on this : http://new.wales.gov.uk/topics/planning/policy/developplans/Sus_app_UDP?lang=en

**Strategic Environmental Assessment (SEA) :** Strategic Environment Assessment is a legal requirement for certain plans and programmes, and guidance on this is also available. It is unlikely that a community strategy would need a SEA but this needs to be decided on a case-by-case basis :
http://wales.gov.uk/topics/environmentcountryside/consmanagement/sea/?lang=en

**Sustainable Development Committee: Empowering communities :** Report on empowering communities to improve their neighborhoods : http://www.sdcommission.org.uk/publications.php?id=1093

**Resource and Energy Analysis Programme (REAP) : Reducing ecological footprint :** Resource and Energy Analysis Programme (REAP). This is a modelling tool that is designed to help local authorities and others reduce their ecological footprints : http://www.sei.se/reap/

**One Planet Wales :** A report from WWF Cymru that identifies key ways of delivering a One Planet Wales through reducing the footprint of eight key sectors including food, buildings, transport, products, services, energy, resources and our lifestyles :
http://wales.wwf.org.uk/what_we_do/changing_the_way_we_live/one_planet_wales/

**Fostering Sustainable Behaviour :** The site consists of six resources: an online guide, which illustrates how to use community-based social marketing to design and evaluate programs to foster sustainable behaviour; searchable databases of articles, downloadable reports, graphics, and case studies on fostering sustainable behaviour; and a list for sharing information and asking questions of others :
http://www.cbsm.com/public/world.lasso

**Welsh Government SD Indicators :** Welsh Government's confirmed suite of Sustainable Development Indicators : http://new.wales.gov.uk/topics/statistics/headlines/sustain2009/hdw200908272/?lang=en

**Wales Centre for Health Community Health profiles :** These provide a profile of the key health determinants of the communities in Wales, by local authority area :
http://www.wales.nhs.uk/sites3/page.cfm?orgId=568&pid=19194

**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

**Sustainable Procurement Information Network :** Information relating to the sustainable procurement agenda : http://www.s-p-i-n.co.uk/

**Waste and Resources Action Programme (WRAP) :** Works 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

**Value Wales :** Sustainable Risk Assessment template :
http://www.buy4wales.co.uk/PRP/general/strategy/procstrat/sustainableriskassessmentandperformancem onitoring.html

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## Climate Change

**Building Resilience to Climate Change :** Approach to exercising powers to issue guidance and directions under Part 4 of the Climate Change Act 2008.  Part 4 of the Climate Change Act 2008 gives the Welsh Ministers powers in relation to responding to the consequences of climate change and enabling effective adaptation action :
http://cymru.gov.uk/consultations/environmentandcountryside/climatechangeresilience

**UK Climate Impacts Programme (UK CP09) :** Helping organisations to adapt to climate change :
http://www.ukcip.org.uk/index.php

**Royal Society: Climate change: a summary of the science :** Provides a Summary of the scientific evidence on climate change, highlighting areas where science is well established, and where uncertainties remain : http://royalsociety.org/climate-change-summary-of-science

**Living with Environmental Change :** Identify economic and social challenges to do with environmental change : http://www.lwec.org.uk/

**Intergovernmental Panel on Climate Change (IPCC) :** International body for the assessment of climate change : http://www.ipcc.ch/index.htm

**HM Treasury - Green Book :** Supplementary guidance on accounting for the effects of climate change :
http://www.hm-treasury.gov.uk/green_book_guidance_environment.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

## Planning & Design in the built environment

**Planning Policy Wales (PPW) (Edition 4, February 2011) :** This document contains current land use planning policy for Wales. It provides the policy framework for the effective preparation of local planning authorities' development plans : http://wales.gov.uk/topics/planning/policy/ppw/?lang=en

**Technical Advice Notes (TANs) :** TAN's should be taken into account by local planning authorities when they are preparing development plans. They should be read in conjunction with the Planning Policy Wales (PPW) document : http://wales.gov.uk/topics/planning/policy/tans/?lang=en.

**Online DAMS :** The Development Advice Maps (DAMs) are to be used alongside Planning Policy Wales and TAN 15 to direct new development in respect to flood risk.  Together, they form a precautionary framework to guide planning decisions : http://data.wales.gov.uk/apps/floodmapping/.

**Design Commission for Wales :** A National organisation established by the Welsh Government in 2002 to champion good design and a high quality built environment : http://dcfw.org/

**Commission for Architecture and the Built Environment (CABE) :**
**Sustainable Places :** Advice on helping your local area to be more sustainable :
http://www.cabe.org.uk/sustainable-places.
**Future Health Report :** Sustainable places for health and well-being :
http://www.cabe.org.uk/publications/futurehealth

**Local Government : Improvement and development :** Supports improvement and innovation in local government, working with local authorities and their partners to develop and share good practice, through networks, online resources, and support from councillor and officer peers :
http://www.idea.gov.uk/idk/core/page.do?pageId=1

**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

**Forum for the Future :** A non-profit organisation working globally with business and government to create a sustainable future : http://www.forumforthefuture.org

**The Institution of Civil Engineers : 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

**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.
**Interactive Projects map :** Map of Demonstration Sites, Case Studies and Restoration Projects :
http://www.therrc.co.uk/rrc_case_studies.php
**Manual of River Restoration Techniques :** River restoration techniques including Case Studies:
http://www.therrc.co.uk/rrc_manual.php.

**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

**Drainage Channel Biodiversity Manual :** Provides assistance for operating authorities engaged in the complex management of lowland drainage systems :
http://naturalengland.etraderstores.com/NaturalEnglandShop/NE121

**CLG  - Improving the flood performance of new buildings :** Guidance on flood resilient construction :
http://www.communities.gov.uk/publications/planningandbuilding/improvingflood

**The LiFE handbook :** Identifies ways in which flood risk management may be integrated with sustainable, zero carbon, responsible development : http://www.lifeproject.info/

## Surface Urban Drainage Systems (SuDS)

**Suds Wales :** The SuDS Working Party for Wales has been set up to include members of all the relevant authorities and stakeholders to work in partnership to promote SuDS in Wales :
http://www.sudswales.com/

**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

**CIRIA: Construction Industry Research and Information Association :** Project to disseminate and promote good practice in the implementation of sustainable drainage in the built environment: **SuDS** :
http://www.CIRIA.com/suds/
**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
**624 Development & Flood Risk Guidance :**
http://www.ciria.org/service/AM/ContentManagerNet/Search/SearchRedirect.aspx?Section=Search1&content=product_excerpts&template=/contentmanagernet/contentdisplay.aspx&contentfileid=1417

## Quality & Standards

**Green Dragon Environmental Management System :** Green Dragon is a stepped Standard recognising effective environmental management. The Standard offers an environmental management system relevant to the specific needs of companies and organisations and rewards actions taken to achieve environmental improvements : http://www.wales.groundwork.org.uk/what-we-do/green-dragon-ems.aspx

**CEEQUAL :** An assessment and awards scheme for improving sustainability in civil engineering, landscaping and the public realm, and celebrates the achievement of high environmental and social performance : http://www.ceequal.com/

**BREEAM standards :** Design and assessment method for sustainable buildings : http://www.breeam.org/

**The Institute of Environmental Management and Assessment (IEMA) :** The Institute of Environmental Management and Assessment (IEMA) is the professional membership body for promoting best practice standards in environmental management, auditing and assessment for all industry sectors :
**Environmental management systems** - Information on EMS :
http://www.iema.net/ems/local_publicauthinfo

**EMAS - the Eco-Management and Audit Scheme** - Guide to EMAS : http://www.iema.net/ems/emas
**Overview of Environmental Impact Assessment:**
http://www.iema.net/readingroom/ebriefings?aid=13450
**Information relevant to climate change and Environmental Impact Assessment :**
http://www.iema.net/eia-cc

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## Emergency Planning

**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

**A living Wales – a new framework for our environment, our countryside and our seas - Consultation on the National Environment Framework :** Demands on the environment are increasing because of climate change, human activity and other factors. Until now we have usually looked at parts of the environment separately. This means we have underestimated the importance of the environment in our lives. Our new Natural Environment Framework (NEF) focuses on managing our environment as a whole rather than focusing on separate parts :
http://wales.gov.uk/consultations/environmentandcountryside/eshlivingwalescons/?lang=en&status=closed

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## Environment

**CADW :** Cadw is the Welsh Government's historic environment service working for an accessible and well-protected historic environment for Wales : http://cadw.wales.gov.uk/about/?lang=en

**Countryside Council for Wales :** The Countryside Council for Wales is the Government's statutory advisor on sustaining natural beauty, wildlife and the opportunity for outdoor enjoyment in Wales and its inshore waters : http://www.ccw.gov.uk/?lang=en

**Wildlife Trust :** 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/
**Wellbeing through wildlife** – report including case studies :
http://www.rspb.org.uk/Images/wellbeing_tcm9-132872.pdf

**Environmental Impact Assessment (EIA) :** Environmental Impact Assessment is a legal requirement for certain types of projects, guidance is available :
http://wales.gov.uk/topics/environmentcountryside/consmanagement/conservationbiodiversity/eiahome/?lang=en

**The Chartered Institution of Water and Environmental Management (CIWEM) – 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

**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

**The association of rivers trusts :** Facilitates partnership working to promote practical and sustainable solutions to environmental issues : http://www.associationofriverstrusts.org.uk/

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## Policy Making

**Policy Integration :** The Carmarthenshire Community Strategy Integration Tool has been endorsed by Carmarthenshire County Council as a mandatory process for the development and revision of all policies, plans and strategies : http://www.thecarmarthenshirepartnership.org.uk/eng/index.asp?docID=708

**Health Impact Assessment :** Health Impact Assessment can be used at any stage of policy or project development. It looks at the wider issues that can affect people's health and well-being :
http://wales.gov.uk/topics/health/improvement/communities/healthimpact/?skip=1&lang=en

**Equality Impact Assessment (Inclusive policy making) :** Inclusive Policy Making is a process that the Welsh Government has developed to help departments consider equality and human rights :
http://new.wales.gov.uk/topics/equality/inclusivepolicy/?lang=en

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## Further Advice

**National Flood Forum :** Website 'blue pages' a directory of flood protection products and services :
http://www.bluepages.org.uk/

**Association of British Insurers (ABI) :** Fact sheet on flood resilient homes :
www.abi.org.uk/Information/Consumers/General/15274.pdf

**Young People :** The Funky Dragon Programme provides an opportunity for giving young people an opportunity to get their voices heard on issues that affect them. Similarly, the Wales Youth Forum for Sustainable Development is a youth-led organisation, for youth empowerment, education and action on issues of SD. The Youth Service in Wales, which includes voluntary organisations supporting work within the community, also support SD issues within their work :
http://www.funkydragon.org/          http://www.wyfsd.org/

**National Social Marketing Centre - Social Marketing techniques :** The National Social Marketing Centre, based at the National Consumer Council, provides a resource centre for social marketing techniques, including case studies : http://www.nsmcentre.org.uk/

**Local Government Data Unit Quality of Life Indicators :** Since 2002/03, all 22 local authorities in Wales have 'signed up' to a project looking at using and developing a set of Welsh Quality of Life indicators. There are currently 42 indicators in the Welsh set covering the areas of Economic, Social and Environmental Well-being : http://www.dataunitwales.gov.uk/Home.asp?lang=en

**Defra Research Project - Science and research projects :** Developing the evidence base for flood resistance and resilience :
http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=14738

Guidance on community adaptation planning and engagement on the coast :
http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=1&ProjectID=16353

**Association of Drainage Authorities (ADA) :** Vision for IDBs :
http://www.ada.org.uk/morenews.php?fs=&id=42