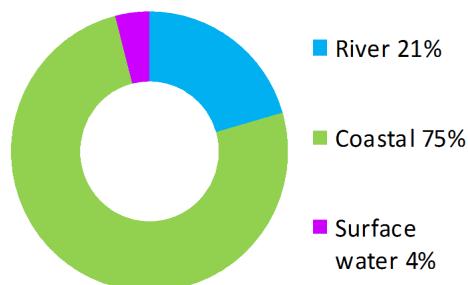


Stornoway (Potentially Vulnerable Area 02/02)

Local Plan District	Local authority	Main catchment
Outer Hebrides	Comhairle nan Eilean Siar	Lewis and Harris coastal

Summary of flooding impacts



At risk of flooding

- 20 residential properties
- 70 non-residential properties
- £210,000 Annual Average Damages

(damages by flood source shown left)

Summary of flooding impacts

Summary of objectives to manage flooding

Objectives have been set by SEPA and agreed with flood risk management authorities. These are the aims for managing local flood risk. The objectives have been grouped in three main ways: by reducing risk, avoiding increasing risk or accepting risk by maintaining current levels of management.

Many organisations, such as Scottish Water and energy companies, actively maintain and manage their own assets including their risk from flooding. Where known, these actions are described here. Scottish Natural Heritage and Historic Environment Scotland work with site owners to manage flooding where appropriate at designated environmental and/or cultural heritage sites. These actions are not detailed further in the Flood Risk Management Strategies.

Objectives

Summary of actions to manage flooding

The actions below have been selected to manage flood risk.

<i>Flood protection scheme/works</i>	<i>Natural flood management works</i>	New flood warning	<i>Community flood action groups</i>	<i>Property level protection scheme</i>	<i>Site protection plans</i>
Flood protection study	<i>Natural flood management study</i>	<i>Maintain flood warning</i>	Awareness raising	<i>Surface water plan/study</i>	Emergency plans/response
<i>Maintain flood protection scheme</i>	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies

Actions

Stornoway (Potentially Vulnerable Area 02/02)

Local Plan District	Local authority	Main catchment
Outer Hebrides	Comhairle nan Eilean Siar	Lewis and Harris coastal

Background

This Potentially Vulnerable Area is located in the east of the Isle of Lewis (shown below). It extends from Stornoway across the Eye Peninsula and covers an area of approximately 57km².

The area has a long coastline comprising rocky and sandy shorelines. The estuary of the Abhainn Lacasdail river is located just to the north east of Stornoway.



© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.

Stornoway is the administrative centre of the Outer Hebrides and the principal town with a population of approximately 9,000. The harbour and airport are important links to the mainland and the southern islands.

Approximately 20 residential properties and 70 non-residential properties are at risk of flooding.

The Annual Average Damages are estimated to be £210,000 with the majority caused by coastal flooding.

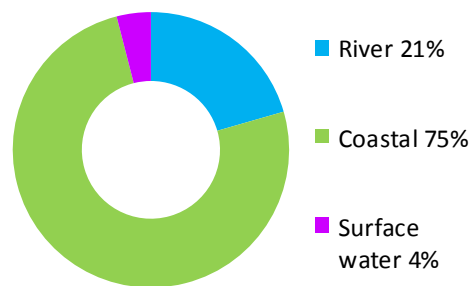


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

Coastal flooding extends from the Abhainn Lacasdail estuary across the low lying land to the north and east of Stornoway. Coastal flooding also affects low lying parts of the town of Stornoway, notably around Bayhead and North Beach. A strip of land connecting the Eye Peninsula to the mainland at the Bhraigh is subject to wave action during storms which results in disruption to the A866 road, cutting off commuters and local communities on a regular basis.

River flooding affects the west of the area from the Abhainn a Ghlinn Mhoir which flows along the west of Stornoway and discharges into the Cala Steornabhaigh.

The risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is summarised in Table 1.

Most of the impacts of flooding are in Stornoway itself. Designated cultural heritage sites are at risk of flooding, including a church and several scheduled monuments. Small areas of environmental importance are also at risk of flooding, including the Stornoway Castle Woodlands Site of Special Scientific Interest (SSSI) and Tong Saltings SSSI.

The damages associated with floods of different likelihood are shown in Figure 2. For this Potentially Vulnerable Area the highest damages are to non-residential properties. The location of the impacts of flooding is shown in Figure 3.

	1 in 10 High likelihood	1 in 200 Medium likelihood	1 in 1000 Low likelihood
Residential properties (total 4,200)	<10	20	50
Non-residential properties (total 1,000)	30	70	90
People	20	50	100
Community facilities	0	0	0
Utilities assets	<10	10	10
Transport links (excluding minor roads)	Roads at 40 locations Airport runway	Roads at 90 locations Airport runway	Roads at 110 locations Airport runway
Environmental designated areas (km ²)	<0.1	<0.1	<0.1
Designated cultural heritage sites	9	14	14
Agricultural land (km ²)	0.8	0.8	0.9

Table 1: Summary of impacts of flooding¹

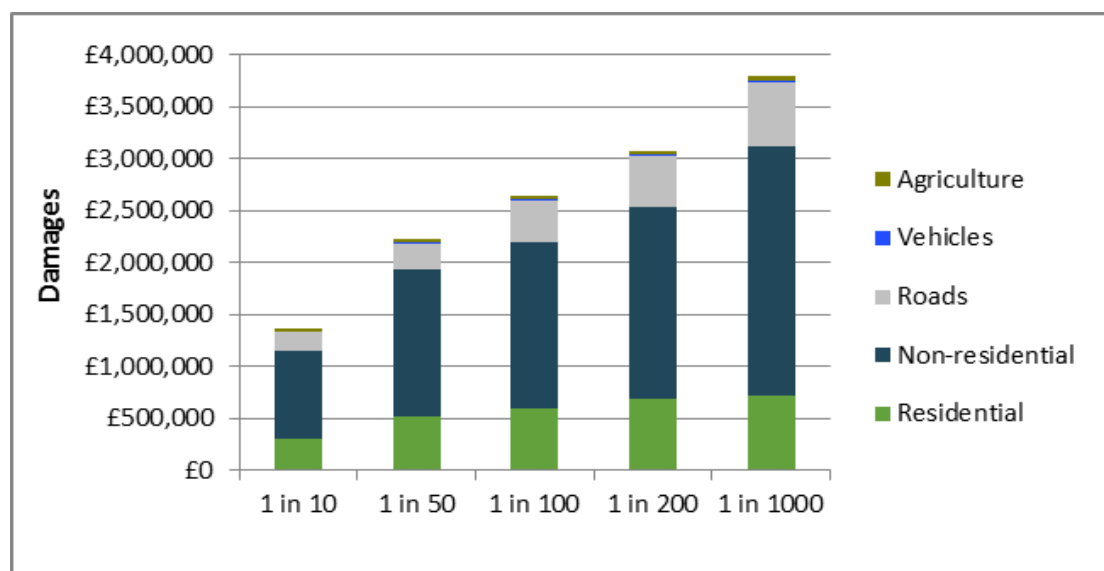


Figure 2: Damages by flood likelihood

¹ Some receptors are counted more than once if flooded from multiple sources

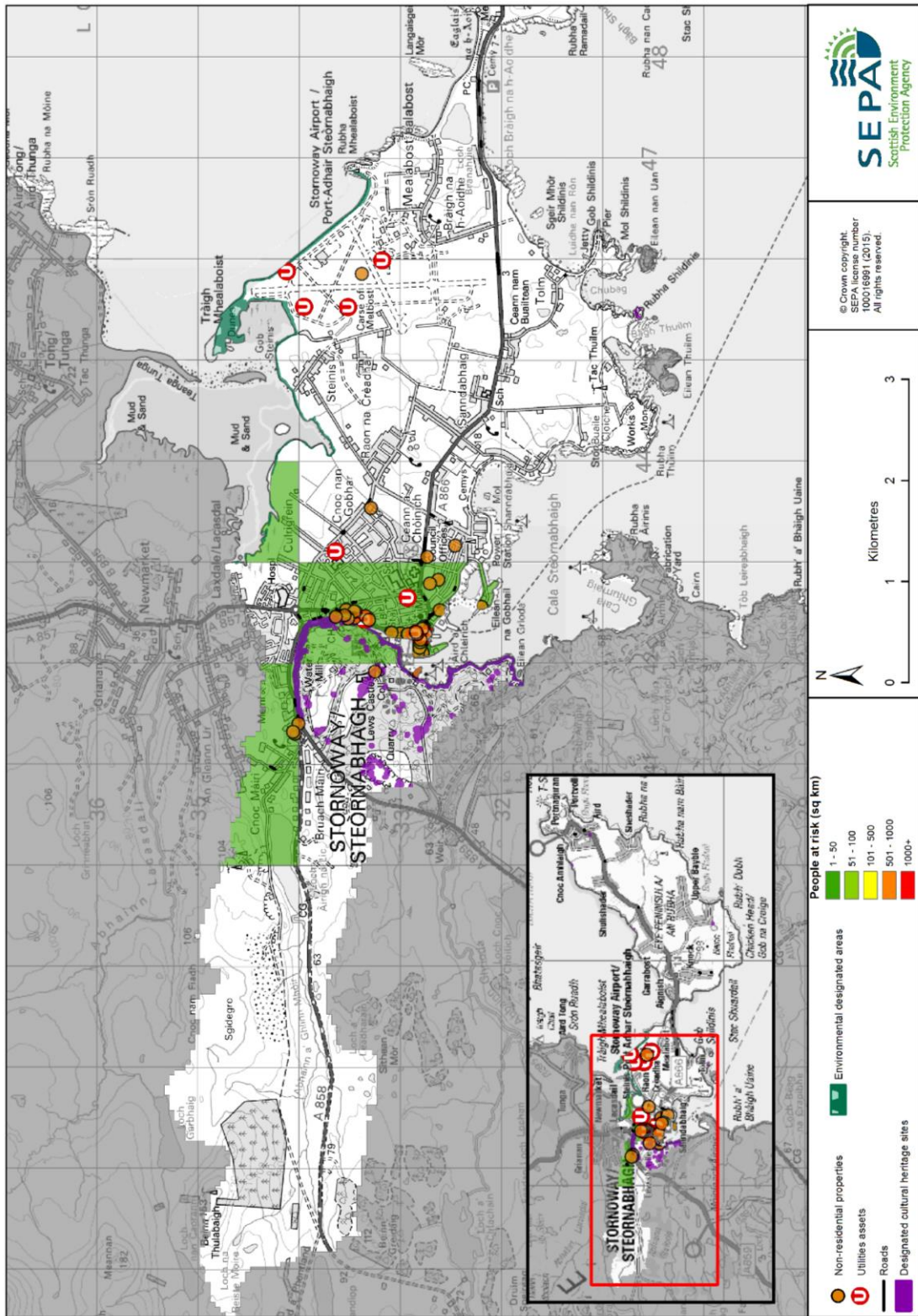


Figure 3: Impacts of flooding

History of flooding

There is a long history of floods in this Potentially Vulnerable Area with flooding from high tides, wave action or a combination of the two frequently recorded.

The earliest recorded flood was in 1850, when the sea flooded low lying coastal and estuary areas. Flooding on a burn in 1890 washed away a substantial bridge in Bayble and in 1933 the retaining embankment of a loch, which supplies Stornoway with water, collapsed, destroying bridges and flooding properties.

There were coastal floods in 1926, 1959, 1967, 1974, 1975 and 1984, which affected properties near the harbour. The airport suffered from flooding in 1974 and in February 1990, a coastal flood again affected the airport plus several streets and the town hall in Stornoway whilst wave action cut off access to the bus station.

In February 2014 Kenneth Street, Beach Street and the Bayhead areas of Stornoway were affected by high sea levels.

Objectives to manage flooding in Potentially Vulnerable Area 02/02

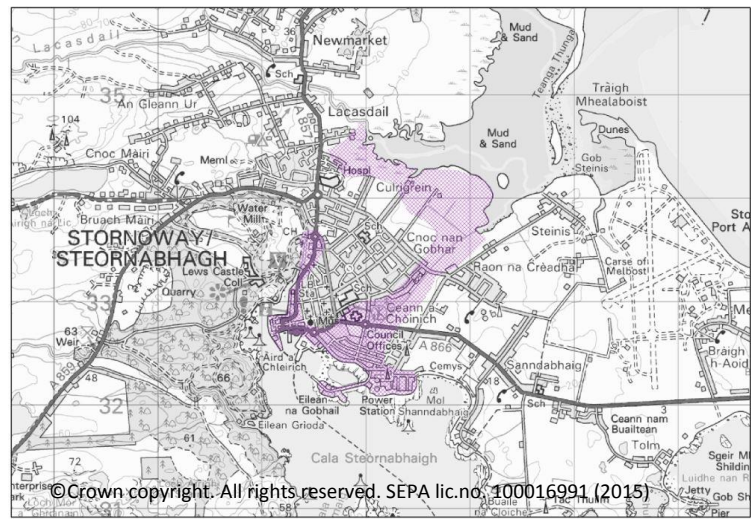
Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target areas have been set to focus actions; they do not necessarily correspond to areas at risk in SEPA's flood map. The objectives below have been set for Stornoway Potentially Vulnerable Area.

Reduce risk to Stornoway from coastal flooding

Indicators:

- 30 people
- £17,000 Annual Average Damages from residential properties
- £100,000 Annual Average Damages from non-residential properties

Target area:



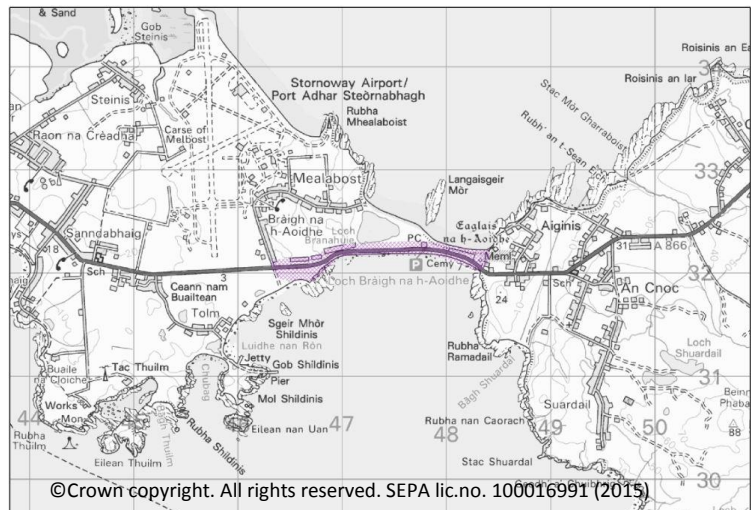
Objective ID: 200201

Reduce disruption to roads in the Braigh area from coastal flooding

Indicators:

- A866 (Stornoway to Eye Peninsula)

Target area:



Objective ID: 200202

Target area	Objective	ID	Indicators within PVA
Applies across Outer Hebrides Local Plan District	Avoid an overall increase in flood risk	200001	<ul style="list-style-type: none"> • 20 residential properties • £210,000 Annual Average Damages
Applies across Outer Hebrides Local Plan District	Reduce overall flood risk	200002	<ul style="list-style-type: none"> • 20 residential properties • £210,000 Annual Average Damages
Applies across Outer Hebrides Local Plan District	Organisations such as Scottish Water, energy companies and Historic Environment Scotland actively maintain and manage their own assets, including the risk of flooding. These actions are not detailed further in the Flood Risk Management Strategies.		

Actions to manage flooding in Potentially Vulnerable Area 02/02

Actions describe where and how flood risk will be managed. These actions have been set by SEPA and agreed with flood risk management authorities following consultation. Selection of actions to deliver the agreed objectives was based on a detailed assessment and comparison of economic, social and environmental criteria. The actions shaded and then described below have been selected as the most appropriate for Stornoway Potentially Vulnerable Area.

Selected actions					
<i>Flood protection scheme/works</i>	<i>Natural flood management works</i>	New flood warning	<i>Community flood action groups</i>	<i>Property level protection scheme</i>	<i>Site protection plans</i>
Flood protection study	<i>Natural flood management study</i>	<i>Maintain flood warning</i>	Awareness raising	<i>Surface water plan/study</i>	Emergency plans/response
<i>Maintain flood protection scheme</i>	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies

Action (ID):	NEW FLOOD WARNING (2000020010)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	SEPA		
Status:	Not started	Indicative delivery:	2016-2021
Description:	The area under consideration covers the coastline of the Outer Hebrides. A flood forecasting system will be required before flood warnings can be implemented for this area.		

Action (ID):	FLOOD PROTECTION STUDY (2002010005)		
Objective (ID):	Reduce disruption to roads in the Braigh area from coastal flooding (200202) Reduce risk to Stornoway from coastal flooding (200201)		
Delivery lead:	Comhairle nan Eilean Siar		
Priority:	National: 79 of 168	Within local authority:	2 of 5
Status:	Not started	Indicative delivery:	2016-2021
Description:	A study is needed to confirm the business case and determine the extent and size of defences required. The study should focus on options of constructing new or improving existing direct defences around the harbour area (in particular Cromwell Street) and along the northern edge of Stornoway, improvements to the existing flap valve on the outfall of the unnamed watercourse through the Goat Hill area,		

	consideration of property level protection for any residual flood risk and improving the existing flood defence walls either side of the A866 on the isthmus between Stornoway and the Eye peninsula (the Braigh area). Any other actions may also be considered to develop the most sustainable range of options. Wave overtopping should be considered as part of the study.
Potential impacts	
Economic:	The study could benefit 13 residential and 55 non-residential properties at risk of flooding in this location, with potential damages avoided of up to £4.2 million.
Social:	Approximately 29 people could directly benefit from flood protection works. The community has a higher than average proportion of vulnerable residents. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people. Reduced flood risk to three energy production/electricity utility sites and roads (including Anderson Road, A866, A857, Newton Street) could reduce disruption to the wider community. The A866 is the only land link between the Eye peninsula and Stornoway. Road closures result in considerable disruption to residents commuting for work and children attending school in Stornoway. Road closures also affect the provision of emergency services to the communities on the Eye peninsula. Construction of direct defences has the potential to reduce access to the waterfront. Negative impacts through disturbance to the local community during the construction phase should be considered.
Environmental:	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. Opportunities to mitigate any environmental impacts may include design and timing of works. There is potential for impacts on coastal landscapes and habitats; as there are existing structures in the locations where defences are proposed the impacts are likely to be limited. Future flood protection works would be located outside of the garden and designed landscape cultural heritage site and the Tong Saltings Site of Special Scientific Interest (off the northern frontage of Stornoway), and there are unlikely to be any significant impacts.

Action (ID):	STRATEGIC MAPPING AND MODELLING (2000020019)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	Scottish Water		
Status:	Not started	Indicative delivery:	2016-2021
Description:	Scottish Water will carry out an assessment of flood risk within the highest risk sewer catchments to improve knowledge and understanding of surface water flood risk.		

Action (ID):	FLOOD FORECASTING (2000020009)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	SEPA		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<p>The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.</p> <p>The Potentially Vulnerable Area is within the 'Western Isles' flood alert area.</p>		

Action (ID):	SELF HELP (2000020011)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	—		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<p>Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.</p>		

Action (ID):	AWARENESS RAISING (2000020013)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	Responsible authorities		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<p>SEPA and the responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact.</p> <p>From 2016 SEPA will engage with the community through local participation in national initiatives, including partnership working with Neighbourhood Watch Scotland. In addition, SEPA will engage with local authorities and community resilience groups where possible. Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.</p>		

Action (ID):	MAINTENANCE (2000020007)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	Comhairle nan Eilean Siar, asset / land managers		
Status:	Existing	Indicative delivery:	Ongoing
Description:	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake inspection and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		

Action (ID):	EMERGENCY PLANS/RESPONSE (2000020014)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	Category 1 and 2 Responders		
Status:	Existing	Indicative delivery:	Ongoing
Description:	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.		

Action (ID):	PLANNING POLICIES (2000010001)		
Objective (ID):	Avoid an overall increase in flood risk (200001) Reduce overall flood risk (200002)		
Delivery lead:	Planning authority		
Status:	Existing	Indicative delivery:	Ongoing
Description:	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2.		