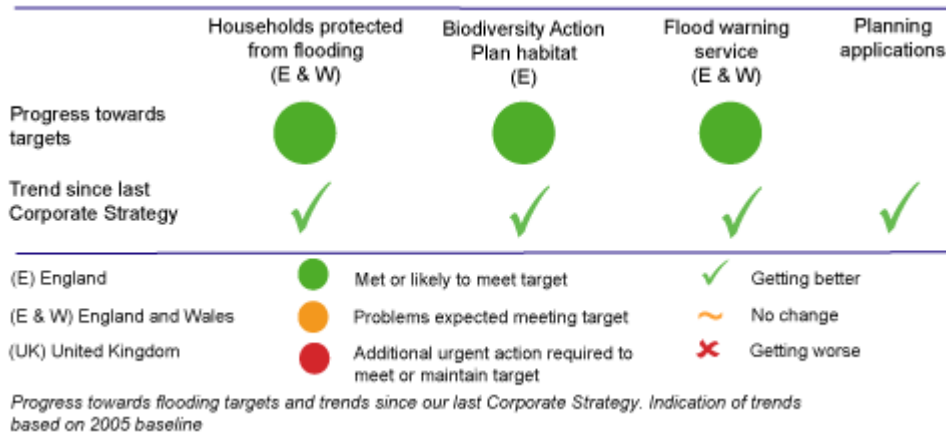


Our corporate strategy 2010 - 2015

Evidence: flooding and coastal erosion

See also: climate change, land and farming, water and the water environment, people and sustainable places

Where are we now?

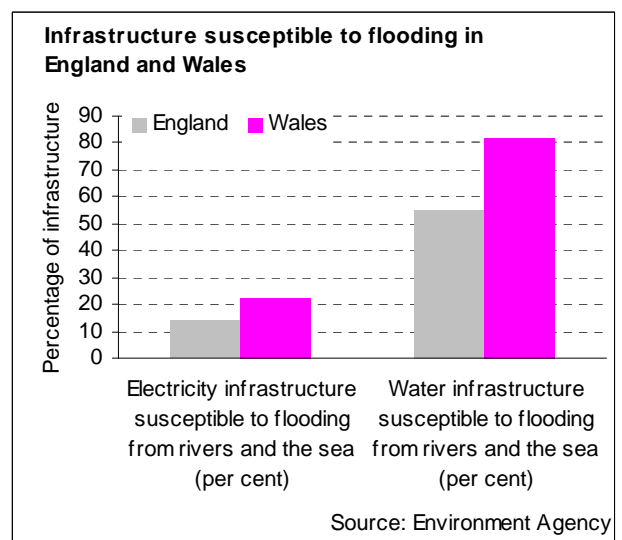
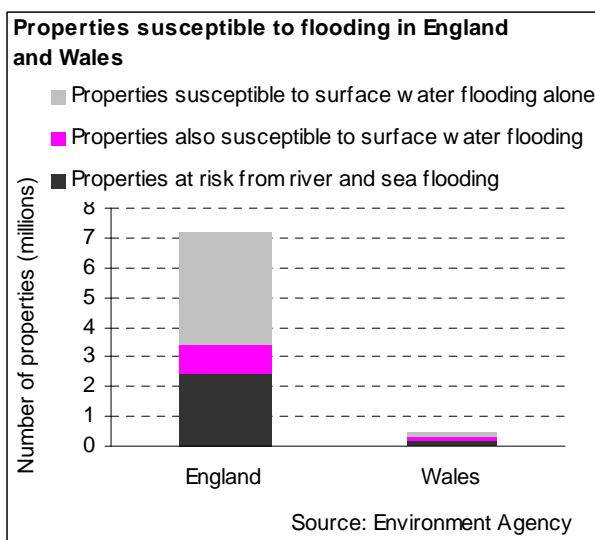


One in six properties in both England¹ and in Wales² are at risk of flooding.

Essential infrastructure is also at risk of flooding from rivers and the sea. If, for example, electricity or water supply infrastructure is flooded the properties they serve may have no electricity or no clean tap water. Flooding of wastewater treatment works can mean that downstream property becomes contaminated with sewage.

- Electricity infrastructure at risk: 14 per cent in England³ and 22 per cent in Wales.⁴
- Water infrastructure at risk: 55 per cent in England⁵ and 82 per cent in Wales.⁶

55 per cent of people in England and 57 per cent in Wales that live in flood risk areas know they are at risk. Of these, three out of five people have taken some action to prepare for flooding. We are working to increase these figures by refocusing our awareness activities on communities at high risk and vulnerable sectors of communities.



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Why do we need to act now?

The latest UK Climate Projections (UKCP09) suggest that sea levels could rise by between 12cm and 76cm by 2095. However, if accelerated ice sheet loss is factored in sea level could rise by one metre, with a plausible worst case scenario of 1.9 metres by the end of the century.⁷ In the UK we are building and improving flood defences to cope with a one metre rise. One per cent of Great Britain is less than one metre above sea level – this is an area of about 2,500 square kilometres - about the size of Derbyshire.

Increased economic growth will increase the risk of flood damage in high flood risk areas. Increases in population and greater population density will put more people at risk.

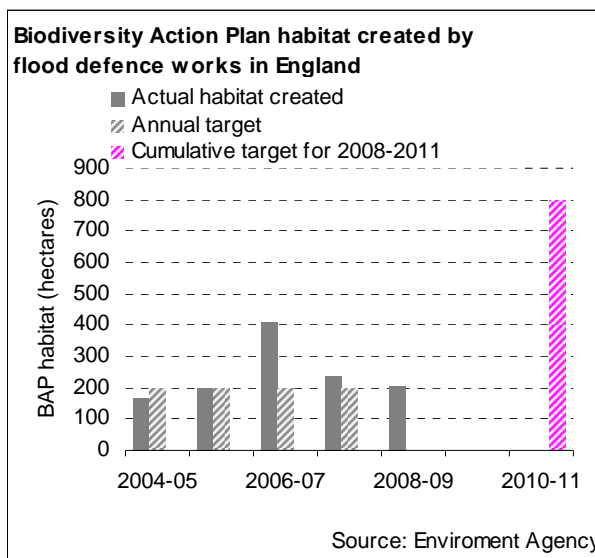
Many existing flood defences were built decades ago following the major floods in 1947 and 1953. Many of these structures are nearing the end of their lives and need replacing.

Just to maintain current standards of flood protection in England alone we need to spend over £1 billion per year by 2035. At the moment the Environment Agency, Local Authorities and Internal Drainage Boards are spending £570 million per year to build and maintain flood and coastal defences. We estimate that a further £150 million per year may be required to manage surface water flood risk by 2035.⁸

The benefits of action

Managing flood risk makes sense - it saves money and maximises benefits:

- On average, every pound invested in improved flood protection in England, reduces the long term cost of flooding and coastal erosion by £8.⁹
- The total cost of the 2007 summer floods was about £3 billion. In June 2009, 168 of the 17,000 families displaced by the 2007 floods had still not fully returned to their homes.¹⁰
- Flood protection can save lives. In the summer floods of 2007, 13 people lost their lives.
- Our work on flood risk protects vulnerable habitats and creates new places for biodiversity. Between 2004 and 2009 our work with partners helped to create more than 2,000 hectares of new wetland and saltmarsh habitat. We have met our own targets for BAP habitat creation since 2006/07 and expect to meet our target for the future.



The source of the problem

Coastal flooding, including storm surges, is the obvious risk associated with higher sea levels but extreme winds and waves will also have an impact on our coasts. Research suggests increases of up to 10 per cent in both wind speeds and wave heights by 2115.¹¹

Latest predictions suggest increases of up to 30 per cent by 2115 in peak rainfall which may increase peak river flows by 20 per cent.¹²

The risk of flooding from surface water run-off in towns and cities may increase with climate change to become as serious as the risk of flooding from river and coastal water.¹³

Surface run-off often happens in urban areas where there is little open ground to absorb heavy rainfall. It causes very localised flooding and happens very quickly after the rain has fallen, making it difficult to give any accurate warning at street level.¹⁴

Sewer flooding is caused by wastewater (foul waste, surface water or a combination of the two) which has escaped from a sewer.¹⁵ In 2007-08 more than 7,500 properties were flooded from sewers, both from overloaded sewers and other causes such as blockages.¹⁶

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How we manage land in the floodplain and how we manage run-off from all types of land is crucial to reducing the risk of flooding. Locating property outside the floodplain is a prime way to reduce flood risk. If this is not practical, siting new buildings in areas of lowest risk is the next choice.¹⁷

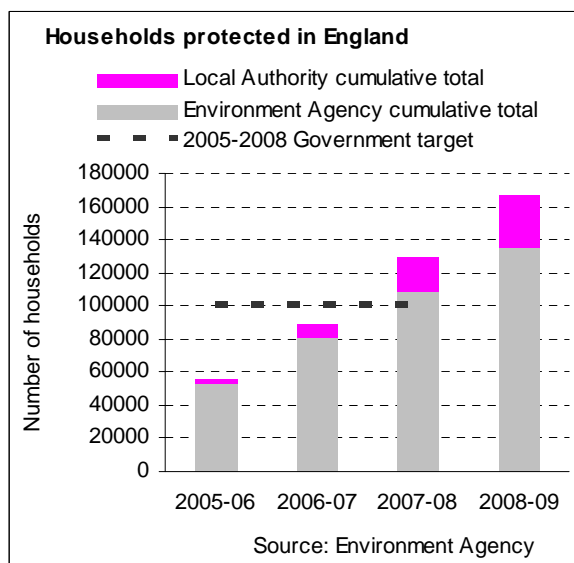
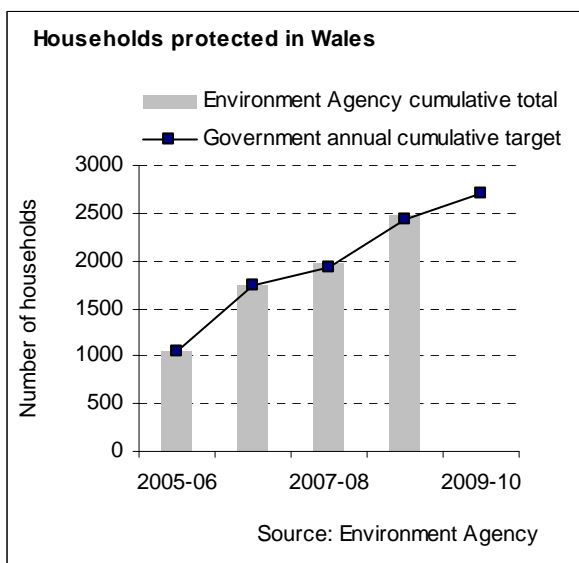
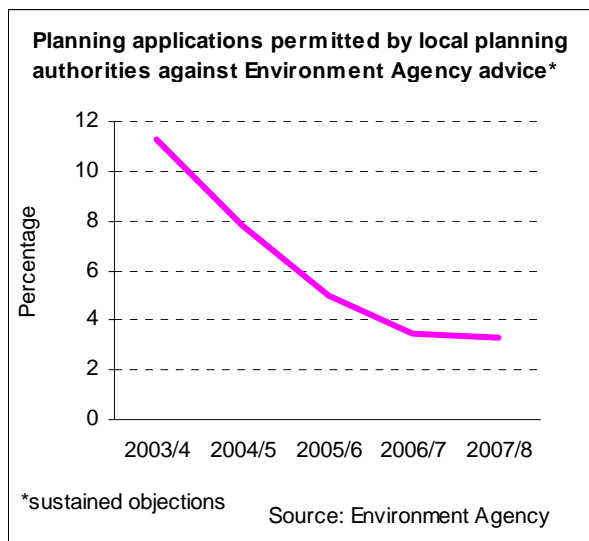
Successes

The Environment Agency plays a central role in managing flood risk from rivers, the sea, groundwater, reservoirs and surface water in England - and from rivers and the sea in Wales. Local Authorities are responsible for managing local flood risk from surface water and local watercourses. In some parts of England and Wales local internal drainage boards also manage flood risk and water levels. When a flood happens we work with the emergency services and local internal drainage boards to minimise the harm to people and property.

We advise on the flood risk aspects of planning applications. In 2008, three per cent of developments went ahead against our advice.¹⁸

Over the last ten years we have improved the level of flood protection to more than 250,000 households in England.

Between 2003 and 2008 we reduced the risk of flooding for 5,800 properties in Wales.¹⁹ From 2008/09 the Environment Agency took sole responsibility for Defra's targets for households protected, previously Local Authorities had contributed to the England targets.



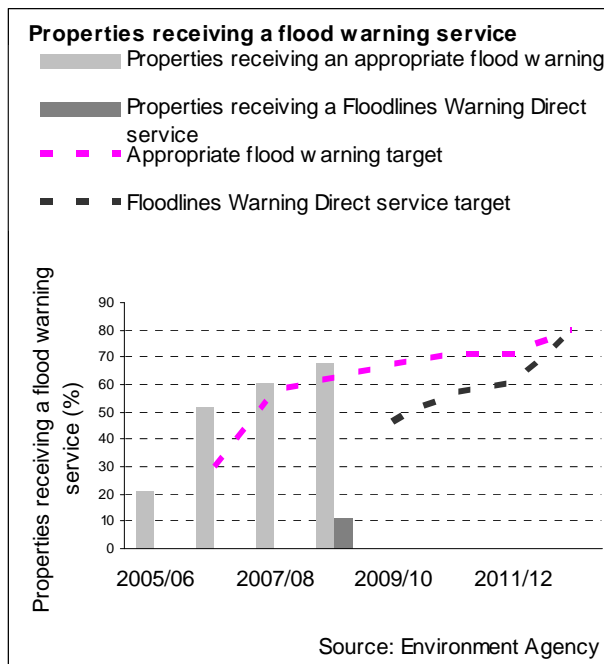
Sixty-eight per cent of properties at risk across England and Wales can already receive a flood warning if needed against a target of 57 per cent.

Our response: the future

Our Corporate Strategy describes how we will work with others, such as Defra, Local Authorities, regional flood defence committees, local resilience forums, the insurance industry, and the National Flood Forum to effectively manage flood risk and coastal erosion.

Our understanding of all the mechanisms behind flood risk is applied through our Catchment Flood Management Plans (CFMP's). We have produced, or are producing CFMP's for the main 68 river catchments in England and for the 10 main river catchments in Wales.

Similarly our understanding of coastal changes is applied through Shoreline Management Plans (SMPs). We have produced, or are producing four SMPs and Local Authorities 18 SMPs around the coast of England and Wales.



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- ¹ Environment Agency, 2009. Flooding in England: A national assessment of flood risk. publications.environment-agency.gov.uk/pdf/GEHO0609BQDS-E-E.pdf
- ² Environment Agency Wales, 2009. Flooding in Wales: A national assessment of flood risk. www.environment-agency.gov.uk/research/library/publications/108958.aspx
- ³ Environment Agency, 2009. Flooding in England: A national assessment of flood risk. publications.environment-agency.gov.uk/pdf/GEHO0609BQDS-E-E.pdf
- ⁴ Environment Agency Wales, 2009. Flooding in Wales: A national assessment of flood risk. www.environment-agency.gov.uk/research/library/publications/108958.aspx
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- ⁶ Environment Agency Wales, 2009. Flooding in Wales: A national assessment of flood risk. www.environment-agency.gov.uk/research/library/publications/108958.aspx
- ⁷ UK Climate Projections, 2009. Marine and coastal projections. Available at ukclimateprojections.defra.gov.uk/content/view/825/518/.
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- ¹¹ Defra, 2007. Flood and Coastal Defence Appraisal Guidance FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts
- ¹² Defra, 2007. Flood and Coastal Defence Appraisal Guidance FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts
- ¹³ Evans et al. (2008) An update of the Foresight Future Flooding 2004 qualitative risk analysis. Cabinet Office, London. archive.cabinetoffice.gov.uk/pittreview/_/media/assets/www.cabinetoffice.gov.uk/flooding_review/evidence/foresight_report%20pdf.pdf
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- ¹⁵ Consumer Council for Water, 2008. External Review of sewer flooding risk registers – an Ofwat consultation. www.ccwater.org.uk/upload/doc/ReviewSewerFloodingRegisters_Response_CCW.doc
- ¹⁶ OFWAT, 2008. Service and delivery – performance of the water companies in England and Wales 2007- 08 OFWAT, Birmingham. Available at www.ofwat.gov.uk/regulating/reporting/rpt_los_2007-08suppinfo.pdf#page=4
- ¹⁷ Environment Agency Flooding in England: A National Assessment of Flood Risk publications.environment-agency.gov.uk/pdf/GEHO0609BQDS-E-E.pdf
- ¹⁸ Proportion refers to the planning decisions we were notified about. Environment Agency, 2009. Flooding in England: A national assessment of flood risk. publications.environment-agency.gov.uk/pdf/GEHO0609BQDS-E-E.pdf
- ¹⁹ Environment Agency Wales, 2009. Flooding in Wales: A national assessment of flood risk. www.environment-agency.gov.uk/research/library/publications/108958.aspx

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