



GRaBS Briefing water management and adaptation to climate change

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1 Background

This Briefing Paper is intended to give GRaBS UK partners and other interested parties an overview of the background policy context and issues surrounding water management policy, and an overview of the relationship between water management and climate change adaptation. It considers the European Union (EU) Water Framework Directive and the effect that it will have on UK water policy and climate change adaptation. Water quality and quantity issues are fundamental concerns raised by climate change, as is the increased likelihood of climate-related hazards such as flooding and droughts.¹

Water management relies on policies and regulations to direct decisions on the use of the resource. It is important to have regulations in place to protect water resources and to ensure that credible decisions are made, since they influence a country's social, cultural and economic well-being. While water has always been a high priority throughout the world, in 2000 the European Union gave new direction to its Member States through the Water Framework Directive (WFD), which created an overarching, unified approach to water legislation. This has led to the *Guidance on Water and Adaptation to Climate Change*, prepared in 2009 by the United Nations Economic Commission for Europe's Task Force on Water and Climate. This guidance is of use in the UK when consideration is given to the direction that is to be taken by the Water White Paper, which is due to be published by early summer 2011.

The influence of EU water policies on the UK is shown in Fig. 1.

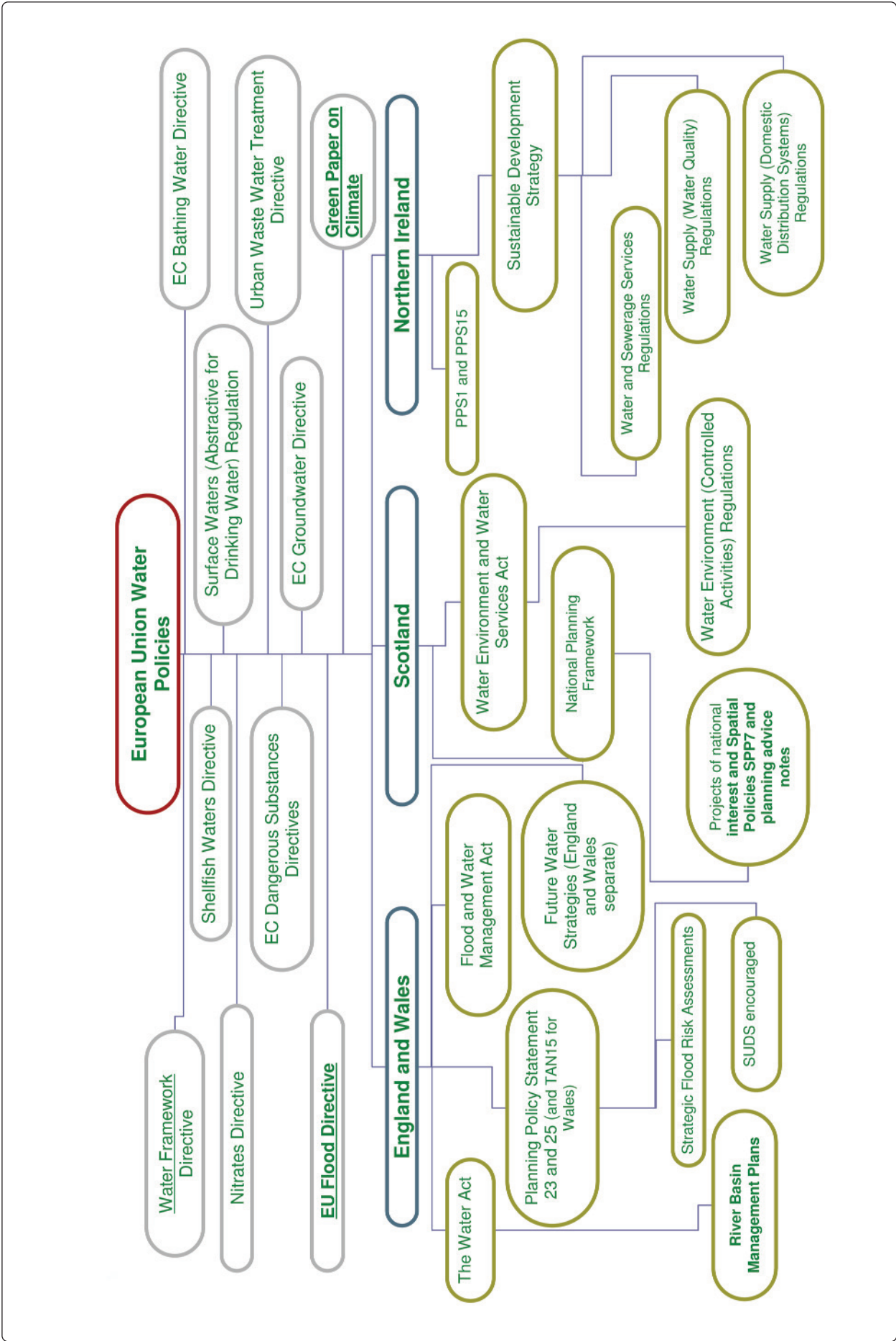


Figure 1
EU water policies and the UK

2 Policy context

There is an array of international agreements relating to water issues which have included recommendations or obligations on national governments, particularly in response to the need to adapt to climate change, as set out by the United Nations. This Briefing Paper focuses on direction set by the EU.

The EU WFD obliges Member States to assess environmental pressures on river basins, to set targets for improving the status of water bodies, and to create and implement management plans with measures to achieve these targets. It stipulates a requirement for greater integration of the qualitative and quantitative aspects of surface and ground water and for the consideration of natural flow conditions within the hydrological cycle. The purpose of the WFD is shown in Box 1.

The WFD (officially titled *Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy*²) commits EU Member States to achieve a 'good status', in both qualitative and quantitative indicators, of all water bodies by 2014. The WFD

Box 1

The EU Water Framework Directive – its purpose, as formulated in Article 1 of the Directive

'The purpose of this Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which:

- (a) prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;
- (b) promotes sustainable water use based on a long-term protection of available water resources;
- (c) aims at enhanced protection and improvement of the aquatic environment, *inter alia*, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;
- (d) ensures the progressive reduction of pollution of groundwater and prevents its further pollution, and
- (e) contributes to mitigating the effects of floods and droughts and thereby contributes to:
 - the provision of the sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable water use,
 - a significant reduction in pollution of groundwater,
 - the protection of territorial and marine waters, and
 - achieving the objectives of relevant international agreements, including those which aim to prevent and eliminate pollution of the marine environment, by Community action under Article 16(3) to cease or phase out discharges, emissions and losses of priority hazardous substances, with the ultimate aim of achieving concentrations in the marine environment near background values for naturally occurring substances and close to zero for man-made synthetic substances.'

Source: Water Framework Directive²

requires the production of a number of key documents over six-year planning cycles, such as the River Basin Management Plans.

Other EU direction in regards to water and climate change include the EU Flood Directive and the EU Green Paper on Climate Change Adaptation. The Flood Directive, issued in 2007,³ stated that measures to reduce flood risks should, as far as possible, be co-ordinated for the river basin as a whole, in particular for transboundary basins. The EU Green Paper, *Adapting to Climate Change in Europe – Options for EU Action*,⁴ published in 2007, marked a move from climate change mitigation to climate change adaptation. It did not explicitly set out an obligation to adapt to climate change through water-related legislation, but it did examine the impacts of climate change effects in Europe.

The EU WFD did take steps towards innovative planning for water management, as it integrates various facets such as water quality, water resources, physical habitat, and flooding, and presents the concept of river basin management. It also provides European countries with a common basis on which to prepare for and adapt to climate change through the review of river basin management plans. The key concern that has been raised about the WFD is that it does not mention the threats posed by climate change to the achievement of its long-term environmental objectives.⁵

3 The WFD and UK policy

The direction taken by the EU through the WFD became part of UK law in December 2003. As a result the UK has introduced monitoring programmes and produced River Basin Management Plans (which will be reviewed in 2015).

There are five River Basin Management Plans for England and Wales which have been prepared by the Environment Agency and approved by the Secretary of State for the Department for Environment, Food and Rural Affairs and the Welsh Minister. The Solway Tweed River Basin Management Plan was made jointly by the Scottish Environment Protection Agency (SEPA) and the Environment Agency, as the river crosses the border between Scotland and England. There is one other River Basin Management Plan in Scotland, which covers most of Scotland – namely the Scotland River Basin Management Plan. The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003 identify the Department of the Environment (and the Northern Ireland Environment Agency) as the responsible authority for co-ordinating the river basin planning process. Northern Ireland has several River Basin Management Plans which require close co-operation with the Republic of Ireland.

3.1 National water strategies – England

In England, the Department for Environment, Food and Rural Affairs (Defra) is the main legislative body providing policy and regulatory systems for the water environment. Defra works closely with the Environment Agency on water management, as the Environment Agency is the body in charge of managing water resources (for example by issuing abstraction licences) and enforcing water quality standards.

The Water Act 2003 aimed to modernise the regulatory framework in England and Wales and provide an efficient and robust legislative framework to facilitate sustainable water resource management and economic growth. In 2008, Defra released *Future Water: The Government's Water Strategy for England*,⁶ which set out

the long-term vision for water policy and management in England. This reflected on the current situation regarding water demand, supply, quality, drainage, flooding, greenhouse gas emissions, and charging for water, and proposed a new vision for 2030, based on a combination of high environmental standards and protection of consumer interests, achieved through regulation.

The Flood and Water Management Act 2010 received Royal Assent on 8 April 2010, and on 1 October the first Commencement Order came into force, implementing several provisions within the Act, including definitions and a Statutory Instrument making powers and provisions requiring the Environment Agency and Lead Local Flood Authorities to develop strategies for risk management. The Act was formulated in response to recent pressure to address the threat of flooding and water scarcity, both of which are predicted to increase with climate change. It includes requirements to create Flood Risk Management Strategies, and enables flood risk management works. It also requires the use of Sustainable Drainage Systems (SUDS) and a mandatory building standard for sewers.⁷

The relevant Planning Policy Statements include PPS 23: *Planning and Pollution Control*⁸ and PPS25: *Development and Flood Risk*.⁹ These set out the planning permission process for projects that may impact water, and direct consideration of relevant issues in Local Development Documents. Both documents encourage the use of SUDS, and PPS25 requires the completion of Flood Risk Assessments, setting out the risk and impact of flooding on development sites and assessing how a development may affect flooding in the local area. PPS25 also recommends ways in which the risk of flooding on a site can be reduced. The policies set out given in these Planning Policy Statements are to be followed in local authority Core Strategies and Local Development Plans.

Defra is currently developing a Water White Paper focusing, on the future challenges facing the water industry and setting out policies to support Defra's priority of supporting a strong and sustainable green economy which is resilient to the effects of climate change. The Water White Paper is due to be published by early summer 2011.¹⁰

3.2 National water strategies – Wales

In Wales, the main planning legislative body is the Welsh Assembly Government, and *Planning Policy Wales* sets out land use planning policies, supplemented by Technical Advice Notes such as TAN15: *Development and Flood Risk*.

While there are national and local planning bodies, Wales is closely aligned with English water policy through the Water Act 2003 and policy emanating from Defra. However, there are several strategies that the Welsh Assembly Government has released, or released jointly with Defra or the Environment Agency.¹¹ Of note is the Water Resources Strategy,¹² published by Environment Agency Wales, which sets out specific actions to protect conservation sites, ensure that licensing issues are resolved, improve environmental resilience, to safeguard water through catchment management, and to reduce treatment and energy costs for water users.

3.3 National water strategies – Scotland

Scotland's main planning legislative body is the Directorate of the Built Environment, which is responsible for drawing up Scotland's National Planning Framework (NPF), which designates certain projects as national developments. Two such projects are the Central Scotland Green Network and the Metropolitan

Glasgow Strategic Drainage Scheme.¹¹ Spatial policy guidelines have also been published, such as SPP7: *Planning and Flooding* (now superseded by *Scottish Planning Policy*) and Planning Advice Notes such as PAN69: *Planning and Building Standards Advice on Flooding*, PAN61: *Planning and Sustainable Urban Drainage Systems*, and PAN79: *Water and Drainage*.

Scotland's main water legislation is the Water Environment and Water Services Act 2003. This amended the Sewerage Act 1968 and Water Act 1980 in response to the European Parliament and Council Directive, so as to protect, improve, and promote sustainable use of Scotland's water environment. This led to the Water Environment (Controlled Activities) Regulations 2005, which regulate and require authorisation for discharges, disposal to land, abstractions, impoundments and engineering works.

3.4 National water strategies – Northern Ireland

Northern Ireland's main planning legislative body is the Department for the Environment (through the Planning Service), with water policy also being issued by the Northern Ireland Environment Agency and the Rivers Agency. The Planning Service has released relevant water policies such as PPS1: *General Principles* and PPS15: *Planning and Flood Risk*. In 2006, Northern Ireland's first Sustainable Development Strategy was published, dealing with water management within various strategic objectives and the Water Reform programme that was being undertaken by the Department for Regional Development in response to the EU Urban Waste Water Treatment Directive.

There are now several major pieces of water management legislation in Northern Ireland:

- The *Water and Sewerage Services (Northern Ireland) Order 2006 – The Preservation of Services and Civil Emergency Measures (Relevant Undertaker) Direction 2010*, which sets out requirements for the Northern Ireland water industry to make plans and provisions to mitigate the effects of civil emergency events;
- The *Water Supply (Water Quality) (Amendment) Regulations (Northern Ireland) 2010*, which amends the water quality regulations in order to meet the requirements of the Drinking Water Directive; and
- The *Water Supply (Domestic Distribution Systems) Regulations (Northern Ireland) 2010*, drawn up jointly with the Department of the Environment to deal with water quality failures in the domestic distribution system.

4 Relationship to climate change adaptation

The Intergovernment Panel on Climate Change has noted that:

'Freshwater is indispensable for all forms of life and is needed, in large quantities, in almost all human activities. Climate, freshwater, biophysical and socio-economic systems are interconnected in complex ways, so a change in any one of these induces a change in another. Anthropogenic climate change adds a major pressure to nations that are already confronting the issue of sustainable freshwater use. The challenges related to freshwater are: having too much water, having too little water, and having too much pollution. Each of

*these problems may be exacerbated by climate change. Freshwater-related issues play a pivotal role among the key regional and sectoral vulnerabilities. Therefore, the relationship between climate change and freshwater resources is of primary concern and interest.'*¹³

Water is at the core of climate change adaptation. The WFD recognises that preparing for climate change will be a major challenge for water management in the EU. While it makes no mention of the threat that climate change poses to its long-term goals, as stated earlier, it does require Member States to review their River Basin Management Plans every six years in order to prepare for and adapt to climate change. A further EU Directive, the Floods Directive,^{3,14} issued in November 2007, required Member States to assess whether water courses and coast lines are at risk from flooding, to map the flood risk, and to take adequate and co-ordinated measures to reduce the risk.

In April 2009, the European Commission issued a White Paper on adapting to climate change.¹⁵ It emphasised the need for the EU to adapt to climate change and proposed a framework for adaptation measures and policies in order 'to promote strategies which increase the resilience to climate change of health, property and the productive functions of land, *inter alia* by improving the management of water resources and ecosystems'.¹⁵ The White Paper was accompanied by an Impact Assessment which described the potential for ecosystem-based adaptation approaches. In December 2009, the EU issued a guidance document on adaptation to climate change in water management, to ensure that River Basin Management Plans are climate-proofed.¹⁶

By 2012 the European Commission will present a 'Blueprint to Safeguard European Waters', which will review the EU Strategy for Water Scarcity and Droughts. This will assess the vulnerability of water resources, adaptation measures, and the need for further measures to enhance water efficiency, and will include recommendations on how to ensure that climate change is taken into account.¹⁷

The UK has been one of the countries to recognise the risks posed by climate change, and through the Climate Change Act 2008¹ was the first country in the world to have a legally binding, long-term framework to cut greenhouse gas emissions. The UK has also been one of only a few countries to begin to consider the implications of climate change in the context of flood control (specifically in relation to stormwater drainage systems) and water supply management.¹³

Box 2

Case Study: Oadby and Winston

In the Oadby and Winston Core Strategy (2010), Core Strategy Policy 8, 'Climate Change and Renewable Energy', requires all new developments to demonstrate how they will minimise water use, and to be sited and designed to minimise, and adapt and mitigate to the likely effects of climate change. The Core Strategy's other main water policy is Policy 9, 'Flood Risk and the Water Environment', which requires new development to take into account the potential impact of climate change on water resources, water quality and the level of flood risk posed. A detailed Flood Risk Assessment is required for all developments greater than 1 hectare in size. Development should proactively manage surface water run-off through the promotion of sustainable drainage techniques, and development of brownfield sites should be accompanied by a desk-top study on any potential contamination.

However, Intergovernmental Panel on Climate Change (IPCC) Technical Paper VI does state that there is a degree of uncertainty in estimates of future changes in flood frequency across the UK, depending on which climate model is used. Nevertheless it notes that the probability of extreme winter precipitation exceeding two standard deviations above normal is expected to increase by up to a factor of five in parts of the UK, and Northern Europe, by the 2080s, with a doubling of carbon dioxide levels.¹³

The relationship between climate change adaptation and water issues is acknowledged in UK legislation through the Flood and Water Management Act 2010, currently going through the implementation process, and is also expected to be considered in the forthcoming Water White Paper. These documents will dictate the direction that the UK takes in planning and delivering climate change adaptation through water management.

5 Relevance to GRaBS

Water management and adaptation to climate change is highly relevant to the GRaBS project as its key objectives involve increasing the use of green and blue infrastructure (green roofs, green walls, green corridors, sustainable drainage, etc.) to reduce climate change risks by influencing planning policy and developing adaptation action plans.¹

Green and blue infrastructure can play a vital role in creating climate change resilient development, but this role is currently insufficiently recognised and utilised in planning. As a result, it is important to influence the current policy processes in the UK to ensure that green and blue space adaptation solutions (as demonstrated in the TCPA's *Climate Change Adaptation by Design* guide¹⁸) are promoted in spatial planning. To this end the TCPA has made a written submission on the forthcoming UK Water White Paper.

A UK policy framework which promotes good practice in climate change adaptation within water management would mark a step forward in integrating green and blue infrastructure into regional planning and development in the UK. In practice, this would help to reduce the long-term vulnerability of UK communities to the environmental, social and economic damage resulting from climate change impacts, especially with regard to flood risk management.

6 Notes and further information

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- 16 *River Basin Management in a Changing Climate*. Guidance Document No. 24. Common Implementation Strategy for the Water Framework Directive (2000/60/EC). Technical Report-2009-040. European Commission, 2009. http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents/management_finalpdf/_EN_1.0_&a=d
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