











# Our corporate strategy 2010 - 2015

## Evidence: land and farming

See also: water and the water environment, air, climate change, business, people and sustainable places, flooding and coastal erosion

### Where are we now?

	Agri-environment schemes	Contaminated land (E & W)	
Progress towards targets			
Trend since last Corporate Strategy			
(E) England	 Met or likely to meet target	 Getting better	
(E & W) England and Wales	 Problems expected meeting target	 No change	
(UK) United Kingdom	 Additional urgent action required to meet or maintain target	 Getting worse	

*Progress towards land targets and trends since our last Corporate Strategy. Indication of trends based on 2005 baseline*

Farming and forestry cover over 80 per cent of the total land area of England and Wales – more than 12 million hectares in total.<sup>1</sup>

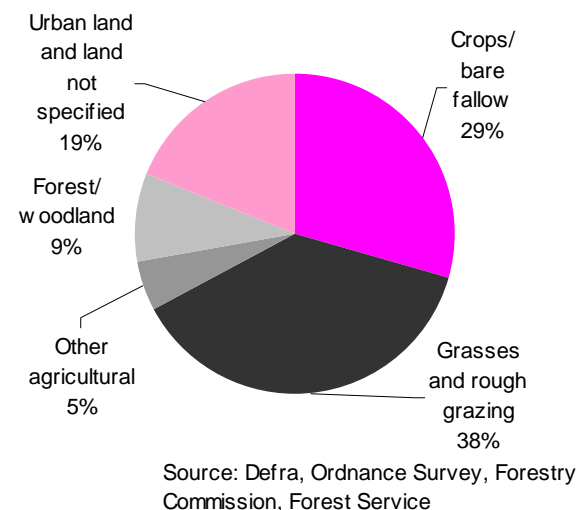
Since 2000, about 1500 hectares of agricultural land have been converted to residential use every year in England.<sup>2</sup> About 1000 hectares of previously reclaimed farmland have been lost in England and Wales through managed realignment schemes since 1991.

About 300,000 hectares of land in England and Wales have had some form of historic use that could have caused contamination.<sup>3</sup> This is about two per cent of the land area of England and Wales.

In 1996, 73 per cent of sensitive habitat area<sup>4</sup> was experiencing acid deposition at a level high enough to cause significant harm to the environment. In 2005 this was down to 58 per cent. The area of sensitive habitat subject to harmful levels of nitrogen pollution was lower - 65 per cent in 1996, but this has decreased more slowly, to 61 per cent in 2005.<sup>5</sup>

Concentrations of dioxins, one of the most toxic and persistent group of contaminants, have fallen in UK soils by about 70 per cent since the late 1980s.<sup>6</sup>

**Land by agricultural and other uses in England and Wales: 2005**



### Why do we need to act now?

Land is managed for many uses. It supports development and housing, is managed to produce food and fuel and supports a range of habitats, landscapes and recreational activities. Land also provides a range of environmental services such as regulating water and flood levels and protecting water from pollution. Successfully managing this

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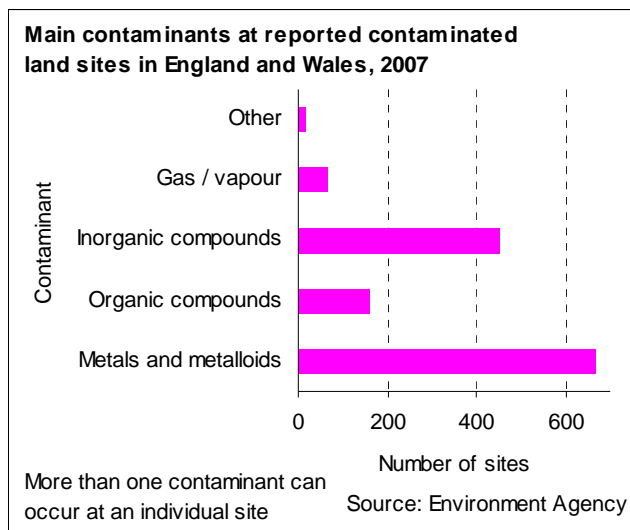
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range of demands on the land is key – land cannot be allowed to remain in (or deteriorate to) a state that makes it unusable.

### Land contamination

We're working to bring land that has already been contaminated back into use, but new contamination is still a risk. Our work to reduce pollution incidents, and make sure that sites we regulate have pollution protection measures in place, will help us manage this.

In the UK 100 million tonnes of organic waste, such as sewage sludge and compost, is applied to land each year. The use of land to recycle waste can cause the build-up of potentially toxic elements. 30 per cent of total annual inputs of zinc and copper in soil come from livestock manures and a further six to 16 per cent from sewage sludge.<sup>7</sup> Protecting land from harmful accumulation of contaminants and excessive application of fertilisers is essential to make sure that the land available for recycling waste is protected, and recycling doesn't cause harm to human and animal health or water quality.



### Flooding and erosion

11 per cent of agricultural land in England and Wales is at high or moderate flood risk and climate change will make flood events increasingly likely. Three-quarters of the land most susceptible to run-off and flooding is intensively managed.<sup>8</sup>

2.2 million tonnes of topsoil are eroded each year.<sup>9</sup> The main causes of erosion and structural damage in soils are intensive cultivation, particularly when soils are compacted by heavy machinery or left exposed to heavy rain, heavy trampling of soil by livestock, poor forestry practice, and runoff from urban land, especially building sites.<sup>10</sup> Soil erosion can affect water quality because it can include contaminants such as pesticides, phosphate, metals and pathogens (see below, and water and the water environment section). About 70 per cent of sediment found in water comes from farming.<sup>11</sup> A third of waterbodies are at risk from eroded soil.<sup>12</sup>

Population growth and the need for more housing and infrastructure is increasing the demand for land for development. An increasing demand for arable crops from the food, feed and fuel sectors will further increase the pressure on agricultural land. UK farmers may respond to market demand and bring areas of non-arable land into production, such as the ploughing up of grassland for biofuels and the use of more marginal land for cereal production.

### The benefits of action

#### Financial benefits

Poor land management has a financial cost. For example:

- Soil compaction and flooding costs British farmers £9 million pounds in lost production.<sup>13</sup>
- Off-farm costs of soil erosion (such as damage to property and dredging stream channels) is about £9 million per year, and on-farm damage to crops etc costs another £9 million per year.<sup>14</sup>

#### Greenhouse gases

UK soils contain around 10 billion tonnes of carbon, half in peat. If this were released to the air it would be equivalent to more than 50 times the UK's current annual greenhouse gas emissions.<sup>15</sup> At the moment, agriculture is responsible for about six per cent of UK greenhouse gas emissions, primarily from soils and cattle.

#### Food security

The UN Food and Agriculture Organisation (FAO) estimates that global food production needs to double by 2050 to meet increasing demand.<sup>16</sup> Soil needs to be protected and improved in order to meet this rising demand. In the UK we are 74 per cent self sufficient in the foods we can produce in this country and 61 per cent self sufficient in all food stuffs.<sup>17</sup>

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## A valuable resource

Land is also needed for people's homes and services. In 2008, 79 per cent of residential development was on brownfield land compared with 55 per cent in 1990 (data is for England only).<sup>18</sup> Bringing derelict or contaminated land back into beneficial use will be key to managing developmental pressures in the long term.

Soil plays an important role in storing and transporting water. A single hectare of soil has the potential to store and filter enough water for 1000 people for one year.<sup>19</sup> We rely on the ability of well-managed soils to absorb rainfall and reduce run-off and to reduce the risk of flooding.

## The source of the problem

Poor land management, whether by farmers, developers or other land owners, can have long lasting effects on soil and water quality. For example:

- 60 per cent of nitrate<sup>20</sup> and 28 per cent of phosphate<sup>21</sup> in surface water comes from farming.
- The energy and waste industries were the biggest sources of historic pollution associated with contaminated land sites in England. The deposit of ash was reported as the most common cause of contaminated land in Wales.<sup>22</sup>

It is often difficult to convince land managers of their need to act, or to demonstrate success of their actions. For instance 80 per cent of farmers surveyed believe that farming only makes a minor contribution to water pollution and 98 per cent think that their own activities do not contribute.<sup>23</sup>

## Successes

Our direct role in land management and terrestrial ecosystems is relatively small compared to organisations such as Natural England, Countryside Council of Wales, planning authorities and farmers.

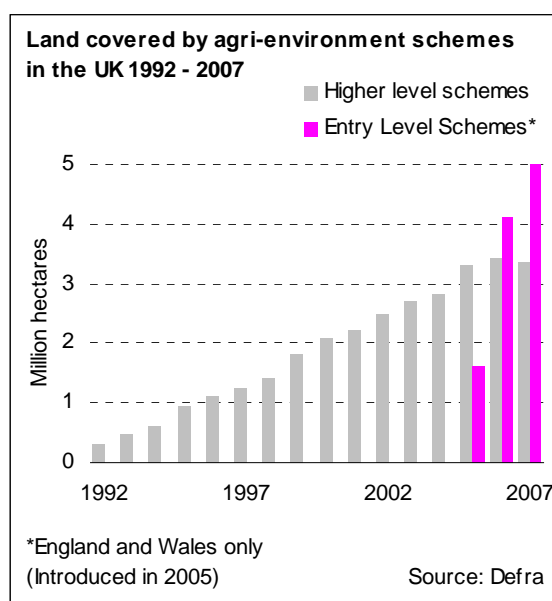
Under the Water Framework Directive we are responsible for making sure that the land management measures deliver improvements for the water environment. We also operate a number of regulatory regimes relevant to land management, including the regulation of the intensive pig and poultry and waste management sectors, and responsibility for some contaminated land.

90 per cent of agricultural land in England in Wales now has to meet cross compliance requirements under the Common Agricultural Policy (CAP). The cross compliance requirement to keep land in good agricultural and environmental condition (GAEC) means all 120,000 farms that receive European payments must maintain organic matter levels, reduce the risk of soil erosion and reduce damage to soil structure.

Environmental stewardship schemes in England and agri-environmental schemes in Wales provide additional payments to farmers that implement a higher level of environmental management, particularly for protecting terrestrial habitats. Such schemes covered 3.1 million hectares in the UK in 2008 compared with 1.8 million in 1999.<sup>24</sup>

The England Catchment Sensitive Farming Delivery Initiative (ECSFDI) also provides advice and capital grants to farmers to help them reduce diffuse water pollution and impacts on designated habitat sites from farming activities in 50 priority catchments – covering around 40 per cent of the agricultural land area in England. A similar initiative in Wales, managed by Environment Agency Wales, provides advice to farmers in six priority river catchments affected by pollution from farming.

From 2012 the new Glastir land management scheme in Wales will pay farmers to deliver on the CAP Health Check agenda responding to the challenges of climate change, carbon capture, water management and biodiversity conservation.<sup>25</sup>



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We have helped bring more than 3700 hectares of contaminated land back into beneficial use so far and have a target of 4200 hectares by the end of 2009/10. This includes action we have taken on the 35 sites designated as 'special sites' under the contaminated land legislation.<sup>26</sup>

## Our response: the future

It is essential that we work with those who manage land so that the UK can meet the future demands for food production and development while improving the environment. Our Corporate Strategy describes how we will do this. We will concentrate on improving farm management practices, reducing the impact on land quality of the other businesses we regulate and cleaning up contaminated land.

We all need to better understand the impact people are having on land quality and how the use of land will help mitigate climate change. We must all learn more about our soils - this is the first step in preventing further degradation and protecting this essential resource.

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- <sup>1</sup> Defra 2009, e-Digest Land Use Statistics. Available at [www.defra.gov.uk/evidence/statistics/environment/land/lduse.htm](http://www.defra.gov.uk/evidence/statistics/environment/land/lduse.htm)
- <sup>2</sup> Communities and Local Government (2007) *Land Use Change Statistics England* <http://www.communities.gov.uk/corporate/908800>
- <sup>3</sup> Environment Agency, 2009. Available at [www.environment-agency.gov.uk/research/library/data/34403.aspx](http://www.environment-agency.gov.uk/research/library/data/34403.aspx)
- <sup>4</sup> Land sensitive to acid deposition and/or eutrophication. Around a third of UK land area is sensitive to acid deposition, and a third to eutrophication (with some sensitive to both).
- <sup>5</sup> UK Sustainable Development indicator. Available at [www.defra.gov.uk/sustainable/government/progress/national/28.htm](http://www.defra.gov.uk/sustainable/government/progress/national/28.htm)
- <sup>6</sup> Environment Agency (2007) UK Soil and Herbage Pollutant Survey. Available from our publications catalogue at [www.environment-agency.gov.uk/research/library/publications/default.aspx](http://www.environment-agency.gov.uk/research/library/publications/default.aspx)
- <sup>7</sup> Defra (2005) Sources and impacts of past, current and future contamination of soil, Project number SP0547. Available at [randd.defra.gov.uk/Document.aspx?Document=SP0547\\_7264\\_FRP.pdf](http://randd.defra.gov.uk/Document.aspx?Document=SP0547_7264_FRP.pdf)
- <sup>8</sup> Environment Agency, 2009. Land use and environmental services. Science report SC080014. Available from our publications catalogue at [www.environment-agency.gov.uk/research/library/publications/default.aspx](http://www.environment-agency.gov.uk/research/library/publications/default.aspx)
- <sup>9</sup> Soil Survey and Land Research Centre, 2000, *Soil Protection in the UK, SSLRC*, Cranfield University, 5pp
- <sup>10</sup> Environment Agency 2004 The state of soils, Available from our publications catalogue at [www.environment-agency.gov.uk/research/library/publications/default.aspx](http://www.environment-agency.gov.uk/research/library/publications/default.aspx)
- <sup>11</sup> Defra 2009, Catchment sensitive farming. At [www.defra.gov.uk/foodfarm/landmanage/water/csf/index.htm](http://www.defra.gov.uk/foodfarm/landmanage/water/csf/index.htm)
- <sup>12</sup> Environment Agency (2007) WFD river basin characterisation II technical paper: risk to rivers from sediment.
- <sup>13</sup> Environment Agency, 2007. Total external costs and benefits of agriculture in the UK. Available at [www.environment-agency.gov.uk/static/documents/Research/costs\\_benefitapr07\\_1749472.pdf](http://www.environment-agency.gov.uk/static/documents/Research/costs_benefitapr07_1749472.pdf)
- <sup>14</sup> Evans, R. (1996): Soil Erosion and its Impact in England and Wales. Friends of the Earth Trust.
- <sup>15</sup> Defra (2009) Safeguarding our soils, a strategy for England. Available at [www.defra.gov.uk/environment/quality/land/soil/sap/index.htm](http://www.defra.gov.uk/environment/quality/land/soil/sap/index.htm)
- <sup>16</sup> For more information see [www.fao.org/wsfs/forum2050/wsfs-forum/en/](http://www.fao.org/wsfs/forum2050/wsfs-forum/en/)
- <sup>17</sup> Defra (2007) *Agriculture in the UK*. Available at [statistics.defra.gov.uk/esg/publications/auk/2007/default.asp](http://statistics.defra.gov.uk/esg/publications/auk/2007/default.asp)
- <sup>18</sup> DCLG 2009 Land Use Change Statistics (England) 2008 - provisional estimates (July 2009). Planning statistical release. 12pp. Available at: [www.communities.gov.uk/publications/corporate/statistics/lucs2008provisionaljuly](http://www.communities.gov.uk/publications/corporate/statistics/lucs2008provisionaljuly)
- <sup>19</sup> Defra 2009. Soil strategy for England, supporting evidence paper. Available at [www.defra.gov.uk/environment/quality/land/soil/sap/index.htm](http://www.defra.gov.uk/environment/quality/land/soil/sap/index.htm)
- <sup>20</sup> Hunt, D.T.E., Dee, A.S. & Oakes, D.B. 2004. Updating the estimates of the source apportionment of N to UK waters. Phase 2. Defra report by WRC plc. <http://www.fwr.org/defrawqd/wqd0002.htm>
- <sup>21</sup> White, PJ and Hammond, JP (2006) Updating estimates of the sources of phosphorus in UK Waters. Defra funded project WTO701 CSF
- <sup>22</sup> Environment Agency, 2009. Dealing with contaminated land in England and Wales. Available from our publications catalogue at [www.environment-agency.gov.uk/research/library/publications/default.aspx](http://www.environment-agency.gov.uk/research/library/publications/default.aspx)
- <sup>23</sup> Defra (2008) England catchment sensitive farming delivery initiative phase 1 report: April 2006 – March 2008. Available at [www.defra.gov.uk/foodfarm/landmanage/water/csf/documents/ecsfdi-phase1-report.pdf](http://www.defra.gov.uk/foodfarm/landmanage/water/csf/documents/ecsfdi-phase1-report.pdf)
- <sup>24</sup> UK Sustainable Development Indicator. Available at [www.defra.gov.uk/sustainable/government/progress/national/23.htm](http://www.defra.gov.uk/sustainable/government/progress/national/23.htm)
- <sup>25</sup> For more information see [cymru.gov.uk/topics/environmentcountryside/farmingandcountryside/ruraldevelopment/axis2/glastir/?jsessionid=qMTbKc2KntxXQ5BLNsSdPh6ztMrLvYf6RWJsDbTrTxDy5RRpKTCh!1678762070?cr=1&lang=en](http://cymru.gov.uk/topics/environmentcountryside/farmingandcountryside/ruraldevelopment/axis2/glastir/?jsessionid=qMTbKc2KntxXQ5BLNsSdPh6ztMrLvYf6RWJsDbTrTxDy5RRpKTCh!1678762070?cr=1&lang=en)
- <sup>26</sup> For more information see Environment Agency, 2009. Dealing with contaminated land in England and Wales. Available from our publications catalogue at [www.environment-agency.gov.uk/research/library/publications/default.aspx](http://www.environment-agency.gov.uk/research/library/publications/default.aspx)

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