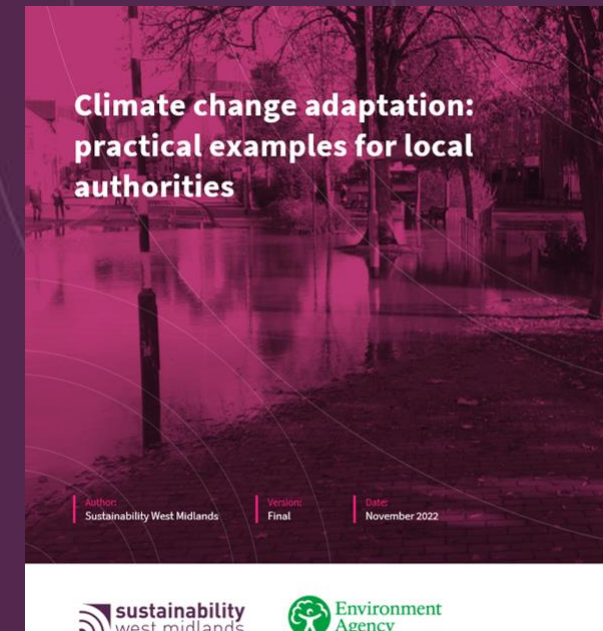


# Climate Change Adaptation

## Background, importance, SWM's capability and track record



# What is climate change adaptation?

# Summary 1

- **Climate change mitigation** means avoiding and reducing emissions of heat-trapping greenhouse gases (e.g. carbon dioxide) into the atmosphere to prevent the planet from warming to more extreme temperatures.
- **Climate change adaptation** means altering our behaviour, systems, and—in some cases—ways of life to protect our families, our economies, and the environment in which we live from the impacts of climate change.
- The key is – we need to do both.
- The more we reduce emissions right now, the easier it will be to adapt to the changes we can no longer avoid....



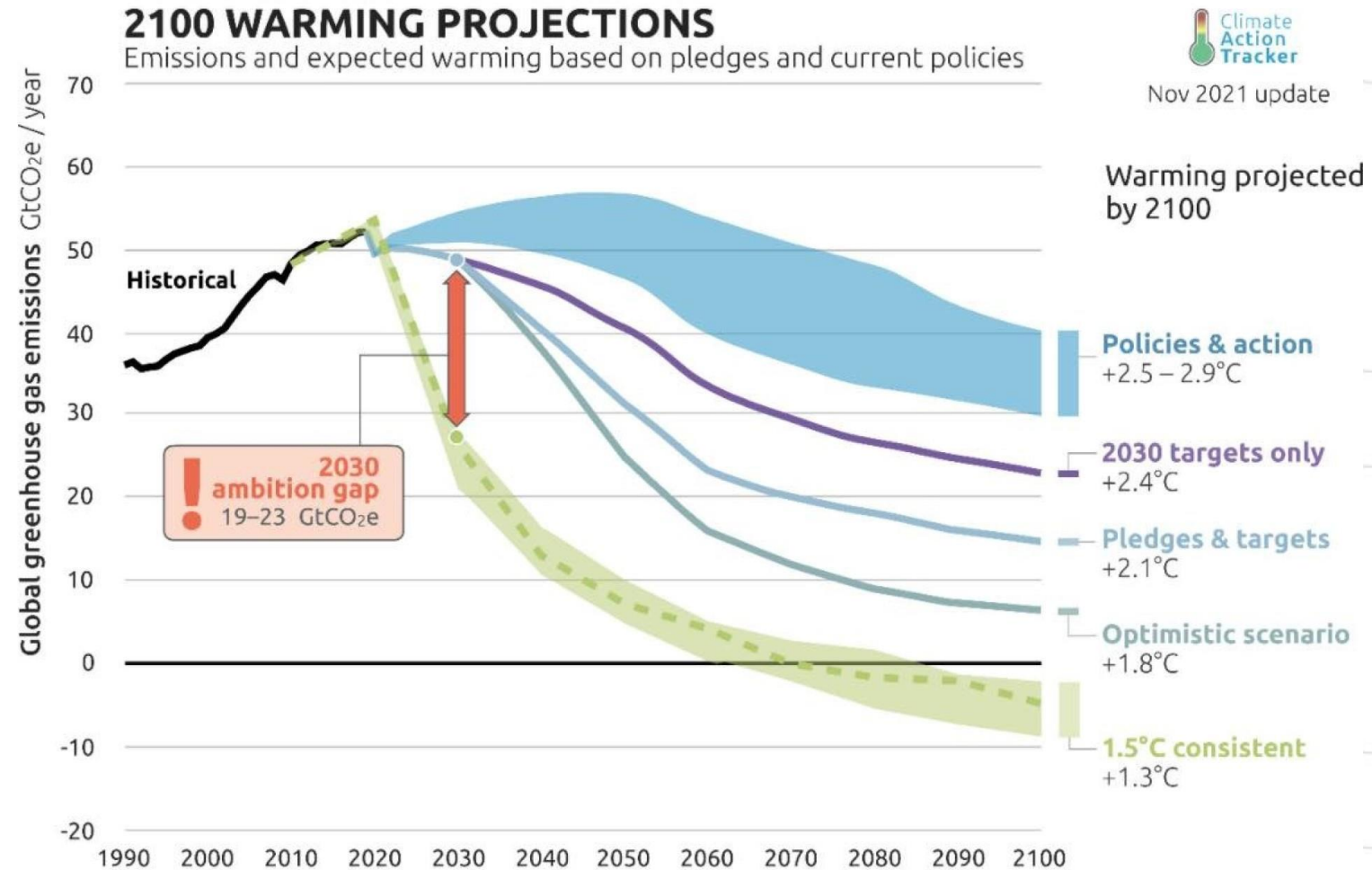
# Summary 2

- Adaptation is about protecting our assets, buildings, businesses, people, environment and society from the worst projected impacts of climate change.
- Impacts will still happen regardless of our efforts with Net Zero / carbon reduction.
- Making radical changes – like we did for the Covid-19 pandemic.
- Key things to expect:
  - More intense/prolonged heatwaves
  - More frequent and intense flash flooding
  - More frequent flooding of water courses
  - More extreme events (e.g. storms).
  - Longer periods of drought.



# Wider context

- Under current policies and action the Climate Action Tracker estimates by the end of this century, warming will be as high as 2.9°C globally.
- The change we have already locked in combined with the future projections results in a bleak picture the further into the future we go.



# Example UK Climate Risks and Impacts

## Without adaptation:

- Excess heat deaths could triple by 2050 (from 2,000pa).
  - 1.9m people currently exposed to flooding; this could double by 2050.
  - Health & social care assets unsuitable for extreme weather.
  - Risk to business productivity, supply chain disruption and UK financial instability.
  - Changes in energy demand patterns and risk to energy infrastructure failures
  - Cascade failure across infrastructure and disruption to transport, IT, water, energy networks.
  - Extreme heat, wildfire and invasion of pests affecting biodiversity and habitats.
  - Agriculture productivity could be at risk leading to food shortages.
- 
- People in more deprived areas likely to be worst affected.

<b>N1</b> Risks to terrestrial species and habitats	<b>N2</b> Risks to terrestrial species and habitats from pests, pathogens and INNS	<b>N4</b> Risk to soils from changing conditions, including seasonal aridity and wetness	<b>N5</b> Risks to natural carbon stores and sequestration from changing conditions	<b>N6</b> Risks to and opportunities for agricultural and forestry productivity	<b>N7</b> Risks to agriculture from pests, pathogens and INNS	<b>N8</b> Risks to forestry from pests, pathogens and INNS	<b>N11</b> Risks to freshwater species and habitats
<b>N12</b> Risks to freshwater species and habitats from pests, pathogens and INNS	<b>N14</b> Risks to marine species, habitats and fisheries	<b>N16</b> Risks to marine species and habitats from pests, pathogens and INNS	<b>N17</b> Risks and opportunities to coastal species and habitats	<b>I1</b> Risks to infrastructure networks from cascading failures	<b>I2</b> Risks to infrastructure services from river and surface water flooding	<b>I5</b> Risks to transport networks from slope and embankment failure	<b>I8</b> Risks to public water supplies from reduced water availability failure
<b>I12</b> Risks to transport from high and low temperatures, high winds, lightning	<b>H1</b> Risks to health and wellbeing from high temperatures	<b>H3</b> Risks to people, communities and buildings from flooding	<b>H4</b> Risks to people, communities and buildings from sea level rise	<b>H6</b> Risks and opportunities from summer and winter household energy demand	<b>H8</b> Risks to health from vector-borne diseases	<b>H11</b> Risks to cultural heritage	<b>H12</b> Risks to health and social care delivery
<b>H13</b> Risks to education and prison services	<b>B1</b> Risks to business sites from flooding	<b>B2</b> Risks to business locations and infrastructure from coastal change	<b>B6</b> Risks to business from disruption to supply chains and distribution networks	<b>ID1</b> Risks to UK food availability, safety, and quality from climate change overseas	<b>ID5</b> Risks to international law and governance from climate change overseas that will impact the UK	<b>ID4</b> Risks to the UK from international violent conflict resulting from climate change	<b>ID9</b> Risk to UK public health from climate change overseas
<b>ID7</b> Risks from climate change on international trade routes	<b>ID10</b> Risk multiplication from the interactions and cascades of named risks across systems and geographies	<b>N3</b> Opportunities from new species colonisations in terrestrial habitats	<b>N9</b> Opportunities for agricultural and forestry productivity from new species	<b>N10</b> Risks to aquifers and agricultural land from sea level rise, saltwater intrusion	<b>N15</b> Opportunities for marine species, habitats and fisheries	<b>N18</b> Risks and opportunities from climate change to landscape character	<b>I3</b> Risks to infrastructure services from coastal flooding and erosion
<b>I4</b> Risks to bridges and pipelines from flooding and erosion	<b>I6</b> Risks to hydroelectric generation from low or high river flows	<b>I7</b> Risks to subterranean and surface infrastructure from subsidence	<b>I9</b> Risks to energy generation from reduced water availability	<b>I10</b> Risks to energy from high and low temperatures, high winds, lightning	<b>I13</b> Risks to digital from high and low temperatures, high winds, lightning	<b>H2</b> Opportunities for health and wellbeing from higher temperatures	<b>H5</b> Risks to building fabric
<b>H7</b> Risks to health and wellbeing from changes in air quality	<b>H9</b> Risks to food safety and food security	<b>H10</b> Risks to health from poor water quality and household water supply interruptions	<b>B3</b> Risks to businesses from water scarcity	<b>B5</b> Risks to business from reduced employee productivity – infrastructure disruption and higher temperatures	<b>B7</b> Opportunities for business - changing demand for goods and services	<b>N13</b> Opportunities to marine species, habitats and fisheries	<b>I11</b> Risks to offshore infrastructure from storms and high waves
<b>B4</b> Risks to finance, investment, insurance, access to capital	<b>ID8</b> Risk to the UK finance sector from climate change overseas	<b>ID2</b> Opportunities for UK food availability and exports	<b>ID3</b> Risks to the UK from climate-related international human mobility	<b>ID6</b> Opportunities (including Arctic ice melt) for international trade routes			



More Action Needed



Further Investigation



Sustain Current Action, Watching Brief



sustainability  
west midlands





# What sort of actions do we need to take?

Produced for:  
Environment Agency



- Hard interventions
  - E.g. building modifications and infrastructure strengthening
- Quick(ish) wins
  - E.g. updating H&S guidance or awareness campaigns
- Integration
  - E.g. improving ventilation to assist with overheating risk and emissions reductions
- Nature-based solutions
  - E.g. tree planting programmes that consider overheating/flood risk *as well as* biodiversity/Net Zero aspects





River corridor and city centre nature based solutions  
<https://gehl.institute.org/work/climate-adaptation-planning-and-public-life/>



Flood defences on River Tame, Birmingham



Solar shading for buildings

Slide taken from WMCA

# Example actions (taken from CCC)

Independent Assessment of UK Climate Risk (CCRA3)	Examples
Engineered solutions	Building design and retrofit, road resurfacing, flood defence investment, drainage
Nature-based solutions	Increasing plant diversity, habitat creation, soil conservation, increased blue carbon (coastal and marine vegetation), green sustainable urban drainage, urban greening, and peatland restoration
New technologies	Precision farming, using new crop and livestock varieties, remote sensing, new designs for infrastructure assets, use of sensing, digitisation and big data for monitoring, evaluation and management
Behavioural	Changing timing of agricultural practices, information sharing, public engagement, skills development in adaptation actions
Institutional	Adaptation standards, supply chain diversification, regulation, advisory services
Financial	Insurance, risk disclosure, adaptation finance
Data, R&D	Monitoring and surveillance, inspections, forecasting, research, decision support tools



# Building Climate Resilience

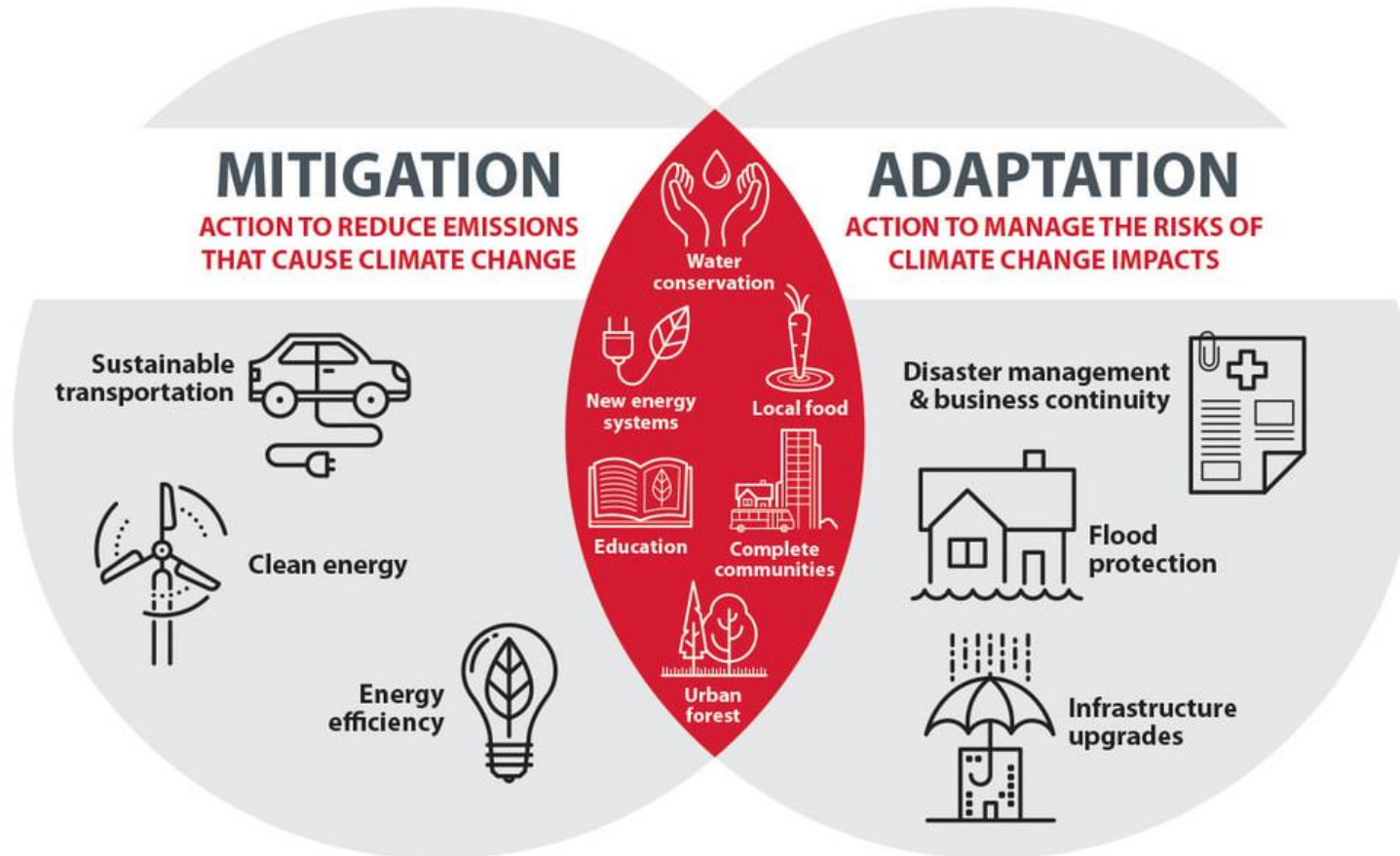
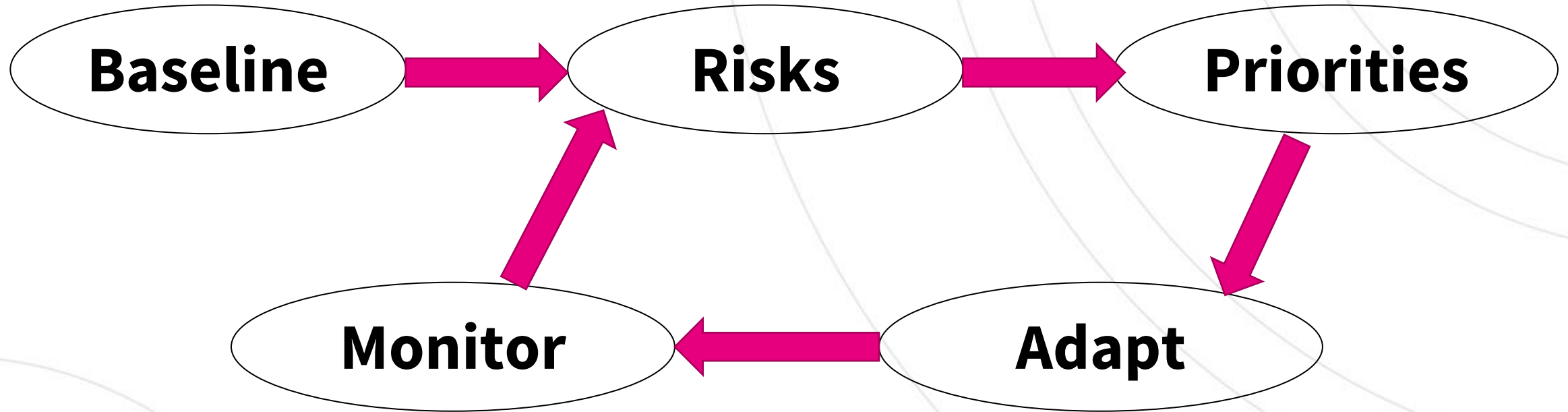


image from <https://www.calgary.ca/UEP/ESM/Pages/Energy-Savings/Climate-Change.aspx?redirect=/climateprogram>

Slide taken from WMCA

# Simplified process for adaptation





# Climate change adaptation policy and legislative context

# National policy and strategy

- Defra is the government body responsible for climate change adaptation.
- Climate Change Committee invited to prepare an Independent Assessment of UK Climate Change Risk every 5 years (next: 2026).
- Defra then produce formalised CCRA (next: 2027).
- Defra then produce a National Adaptation Programme (NAP) which sets out how they will oversee England's adaptation response (next: 2028). July 2023's was the third iteration.



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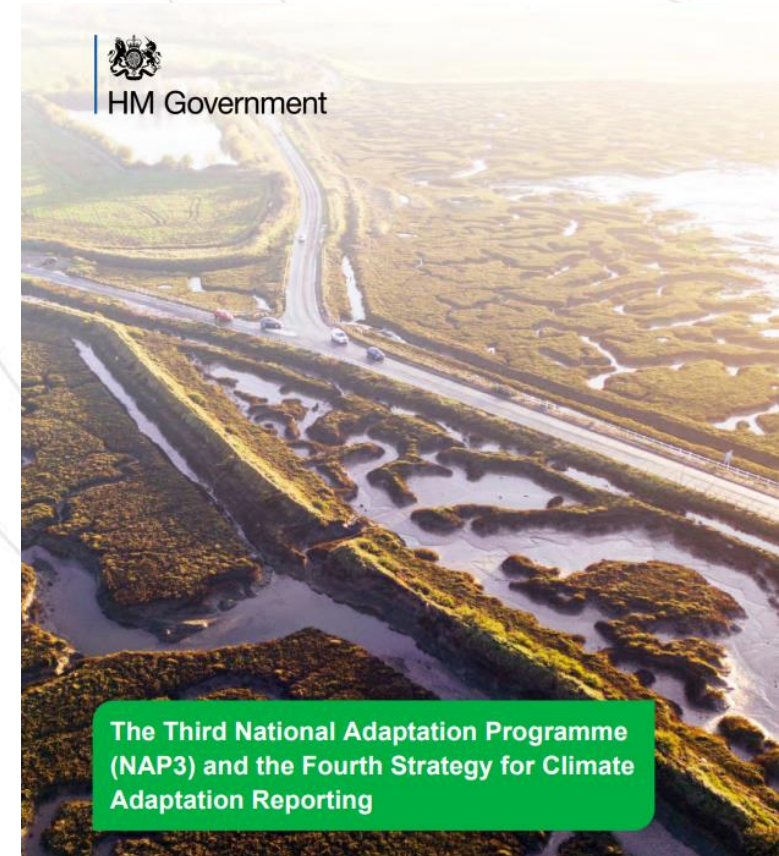
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# Key commitments from NAP3 (1) (most relevant to WM/SWM)

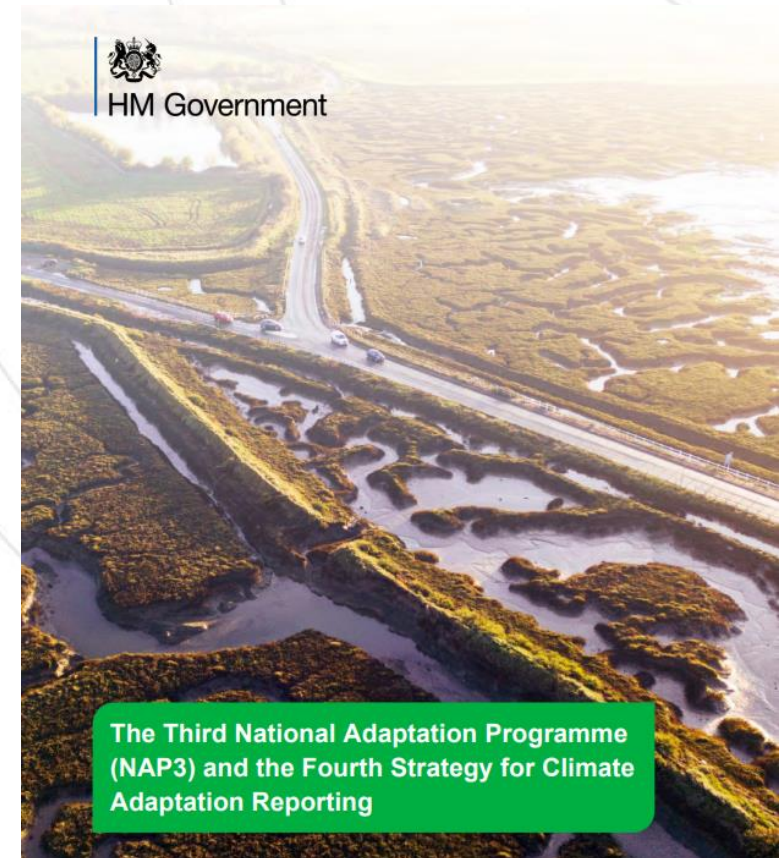
- Defra will drive £2.2bn of accelerated investment in water quality and resilient supply through the Plan for Water, helping to safeguard our water supply from the risks posed by the changing climate.
- The government will protect communities and businesses across England through a £5.2 billion investment in flood and coastal erosion schemes.
- The government will provide dedicated local climate projections service to each upper tier local authority to support local adaptation planning on hazards such as heatwaves, and short-term, localised heavy rainfall.
- Piloting a selection of local authorities to report alongside the ARP (more details in later slides).





# Key commitments from NAP3 (2) (most relevant to WM/SWM)

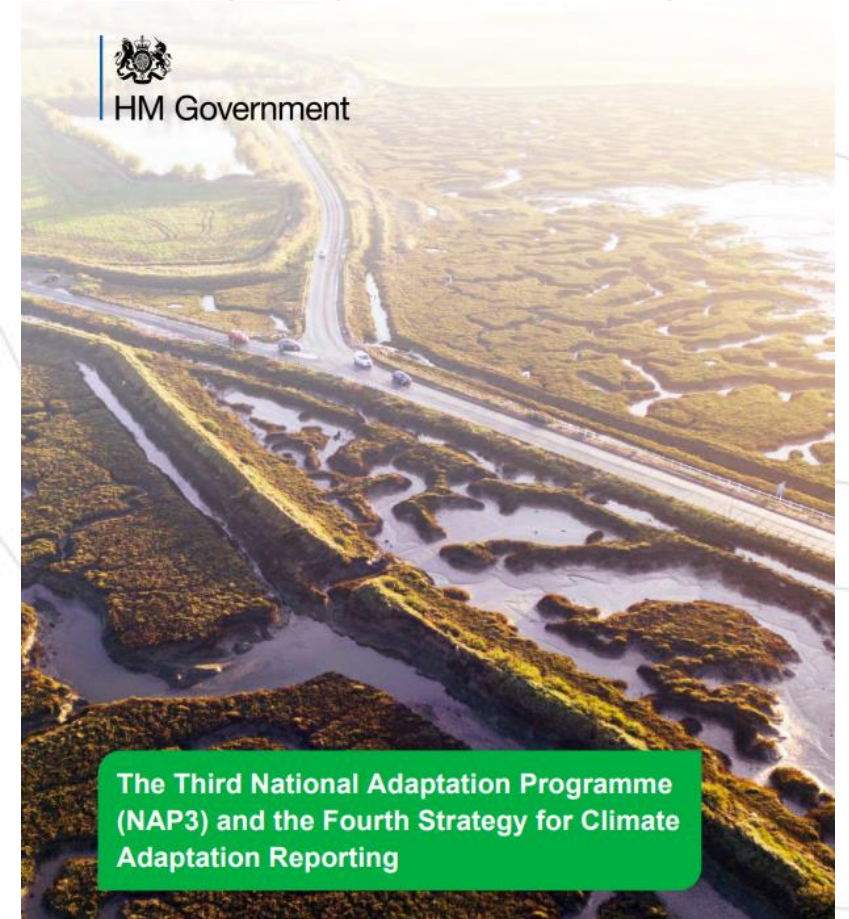
- CCRA4, due for publication in 2027, will include data identifying how climate risks map onto specific places in the UK. This will support more effective local-level risk assessment.
- Support NHS Trusts and Integrated Care Boards in incorporating climate change adaptation within their Green Plans by 2027.
- Include adaptation measures in the NHS Standard Contract for NHS buildings and services from 2023.
- NHS England will develop an interactive tool by 2025 for Trusts and Integrated Care Boards to identify local climate risks on NHS sites to inform adaptation planning.






# NAP gaps and limitations

- Any mandatory reporting, for any organisation.
- Any targets for delivery and clear monitoring.
- Tangible, practical guidance from Government for organisations to adapt.
- Any resourcing for (e.g.) local authorities to employ someone to focus on adapting their local areas.
- Any funding programmes (e.g. an equivalent to the Public Sector Decarbonisation Scheme but for adaptation).
- Limited capacity in Defra to support organisations that need it most.



# The result...

	2023		2022		2021	
Roadmap symbol	Average % score	Rank	Average % score	Rank	Average % score	Rank
	72.5	1	67.5	2	52.9	2
	71.7	2	63.5	4	50.0	3
	69.7	3	67.7	1	49.2	4
	66.0	4	60.7	6	46.5	7
	63.2	5	61.7	5	56.0	1
	62.4	6	56.1	7	46.8	6
	61.6	7	65.5	3	48.4	5
	59.7	8	52.6	8	44.2	8
	50.9	9	51.2	9	40.3	9
	50.6	10	43.8	10	33.1	10

Still the poorest performing area in our LA sustainability benchmark assessment

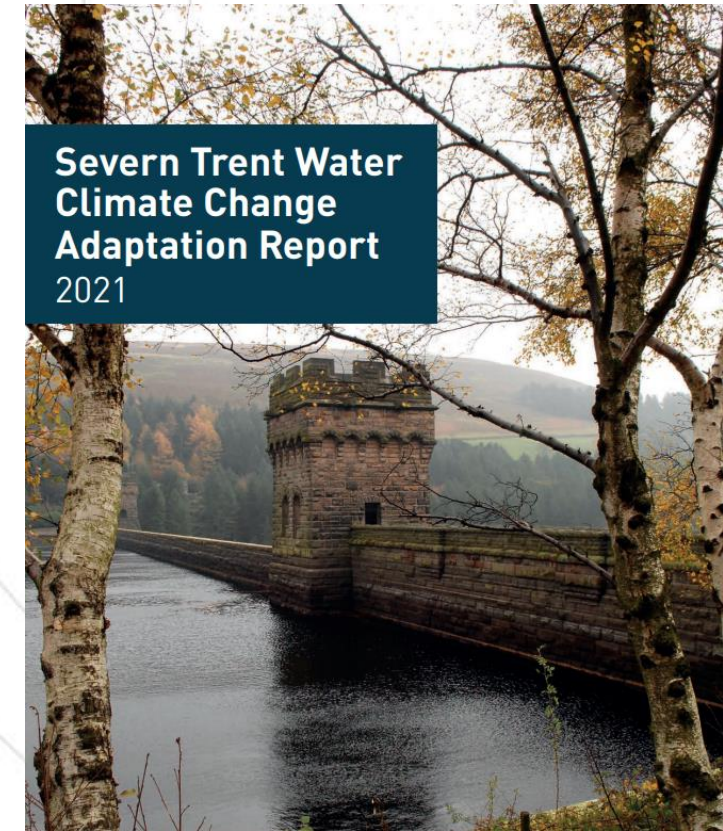
- The second National Adaptation Programme has not adequately prepared the UK for climate change. Our assessment has found very limited evidence of the implementation of adaptation at the scale needed to fully prepare for climate risks facing the UK across cities, communities, infrastructure, economy and ecosystems.
- The impacts from extreme weather in the UK over the last year highlight the urgency of **adapting to climate change**. The record-breaking temperatures seen in summer 2022 brought unprecedented numbers of heat-related deaths, wildfire incidents and significant infrastructure disruption.
- The next National Adaptation Programme must make a **step change**. The next National Adaptation Programme (NAP3) must be much more ambitious than its predecessors and lead to a long overdue shift in focus towards the delivery of effective adaptation.



CCC's summary in their latest adaptation assessment for Government

# Hooks and drivers for adaptation

- [Adaptation Reporting Power](#); only applies for specific sectors and is not mandatory but offers established framework for reporting.
- Global commitments/ reports (COP26 outcome, IPCC reports etc)
- [Lead Local Flood Authority](#) responsibilities for top-tier councils to address local flood risk
- Integration within other key documents, namely the [Environmental Improvement Plan 2023](#)
- [Local Resilience Fora](#) / emergency planning responsibilities
- Integration opportunities with Net Zero focused projects
- Integration of adaptation actions into Net Zero funding opportunities (e.g. addressing overheating through retrofit)
- The reality that climate change is now happening and is starting to affect councils, NHS, businesses and others directly each year.





# How SWM can help organisations with adapting to climate change



# How SWM can support organisations with adaptation

## Our core adaptation offer

- Upskilling, training, engagement and advice
- Impact assessments and baselining; how have organisations dealt with extreme weather to date?
- Climate projections analysis
- Climate risk assessment at a high or detailed level
- Producing adaptation plans for an organisation and/or geographical area
- Research, guidance and reports providing adaptation advice
- Examples given on the following slides.

NEWS | Herefordshire has been placed under an exceptional fire severity warning by the Met Office

by Stefan Davies | Jul 17, 2022 | News

River Wye: Dead fish found in Herefordshire due to hot weather

© 21 July 2022

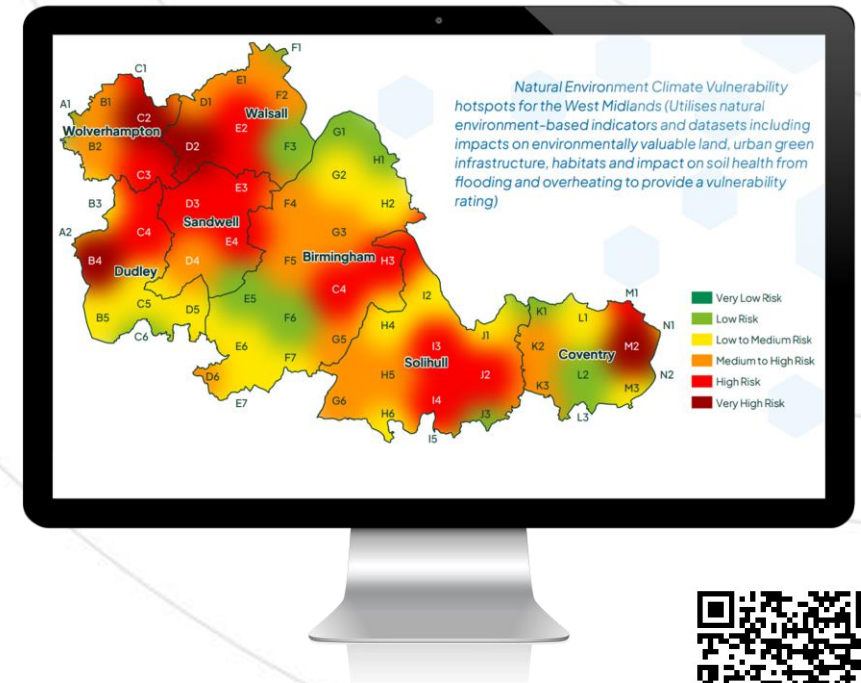


West Midlands fire services saw big rise in summer wildfires

© 30 December 2022

UK heatwave: Hereford pupils to finish school early to avoid 'hottest part of day'

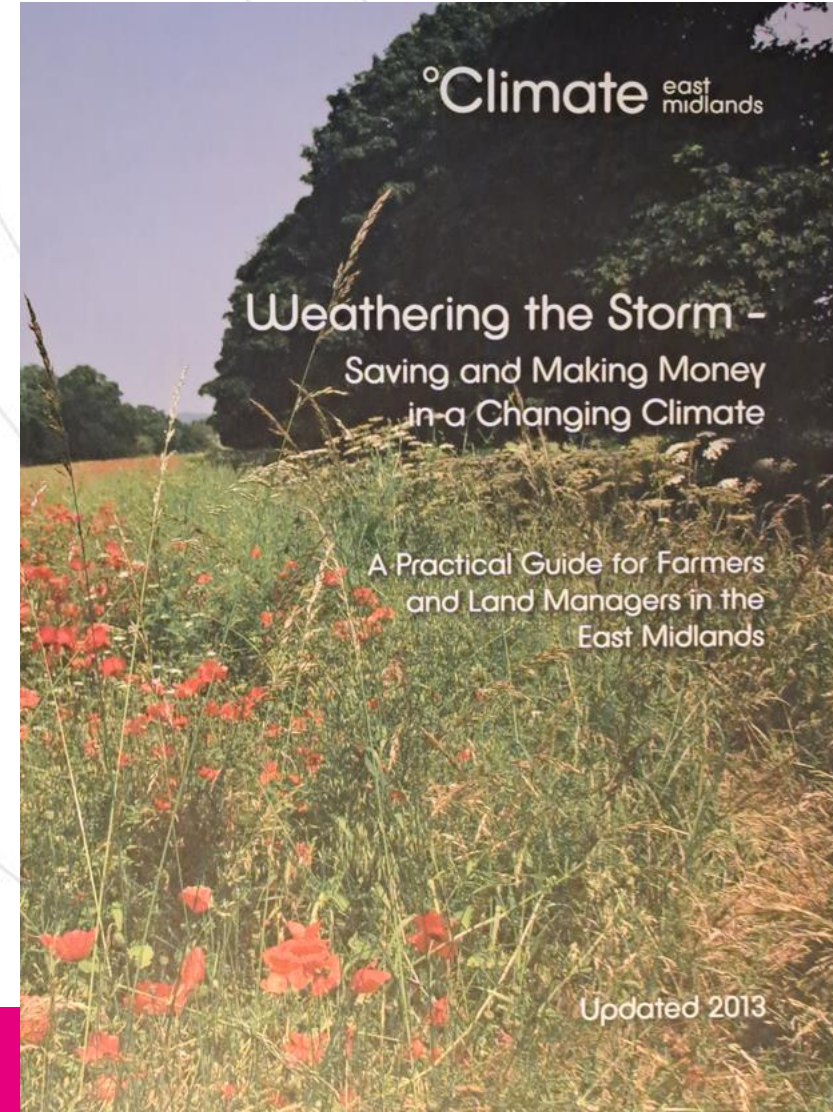
© 13 July 2022



# Our projects and track record

# 2023: Environment Agency Phase 3 collaboration (1): Guide for farmers and land managers

- Update to the original published well over 10 years ago.
- Focuses on how farmers and land managers can improve their resilience to climate impacts.
- Will provide a checklist of practical examples to take and case studies of good practice.
- Will consider impact on other aspects such as biodiversity, food security and Net Zero.
- **Published by December 23**





# 2023: Environment Agency Phase 3 collaboration (2): Adaptation in the NHS/health sector

- Research on existing guidance on adaptation for NHS Trusts.
- Case studies where NHS trusts have considered adaptation and integration within their Green Plans.
- Stakeholder engagement through an event and interviews with Trusts to identify good examples and determine what help they need.
- Adaptation toolkit for Trusts and the wider health sector to help them adapt to climate impacts.
- **Event for Trusts took place on 12 Sept**



**Documents published by December 23**





# 2023: Environment Agency Phase 3 collaboration (3): Other activity

- Continuation of the West Midlands Climate Change Adaptation Working Group.
- Dissemination and support in rolling out the content of the third National Adaptation Programme.
- Repeat of the local authority sustainability (and adaptation) benchmark exercise.
- 23 May: 'Climate Change It's In Our Nature' event, showcasing nature-based solutions to climate change.





# 2023: Herefordshire Adaptation Plan

- Development of an Impact Assessment – how has the county been affected by severe weather in past 15 years?
- Future climate projections analysis
- Development of an Adaptation Plan for the county of Herefordshire
- Extensive stakeholder engagement





# 2022: Environment Agency Phase 2 collaboration

## Business resilience:

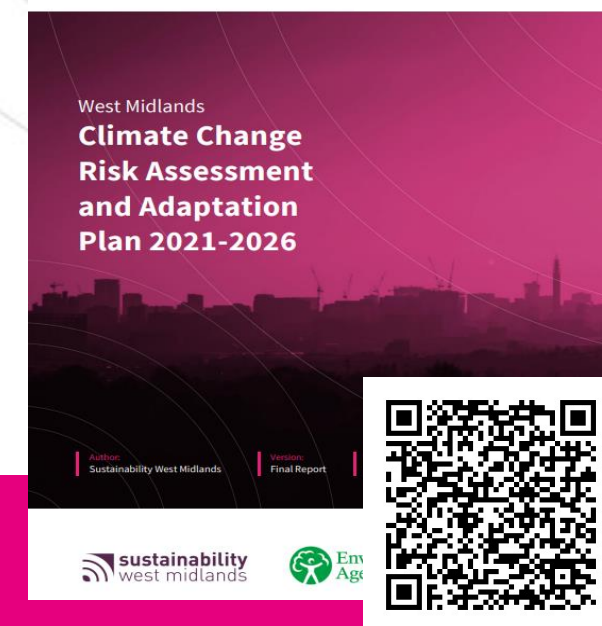
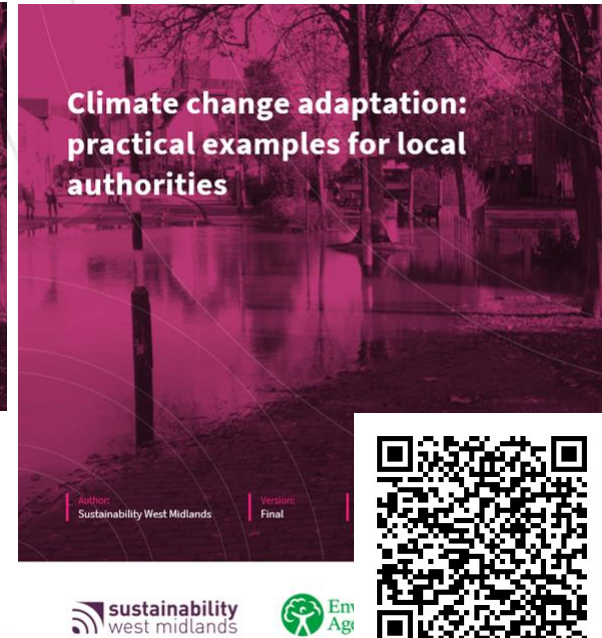
- Refresh and relaunch of [Weathering the Storm](#)

## Local authorities:

- Development of [new case study suite](#)
- Refresh of [LA Sustainability benchmark](#)
- [National event](#) – took place 3 November 22

## Working Group:

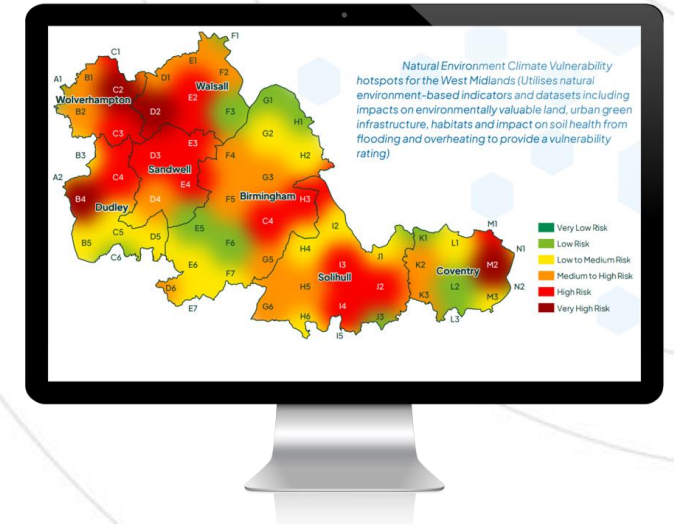
- Contains key players who can drive the adaptation agenda forward incl. Defra, Environment Agency, UKHSA, DLUHC, local authorities, NHS England, large consultancies, university and third sector.





# 2022: Adaptation Plan and capacity building for the West Midlands Combined Authority

- Research and analysis of good practice from other combined authorities/ cities in the UK
- [Visual summary](#) of WM Climate Change Impacts
- Adaptation financing options report
- Development of an adaptation plan for WMCA service areas
- Next steps and recommendations for the WMCA
- Extensive stakeholder engagement
- Worked with our members [Accelar](#)



Flooding at Aqueduct Road as Storm Babet batters the region

# 2021: Environment Agency phase 1 collaboration

- WM Climate Change Adaptation Plan to catalyse action and encourage others to develop plans for their local areas (e.g. Stafford, Warwick).
- LA Sustainability Benchmark (incl adaptation)
- Extensive stakeholder engagement



Produced for:  
Environment Agency

## West Midlands Climate Change Risk Assessment and Adaptation Plan 2021-2026

Author:  
Sustainability West Midlands

Version:  
Final Report

Date:  
November 2021



# 2019-21: CCRA Accessibility

- Advice on improving accessibility of CCRA outputs
  - Research into good practice from other countries
  - CCRA Communications Plan development
  - National summaries of climate risk
  - 17 climate risk sector briefings
  - Development of new CCRA website
  - Extensive stakeholder engagement
- 
- SWM led the project and worked with six sub-contractors to deliver the outputs effectively



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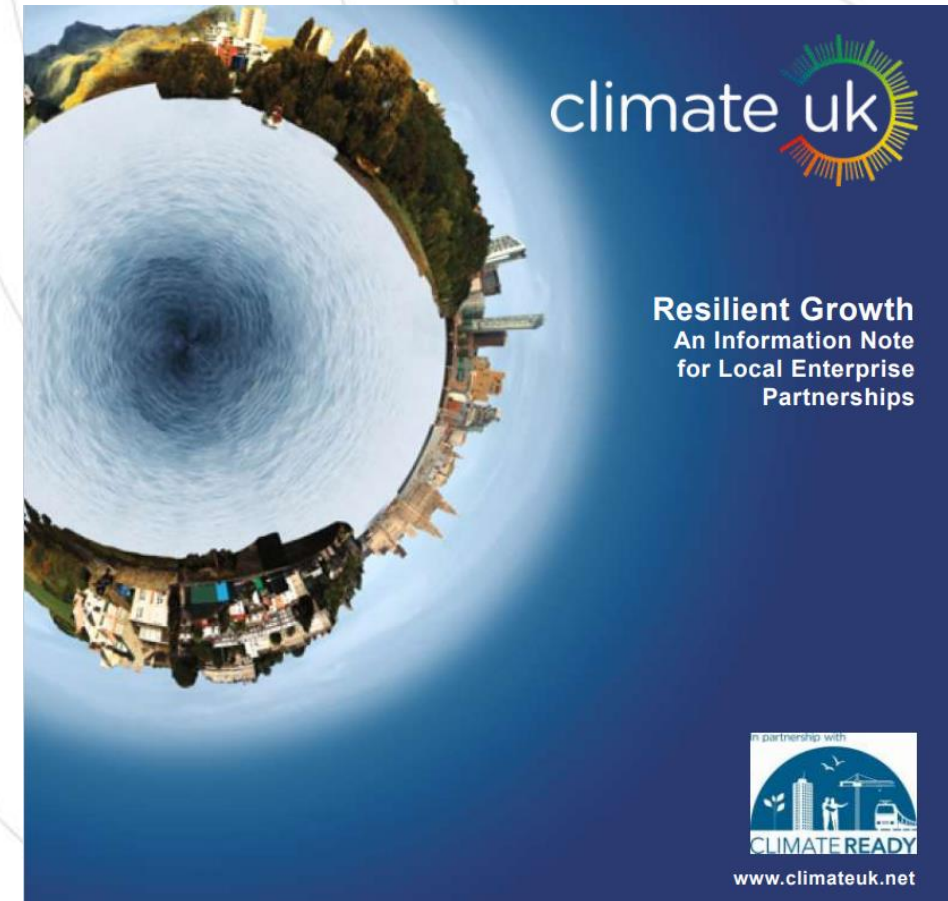
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# 2009-2017: Climate Ready Programme

- SWM's roots – we were born to support organisations with adaptation!
- Regional and national guidance produced
- Included the first iteration of Weathering the Storm and other such reports since refreshed
- SWM co-authored several, including Climate Ready Councils and LEP Resilient Growth Note
- Involvement in tools such as Climate Just and Business Resilience Healthcheck
- Part of Climate UK network
- Extensive stakeholder engagement



# Get in touch if we can support you

**Alan Carr**

**SWM Adaptation Lead & Senior Sustainability Adviser**

**[alan.carr@swm.org.uk](mailto:alan.carr@swm.org.uk)**

**07751 933055**

**LinkedIn:**

**<https://shorturl.at/dpHW8>**



Flooding in Bodenham © Herefordshire Council