

Towards sustainable flood management in Scotland

A briefing prepared by the Freshwater Taskforce of the Scottish Environment LINK on the implementation of Sustainable Flood Management (SFM) through primary legislation

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

Climate change predictions suggest that Scotland is set to get wetter and stormier, increasing the risk of flooding. Therefore floods that are currently considered 'extreme' will become more common in future. The current flooding policies have seen millions of pounds invested into concrete flood prevention schemes, which only provide short-term solutions and often increase the risk of flooding elsewhere. An intention to introduce a new Flooding Bill was announced by the First Minister on 5 September. We see this as a major opportunity to implement a modern, sustainable approach to flood management. Sustainable Flood Management (SFM) is not a new concept in Scotland – it was embedded in the WEWS Act through a duty on Scottish Executive, SEPA and 'responsible' authorities to 'promote SFM'. However, 4 years on and nothing has actually happened on the ground. Much work needs to be done to prepare for the Flooding Bill, which is discussed here in further detail.

1. Current approach to flooding in Scotland

Flooding is a natural phenomenon, but one that is also exacerbated by human mismanagement of the environment. The problem of flooding has been made worse by the way we manage catchments and defend ourselves against floods. Flood policies have directed funding toward hard engineering, the building of floodwalls, embankments and large concrete culverts. Rivers throughout Scotland have been straightened and floodplains drained to allow for farming, urban development and transport. The result of these activities is that rivers flow faster and over smaller, more restricted areas than they would under natural conditions, restricting the flow of water and often resulting in increased flood risk elsewhere in the catchment. It is becoming clear that the current approach to flooding does not serve the public well. Issues, such as climate change will make the situation worse and should help to drive a change that is needed to achieve a more sustainable approach to flooding. Many settlements are located on low-lying floodplains alongside rivers and flat land on the coast. Currently almost 100,000 Scottish homes and 7,000 businesses are vulnerable to inland and coastal flooding¹. Estimates of annual average damage from flooding are around £20 million – this could rise by 115% by 2080².

Our current approach to dealing with floods in Scotland is piecemeal and reactive. A primary responsibility for flooding lies with individual landowners. Local authorities identify flood risk in their areas and propose flood defence schemes where such risk has been identified. Scottish ministers provide grants to local authorities for flood defence schemes under the Flood Prevention (Scotland) Act 1961, which have more than doubled over 2005-2008, with grant aid increasing from 50% to 80%.

¹ <http://www.scotland.gov.uk/News/Releases/2007>

² Climate Change: Flooding Occurrences Review, Scottish Executive Research, 2002

2. The duty on sustainable flood management and the new Floods Risk Directive

Sustainable flood management is not a new concept in Scotland. A duty on sustainable flood management (SFM) has been in place for some time. The Water Environment and Water Services (Scotland) Act 2003 (the 'WEWS Act') introduced this duty on Scottish Ministers, SEPA and responsible authorities:

'The Scottish Ministers, SEPA and the responsible authorities must – so far as is consistent with the purposes of the relevant enactment or designated function in question –

(i) promote sustainable flood management

and,

c) so far as practicable, adopt an integrated approach by co-operating with each other with a view to co-ordinating the exercise of their respective functions. '

(Water Environment and Water Services Act section 2 (4) (b) (i))

However, to this date, no further changes to flood policies have been made as a result of this new policy. The design of flood schemes is still dominated by the traditional approaches and hard engineering. Land managers, farmers and local authorities alike do not understand what SFM means in practice and the Scottish Executive has been slow in adopting recommendations to take this issue forward. We therefore see the new Flooding Bill as a major opportunity to implement this concept on the ground.

3. The new Bill on Flooding

A new opportunity has now arisen to change the way we deal with flooding in Scotland. The recent announcement to introduce a primary piece of legislation on flooding is greatly welcome as a major opportunity to implement a more sustainable approach towards the management of floods. The new Flooding Bill should aim to integrate with the aims of the proposed European **Floods Risk Directive** that promotes a concept of integrated catchment flood management, and requires member states to take a long-term planning approach to reducing flood risks. The Directive makes flood management a key part of river basin management, and places emphasis on non-structural measures such as using natural floodplains to store water during floods. The Directive recognises the impacts of climate change on flooding and aims to reduce the costs of adapting to climate change by taking early action.

What are the major obstacles to change that will need to be addressed through a Flooding Bill?

We see the Flooding Bill **as a major opportunity to implement better the provisions of SFM in Scotland.** However, full implementation of sustainable flood management through primary legislation will require a substantial amount of work and preparation. This includes improving our understanding in a number of issues:

- **What is sustainable flood management?** SFM means different things to different people. Four years after the Ministerial group (the National Technical Advisory Group) on flooding proposed a definition of SFM, we still do not have a public agreement on the meaning of SFM, nor we understand what it actually means in practice. The lack of a nationally accepted definition creates uncertainty in implementing this concept.
- **Existing flooding legislation**, including the Flood Prevention (Scotland) Act 1961, the Coast protection (Scotland) Act 1949 and the Land Drainage (Scotland) Acts 1930 and 1958 block the



implementation of SFM on the ground. These policies need to be brought in line with the requirements of SFM. Details of policy changes required to achieve SFM are discussed further in RSPB Scotland's report *Time for a change*³.

- **Responsibilities for flooding are highly fragmented** and there is a need for better co-ordination on the ground. A role of a single authority, or a 'Flood Commissioner' should be considered, to provide advice to Ministers on flooding, ensure consistent implementation of national flooding policies at regional level and to ensure better co-ordination between local authorities, SEPA, Scottish Water and others responsible for flooding.
- **Pilot projects to test the effectiveness of natural flood management measures** are desperately needed. To this date, only one pilot has been set-up by WWF Scotland on river Devon⁴ in Clackmannanshire, with the aim to demonstrate and quantify the effectiveness of natural flood management techniques. These techniques include restoration of wetlands, gullies and riparian woodlands that aim to reduce the flow of water from the hills and store water along the catchment using natural techniques. More projects are needed led by SEPA and Scottish Executive to apply these techniques on a larger scale.
- **Further strengthening of statutory planning policies, land use, and other relevant policies** should be considered to ensure **no further loss of floodplains** through drainage, planning and other activities. We need to consider to what degree the current policies encourage sympathetic land management practice and restoration of the natural environment that aims to reduce and store water in the catchment.
- **Integration of existing funding streams and a review of the current set up for funding** is needed to support long-term management of land for flooding. The Scottish Executive's grain-in-aid should aim to promote catchment based, sustainable solutions.
- Further consideration needs to be given to the **role of SEPA in integrating flood risk management and WFD's River Basin Management Planning**.
- **Investigation of links between, and better co-ordination with existing plans and policies is needed**, such as the Scottish Rural Development Programme, Scottish Forestry Strategy and Scottish Biodiversity Strategy to ensure better and more widespread delivery of flood benefits where appropriate.

³ Time for a change: Policy changes required to achieve sustainable flood management, RSPB report, 2007

⁴ Flowing the Flow: A natural solution to flooding problems, WWF Scotland report, 2007

Annex 1 - What is sustainable flood management?

Climate change predictions indicate that winters in Scotland will become wetter with increases in both the rainfall intensity and frequency, whilst summers will become drier. Therefore floods that are currently considered 'extreme' will become more common in future. SFM is an important tool to aid adaptation to these impacts in a sustainable and cost-effective way.

Sustainable flood management embodies a shift from our predominantly piecemeal and reactive approach to flood management towards a catchment-based approach that takes account of long-term social and economic factors and uses natural processes and natural systems to slow down and store water. Sustainable flood management includes a package of measures that together aim to reduce the risk of flooding and minimise the economic, environmental and social costs of flooding. This includes both structural and non-structural measures, such as natural flood management, hard engineering where necessary, flood risk mapping, flood warning, preparedness, education, and emergency response.

The natural component of sustainable flood management is best named Natural Flood Management and is achieved by adopting the following elements to manage the risk of flooding:

- ♣ a strategic, catchment based approach (the whole river basin, from source to the sea)
- ♣ protecting and using natural systems and habitats, such as floodplains and wetlands
- ♣ promoting soft-engineering techniques'

Natural flood management is an integral part of SFM. Soft-engineered solutions are designed to hold water. Natural floodplains and coasts are allowed to flood and wetland habitats such as wet grassland, peatlands, bogs, fens and saltmarsh act like giant sponges to soak up excess water then release it slowly back into the river. They are cost-effective means of achieving many objectives, including our biodiversity obligations, the aims and objectives of the WFD, as well as improving recreational opportunities. Such approaches can deliver social, economic, and environmental benefits.

SFM offers a long term, sustainable solution to flooding in the face of changing climate and weather patterns. There will, of course, still be a place for hard defences – sometimes there may be no alternative, but hard defences should be built after the maximisation of soft engineering measures have been taken to lower flood risk. Many cities and settlements in Scotland are located directly on floodplains alongside rivers and the coast, which makes them vulnerable to flooding. However, even in such situations, soft engineering can reduce the need for building ever-higher flood defences to protect these vulnerable communities.

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