Manchester Climate Change Agency – Adaptation & Resilience

UKCR webinar
7th June, 2022

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Resilience, adaptation & community engagement

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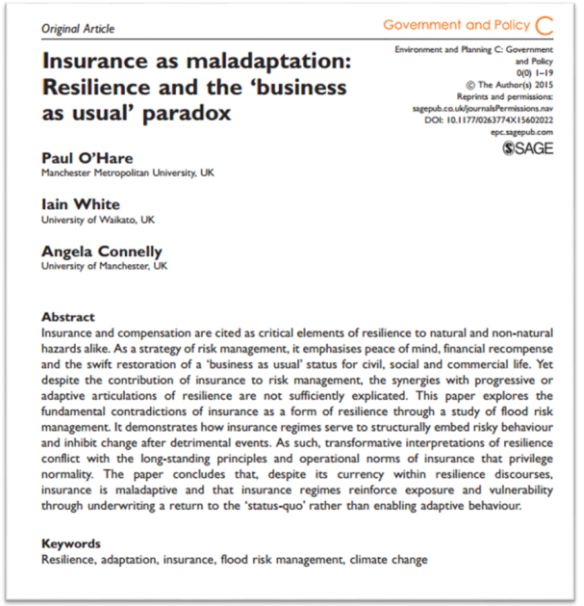

Original Article

Government and Policy C

Environment and Planning C: Government and Policy
0(0) 1–19
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DOI: 10.1177/0263774X15602022
epc.sagepub.com

SAGE

Insurance as maladaptation: Resilience and the 'business as usual' paradox

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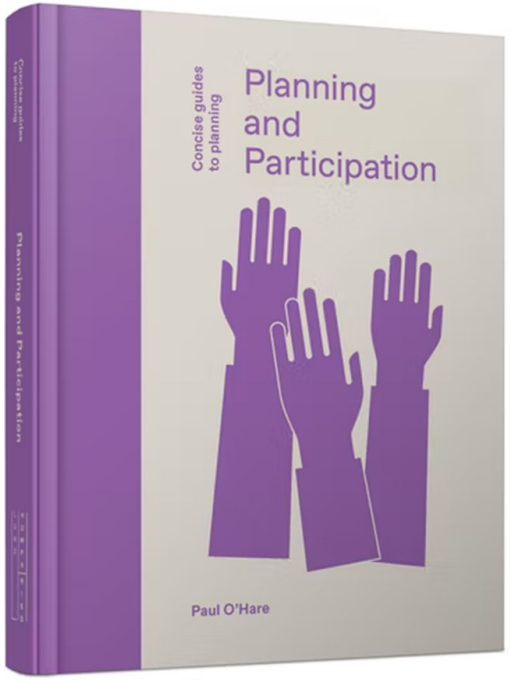
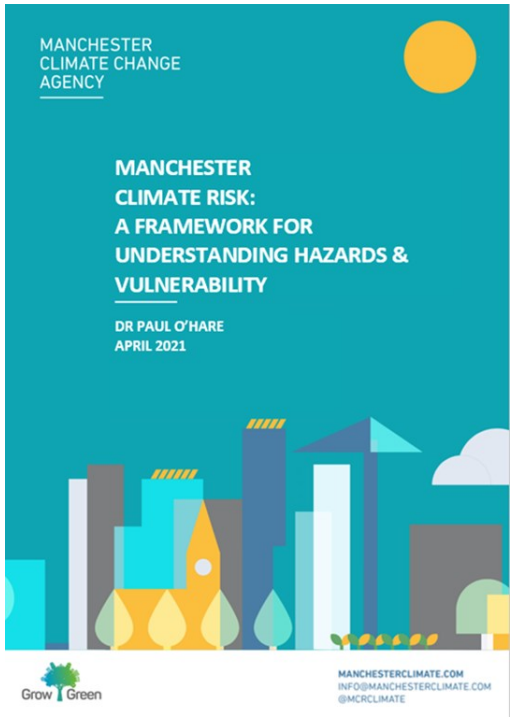
Abstract

Insurance and compensation are cited as critical elements of resilience to natural and non-natural hazards alike. As a strategy of risk management, it emphasises peace of mind, financial recompense and the swift restoration of a 'business as usual' status for civil, social and commercial life. Yet despite the contribution of insurance to risk management, the synergies with progressive or adaptive articulations of resilience are not sufficiently explicated. This paper explores the fundamental contradictions of insurance as a form of resilience through a study of flood risk management. It demonstrates how insurance regimes serve to structurally embed risky behaviour and inhibit change after detrimental events. As such, transformative interpretations of resilience conflict with the long-standing principles and operational norms of insurance that privilege normality. The paper concludes that, despite its currency within resilience discourses, insurance is maladaptive and that insurance regimes reinforce exposure and vulnerability through underwriting a return to the 'status-quo' rather than enabling adaptive behaviour.

Keywords
Resilience, adaptation, insurance, flood risk management, climate change





towards best practice in property level flood protection

Iain White, Angela Connelly, Stephen Garvin, Nigel Lawson and Paul O'Hare look at the use of property level flood protection as a response to flood risk, and at the development of a 'six-step' approach to property flood resilience

As flood events over the last two decades across Europe have increased in frequency and severity, improving how excess water is managed has been subject to regular reflection and reassessment. The first wave of innovations drove a shift from flood defence to flood risk management (FRM)[1] – incorporating a wider variety of measures, from improved mapping and emergency response to planning development differently.[2] More recent developments advocate a greater engagement with resilience as a means to manage the complexity of intensified urbanisation and climate change, particularly as the sharp rise in surface water flooding has challenged the managerially convenient

Further information

Google Scholar profile:
https://scholar.google.com/citations?user=pM1oXyUAAAAJ&hl=en&oi=ao

Adaptation & Resilience: Planning & Action for Manchester

Manchester Climate Change Framework 2020-25 **aspires to**
"adapt the city's buildings, infrastructure and natural environment to the changing climate and to increase the climate resilience of our residents and organisations."

- Sabbatical at Manchester Climate Change Agency (80%fte)
- Funded by the UKRI Strategic Priorities Fund
- Significant progress in mitigation
  - **But resilience & adaptation requires urgent attention**
  - What is the city's baseline in terms of climate variability risk, response and resilience?
  - Can we identify best practice and mutually support each other?
  - Direct policy drafting 2021-22

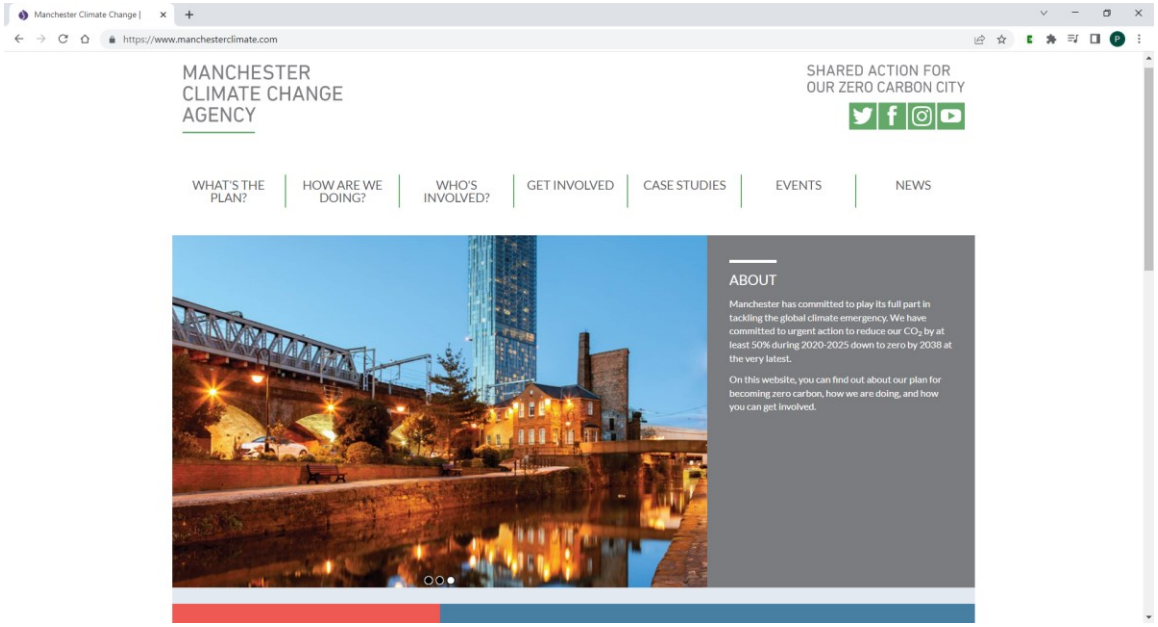
UK CLIMATE RESILIENCE PROGRAMME

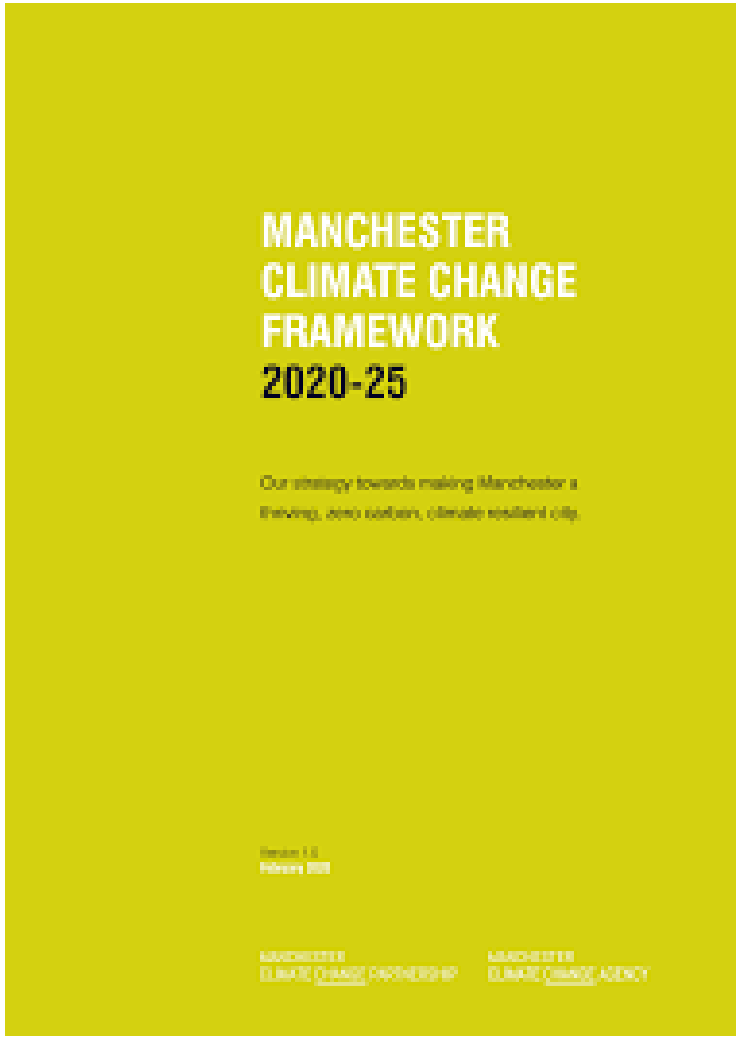
UK Research and Innovation

Met Office

Manchester Climate Change Agency/ Partnership

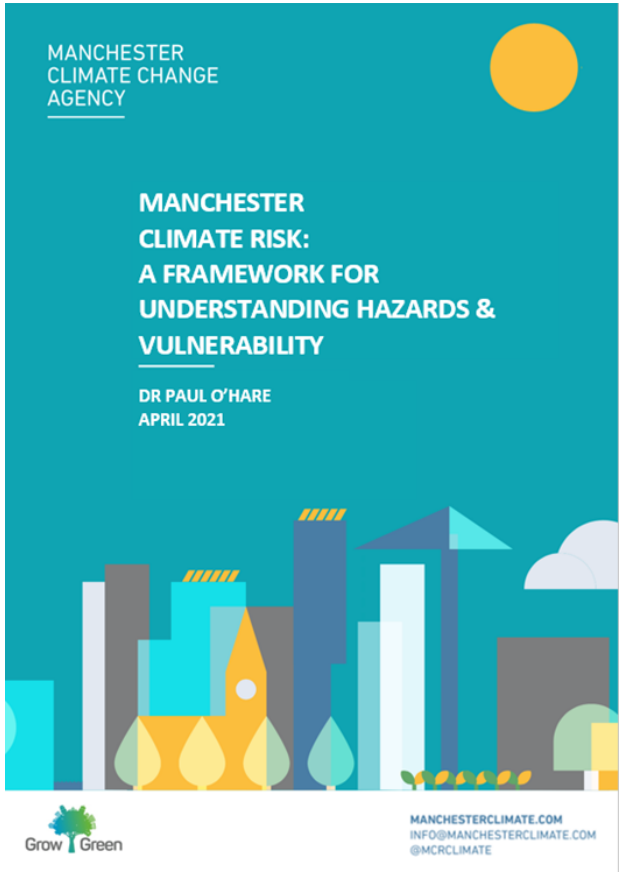
The Manchester Climate Change Agency and Partnership are responsible for overseeing and championing climate change action in the city. Manchester Climate Change Agency was established in September 2015 by the Manchester: A Certain Future Steering Group, Manchester City Council and BDP.





Manchester's climate hazards

Climatic & weather hazard	Potential impact of climate change on hazards
Short-medium term heat waves	Climate projections suggest that we will face warmer summers in the future. There is an associated increased likelihood that we will face intense very hot spells (heatwaves). Some summer days will have the potential to be extremely hot. Higher night-time temperatures. This a particular problem in cities where buildings retain heat. Increased risk of intense convectional rainfall.
Long-term periods of dry weather	Summers are, generally, expected to be drier in the future. Prolonged dry and warm periods may lead to drought conditions, exacerbated by increased demands on dwindling water supplies.
Summer storms	Although it is anticipated that the climate will be drier in Summer in the future, data from UKCP 2018 indicates future increases in the intensity of heavy summer rainfall events. Increased risk of short-lived, but very intense convectional rainfall events. These could be exacerbated by significant surface water run-off with precipitation falling on very dry ground. Increased likelihood there will be greater intensity in hourly precipitation extremes.
Autumnal and winter storms/ winter precipitation	Generally, winters will be wetter. Mid-Atlantic lows have the potential to bring considerable amounts of rain to the region. Groundwater levels and soil saturation could remain high all winter, particularly in the hills and moorlands around Manchester that feed rivers. UKCP 2018 warns "Users may wish to take the precautionary approach of considering the implications of a very large winter precipitation increase being more likely than the probabilistic projections suggest".
Cold snaps/ lying snow	Climate projections indicate winters will be generally be warmer. By the end of the century there will be very few, if any, incidents of snowfall lying on the ground, except for on higher ground. This does not, however, entirely preclude periods of relatively prolonged cold snaps and accumulations of ground lying snow in the short to medium term.



INTRODUCTION

This City Pack provides high level, non-technical summaries of climate change projections for an individual city or town. It uses scientific research to provide robust climate information to help decision makers plan for the future, enabling cities and towns to become more resilient to climate change.

Urban areas experience unique challenges from climate change. For example, urban environments contain surfaces which don't soak up and store rainfall, such as tarmac and paving, which might increase flood risk. Urban areas are also affected by the urban heat island effect, which results in higher urban temperatures compared with surrounding rural areas.

WHAT AFFECTS THE REGION'S WEATHER?

Manchester is located within the 'North West' region of the UK, which includes Cheshire, Merseyside, Greater Manchester, Lancashire and Cumbria. Here are some of the types of weather that the region experiences across a year:

The range of topography and altitude in North West England provides a varied climate, which includes both the coldest (Cross Fell) and wettest (Lakeland fells) locations in England. In low-lying areas where most urban areas are found, mean annual temperatures are around 10°C.

Sunshine hours in North West England range from around 1200 hours in the higher Pennines to around 1500 hours at the coast, with values up to 1550 reached on the Isle of Man.

North West England includes some of the wettest places in the UK although this is localised to upland areas which are exposed to westerly maritime air masses. Areas in the lee of these uplands receive significantly less rainfall, including the large urban areas of Manchester, which receive around 800 mm per year.

North West England is one of the more exposed parts of the UK and may experience strong winds associated with the passage of deep lows. The frequency and strength of these depressions is greatest in the winter half of the year, with the strongest winds coming in off the Irish Sea from the SW to WNW.

HOW HAS THE CITY'S CLIMATE CHANGED?

Temperature Difference (°C)
Data: HadUK-Grid
Concept: Ed Hawkins

The stripes show how temperatures in Manchester have increased from 1884-2020, with many of the hottest years occurring in the last few decades.

LOCAL INFORMATION

Co-ordinating climate action in Manchester

MANCHESTER CLIMATE CHANGE PARTNERSHIP

In 2019 Manchester declared a climate emergency. We recognise the part we will have to play in limiting the impacts of climate change and creating a healthy, green, socially just city where everyone can thrive.

Manchester Climate Change Agency (MCCA) & Manchester Climate Change Partnership (MCCP)

The Agency and Partnership are responsible for setting the strategy and championing climate change action in the city. Our climate strategy is outlined in *The Manchester Climate Change Framework*. It has four core objectives: Staying within our carbon budgets; climate adaptation and resilience; health and wellbeing; and an inclusive, zero carbon and climate resilient economy.

Climate change mitigation

We have committed to reduce our CO_2 by at least 50% during 2020-2025, and **to zero by 2038**. However, Manchester is not reducing its emissions at a rate to meet our obligations under the Paris Agreement. We are enhancing our effort to rapidly cut emissions by setting ambitious actions for local government, businesses and citizens.

Climate risk, resilience and adaptation

Whilst climate mitigation is vital, **climate adaptation and resilience is urgent**. We are assessing our climate risk. *Manchester's climate risk: a framework for understanding hazards & vulnerability* establishes a structure for this work that can be used at city-scale and by individual sectors and organisations.

We have developed a vision for climate resilience – ***MCR: Manchester Climate Ready***. This includes actions for city-wide stakeholders and citizens, enabling us to respond to the climate emergency with ingenuity and a collective ambition to create a city that is happier, healthier, and more socially and economically just.

Playing our part in responding to climate change

Working in partnership: MCCP is a consortium of 60 organisations across 10 sectors, comprising 20% of the city's economy, with influence over the remaining 80%. We work to drive down emissions and adapt to climate change through collaboration and partnership. We ask organisations to publicly declare their commitment to climate action and have established a City-Business Climate Alliance (CBCA)

Nature based solutions: collaborating with other European cities, Manchester led the Grow Green Project which delivered the West Gorton community park, demonstrating the delivery of community amenity with climate resilience. The park 'drinks' water with swales and permeable paving that reduces run-off and with a view to alleviating flood risk. We are integrating lessons from this project into forthcoming large-scale strategic developments across the city.

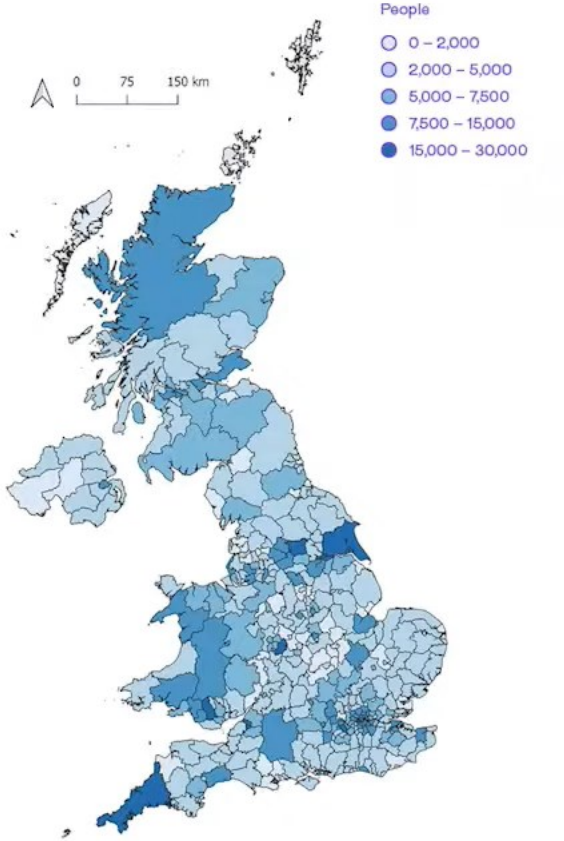
Supporting communities and residents: Our In Our Nature programme supports residents to understand the benefits of climate action through community engagement and delivery of neighbourhood level projects including active travel, local food growing and creating eco-streets.

Contact details:
e-mail: info@manchesterclimate.com website: www.manchesterclimate.com

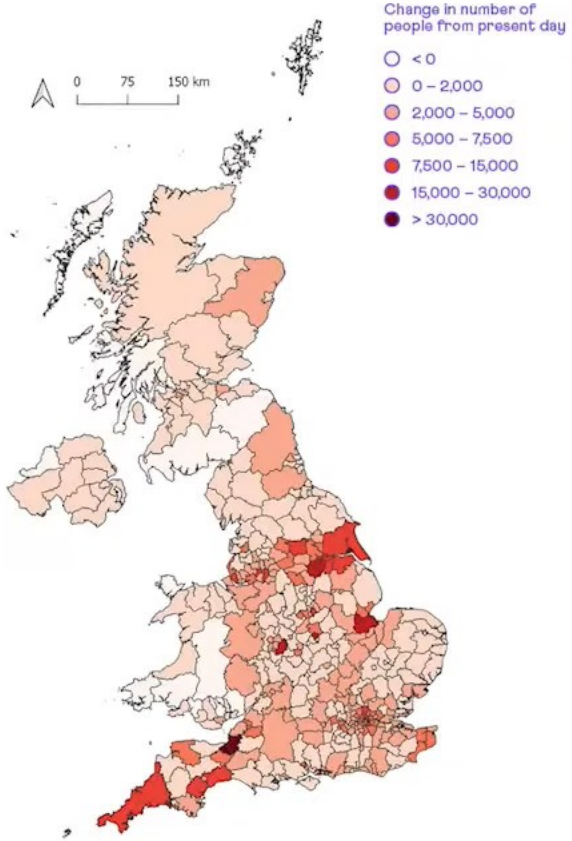
Authored by Sam Nicholson and Paul O'Hare on behalf of Manchester Climate Change Agency.

Our changing climate

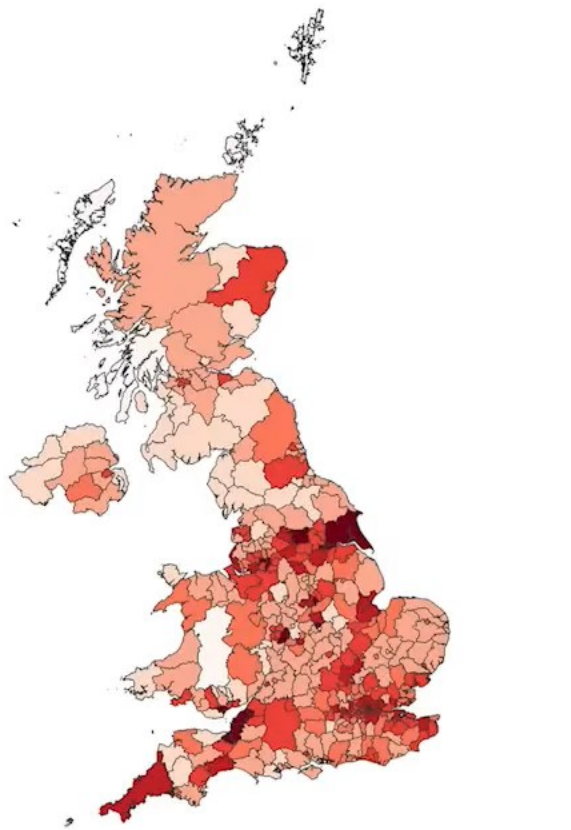
Change in number of people at flood risk from present day



Present day – 2021



2050s on a pathway to 2°C global warming by the end of the century



2080s on a pathway to 4°C global warming by the end of the century

Source: Sayers et al. 2020

Future flood risk

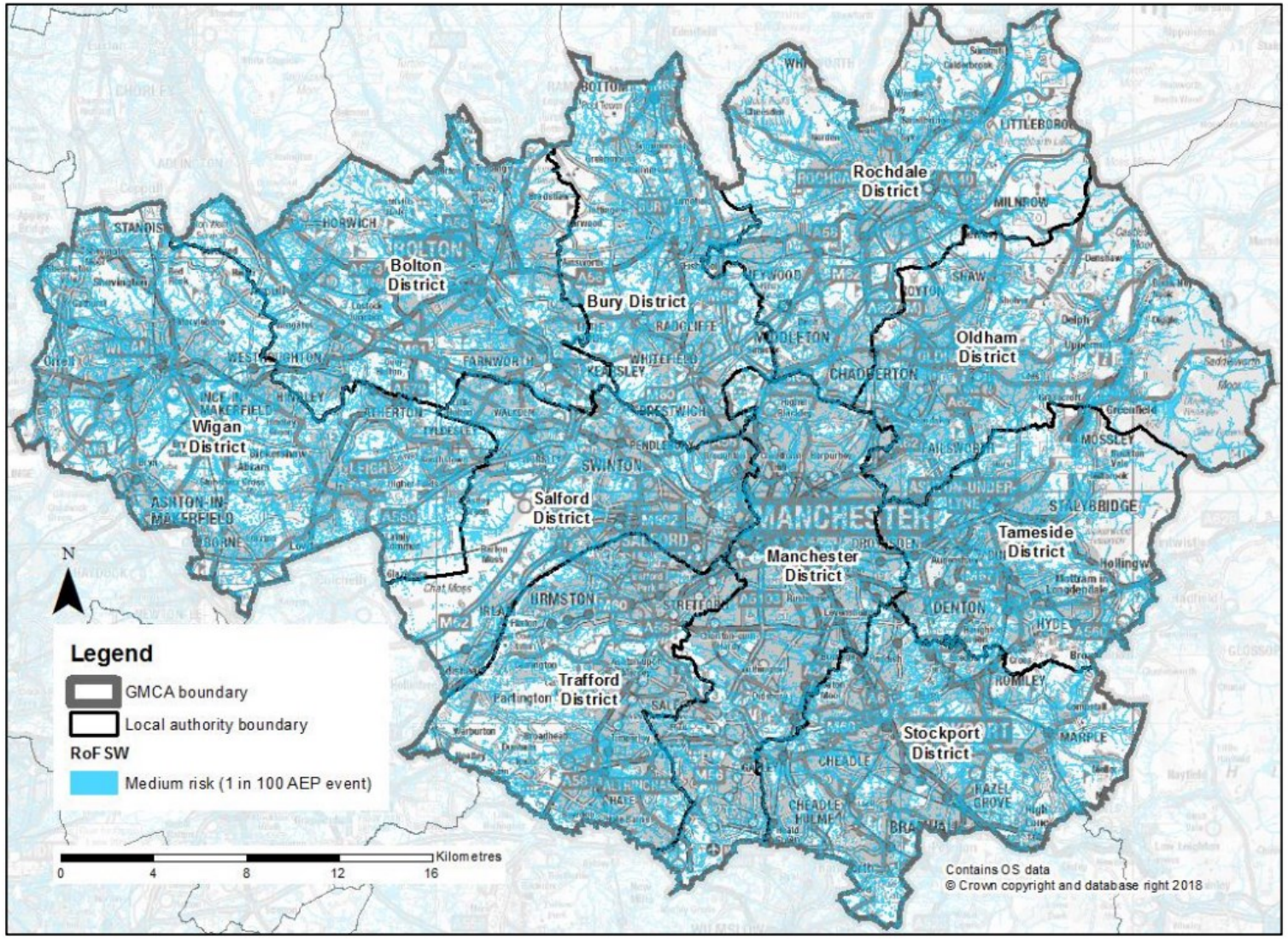
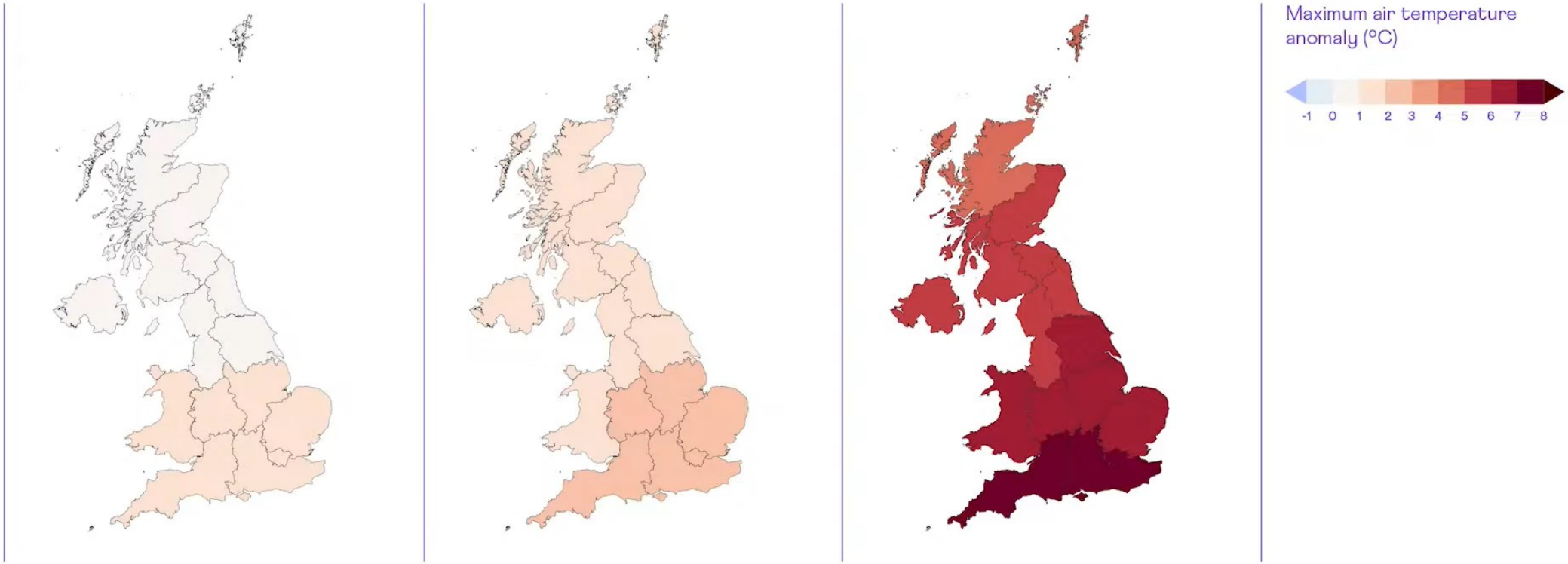


Figure 3-2: Surface water flood risk across GM (RoFSW 1 in 100 AEP event)

Our changing climate

Change in maximum summer air temperature from 1981-2000 baseline



Present day – 2021

2050s on a pathway to 2°C global warming by the end of the century

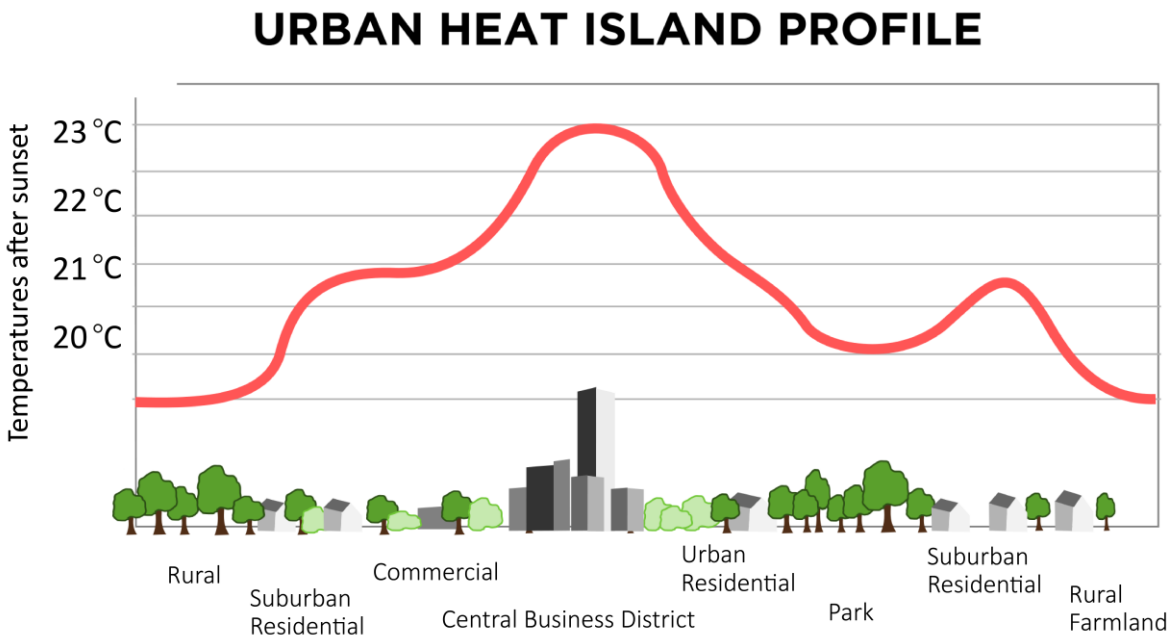
2080s on a pathway to 4°C global warming by the end of the century

Source: UKCP18 projections

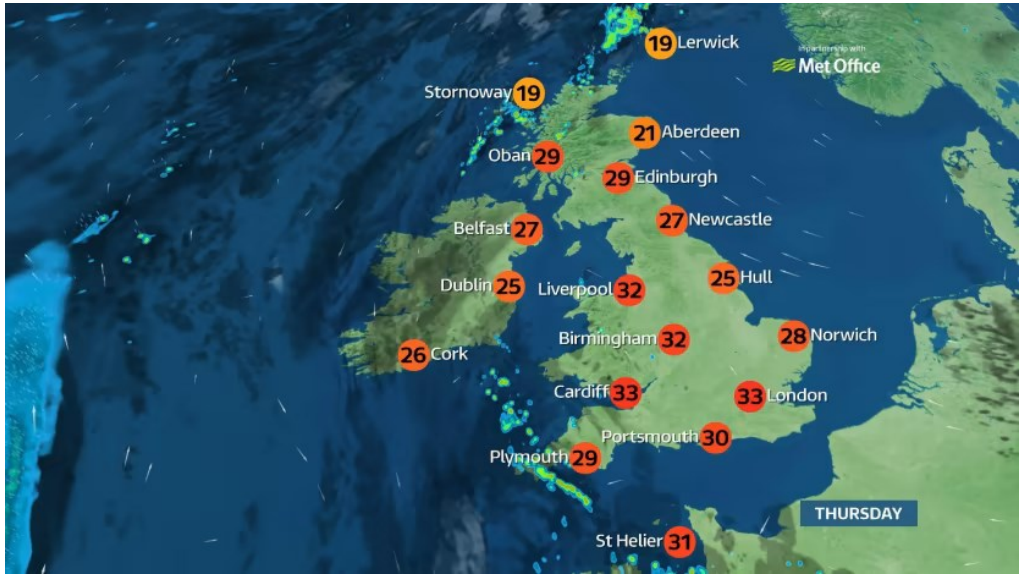
Heatwaves

The chances of experiencing hot summers (like 2018) have doubled in recent decades - about 10-20% per year…

This will rise to 50% by 2050…



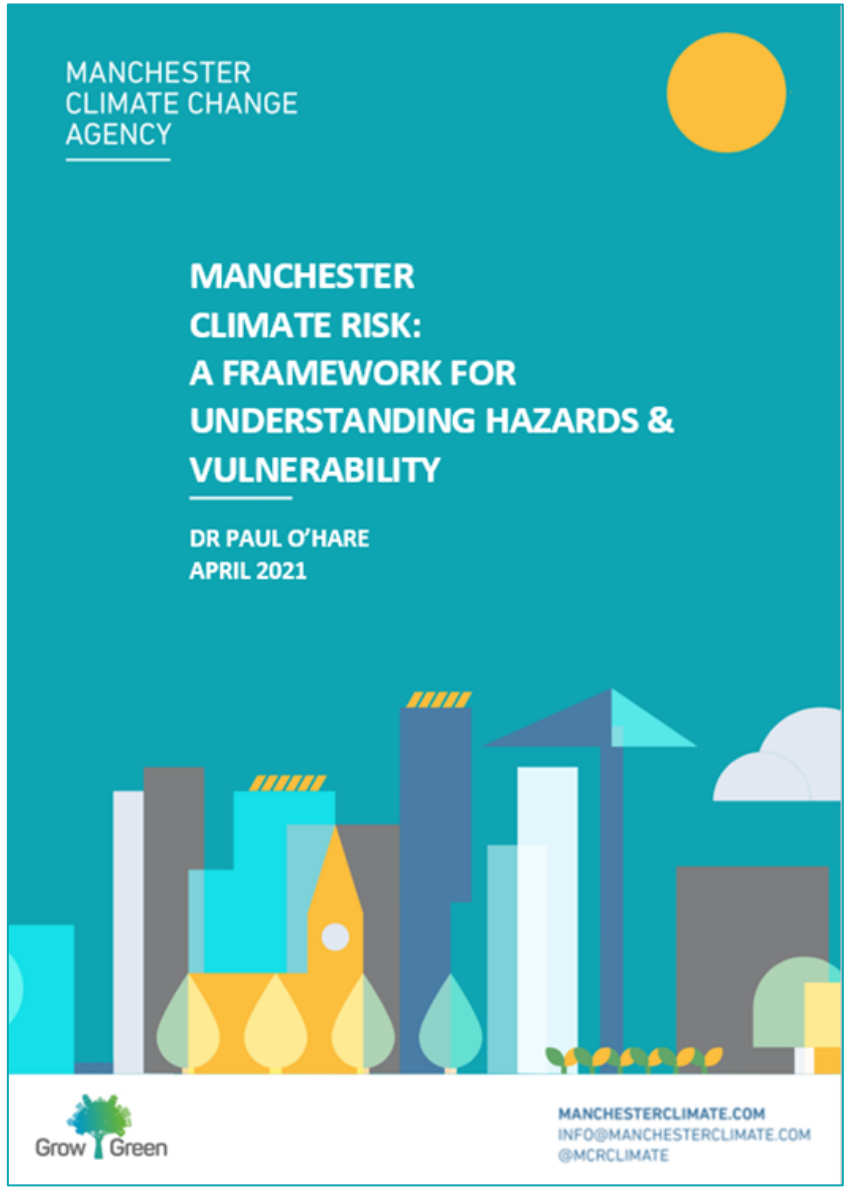
www.metlink.org/fieldwork-resource/urban-heat-island-introduction/



www.itv.com/news/2020-06-25/uk-weather-heatwave-continues-with-highs-of-34c

Manchester's climate vulnerabilities

People & society	The health, wealth and well-being of everyone in society are fundamental indicators of the success and vitality of the city. Manchester is a complex and diverse city, composed of many communities with contrasting characteristics. These communities will be effected by climate change in different ways, and some people will have greater capacity to respond.
Economic activity	Manchester faces considerable economic challenges. Moreover, wealth and economic opportunity is not shared across the city or its people. Climate change will bring both threats and opportunities to the economic sustainability and the competitiveness of the city and will have significant implications for social justice and inclusive growth.
Place & the built environment	The places that we inhabit, and more specifically our built environment, is a key element of our exposure to the impacts to climate change. We need to consider how our urban spaces, public places and parks and green spaces are vulnerable to the impacts of climate change.
Infrastructure	The effective functioning of our infrastructure is vital for economic and social well-being of all those that live and work in the city. Climate change threatens to both exacerbate long-standing vulnerabilities and introduce new vulnerabilities to the city's infrastructure networks.
Natural environment, biodiversity and green & blue infrastructure	Manchester has a vast range of green and blue space and biodiversity. However, these spaces are of varying quality, and will come under increasing pressure from future development and fragmentation.
Cross-cutting themes	There are a number of cross-cutting factors that should be considered when assessing Manchester's sensitivity and vulnerability to climate change. These include interdependencies that will frame any efforts to adapt to climate change such as the management of risk across the city's boundaries, and evaluating the understanding of climate risk, resilience and adaptation.



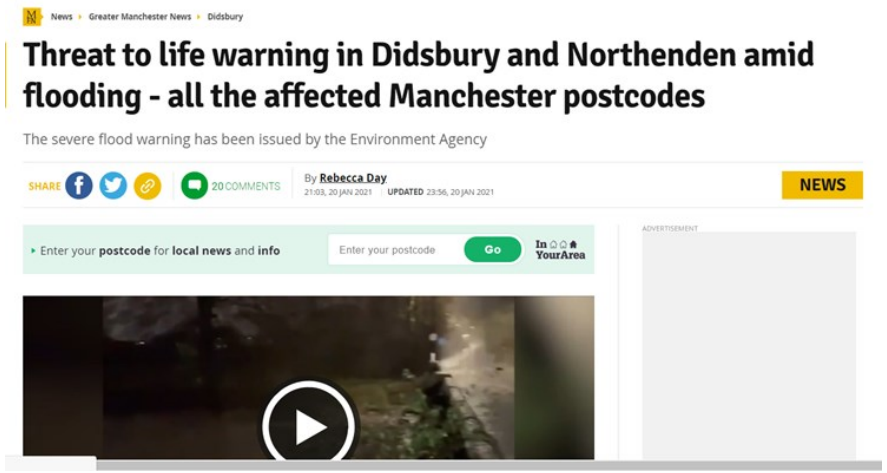
Are we ready?

We do have flood defences….

River Mersey/ Didsbury flood basin
Photo credit: Mr Nigel Lawson

But in January 2021 the Didsbury flood basin came within millimetres of being overtopped

Have we reached the limits of some of our *adaptive capacity*?



The ‘adaptation gap’

Adaptation gap between the action required to make significant progress on creating a more resilient future, and the action currently being taken

Risks and impacts have worsened in the last ten years – we know more about these, but we’re doing little to address them

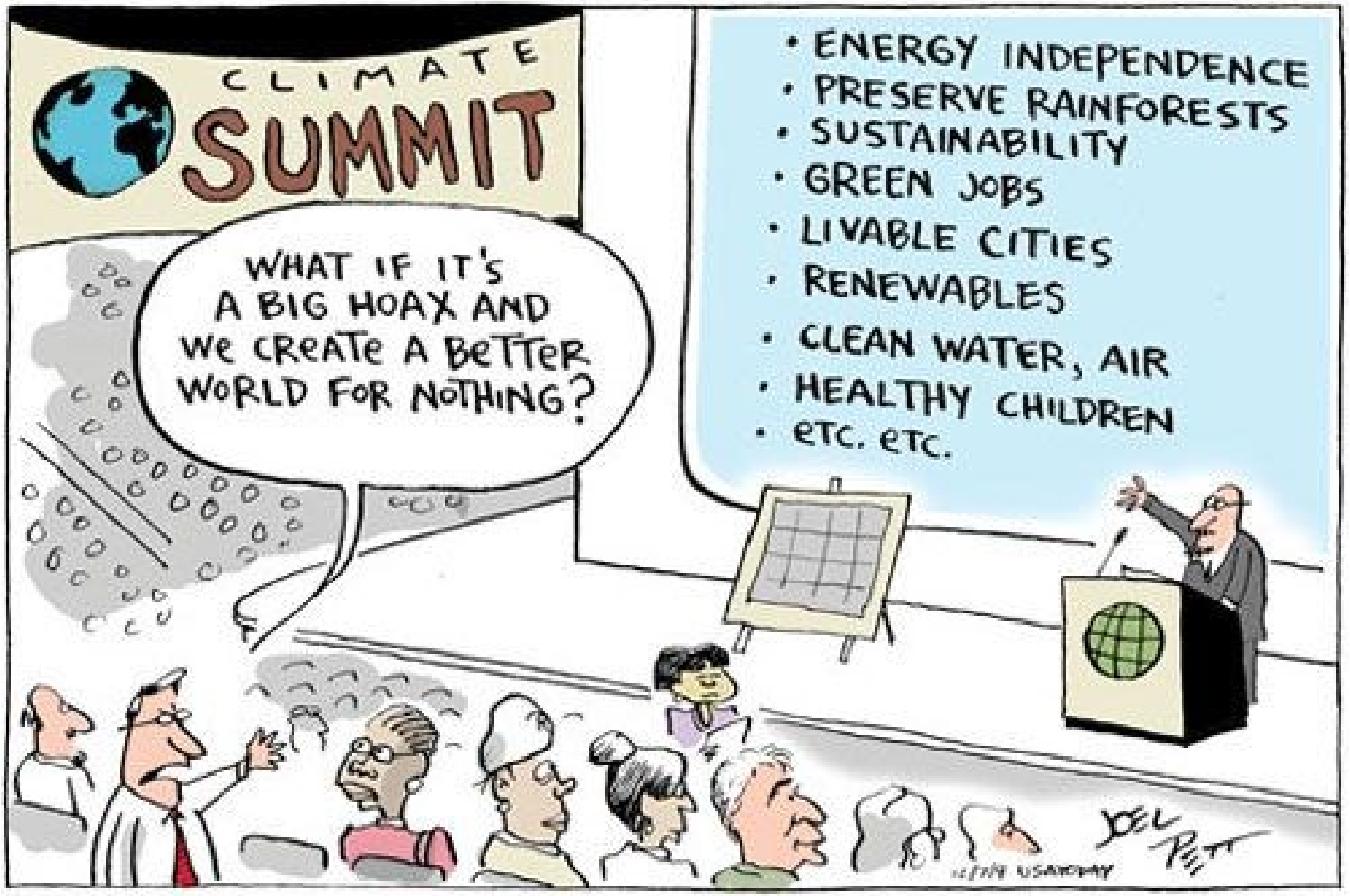
Without **action on adaptation** we can’t meet other Government/ public policy/ corporate goals

“Adaptation policy needs a step change in ambition and action.”

UK Committee on Climate Change, 2021

Our vision…

MCR: Manchester Climate Ready **Our vision for progressive resilience**
Our vision for a more climate resilient Manchester will enhance the capacity of the entire city - our buildings, infrastructure, green and blue space, businesses and people - to adapt to future climate shocks and stresses. Our pursuit of climate resilience will be aligned with other progressive agendas that aspire to create a healthier, happier, and a more socially just city, and to produce sustainable, inclusive, and green economic growth.


CLIMATE
SUMMIT
WHAT IF IT'S A BIG HOAX AND WE CREATE A BETTER WORLD FOR NOTHING?
• ENERGY INDEPENDENCE
• PRESERVE RAINFORESTS
• SUSTAINABILITY
• GREEN JOBS
• LIVABLE CITIES
• RENEWABLES
• CLEAN WATER, AIR
• HEALTHY CHILDREN
• ETC. ETC.
JOEL PETT

Multiple resilience dividends

Accounting for - and capitalising on - the co-benefits of climate adaptation interventions

Benefits for realising the city's climate change mitigation targets, for instance through the integration of trees and vegetation into the urban landscape which will provide adaptation benefits and capture carbon;

Improving physical and mental health and well-being by creating urban spaces that will help people deal with the impacts of climate change, but will also encourage active modes of transport;

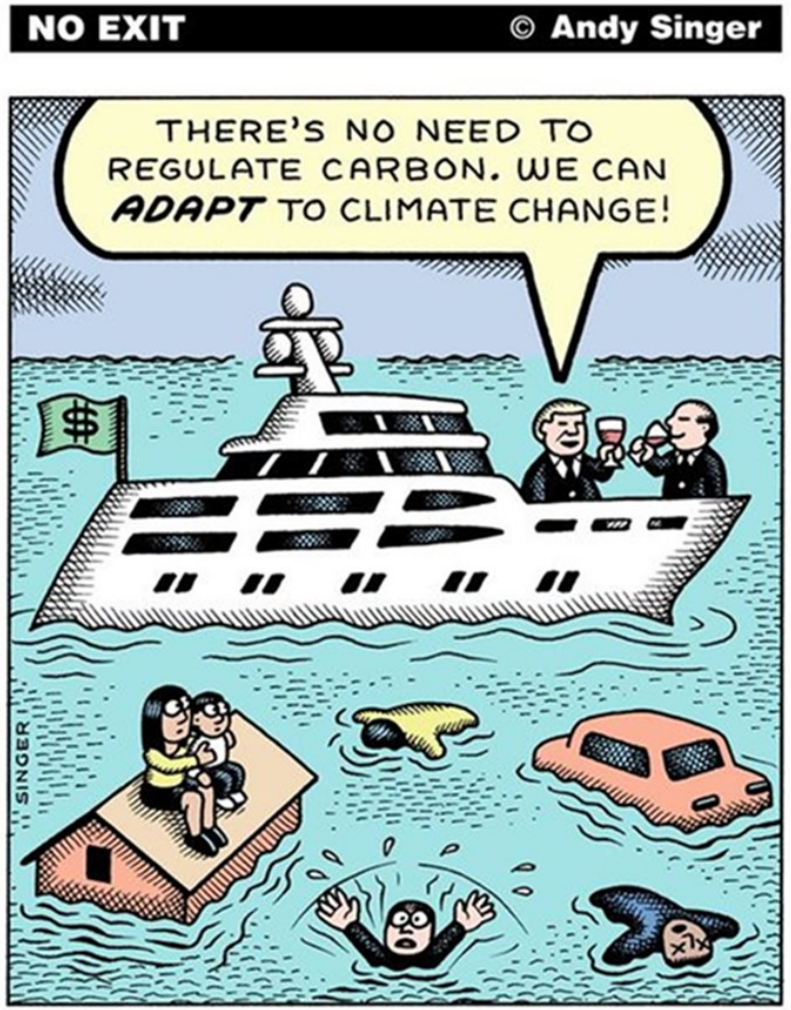
Exploit social benefits that might be generated through the drive for climate change adaptation and resilience practices and technologies. Education, training and investment should be targeted at the places, people and businesses at greatest socio-economic disadvantage;

Derive wider economic benefits, in particular delivering innovative, sustainable, inclusive economic growth for our small and medium sized enterprises;

Broader environmental benefits including the creation of better quality, bio-diverse and resilient, green & blue space.

Climate disadvantage

- Certain places & people are **more or less sensitive** to the impacts of climate change
- And are **more or less able to adapt** to climate change
- Climate change will exacerbate **already existent inequalities and disadvantage**
  - Poorer people can't afford to move out of flood affected areas
  - People with less disposable income can't insulate their homes, buy adequate insurance, or cope in heat waves
  - Those with disabilities or in ill-health will suffer the greatest impacts of climate change and have less capacity to respond
  - Etc, etc, etc…



Those most vulnerable to climate change, and least able to respond, have contributed least to the drivers of the changing climate

Principles of *progressive* resilience

1. Enhance leadership and strategic capacity to pursue progressive resilience and adaptation agendas and action across the city.

2. Develop detailed understandings of the implications of - and vulnerabilities to - climate change.

3. Embed progressive climate resilience ambition and action across the city, including in governance, policy and practice.

4. Enable individuals, communities, service providers and businesses to integrate effective and equitable adaptation measures.

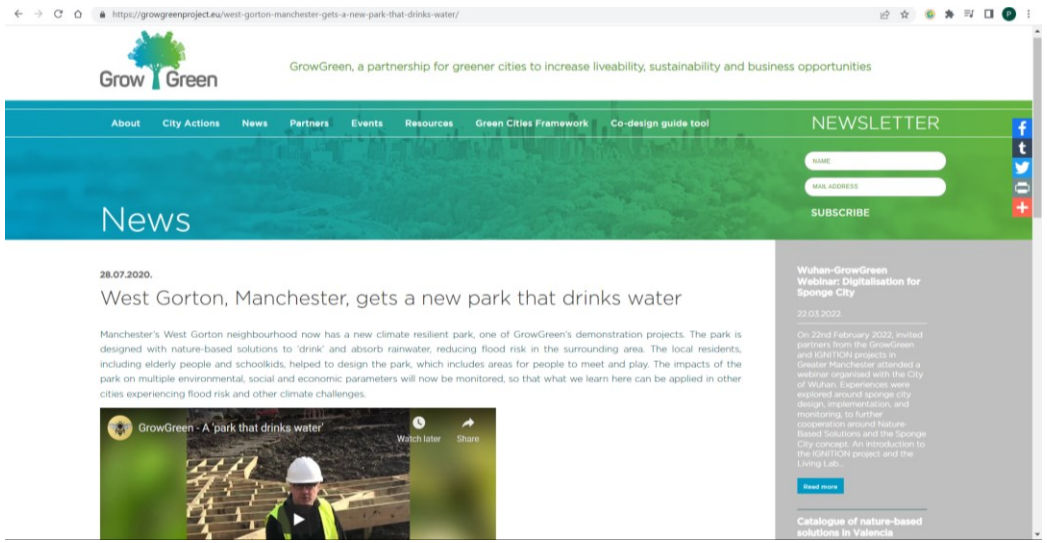
5. Ensure our urban environment, including buildings and urban infrastructure, is climate resilient.

6. Embed and enhance green and blue infrastructure to support climate resilience and adaptation.

7. Encourage research, innovation, and reflective practice to support our progress in creating a more resilient Manchester.

Why do cities/ local authorities need to adapt?

- *Our* climate will be warmer, wetter, with more extremes (floods & heatwaves)
  - Multiple and compounding disadvantages and cascading risk
  - Sustainable urbanisation, urban competitiveness, financial liability…
- The further we (collectively) fall short on mitigation, the greater the risk and the scale of the challenge for adaptation
- Role of the local authority in managing assets and services and in co-ordinating city-wide activity
- Other places are moving decisively in this area



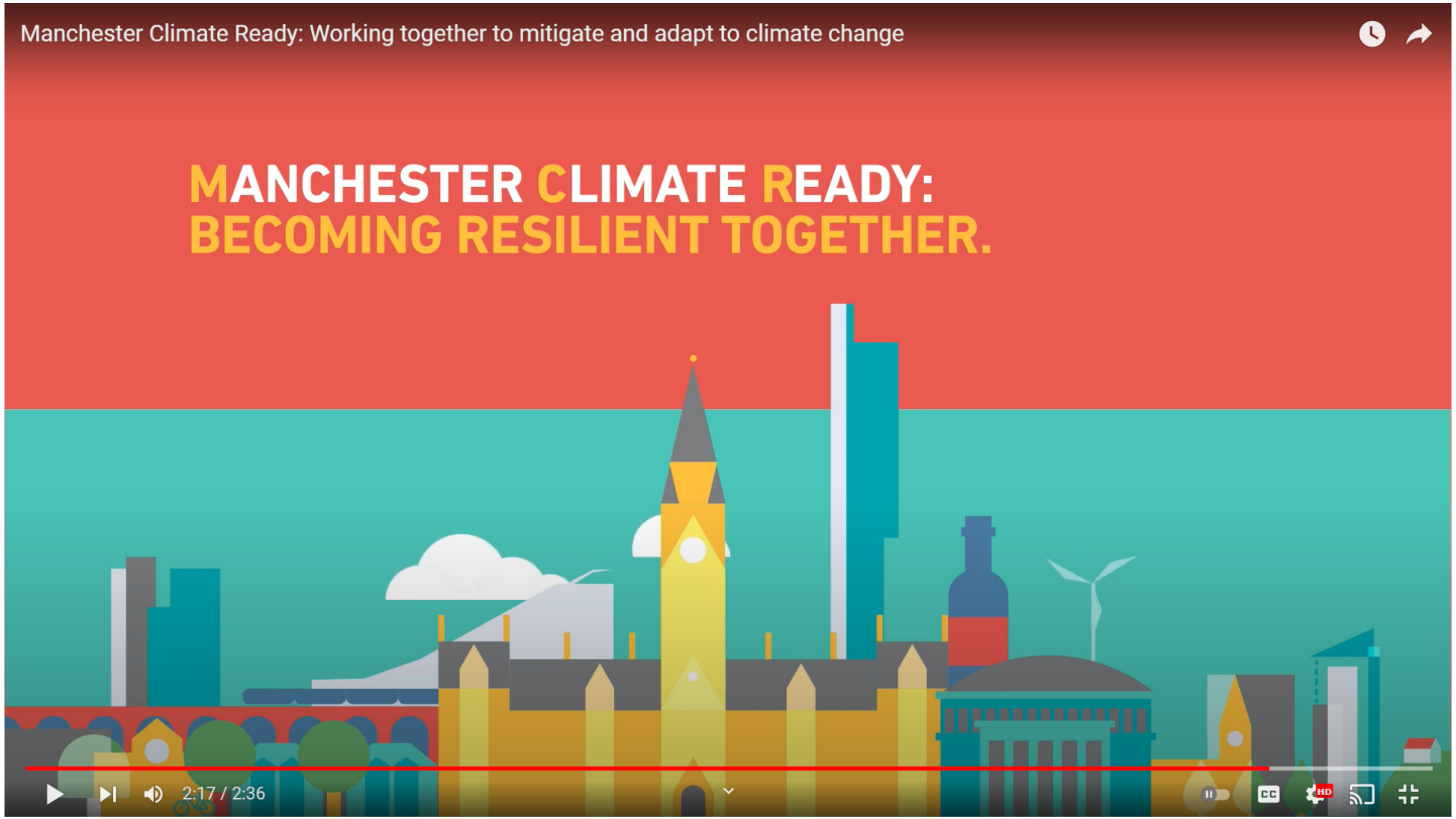
https://www.manchesterclimateready.com

MANCHESTER CLIMATE READY
BECOMING RESILIENT TOGETHER

WHAT IS A&R OUR INITIATIVES ABOUT

CLIMATE ADAPTATION AND RESILIENCE FOR MANCHESTER

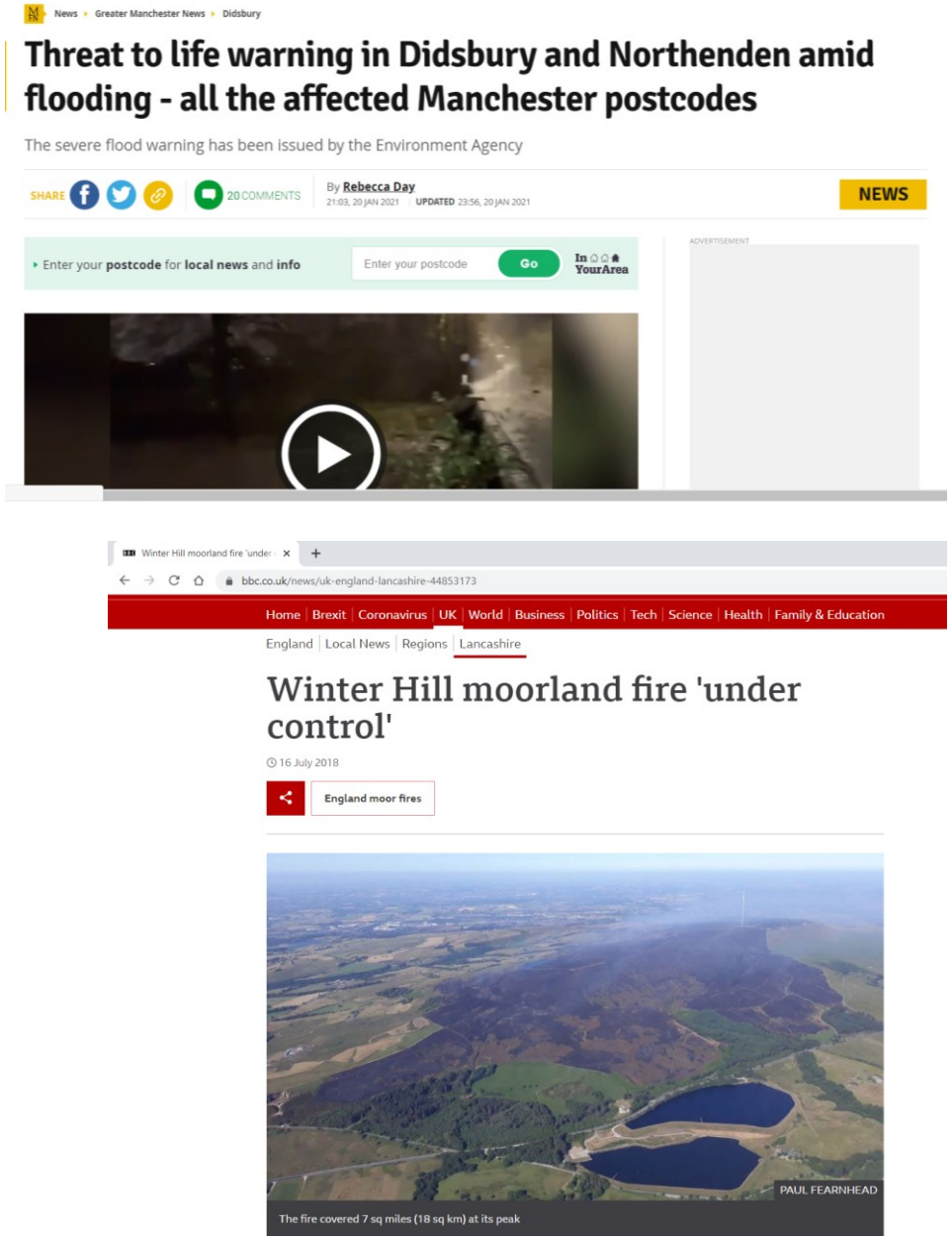
IN JULY 2019 MANCHESTER JOINED CITIES ACROSS THE WORLD IN DECLARING A CLIMATE EMERGENCY.



https://www.youtube.com/watch?v=c7KD6upEBSQ&t=1s

Event	1945-1969 Events	1970 – 1993 Events	1994 – 2017 Events
Flood (all forms)	36 (44%)	24 (36%)	109 (52%)
Storm	18 (22%)	24 (36%)	44 (21%)
Cold	17 (21%)	11 (16%)	27 (13%)
Fog	8 (10%)	2 (3%)	15 (7%)
Heat	2 (2%)	4 (6%)	10 (5%)
Drought (water shortages)	1 (1%)	2 (3%)	5 (2%)
TOTAL EVENTS	**82**	**67**	**210**

Table 3: Past occurrence of extreme weather and climate change hazard events across Greater Manchester.



Next steps…

- Continuing to work on the Manchester Climate Framework Refresh (due later this year)
- Member of the Adaptation & Resilience Advisory Group
- Assisting with the city-wide reporting _ annual Report and Carbon Disclosure Project reporting
- Development of case studies for publication on a new website
- Expert Reviewer for the UN's *Race to Resilience* initiative
-