

Airth (Potentially Vulnerable Area 10/09)

| Local Plan District | Local authority | Main catchment |
|---------------------|-----------------|-------------------------------|
| Forth Estuary | Falkirk Council | Forth Estuary (south) coastal |

Summary of flooding impacts



At risk of flooding

- 110 residential properties
- <10 non-residential properties
- £720,000 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

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| Local Plan District | Local authority | Main catchment |
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| Forth Estuary | Falkirk Council | Forth Estuary (south) coastal |

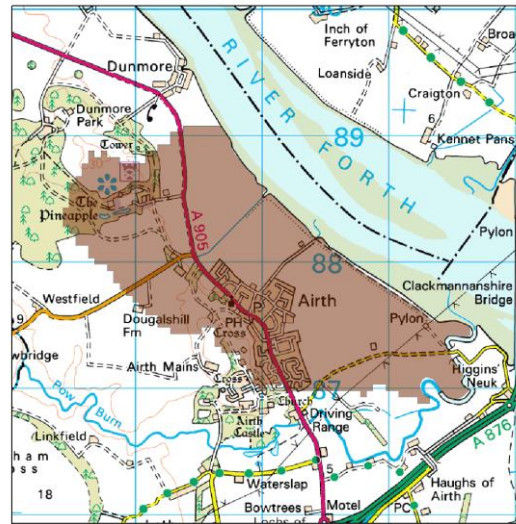
Background

This Potentially Vulnerable Area is 4km² and part of the Firth of Forth catchment (shown right). This is a small coastal area containing the village of Airth.

All of the damages in this Potentially Vulnerable Area are caused by coastal flooding to the town of Airth.

There are approximately 110 residential properties and fewer than 10 non-residential properties at risk of flooding.

The Annual Average Damages from flooding are approximately £720,000.



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Summary of flooding impacts

The greatest risk of flooding is to the town of Airth.

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.

The damages associated with floods of different likelihood are shown in Figure 1. For this Potentially Vulnerable Area the highest damages are to residential properties followed by damages to non-residential properties. The location of the impacts of flooding is shown in Figure 2.

The figures presented for Annual Average Damages include damages to residential properties, non-residential properties, transport and agriculture.

The risk of flooding to utilities in Table 1 does not include Scottish Water data. Scottish Water undertook a national assessment of above ground assets at medium likelihood of flooding (including water treatment works, wastewater treatment works and pumping stations). Within this Potentially Vulnerable Area there are two assets identified as being at risk of flooding.

| | 1 in 10 High likelihood | 1 in 200 Medium likelihood | 1 in 1000 Low likelihood |
|---|----------------------------|-------------------------------|-----------------------------|
| Residential properties (total 680) | 90 | 110 | 120 |
| Non-residential properties (total 50) | <10 | <10 | <10 |
| People | 200 | 240 | 260 |
| Community facilities | 0 | 0 | 0 |
| Utilities | 0 | 0 | 0 |
| Transport links (excluding minor roads) | 2 A roads at 2 locations | 2 A roads at 4 locations | 2 A roads at 4 locations |
| Environmental designated areas (km ²) | 0.1 | 0.1 | 0.1 |
| Designated cultural heritage sites | 1 | 1 | 1 |
| Agricultural land (km ²) | 1.3 | 1.4 | 1.5 |

Table 1: Summary of flooding impacts

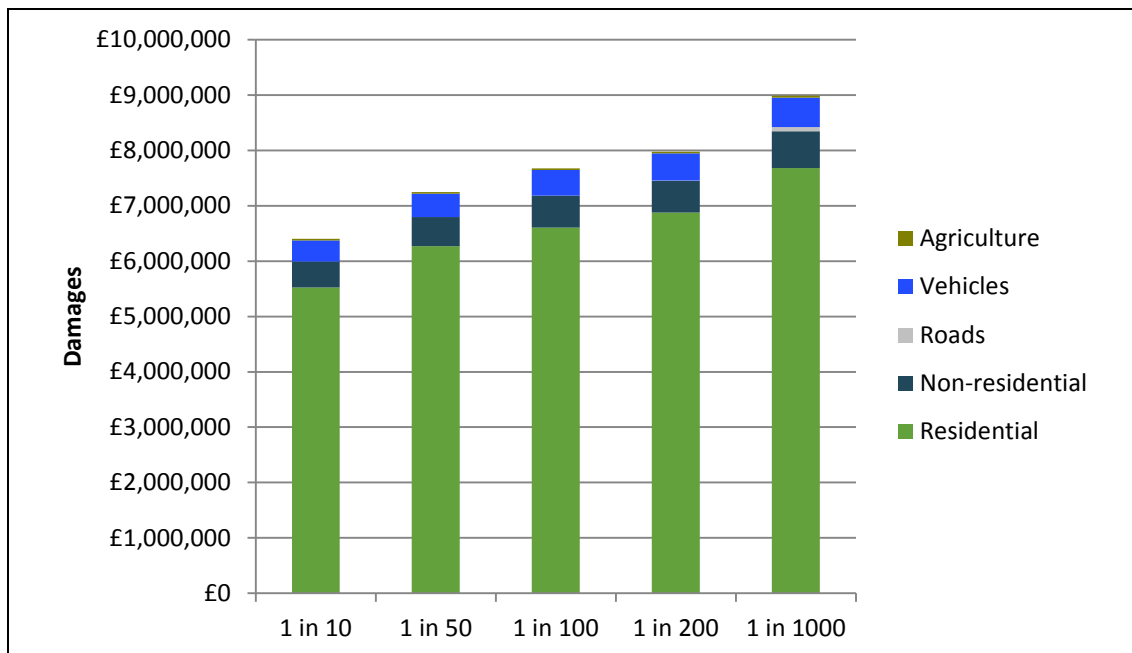


Figure 1: Damages by flood likelihood

History of flooding

One significant coastal flood has been recorded in this area. In December 2013 a combination of surge and high tide resulted in a breach of an existing bund and led to flooding of Airth Wastewater Treatment Works and agricultural land.

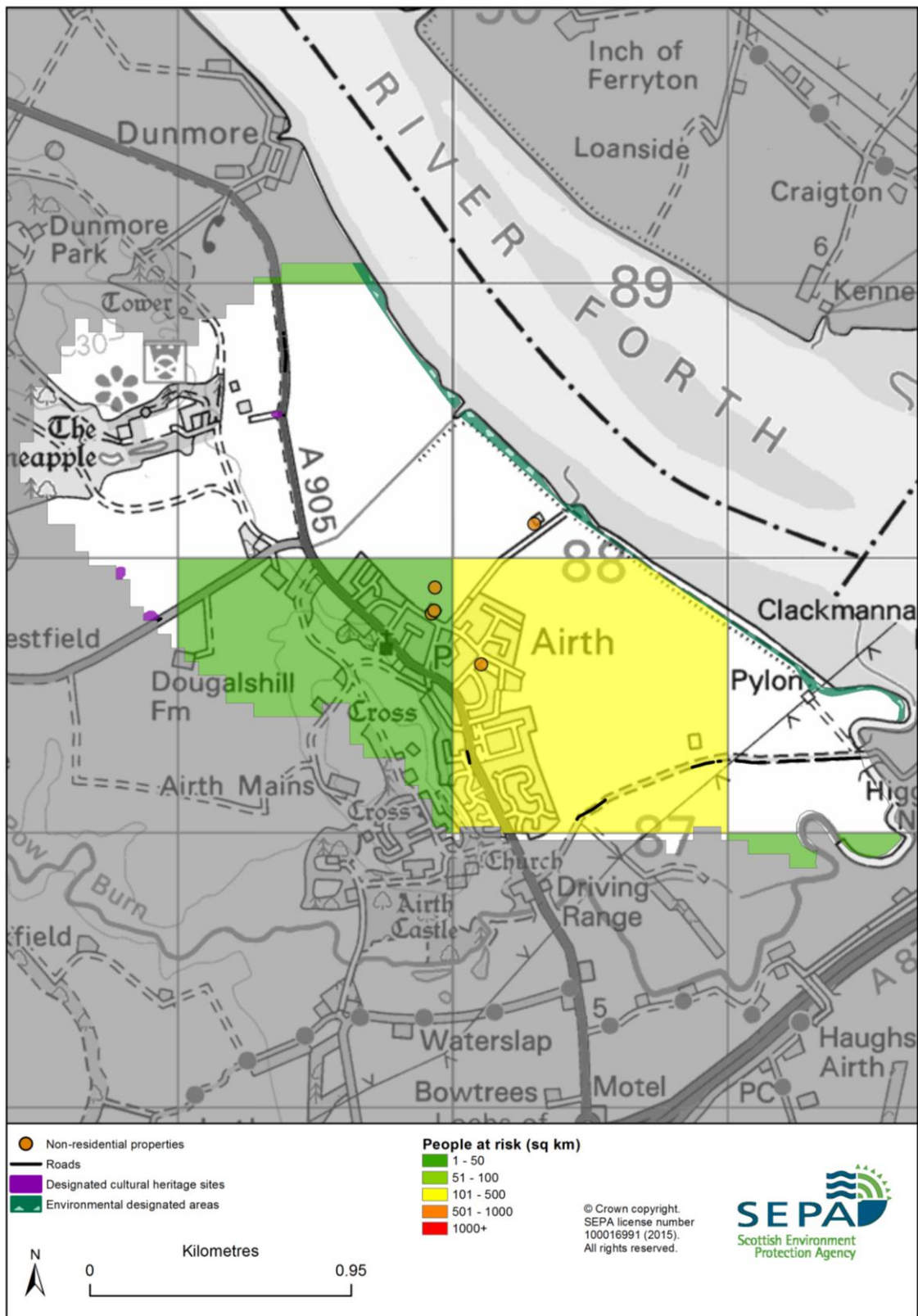
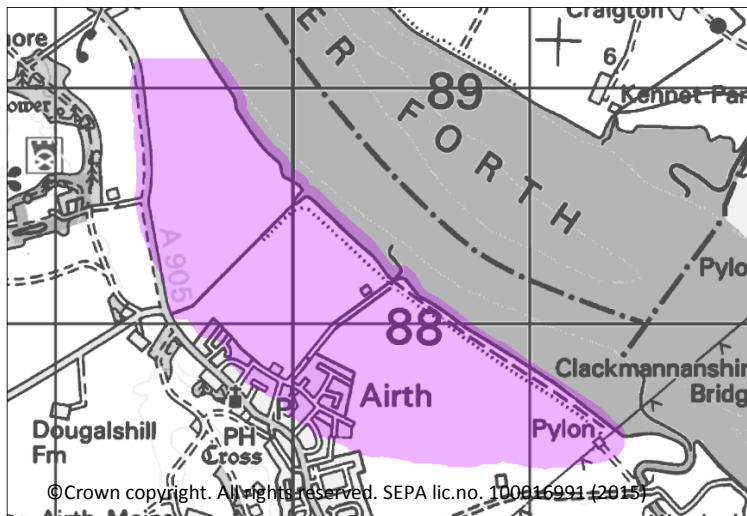


Figure 2: Impacts of flooding

Objectives to manage flooding in Potentially Vulnerable Area 10/09

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 Airth Potentially Vulnerable Area.

Reduce economic damages to residential and non-residential properties and risk to people in Airth caused by coastal flooding

| | |
|--|---|
| Indicators: <ul style="list-style-type: none"> 320 people £530,000 Annual Average Damages from residential properties £47,000 Annual Average Damages from non-residential properties | Target area:  |
| Objective ID: 10029, 10030 | <small>© Crown copyright. All rights reserved. SEPA lic.no. 100816991 (2015)</small> |

| Target area | Objective | ID | Indicators within PVA |
|--|---|-------|---|
| Applies across Forth Estuary Local Plan District | Avoid an overall increase in flood risk | 10001 | <ul style="list-style-type: none"> 110 residential properties £720,000 Annual Average Damages |
| Applies across Forth Estuary Local Plan District | Reduce overall flood risk | 10099 | <ul style="list-style-type: none"> 110 residential properties £720,000 Annual Average Damages |
| Applies across Forth Estuary 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 10/09

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 Airth 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 (100990010) | | |
| Objective (ID): | Reduce overall flood risk (10099) | | |
| Delivery lead: | SEPA | | |
| Status: | Not started | Indicative delivery: | 2016-2021 |
| Description: | Flood warning is required for properties at risk of coastal flooding in Airth. Delivery of new warnings in this area can potentially be undertaken through an extension to the existing Firth of Forth and Tay flood forecasting system and warning scheme. | | |

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|------------------------|--|--|------------------|
| Action (ID): | FLOOD PROTECTION STUDY (100290005) | | |
| Objective (ID): | Reduce economic damages to residential and non-residential properties and risk to people in Airth caused by coastal flooding (10029, 10030) | | |
| Delivery lead: | Falkirk Council | | |
| Priority: | National: 20 of 168 | Within local authority: 2 of 5 | |
| Status: | Not started | Indicative delivery: | 2016-2021 |
| Description: | A flood protection study has been recommended for Airth to assess flood defences and natural flood management. The study should also consider the viability of property level protection. Natural flood management options that should be considered include surge attenuation. The study should take a sustainable approach and consider the interaction between actions and potential effects on | | |

| | coastal processes along the shoreline. |
|-----------------------|--|
| Potential impacts | |
| Economic: | The study could benefit 108 residential properties and five non-residential properties at risk of flooding in this location, with potential damages avoided of up to £19 million. |
| Social: | Social impacts will depend on the outcome of the study and recommended actions. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people located within the flood protection study area. In addition the study could benefit four utilities and two roads located within the study area. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism. |
| Environmental: | Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment and designated sites. Where possible opportunities to enhance and restore the environment should be sought, for example through natural flood management. The Upper Forth Estuary (water body ID 200437) is located within the study area and the physical condition of this estuary is identified by SEPA to be at less than good status. Opportunities to improve the condition of the estuary should be considered by coordinating with river basin management planning. 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 Firth of Forth Special Protection Area. Conservation areas, listed buildings, Sites of Special Scientific Interest and Ramsar sites are also present in the study area and could be positively or negatively impacted. |

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| Action (ID): | STRATEGIC MAPPING AND MODELLING (100990016) | | |
| Objective (ID): | Reduce overall flood risk (10099) | | |
| Delivery lead: | SEPA | | |
| Status: | Not started | Indicative delivery: | 2016-2021 |
| Description: | SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,600km ² of improved surface water data is currently available within this Local Plan District. | | |

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|------------------------|--|----------------------|------------------|
| Action (ID): | STRATEGIC MAPPING AND MODELLING (100990019) | | |
| Objective (ID): | Reduce overall flood risk (10099) | | |
| 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. | | |

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|------------------------|--|----------------------|----------------|
| Action (ID): | FLOOD FORECASTING (100990009) | | |
| Objective (ID): | Reduce overall flood risk (10099) | | |
| 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. | | |

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| Action (ID): | SELF HELP (100990011) | | |
| Objective (ID): | Reduce overall flood risk (10099) | | |
| 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. | | |

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| Action (ID): | AWARENESS RAISING (100990013) | | |
| Objective (ID): | Reduce overall flood risk (10099) | | |
| 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. | | |

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| Action (ID): | MAINTENANCE (100990007) | | |
| Objective (ID): | Reduce overall flood risk (10099) | | |
| Delivery lead: | Falkirk 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. | | |

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| Action (ID): | EMERGENCY PLANS/RESPONSE (100990014) | | |
| Objective (ID): | Reduce overall flood risk (10099) | | |
| 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. | | |

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| Action (ID): | PLANNING POLICIES (100010001) | | |
| Objective (ID): | Avoid an overall increase in flood risk (10001) Reduce overall flood risk (10099) | | |
| 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. | | |