



Scottish Environment LINK is the forum for Scotland's voluntary environment organisations representing a broad spectrum of environmental interests with the common goal of contributing to a more environmentally sustainable society.

Flooding and Flood Management Inquiry

Written submission to the Environment and Rural Development Committee by the Freshwater Taskforce of the Scottish Environment LINK

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Context

Scottish Government is committed to sustainable flood management and to introduce in Parliament a Bill on flooding in May 2008. LINK Freshwater Taskforce welcomes this commitment and sees this as an opportunity to make progress from the current fragmented approach to flooding towards a more sustainable, modern approach that works with, rather than against the natural processes.

The EU Directive on the Management of Flood Risk (the Floods Directive) is part of the same family of European Directives as the Water Framework Directive (WFD) that Scotland transposed in 2003, through the Water Environment and Water Services (Scotland) Act 2003 (WEWS Act). The Floods Directive is ready to transpose. It provides a good framework for the Scottish legislation.

Scotland led the way in its transposition of the WFD, legislating for the structures to enable meaningful participation and deliver Good Ecological Status, to safeguard the quality and health of Scotland's precious water environment. The WEWS Act set out a good framework to build upon to deliver sustainable flood management. By enhancing the roles within the structures that already exist under the WEWS Act, Scotland is well placed to put in place smart, effective and efficient arrangements to plan for and manage flood risk.

We therefore recommend, and throughout this document give support for our main 5 asks in relation to the new Flooding Bill:

- **Review, streamline and where necessary amend the existing legislation on flooding**
- **Clarify and where necessary strengthen the responsibilities for flood management and ensure better co-ordination between 'responsible' authorities**
- **Transpose the requirements of the EU Directive on the Management of Flood Risk**
- **Ensure close links with river basin management planning under the WFD including public participation, with regional and national advisory flood groups**
- **Put in place a more flexible, integrated funding for hard and soft-engineering measures linked with the delivery of catchment flood management plans.**



1. What is the potential impact of climate change on the frequency and severity of all types of flooding in Scotland?

A number of reports suggest that climate change will increase the risk of all types of flooding in Scotland. The UK Climate Impacts Programme¹ (CIP) provides scenarios that predict how climate might change over time, and concludes that winters will become wetter, and summers drier, but the intensity and frequency of summer storms may increase. This could lead to an increase risk of urban and sewage flooding, as our drainage systems become overwhelmed by the volume of water entering it. A medium-emission climate change scenario predicts that a 1 in 100 chance flood in any year is expected to become a 1 in 70 chance flood in any year by the 2020s, and to a 1 in 40-60 chance flood in any year by the 2080s². Therefore floods, which are currently considered 'extreme', will become more frequent in future.

Rising sea levels coupled with the increased risk of storminess, is expected to place increased pressure on coastal defences, increasing the risk of coastal flooding, causing the loss of important estuarine and coastal habitats and damage to property. The updates to regional net sea-level change estimates for Great Britain suggest that sea levels in Scotland may rise between 0 cm (low emissions estimate) and 60 cm (high emissions estimate) by 2080³. The loss of saltmarsh and mudflat now totals over 100 hectares a year in Britain⁴. These are key habitats for birds, invertebrates and fish, and many such areas in Scotland are internationally and nationally recognised for their importance for wildlife.

It is therefore clear, that in facing these threads, we need to adapt to changing climate conditions in a sustainable way. The new Flooding Bill provides an opportunity to put in place structures and process that will be key in implementing sustainable flood management in Scotland.

2. What changes are needed to the existing legislation?

The current approach to flooding is very reactive and piece-meal, largely limited to hard engineering and flood warning. The change towards sustainable flood management will require the review of all relevant legislation, including the Flood Prevention (Scotland) Act 1961, the Coast Protection Act 1949, and the Land Drainage Acts 1930 and 1958. There may also be a need to review and where necessary amend the provisions contained within the Scottish Planning Policies (SSP7 and PAN 69), the Water Industry (Scotland) Act 2002 and Sewerage (Scotland) Act 1968.

The current approach to flooding is largely driven by the provisions of the ***Flood Prevention (Scotland) Act 1961*** - the '1961' Act, which encourages a fragmented approach and hard engineering. The main purpose of the Act is to allow engineering works to be carried out for the defence of non-agricultural land against flooding. The '1961' Act has been a major obstacle in implementing sustainable flood management on the ground, since it does not recognise the benefits of a catchment approach to assessing and managing flood risk, or the role of non-structural measures in flood mitigation. We recommend that the 1961 Act be repealed, whilst the provisions of the Act are reviewed to allow local authorities more flexibility in their approach to urban flood defence.

Coast Protection Act 1949 sets out the legislative framework for the protection of the coastline against erosion from the sea. Local authorities have permissive powers to take appropriate measures for the protection of any land in their area. Sea level rise and increased storm surges are likely to place

¹ UK CIP 2002 - Climate Change Scenarios for the United Kingdom, Tyndall Centre for Climate Change Research, 2002

² Foresight report, 2002

³ Updates to regional net sea-level change estimates for Great Britain, August 2006, www.ukcip.org.uk

⁴ Seas of Change: The potential area for intertidal habitat creation around the coast of mainland Britain: Pilcher, Burston, Kindleysides and Davies, 2002

mounting pressure on existing structures, and the provisions of the Act should be reviewed to allow more flexible approaches to the management of coastal erosion, including coastal realignment.

Land Drainage (Scotland) Act 1958 makes provision to approval of works to improve drainage of agricultural land to prevent erosion or flooding. Individual landowners also have legal duties to maintain / carry our drainage on their land, or cleansing and scouring of watercourses in accordance with the **Land Drainage Act 1930**. The schemes often involve a group of landowners and are carried out at a larger scale than individual holdings. Land currently under drainage, particularly in the uplands, may be largely abandoned through the influence of changing policies on food production. In the lowlands, it may also be identified as an area suitable for natural flood storage. It such cases, decisions need to be made about the best use of such land for public benefit. We understand that this may involve a loss of production on behalf of the landowner. We therefore recommend that a system of appropriate financial reward is put in place to compensate for the loss of any income to the farm, forest or estate business.

Scottish Water manages discharge of surface water into SW owned drainage systems, maintains and expands water and sewerage systems, and addresses issues with regards to sewer flooding under the **Water Industry (Scotland) Act 2002 & Sewerage (Scotland) Act 1968**. Climate change predictions suggest that the intensity and frequency of summer storms will increase, leading to a higher risk of urban and sewage flooding. It may therefore be necessary to review the provisions of these Acts to allow increased capacity to deal with the effects of climate change on drainage systems.

National planning policies, such as **the Scottish Planning Policy on flooding (SPP7)** have an important role in shaping development plans for a particular area. The relevant planning policies should be reviewed and where necessary amended to tackle the obligations that may arise from the new Flooding Bill, in particular the requirement to deliver sustainable flood management.

3. Who should be responsible for flood management and how should it be funded?

Responsibilities for flooding are very fragmented, and do not allow for an integrated, catchment based approach. The main responsibility lies with individual landowner (farmers and home owners). Local authorities have duties and powers to address flooding on non-agricultural land and to maintain watercourses. Local Authorities are also responsible for the protection of coastline against erosion, and for development planning. SEPA has duties to control the impacts of engineering works through the Controlled Activities Regulations (CAR), operating a flood warning system, and providing advice to local authorities on flood risk. Scottish Water (SW) is responsible for the drainage of surface water, maintenance of sewerage infrastructure and addressing issues with regards to sewer flooding. SW is also responsible for the maintenance of publicly owned SUDS.

We believe that there is a need to clarify and where necessary strengthen the responsibilities of various organisations in flood management. This may be achieved by designating ‘responsible authorities’ for flood management, with clear remits and responsibilities. Responsible authorities will be obliged to contribute to the production of a flood plan, and to deliver towards the plan. The Bill should therefore provide for an integrated approach and better co-ordination between ‘responsible’ authorities.

There is also a need to establish strong decision making structures to address flooding, nationally and regionally; and structures to enable the involvement of all relevant stakeholders. These structures should be linked with those established by the WFD legislation, the WEWS Act. We therefore propose:

- **8 regional advisory groups ‘FLAG⁵ +’**

⁵ Flooding Liaison Advisory Groups set-up under Scottish planning policies



- **A national advisory group for the decision-making and co-ordination of roles**

These should be tied in to the current structures in place under the WEWS Act in order to ensure smart working with the WFD processes but placing special emphasis on tackling the challenges of increased flooding threats. This will ensure that there is co-ordination with the WFD and the River Basin Management Plans (RBMPs). The legislation should deliver a requirement to establish structures that allow for decision-making and public participation. A detailed diagram of how such structures may work is given in the Annexes. An obligation to report annually to the Parliament (Annual Progress Report) should be introduced in the Bill.

The EU Directive on the Management of Flood Risk introduces new requirements for Scotland, including:

- Member States will by 2011 undertake a **preliminary flood risk assessment** of their river basins and associated coastal zones, including an assessment of potential adverse consequences of future floods, floodplains as natural retention areas and long-term developments such as the impacts of climate change.
- Where real risks of flood damage exist, they must by 2013 develop **flood hazard maps** and **flood risk maps**, which show potential adverse consequences of flooding on people, infrastructure and the natural environment.
- By 2015, **flood risk management plans** (FRMPs) must be drawn up for these zones. These plans are to include measures to reduce the probability of flooding and its potential consequences. FRMPs will be required to take into account all relevant aspects of flood risk, and also take into account areas which have potential to retain water, such as natural floodplains, as well as the environmental objectives under the WFD, soil and water management, land use and spatial planning. There is a strong requirement to encourage public involvement of all interested parties in the production of FRMPs.
- The Directives requires member states to establish an appropriate competent authority for flood risk management planning.
- Finally, the Directive also requires appropriate steps to coordinate with WFD and have regards to the environmental objectives of WFD.

We recommend that the requirements of the Directive be transposed as follows:

- **Flood Hazard Maps and Flood Risk Maps** are completed by 2010; and reviewed at 6 yearly intervals thereafter.
- Ensuring that a **flood risk assessment** is done of Scotland by 2011; and this is reviewed every 6 years.
- **Flood Risk Management Plans** are established by 2015: The Regional Plans, in line with River Basin Management Districts, should be developed at that level then pulled together into a National Flood Risk Management Plan. The co-ordination of these should be led by the National FLAG, with a statutory requirement for regional FLAGS to have involvement in the process and deliver the regional component plans, involving the stakeholders who will implement them. The plans could be co-ordinated and produced by SEPA, who as Secretariat and Regulator, ensure (on behalf of the Minister) that the plans are produced, compiled and delivered as agreed.
- Ministerial duty to **integrate decision making processes and funding streams** that have relevance to flooding; ensure that there is a public purse to deliver the plan.
- Close integration with the RBMP process and a Programme of measures
- Ministerial duty to ensure **resources are in place** and managing knowledge and data happens effectively to inform management of flood risk.

Funding

The flooding legislation should aim to deliver a more flexible, integrated funding for a range of measures, including land management for flooding and natural flood retention, hard and soft-engineering measures linked with the delivery of catchment flood management plans. Offering well

funded land management schemes, usefully linked to the Restoration and Remediation process of the WFD, redirecting support payments towards alternative from solely hard-engineering, and promotion of natural flood management through existing programmes and initiatives, such as the Scottish Rural Development Programme (SRDP). Tying support payments to innovative land management practices, such as the natural solutions to flooding would ensure wider public and societal benefits. However, it is possible that not enough funding will be available through the SRDP and schemes are often of limited duration. It may be necessary to look for an alternative method of support and long-term agreements in order to fully appreciate the benefits of natural flood management.

4. What role should sustainable flood management play in mitigating the effects of flooding?

The implementation of sustainable flood management should be the main purpose of the new Flooding Bill. Sustainable flood management is a process. It describes flood risk through a ‘whole river’ or catchment approach. It involves a wide range of stakeholders and defines their roles in flood management. Importantly, it provides many additional benefits beyond flood management. In the context of climate change, it offers huge advantages over the traditional methods of flood management. Sustainable flood management embodies a shift from our predominantly piece-meal and reactive approach to flood management towards a catchment-based approach that takes account of long-term social and economic factors and, together with a wide suite of measures, restores natural processes and natural systems to slow down and store water run-off. A typical sustainable flood management approach would include some or all of the following measures to lower flood risk in a catchment:

- Planning: avoiding development in flood prone areas
- Flood Mapping: identifying areas at risk and areas that are safe
- Flood Resilience: building or modifying properties to recover quickly from flood events
- Education, advice and awareness raising: raising the awareness of flooding issues in communities and advising on measures that can be taken to prevent or limit the amount of damage caused and improving the understanding
- Reservoir Management: linking high quality weather information with reservoir storage
- Building Removal: removing properties which, for economic or practical reasons, cannot be protected
- Flood Warning Schemes: allowing quicker and better preparedness for flood events
- Insurance Effects: designating areas with lower or higher insurance premiums based on risk
- Engineering: Hard: constructing walls, embankments and gates; Soft: Sustainable Urban Drainage Schemes (SUDS)
- Natural Flood Management: Involving land-use practices and restoring natural processes

We would expect each Flood Risk Management Plan (FRMP) would contain a combination of such measures, which together aim to reduce the risk of flooding in a particular catchment.

Natural flood management is an integral part of sustainable flood management. It is largely achieved by slowing the flow of water to rivers using natural water and land processes to lower flood risk to people and property further downstream. Within the sustainable flood management approach, it defines the role that farmers, foresters and estate owners have in flood management, within their catchments. Much of it is achieved through land management. Techniques include restoring upland wetlands and reforesting gullies; replanting native riparian woodland, restoring lowland wetlands and bogs, and re-connecting rivers with floodplains and meanders.

It is a cost-effective means of achieving many objectives, including our biodiversity targets and obligations, the aims and objectives of the WFD, improving recreational and well-being opportunities, buffering the effects of climate change, recharging groundwater systems and improving water quality. Such approaches have been shown to deliver social, economic and environmental benefits. An example of a study of economic benefits of a natural floodplain – Insh marshes RSPB nature reserve, is



given in the Annexes of this document. Significantly, SFM offers a rare opportunity for urban communities to appreciate the effects of the role and function of land-use in rural areas upstream. The effectiveness of these natural techniques has been extensively tested in a WWF Scotland demonstration project on the River Devon in Clackmannanshire and elsewhere in the UK and Europe (http://www.wwf.org.uk/filelibrary/pdf/slowingflow_web.pdf). The River Devon project demonstrates that although the effects of river flooding are felt downstream, the causes of flooding actually begin upstream among fields, forests and gullies http://www.wwf.org.uk/filelibrary/pdf/floodplanner_web.pdf. Findings of the demonstration project and work done by RSPB in Insh marshes and elsewhere⁶ indicate that by restoring the functionality of rivers and uplands, it is possible to reduce the risk of flooding downstream in the long-term for a fraction of the costs of expensive, short-lived, hard-engineering⁷.

5. What role can land-use management, the planning system and building regulations play in mitigating the effects of flooding?

The way land is managed can have significant effects on the run-off and storage capacity within a catchment. Integration of flood management into development planning, agriculture policy and forestry policy and practice is essential for achieving the objectives of SFM and river basin management. The planning, agriculture and forestry sectors have a key role to play in implementing natural solutions to flooding. However, this will require recognition of the value of natural flood management, and a full integration within the rural land-use policy, as discussed in our answer to question 3.

Flood defence and the drainage of farmlands have been actively encouraged by the EU Common Agricultural Policy (CAP) since the late 1940s, with the aim of increasing and securing food production. Major drainage schemes are still maintained today under the Land Drainage Act (Scotland) 1958 and 1930. However, agricultural and forestry policies are changing and the emphasis is increasingly on diversification, the delivery of public benefits and the protection and enhancement of the environment. Where flood banks are protecting marginally viable or even higher quality land, decisions need to be made on whether current farming and forestry practices are genuinely providing the widest benefits from that land or whether the public interest would be better served by a change in land management. The CAP has the potential to benefit sustainable flood management through support of natural flood management techniques; but measures may be limited by the funding and prioritisation process.

The views of farmers, foresters and other land managers are obviously critical to implementing sustainable flood management. To encourage a positive approach, there is a pressing need for appropriate and targeted incentives to encourage restoration to more sympathetic, less intensive management of land which can be used to lower flood risk to communities. There is an urgent requirement for an appropriate funding mechanism, combining compensation and reward. Redirecting flood scheme budgets from a wholly engineered approach to supporting the sustainable flood management approach is a major part of the solution.

Achieving integrated land management will need much closer co-operation between traditional land use sectors (notably agriculture, forestry, transport and building) but the potential economic and environmental benefits will be significant. Wider land use measures to deliver SFM will also deliver a range of other policy priorities including improved biodiversity, soil protection and erosion control, climate change adaptation (including habitat networks), access and recreation, and landscape value.

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