



Insight Paper

Climate Adaptation and Resilience: Emergency Response and Preparedness

Background to this paper

The Yorkshire & Humber Climate Commission was established in early 2021, tasked with supporting ambitious climate action across the region. This paper is one of a series¹ of insight papers, each focusing on a different topic and detailing recommendations to promote progress in Yorkshire and the Humber across the Commission's four key aims: rapid emissions reduction, climate adaptation and resilience, nature restoration, and a just transition.

This paper is all about **emergency response and preparedness**. It was written in 2023 and considers the most relevant and current themes, concepts and research relating to prevention and mitigation of emergencies resulting from climate-related impacts in Yorkshire and the Humber. It draws together insight from Commissioners, panel members, and Delivering Impact session speakers Bruce Mann (International Resilience Advisor), Kathy Settle (Specialist Advisor on Strategic Risk & Emergency Management), Zonia Cavanagh (Resilience Directorate, Cabinet Office) and Matthew Robinson (North Yorkshire County Council).

The Commission also invited the region's citizens to critique the draft recommendations through a series of online surveys². A summary of public feedback is included within this paper.

What happened next?

The survey results and updated recommendations helped to shape the 2024 Yorkshire and Humber Climate Action Plan³, and will feed into the Commission's Accelerated Adaptive Action project⁴.

¹ The full series will be available at: <https://yorksandhumberclimate.org.uk/insight-papers>

² See: <https://yorkshirecap.commonplace.is/>

³ Yorkshire & Humber Climate Commission (2024) Yorkshire and Humber Climate Action Plan update 2024. Available at: <https://yorksandhumberclimate.org.uk/inspire/climate-action-plan/>

⁴ See: <https://yorksandhumberclimate.org.uk/ourwork/>

What's the issue?

Following lessons identified from a series of major emergencies in 2000-2001⁵, the Civil Contingencies Act 2004 (the Act) was put into place⁶, setting out a broad framework under which local areas should prepare for civil emergencies. Under the Act, an emergency was defined as any event or situation that threaten serious damage to human welfare, the environment, or the security of the UK.

The Act also defined the legal duties, roles and responsibilities of emergency preparedness and response structures at the local level and required those bodies to collaborate and cooperate through newly created local resilience forums (LRFs)⁷. LRFs are therefore partnerships between:

- Category 1 Responders: organisations at the core of the response to most emergencies, such as the police and emergency services, local authorities, NHS bodies, the Environment Agency and the Maritime and Coastguard Agency
- Category 2 Responders: cooperating bodies which are less likely to be involved in the planning but will be heavily involved in incidents that affect their own sector, such as utilities and transport providers, the Health and Safety Executive and the Met Office.

There are four LRFs in Yorkshire and the Humber, covering North Yorkshire; West Yorkshire; South Yorkshire; and the Humber.

Soon after the Act was established, our region was impacted by extreme weather. In June 2005, North Yorkshire experienced severe flooding affecting homes, businesses and infrastructure. In June 2007, extensive flooding hit the UK, with more than 55,000 homes and businesses directly impacted⁸. As is common with weather-related emergencies, cascading impacts followed, including widespread infrastructure disruption which left almost half a million people without mains water, sanitation or electricity – some for up to 17 days.

Over the years since the Act was introduced, learnings from such emergencies have been taken on board, and measures have been implemented to keep improving our resilience and responsiveness – such as educating people about local flood risk⁹ and improving early alert systems¹⁰.

⁵ Commonly referred to as the 4Fs: wide-area flooding, foot and mouth disease, firefighter industrial action, and fuel tanker-driver industrial action.

⁶ See: <https://www.legislation.gov.uk/ukpga/2004/36/contents>

⁷ Cabinet Office (2013) The role of Local Resilience Forums: A reference document. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/62277/The%20role%20of%20Local%20Resilience%20Forums-%20A%20reference%20document%20v2%20July%202013.pdf

⁸ Environment Agency (2007) Summer 2007 floods review. Available at:

<https://www.gov.uk/government/publications/summer-2007-floods-review>

⁹ See: <https://livingwithwater.co.uk/>

¹⁰ West Yorkshire Prepared (2023) Date set for UK-wide Emergency Alerts test. Available at:

<https://www.westyorkshireprepared.org.uk/2023/04/06/date-set-for-uk-wide-emergency-alerts-test/>

However, the environmental risks we face keep evolving and intensifying: the risk of flooding, heatwaves, drought, storms¹¹ and high winds continues to increase, which will bring secondary impacts such as the disruption or loss of essential services (eg electricity). It is also more likely that these impacts will cross boundaries, occurring on a regional or national scale¹².

We are also likely to see more compound impacts¹³; for example hotter days combined with longer dry periods work together to increase the risk of wildfires and pressure on water supplies. We are also likely to see an increase in the number of people migrating¹⁴, both within the UK and from countries across the world as people seek refuge from extreme weather events.

Those most at risk are people who are already vulnerable due to existing inequalities. People on lower incomes, for example, are more likely to live in flood zones¹⁵: Yorkshire and the Humber reportedly has "the highest proportion of neighbourhoods classed as extremely socially flood-vulnerable" ¹⁶. Unless we address these vulnerabilities, we will see more and more people losing their homes and livelihoods; more people dying or suffering serious health issues from extreme heat and cold; and more people struggling to access basic provisions such as food, water and clean air as impacts worsen.

Public views

We asked people from Yorkshire and the Humber to share their views on emergency preparedness and response via the engagement platform Commonplace. Of the 61 people who responded:

- 80% think this is an important issue
- just 5% are confident that the issue is being addressed
- 49% think it's possible to do more to address this issue in Yorkshire and the Humber without significant changes in national policy.

¹¹ HM Government (2022) UK Climate Change Risk Assessment 2022. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1047003/climate-change-risk-assessment-2022.pdf

¹² National Preparedness Commission (2022) An independent review of the Civil Contingencies Act 2004 and its supporting arrangements. Available at: <https://nationalpreparednesscommission.uk/wp-content/uploads/2022/03/NPC-CCA-Report-FINAL-FOR-PUBLICATION-ON-24-MARCH-2022.pdf>

¹³ Zscheischler J et al (2018) Future climate risk from compound events. *Nature Climate Change*, 8, 469-477. Available at: <https://doi.org/10.1038/s41558-018-0156-3>

¹⁴ Clement, V (2021) Groundswell Part 2: Acting on Internal Climate Migration. © World Bank, Washington, DC. <http://hdl.handle.net/10986/36248> License: CC BY 3.0 IGO.

¹⁵ Environment Agency (2022) Social deprivation and the likelihood of flooding. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1072781/Social_deprivation_and_the_likelihood_of_flooding_-_report_2.1.pdf

¹⁶ JRF (2011) Climate change, justice and vulnerability. Available at: <https://www.jrf.org.uk/climate-change-justice-and-vulnerability>

What needs to happen?

By recognising and understanding vulnerabilities, we can reduce or prevent the negative impacts of extreme events and avoid emergency situations. A 2022 independent review of the Civil Contingencies Act¹⁷ set out ways the Act could be improved to build our long-term resilience.

Later that year the UK government released a new Resilience Framework¹⁸, which has three core principles:

- understand the risks we face
- prevention rather than cure
- a whole of society approach.

To implement the framework, a sub-committee of the National Security Council was then created. The Cabinet Office also restructured its Civil Contingencies Secretariat (originally established in July 2001 to make the UK more effective in planning for, dealing with, and learning lessons from emergencies), splitting it into two parts: one focused on crisis response (the COBR Unit), and the other dedicated to long-term resilience planning (the Resilience Directorate).

The review of the Civil Contingencies Act acknowledged the strength of LRFs as foundations that could be built upon, but noted their limited resources and recommended some improvements, including that their role be expanded to systematically undertake prevention activity. The Resilience Framework also outlined how the government would strengthen LRFs, such as better resource provision both now and in the future as hazards intensify. LRFs¹⁹ play a key role in understanding potential risks in the local area and ensuring emergency response plans are in place – but coordinating these efforts across boundaries and linking into national efforts is key to strengthening our region's resilience.

Risk modelling and resilience strategies

Tools are already available to help us predict the nature and scale of future events, as well as our vulnerabilities to them. Climate modelling is increasingly sophisticated, and combined with insight from the Met Office, Environment Agency and other countries where more extreme weather is common, long-term risk planning is possible.

¹⁷ National Preparedness Commission (2022) An independent review of the Civil Contingencies Act 2004 and its supporting arrangements. Available at: <https://nationalpreparednesscommission.uk/wp-content/uploads/2022/03/NPC-CCA-Report-FINAL-FOR-PUBLICATION-ON-24-MARCH-2022.pdf>

¹⁸ HM Government (2022) The UK Government Resilience Framework. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1131163/UKG_Resilience_Framework_FINAL_v2.pdf

¹⁹ Cabinet Office (2013) The role of Local Resilience Forums: A reference document. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/62277/The_role_of_Local_Resilience_Forum- A_reference_document_v2_July_2013.pdf

Local resilience strategies such as those created for Greater Manchester²⁰ and London²¹ can be developed for LRF areas and/or at regional/combined authority level which would help to ensure that cross-boundary plans are in place. By involving new partners in emergency planning (eg businesses, community groups) and drawing on the Commission's network of private, public and non-profit sector representatives, these strategies can clarify roles and provide agency for people to prepare for climate events. In London, a climate resilience review²² is in progress, drawing on insight from residents, businesses and communities to inform evolving adaptation plans. Such strategies can help to avoid an ever-expanding need for more emergency responders, by shifting focus to prevention, preparation and empowerment of communities.

Coordination and communication

Service providers can play more of a role in prevention and building community resilience. Existing links with communities provide the opportunity to educate and equip people, and detect opportunities for on-the-ground changes that could better enable people to help themselves and their families when emergencies occur. More involvement from category 2 responders would also support systemic, cross-boundary working, particularly in ensuring the continuity of provision of essential services during emergencies, which would improve resilience and minimise potential harm and loss.

Consistent, clear communication is also important to build resilience – both between organisations and to keep the wider public informed. Community organisers and organisations play an important role in providing on-the-ground support when extreme events occur, so they need access to relevant, up-to-date information. Communities form around many things, from shared values to shared geography. Those connected by place can be particularly powerful in helping to identify the changes needed across the region and in communicating information between residents. There is a role for knowledgeable community resilience officers within the region, who can translate what is happening in the 'big picture' into something meaningful and tangible for people and their communities in the real world. This can prompt resident-led actions and encourage community groups to think about resilience, understanding the increased risks within their areas and looking at what they can do to prepare.

²⁰ Greater Manchester Resilience Forum (2021) Greater Manchester Resilience Strategy 2020-2030. Available at: <https://greatermanchester-ca.gov.uk/media/4541/greater-manchester-resilience-strategy-2020-2030-accessible.pdf>

²¹ Mayor of London (2020) London City Resilience Strategy 2020. Available at: https://www.london.gov.uk/sites/default/files/london_city_resilience_strategy_2020_digital_0.pdf

²² Mayor of London (2024) The London Climate Resilience Review. Available at: https://www.london.gov.uk/sites/default/files/2024-07/The_London_Climate_Resilience_Review_July_2024_FA.pdf

Public priorities
<p>There were a limited number of comments submitted to the consultation, with many comments relating to climate adaptation in general rather than emergency preparedness and response specifically. Views included:</p> <p>Political commitment to action required</p> <p>Leadership is required at local and national level to prioritise this issue and enable the necessary resources. Politicians need to be engaged and made aware, and pressure put on government to act.</p> <p><i>“Are we sure that senior political and executive figures are sufficiently aware and committed in this campaign? Or are they just nodding it through without endorsing and funding it emphatically?”</i></p> <p>Community engagement and public awareness</p> <p>There needs to be greater public awareness of the need to be prepared and resilient. This means communicating scientific information more effectively, public education campaigns, community outreach and engagement, working with a range of local groups and people who understand the needs of their area.</p> <p><i>“Education, education, education - We need to educate people in society to think about their every day actions and how it impacts on the region’s resilience.”</i></p> <p>Planning and new developments</p> <p>A number of comments related to the local planning system, in particular the need to stop building new developments on flood plains, and ensuring related infrastructure can cope with emergency scenarios.</p> <p><i>“The importance of local plans and development plans considering climate change impacts before being approved, e.g., not allowing construction of residential properties in areas liable to flooding now and under the future climate change scenarios, making sure houses built now are fit for the future.”</i></p> <p>Local resilience planning</p> <p>Local community-led groups, that can be ready to respond to incidents and feed into broader strategies and plans, should be created and supported.</p> <p><i>“High level planning is required, but there is a danger that all we will get is paper plans when we need local on the ground action now. Incidents do not form an orderly queue waiting for us to get ready, they occur when they occur. Get something in place at local level, if it needs to change/evolve so be it, but if an incident happens at least something can be done..”</i></p>

Why is it not happening yet?

It is important to recognise the incredible systems already in place to protect us. Category 1 responders are working hard all of the time to improve collaboration so that they can protect and help people when emergencies inevitably occur, learning from previous responses both locally and from around the UK.

Local resilience forums (LRFs) in Yorkshire and the Humber work continually to improve understanding of the risks we face in the future and the emergency response systems required. They are already very experienced in risk assessment and responding to crisis situations, but these systems need to evolve to withstand the increasing challenges.

By addressing these challenges and working towards the three principles of the UK Government Resilience Framework – understanding the risks, focusing on prevention, and developing a whole-society response – we can build on our already strong foundation for emergency preparedness and response across the region.

[Shifting from short-term response planning to long-term prevention planning](#)

Current approaches to risk assessment tend to look at 2-5 year time horizons. In order to build resilience to climate and ecological impacts, these risk assessments need to look at the longer term (5-10 and 20-30 year timeframes).

They are also focused on our ability to respond to emergencies when they occur, which will become increasingly challenging as the scale and frequency of crises. More emphasis is needed on prevention of emergencies occurring in the first place to help take pressure off our already stretched response systems. Ensuring our LRFs can actively feed into infrastructure and spatial planning will be critical to ensuring we are climate ready.

[Turning ‘big picture’ risks into ‘on the ground’ reality](#)

Another challenge is in making information about potential future scenarios more accessible to those working on local and regional emergency planning. Climate modelling is highly technical, and it can be hard for someone who is not a climate scientist to interpret predicted future scenarios into a meaningful understanding of how day-to-day lives will be impacted and so identify what needs to be done to minimise those impacts.

[Engaging local communities](#)

Communities play a significant role in emergency preparedness and response. The challenge in mobilising a whole-society response is in communicating the risks we face. It is hard to get people thinking about risks that might happen if they have not been affected by these things in the past. For example, people who have experienced flooding will be aware of the risks of it happening again and are likely to engage in the measures that can be taken to prevent future flooding or minimise the negative impacts if it does happen. People who have never experienced flooding may be unaware of the risks and feel less vulnerable, and therefore take less interest in flood prevention or impact mitigation measures.

[Building collaboration between industries](#)

Businesses and industry leaders have a significant role to play, especially energy, digital and communications, and infrastructure providers. Effective emergency planning requires collaboration – unfortunately there are often barriers to sharing important information when it might be commercially sensitive. Planning and investment cycles often do not align, making the already complex questions around who will pay for what hard to resolve, stalling progress and lowering confidence.

What actions can be taken regionally to progress?

The following recommendations are aimed at decision-makers in local authorities, regional bodies and other organisations driving change across Yorkshire and the Humber. Informed by the evidence cited in this paper, they have been collaboratively developed to help prevent and mitigate climate-induced emergency situations in the region.

- Create longer-term risk assessments as standard, looking to the prolonged and compound effects of climate impacts and how these can be minimised or avoided.
- Facilitate cross-boundary working, connecting local resilience forums (LRFs) across the region.
- Work with communities and community groups in the region to increase awareness and understanding of longer-term climate risks and what we need to prepare for.
- Work with volunteer groups, like Voluntary Action Leeds, to expand networks and structures to better connect, inform and ready those who volunteer during times of crisis.
- Increase public engagement to improve awareness.
- Engage businesses in their role and capability to contribute to regional resilience.
- Create a regional pot of resilience funding through a local levy programme.

What role could the Commission play in enabling these actions?

The following recommendations are specific to the Yorkshire & Humber Climate Commission. Bringing together representatives from the public sector, the private sector and the third sector, the Commission is uniquely placed to support organisations looking to adopt the actions identified above.

- Deliver the actions outlined in our infrastructure paper²³ to create joined up investment cycles, facilitate long-term planning and strengthen our resilience to climate impacts.
- Support creation of a regional resilience strategy or series of local resilience strategies that link the four LRFs, feeding into a regional perspective that provides confidence and clarity and facilitates cross-boundary capabilities.
- Work with the LRFs in the region to apply to become a Department for Levelling Up, Housing and Communities (DLUHC) pilot, learning from the work being done in London and focusing on the contribution of LRFs towards climate adaptation and resilience.
- Use our convening capability to create stronger links between LRFs, partners and other bodies responsible for aspects of preparedness and resilience, with regular meetings to promote accountability.

²³ The full series will be available at: <https://yorksandhumberclimate.org.uk/insight-papers>

- Facilitate the connection between businesses, community groups and LRFs to enable stronger knowledge sharing and engagement.
- Translate the existing academic research and tools into something useful in the real world (many theoretical tools are already available, but they are not accessible to people outside of academia).
- Help connect LRFs to research and tools that will support longer-term risk assessment and understanding potential compounding impacts as our climate changes.

Recommendations from this series of insight papers will be prioritised by the Commission, as reflected in the updated Climate Action Plan⁶, future policy briefings and the Commission's ongoing work programme⁷.

Links with other insight papers from this series

There are 20 insight papers in this series from the Yorkshire & Humber Climate Commission⁸.

Whilst each one focuses on a specific topic, there are many cross-cutting themes and interrelated issues, not least the overarching goals of this work: to achieve net zero emissions, climate resilience, nature's recovery and social equity across Yorkshire and the Humber.

Most closely related to this topic are:

- Infrastructure
- Better homes and places
- Retrofitting homes