



CLIMATE CHANGE

Revised after a talk given to ANVIL 18-9-2019. John Baxter

P1

P2 Politics Today. The Global Picture

Trump CC Denial. Withdraws from Paris Accords 2016. Floods, hurricanes, droughts hit the US

Putin. “Warming is good for Russia” but Siberian forests burn and permafrost melts.

Xi Jinping, China. Growth slowing. Much Coal fuelled power. Air Polluted. Japan Flooding

Philippines, Indonesia. Flooding Hurricanes Rising sea.

India. Air polluted. Himalayas melting. Bangladesh flood danger.

Africa. Desertification. Drought. Wild life extinctions. Huge Population growth. Failed states and massive corruption. Madagascar. Deforestation.

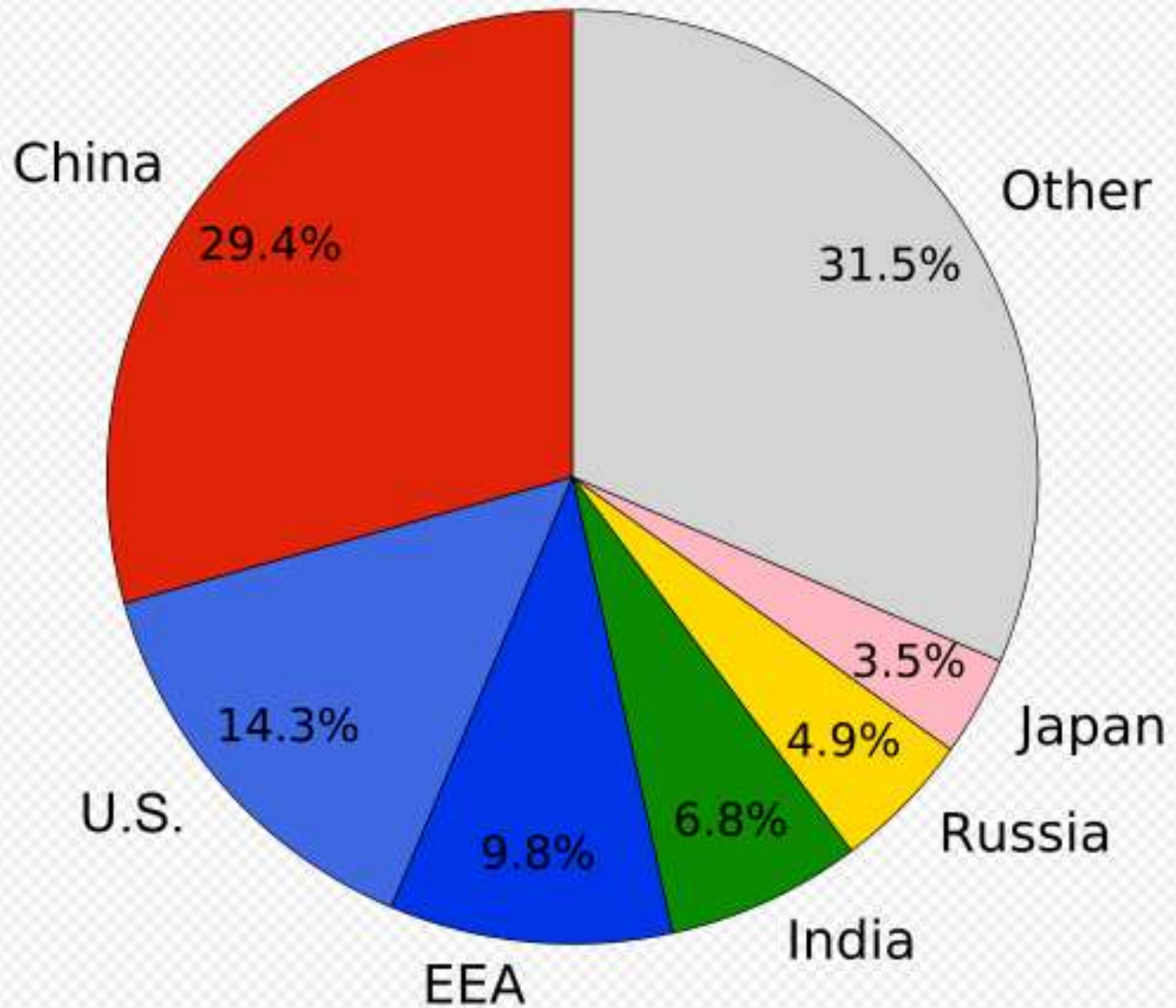
Mexico. Drought, drugs, population growth.

Brazil. Amazon forest fires. Deforestation.

Australia. Drought. Fires.

Current CO2 Emissions

- “Right now we are facing a man-made disaster of global scale, our greatest threat in thousands of years: climate change. If we don’t take action, the collapse of our civilisations and the extinction of much of the natural world is on the horizon.”
- [David Attenborough’s](#), speech at the [Katowice Climate Change Conference](#),
- [The Guardian](#), 3 December 2018.
- **UK is only 1.2%**
- p3





P5. Bahamas 2019 Hurricane Dorian



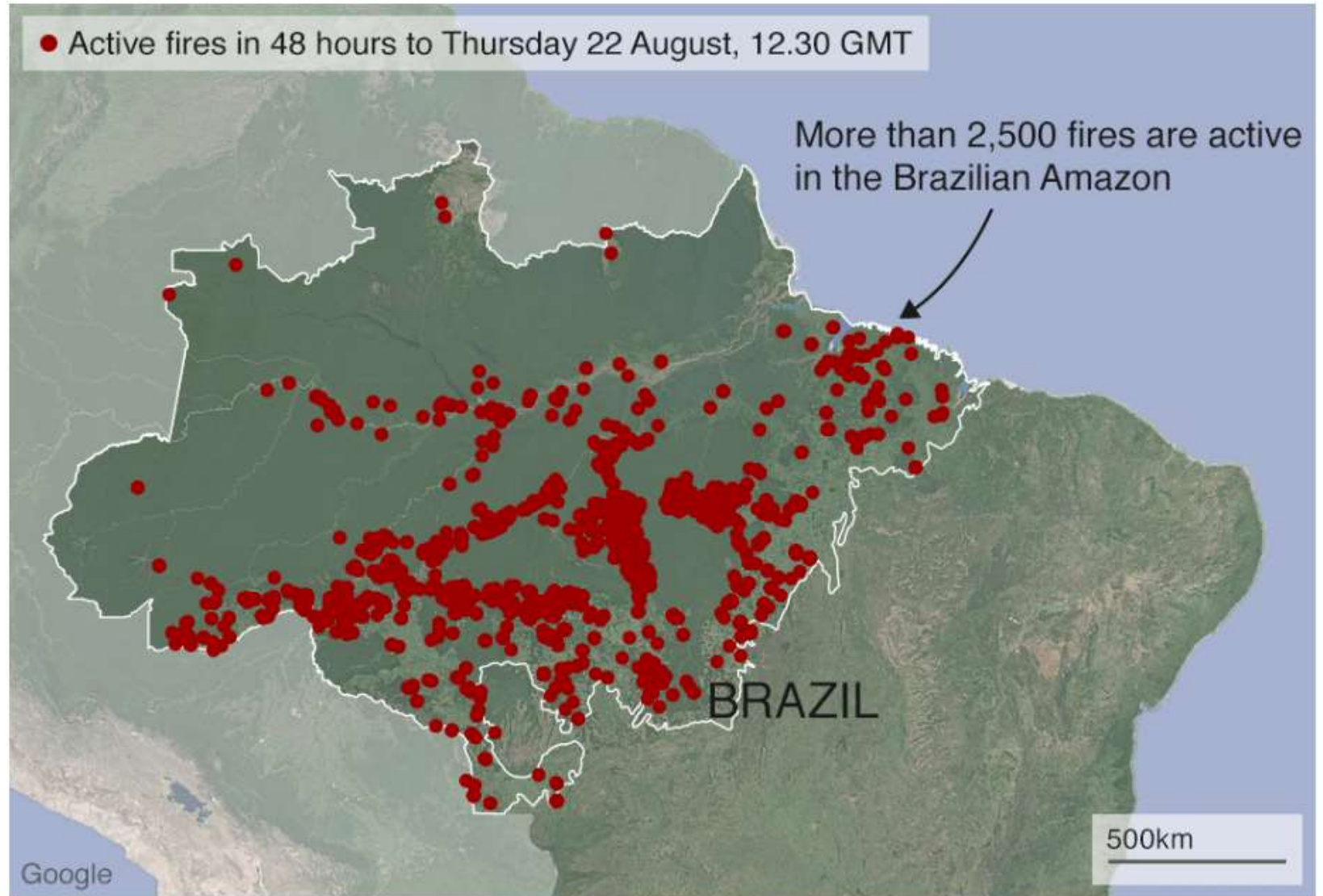


Haiti Hurricane 2018
p6

p7. How much carbon dioxide is being released.
So far this year, the equivalent of 228 megatonnes

If this current trend were to continue at its present rate, how long would the Amazon rainforest area survive?

"We are at an early stage where we can still do lots to save the forest," says Prof Malhi. About 80% of the Amazon is still intact. But he says that climate change and deforestation are a dangerous combination. A reduction in rainfall would create dry conditions for fires to spread. If 30-40% of the Amazon was cleared, then there would be a danger of changing the forest's entire climate, he says. In the years before 2005, Brazil had an extremely high rate of deforestation.



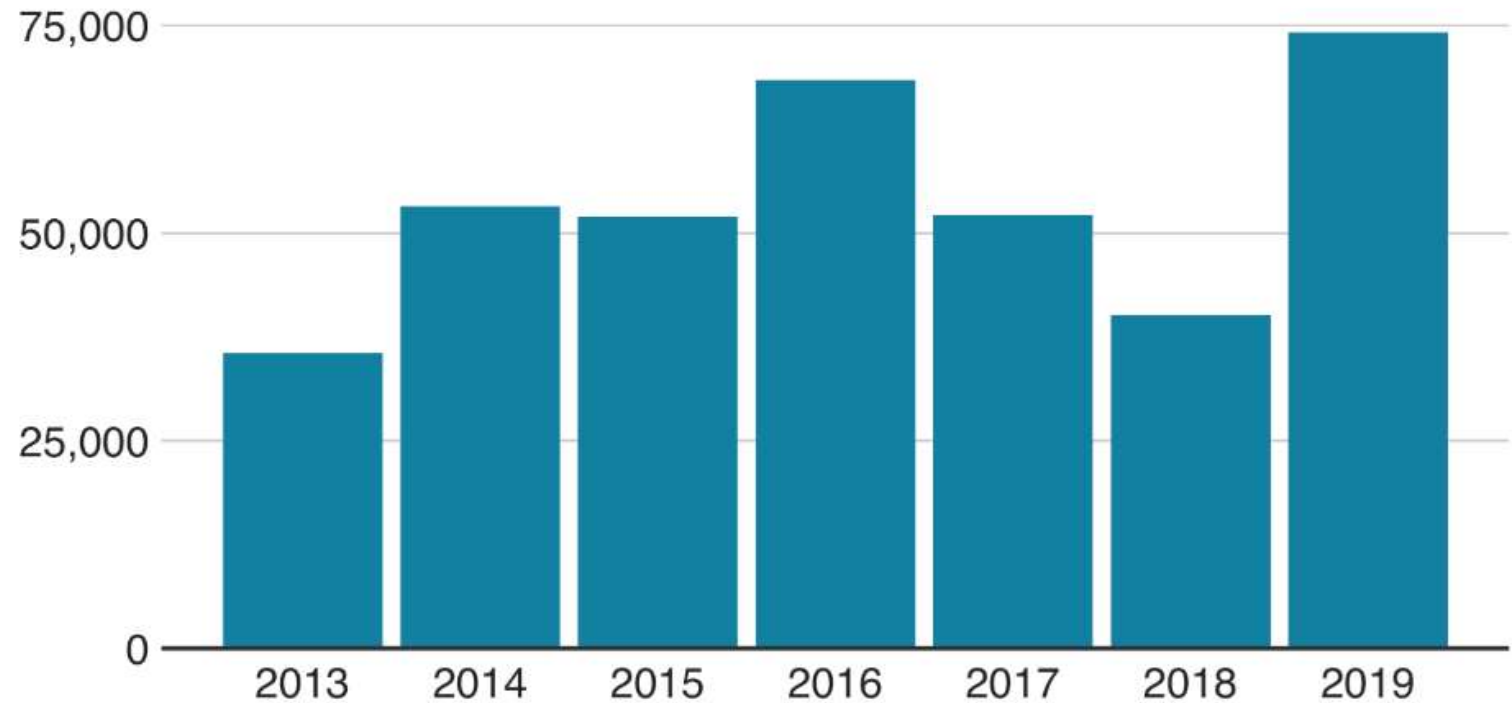
Source: MODIS

AMAZON FOREST FIRES 2019

p8

This year has seen more than double the number of fires in Brazil than in 2013

Total number of fires between 1 January - 20 August

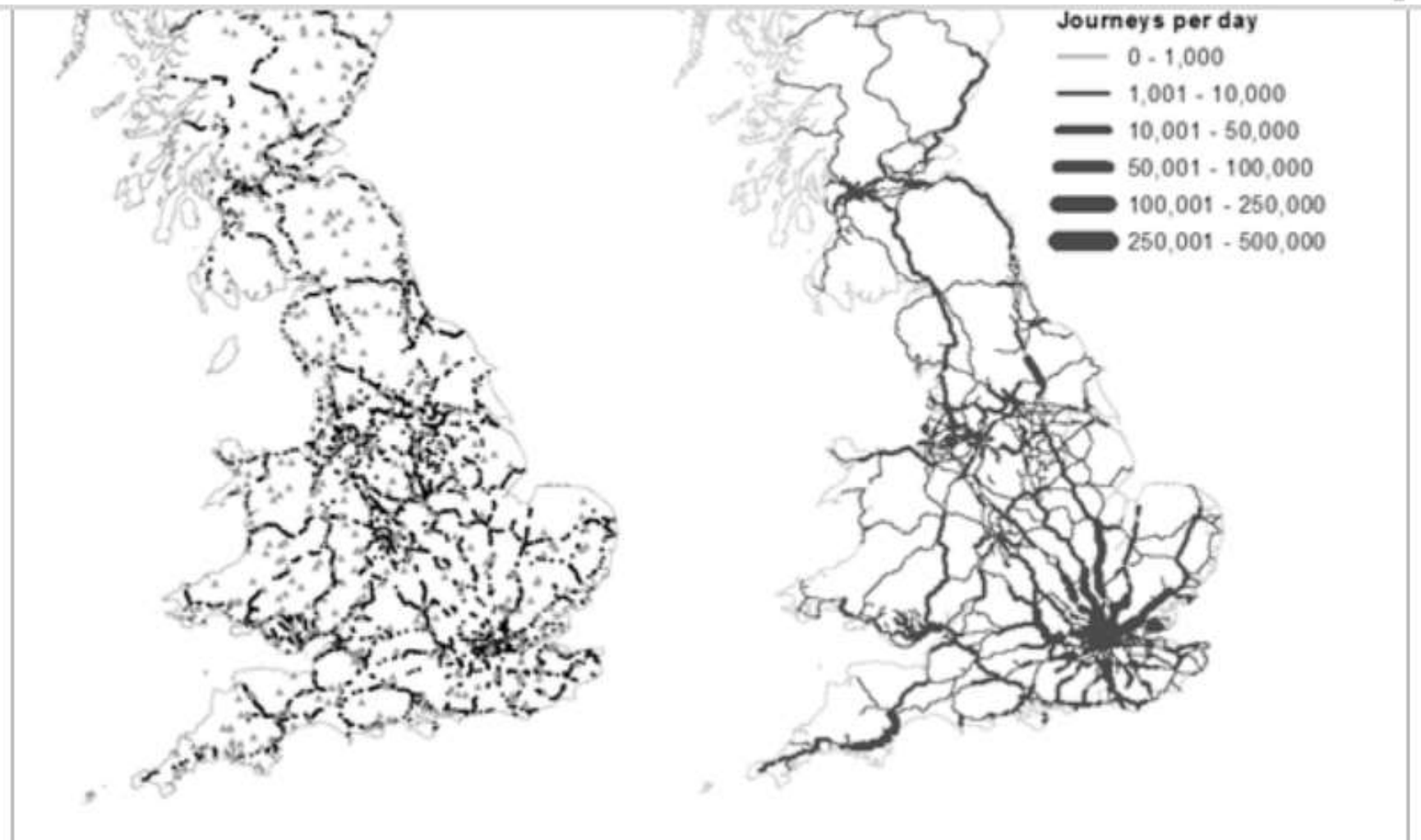


Source: National Institute for Space Research

BBC

While statistics show that 2016 also saw a significant number of fires in the Amazon, this was considered a "drought year"- when there is naturally less rain so the forest is drier and therefore more fire-prone.

But 2019 has not been a drought year. Professor Malhi says there is such a large number of fires because people have lit them.



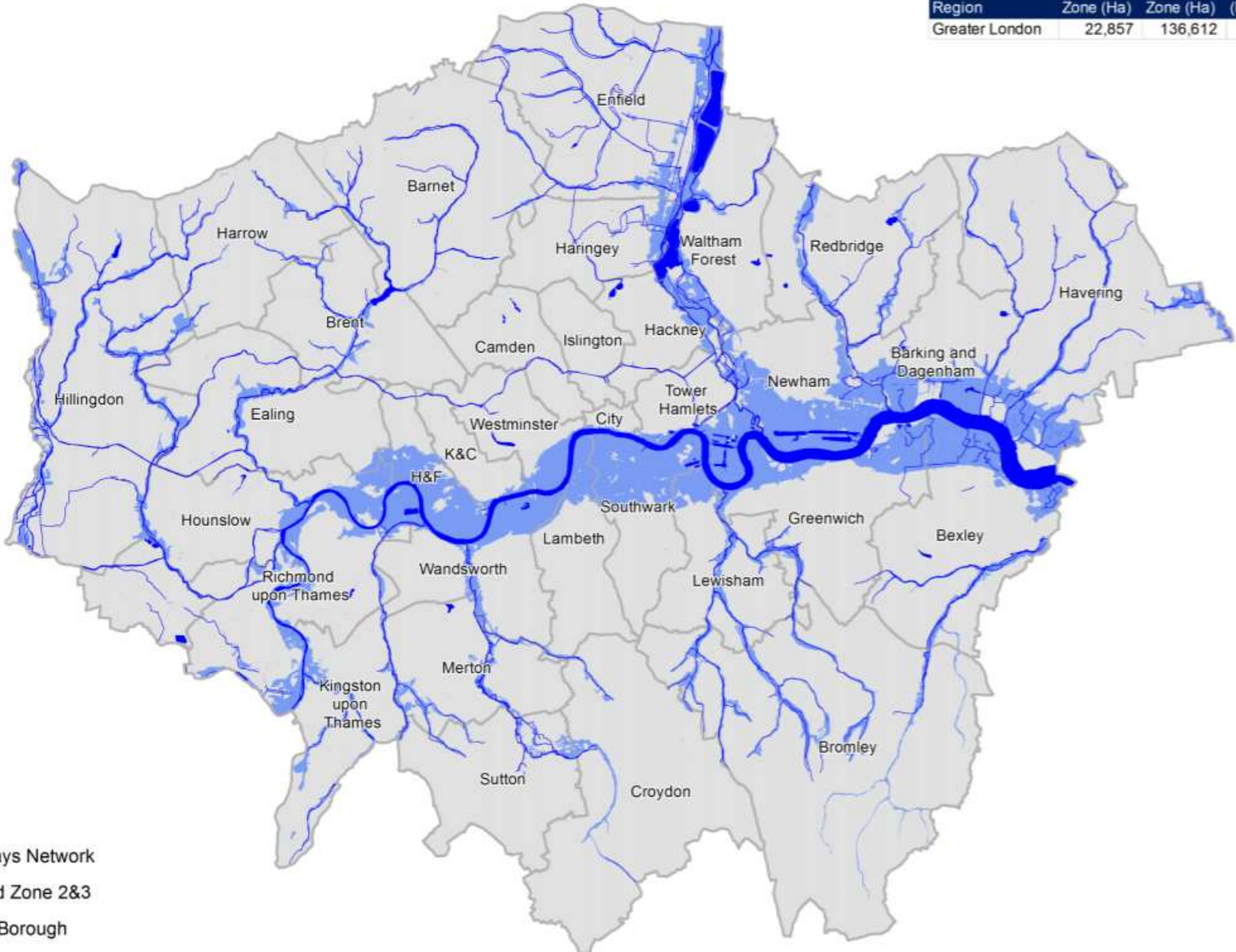
[Risk to the British railway network from flooding and erosion at bridges](#)

Scour (localised erosion by water) can cause substantial damage to bridges, leading to transport disruption and safety risks. A new probabilistic analysis with partners including JBA Trust, Lancaster University and ITRC-Mistral shows the risk of bridge scour equates to an average of 8.2 million passenger journeys being "lost" annually.

P9. Bridges at risk of scouring and collapse under flooding. England and Wales

Environment Agency Flood Zones 2 and 3

Region	Area in Flood Zone (Ha)	Area out of Flood Zone (Ha)	Total Area (Ha)	Portion in Flood Risk
Greater London	22,857	136,612	159,470	14%



- Waterways Network
- EA Flood Zone 2&3
- London Borough

London
Flooding Risk
p10



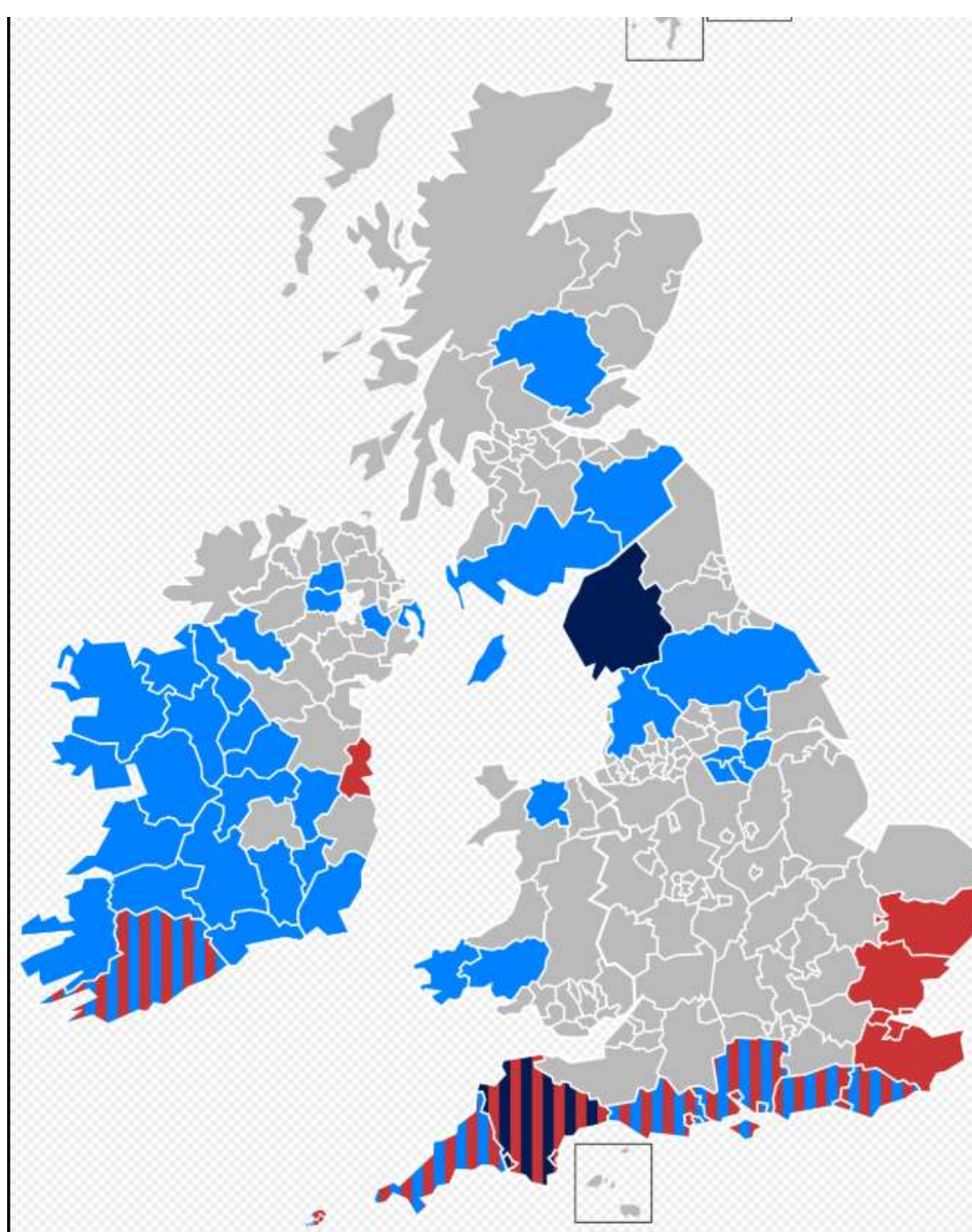
The Palace of Westminster could end up 30ft under water in a worst-case scenario Credit: Handout

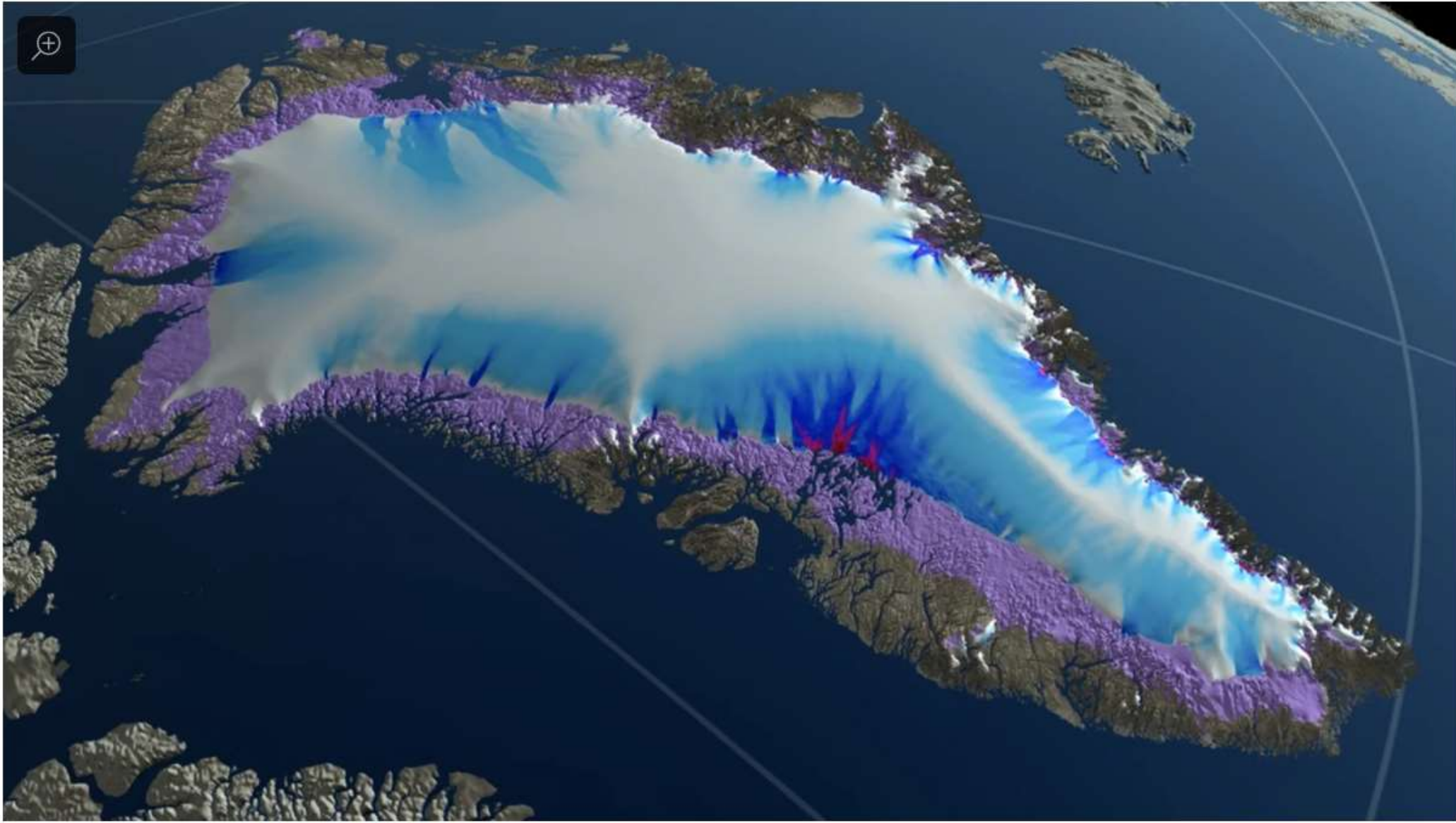
P12

Areas susceptible
to flooding – blue

Areas susceptible
to strong winds –
brown

Dark areas deaths
from same.





p13

Projected extent of the Greenland ice sheet in 2300 under a high carbon emissions scenario. Regions in violet are exposed bedrock that was ice-covered in 2008.

Eastern Russia forest fires

Almost 12 million hectares have been swept by wildfires this year, acco



Map of Russia, highlighting Yakutia, Krasnoyarsk and Irkutsk regions where forest went up in flames on Monday (AFP Photo/)



Uninhabitable Earth

The book by
David
Wallace-Wells
carefully
documents the
crisis we face

p15

Deadly Heat waves . Remember 2015.

Food production. Hunger. Heat and floods.

Water. Rising seas, inland flooding.

Wildfires

Disasters No Longer “Natural.”

Freshwater drain – water shortages.

Dying Oceans

Polluted, Unbreathable Air

Plagues of Warming

Economic Conflict

Climate Conflict

- **P16. Climate Change. The Global Picture**

It seems we face 4 emerging phases (based on reading Uninhabitable Earth)

- *Dating CC is problematic being dependant on the highly complex and hard to predict effects of global warming and the even more unpredictable nature of human and political responses. The direction of travel however is abundantly clear.*
- **Phase One CC Today**
- There is not a single country or area on the planet where ominous signs of CC are not visible, often presenting, as in Syria and the Middle East and Boko Haram in Africa, in wars and government collapse.
- **Phase Two A. CC in the Near Future. Optimistic.** Life continues “business as usual”, but is increasingly interrupted by more or less catastrophic emergencies. All countries lead by the big players unite to make DRASTIC CHANGES following the Paris 1.5 degrees protocols. Food, Heating, Travel and Transport. Rethinking economics, growth and GDP. Rethinking Work. Rethinking values. Birth rate starts to drop. Health systems saved. The result: A radically changed but almost Sustainable Future!
- **Phase Two B. CC in the Near Future. Not so optimistic.** Life continues for many as “business as usual”, but is increasingly interrupted by more or less catastrophic emergencies. Few countries meet their Paris agreements, and some do not even try. Economic costs of relief spiral. Numbers of refugees from affected areas spiral. Rising sea levels and more frequent hurricanes place coastal areas and island states at risk. Extremes of heat, drought and fire hit many areas. International tensions escalate - Middle East, Russia, China, US. Marine life deteriorates. Fishing increasingly difficult. Plastic pollution continues. Population growth continues. Break down of public health systems.

- **Phase Three CC. Humanity failing**

Catastrophes escalate. London, New York, Chicago flooded. Many failed states descend into mob and gangster rule and autocratic, military or one party dictatorships replace democracies in many places. Human rights violations off the scale. Food shortages as agricultural production plummets. Cyber attacks destroy the internet, GPS and mobile phone networks satellite dependent. Several messianic religious movements spring up promising salvation, divine intervention for the elect – Jewish – Christian – Muslim – Hindu – Buddhist - etc

- **Phase Four. OMEGA, the 6th Mass Extinction.**

The polar regions melt. The permafrost spews out methane in huge quantities. The seas die and produce no oxygen. All mid belt areas become so hot human life is not sustainable out of doors. Agriculture collapses completely. Mass starvation, also mass epidemics, Some use of atomic weapons. The retreat of a tiny minority to underground or underwater shelters to be ruled by an AI augmented master race. The super-rich book places to fly off to Mars. The Messiah arrives and sets up his Kingdom in Jerusalem!

- **NO. PERHAPS THERE IS SOME HOPE!**

p18 Lib Dem Conference Sept 2019

- Attending this conference was a revelation. With the help of an impressively well qualified team, members of the Green LDs, and under the chairmanship of **Duncan Brack** the party has produced a really ground-breaking paper which is quoted in this PP:

Tackling the Climate Emergency.

Policy Paper 139. It is available on line

www.libdems.org.uk/policy_papers

- Duncan is a vice-chair of the Federal Policy Committee. An independent environmental policy analyst, he was a special adviser to Chris Huhne at the Department of Energy and Climate Change during the coalition government.
- The paper was debated in the conference, promoted by Bath LD **MP Wera Hobhouse** with a summation by Duncan Brack.



Quoting from that paper:

Liberal Democrats declare: Humanity is staring down the barrel of a gun

Unless urgent action is taken to reduce emissions of greenhouse gases, the world will suffer the worst impacts of climate breakdown.

This includes an increase in storms and hurricanes, flooding from higher rainfall and rising sea levels, more frequent and more dangerous heat waves and droughts, longer and more damaging wildfires, the spread of insect-borne diseases, the destruction of habitats and the extinction of species, and major damage to agriculture, with consequent food shortages and rising prices.

Climate breakdown will cause increasingly costly damage to social and economic well-being and to nature, a huge and permanent growth in the numbers of refugees fleeing their homes and the possible collapse of poor countries with weak governance most exposed to the impacts.

Where the UK Is Today

see Tackling the Climate Emergency. Policy Paper 139

1.1.3 The UK will see hotter drier summers, milder wetter winters, rising sea levels and more extreme weather events.

Flooding will become more frequent and more severe, devastating communities and damaging the economy; **rising sea levels** will increase destruction from storm surges. **Hotter summers and heat-related deaths** will become more frequent, as most private and public buildings (including hospitals) are not built to cope with heatwaves; the summer of 2018 – the joint hottest on record – caused an estimated 1,000 extra deaths. **Wildfires** will become more common and more extensive, **water supplies** will come under pressure and habitats and wildlife will suffer. Although the UK is better placed to adapt to climate change than many other countries, it will not escape global impacts such as **rising food prices, the spread of diseases and the rise in numbers of refugees.**

Summary: Key priorities for tackling the climate emergency

:paper 139 ?

Set ambitious targets for reducing UK greenhouse gas emissions by 75 per cent by 2030 and to net zero by 2045 at the latest. ?

Carry out an emergency programme of action to reduce greenhouse gas emissions from all UK buildings to near-zero by 2030, cutting fuel bills and ending fuel poverty. ?

Accelerate the development of renewable power, reaching at least 80 per cent of electricity generation by 2030 and more thereafter. ?

Encourage the rapid take-up of electric vehicles by ending the sale of new diesel and petrol cars and small vans by 2030. ?

Plant 60 million trees a year to remove carbon from the atmosphere, and improve health and the rural and urban environment.

? Stop Brexit and work closely with the UK's European and global partners to raise global climate ambition. ?

Decarbonise finance and investment, requiring companies and financial institutions to implement climate targets. ?

Integrate climate objectives into the heart of national and local government, establish Citizens' Climate Assemblies and set up a Just Transition Commission to ensure no one loses out.

The Liberal Democrat approach. Key proposals

from paper 139 p22.

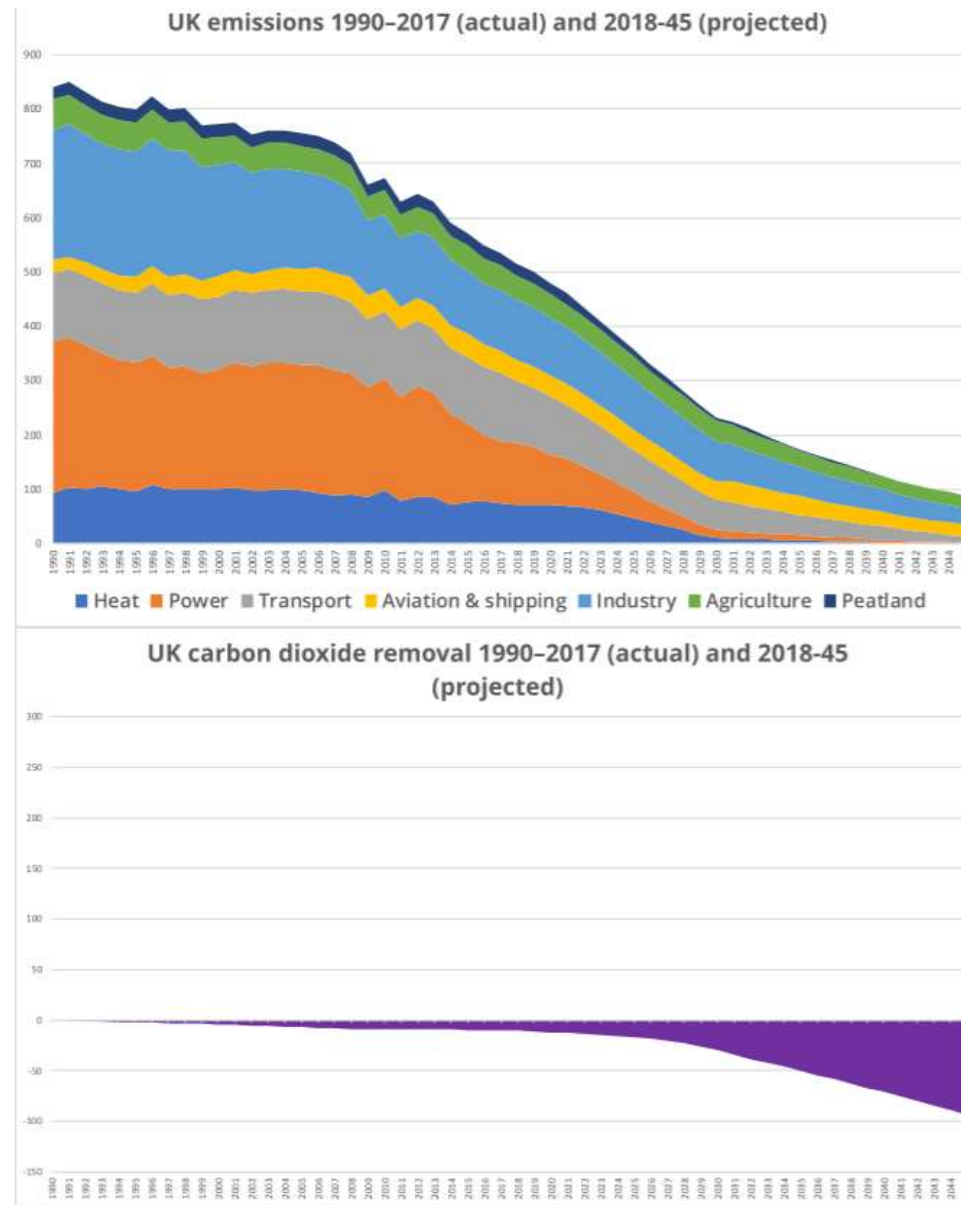
- – tackle the climate emergency by:
 - Carrying out an emergency ten-year programme of action to reduce greenhouse gas emissions from **buildings and power generation** – the most cost-effective options – to near-zero, reducing UK greenhouse gas emissions by 75 per cent by 2030.
 - Establishing a framework for accelerating reductions in other sectors – **transport, industry and land use** – and for removing carbon dioxide from the atmosphere, aiming to reach net zero emissions by 2045 at the latest, with interim targets of 75 per cent by 2030 and 90 per cent by 2040 (all subject to revision should faster progress prove possible) – in compliance with the international targets to limit climate change set by the Paris Agreement of 2015.
 - **Ensuring that the net zero objective is built into decision-making by national and local government, businesses, investors, communities and households**, rewarding rapid progress towards net zero and encouraging behavioural change in patterns of **living, working, travelling and eating**.
 - Creating a **Just Transition Commission** to advise on how to deliver a net-zero economy that works for everyone, and **Just Transition Funds** to support development in those regions and communities most affected by the transition.
 - **Ending the use of fossil fuels in the UK economy**, including banning fracking and the opening of new coal mines and pits, and replacing fossil fuels with renewable energy.

- LD Proposed Greenhouse Gas Targets Per Sector _{p23}

chapter of paper	(million tonnes carbon dioxide equivalent (MtCO ₂ e))				
	Actual		Proposed		
	1990	2017	2030	2040	2045
Buildings (Ch 7)	94	75	10	2	0
Power (Ch 8)	278	113	15	4	1
Surface transport (Ch 9)	128	126	57	25	11
Intl transport, UK share (Ch 9)	24	43	33	27	23
Industry (Ch 10)	241	111	73	41	29
Agriculture (Ch 11)	54	46	37	25	24
Peatland (Ch 11)	24	23	7	1	0
Total without negative emissions	841	536	232	126	89
Negative emissions (Ch 12)	0	-10	-30	-71	-94
Total including negative emissions	841	526	203	55	-5
Reduction from 1990	0%	38%	75%	93%	101%

LD Projected co2 emissions and removal

p24



UNLEASHING DEMOCRACY POLICIES (from 139)

p25

3 Unleashing democracy

Key proposals – unleash democracy by:

- Legislating to create a statutory duty for each principal local authority to set a Zero-Carbon Strategy, including local and community power generation, home energy retrofits and local transport and land use plans, with an accompanying major decentralisation of powers and resources.
- Ensuring climate objectives are a top priority for central government, including appointing a cabinet-level Chief Secretary for Sustainability in the Treasury, creating a new Department for Climate and Natural Resources and introducing a requirement on all public bodies to report on the extent to which climate risks pose a threat to their ability to fulfil their responsibilities.
- Establishing a national Citizen's Climate Assembly to improve public engagement, tasked with debating every aspect of climate policy and delivering recommendations to government and stimulating public debate.

3.0.1 Current structures of democracy and government in the UK are wholly unsuited to meeting the climate emergency. Britain is one of the most centralised states in the democratic world; the voices of its citizens are routinely ignored, elections do not deliver a representative Parliament, and power has been progressively stripped away from councils and other local institutions. The saga of Brexit highlights just how dysfunctional the political system is. No wonder British citizens are losing trust in the institutions of government and Parliament.

DECARBONISE FINANCE AND INDUSTRY

From 139 p26

Key proposals – decarbonise finance and investment, and make the UK the green finance capital of the world by:

- Investing in zero-carbon infrastructure for power, heat, transport, industrial carbon capture and storage (CCS) and afforestation.
- Establishing a new Green Investment Bank to steer private investment into these sectors.
- Regulating financial services to encourage green investments, including requiring all companies registered in the UK and listed on UK stock exchanges to disclose their level of climate risk and make provisions for the costs associated with meeting targets compliant with the Paris Agreement.
- Greening the taxation system to make polluters pay and reward progress towards net zero.

4.0.1 Policy for finance and investment will play a crucial role in achieving the net zero target. While investment in new infrastructure and technologies – energy efficiency, renewable power and heat, zero-carbon transport and industrial processes – has increased, it needs to be massively accelerated in terms of rate and scale. At the same time, existing flows of capital need to be directed towards climate-friendly investments and away from climate-negative activities. This is true not just for UK emissions; the UK's financial centres currently finance businesses that are responsible for an estimated 15 per cent of global emissions. It makes no sense to hold UK citizens to one standard – net zero by 2045 – and then not expect banks and multinational companies based in or financed through the UK to do the same.

4.0.2 We believe that the UK should aim to become the green finance capital of the world. The country is already a world leader in finance and

P27 So those are the LD plans to reverse CO2. JB continues. BUT JUST AROUND THE CORNER. WHAT HAPPENS TO THE UK

as it enters the four phases?



Flooding seems the most immediate CC threat. A combination of tides and storms could see the Thames Barrier breached. The cost to London and the national budget would be worse than the blitz and could bankrupt the state. Similar events could take place at other coastal cities, Liverpool, Hull, Edinburgh and extreme rainstorms like that which hit Japan are possible anywhere – Birmingham, Manchester, Oxford, Cambridge.

The Thames Barrier can be strengthened and a major capital project launched to do so. Many infrastructure projects are needed around the country to increase resilience in the face of CC events.

Huge numbers of people could lose their homes. Repairing CC damage could quickly outspend revenues. As usual the poorer families will need the greatest support. The commandeering of large properties for social use may be needed as happened in WW2?



- **Politically a Government of National Unity** with a leader trusted across parties may be required/hoped for to deliver quickly the massive responses to emergencies that will be needed and to prepare to alleviate them before they happen. Alternatively we could see an autocratic fascist nationalist or Leninist Marxist minority take power and impose sectarian rule.
- There could be **a break-down of law and order**, increases in theft, burglary, financial and violent crime. Do the present extremes of wealth and poverty remain tolerable and acceptable in such a situation? Our already strained Justice system and prisons could approach breakdown. Can we continue to afford 82,000 prisoners costing £37,500 per head per year?
- **Heat waves** could result in massive and widespread forest and moorland fires. Prolonged heat could also produce serious food and water shortages, illness and deaths.
- **The stress on the NHS and Social Care**, already huge, could get much worse. Add to this the growing dementia population and obesity sufferers.

THE GREAT FEAR

What happens if we achieve “heroic UK carbon reduction” and meet our IRC targets and get close to being carbon neutral? What if the BIG PLAYERS, the US, China, India and Russia do not respond to our example and 1.5 degrees C comes no-where near to being met globally? Then we have no choice but to prepare here for the next stage of accelerating catastrophes. How then should we live?

P30 In this situation **how do we keep going?**

What will happen to our personal, moral and religious values?

Do we not need to look hard at them again in the face of a possible OMEGA, for Humanity has never been here before?

Is this situation simply a good reason to give in to deep depression or might it have positive aspects such as getting us to ask **what makes for a happy, fulfilling and worth while life?**

Certainly CC faces us with the need to adapt to very considerable lifestyle changes. It also challenges us to look again at our **ASPIRATIONS, what we are looking for out of life** if we are to halt the slide towards Omega and do what we can, however small, to build a sustainable and fulfilling future for our children.

So what makes for a happy and fulfilled life?

Try making up your own list. Here some ideas. Wealth and possessions, foreign holidays, cruising, international flights, conspicuous consumption? Access to great drugs and relaxing alcohol? Lots of sex. Finding meaning in life through work, children, family, being of use to others, enjoying nature, singing, music, the arts, religious practice, gardening, growing food, having a small carbon footprint, playing a sport, good health and keeping fit, good friends and loving relationships? Yes there could be lots more.

P31 PERSONAL LIFE-STYLE

CC faces us all with immediate choices to explore and follow.

Diet, food, consumption.

Waste

Packaging

Clothing

Travel and transport.

Holidays.

Energy use.

Etc etc etc



P32. CC will also face us with hard choices. Here are just two.

What if after further European or Middle Eastern catastrophes we are faced with **millions attempting to enter the UK?** Halt them at our border because we are already finding it very hard to support our own victims of CC. What should we do? Is it not our basic moral obligation to look after and support our own citizens, not foreign refugees? Will our borders require armed defence?

What do we do if the **NHS becomes overwhelmed** as a result of highly resistant infections, or the economy gets close to collapse. Who do we prioritise for treatment? Mothers and the young? Those of “productive” working age? The elderly sick? The obese? The mentally ill? The alcoholic and addicted?

Climate Emergency Service

p33. CES (see separate paper)

We need to set up **a nation wide organisation** to:

Prepare for and **deal with climate emergencies**.

Co-ordinate and prod the various branches of government to work closely together in the face of Climate Change (CC)

Back and promote the findings of specialist scientific CC research groups and their suggestions for public policy.

Promote **public awareness and education** concerning CC.

Provide membership , local, regional and national for all across parties who are concerned with and want to prevent catastrophic CC.

Give everyone concerned with CC a body to belong to that would focus their efforts and build up morale under tough conditions.

P34. These choices are tough, very tough, but are they grounds for complete despair and depression? Here I suggest No.

WE HAVE FACED DARK DAYS BEFORE

Think how people dealt with World War 2.

CC may seem worse than the threat of war or imminent invasion, but like such threats, it also provides us all with a focus and opportunities.

It can stir us to develop the abilities and the spirit we need to face it. It can spur us to work with and for each other, to co-operate, to accept risks, challenges and difficulties and to get involved. In short it can help us develop through practical action a vivid sense of our mutual interdependence and common humanity and in so doing give our lives meaning even in the face of catastrophe. None of us ever had the chance to live for ever, but we all still have the chance to live with enthusiasm and face death well.