



Climate Change Information Summary – RAF Briefing Paper

An extract from the UK Climate Change Strategic Framework

“Climate change is the most daunting challenge facing the planet. Across the world, citizens, businesses and governments are becoming aware of the environmental, humanitarian and financial consequences of inaction. As former UN Secretary General Kofi Annan said: it has “profound implications for virtually every aspect of human well-being, from jobs and health to growth and security”. The task now is to move from awareness to action.

There are strong grounds for being optimistic that we can address climate change. We know the practical solutions, technologies and policies exist to reduce emissions. We know that it will cost less to invest in low-carbon technologies than to deal with the consequences of climate change. We are building on a strong record, with the UK set to achieve nearly double its Kyoto target for cutting its greenhouse gas emissions. The next phase of our strategy must be to extend and deepen action across countries, sectors and parts of society, from government and business to individuals.”

For a copy of the Climate Change Strategic Framework please follow the link below:

<http://defraweb.defra.gsi.gov.uk/environment/climatechange/uk/legislation/pdf/CCBill-Strategy.pdf>

An extract from Your Climate Y&H Climate Change Action Plan – Summary Document 2005

Climate change: issues for Yorkshire and Humber

“Yorkshire and Humber is both a contributor to global greenhouse gas emissions and an area which is particularly susceptible to the impacts of a changing climate. This is why all of our key regional strategies are working towards a 20% reduction in regional greenhouse gas emissions between 1990 and 2010. Our region is a major source of greenhouse gas emissions, primarily because of the high proportion of electricity generating capacity and heavy industry that it contains. Our region contains 18% of the electricity generating capacity in the UK and in 2001 our power stations produced 58% of regional greenhouse gas emissions¹. In the same year, the region produced 12.5% of total UK greenhouse gas emissions² from all activities, the highest output of any region. An alternate measure of greenhouse gas emissions is the consumption of energy, goods and services by households. Using this measure, in 2001 our region consumed 21.5 tonnes of CO₂ per household³, the lowest of any region.

The production of greenhouse gas emissions in our region is forecast to rise by 14% between 2000-2010⁴, mostly as a result of increased electricity generation but partly due to rapidly rising transport emissions. The challenge is now to make greater use of technologies that reduce emissions from electricity, to avoid increasing emissions from a society that demands greater mobility and to reduce demand for electricity and fossil fuels in all areas – at home and at work.”

¹ Regional Greenhouse Gases Emissions Monitoring and Modelling Study - update of baseline data, Cambridge Econometrics (2003)

² Regional Greenhouse Gases Emissions Monitoring and Modelling Study - update of baseline data, Cambridge Econometrics (2003)

³ Economic Trends (611) The impact of UK households on the Environment, ONS (2004)

⁴ Regional Greenhouse Gases Emissions Monitoring and Modelling Study, Cambridge Econometrics (2002)

The summary document and the full document are available from the links below:

Summary document:

http://www.yourclimate.org/siteassets/documents/yourClimate/F/4/F45C905D-9F57-4416-A3EC-D050610DC1C7/2/CCAPSummaryDoc_June2006_web.pdf

Full document:

<http://www.yourclimate.org/siteassets/documents/yourClimate/2/1/21BEE161-22E2-42AA-BE4D-809646702694/ccap%20from%20hub%20feb%2006%20updated%20may%202006.pdf>

It is important to note that Yorkshire and The Humber does have the highest greenhouse gas emissions of all the regions; but that it is a net exporter of electricity, producing emissions through the generation of power that is consumed elsewhere in the country.

The Regional Energy Infrastructure Strategy 2007 of the Yorkshire and Humber Assembly states that:

“Yorkshire and Humber presently contributes 17-18% of the UK's electricity production while consuming 7-8%”; a net exporter of electricity.

The full document can be found at <http://www.yhassembly.gov.uk/dnlds/Energy%20Strategy.pdf>

Further Regional Information

The Yorkshire and The Humber Warming up the Region Document (an impact scoping study) details the potential implications and future scenarios for the region associated with climate change. It is available on the Your Climate website using the link below:

<http://www.yourclimate.org/siteassets/documents/yourClimate/3/4/343FCAD0-0E43-4280-BFDE-72262A61DA81/Warming%20up%20the%20region%20-%20summary.pdf>

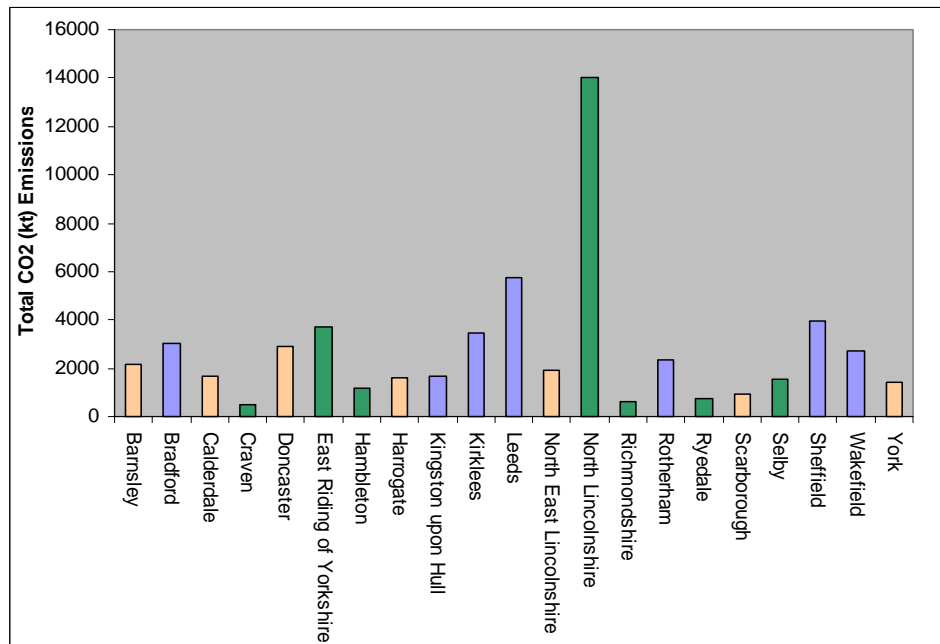
Climate Change Data Extracted from the Rural Evidence Base

The following graphs are extracted from the Yorkshire and The Humber Rural Evidence Base 2006, to give a summary of the regional climate change facts.

All of the following carbon dioxide emissions data are taken from the Netcen Report (for Defra) of September 2005. The CO₂ data used in this analysis attributes emissions to their production location; it does not take into account where they are consumed (some of the Yorkshire and The Humber districts generate electricity which is consumed outside of the region).

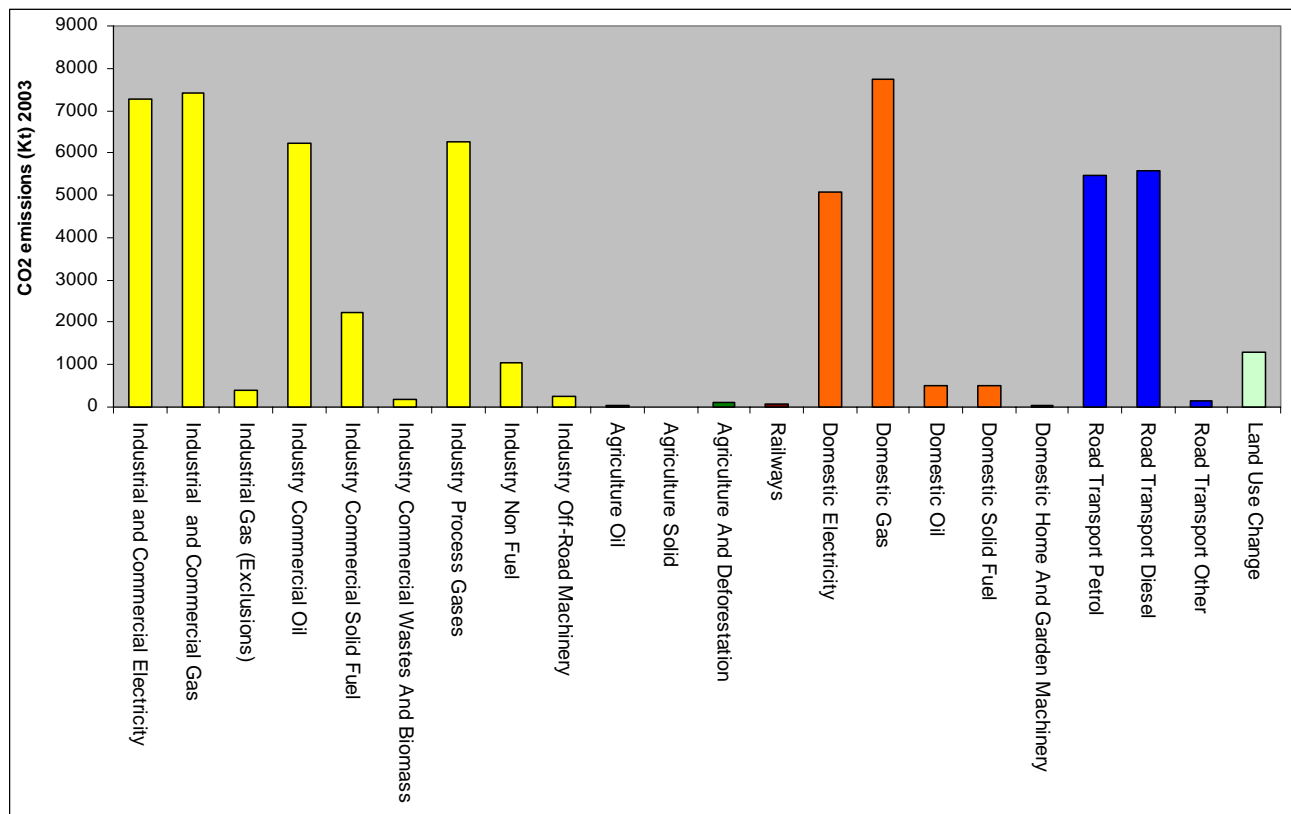
The graph in Figure 1 shows the total carbon dioxide (CO₂) emissions for each district for 2003. The area with the highest emissions level of 13999.4 kilo tonnes (kt) is the rural district of North Lincolnshire. When the breakdown is analysed it is apparent that the majority of these emissions come from Industry and Commerce, primarily commercial oil and process gases, along with solid fuel industry. ***A high proportion of output from these industries will be consumed outside of the districts, regionally and nationally.*** Leeds also has higher emission levels than other districts, the largest proportion of which come from industrial electricity sources. Excluding North Lincolnshire, the rural districts have low total emissions.

Figure 1: Estimated total carbon dioxide emissions, 2003



The overall CO₂ emission levels can be broken down by sectors. The sector with the largest emissions level is domestic gas, closely followed by industrial and commercial gas. Domestic and industrial electricity is also a major contributor to the emission levels, along with petrol and diesel road transport.

Figure 2: Breakdown of the regional carbon dioxide emissions by industry, 2003



Carbon dioxide emissions source summary for each of the rural districts in the region:

In Craven, 20.1% of the total emissions in the district are from petrol road transport. The largest proportion of emissions in Hambleton also comes from road transport (but diesel rather than petrol) at 19.8%. East Riding of Yorkshire has a fairly even distribution of CO₂ emissions across industrial fuel use, domestic fuel use and road transport. North Lincolnshire has the opposite pattern with industry process gases making up 42.2% of the total carbon dioxide emissions. Richmondshire similarly has a dominating sector - road transport, which collectively accounts for 43.5% of total CO₂ emissions in the district. The sector with the largest percentage of emissions in Ryedale is land use change at 18.9%. The main sources of emissions in Selby on the other hand, come from industry, with gas, non-fuel and electricity having the largest percentage shares.

The graphs below show two examples of the district level breakdowns for carbon dioxide emissions, Richmondshire and Ryedale. A full breakdown for each rural district is available in the full evidence base document.

Figure 3: Richmondshire carbon dioxide emissions (kt), detailed sector split 2003

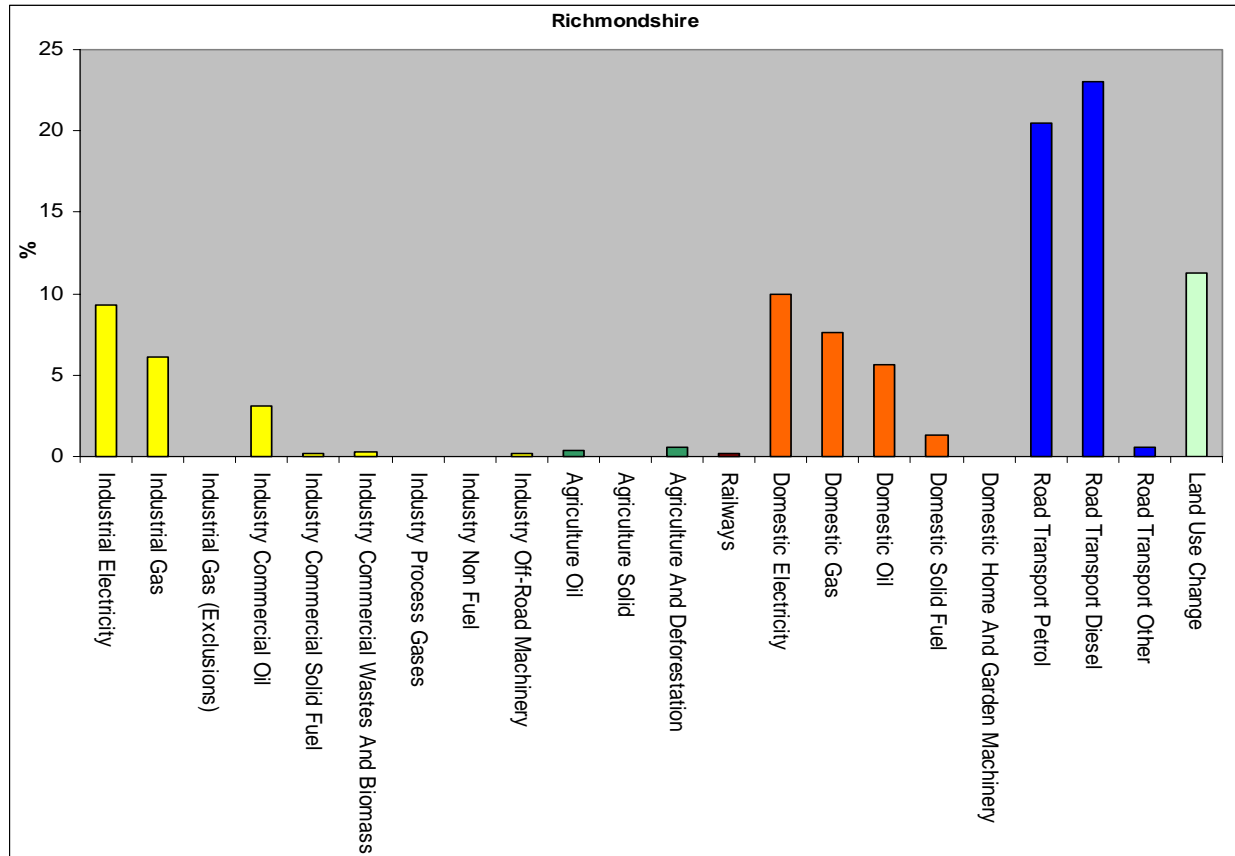


Figure 4: Ryedale carbon dioxide emissions (kt), detailed sector split 2003

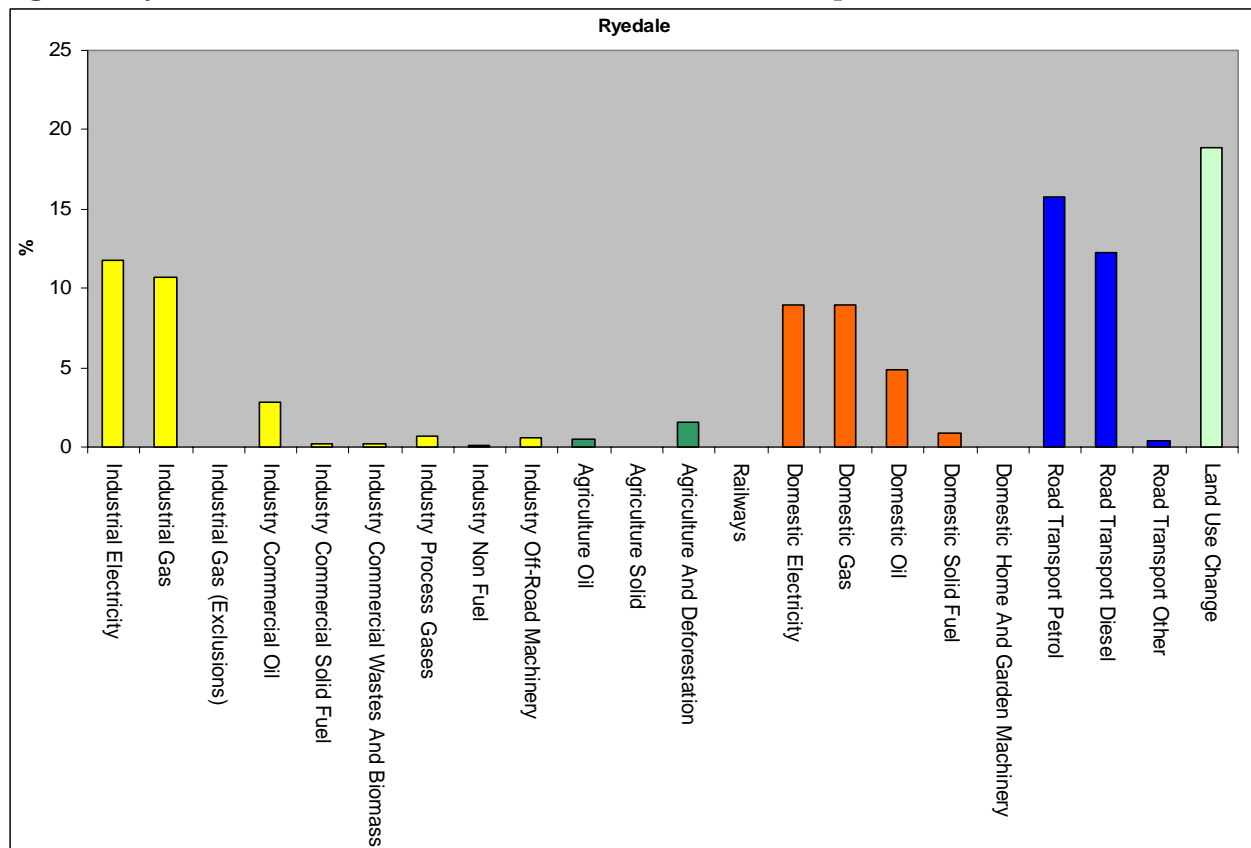


Figure 5: The contribution of agricultural industry to carbon dioxide emissions, 2003 (as percentage of total emissions)

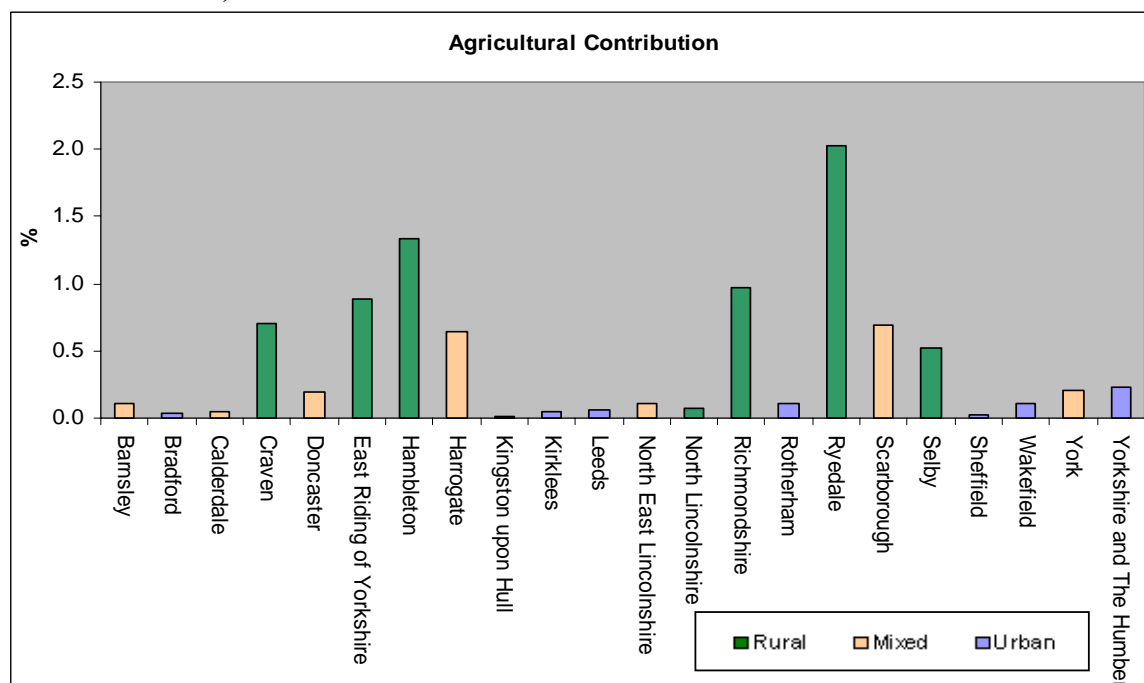
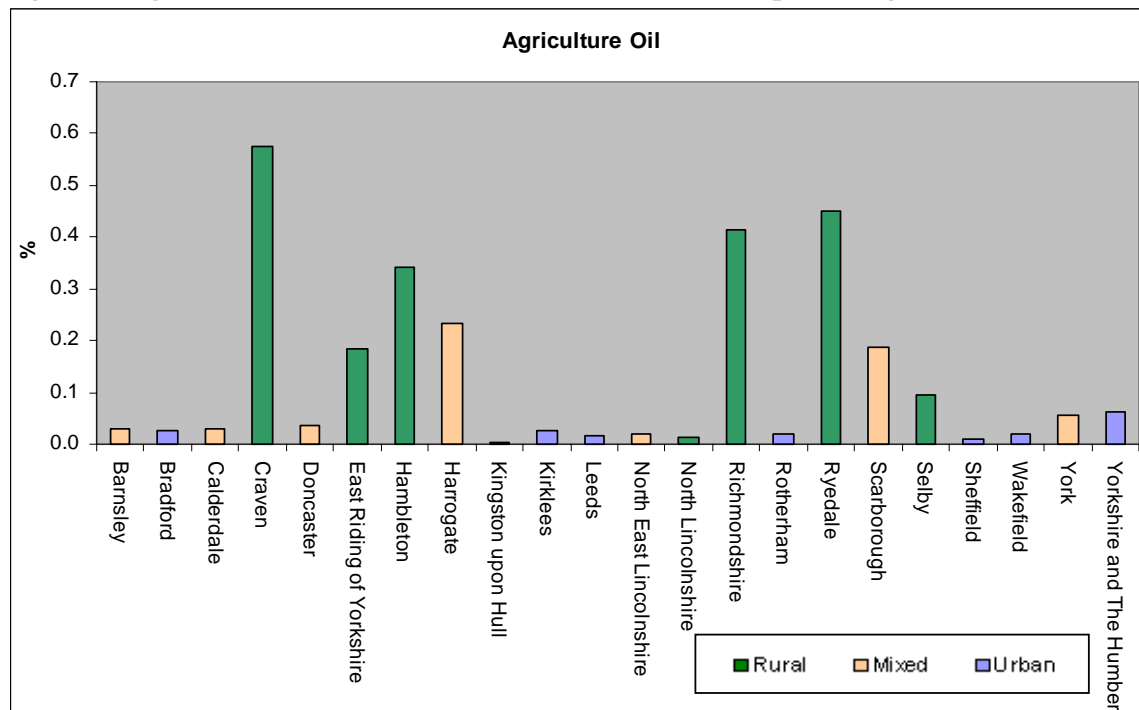


Figure 6: Agriculture oil carbon dioxide emissions, 2003 (as percentage of total emissions)



The Implications of Climate Change - Extract from Your Climate 2005

“These changes [to the climate], individually and in combination, would affect people and organisations within the region in a variety of ways:

- Increased flood risk impacting on transport and built environment potentially leading to insurance companies refusing to provide flood cover for high risk areas;
- Increased risk of travel disruption, habitat disruption and damage to the built environment from extreme weather events;
- Growing season 45 - 100 days longer, potentially resulting in greater agricultural and forestry productivity (although this could be constrained by drought);
- Reduced soil moisture threatening some habitats and requiring changing agricultural practices;
- Local season and annual droughts may become more frequent, exacerbated by higher domestic and business water demands in hot weather, will require new water storage facilities or better management of existing resources;
- Decrease in cold-related deaths and an increase in heat-stress;
- Changing disease vectors and possible increase in food poisoning”

Further Information about Flooding – a potential impact of climate change

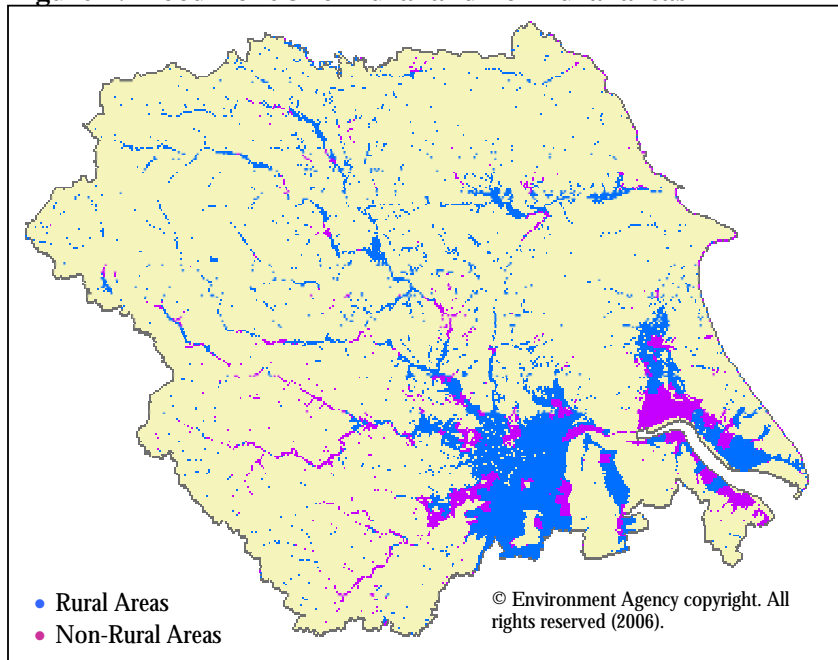
Table 1 indicates that 13.4% of the total area of Yorkshire and The Humber is in a Flood Zone 3 area. This is the Environment Agency’s best estimate of areas of land with a 1:100 chance (or greater) of flooding each year from rivers or a 1:200 chance (or greater) of flooding each year from the sea. 12.4% of rural areas in the Yorkshire and The Humber are also categorised as Flood Zone 3.

Table 1: Areas within Flood Zone 3 for Yorkshire and The Humber, total and rural

Yorkshire and The Humber	Km ²	Percentage of Total Area in Flood Zone 3	m ²
Total Area	15,564.03		15,564,028,469
Flood Zone 3 Area	2,088.05	13.4	2,088,054,475
Total Rural Area	12,236.85		12,236,849,511
Flood Zone 3 Rural Area	1,522.76	12.4	1,522,760,806

If flooding increased as a result of climate change, not only may new areas be categorised as Flood Zone 3, the current areas under this designation may be at further risk from flooding.

Figure 7: Flood Zone 3 for rural and non-rural areas



The table and graph below show the extent of flood defence in the region. The percentage of total of flood defence length in rural areas is 74.4%.⁵

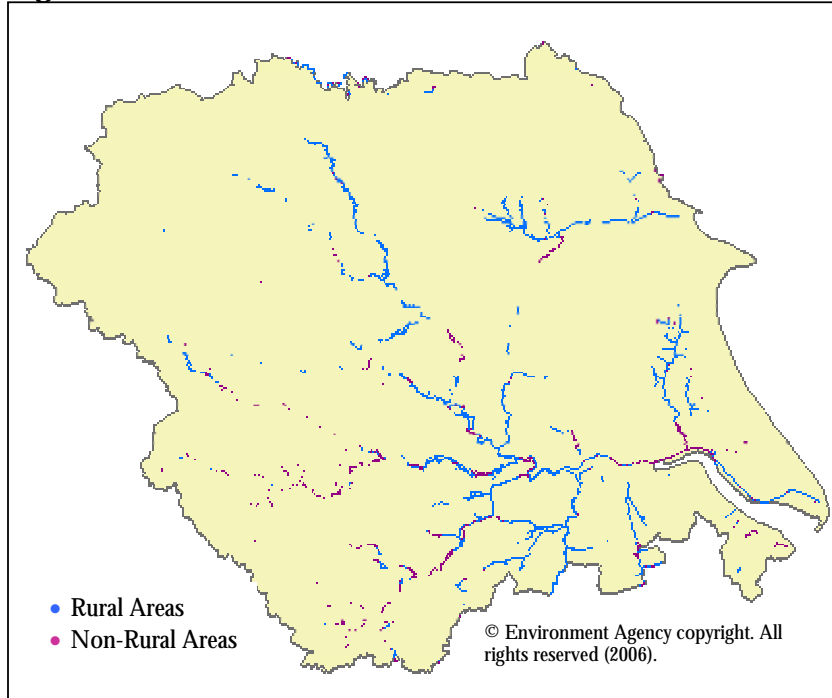
⁵ Environment Agency

Table 2: Flood defence length

Yorkshire and The Humber	km	m	Percentage of length that is rural
Total Length	1,577.32	1,577,320	
Total Rural Length	1,172.8	1,172,797	74.4

The location of the flood defences:

Figure 8: Rural and non-rural flood defences



Further Flooding Information

The Environment Agency publishes work on flood risk and management. It has Catchment Flood Management Plans for all of the catchments in the area.

They have also completed a study looking at future scenarios of potential social and economic changes, as well as information on climate change to help us understand the risks of flooding in future, and inform both public and Government bodies on what will need to be done to meet these risks.

The full report can be downloaded using the link below:

The Foresight Future Flooding report:

http://www.environment-agency.gov.uk/subjects/flood/763964/?version=1&lang=_e

OR

http://www.foresight.gov.uk/Previous_Protects/Flood_and_Coastal_Defence/Reports_and_Publications/Executive_Summary/executive_summary.pdf