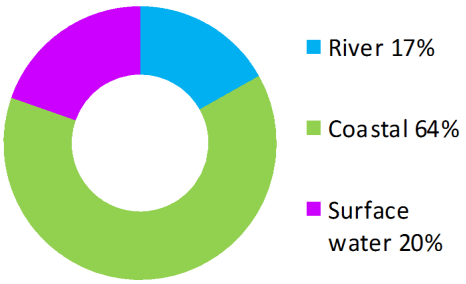
Golspie (Potentially Vulnerable Area 01/06)

Local Plan District	Local authority	Main catchment
Highland and Argyll	The Highland Council	Brora coastal

Summary of flooding impacts



At risk of flooding

- 60 residential properties
- 10 non-residential properties
- £190,000 Annual Average Damages

(damages by flood source shown left)

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.

Summary of actions to manage flooding

The actions below have been selected to manage flood risk.

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

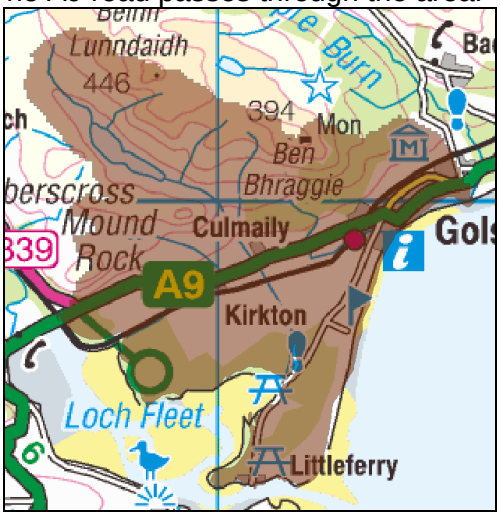
Golspie (Potentially Vulnerable Area 01/06)

Local Plan District	Local authority	Main catchment
Highland and Argyll	The Highland Council	Brora coastal

Background

This Potentially Vulnerable Area is approximately 38km^2. It includes Golspie and the mainly rural area to the south and west including the settlements of Littleferry, Kirkton, and Culmaily (shown below).

The A9 road passes through the area.



The main river is the Culmaily Burn. Loch Lunndaidh is also located in the area.

There are approximately 60 residential and 10 non-residential properties at risk of flooding.

The Annual Average Damages from flooding are approximately £190,000 with the majority caused by coastal flooding.

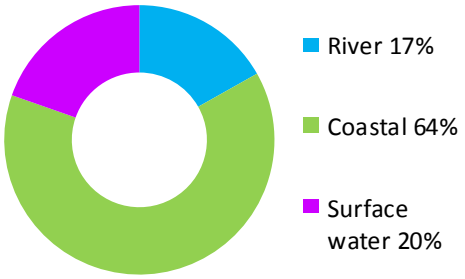


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

Coastal flood risk is centred on the seafront in Golspie with a second area of coastal flood risk further to south around the caravan site and kart track. Flooding from wave action is not fully represented in the assessment of flood risk in this area and the number of properties at risk and the damages from coastal flooding may be underestimated as a result.

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.

A nursing home, the A9 road and the Wick to Inverness railway in a number of locations are at risk of being flooded. One designated cultural heritage site and areas of environmental importance are also at risk. These include Dornoch Firth and Loch Fleet Special Protection Area, Loch Fleet Special Protection Area and Loch Fleet Site of Special Scientific Interest.

The damages associated with floods of different likelihood are shown in Figure 2. Residential and non-residential properties experience the greatest economic impact.

The location of the impacts is shown in Figure 3.

	1 in 10 High likelihood	1 in 200 Medium likelihood	1 in 1000 Low likelihood
Residential properties (total 730)	40	60	60
Non-residential properties (total 110)	<10	10	20
People	80	120	130
Community facilities	0	<10 Healthcare facilities	<10 Healthcare facilities
Utilities assets	0	<10	<10
Transport links (excluding minor roads)	Roads at 10 locations Rail at 10 locations	Roads at 20 locations Rail at 10 locations	Roads at 20 locations Rail at 10 locations
Environmental designated areas (km^2)	1	2	2
Designated cultural heritage sites	1	1	1
Agricultural land (km^2)	0.6	0.9	1

Table 1: Summary of flooding impacts[1]

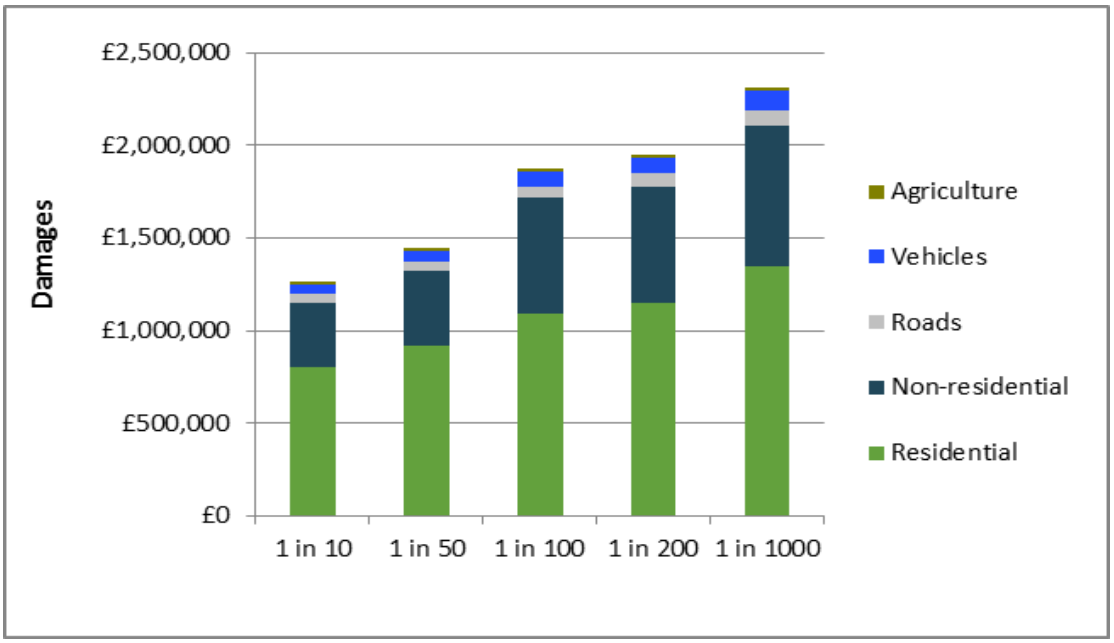


Figure 2: Damages by flood likelihood

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

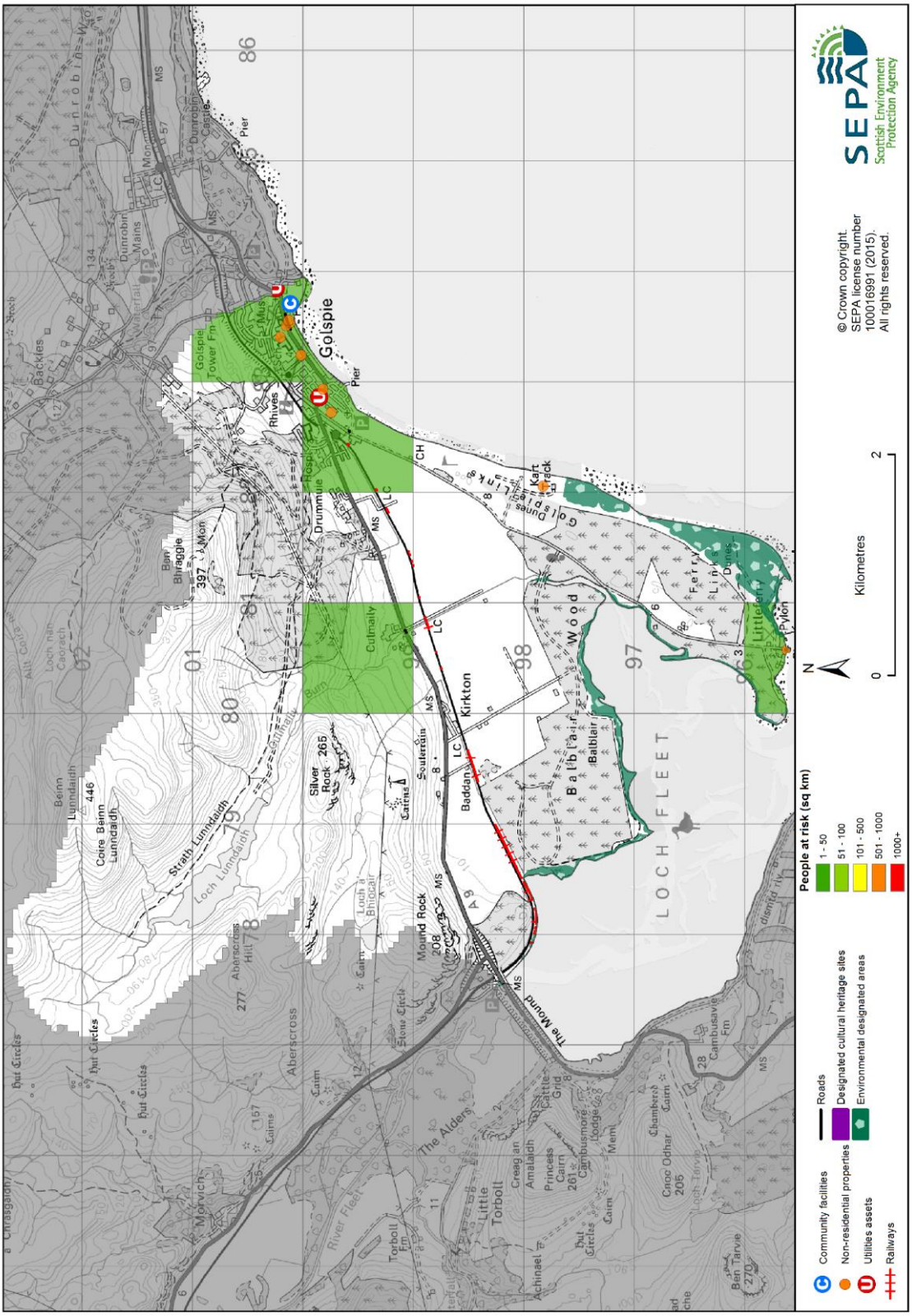


Figure 3: Impacts of flooding

History of flooding

Since 2005 there have been four recorded river and surface water floods that have affected roads and property, including:

- December 2012: Coastal storms caused damage and flooding to Golspie;
- October 2006: Rhives Burn exceeded the capacity of the culvert under Rhives Road;

Surface water is reported to affect the gardens of properties along Tower Street and can be an issue along Main Street.

In 1864 Golspie Burn overflowed destroying several bridges and roads. A similar flood also occurred in 1903.

Objectives to manage flooding in Potentially Vulnerable Area 01/06

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 Golspie Potentially Vulnerable Area.

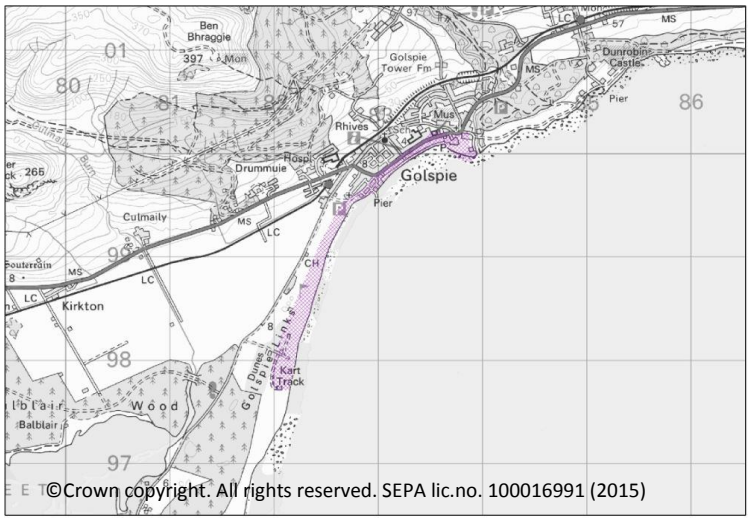
Reduce risk in Golspie from coastal flooding

Indicators:

- 40 people
- £68,000 Annual Average Damages from residential properties
- £29,000 Annual Average Damages from non-residential properties

Objective ID: 100601

Target area:



Target area	Objective	ID	Indicators within PVA
Golspie	Reduce the physical or disruption risk related to the transport network for roads	1300	• 3 locations on the A9 with a total length of 150m
Applies across Highland and Argyll Local Plan District	Avoid an overall increase in flood risk	100001	• 60 residential properties • £190,000 Annual Average Damages
Applies across Highland and Argyll Local Plan District	Reduce overall flood risk	100002	• 60 residential properties • £190,000 Annual Average Damages
Applies across Highland and Argyll 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 01/06

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 Golspie Potentially Vulnerable Area.

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

Action (ID):	**FLOOD PROTECTION SCHEME/WORKS** (1300021)		
Objective (ID):	Reduce the physical or disruption risk related to the transport network for roads (1300)		
Delivery lead:	Transport Scotland		
Status:	**Under development**	Indicative delivery:	**2022-2027**
Description:	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A9.		

Action (ID):	**FLOOD PROTECTION STUDY** (1006010005)		
Objective (ID):	Reduce risk in Golspie from coastal flooding (100601)		
Delivery lead:	The Highland Council		
Priority:	National:	Within local authority:	
	104 of 168	**9 of 23**	
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	The study should primarily focus on coastal management (revetments), direct defences (flood walls), natural flood management (wave attenuation through beach recharge) and consideration of property level protection for any residual risk, but other actions may also be considered in order to develop the most sustainable range of options. The study should look to confirm the extent and size of defences required and the business case for flood		

	protection works.
Potential impacts	
Economic:	The study should benefit 18 residential and three non-residential properties at risk of flooding in this location, with potential damages avoided of up to £3.3 million. Note there are likely to be additional benefits of reducing losses due to coastal erosion.
Social:	Approximately 40 people may directly benefit from flood protection works. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people. Works may also reduce disruption to the wider community of Golspie and surrounding areas through reduced flooding to the A9. There are potential impacts on amenity and access to the foreshore for the community, which should be considered during the flood protection study. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism. Negative impacts through disturbance to the local community during the construction phase should be considered. Note there are likely to be additional social benefits of reducing coastal erosion.
Environmental:	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. Natural flood management actions can have a positive impact by restoring and enhancing natural habitats. Opportunities to mitigate any environmental impacts may include design and timing of works. There is potential for impacts on coastal habitats, and increased erosion and disruption of natural processes. To be in accord with the FRM Strategy, the responsible authority should seek to ensure as part of the study that the action will not have an adverse effect on the integrity of the Moray Firth Special Area of Conservation, and Dornoch Firth and Loch Fleet Special Protection Areas. There is potential to directly impact on the Loch Fleet Site of Special Scientific Interest. Beach recharge will very often involve proposals to obtain the donor sediment from the low intertidal or shallow subtidal in the vicinity. There are potential adverse effects on biodiversity, active coastal processes, and even coastal flood risk if sediment extraction allows greater wave attack.

Action (ID):	**STRATEGIC MAPPING AND MODELLING** (1000020016)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	SEPA		
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km² of improved data is currently available within this Local Plan District.		

Action (ID):	**STRATEGIC MAPPING AND MODELLING** (1000020019)		
Objective (ID):	Reduce overall flood risk (100002)		
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):	**MAINTAIN FLOOD WARNING** (1000020030)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	SEPA		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	Continue to maintain the 'Helmsdale to Embo' flood warning area which is part of the Moray Firth coastal flood warning scheme.		

Action (ID):	**FLOOD FORECASTING** (1000020009)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	SEPA		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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. The Potentially Vulnerable Area is within the 'Caithness and Sutherland' flood alert area.		

Action (ID):	**COMMUNITY FLOOD ACTION GROUPS** (1000020012)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	Community		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	The Golspie Flood Prevention Group was formed to allow concerned parties in Golspie to express their concern about flooding and flood management in Golspie. Further the group will to be able to input into any decisions made concerning flood management in Golspie.		

Action (ID):	**SELF HELP** (1000020011)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	—		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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.		

Action (ID):	**AWARENESS RAISING** (1000020013)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	Responsible authorities		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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. 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.		

Action (ID):	**MAINTENANCE** (1000020007)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	The Highland Council, 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** (1000020014)		
Objective (ID):	Reduce overall flood risk (100002)		
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** (1000020001)		
Objective (ID):	Reduce overall flood risk (100002)		
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.		