

Physical environment and climate change

Headlines

The world's climate is changing because of increased carbon dioxide (carbon emissions) in the atmosphere. The health and wellbeing of vulnerable people could be challenged by extreme weather conditions. Impacts could include: heat stroke, hypothermia, musculoskeletal problems and respiratory infections. Reducing carbon emissions will improve the health and wellbeing of people vulnerable to climate change.

In the home, 1 in 4 households struggles to pay their energy bills, and the energy efficiency of private homes in Kirklees is much less than council homes. Single occupancy car journeys continue to be the dominant mode for journeys in Kirklees, and over-reliance on the car represents a major threat to not only climate change but a range of other health and wellbeing issues, especially obesity and accidents. Air quality and noise also affect the local physical environment in Kirklees and impact on the health and wellbeing of our residents (see transport and access to services section for more detail).

Currently, we are not utilising the full potential of the natural environment: whether inspiring and encouraging people to be more active, exploiting its economic potential or in making the district more resilient to climate change.

Why is this issue important?

The world's changing climate presents unprecedented and potentially catastrophic risks to health and wellbeing including increased mortality, disability and injury from extreme temperature and weather conditions, and effects on [mental health](#) of flooding, increasing energy costs and other climate related events¹.

This is not only a global issue, but also a local one. Projections for Yorkshire and the Humber show that these changes will lead to increased temperatures, decreased summer rainfall and increased winter rainfall over the next 80 years². The major impacts of these changes for Kirklees by 2050 will include:

- Increased flooding (winter and summer high intensity surface water run-off).

- Increased storm intensity and frequency.
- More heat waves. Average daily temperature increase by approx. 2.3°C.
- Drought problems. Decreases in summer rainfall by 19%.

In Kirklees we have seen an increase in extreme weather events. The effects caused by this have included:

- Storm damage to properties in parts of Kirklees, with wind speeds up to 90mph in November 2009.
- Snow and ice during January, February and November 2010 and 2011 which disrupted the transport network and caused traffic congestion. It also disrupted Local Authority services, such as bin collections, affected health services due to the cancelling of all routine and non-emergency appointments, and emergency vehicles access and transport of those needing medical support. At the Huddersfield Royal Infirmary there was an 80% rise in admissions due to slips and trips on ice and an 80% increase in fractures during severe cold and snow in January 2010³. Over the last three years excess winter deaths have averaged over 170 in Kirklees, eight extra hospital admissions are associated with each excess winter death due to cold and damp related illness¹¹.
- Severe flooding in the summer of 2007 with up to 100mm of rainfall in 24 hours.
- Heat waves in Kirklees reaching record highs of 31°C in the summer of 2003.

Creating a sustainable low carbon future is entirely compatible with action to reduce health inequalities. Sustainable local communities, active transport, sustainable food production, and zero-carbon houses will have health benefits across society^{4 (p.18)}.

What significant factors are affecting this issue?

Human activity is now widely agreed to be the cause of the rapid and unnatural changes in the climate, due to the amount of greenhouse gases produced, especially carbon dioxide (CO₂, often shortened to carbon)¹. Key to addressing the issue is the need to reduce our emissions across Kirklees and the need to adapt to the effects of a changing climate.

Energy use in the home

Domestic energy use contributes to climate change and accounts for 38% of energy use in Kirklees. About two thirds of domestic use is for heating and hot water, with more than half of heating being lost in poorly insulated homes².

When a householder spends more than 10% of their income on energy bills, they are considered to be [fuel poor](#), so that they cannot afford to heat their home properly. This results in living in cold, damp housing, which can cause or aggravate serious health conditions, especially in the old and very young, particularly cardiovascular illness, [COPD](#) and mental health issues^{4 (p.80)}. The Kirklees Warm Zone programme has helped to address fuel poverty and climate change by offering help to every household to improve energy efficiency. By the end of July 2010 Warm Zone had reached 135,816 households.

Transport

In Kirklees, [transportation](#) accounts for 20% of CO₂ emissions². Car travel in Huddersfield is the dominant mode, however it fell slightly from a 61.1% mode share in 2007, to 59.2% in 2010. Buses and trains account for 22.9% and 10.2% of journeys respectively whilst only 6.9% of journeys are by foot and 0.8% by cycle or motorcycle¹⁰.

Land use and the natural environment

As increasing oil prices push up the cost of [food](#), concerns over food security (the availability of food and a person's access to it) and food poverty are rising. Developing sustainable food systems such as community gardens, allotments, city farms, smallholdings, community supported agricultural (CSA) schemes and land trusts all are required. Many of our natural assets are underutilised. Our woodlands are mainly unmanaged, our rivers – which are now much cleaner – are not used for recreation, the run-off from our urban areas and agricultural land continue to contribute to increased flood risk, and some of our urban environments are eyesores which are a disincentive to investment. The Council has direct control over some of these areas and can influence those where we don't by ensuring sustainable land management is a priority.

Which groups are affected most by this issue?

A changing climate will affect all our communities and will have significant implications on some key individuals in Kirklees. The obvious risks are short term to the health of vulnerable people, for example [older people](#), people in poor [housing](#) conditions, people with long-term health conditions, and infants. Such risks are heat stroke on hot days and cold related health conditions which may lead to excess winter deaths. Chronic obstructive pulmonary disorders, [cardiovascular disease](#), mobility and falls, and mental health illness are all exacerbated by cold and damp housing. In the long term, food poisoning, disease threats and more insect borne diseases could also be exacerbated due to an increase in summer temperatures and milder winters. The effects of flooding can have a major impact on people's lives, including the long-term dislocation of people, the need to re-home and deal with the aftermath of a flood, and consequently their health and wellbeing.

Where is this causing greatest concern?

Flooding

The Kirklees Strategic Flood Risk Assessment identified and analysed current and future broad scale flooding issues for key locations in Kirklees, such as along the River Colne from Huddersfield to Dewsbury. It provides support for further assessment of planning applications and proposed development allocations within those areas⁶. Assessment of reservoir stability is also undertaken.

Fuel poverty⁶

The lowest energy efficiency ratings of homes across Kirklees are found in those built pre-1919, which includes many terraces (both back-to-back and through terraces), located mainly in older urban areas and stone cottages and detached houses in rural areas. Few homes pre-1919 have a cavity wall and some do not have a loft and are "hard to treat" homes. Poorer households living in these homes are more likely to struggle to afford to heat their homes.

Views of local people

In 2009, a climate change attitudes survey was carried out across Kirklees in which the survey sample was self-selecting, so not necessarily representative of Kirklees⁸.

Even so:

- 3 out of 4 (74%) thought that their everyday actions contributed to climate change.
- Future impacts such as flooding, increased rainfall and increased poor air quality were of higher concern than hotter and drier summers (which were often perceived as a positive impact).
- Females were more concerned about climate change than males.

In 2012, the Current Living in Kirklees (CLiK) survey⁹ identified that 10% of residents would require help to leave their home if asked to evacuate during an emergency e.g. flooding. Of the 10%, most respondents were aged over 65 on their last birthday. Additionally, the highest proportions of respondents requiring help to leave their home were based in North Kirklees in areas with a high flood risk.

What could commissioners and service planners consider?

- Improving energy use and efficiency across the domestic sector, including greater investment in, and public awareness of, renewable energy production.
- Work to influence travel behaviour and promote more sustainable and active modes is needed to reduce dependence on private cars, and in particular single-occupancy car journeys. In parallel, work to address the cost barriers (perceived or actual) to using public transport needs to be undertaken, particularly for young people, job seekers and part-time workers.
- More work is needed to ensure that Kirklees is fully prepared for the effects of flooding as much of Kirklees is within high risk flood zones.
- Better understanding about how we manage agricultural land, make provision for long-term affordable food security, forestry, green spaces and wildlife habitats in Kirklees to help mitigate climate change.

- Action is needed to develop further sustainable waste management practices across the business sector, reducing the amount of waste produced and maximising re-use and recycling across Kirklees.
- Collectively, Kirklees businesses and public sector organisations have the potential to make carbon (and potentially cost) savings via local sourcing or joint working.
- There is a need to develop skills for low carbon living and working locally so that communities are skilled to be able to adapt to a changing climate.

Many of these issues are covered in the “Decision Making Questions” of the Health Impact Assessment Framework of the Council’s Core Strategy – which is Appendix 23 of the Sustainability Appraisal.

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