

Communities Overview & Scrutiny Committee

Our current understanding of climate change and our planned response to climate change impacts – April 2022.

Introduction

The understanding of the science of climate change, the rate of change, the impacts and available mitigation strategies are continually evolving. At the highest level, this understanding is informed by the Intergovernmental Panel on Climate Change (IPCC), the United Nations body for assessing the science related to climate change. The panel comprises three working groups of leading scientists who act to synthesise the latest research and publish updated reports on a 5-7 cycle. As of April 2022, reports have now been published for the 6th reporting round (AR6) for all 3 groups.

The findings from these link to regional and national policy and in turn responses and actions, including for example, advancements in understanding and tackling future climate change impacts in the UK.

This document is focused on assessing the impact of climate change on our ability to carry out our services into the future and understand how we can best work with others to build a resilient Warwickshire, by examining possible responses and courses of action. A briefing on our planned work programme is contained within Section 4. Prior to that there is a short summary of the key points of each AR6 report. The points presented are those extracted from each of the working group reports particularly relevant to future impacts of climate change.

1. WGI: The physical science basis

This report addresses the most updated physical understanding of the climate system and climate change, bringing together the latest advances in climate science, and combining multiple lines of evidence from paleoclimate, observations, process understanding, global and regional climate simulations. It shows how and why climate has changed to date, and the improved understanding of human influence on a wider range of climate characteristics, including extreme events. There is a greater focus on regional information that can be used for climate risk assessments.

Key points are:

- Approximately 40 tCO₂ is emitted per year.
- Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in carbon dioxide (CO₂) and other greenhouse gas emissions occur in the coming decades. Emitting an extra 500 GtCO₂ p.a. would leave only a 50% chance of staying under 1.5C. At the current rate of emissions, there is a 50% chance of warming exceeding 1.5c by 2034.
- The IPCC uses a series of possible scenarios to project future global warming. The 6th assessment has updated scenarios using improvements in modelling and observations. These scenarios are the most significant change on assessments used in our impact assessment.

- The revised assessment report projects that global warming will be greater than first thought under all scenarios.
- Temperatures will rise in all European areas at a rate exceeding the global mean temperatures bringing about warmer, wetter winters and hotter, drier summers.

2. WGII: Impacts, adaptation and vulnerability

Working Group II assesses the impacts of climate change, from a world-wide to a regional view of ecosystems and biodiversity, and reviews the implications for humans and their diverse societies, cultures and settlements. The report considers the vulnerabilities and the capacities and limits of the natural world and of human societies to adapt to climate change. In doing so it contains information about the link between climate change and biodiversity loss, migration, risks to urban and rural activities, health, food, water, and energy. As such it informs adaptation and mitigation efforts to reduce climate associated risks together with options for creating a sustainable, resilient and equitable future.

The report can be seen to summarise a lot which is already known about the risks and dangers which climate change poses. In effect, the report reinforces the point about mitigation, adaptation, and adjustment. Even with a considerable effort to mitigate, the need to support adaptation and adjustment will still require considerable investment. The report clearly identifies that the path of climate change is worse than previously thought. Extensive modelling and representative pathways/scenarios have been updated and reported which will take time to analyse and relate back to specific conditions within the UK.

Key points are:

- Urgent action required to deal with increasing risks. To avoid mounting loss of life, biodiversity, and infrastructure, ambitious, accelerated action is required to adapt to climate change, at the same time as making rapid, deep cuts in greenhouse gas emissions. So far, progress on adaptation is uneven and there are increasing gaps between action taken and what is needed to deal with the increasing risks
- Safeguarding and strengthening nature is key to securing a liveable future. There are new insights into nature's potential not only to reduce climate risks but also to improve people's lives.
- Cities are hotspots of impacts and risks, but also a crucial part of the solution. People's health, lives, and livelihoods, as well as property and critical infrastructure, including energy and transportation systems, are being increasingly adversely affected by hazards from heatwaves, storms, drought and flooding as well as slow-onset changes, including sea level rise.
- There is a narrowing window for action and a challenge that requires local solutions. This key finding underlines the urgency for climate action, focusing on equity and justice. Adequate funding, technology transfer, political commitment and partnership lead to more effective climate change adaptation and emissions reductions.

There are specific risks too numerous to present in this paper, but several that are pertinent to the UK that can be in turn connected with WCC and the County:

- Biodiversity (substantive)
- Fire
- Flood
- Cities and properties
- Agriculture
- Health and wellbeing
- Infrastructure
- Economics

3. WGIII: Climate change mitigation

Working Group III assesses progress in limiting emissions, and the range of available mitigation options in energy and urban systems, and in sectors such as agriculture, forestry and land use, buildings, transport and industry. It considers these in the context of sustainable development. The report also assesses the connection between short to medium-term actions and long-term emission pathways that limit global warming.

Key points are:

- Total net anthropogenic GHG emissions have continued to rise during the period 2010–2019, but the rate of growth between 2010 and 2019 was lower than that between 2000 and 2009.
- Accelerated and equitable climate action in mitigating, and adapting to, climate change impacts is critical to sustainable development. Climate change actions can also result in some trade-offs. The trade-offs of individual options could be managed through policy design. The Sustainable Development Goals (SDGs) adopted under the UN 2030 Agenda for Sustainable Development can be used as a basis for evaluating climate action in the context of sustainable development.
- There is a strong link between sustainable development, vulnerability and climate risks. Limited economic, social and institutional resources often result in high vulnerability and low adaptive capacity.
- Several response options deliver both mitigation and adaptation outcomes, especially in human settlements, land management, and in relation to ecosystems. However, land and aquatic ecosystems can be adversely affected by some mitigation actions, depending on their implementation. Coordinated cross-sectoral policies and planning can maximise synergies and avoid or reduce trade-offs between mitigation and adaptation.
- Attention to equity and broad and meaningful participation of all relevant actors in decision-making at all scales can build social trust and deepen and widen support for transformative changes.

Outside of those points directly relevant to climate change adaptation, there are some very valuable points that WCC should consider in our mitigation response. These areas will all be covered in our forthcoming sustainable futures strategy.

4. The WCC planned response to adapt to climate change

Phase 1 – headline assessment

Initial work was completed in March 2021. We commissioned a headline climate impacts assessment for Warwickshire County Council. Using the climatic models available at the time (which will now be updated in the light of the latest IPCC reports), a picture was presented of how the climate would be in Warwickshire on a high emission and low emission scenario. Three time horizons were examined and resultant temperature and rainfall projections made specific to a grid point around Warwick and Leamington Spa. This was then used to list sets of impacts by Council service area and secondly other services locally.

This first round assessment has provided us with the basis for informing how we proceed to develop our work programme. The report can be found at:

<https://api.warwickshire.gov.uk/documents/WCCC-1980322935-1925>

Phase 2 – improving service resilience

UK Climate Impacts Programme (UKCIP), based at the University of Oxford, are about to commence work to support Phase 2 of the organisation's adaptation work. Initially they will work with Officers to identify those service areas which are particularly sensitive to climate change impacts now and in the future. Work completed in Phase 1 indicates that these areas are likely to be: Flooding, Fire and Rescue, and Public Health. Once confirmed, work will then commence with Officers in these most at risk service areas to:

- Identify the specific risks to their area from climate change;
- Establish (where possible) the cost of action versus inaction;
- Plan mitigation steps for identified red risks.

The above steps will feed into the creation of a Climate Adaptation Risk Register and Action Plan in relation to those most at risk service areas, as well as a process for monitoring the plan and updating as required in response to factors such as changing organisational priorities and budgets.

As part of UKCIP's work they will upskill the Climate Change Team in this area and provide a completed report on the full adaptation planning process, from initial conception to monitoring an implemented strategy. This will mean, once UCIP completes this initial work in the Autumn, Officers will be well placed to roll out the process to other service areas of the organisation and create a Climate Adaptation Risk Register and Action Plan for the organisation as a whole.

Phase 3 – A Warwickshire-wide adaptation strategy and action plan

In tandem to stage 2 we are developing a Warwickshire-wide climate change adaptation strategy and action plan. Whereas phase 2 is inwards facing and builds resilience for Council services, this will assess the potential effects and propose response measures to services delivered by organisations other than the County Council. We in the process of developing a strategic approach and outline actions to defining how we can work with local and regional partners to assist in their efforts, so that they can deliver their services in the event of at least a 2-degree rise in temperature above pre-industrial levels by 2100. The strategy needs to inform us on how we ensure that our infrastructure, environment and communities are prepared for the impacts of climate change, now and in future years.

We are looking to define the role that Warwickshire County Council can best play in partnership to make a difference. There is so much that could be done here but we have to be clear about how we effectively target our limited resources. There will be some actions where we will need to take a leadership role, some where we act in partnership with other actors taking the lead and others, and some where it may not be prudent to act at this stage but continue to monitor. This strategy will draw on existing work completed or underway by local and regional partners to ensure it is connected. Due to the clear relationship with decarbonisation, sustainable development goals and our work on biodiversity, this will need to be clearly linked with our forthcoming sustainable futures strategy.

To work is due to be completed by the end of September 2022.

Matt Whitehead – Climate Change Programme Manager – April 2022.