

Theme 3: The West Sussex Food System and its Wider Influences

Chapter 10: Food and Climate in West Sussex



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Chapter 9: Food and Climate in West Sussex

This chapter discusses the concept of climate change and the impact this can have on our food system. In addition to exploring how climate change will impact on the food and nutrition environment and the impact this can have on population health; we will also briefly explore the bidirectional relationship where the food system can impact on the climate. We will discuss local predictions for the impact of climate change in West Sussex and discuss how local partners and people can contribute towards creating a resilient food system, highlighting some examples of proactive work that is already being undertaken and options for further action to mitigate the impacts on and from climate change.

Summary

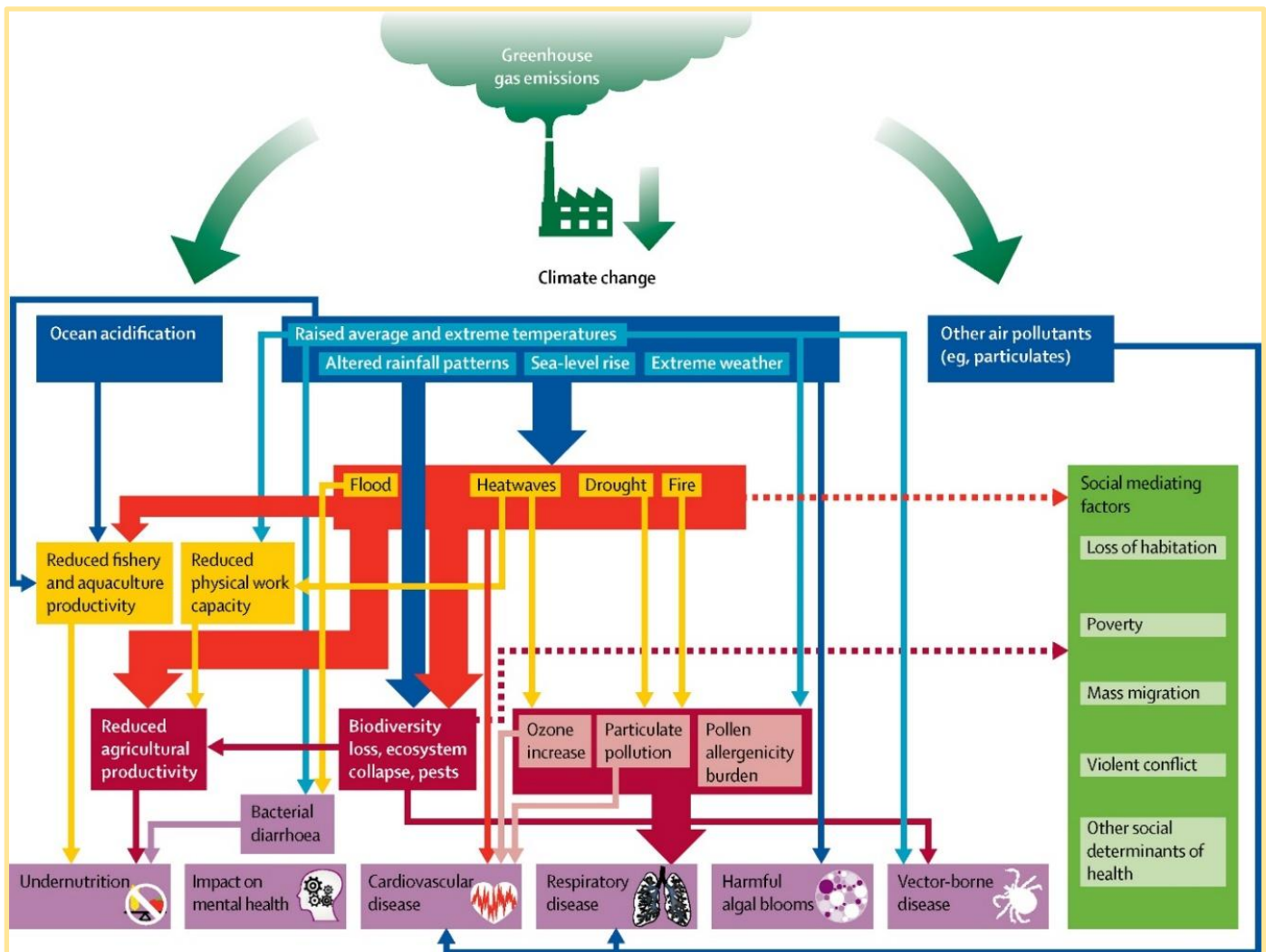
- Climate change will impact West Sussex and poses a threat to human health globally. Food and nutrition will be affected by this due to its close links to the wider environment.
- Areas within West Sussex at highest risk from environmental threats are also areas we recognise as being at highest risk of food insecurity. Climate change globally and nationally tends to place a disproportionate impact on those living in greater deprivation. This may also apply for the West Sussex population.
- There is a responsibility in West Sussex to ensure a resilient food system, recognise the local food system as a contributor to the environmental emissions, and collaborate on ways to mitigate this impact.
- The food system is one aspect where action can be taken within wider ongoing efforts to reduce carbon emissions in West Sussex, as outlined in the West Sussex Climate Change Strategy.
- The greatest medium-term impact from climate change on the UK food system may be to increase food prices, potentially worsening the situation of local food insecurity.
- There are evidence-based planetary diet recommendations which aim to promote population health alongside consuming food within our planetary boundaries. This planetary diet plate is even more ambitious in terms of the volume of fruit and vegetables that should be consumed compared to the national Eatwell Guide recommendations. Nationally and locally we currently don't meet the Eatwell Guide fruit and vegetable recommendations.
- A local focus on food waste, increased population adherence to the Eatwell Guide, domestic food production and engaging with anchor institutions on the feasibility of adopting sustainable food options are all avenues to explore to support local climate mitigation work.

Climate change and its key contributors

The term climate change refers to a long-term change from the average weather patterns that have historically defined the local, regional, and global climate expectations¹. The impact of climate change can directly be observed through changes to the location or seasonal pattern of weather events, which can result in humanitarian emergencies, such as heatwaves, droughts, wildfires, and flooding. These have become more unpredictable and more common globally².

Climate change poses a current and future fundamental threat to human health globally. The recently published Lancet Countdown on health and climate change is tracking 42 indicators monitoring the impacts on human health³. Figure 1 below highlights the multiple ways in which climate change can impact on the environment, either directly or indirectly, and in turn how this can impact on health outcomes, impacting on disease.

Figure 1: The pathways where climate change impacts on human health.



[The 2018 report of the Lancet Countdown on health and climate change: shaping the health of nations for centuries to come.](#)

Although its impact can be challenging to predict and measure, climate change does and will continue to affect multiple aspects of human life, likely at an increasing rate. This can both be noted directly, through events impacting an individual, such as thunderstorm asthma or exposure to extreme heat⁴ and indirectly, due to the impact on the systems supportive of health, for example the food system. It is recognised that at least in the short-medium term, the health impacts from climate change will be greater for the most vulnerable populations in society as exposure risk, susceptibility, and the resources to mitigate and adapt to these risks are unequal⁵. Often, we see this disproportionately impacts the population who have contributed the least to the climate hazard⁶.

Figure 2 below shows the three effects of inequality on disadvantaged groups in the response to climate hazards, this breaks down the effects into greater exposure, greater susceptibility to the damages and reduced ability to recover from the insult. This framework is important to consider when planning the climate change response and actions for West Sussex.

Figure 2: Three effects of inequality on disadvantaged groups

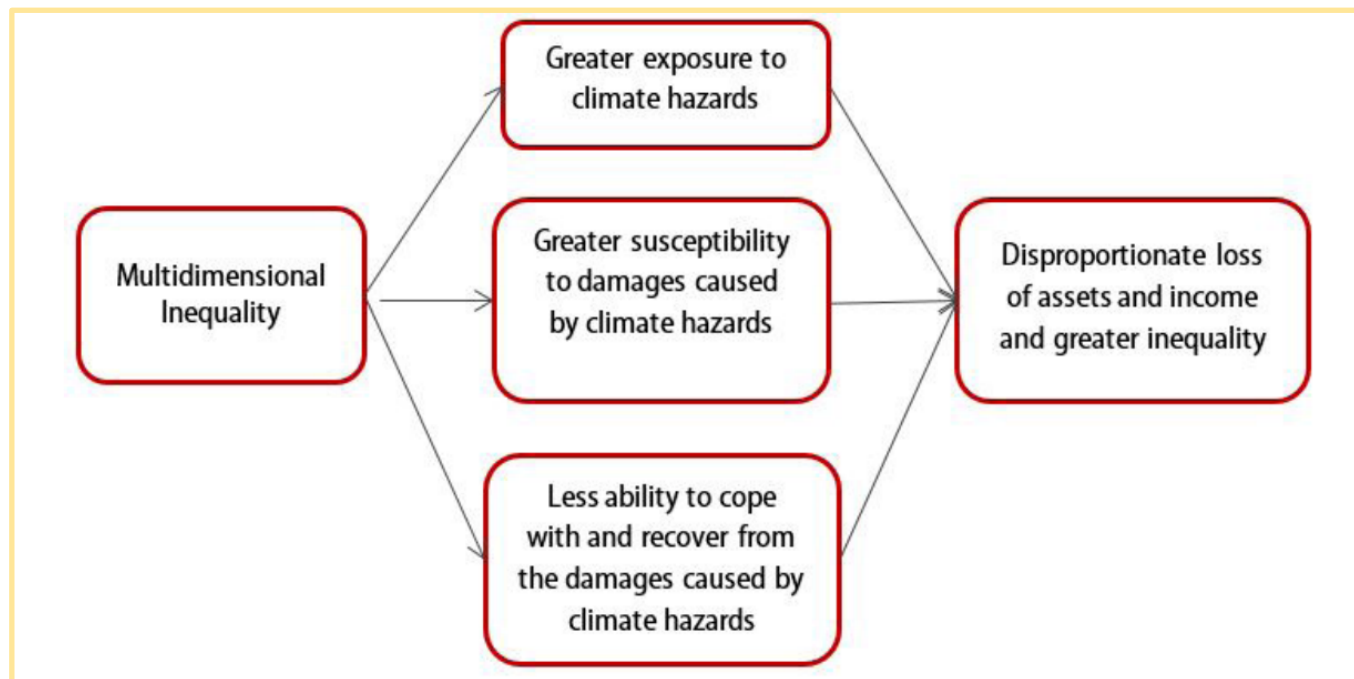


Figure 1: Taken from the Department of Economic & Social Affairs, DESA Working paper No 152. Available here: https://www.un.org/esa/desa/papers/2017/wp152_2017.pdf.

The link between food and nutrition and climate change

Given the heavy dependence of the wider food system on the environment, climate change will inevitably impact on this system and in turn the ability to provide adequate and nutritious food for the population if the resilience in the system is inadequate. There are numerous avenues for how this will impact food production, in terms of quality and quantity (see Figures 1 and 4). There are equally processes in how we grow and produce our food, including the amount of water we use and the management of land which can impact in turn on the environment. We will not explore these mechanisms in depth, as wider food growing, and production does not fit into the remit of this needs assessment. However, it's important to highlight that food systems are a large contributor to greenhouse gas emissions globally. An avenue we will discuss is how personal consumption and dietary shifts could be supportive of the environment.

The EAT - Lancet report

The EAT-Lancet report has provided an evidence-based example of a dietary plate which considers promotion of global population health alongside the need to consume food which respects planetary constraints^{7, 8}. Largely this is made up of a flexitarian diet, which is largely-plant based with optional protein sources depending on dietary needs and preferences. Figure 3 shows that fruit and vegetables make up a larger proportion of the diet plate than is recommended in the Eatwell Guide.

Figure 3: EAT Lancet report: A planetary health plate



Figure 2: This planetary health plate consists of approximately half a plate of vegetables and fruits; the other half, displayed by contribution to calories which should consist of primary whole grains, plant protein sources, unsaturated plant oils and modest amounts of animal sources of protein. Available from: https://eatforum.org/content/uploads/2019/07/EAT-Lancet_Commission_Summary_Report.pdf

A population dietary shift to a diet which is recognised as more environmentally sustainable, alongside efforts to reduce food waste, is viewed as a key area of focus to combating climate change. This shift will support the other large scale key transitions required, such as the move to a carbon free economy globally. It is important to recognise this plate represents a population recommendation but acknowledges and allows for flexibility and choice for individuals to meet their own dietary needs and preferences. This provides a useful representation and guide when considering diet sustainability, however, it's important to recognise when considering our West Sussex population, that currently we are not meeting the recommended national dietary recommendations which are less ambitious than the planetary health plate above, in relation to fruit and vegetable consumption.

Risk to food security

The risk to food security and undernutrition due to climate change is one of the key indicators monitored by the Lancet countdown. This is important as we have highlighted previously that food insecurity is linked to poorer management of chronic disease and worsening health in children⁹. In turn this could place further pressure on low-income families already facing food insecurity.

How will climate change impact on the UK food system?

Climate change holds the potential to disrupt the UK food system. A chapter was dedicated to climate change and the impact on food supply as part of the UK Health Security Agency's 4th report on the Health Effects of Climate Change (HECC) in the UK, providing evidence, analysis and recommendations based on climate change projections. This report projects the risk to the future food supply in the UK¹⁰.

Figure 4 below shows a simplified framework of the impact that climate change can have on the UK food system, taken from HECC report 2023. This highlights the direct, indirect and external factors that can then implicate on food trade.

Figure 4: Framework of climate change impacts on the UK food system

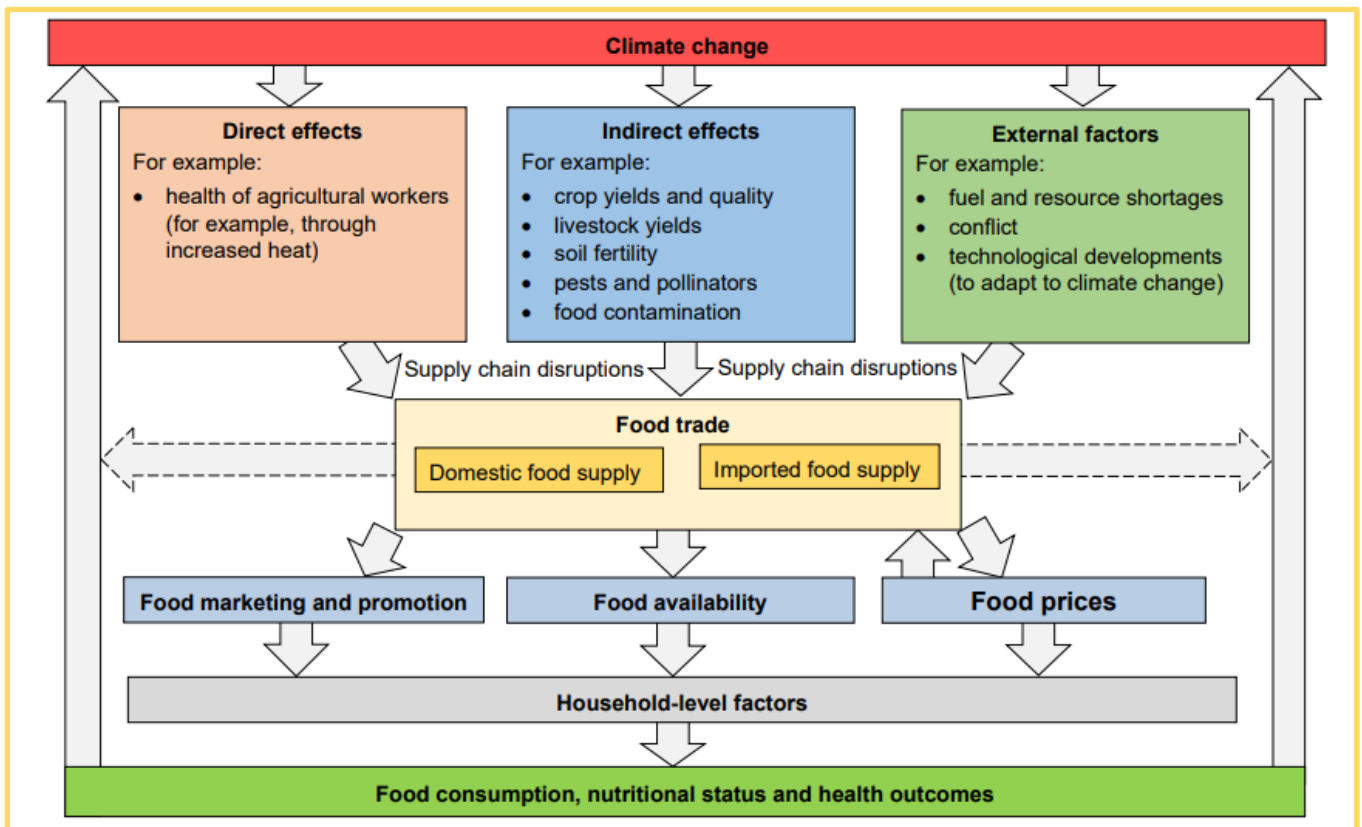


Figure 3: Image taken from Health Effects of Climate Change (HECC) in the UK: 2023 report. Available from: <https://assets.publishing.service.gov.uk/media/659ff76ee96df5000df844c3/HECC-report-2023-chapter-9-food-supply.pdf>

The key findings from the HECC report are as follows:

- Fruits and legumes are the food groups in the UK which are most reliant on imports, with over 90% dependence on imports. Across most food groups we have become more reliant on imports across the last 30 years.
- Until 2050 the overall supply of these fruit and legumes may increase, but domestic supply will continue to reduce and therefore we will be at greater reliance on imports of food.
- Although overall climate vulnerability of food in the UK is relatively low (and we are self-sufficient in the UK for some food produce) we do have overall reliance on importation, and this importation is from countries at higher risk of climate vulnerability. Plant based items are associated with higher climate vulnerability.
- Currently we can meet the Eatwell Healthy Plate recommendations in terms of supply of fruit and vegetables, but this could be threatened in the future. Either directly through supply or by price volatility due to limited supply (which we have observed during previous food system disruptions).

- The greatest impact of climate change on UK food security may be mediated through a change to food prices, although this is challenging to predict given the complexity of interactions on food consumption.

Figure 5: UK supply by food group and region, showing change in important dependence between 1986 and 2019

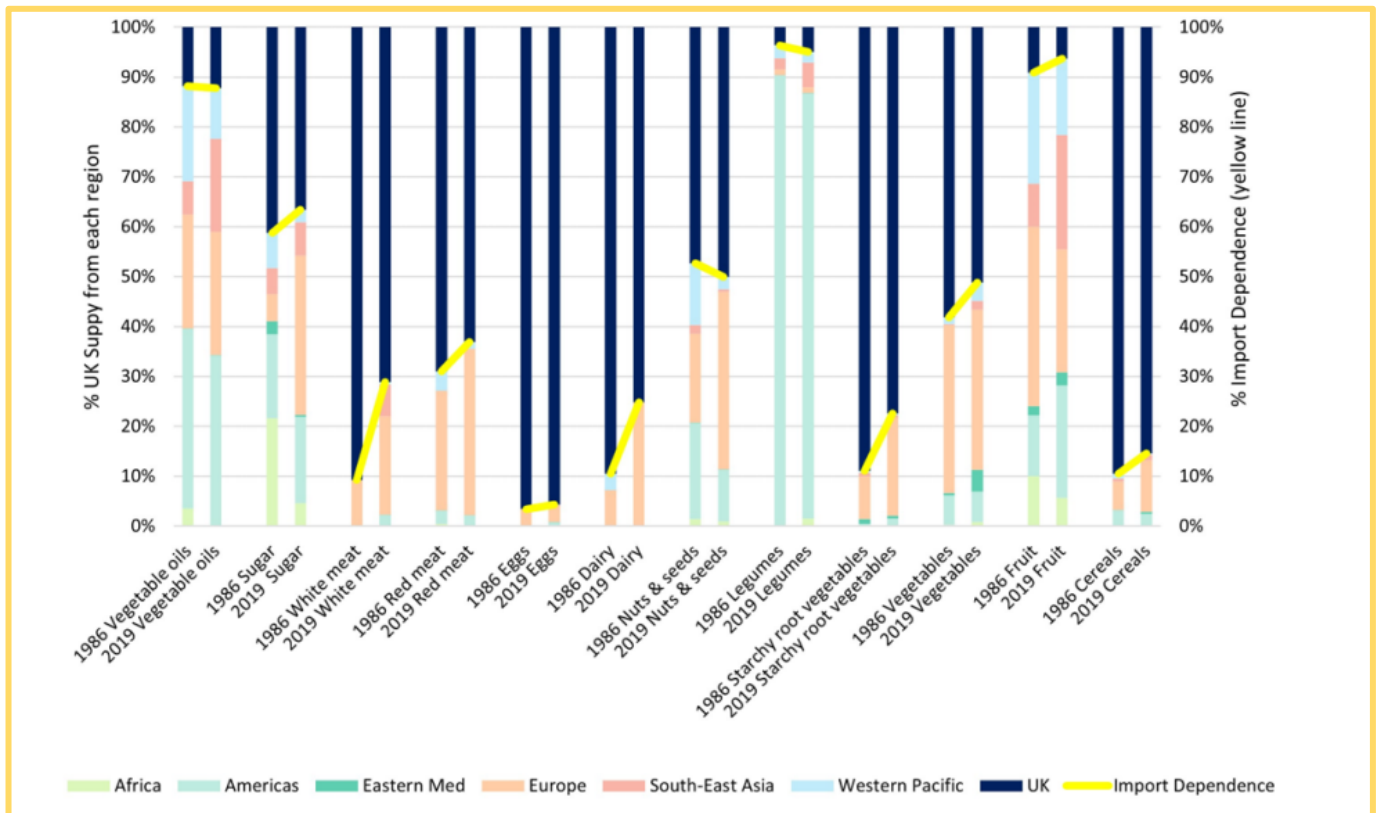


Figure 4: Image taken from Health Effects of Climate Change (HECC) in the UK: 2023 report. Available from: <https://assets.publishing.service.gov.uk/media/659ff76ee96df5000df844c3/HECC-report-2023-chapter-9-food-supply.pdf>

The HECC report recommendations include:

- Continued promotion of adherence to recommended national dietary recommendations
- Diversify local fruit and vegetable production to increase climate resilience in our food system

Individual adherence in terms of dietary consumption to the Eatwell Guide¹¹ has been shown to be associated with lower greenhouse gas emissions alongside better health outcomes in a UK secondary data analysis. However, this study also identified that <0.1% of the data samples of dietary intakes included adhered to all nine of the Eatwell guide recommendations¹². This highlights the co-benefit that could be achieved for health and the environment if there was greater adherence to the Eatwell national recommendations.

The report also recommended where possible ensuring there are opportunities to improve access to healthier, more sustainable food and drink. Incorporation of environmentally sustainable principles into national food-based dietary guidelines has been implemented by some countries globally¹³. Some organisations have led in the provision of promoting and providing sustainable and healthy diets, such as the development 'planetary picks' in the cafeteria at London School of Hygiene and Tropical Medicine. 'Planetary picks' foods are labelled with the consideration of the environmental impacts and nutritional contexts of a given food item or meal¹⁴. This intervention, based on dietary recommendations set out in the EAT-Lancet plate publication (Figure 3) respects the choice we have in choosing what we want to eat as an individual, but also providing options for those wanting to consider sustainability in their own diet.

Relevant climate and nutrition national policies / reports:

- **United Kingdom Food Security Report 2024:** This report examines past, current and future trends relevant for food security. Available: [United Kingdom Food Security Report 2024 - GOV.UK](#). Published by the Department for Environment, Food & Rural Affairs
- **Health Effects of Climate Change (HECC) report.** This 2023 report provides an analysis of the impact on climate change in the UK. Relevant chapters includes Chapter 4 – Climate and Food Supply and Chapter 14 – Net zero: health impacts of policies to reduce greenhouse gas emissions. Available: [Climate change: health effects in the UK - GOV.UK](#). Published by the UK Health Security Agency
- **National Food Strategy.** Independent Government Review of England's Food Chain ([The National Food Strategy - The Plan](#))

What does climate change mean for West Sussex?

West Sussex, like the rest of the UK, is vulnerable to the impact of climate change. Locally there is work underway to understand the risks it poses to our community, raise awareness and in turn work towards minimising the impact from and as a contributor to climate change across the system.

West Sussex Climate Vulnerability Index

West Sussex County Council have partnered with University of Brighton to develop the Climate Vulnerability Index. This tool helps to identify which communities in West Sussex are relatively more vulnerable to the recognised environmental impacts from climate change.

The Climate Vulnerability Index score of an area is calculated using data we have available on environmental threats, data which may impact the ability of a community to adapt to the environmental change, and markers of social vulnerability such as age, income, and health status. The concept of the work is to identify communities most at risk from climate

change, and aid in the prioritisation and planning of interventions and response to mitigate this risk.

Although data which we use to measure food and nutrition status is not utilised within this current tool, this allows us to visualise the relationship between indicators we use as markers for deprivation, and the risk of climate hazards across areas of the county. It highlights our West Sussex population groups which have higher social susceptibility and a limited ability to adapt and react in emergency climate situations.

When looking at data on climate vulnerability, the below Figure 6 highlights some of our coastal areas in West Sussex and our urban area of Crawley are at the greatest vulnerability, with the darker the purple indicating higher relative vulnerability to the impacts of climate change. This highlights substantial crossover in the areas we know to have a higher relative rate of food insecurity, as highlighted in previous chapters and those that are most at risk of environmental threats shown in Figure 6. This highlights the importance in the consideration of food and nutrition in the context of climate response planning, and the need for appreciation that areas requiring climate support or interventions may be limited in the assets they can use, to adapt to the changing circumstances to ensure food sufficiency.

Figure 6: Climate Vulnerability Index tool. Map to show areas at highest climate vulnerability across West Sussex

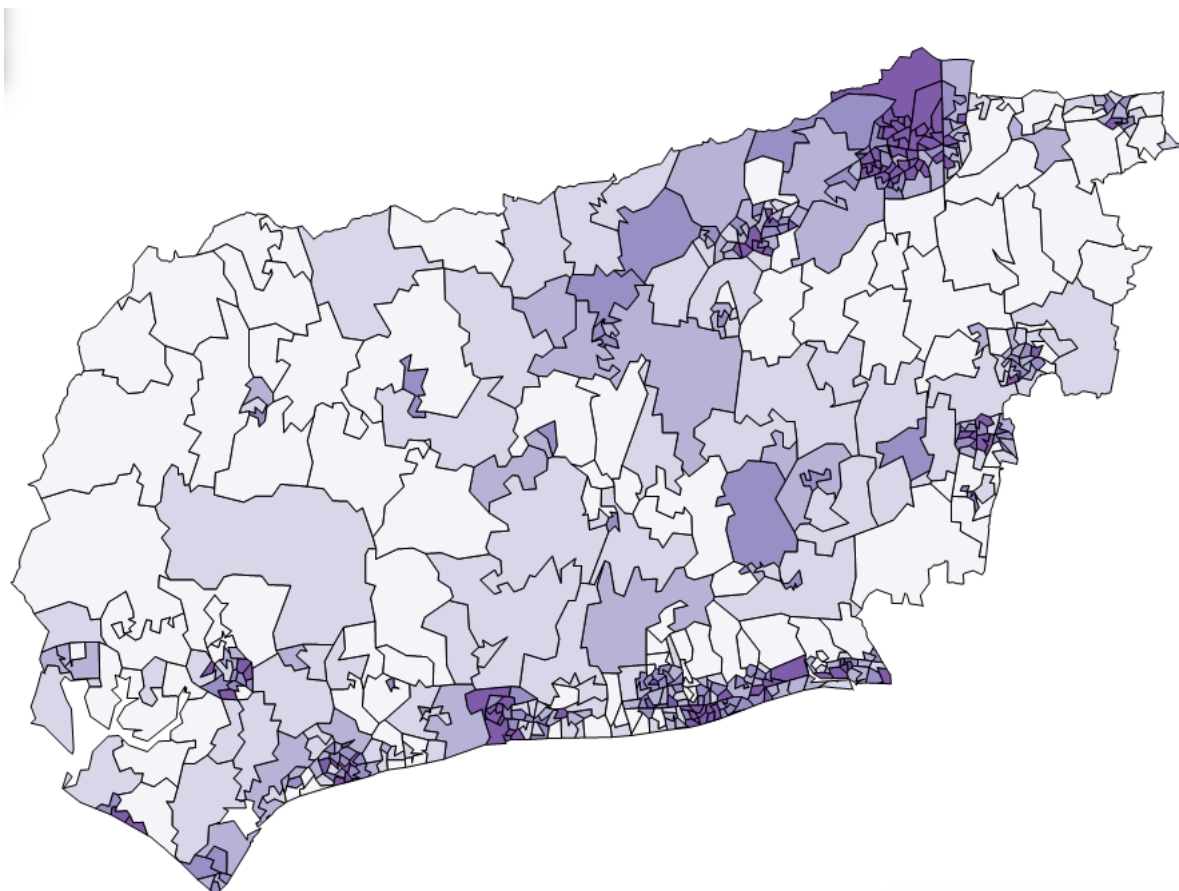


Figure 6 - Source: Climate Vulnerability Index, West Sussex County Council. Map to show Climate Vulnerability Index across West Sussex. Indicator: the darker the shade of purple, the higher the index of threat.

[Climate Vulnerability Index Tool available here: [Mapping climate vulnerability in West Sussex | Local Government Association](#)]

Figure 7: Heat and Flood Vulnerability Index. Map to show areas at highest heat (left) and flood (right) vulnerability across West Sussex

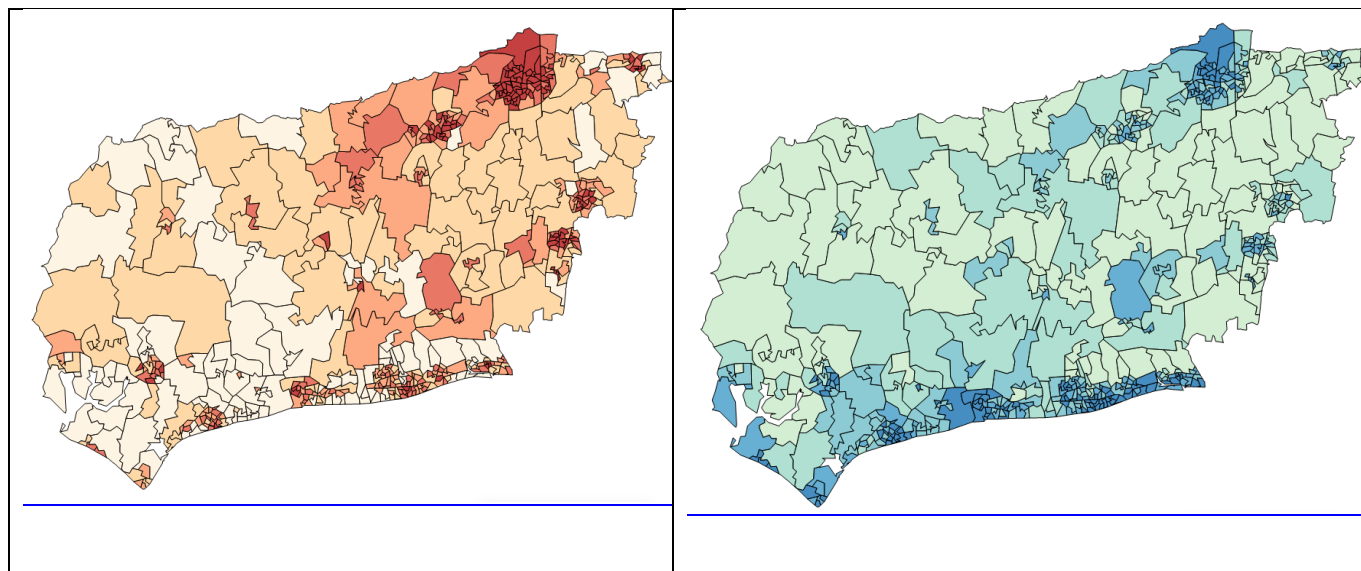


Figure 7 - Source: Heat Vulnerability Index & Flood Vulnerability Index, West Sussex County Council. Map to show specific risk vulnerabilities across West Sussex. Indicator: the darker the shade of red/blue, the higher the index of heat/flood risk, respectively

Local Policies and Planning

- West Sussex Climate Change Strategy [2020-2030]
- West Sussex Climate Action & Adaption Plan – Our priorities for 2024-2027
- Climate Action policies on our district and borough level

Within West Sussex County Council, the organisation is committed to addressing climate change and implementing policies that minimise its environmental impacts. Alongside the current West Sussex Climate Change Strategy, which aligns with the council target to be carbon neutral by 2030 there are also other climate supporting council policies and strategies, such as the Walking and Cycling Strategy, Electric Vehicle Strategy, and Local Flood Risk Management Strategy to name a few. These strategies, although not impacting directly on food system resilience, aim to reduce the impact on West Sussex as a contributor to emissions and prepare our assets and communities to withstand the impacts of climate change, all supporting in mitigation of our environmental impact. Some policies also focus on the co-benefits of promoting health and protecting the environment, such as policies supporting active travel locally and air quality improvements.

Creating health and sustainable places: A public health and sustainability framework for West Sussex

Available here: [Creating healthy and sustainable places. A framework for West Sussex](#)

This framework provides public health guidance to decision makers about creating healthy and sustainable places and communities in West Sussex. Climate change sits as one of the key consideration factors within this framework, to promote health and wellbeing when planning and considering developments. Healthy food also sits as one of the other considerations, alongside other factors which would either directly or indirectly reduce the climate impact of local developments.

This is not a statutory planning policy document but provides a clear, succinct framework of guidance. This highlights key areas of focus create a more sustainable local environment, in line with the West Sussex Climate Change Strategy.

Examples of local supportive food and climate work

UK Harvest Food Waste Minimisation Project

UK Harvest is a leading environmental and social impact charity dedicated to preventing food waste and food insecurity. UK Harvest have linked with West Sussex to provide a UK Harvest community food hub, where for a small, suggested donation our community is able to pick up food which would have otherwise been food waste alongside providing educational information and tips on cooking and preventing food waste. These sessions are held across each district and borough in West Sussex locations and are run once a month in these locations

More information is available here: [UKHarvest food waste minimisation project - West Sussex County Council](#)

FareShare – Surrey and Sussex

A national charity which works with 144 organisations across Sussex and Surrey to redistribute surplus food to those who need it most. This action provides food to community groups and individuals and is supportive of food provision and local access whilst ensuring that excess food in our system does not go to waste.

Food Waste Recycling

From autumn 2025 through to autumn 2026 food waste collections will begin in West Sussex. This is in line with national policy for simpler recycling, so every local authority collects the same materials. District and Boroughs

Our district and boroughs do lots of supportive food work on a community level, working towards improving food resilience, access and reducing factors such as food waste in our system. Arun and Chichester had been awarded the bronze award for Sustainable Food Places, recognising the work that Arun and Chichester Food Partnerships do to promote healthy, sustainable local food, fostering community links through food growing and cooking.

Potential local focusses for supportive climate and food work

Locally there is supportive work ongoing in relation to food and climate. At population-wide, within organisations, communities, and at individual levels there are actions that can be taken to improve the resilience in our local food system and protect those we have identified as most at risk locally from the effects of climate change.

Some considerations for action are:

- Continued emphasis on reducing food waste on a household level and as a West Sussex Food System. A successful rollout and uptake of the household food waste recycling will be influential in these efforts, alongside continued work on a community level to ensure that food providers have the knowledge and ability to reduce the food waste impact of their business
- Continued efforts including behaviour change interventions to increase population consumption of the national dietary guidelines, given its recognised co-benefits to the minimise dietary climate impact and improve the health of the population. This promotion could signpost the climate benefit alongside important health gains
- Work to enhance the domestic fruit and legume production locally, given the concern of important dependence and the climate vulnerability related to this. Continued and enhanced community growing could be supportive routes for this focus.
- Ensure that local climate action planning considers the food vulnerability of our communities and who are considered at highest risk of the impacts from climate change
- Work within anchor institutions to assess the feasibility of shifting to the provision of more sustainable dietary options for their employees and local service users. These options should consider both the environmental and health impact of foods. Engagement with anchors and communities is important to assess the real potential impact from this shift
- Provide better information about the carbon impact of food choices in food labelling, helping consumers to better understand the carbon costs of food items and make more sustainable choices

Summary

This chapter explores the impact and interactions between climate change and the food system. Although we acknowledge the global and national context of this relationship, we have also discussed actions and work being undertaken to improve local food resilience and mitigate our West Sussex contributions to climate change. We have laid out some considerations and actions that could be reinforced further locally, in addition to areas to explore with our local population and organisations to further enhance the supportive work for the climate in relation to food. The actions we have listed consider the impact of food choices and the wider local food system to minimise climate impact, other extensive climate actions taken by West Sussex such as efforts to decarbonise will in turn support the food security by reducing emissions known to contribute to climate change, and therefore in turn work to mitigate the health impacts (including those related to food and nutrition) posed by climate change.

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