House of Commons

Environmental Audit Committee

Our Planet, Our Health

Twenty-First Report of Session 2017–19

Report, together with formal minutes relating to the report

Ordered by the House of Commons to be printed 3 September 2019

HC 1803
Published on 17 September 2019
by authority of the House of Commons

Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

Current membership

Mary Creagh MP (*Labour, Wakefield*) (Chair)
Dr Thérèse Coffey MP (*Conservative, Suffolk Coastal*)
Geraint Davies MP (*Labour (Co-op), Swansea West*)
Mr Philip Dunne MP (*Conservative, Ludlow*)
Zac Goldsmith MP (*Conservative, Richmond Park*)
Mr Robert Goodwill MP (*Conservative, Scarborough and Whitby*)
James Gray MP (*Conservative, North Wiltshire*)
Ruth Jones MP (*Labour, Newport West*)
Jeremy Lefroy MP *(Conservative, Stafford)*
Caroline Lucas MP (*Green Party, Brighton, Pavilion*)
Kerry McCarthy MP (*Labour, Bristol East*)
Anna McMorrin MP (*Labour, Cardiff North*)
John McNally MP (*Scottish National Party, Falkirk*)
Dr Matthew Offord MP (*Conservative, Hendon*)
Alex Sobel MP (*Labour (Co-op), Leeds North West*)
Derek Thomas MP (*Conservative, St Ives*)

Powers

The constitution and powers are set out in House of Commons Standing Orders, principally in SO No 152A. These are available on the internet via www.parliament.uk.

Publications

Committee reports are published on the Committee's website at www.parliament.uk/eacom and in print by Order of the House.

Evidence relating to this report is published on the inquiry publications page of the Committee's website.

Committee staff

The current staff of the Committee are Lloyd Owen (Clerk), Leoni Kurt (Second Clerk), Ruth Cahir (Committee Specialist), Laura Grant (Committee Specialist), Laura Scott (Committee Specialist), Jonathan Wright (Senior Committee Assistant), Katie Gibbs (Committee Assistant), Anne Peacock (Media Officer).

Contacts

All correspondence should be addressed to the Clerk of the Environmental Audit Committee, House of Commons, London SW1A 0AA. The telephone number for general enquiries is 020 7219 8890; the Committee's email address is eacom@parliament.uk.

You can follow the Committee on Twitter using @CommonsEAC.

Contents

Summary 3

1 Planetary health 5

The inquiry 7

2 Environmental change and human health 9

Indirect health effects 12

NHS and planetary health 13

Adapting to change 13

Climate change mitigation by the NHS 15

Net Zero in the NHS 17

3 Nature, wildlife and the environment 18

Environmental damage 18

Insect populations 20

Pollinators 21

Health risks from biodiversity loss 21

Government progress on biodiversity 22

Government policy and funding 23

4 Food systems 28

Food systems 28

Global food and water security 29

Impact of climate change on the UK food system 31

Long term food security in the UK 32

Diets that don't cost the earth 34

Promoting healthy, sustainable diets 37

National food strategy 39

5 Sustainable Cities 42

Cities and urban living trends 42

Environment and cities 43

Urban planning 44

Transport networks and urban planning 45

Buildings and urban planning in the UK 47

Green spaces and urban planning 50

Food and urban planning 52

6 Governance for planetary health **55**

Global Action 55

Leadership 55

Cross-departmental working 56

Conclusions and recommendations **58**

Formal minutes **65**

Witnesses **66**

Published written evidence **68**

List of Reports from the Committee during the current Parliament **69**

Summary

Everything we do to the planet, we do to ourselves. Humans are living longer, healthier lives than ever as a result of advances in food production, public health and access to medicines.[1] But the systems that support human life rely on a healthy natural environment and "natural systems are being degraded to an extent unprecedented in human history".[2] We are concerned that the NHS and the pharmaceutical industry is not sufficiently resourced to deal with projected changes: non-communicable diseases (NCDs) kill 41 million people each year, equivalent to 71 per cent of all deaths globally.

Current rates of extinction are at 100–1000 times more than what is considered natural biodiversity loss, and the Government's progress towards meeting the Aichi targets by 2020 falls woefully short. The Environment Bill must include a framework for legal nature restoration and biodiversity targets, and the Government should set out the principles behind the design of the new environmental land management schemes.

Our food contributes up to 30 per cent of total greenhouse gas emissions in the UK and we waste 10 million tonnes of food every year. The EAT-Lancet Commission recommended a "Great Food Transformation": an "unprecedented range of actions taken by all food system sectors across all levels … to normalise healthy diets from sustainable food systems".[3] The Government has a responsibility to raise public awareness of its Eatwell Guide, identify ways to promote the consumption of healthy diets that are sustainably produced and ensure the public sector leads by example in reducing meat and dairy consumption. The Government has begun working on a National Food Strategy and should establish a National Council for Food Policy to advise on transforming our food system.

The World Bank estimates that 83 per cent of the UK's population lived in urban areas in 2017. Cities are responsible for 70 per cent of global emissions. City design and lifestyles contribute to poor outdoor and indoor air quality, with issues ranging from asthma to diabetes, and cause over 40,000 deaths a year. We look forward to the introduction of air quality legislation as soon as possible if we leave the EU.

Integrated urban planning is essential to ensure better planetary health outcomes. The transport sector relies heavily on unsustainable fossil fuel energy and is a contributor to sedentary lifestyles. Witnesses encouraged "active transport". Poor quality housing and city design has significant harmful impacts on public health, mental health and life expectancy. The Government's review of the building regulations must take an integrated approach to ensure that sustainability and public health are properly reflected in any new code. The National Planning Policy Framework needs to be updated to promote opportunities for active travel, ambitious green space targets, and access to healthy, sustainable food in planning authorities' local plans.

1 The Rockefeller Foundation Economic Council on Planetary Health, What is planetary health (Accessed 8 August 2019)

2 Sarah Whitmee et al., 'Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health', The Lancet, Vol. 386 (2015), pp.1973–2028

3 Walter Willett. et al., Food in the Anthropocene: the EAT- Lancet Commission on healthy diets from sustainable food systems, The Lancet Commissions, Vol. 393 (2019), pp.447–492

Improving public health in the UK while improving the environment will require significantly better data sharing and cross-departmental working. There should be a single point of accountability for planetary health at both ministerial and senior civil service levels. The Government should also establish a joint unit to manage planetary health across Government. To support these meetings, health leaders and organisations must attend: the Chief Scientific Advisers, Public Health England and the Chief Medical Officer all have a major role to play. The UK Government should highlight planetary health at forthcoming international meetings.

1 Planetary health

1. Everything we do to the planet, we do to ourselves.[4] Humans are living longer, healthier lives than ever before as a result of advances in food production, public health and access to medicines.[5] But the systems that support human life rely on a healthy natural environment and "natural systems are being degraded to an extent unprecedented in human history".[6] Climate change and biodiversity loss are the biggest threats our planet faces and are already affecting the health of millions globally.[7]

2. The link between the health of humans and of the planet is captured by the term, planetary health, defined as:

> The achievement of the highest attainable standard of health, wellbeing, and equity worldwide through judicious attention to the human systems—political, economic, and social—that shape the future of humanity *and* the Earth's natural systems that define the safe environmental limits within which humanity can flourish. Put simply, planetary health is the health of human civilisation and the state of the natural systems on which it depends.[8]

3. The consequences of human activity on the climate have been studied for decades and are likely to be increasingly serious and wide-ranging. Direct effects on health include heat stress and heat-related mortality due to increasing temperatures;[9] indirect effects include the impact of environmental changes on agricultural production and on food and nutrition security.[10] Some researchers have proposed the concept of "planetary boundaries", which, as explained by Professor Howard Frumkin, Wellcome Trust, "when transgressed may trigger dangerous and even irreversible changes in earth systems".[11] The planetary boundaries framework "defines a safe operating space for humanity based on the intrinsic biophysical processes that regulate the stability of the Earth system",[12] and includes the following planetary boundaries:

i) climate change;

ii) novel entities (e.g. chemical and toxic pollutants);

iii) ozone depletion;

iv) atmospheric aerosol loading (e.g. particulate matter such as dust and smoke);

4 Tara Ocean Foundation, Everything we do against nature, we do to ourselves, (Accessed 8 August 2019)
5 The Rockefeller Foundation Economic Council on Planetary Health, What is planetary health (Accessed 8 August 2019)
6 Sarah Whitmee et al., 'Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health', The Lancet, Vol. 386 (2015), pp.1973–2028
7 UNEARTHED, We are losing the web of life': why the global nature crisis is as dangerous as climate change, (Accessed 8 August 2019); Sandra Diaz, et al., Summary for Policymakers of the Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, IPBES, (2019)
8 Richard Horton and Selina Lo, Planetary Health: A new science for exceptional action, The Lancet, Vol. 386 (2015), pp.1921–1922
9 London School of Hygiene and Tropical Medicine (PLA0022)
10 London School of Hygiene and Tropical Medicine (PLA0022)
11 LSHTM Planetary Health Alliance (PLA0020)
12 Will Steffen et al., Planetary boundaries: Guiding human development on a changing planet, Science, Vol. 347 (2015), p.736

v) ocean acidification;

vi) biochemical flows (including phosphorus and nitrogen);

vii) freshwater use;

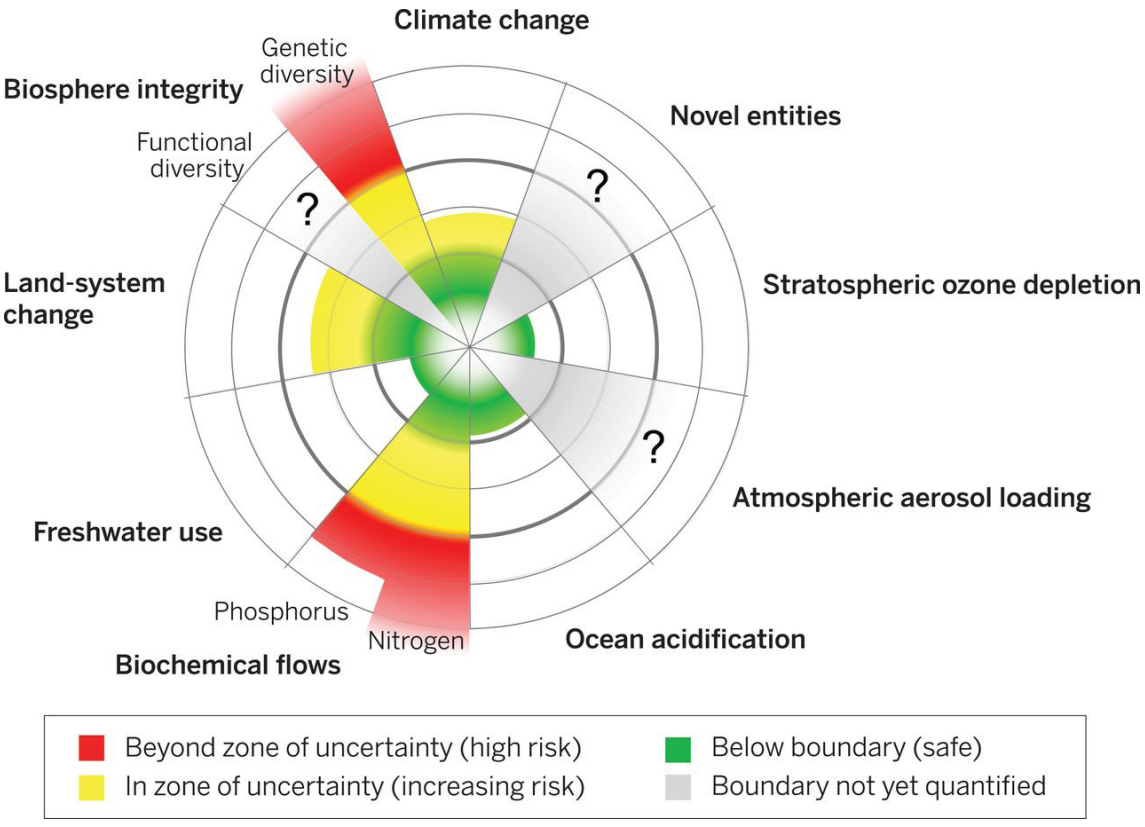
viii) land-system change; and

ix) biosphere integrity (including functional and genetic diversity).[13]

Latest assessments show that four of the nine planetary boundaries may have been crossed. As Figure 1 shows, we have breached the safe operating space for biochemical flows (the amount of nitrogen and phosphorous in our environment) and genetic diversity. In written evidence the Department for Environment, Food and Rural Affairs (DEFRA) noted that:

> remaining within these boundaries does not itself guarantee low levels of human health impacts from environmental factors. Shifting baselines,[14] involving our cognitive incapacity to conceptualise progressive and slow degradation of environmental quality and productivity, is a threat in itself. Rigorous and independent measurement of key environmental indicators and disciplined policy implementation to sustain objectives is needed to prevent slippage in environmental standards.[15]

Figure 1: Nine processes with thresholds that could generate unacceptable environmental change: planetary boundaries



Source: Will Steffen, Katherine Richardson, Johan Rockström, et al., Planetary boundaries: Guiding human development on a changing planet , Science, 347(6223), 1259855, 2015

13 Johan Rockström, et al., A safe operating space for humanity, Nature, Vol. 461 (2009), pp.472–475

14 Pauly, D. (1995) Anecdotes and the shifting baseline syndrome of fisheries. TREE 10(10): 430

15 DEFRA (PLA0028)

In 2015, the Potsdam Institute for Climate Impact Research reported that an international team of 18 researchers in the journal Science had found that: "Four of nine planetary boundaries have now been crossed as a result of human activity […] The four are: climate change, loss of biosphere integrity, land-system change, altered biogeochemical cycles".[16]

The inquiry

Previous Committee inquiries: climate change adaptation

4. In our adaptation to climate change series, we have looked at *Heatwaves: Adapting to Climate Change*;[17] *Flooding, Cooperation Across Government*;[18] and *Invasive non-native species*.[19] This inquiry on planetary health attempts to make clear the connection between human health and the health of our planet.

5. Our recent work has focused on the United Nations (UN) Sustainable Development Goals (SDGs) that "address the global challenges we face, including (…) poverty, inequality, climate, environmental degradation, prosperity, and peace and justice" in an interconnected way.[20] UK Research and Innovation noted that "concepts of planetary health are embedded in the approach taken to the (SDGs), which explicitly recognise the interconnected nature of health, environment and social systems".[21]

6. Public interest in climate change has increased sharply in the last year. Sixteen year old Swedish activist, Greta Thunberg's school strike for climate action has gone global and protests like Extinction Rebellion's action in London in April this year have been catalysts for concern over the climate. Landmark reports published recently have warned about the risks to both the environment and human health from global heating, including:

- *UN Intergovernmental Panel on Climate Change Special Report*: Global warming of 1.5°C , launched in October 2018, which found that the health risks of global heating of 1.5°C are large and these risks will increase with further warming beyond this and not in a linear fashion;[22]
- *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) 2019 Global Assessment Report on Biodiversity and Ecosystem Services*, published in May 2019, which found that nature is declining globally at rates unprecedented in human history, with around one million animal and plant species threatened with extinction, many within decades;[23]

16 Potsdam Institute for Climate Impact Research, Four of nine planetary boundaries now crossed, [Accessed 09 September 2019]
17 Environmental Audit Committee, Ninth Report of Session 2017–19, Heatwaves: Adapting to Climate Change, HC 826
18 Environmental Audit Committee, Second Report of Session 2016–17, Flooding: Cooperation Across Government, HC 183
19 Environmental Audit Committee, Invasive Species Inquiry, [inquiry launched 04 April 2019]
20 United Nations, Sustainable Development Goals [Accessed 01 July 2019]
21 UK Research and Innovation (PLA0024)
22 IPCC, Summary for Policymakers of the Special Report: Global warming of 1.5°C, (2018)
23 Sandra Diaz, et al., Summary for Policymakers of the Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, IPBES, (2019)

- *Committee on Climate Change, Net Zero: the UK's contribution to stopping global warming*, also published in May 2019, which found that it is technically and economically feasible for the UK to achieve net zero emissions by 2050, ending the UK's contribution to global heating, by pursuing an ambitious policy agenda;[24] and
- *UN Intergovernmental Panel on Climate Change Special Report: Climate Change and Land*, published in August 2019, which found that land can play a role in tackling climate change, but is already under growing human pressure and must remain productive to maintain food security as the population increases and the negative impacts of climate change on vegetation increase.[25]

Development of the inquiry

7. We launched our inquiry on planetary health on 23 November 2018. We received 32 pieces of written evidence, and held five evidence sessions with nine panels. We would like to thank all contributors and witnesses for taking part. We would also like to thank Professor Alan Dangour, Director of the Centre on Climate Change and Planetary Health, London School of Hygiene & Tropical Medicine (LSHTM), for the expertise he provided as the Specialist Advisor to the inquiry.

8. In this report, we begin by outlining some of the risks to human health that arise from environmental damage and global heating. Chapters three to five concentrate on three major, inter-related topics: nature, wildlife, and the environment, food systems, and sustainable cities. The final chapter examines issues relating to governance for planetary health.

24 Committee on Climate Change, Net Zero: The UK's Contribution to Stopping Global Warming, (2019)
25 IPCC, Climate Change and Land, (2018)

2 Environmental change and human health

9. The past 150 years have seen huge improvements in human health and wellbeing. We live longer, healthier lives as a result of advances in food production, public health and access to medicines.[26] But the systems that support human life rely on a healthy global natural environment. Human activity has caused unsustainable global pressures on natural resources and the life support systems which support us.[27]

10. Professor Sir Andy Haines, LSHTM, summarises the main concerns:

> Human health has advanced tremendously in recent decades… but that has all come at a considerable environmental cost.
>
> Global average temperature has increased by 1 °C since preindustrial times, and based on the commitments that were made in the run up to the COP21 Paris, the increase could amount to around 2.7 °C or more by the end of the century in absence of further actions. There are many other changes as well, including dramatic loss of tropical forests, one of the factors that is driving the loss of biodiversity that is occurring at rates 100-fold greater than [in] pre-human times.
>
> Freshwater resources are in decline in many parts of the world and about three billion people live in locations that are subject to varying degrees of water stress, partly because of depletion of aquifers, which cannot be replenished in human lifetimes. Carbon dioxide is dissolving in the ocean leading to increasing acidification with probable major impacts on marine ecosystems.
>
> A single species, Homo sapiens, is now dominating the global environment, which has led an increasing number of scientists to call our epoch the Anthropocene, in recognition of the dominant role played by humanity.[28]

11. The Rockefeller Foundation Economic Council on Planetary Health set out its concerns on planetary health:

> Improvements to health have come from advancements in public health and medicine as well as from agriculture and industry. However, this progress often comes at a cost. Human activities have caused global environmental change—not only do we pollute the air we breathe and the water we drink directly, but greenhouse gas emissions are changing the world's climate. This has knock-on effects for our health and society. The World Health Organization estimates that 25 per cent of death and disease globally, and nearly 35 per cent in regions such as sub-Saharan Africa, is linked to environmental hazards.[29]

26 The Rockefeller Foundation Economic Council on Planetary Health, What is planetary health (Accessed 8 August 2019)

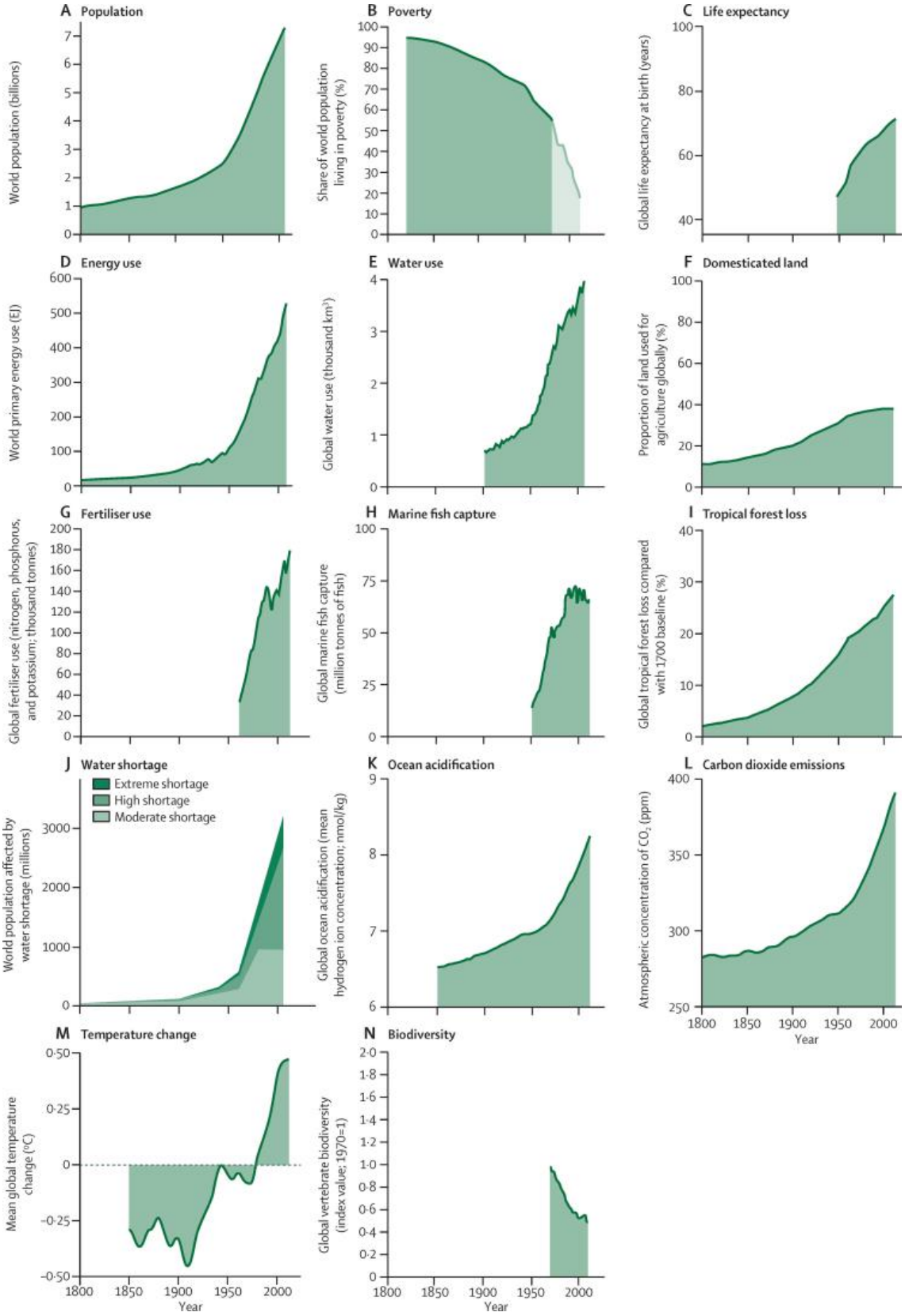
27 Will Steffen et al., The trajectory of the Anthropocene: The Great Acceleration, SAGE Journals, Vol. 2 (2015), pp.81–98

28 Andy Haines, Addressing challenges to human health in the Anthropocene epoch—an overview of the findings of the Rockefeller/Lancet Commission on Planetary Health, International Health, Vol. 9 (2017), p.269

29 The Rockefeller Foundation Economic Council on Planetary Health, What is planetary health (Accessed 8 August 2019)

12. The Rockefeller Foundation-Lancet Commission on planetary health, published a series of graphs comparing data on human progress and resource usage (including population increase, water consumption etc), with graphs showing the detrimental impacts to the environment (including tropical forest loss, and carbon dioxide emissions). Figure 2 shows that human progress has been accompanied by an increase in environmental damage.

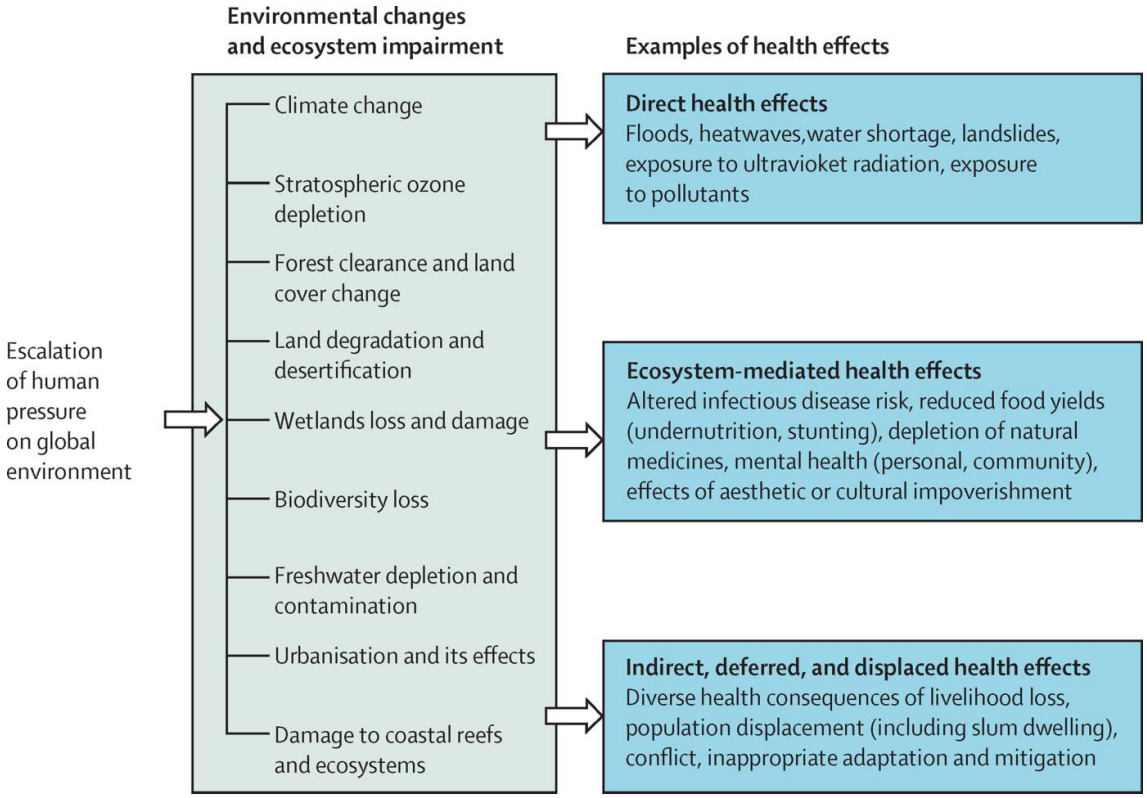
Figure 2: Characteristics of the Anthropocene epoch - global trends (Years 1800 to 2000) in population, consumption, health and the environment[30]



30 Source: Sarah Whitmee et al., 'Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health', The Lancet, Vol. 386 (2015), pp.1973–2028

13. The Millennium Ecosystem Assessment, a major assessment of the human impact on the environment conducted by the UN, divided the threats to human health from environmental change into three categories, direct health effects, ecosystem-mediated health effects, and indirect, deferred and displaced health effects.

Figure 3: Mechanisms by which the harmful effects of ecosystem change can affect human health[31]



Indirect health effects

14. Our witnesses emphasised indirect health effects of a degraded environment and the importance of ecosystem-mediated health effects including:

a) **Non-communicable diseases (NCDs), such as obesity and cardiovascular disease**: Much of the food system is focused on agricultural yields and not directly on healthy and sustainable food. Witnesses emphasised how current agricultural practices, marketing and consumer behaviours are leading to an increased burden of non-communicable diseases such as obesity and diabetes. Professor Tim Benton, University of Leeds, told us that a: "few crops are produced in enormous quantities and are associated with increasing global dietary convergence, over-consumption of calories and production of food waste (partly driven by reduced food prices)".[32] In a recent review article the importance of

31 Source: Millennium Ecosystem Assessment, reproduced in: Sarah Whitmee et al., 'Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health', The Lancet, Vol. 386 (2015), pp.1973–2028

32 Professor Tim Benton (PLA0026)

non-staple crops was also emphasised, "climate and other environmental changes also reduce the yield of vegetables and legumes overall, which has important implications for the prevention of noncommunicable diseases".[33]

b) **Mental health impacts:** Professor Lora Fleming, University of Exeter Medical School outlined the impacts that environmental change might have on mental health:

> "Both climate and other environmental changes… have been shown to directly impact on mental health potentially negatively, things like wars, poverty, extreme weather and so on. […] In the UK, we have data that shows that the more you interact with natural environments, particularly coastal and blue environments, the better for your physical and mental health".[34]

> Eco-anxiety, has emerged as a psychological disorder afflicting an increasing number of people concerned about the environmental crisis and suffering a sense of grief or loss. Eco-anxiety has been described by the American Psychological Association as "chronic fear of environmental doom".[35]

c) **Infectious diseases**: Professor Sir Andy Haines, LSHTM, told us about the role of environmental and climate change on infectious diseases:

> "There are also the effects on infectious diseases through natural systems; for example, vector-borne diseases like malaria and dengue. The distribution of those is changing as a result of climate and other environmental changes. Water-related diseases, of course, increase risks of diarrhoeal and other diseases related to water. Cholera as well can be influenced by climatic factors".[36]

NHS and planetary health

15. The NHS is one of the largest employers in the world, with up to 1.5 million employees, and is the largest public sector carbon emitter in the UK. Its annual budget, £110 billion in 2017/18, is roughly the same size as the GDP of Croatia and Sri Lanka combined.[37]

Adapting to change

16. Witnesses expressed concern that the NHS is not ready for a rise in health problems as a result of environmental damage. Dr Richard Horton, the Lancet, expressed his frustration at the lack of NHS preparedness for emerging health problems:

> We do not have enough doctors in the NHS to address liver mortality. We do not have enough liver specialists. We do not have a public health strategy

33 Andy Haines and Kristie Ebi, The Imperative for Climate Action to Protect Health, The New England Journal of Health. Vol. 380 (2019), pp.263–273

34 Q7

35 Susan Clayton Whitmore-Williams, et al., Mental Health and Our Changing Climate: Impacts, Implications, and Guidance. American Psychological Association (2017), p.68

36 Q3

37 Employee data from Lucina Rolewicz and Billy Palmer, The NHS workforce in numbers [date accessed 06/08/2019], Nuffield Trust (2018); annual budget data from NHS England, Annual Report and Accounts 2017/18, (2018); and GDP data for Croatia and Sri Lanka from World Bank, GDP (current US$), (2018)

> that is working on obesity. We do not have a public health strategy that is working on alcohol. Unless we address the health system components and the public health components together then many of these environmental-determined or influenced diseases we will not be able to contain or control.[38]

17. Dr Horton was particularly critical of Public Health England's (PHE) failure to see the big picture, noting that during a discussion with a senior official at PHE, "their vision" was limited to just two targets: incentives for smoking cessation and for reducing alcohol consumption. He explained that this narrow focus was driven by funding cuts, which were leading to a "struggle to deliver services in the NHS".[39] He went on to say:

> … We are talking about planetary health, we are talking about the environment and we are talking about these broader determinants. They [Public Health England] are nowhere, and they will admit they are nowhere when you ask them about that. That limited vision is a huge constraint on the future of public health in our country. Until they lift their gaze and embrace that broader vision, we are nowhere.[40]

18. That Public Health England "does not own these broader determinants of health", Dr Horton stated, "is a catastrophic failure in our health system".[41]

19. We note that the Government recently published a 10-year plan for the NHS.[42] Professor Chris Whitty, Chief Scientific Adviser at the Department of Health and Social Care (DHSC), told us that it had been "developed with multiple different people feeding in, including me and scientists from Public Health England and other areas".[43] He noted that parts of the 10-year plan "explicitly" took account of climate change.[44] Jonathan Marron, Director General of Community and Social Care at the Department of Health and Social Care, also emphasised that the 10-year plan had "a much broader focus than previous NHS documents in tackling environment sustainability as well as basic healthcare".[45]

20. However, there was also a recognition that tough decisions would need to be made, to ensure that the NHS was contributing sufficiently to climate change mitigation actions, reducing its own emissions and adapting to the future impacts of a changing climate. Professor Whitty reflected that there would need to be a "political decision as to where you trade off the different speeds and the costs".[46]

21. **Without rapid action to curb greenhouse gas emissions and efforts to safeguard the environment we risk causing irreversible damage to the planet. This is already having a significant and growing impact on human health, with impacts set to become more severe.**

38 Q234
39 Q226
40 Q226
41 Q207
42 NHS England, NHS Long Term Plan, (2019)
43 Q332
44 Ibid.
45 Q379
46 Q332

22. **We are concerned that the NHS and the pharmaceutical industry is not sufficiently resourced to deal with these projected changes. Non-communicable diseases (NCDs) kill 41 million people each year, equivalent to 71 per cent of all deaths globally. We note that more people now die from non-communicable diseases than communicable diseases.[47] We also note the recent stalling in life expectancy in the UK as a result of lifestyle changes with increased pressure for NHS resources.[48] Public Health England should broaden its key performance indicators to include climate resilience and adaptation measures to tackle emerging diseases. These should include guidance to general practitioners and the pharmaceutical industry on Lyme disease, malaria, the zika virus and other emerging tropical diseases. We repeat our recommendation from our toxic chemicals report that Public Health England should introduce a comprehensive UK wide human and wildlife bio-monitoring scheme to measure the effects of toxic chemicals.[49] A focus on lifestyle change means that it does not prioritise the impacts that wider economic and ecological changes will have on human health. Secondly, Public Health England must work across Government to advise local Government on the impacts of heat stress and protecting vulnerable communities, particularly the elderly, people living in care homes and those with kidney failure.**

Climate change mitigation by the NHS

23. The NHS is on the frontline of dealing with the impacts of environmental change on human health. However, as an organisation, it too has a responsibility for stewardship of the environment. The NHS employs 1.5 million people and is one of the largest consumers of water, energy and raw materials in the U.K. It has an annual water usage of 2.32bn m^3 (similar to that of Estonia), generates almost 600,000 tonnes in waste and accounts for 6.3 per cent of all carbon emissions in England.[50]

24. The NHS Sustainable Development Unit, established in April 2008 supports the NHS in England, public health and social care, to embed sustainable development into their operating practices.[51] The Unit is jointly funded by, and accountable to, NHS England and Public Health England.

25. NHS England published its Long-Term Plan in January 2019.[52] The Plan restated its commitment to the carbon targets in the UK *Climate Change Act* (2008): reducing carbon emissions (from a 1990 baseline), by 34 per cent by 2020 and by 51 per cent by 2025.[53]

26. As of 2018 the NHS[54] has achieved an 18.5 per cent reduction on carbon emissions against a 2007 baseline. Whilst this is progress, the NHS Sustainable Development Unit note that "this is still behind the trajectory needed to achieve the *Climate Change Act* 2020 target of 34 per cent, highlighting the need to redouble and accelerate efforts going forward".[55]

47 World Health Organization, Noncommunicable diseases (June 2018)
48 Raleigh, British Medical Journal, Stalling life expectancy in the UK 2018; 362:k4050
49 Environmental Audit Committee, Twentieth Report of Session 2017–19,Toxic Chemicals in Everyday Life, HC 1805, paragraph 36
50 NHS Sustainable Development Unit Reducing the use of natural resources in health and social care, (2018), p.3
51 NHS Sustainable Development Unit, Who We Are [Accessed 01 July 2019]
52 NHS (2019) NHS Long Term Plan, (2019), p.120
53 Ibid.
54 Referring to Health and social care
55 NHS Sustainable Development Unit Reducing the use of natural resources in health and social care, (2018), p.8

27. The Sustainable Development Unit's actions to reduce emissions include improving energy efficiency through widespread use of LED lighting and smart energy management, and by modernising the ambulance fleet to reduce emissions and improve air quality.[56]

28. Professor Sir Andy Haines, LSHTM, noted that the Long-Term Plan:

> Does not capitalise sufficiently, in my view, on the potential for the NHS to be involved in thinking about these broader issues around how we sustain and promote health. I would like to see that given a much higher priority in future plans.[57]

29. In a letter to our Committee in May 2019, Sonia Roschnik, Director of the NHS Sustainable Development Unit, told us that 35 per cent of double crewed ambulances have low emission engines (Euro VI diesel engines) against a target of 66 per cent by 2028.[58] She also stated that of 1,458 rapid response vehicles, in operation in England, just 0.3 per cent of these (44 vehicles) are ultra-low emission.[59] She also stated that the NHS [in England] has committed to "phasing out primary heating from coal (by 2023/24) and oil (by 2028/29) in NHS sites".[60]

30. Our report in 2018, *UK Progress on reducing F-gas Emissions*, highlighted that fluorinated gases, used in refrigerators, foams and inhalers, are a major contribution to global heating.[61] We note that the Sustainable Development Unit has removed nearly 1 million tonnes of CO_2e per year from Metered Dose Inhaler (MDI) use. However, the use of MDIs continues to produce over 3 per cent of the health and social care sector's annual carbon emissions, greater than its emissions from the sector's construction and only slightly less than the sector's freight transport emissions.[62]

31. ***The NHS has shown some progress in reducing carbon emissions by 18.5 per cent since 2007. It is deeply disappointing that it will miss its Climate Change Act target of a reduction in emissions of 34 per cent by 2020. As the largest employer, and one of the largest consumers of goods and services in the UK, the NHS should bring forward its targets to end the use of coal (2023/24) and oil (2028/29) for primary heating on NHS sites. This target should now be revised to reflect the Government's commitment to achieve net zero greenhouse gas emissions by 2050 at the very latest. A new pathway for carbon reduction should be developed by April 2020 and communicated to all stakeholders. The NHS' carbon footprint should be clearly communicated to staff, patients and suppliers, with messages on how they can contribute.***

32. ***Fluorinated gases remain a major problem, with inhalers contributing to over 3 per cent of total annual emissions from the NHS. We reiterate our recommendation that Government should work with medical professionals, pharmacists, the pharmaceutical industry and patients to significantly improve the recycling of Metered Dose Inhalers (MDIs); this makes both environmental and economic sense. We encourage the Government to investigate all the means of removing the barriers to the safe re-use of***

56 NHS Sustainable Development Unit, Key sustainability actions in NHS Long Term Plan [Accessed 01 July 2019]
57 Q31
58 Sonia Roschnik, Letter from NHS England to the EAC Chair on Planetary Health, (03 May 2019)
59 Ibid.
60 Ibid.
61 Environmental Audit Committee, Fifth Report of Session 2017–19, UK Progress on reducing F-gas Emissions, HC 469, paragraph 1
62 NHS Sustainable Development Unit, Reducing the use of natural resources in health and social care, (2018), p.11

those valuable quota-restricted gases. The Government should also ensure that by 2020, at least 50 per cent of MDIs are recycled. It should also set out how it will reduce medical waste, such as MDIs, in its waste strategy.

Net Zero in the NHS

33. The Committee on Climate Change's (CCC) report, "*Net Zero: The UK's contribution to stopping global warming*", set out actions that should be taken by the Government to contribute to the UK's net zero goal. The CCC recommended that: "Ideally, ultra-low emission vehicles would reach 100 per cent of sales of cars, vans and motorbikes by 2030 or soon after, but must certainly do so by 2035".[63] The CCC also recommended that:

> If possible, an earlier end to sales of petrol and diesel vehicles would be preferable (e.g. by 2030 if feasible), as this will have lower financial costs, lower cumulative CO_2 emissions and lead to better air quality. This means a rapid ramping up of the market share of [Electronic Vehicles] EVs, from around 2 per cent today, during the 2020s.[64]

34. **We are concerned that, at current rates of progress, the NHS will fall far short of the Committee on Climate Change's recommendation of 100 per cent of low emission vehicles by 2035 at the latest. The current target of 66 per cent of vehicles being low emission by 2028 is not ambitious enough. The NHS should be taking the lead in the mitigation of climate change, given its size, budget and workforce, particularly when a major impact of climate change is likely to be a deterioration of several measures of population health. The Committee on Climate Change is clear that early uptake of electronic vehicles (EVs) brings co-benefits from reductions in air pollution. NHS direct fleet procurement and "Grey fleet" purchased through tax schemes should prioritise EVs.** ***We recommend that the NHS aligns its plans with the Committee on Climate Change's cost-efficient path for electric vehicle uptake to benefit from the financial savings and co-benefits (e.g. reduction in air pollution) of earlier EV uptake.***

63 Committee on Climate Change, Net Zero: The UK's Contribution to Stopping Global Warming, (2019), p.198
64 Committee on Climate Change, Net Zero: The UK's Contribution to Stopping Global Warming, (2019), p.178

3 Nature, wildlife and the environment

Environmental damage

35. The use and exploitation of natural resources by humans means that the Anthropocene, a new geological era, marked by human induced global heating, has begun.[65] Professor Sir Andy Haines, LSHTM, warned that "We have overexploited our land and our seas. We are dramatically changing the climate".[66]

36. Professor Peter Cox, University of Exeter, outlined that the UK is projected to experience significantly warmer temperatures over the next 50 years:

> Given the rate of warming we have globally, which is about 0.2°C a decade, and taking the slightly pessimistic view that that does not change, we are looking at probably 3-degree warming here in the UK, relative to pre-industrial. That is quite a big change.[67]

37. Dr Mark Mulligan, King's College London, summarised the impacts of higher temperatures on water availability in the UK:

> A warmer climate should generate a more rapid recycling of rainfall between the land and the atmosphere, and so there will be an overall increase in rainfall… If we look at the UK in terms of our water resources, of course our key issues are to do with seasonality of those resources, but also with water quality. We will see, under climate change, impacts both on the supply side of water and also, of course, in demand for water.[68]

38. A major concern has been the impact of human action and environmental change on global plant and animal biodiversity.[69] The Planetary Health Network at the LSHTM told us that:

> Current prediction rates of extinction are at 100–1000 times more than what is considered natural biodiversity loss. While biodiversity loss occurs at local—regional level, it has greater impact on the biosphere and how the Earth systems function.[70]

39. The landmark Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) global assessment report on biodiversity and ecosystem services, published in May 2019, found that, globally, the biomass of wild mammals has collapsed by 82 per cent. There has been a rapid decline in ecosystem functions and 25 per cent of animal and plant species are threatened, with around one million species at

65 Sarah Whitmee et al., 'Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health', The Lancet, Vol. 386 (2015), pp.1973–2028

66 Q2

67 Q135

68 Q138

69 Aelys Humphreys et al., Global dataset shows geography and life from predict Modern pant extinction and rediscovery, Nature Ecology and evolution, Vol. 3 (2019), pp.1043–1047

70 LSHTM Planetary Health Alliance (PLA0020)

risk of extinction, and grave impacts on people around the world now likely. This loss is a direct result of human activity and constitutes a direct threat to human well-being in all countries.[71]

40. Professor Georgina Mace, University College London, criticised the Government's fragmented approach to nature conservation with DEFRA divided into animal health, plant health and the environment. Climate mitigation sits with the Department for Business, Energy and Industrial Strategy (BEIS), but responsibility for delivery lies with the Ministry of Housing, Communities and Local Government (MHCLG) and the Department for Transport (DfT).[72]

41. She warned that insect species variety was a key insurance measure against climate change:

> The loss of invertebrates and the loss of species generally means that we do not have a lot of other kinds of services, natural pest control, natural decomposition of pollutants, natural nutrient cycling, and without those, we are increasingly going to have to intervene in ecosystems to provide those services… If you project these trends forward, we end up solving problems caused by the loss of natural systems one by one, which is a much less efficient way to solve those problems than treating the root cause of the problem, which is the depletion and degradation of the natural environment.[73]

Drivers of wildlife loss

42. UK Research and Innovation (UKRI) told us that "there are multiple stressors affecting biodiversity including changing land use and climate change".[74] Particular stressors identified include:

- **Land use change**: Dr Mulligan, King's College London, identified that biodiversity declines were mostly a result of "land-use change for agriculture, intensification of agriculture, and the application of pesticides, and herbicides, and novel chemicals".[75] Medact, a global health charity, told us that: "Change in land use, largely as a result of natural habitat being converted to agricultural use, has occurred in all continents, and continues, particularly in tropical and subtropical areas. This leads to loss of native species (both plant and animal) and loss of biodiversity, increased phosphorous and nitrogen pollution of watercourse[s] through agricultural run-off, air pollution (and CO_2 emissions) from burning forests, and increased soil erosion. This in turn has led to substantial areas of agricultural land (1–2.9 million hectares annually) becoming unusable, often turning to desert. This contributes to global food insecurity".[76] Matt Shardlow, Buglife, explained that what was important was "the health of

71 Sandra Diaz, et al., Summary for Policymakers of the Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, IPBES, (2019); IPBES, Media Release: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating', (2019)

72 Q157

73 Q134

74 UK Research and Innovation (PLA0024)

75 Q132

76 Medact (PLA0027)

> the wider countryside and the fact that we have fragmented their habitats, where there is flower-rich grassland left, into small blocks so [species] are not able to move".[77]

- **Climate Change**: Professor Cox, University of Exeter, told us that "Recent studies for the IPCC 1.5 report suggest that the ranges of insects are surprisingly sensitive to climate".[78]

- **Ocean acidification**: (because of increased absorption of carbon dioxide) ocean acidification is "predicted to reduce survival of many marine animals, destroy coral reefs, and render crustaceans less able to form and maintain shells. These changes are likely to have impacts on the food chain, putting strain on the availability of fish for human consumption".[79]

Insect populations

43. Dramatic decreases in insect populations have been widely reported. There have been press reports of "an insect Armageddon" with the Guardian reporting that UK farmland butterflies have declined by more than half since the year 2000 and Germany has lost three-quarters of its aerial insects since 1989.[80]

44. A meta-study of insect populations published in April 2019 concluded that "habitat loss by conversion to intensive agriculture is the main driver of the declines" and that "agro-chemical pollutants, invasive species and climate change are additional causes".[81] According to the research, 41 per cent of insect species are at risk over the next few decades, and there has been a 2.5 per cent decline in insect biomass every year.[82] Commenting on the review, Georgina Mace, University College London, said that:

> I do not think they are correct that extinctions will necessarily follow, the idea that—I think it was said to be by the end of the century—most insect populations will be extinct, I do not think is true. What tends to happen is that these persistent threats deplete populations, so you lose a lot of the biomass and abundance. There are some extinctions, there are some local extinctions, but insects are pretty good at going somewhere else and becoming pests somewhere else.[83]

45. Matt Shardlow, Buglife, told us that insects were the "canaries in the coalmine" as they were "on the frontline of the extinction crisis".[84] He told us that climate change represented a serious risk for smaller species such as birds, butterflies and dragonflies.[85] He commented that: "extinction approaches with silent wings for little things", and gave the example of the bumblebee:

77 Q199
78 Q145
79 Medact (PLA0027)
80 'Warning of "ecological Armageddon" after dramatic plunge in insect numbers', The Guardian, (18 October 2018)
81 Francisco Sanchez-Bayo and Kris A. G. Wyckhuys, Worldwide decline of the entomofauna: A review of its drivers, Biological Conservation, Vol. 232 (2019), pp.8–27
82 Francisco Sanchez-Bayo and Kris A. G. Wyckhuys, Worldwide decline of the entomofauna: A review of its drivers, Biological Conservation, Vol. 232 (2019), pp.8–27
83 Q145
84 Q199
85 Q199

> In the northern hemisphere there is clear evidence of the southern parts of the ranges of the bumblebee shifting north but the northern edges of their ranges are not moving. They are getting compressed, and of course if thousands of species are all doing that, what you end up with is species going extinct over large parts of their range.[86]

Pollinators

46. Climate change and other stressors have led to a significant reduction in pollinating insects. Insects provide pollinator services to a wide range of crops including many fruits and vegetables that are vital for a healthy human diet. Pollination by insects is an important form of reproduction for at least 87 types of common global food crops, which account for more than 35 per cent of annual global food production by volume.[87]

47. Neonicotinoid pesticides have been partly blamed for declines in bee populations, although this is contested. Neonicotinoids are the "world's most popular insecticides" and recent evidence suggests that they "affect the insects' abilities to navigate and communicate".[88]

48. Others have suggested that climate change may also play a key role. The Committee on Climate Change Adaptation Sub-Committee told us that "some pollinator species may have high susceptibility to changes in climate, space and seasonality, with the possibility of future mismatches with flowering dates".[89] It stated that there is a need for research "to better understand the potential for mismatches due to changes in climate space and seasonality and the extent to which pollination disruption may occur, as well as how climate and non-climate pressures (including use of neonicotinoids) may interact".[90]

Health risks from biodiversity loss

49. The loss of biodiversity poses a number of risks to human health. The *IPBES global assessment report on biodiversity and ecosystem services*, found that:

> The deterioration of biodiversity and ecosystem functions, and the consequent disruption of benefits to people, has both direct and indirect implications for public health. Emerging infectious diseases in wildlife, domestic animals, plants or people can be exacerbated by human activities such as land clearing and habitat fragmentation (established but incomplete) or the overuse of antibiotics driving rapid evolution of antibiotic resistance in many bacterial pathogens (well established). The deterioration of nature and consequent disruption of benefits to people has both direct and indirect implications for public health (well established) and can exacerbate existing inequalities in access to health care or healthy diets (established but incomplete). Shifting diets towards a diversity of foods, including fish, fruit,

86 Q197
87 Sarah Whitmee et al., 'Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health', The Lancet, Vol. 386 (2015), pp.1973–2028
88 Gretchen Vogel, 'Where have all the insects gone?', Science, (10 May 2017)
89 Committee on Climate Change (PLA0016)
90 Committee on Climate Change (PLA0016)

> nuts and vegetables, significantly reduces the risk of certain preventable non–communicable diseases, which are currently responsible for 20 per cent of premature mortality globally".[91]

A 2015 joint review by the World Health Organisation and the Secretariat for the Convention on Biological Diversity,[92] identified a number of ways in which "anthropogenic drivers of biodiversity loss are hindering the capacity of ecosystems to provide essential services", including:[93]

- the loss of agrobiodiversity, which supports the production, pollination, and pest control services needed for food and nutrition security;
- increased risk of transfer of pathogens from wildlife to human populations; and
- the possibility that biodiversity loss might lead to reduced diversity in human microbiota, contributing to immune dysfunction and disease.[94]

Government progress on biodiversity

Aichi Targets

50. The UN Convention on Biological Diversity (CBD) is the framework for international action to support biodiversity. The Aichi Targets, which sit under the CBD, are a set of 20 goals to safeguard biodiversity which are to be achieved by all member states by 2020. The Joint Nature Conservation Committee, (JNCC - the public body that advises the UK Government and devolved administrations on UK-wide and international nature conservation), reported on UK progress towards achieving the Aichi biodiversity targets in 2019.[95] It found 14 out of 19 targets were progressing at an "insufficient rate", including:

- **Aichi Target 1**: "By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably".[96] The assessment made by the JNCC found that, 52 per cent of the UK population "report no awareness of the threats to biodiversity".[97] Thus, there was still significant action required by the Government to raise awareness of biodiversity threats.
- **Aichi Target 3**: "By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions".[98]

91 Sandra Diaz, et al., Summary for Policymakers of the Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, IPBES, (2019)
92 World Health Organization and the Secretariat for the Convention on Biological Diversity, Connecting Global Priorities: Biodiversity and Human Health, (2015)
93 Medact (PLA0027)
94 Medact (PLA0027)
95 JNCC, Sixth National Report to the United Nations Convention on Biological Diversity: United Kingdom of Great Britain and Northern Ireland: Overview of the UK Assessments of Progress for the Aichi Targets, (2019)
96 JNCC, Sixth National Report to the United Nations Convention on Biological Diversity: United Kingdom of Great Britain and Northern Ireland: Overview of the UK Assessments of Progress for the Aichi Targets, (2019)
97 Ibid.
98 Ibid.

51. During our final evidence session, Dr Thérèse Coffey, Parliamentary Under Secretary of State for the Environment, DEFRA, defended the Government's record on biodiversity, stating that the JNCC reported the UK was "absolutely on track to achieve five of [the Aichi targets] and on 14 there is progress to be made".[99] She described some of the targets as "somewhat nebulous".[100] As an example she said that:

> Even on target 1, which is about getting the public to understand more about biodiversity, when I went to CBD [Convention on Biological Diversity Conference of Parties] last year talking with other countries and with the Secretary General, just the name "biodiversity" puts up barriers to people on what does that really mean? There are things that we could do about perhaps changing it to the Convention for the Conservation of Nature.[101]

52. **Progress towards meeting the Aichi targets by 2020 falls woefully short, and meeting only five of them will not protect the UK's precious wildlife and fragile habitats.** *We recommend that* ***the Government engage with the public on the next set of targets before the 2020 UN Biodiversity Conference and set out clear priorities for action. The targets should be formally reviewed every four years and the Government should task Natural England and devolved administrations with the responsibility for their domestic delivery.***

Government policy and funding

25 Year Plan targets

53. The Government published its 25 Year Environment Plan in January 2018.[102] Our inquiry into the Plan concluded that it lacked detail on targets, implementation, governance and funding and it was unlikely its ambitions would be achieved.[103] Professor Peter Cox, University of Exeter, told us that "It is important to include in the metrics things we can measure and that we will be held to account on".[104] Dr Mulligan, King's College London, added that when he read the Plan, he "kept asking: 'How?' to those targets as we went through them. 'How are we going do that? What will be the mechanism?'".[105]

54. A second criticism of the Plan was the siloed nature of topics, with the Plan attempting to solve "one problem at a time within different sectors of the economy".[106] Professor Georgina Mace, University College London, stated that: "the actions that are laid out in the 25 Year Plan are nearly all within sectors. […] We will clean up the water, we will stop emissions of particulates into the air, but it is not addressing the systemic problem that these things are all linked together".[107]

99 Q393
100 Q393
101 Q393
102 HM Government, A Green Future: Our 25 Year Plan to Improve the Environment, (2018)
103 Environmental Audit Committee, Eighth Report of Session 2017–2019, The Government's 25 Year Plan for the Environment, HC803
104 Q154
105 Ibid.
106 Ibid.
107 Ibid.

55. **The Government's 25 Year Plan for the environment sets out actions that the Government intends to take but there are no SMART targets against which its performance can be measured.** ***Legislative targets are needed to drive action across Government Departments and not just DEFRA. We reiterate our previous recommendations that the Environment Bill must include a framework for statutory nature and biodiversity targets and interim milestones to be achieved by Government Departments, including by the Treasury, to help them achieve the Greening Government targets. Once these targets have been established through stakeholder collaboration, the Cabinet Office must issue guidance directing Departments to explain how their work programmes will achieve the delivery of these targets in their Single Departmental Plans and the next round of Greening Government Commitments.***

Biodiversity net gain

56. Biodiversity net gain is a commitment that any new construction or development leaves biodiversity in a better state than before. Where a development has an impact on biodiversity it requires developers to provide an increase in natural habitat and ecological features greater than that being lost by construction.

57. The Government's 25 Year Plan for the Environment explains that strengthening biodiversity net gain requirements would enable planning authorities to "develop locally-led strategies to enhance the natural environment, creating greater certainty and consistency and avoiding increased burdens on developers, including those pursuing small-scale developments".[108] It expects that this should have a net positive impact on overall development.

58. In December 2018, the Government held a consultation on biodiversity net gain, which sought: "views on how we can improve the planning system in England to protect the environment (biodiversity net gain) and build places to live and work". Kit Malthouse, then Minister of State (Housing, Communities and Local Government), told us that "subject to that consultation coming back, we will mandate [biodiversity net gain] in the upcoming Environment Bill".[109]

59. Kit Malthouse also told us that he was intending to embed biodiversity into the planning system. "We will also be bringing out planning guidance in the next two or three months, hopefully, around the [National Planning Policy Framework] and what the local authorities should be looking for and should be interpreting in planning to provide effectively, […] space for nature in new developments and generally across the piece".[110]

60. However, this effort is hampered by the significant budget cuts to Natural England, the public body responsible for ensuring protection and improvement of the natural environment. Matt Shardlow noted that Natural England "has suffered 40 per cent or so cuts. It is in a very bad place".[111]

108 HM Government, A Green Future: Our 25 Year Plan to Improve the Environment, (2018)
109 Q397
110 Q397
111 Q220

The Environment Bill

61. The *draft Environment (Principles and Governance) Bill*, was published on 19 December 2018 and sets out the future governance arrangements for the environment in England in the event the UK leaves the EU. We heard that sustainable development is already embedded in policy in Wales through the *Well-being of Future Generations (Wales) Act 2015*, which requires public bodies to "carry out sustainable development" and meet well-being objectives.[112] Witnesses stated that the *Future Generations Act* was a "pioneering bit of legislation".[113] The *Environment (Principles and Governance) Bill* is an opportunity for a similar obligation on public bodies in England to embed health and the environment, climate change and sustainable development into their decision making.

62. The second part of the Bill (intended to cover environmental themes other than governance and principles) should contain further details of UK environmental policy. Commentators have set out their hopes for what might be included in the Bill. Greener UK wrote that:

> Part II of the bill is essential to deliver the pioneering new green governance system the government has committed to. This must include the creation of a new overarching environmental duty along with binding objectives and a framework for legally binding targets, and the creation of mechanisms to achieve these targets and objectives, including a commitment to the effective spatial mapping, planning and delivery of nature recovery networks, improved cross-government working and new processes for environmental monitoring, reporting and reviewing.[114]

63. ***We are disappointed that Natural England has lost half of its budget over the last 10 years. It needs a rapid increase in funding to achieve current objectives. Any new obligations placed under new legislation should be adequately resourced. The Environment (Principles and Governance) Bill is an opportunity to consider holistically the governance frameworks for planetary health in the UK. We recommend that a principle to achieve a high level of environmental protection is put on the face of the Bill and all public bodies be required to achieve this. The Government provided us with the draft version of the first half of the Environment (Principles and Governance) Bill, on which we reported earlier this year. Much of the detail of the Government's proposals for environmental protection, such as on biodiversity net gain, will be contained in the second half of the Bill and we urge the Government to make this available to the Committee for pre-legislative scrutiny as soon as possible, especially given the severe environmental and public health risks of a no-deal Brexit on October 31st.***

64. ***The Environment (Principles and Governance) Bill should include provision for new targets to increase green and blue urban infrastructure. Our heatwaves report recommended that the revised National Planning Policy Framework should set a target for councils to achieve, which aims to increase urban green space to 2001 levels, and higher if possible.[115] This should also be included in the revised National Planning Policy Framework to ensure space for nature and people to help adaptation to climate change.***

112 Well-being of Future Generations (Wales) Act 2015, Part 2 Clauses 3(1) and 3(1)(a)
113 Q104; Q283
114 Greener UK (DEB0027)
115 Environmental Audit Committee, Ninth Report of Session 2017–19 Heatwaves: adapting to climate change. HC 826, para 91

Agriculture Bill

65. The *Agriculture Bill*, introduced in 2018, sets out a new payment system for farmers and landowners, should the UK leave the EU. It proposes a system that is based on "public money for public goods" as set out in the policy statement: The future of food, farming and the environment.[116]

66. We note that the *Agriculture Bill* was introduced in September 2018, and are disappointed that it has not reached Report stage one year on. We urge the Government to ensure that the Bill is carried over to the next Parliamentary session. Witnesses to this inquiry praised the Bill's intention to use "public money for public goods". Professor Cox, University of Exeter, considered that "how you value the relative use of land is really key".[117] Matt Shardlow, Buglife told us:

> The concept that we want to invest in public good[s] and put the money into improving the environment, reversing some of those bad things that have happened in the past and also creating new assets and new resources for the public to engage with and to deliver that biodiversity is absolutely right.[118]

Professor Georgina Mace, University College London, thought that there would need to be "synergies" between the *Agriculture Bill* and the *25-Year Plan* to deliver them "in parallel rather than as two separate plans".[119]

67. The Adaptation Committee of the Committee on Climate Change commented in its written evidence that: "With the Government's Agriculture Bill (and possibly also the proposed Environment Bill) set to direct future policy on agricultural land use, [the Committee on Climate Change's "*Land Use*" report] identified the current political climate to be an opportune time to define a better land strategy, including for crop and food production, that responds fully to the challenges of climate change".[120]

68. The need for change was outlined by the British Dietetic Association, which said that: "As a proportion of the UK's [greenhouse gas] output, agriculture and the food system are actually growing, because the sector has remained static while other areas, such as energy and waste, have improved. The Committee on Climate Change has raised its concerns about the fact that the agriculture sector has not seen progress since 2008, with nearly half of farmers not taking any action to reduce GHG emissions. The Committee makes it clear that a stronger framework for this sector is needed as voluntary approaches are not working, especially if the UK wants to meet its own emissions targets".[121]

116 Department for Environment, Food, and Rural Affairs, The Future for food, farming, and the environment: policy statement, (2018)
117 Q160
118 Q227
119 Q159
120 Committee on Climate Change (PLA0016)
121 British Dietetic Association (PLA0018)

69. Similar concerns were raised about pesticides regulation. When asked whether he thought the *Agriculture Bill* would allow better management of the rural environment, Matt Shardlow, Buglife, noted:

> I certainly hope so. The wording is there in the draft bill… On pesticides, I think it is a little bit more complex. We have talked about how some of these problems are difficult to fix at a national level. Pesticides are one because you are dealing with multinational industry. The United Nations Human Rights Council did a report on pesticides in 2017 that concluded the international trade in pesticides was a human rights abuse. This is because 25 per cent of developing countries have no pesticide regulation whatsoever. We sell them the chemicals we ban here because they damage human health and the environment, and they use them in those countries that have no regulations.[122]

70. ***In response to this report, the Government should set out the principles behind the design of the new environmental land management schemes, and the 'public money for public goods' principle, should the UK leave the EU as set out in the future for food, farming and the environment policy statement. These should include steps to minimise high pesticide use and actions to align land use, food production and mitigation and adaption to climate change.***

71. ***We were told that UK companies currently sell chemicals to countries with no regulation of pesticides whose use is banned here. UK policy should be consistent at home and abroad. In the event we leave the EU, the Government has said it will replicate the EU REACH system. Any new UK regulations should review pesticide laws. In the meantime, the Government should review pesticide export regulations and ensure that UK businesses protect planetary health and do not export toxic chemicals which are driving wildlife loss globally.***

122 Q227

4 Food systems

72. This chapter is divided into three main sections: the first considers the impact of climate change and other environmental challenges on global and domestic UK food production. The second part considers Government guidance and action on healthy eating, and the extent to which this promotes environmental sustainability and human health, and the third section considers the content of the anticipated National Food Strategy.

73. One of the key messages of the recent EAT–Lancet Commission on healthy diets from sustainable food systems was that:

> Transformation to healthy diets from sustainable food systems is necessary to achieve the UN Sustainable Development Goals [SDGs] and the Paris Agreement, and scientific targets for healthy diets and sustainable food production are needed to guide a Great Food Transformation.[123]

74. Witnesses including Professor Andy Haines, LSHTM, and Professor Mike Davies, University College London (UCL), saw a larger role for the SDGs in measuring success. They said that: "The Government should put metrics such as the SDG indicators, which reflect sustainable progress more effectively than an exclusive focus on GDP growth, at the heart of its policies".[124]

Food systems

75. Food systems are "the production, marketing, transformation and purchase of food, and the consumer practices, resources and institutions involved in these processes".[125] The British Dietetic Association told us that the global food system is "not working either for human health or for the planet. Rates of obesity and poor nutrition are growing while a significant proportion of the global population remain undernourished".[126] All the while:

> … the food we eat contributes 15–30 per cent of total greenhouse gas (GHG) emissions in the UK[127] and we waste 10 million tonnes of food every year.[128] 90 per cent of our fisheries are fully exploited or overfished.[129] Agriculture and livestock farming are by far the biggest contributors to deforestation, biodiversity loss, and soil pollution, as well as land and water use.[130]

76. The EAT-Lancet Commission recommended a "Great Food Transformation": an "unprecedented range of actions taken by all food system sectors across all levels… to normalise healthy diets from sustainable food systems".[131]

123 Walter Willett. et al., Food in the Anthropocene: the EAT- Lancet Commission on healthy diets from sustainable food systems, The Lancet Commissions, Vol. 393 (2019), pp.447–492
124 Professor Michael Davies, Professor Sir Andy Haines, Professor Paul Wilkinson, Professor Tony Capon and Dr Melanie Crane (PLA0012)
125 Global Panel on Agriculture and Food Systems for Nutrition, How can Agriculture and Food System Policies Improve Nutrition, (2014)
126 British Dietetic Association (PLA0018)
127 Food Standards Agency, Food and climate: A review of the effects of climate change on food within the remit of the Food Standards Agency, (2015)
128 WRAP, Estimates of Food Surplus and Waste Arisings in the UK, (2017)
129 World Economic Forum, 90 per cent of fish stocks are used up- fisheries subsidies must stop emptying the ocean, (2018)
130 British Dietetic Association (PLA0018)
131 Walter Willett. et al., Food in the Anthropocene: the EAT- Lancet Commission on healthy diets from sustainable food systems, The Lancet Commissions, Vol. 393 (2019), pp.447–492

Global food and water security

77. During our inquiry, we heard that although the "food system is currently producing sufficient dietary energy for the expanding global population", there has not been "sufficient emphasis on the production of nutritious foods including fruits and vegetables".[132] Future projections are worrying: "under a business-as-usual scenario with limited agricultural adaptation, environmental changes including global temperature increases and water scarcity will affect agricultural yields with particularly marked negative effects in tropical countries".[133] With further environmental change, there are "considerable concerns that vulnerable populations may face insufficiencies in dietary energy intake and in dietary quality".[134] Sir Charles Godfray, Oxford Martin School, explained that models suggest "by mid-century there could be in the order of 500,000 deaths that would not otherwise have occurred because of climate change".[135]

78. There is further concern that increased concentration of CO_2 will cause a reduction in nutritional value in many important crops.[136] Evidence suggests that, by the end of the century, grains will contain lower amounts of protein, zinc, vitamin B and iron, reducing the micronutrient profile in major dietary sources. Yields of vegetable and legume crops could fall by 30 per cent if carbon dioxide emissions continue to grow at the current trajectory.[137]

79. Fruit and vegetable yields may be particularly affected.[138] Professor Godfray, told us that: " … they will be harder to grow, they will be more expensive, and people will eat less of them with the effects on the environment".[139] This is particularly concerning in light of the recommendations that fruit and vegetables should be a core part of healthy and more sustainably produced diets.

80. The impact of climate-driven food changes will vary according to local determinants. For example, Dr Ivica Petrikova, Royal Holloway, wrote that

> … climate–change-induced rise in temperatures in Ethiopia will make parts of the country unsuitable for the growing of teff, the traditional grain rich in protein. Farmers in affected areas may switch production to maize, which is significantly less nutritious. In contrast, farmers in areas of India adversely affected by climate change–driven reductions in rainfall have been encouraged by the Indian government to switch away from growing wheat to growing millet, a coarse cereal that is both more drought-resistant and more nutritious than wheat.[140]

132 London School of Hygiene and Tropical Medicine (PLA0022)
133 Ibid.
134 Ibid.
135 Q51
136 Chunwu Zhu et al., Carbon Dioxide (CO_2) levels this century will alter the protein, micronutrients, and vitamin content of rice grains with potential health consequences for the poorest rice-dependent countries, Science Advances, Vol. 4 (2018)
137 Medact (PLA0027)
138 PFD Scheelbeek et al., Effect of environmental changes on vegetables and legumes yields and nutritional quality, NCBI, Vol. 115 (2018), pp.6804–6809
139 Q52
140 Dr. Ivica Petrikova (PLA0025)

Influence on political instability

81. Research has drawn links between climate-change, food system changes and political instability. Henry McGie, University of Manchester, suggests that: "Forced migration as a result of climate change impacts will lead to growing social tensions and marginalisation of vulnerable people".[141] Attributing the impacts of climate change on migration via food insecurity is not straightforward, but work on the Syrian conflict has found that conflict was likely exacerbated by food insecurity: "Between 2006 and 2009, around 1.3 million inhabitants of eastern Syria were affected by agricultural failures. An estimated 800 000 people lost their livelihoods and basic food supports".[142] The UN International Organization for Migration (IOM) reported that "whilst there are no reliable estimates of climate change induced migration […] Future forecasts vary from 25 million to 1 billion environmental migrants by 2050, moving either within their countries or across borders, on a permanent or temporary basis".[143]

82. Water scarcity may similarly pose a risk of increased conflict. The lack of available water has led, in some countries, to civil unrest. The Pacific Institute, a global water think tank, has recorded the contribution of water to conflict. It noted that water affects conflict in a variety of ways:

- **Trigger**: Water as a trigger or root cause of conflict, where there is a dispute over the control of water or water systems or where economic or physical access to water, or scarcity of water, triggers violence.[144]
- **Weapon**: Water as a weapon of conflict, where water resources, or water systems themselves, are used as a tool or weapon in a violent conflict.[145]
- **Casualty**: Water resources or water systems as a casualty of conflict, where water resources, or water systems, are intentional or incidental casualties or targets of violence.[146]

83. **Climate change poses significant risks to international food and water security that may lead to hunger and undernutrition for millions of people. Some commentators have drawn links between food insecurity, political instability and conflict. Others have identified the risk of up to one billion climate refugees by 2050.**[147]

84. ***The Government needs to work with UN bodies and national Governments to ensure the Department for International Development budget helps to guarantee national and international food and water security, environmental protection and climate resilience.***

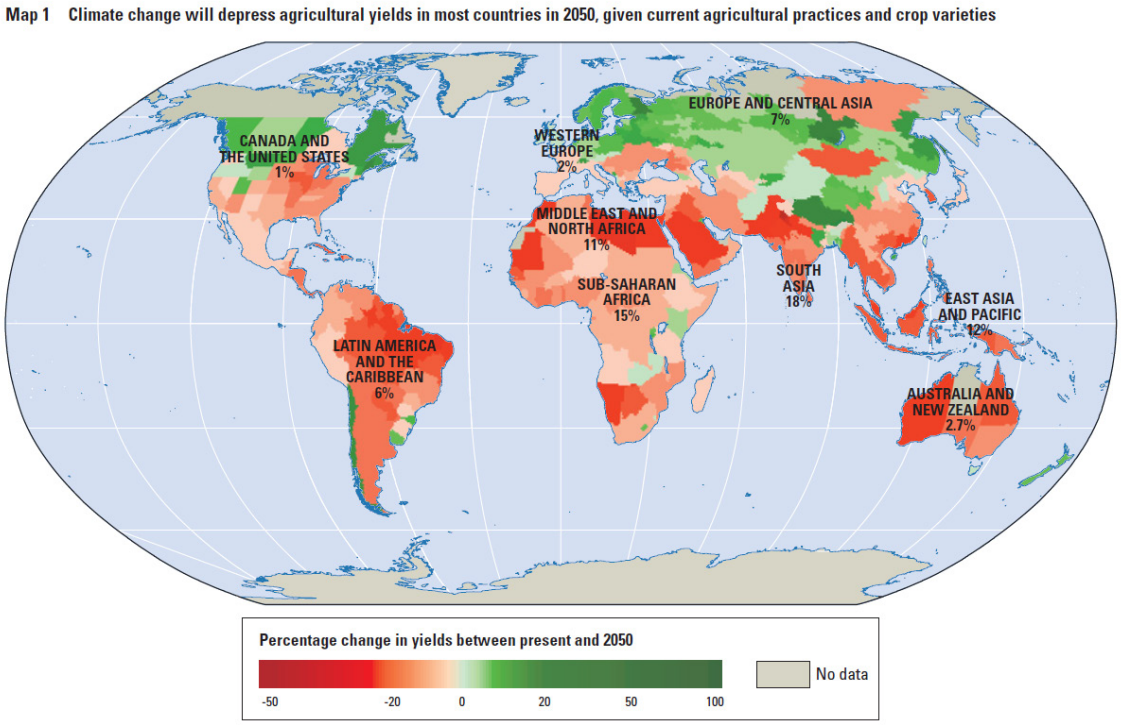
141 Mr Henry McGhie (PLA0021)
142 Peter H. Gleick, Water, Drought, Climate Change, and Conflict in Syria, Pacific Institute, (2014)
143 UN International Organization for Migration, Migration, Climate Change and the Environment [Accessed 01 July 2019]
144 Pacific Institute, Water Conflict [Accessed 01 July 2019]
145 Pacific Institute, Water Conflict [Accessed 01 July 2019]
146 Pacific Institute, Water Conflict [Accessed 01 July 2019]
147 UN International Organization for Migration, Migration, Climate Change and the Environment [Accessed 01 July 2019]

Impact of climate change on the UK food system

85. During our inquiry we heard that agriculture is both affected by, and a major contributor to climate change. The Parliamentary Office of Science and Technology notes that: "Agriculture is responsible for a substantial proportion of UK (10 per cent) and global (10–12 per cent) greenhouse gas (GHG) emissions that cause climate change".[148] It explains that "any level of climate change will affect growing conditions for fruit, vegetables, cereals and livestock, including changes to temperature and availability of water", e.g. a rise of 1°C in mean temperature would reduce yields of wheat by 6 per cent, rice by 3 per cent and maize by 7 per cent. Crop yields would also come under pressure from an increase in pests, weeds and diseases.[149]

86. In 2010, the World Bank Development Report provided a stark warning of the unequal impact, up to 2050, of climate change on yields of 11 major crops (wheat, rice, maize, millet, field pea, sugar beet, sweet potato, soybean, groundnut, sunflower and rapeseed).[150] Figure 4 shows the significant impacts that climate change is predicted to have on agricultural yields by 2050, given current agricultural practices.

Figure 4: Map of predicted climate change yields in 2050



Source: World Bank, (2010) World Development Bank Report 2010: Development and Climate Change

148 *Climate Change and Agriculture*, POSTnote600, Parliamentary Office of Science and Technology, (May 2019)
149 Ibid.
150 World Bank, World Development Bank Report 2010: Development and Climate Change, (2010)

87. In the UK, "more frequent extreme temperatures and changes to rainfall patterns will lead to overall negative impacts on production in the UK, even if a warmer UK climate may improve growing conditions for some crops".[151] Livestock would be vulnerable to disease, such as bluetongue (a disease affecting cattle and sheep that is transmitted by midges), and crops may be affected by water shortages following heatwaves.[152]

88. The 2011 Government Foresight report on International Dimensions of Climate Change and the CCC's Risk Assessment 2017, highlighted that global climate change will affect UK food security through trade networks. For example, "the UK imports 4 per cent of fruit and vegetables from highly climate vulnerable countries such as Belize and India, and a further 14 per cent from moderately vulnerable countries such as South Africa and Brazil".[153] This has implications for the UK's food security in the event of leaving the EU.

89. The UK Government has ignored advice on food security from the Committee on Climate Change. In its *UK Climate Change Risk Assessment 2017*, the Government stated that, although it recognised the "significant risks" posed by climate change to the supply of food in the UK, it took a "more optimistic view of the levels of resilience that are achieved through functioning markets and diverse sources of supply".[154] It stated that the CCC's recommendation that new policy is needed to manage risks to UK food prices does not align with the findings from its own research, including that carried out for the UK Food Security Assessment in 2009 and reviewed in 2012.[155]

90. ***We are concerned that the Government is complacent about the risks to food security posed by climate breakdown. The Government is due to publish an updated UK Food Security Assessment by the end of 2019. We recommend that the Government accepts the advice from the Committee on Climate Change about food security risks and set out how it plans to maintain UK food security in a changing climate. Government should publish immediately, in advance of the food security assessment due by the end of 2019, all information relating to food security and cost risks associated with no-deal Brexit.***

Long term food security in the UK

91. The UK externalises much of the costs of food production and its associated carbon footprint. Tim Lang, City, University of London, told us that:

> We have offshored it. We have had other people do our dirty work and that has to stop. […] the food industry is acutely aware now that consumers really have a complete lack of knowledge about the enormous footprint we have in how we eat.[156]

151 Committee on Climate Change, Land-use: Reducing emissions and preparing for climate change, (2018); *Climate Change and Agriculture*, POSTnote600, Parliamentary Office of Science and Technology, (May 2019)
152 *Climate Change and Agriculture*, POSTnote600, Parliamentary Office of Science and Technology, (May 2019)
153 Ibid.
154 HM Government, UK Climate Change Risk Assessment, (2017)
155 Ibid.
156 Q126

92. Professor Heffernan, Royal Veterinary College, suggested that the UK will need to produce more food in the future:

> We need to produce more food in the UK. We are very dependent on imports, but the problem is that from 2000 to 2013, 22,000 small farms have gone out of business… Our food system is very insecure.[157]
>
> There are two countries, Spain and the Netherlands […] that supply 69 per cent of the fresh vegetables in the UK. That is a very risky scenario. There are four countries that produce 44 per cent of the fresh fruit. We have to be very careful, if we are not producing our own food, where we are getting it from and that puts a variety of different stresses on food systems.[158]

93. The UK may need to look to technology to ensure that a sufficient amount of food is produced on the limited amount of farmable land available in the UK. Other than "strategic initiatives to maximise use of limited land resources (e.g. spatial planning, and protection of better-quality land"),[159] the CCC note that there are a number of technological methods that could be adopted. Dr Philip Thornton, CGIAR Research Programme on Climate Change, Agriculture and Food Security, told us that there is "a whole raft of technologies that are in different stages of development".[160]

94. Some of the options that have been suggested include:

- Breeding new crop varieties, through gene editing and other approaches, that are more resilient to changing environmental conditions, such as reduced water availability or increased salinity.[161]
- Breeding new livestock varieties that are more resilient to heat stress or diseases,[162] and adoption of heat stress abatement measures, such as improved ventilation in livestock housing.[163]
- Controlled-environment farming (CEF), where heat, light, water and CO_2 can be optimised for crop growth in enclosed environments. However, CEF requires high energy inputs. Using low-carbon electricity, waste heat or CO_2 from industrial processes can alleviate this.[164]
- Diversifying production […] In principle, a high diversity of crops and mixed land uses such as the integration of livestock increases the resilience of farm productivity to climatic changes.[165]

157 Q60
158 Q70
159 Committee on Climate Change (PLA0016)
160 Q79
161 Nigel Maxted and Shelagh Kell, Establishment of a Global Network for the In Situ Conservation of Crop Wild Relatives: Status and Needs, Commission on Genetic Resources for Food and Agriculture, (2009); *Climate Change and Agriculture*, POSTnote600, Parliamentary Office of Science and Technology, (May 2019)
162 Delia Grace et al., Climate and Livestock Disease: assessing the vulnerability of agricultural systems to livestock pests under climate change scenarios, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), (2015)
163 AHDB Beef and Lamb, Managing cattle and sheep during extreme weather events, (2015); *Climate Change and Agriculture*, POSTnote600, Parliamentary Office of Science and Technology, (May 2019)
164 *Climate Change and Agriculture*, POSTnote600, Parliamentary Office of Science and Technology, (May 2019)
165 Ibid

95. **Environmental change is projected to have increasingly major impacts on global food systems which would affect the UK's food security and ability to deliver healthy, sustainably produced diets. The development of a UK National Food Strategy is an important opportunity to link national food production, international food trade, and environmental protection.** ***The Agriculture Bill should support this by incentivising a switch in UK agriculture towards more sustainably produced food, including agroecological farming methods,***[166] ***bringing about reductions in greenhouse gases associated with UK agriculture.***

Diets that don't cost the earth

96. Witnesses were unanimous in their support of shifting towards healthy diets produced sustainably. The British Dietetic Association identified "common traits between sustainable and healthy diets".[167] It noted that: "Modelling and real consumption data studies have repeatedly demonstrated that dietary patterns of higher nutritional quality, which are based on healthy plant foods and lower intakes of meat and dairy products, also have lower GHG emissions and better overall sustainability scores. Improving our diets can be a win-win–better for us and better for the planet".[168]

97. There were a range of opinions on the risks and benefits of consumption of animal source foods. We were informed that reducing meat consumption would benefit health. For example, the British Dietetic Association reported that in 2011, the Scientific Advisory Council on Nutrition " recommended that high red meat consumers (>90g per day) should reduce intakes to no more than 70g per day, to reduce colorectal cancer risk without compromising iron intakes".[169] The British Dietetic Association went on to say that "reduced intakes of saturated fat and salt while the inclusion of plant proteins in the diet results in an improved fat profile, lower energy density and significantly increased fibre content".[170] However, Professor Claire Heffernan, Royal Veterinary College, highlighted the dietary needs of different populations: "there are people in the global south who will want that animal source food because they have no other ways to get it"[171] since "the ability to grow food in the global south is going to be extremely limited".[172]

98. A 2018 report from the Institute of Agriculture and Trade Policy estimated that global industrialised meat production will absorb 81 per cent of our available carbon budget in 2050.[173] However, Professor Heffernan also pointed out that environmental impacts of livestock production might not be wholly negative:

> I think that we have to get away from this notion that beef is uniformly bad for the environment. There are very many types of livestock production systems and they all have very different impacts on the environment. The kind of research that is going on now is really exciting and I think it can dramatically change the outcomes of greenhouse gas emissions from the livestock sector.

166 Sustainable Food Trust (PLA0006)
167 British Dietetic Association (PLA0018)
168 Ibid.
169 Ibid.
170 British Dietetic Association (PLA0018); Scientific Advisory Committee on Nutrition, Iron and Health, (2011)
171 Q76
172 Q77
173 Feedback (PLA004)

99. There are also increasing calls to recognise the importance of livestock for health, livelihoods and culture in many countries. For example, Mr. Gebregziabher Gebreyohannes (State Minister in the Ministry of Agriculture of the Government of Ethiopia) said in February this year:

> Ethiopia, once a byword for hunger and want, has in recent decades become a dynamic success story, a leader in the fight against both poverty and malnutrition. In that achievement, livestock figure prominently. Our cows, sheep, goats, chickens, camels and other animals are bringing wealth to all actors in the livestock value chain, especially rural women who lack other opportunities to make money. They also create jobs for rural youth. And for our children, an egg or a cup of milk a day can make all the difference, helping to prevent stunting and the life sentence of cognitive deficits.[174]

100. Public Health England's Eatwell Guide provides recommendations for a healthy diet: 39 per cent of food by weight should be fruit and vegetables, 37 per cent starchy carbohydrates, 12 per cent meat, fish, eggs, beans/pulses and other protein sources, 8 per cent dairy or alternatives and very limited amounts of oils, and sweet and salty snacks.[175] The Carbon Trust estimated that if diets in the UK met the recommendations of the Eatwell Guide there would be a 32 per cent reduction in overall environmental impacts associated with diets.[176]

101. A more ambitious recommendation for a healthy diet that would not exceed planetary boundaries was presented in the EAT-Lancet Commission on healthy diets from sustainable food systems.[177] This set out to establish the impact on the environment from a global population of 10 billion people eating a healthy diet.

102. Professor Tim Lang, City, University of London, described the diet to us: "if we want to feed 10 billion people by 2050 we are going to have to eat very differently […] with much less meat, much more fruit and vegetables, much more plant growth at the farm level without using up more land, direct to humans, cutting down the waste".[178] Dr Sonja Vermeulen, Hoffmann Centre for Sustainable Resource Economy, Chatham House, told us that it is "a health-based diet, which we then tested against environmental parameters".[179]

103. Dietary change is not easy. Cost is a significant barrier, with people from lower socio-economic groups typically being less able to afford healthy, sustainable diets. Analysis of the affordability of the UK's Eatwell Guide by The Food Foundation found that the poorest fifth of the UK population would need to spend 42 per cent of their disposable income (after housing costs) to follow the Government recommended diet.[180] This mirrors contributions to our inquiry on the *Sustainable Development Goals in the UK follow up:*

174 Gebregziabher Gebreyohannes, Healthy Sustainable diets for all: A view from Ethiopia, Thompson Reuters Foundation News, (2019)
175 Public Health England, The Eatwell Guide, (2016)
176 The Carbon Trust, The Eatwell Guide: a More Sustainable Diet, (2016)
177 Walter Willett. et al., Food in the Anthropocene: the EAT- Lancet Commission on healthy diets from sustainable food systems, The Lancet Commissions, Vol. 393 (2019), pp.447–492
178 Q96
179 Q128
180 London School of Hygiene and Tropical Medicine (PLA0022); Courtney Scott, Jennifer Sutherland and Anna Taylor, Affordability of the UK's Eatwell Guide. The Food Foundation, (2018)

Hunger, malnutrition and food insecurity in the UK.[181] Adam Smith, founder of The Real Junk Food Project, an organisation that produces meals at low prices from discarded food, told us how working people were having to "choose between heating their own homes and going out and getting food".[182] He explained:

> We come across a lot of people who fit into that bracket who are forgotten about in this country—people who are suffering right now, who are actually going hungry, who are working, not in receipt of benefits, and cannot access foodbanks. […]People should not be in a situation where they cannot afford to feed their own children, while they are going to work and earning an honest living.[183]

104. Councillor Paulette Hamilton, Holyhead Ward, Birmingham City Council reflected on the challenges in her city:

> We are finding that because of food poverty within the home many of our young people are eating high calorific foods but the foods are not very good quality. We are finding that our young people are not having their five a day, but it is not just our young people. Also our adults are not having the five a day. You can go along many streets in the city where you do not see fruit and vegetables.[184]

105. Professor Chris Whitty, Chief Scientific Advisor, Department of Health and Social Care, noted the benefits of the Eatwell Guide but pointed out:

> If it was adopted it would have a significant positive impact on health and a significant positive impact on environmental issues. However, it would not deal with any of the problems of disparities in health that we currently face and I am not guaranteeing that every child would eat it.[185]

106. While supporting the benefits to the environment of the Eatwell Guide, Professor Ian Boyd, then Chief Scientific Advisor, DEFRA, noted the importance of including other stakeholders in these discussions:

> There are very good reasons for saying that if we all ate the Eatwell Guide diet we would do a lot more good to the environment. The question is how do we get that diet to people and how do we make sure we are doing it in a way that is congruent with developing a good industrial process, a good economic process for the food industry.[186]

107. Evidence was provided of the benefits to public finances of population-level shifts towards healthier diets. Professor Tim Benton, School of Biology, University of Leeds, wrote that the over-consumption of commodity crops, and "cheap calories" was putting pressure on the NHS:

181 Environmental Audit Committee (2019) Sustainable Development Goals in the UK follow up: Hunger, malnutrition and food insecurity in the UK. HC 1491.
182 Environmental Audit Committee (2019) Sustainable Development Goals in the UK follow up: Hunger, malnutrition and food insecurity in the UK, Q12 [Adam Smith]
183 Environmental Audit Committee (2019) Sustainable Development Goals in the UK follow up: Hunger, malnutrition and food insecurity in the UK, Q12 [Adam Smith]
184 Q293
185 Q341
186 Q348

> The externalised costs on the health system are considerable. For example, the costs of obesity to the UK economy is estimated at ~£27bn, which is approximately three times the economic value of the UK's agricultural production.[187]

108. **Healthier, more sustainable diets can deliver co-benefits for people and the environment. The Government has a responsibility to raise public awareness of the Eatwell Guide and identify ways to promote the consumption of healthy and sustainable diets, including how they will achieve at least a 20 per cent reduction in meat and dairy consumption as recommended by the Committee on Climate Change's Net Zero report, and a shift away from intensive livestock production systems. There is a need to coordinate efforts across Government to ensure that healthy and sustainable diets are available and affordable to all in the UK. *This should be reflected in the Government's procurement policies and in the next set of Greening Government Commitments. Food provided by the Government should be "sustainable by default" and comply with the Eatwell Guide recommendations. This could lead to an estimated reduction of 30 per cent in the carbon footprint of the Government's purchased food.*[188] *This is an important step in achieving net zero emissions by 2050.***

Promoting healthy, sustainable diets

109. Witnesses emphasised the potential to influence consumer choices towards healthy and sustainable diets. The British Dietetic Association wrote that: "Marketing strategies typically used to encourage consumption can also be geared to encourage healthier choices".[189] Judith Batchelar, J Sainsbury's PLC, told us about initiatives that Sainsbury's were taking to help consumers make healthier more sustainable food choices:

> We are trialling […] displaying meat-free alternatives, things like mushroom burgers and other meat-type products in the meat aisle for customers to actively switch out. […]. We are also looking at our online shop, so if someone searches "burger", putting the meat-free burger top of the search list. We are looking at those kinds of nudges to understand whether customers are receptive to that.[190]

110. There was widespread support for changing the way that food is marketed: The Ellen McArthur Foundation's report on *Cities and Circular Economy for Food,* recommended changing food design and marketing to reshape preferences and habits".[191]

111. One action to change the way food is marketed is to ban the advertising of high fat, salt and sugar (HFSS) foods. There has been a ban on the marketing of HFSS products in children's television programmes since 2007. This was estimated to have led to a "37 per cent reduction in children's TV HFSS food ad exposure"[192] in the first five years of operation. The emergence of social media platforms have brought new challenges to regulating advertising. In June 2019 the Government closed a consultation on the introduction of further advertising restrictions on TV and online for HFSS products.[193] We await its response.

187 Professor Tim Benton (PLA0026)
188 The Carbon Trust, The Eatwell Guide: a More Sustainable Diet, (2016)
189 British Dietetic Association (PLA0018)
190 Q113
191 Ellen McArthur Foundation, Cities and Circular Economy for Food, (2019)
192 Advertising to Children, Briefing Paper CBP08198, House of Commons Library, (June 2019)
193 Department of Health and Social Care and Department for Digital, Culture, Media & Sport, Further advertising restrictions for products high in fat, salt and sugar, (2019)

112. In February 2019 Mayor of London, Sadiq Khan, introduced a ban on all HFSS food advertising across the public Transport for London (TfL) network. TfL's advertising space is considered the most valuable out-of-home advertising estate in the world.[194]

113. Food labels can provide information so consumers can make more informed decisions about the food they buy. David Rutley, former Minister, DEFRA, noted the Government's intention, in the event of leaving the EU, to have "a full review of labelling of food and that will be thinking about how we do that from a health perspective, a sustainability perspective and a welfare perspective".[195]

114. However, Judith Batchelar, J Sainsbury's PLC, told us that the average time someone looks at the label of a product was just six seconds.[196] Professor Tim Lang, City, University of London, pointed out that labelling might only be able to convey limited information:

> It is very useful to have information, not least because it makes the producers, the manufacturers and the retailers declare what is in the food, but no label tells you what the biodiversity impact is, no label tells you what the embedded water in your food is, no label says how this has been grown.[197]

115. Professor Frumkin, Wellcome Trust, noted that there was limited evidence of the success of labels in shifting behaviours:

> it turns out there is quite a mixed record when the impact of environmental labelling is studied. People profess in interviews and in surveys that they care about environmental purchasing, but the labelling does not make much of a difference.[198]

He suggested instead that "price signals do have a big impact, [and] celebrity endorsements matter a lot in our popular culture-oriented world and powerful media presentations like Sir David Attenborough's films make a big difference".[199]

116. Contributors tended to agree that marketing, "nudging" (the use of indirect suggestions as ways to influence the behaviour and decision making of groups or individuals) and other methods were needed to stimulate changes in dietary behaviours, but there was disagreement about how much Government involvement was needed. When we asked Ms Batchelar whether taxes and subsidies might assist in encouraging dietary change, she said "I am not sure [that] is the answer, because a lot of these things are around economies of scale and what is the norm. The things that we are developing now are pretty small scale. While the trend is there, they are not mainstream. The challenge is to make those things more mainstream",[200] although she thought that the "pace of change" in consumer choices was "unprecedented".[201]

194 Mayor of London, Mayor confirms ban on junk food advertising on transport network, (2018) [Accessed 01 July 2019]
195 Q419
196 Q127
197 Q127
198 Q32
199 Q32
200 Q114
201 Q115

117. However, Simon Billing, Eating Better, disagreed, suggesting that "he would not discourage us thinking about incentives", to increase the accessibility and affordability of vegetable and plant-based diets.[202] He also suggested: "Potentially looking at different fiscal measures. Tax is one way that has been discussed quite a lot", including the pricing of meat.[203] The EAT-Lancet Commission supported this, stating "taxes and subsidies should encourage healthy and sustainable diets".[204] In its submission to us, the Government noted the success of the soft drinks levy which has led to "the equivalent of removing 45 million kg of sugar every year, some products in the sugar reduction programme exceeding their first year targets, for example yoghurts are achieving a 6 per cent reduction in sugar, and significant investments being made in schools to promote physical activity and healthy eating".[205] The British Dietetic Association encouraged this policy: "Reformulation, restrictions on advertising and measures like the soft drinks industry levy need to be implemented or expanded where they are already in place".[206]

118. We asked Professor Cosford, Director of Health Protection and Medical Care, Public Health England, about subsidies for fruit and vegetables, particularly to increase their consumption by children. He agreed:

> We know that children really like free fruit in schools … and they took that back to their families and that helped to stimulate changes in adult diets as well. We have work going on in our social marketing campaigns, on One You and Change4Life and so on, that support the change in people's diets to go along with that.[207]

119. ***Consumer information, including clear labelling, can help shift diets. The Government should expand the restriction of advertising on high fat, sugar and salt products and consider using financial incentives to promote access to, and consumption of, healthy and sustainably produced food.***

National food strategy

The Government has begun working on a National Food Strategy, led by Henry Dimbleby, lead non-executive board member at DEFRA, and Director of the Sustainable Restaurant Association. David Rutley, then Minister, DEFRA, told us:

> We need to do more to promote [balanced diets] and one of the things we are going to be looking to do within the national food strategy, which is very embryonic at this stage, is to make sure that we look at the whole of the food supply chain from end to end, see how we can move that forward, looking at it from a healthiness perspective but also about sustainability and from a welfare perspective, which I know is a huge issue for you as well.[208]

202 Q116
203 Q117
204 ML Niebylski et al., Healthy food subsidies and unhealthy food taxation: A systematic review of the evidence. Nutrition, Vol. 31 (2015), pp.787–95; Marco Springmann et al., Mitigation potential and global health impacts from emissions pricing of food commodities. Nature Climate Change, Vol. 7 (2017), pp.69–74
205 DEFRA (PLA0028)
206 British Dietetic Association (PLA0018)
207 Q414
208 Q406

Mr Rutley highlighted that to deliver the National Food Strategy "there is greater need for closer co-operation between Government Departments".[209]

120. Professor Sir Patrick Vallance, Government Chief Scientific Adviser, provided useful guidance on the National Food Strategy:

> It seems to me that a food strategy should absolutely cover issues of consumption and how that consumption is modified. It should cover nutritional quality, production sustainability, transport and delivery and the environment. Any food strategy needs to cover those areas in order to be a holistic, systems-based food strategy for the future.[210]

121. Others suggested that in order deliver holistic change to the food system what is needed is a much more collaborative approach to nutrition guidance. Professor Tim Lang, City, University of London, stated:

> We should have a food policy council. We should have a national council that provides expert advice on this holism and what is missing in it. We do not have that at the moment. The Nordic countries have that. No wonder they are streets ahead. They are taking it seriously. They are bringing together data, they are calling together people … Some co-ordination mechanism the British Government should lead.[211]

122. The Nordic Council hosts inter-parliamentary co-operation among the Nordic countries. It consists of five countries (Denmark, Finland, Iceland, Norway and Sweden) and three territories (Faroe Islands, Greenland and the Åland Islands) who cooperate on policy issues including growth and development, welfare and climate change and the environment.[212] The Council has also provided a forum for sharing expertise and setting guidelines for healthy diets and nutrition, producing guidance on food labelling[213] and nutrition intake[214] that is shared across its members.

123. Judith Batchelar, J Sainsbury's PLC, supported Professor Lang's calls for a food policy council. She suggested that this should learn from the shortcomings of the now defunct Council of Food Policy Advisors established by DEFRA in 2008. She added that improvements in knowledge and data on food systems and diets since then mean that a collaborative council could have greater chance of success if the right parameters were set:

> We did not know anything like the information that we know now around the environment and the impact of our food system on the environment. We are in a very different place and there is that sense of urgency. The biggest thing that group would have to address, in a very intelligent and data-informed way, is, "What does that transition programme look like?" I think we all know where we are trying to get to. The question is how we get there in the most efficient and least disruptive way.[215]

209 Q376
210 Q355
211 Q104
212 The Nordic Council: About the Nordic Council Committees [Accessed 01 July 2019]
213 Nordic Council of Ministers, Nutrition Labelling: Nordic Recommendations Based on Consumer Opinions, (2004)
214 Nordic Council of Ministers, Nordic Nutrition Recommendations 2012: Integrating nutrition and physical activity, (2014)
215 Q105

124. ***We recommend that the Government establish a National Council for Food Policy similar to the work of the Nordic Council of Ministers - to bring together the bodies responsible for food production, nutrition, public health, citizens representatives, and environmental experts to share data and expertise, and ensure greater alignment around promoting healthy diets from sustainable production.***

125. ***The National Food Strategy and other Government policy actions relating to food and diets, must place equal emphasis on the importance of healthy diets produced sustainably and national food security. Public Health England's Eatwell Guide should be revised to emphasise foods with lower environmental footprints and make clear recommendations to help the public choose healthy and sustainable diets. To deliver the transformational changes necessary in UK diets the Government should establish a National Food Council as part of its upcoming Environment (Principles and Governance) Bill. It should lead on the roll out of the National Food Strategy.***

126. ***We recommend that the National Food Strategy:***

a) ***Recognises the risks to national food security from the UK importing 40 per cent of the food we consume, and explores policies to mitigate these risks and ensure that the UK delivers healthy diets to all, especially in the event of a no-deal Brexit.***

b) ***Works with farmers, supermarkets and the food industry to deliver transformational shifts in access to and affordability of healthy and sustainable diets.***

c) ***Sets out annual targets to reduce food waste at every level of the food supply chain consistent with the Government's aim to achieve net zero emissions by 2050 at the very latest. This target should be consistent with SDG 12.3 (reduce food waste) to halve food waste by 2030.***[216]

d) ***Recommends policies made by the Committee on Climate Change including shifts towards lower meat and dairy consumption, to achieve the net zero target. The Strategy should set out how public procurement teams, as well as the food and agriculture industry can deliver this goal.***

e) ***Incentivises production of fruit and vegetables using sustainable methods in the UK to close the fresh fruit and vegetable trade gap and reduce food security risk.***

f) ***Set out clear guidelines for Government procurement of food in schools, hospitals and prisons to be sustainable by default.***

g) ***Alongside this, increase teaching within schools around food production, nutrition, food preparation and the environmental impacts associated with the food system.***

216 UN, Sustainable Development Goal 12, accessed 5 September 2019: " By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses".

5 Sustainable Cities

127. This chapter will focus on planetary health challenges from the growth and modernisation of cities, looking at how Government Departments should promote sustainability in cities and consider the inter-related challenges posed by urban living.

Cities and urban living trends

128. The UN estimates around 55 per cent of the world's population lived in urban areas in 2018. This is expected to rise to 60 per cent by 2030 and 68 per cent by 2050. Most of this increase in urban populations is expected to occur in Asia and Africa, with India, China and Nigeria accounting for 35 per cent of the projected growth of the world's urban population by 2050.[217] The number of cities worldwide with one million or more inhabitants was 548 in 2018–by 2030 it is projected to be 706. The number of cities with over 10 million inhabitants ("megacities") is expected to rise from 33 in 2018 to 43 in 2030.[218]

129. The UK's population is expected to grow from 66 million people today to 73 million by 2040.[219] As well as increasing, it is also growing older which presents challenges for policy makers and planners.[220] The World Bank estimates that 83 per cent of the UK's population lived in urban areas in 2017.[221]

130. A number of actions need to be taken to manage the challenges that urbanisation poses to environmental, and thus human health. The 2015 Rockefeller Foundation–Lancet Commission noted that:

> The growth in urban populations emphasises the importance of policies to improve health and the urban environment, such as through reduced air pollution, increased physical activity, provision of green space, and urban planning to prevent sprawl and decrease the magnitude of urban heat islands.[222]

Health and urban living

131. Urban areas can produce specific physical- and mental-health challenges related to air quality, crowding, noise, lack of green spaces and physical inactivity.

132. According to a 2017 report on rural health by the Local Government Association and Public Health England, "Overall, health outcomes [in England] are more favourable in rural areas than in urban areas".[223] The report states:

217 United Nations, 2018 Revision of World Urbanization Prospects, (2018)
218 United Nations, The World's Cities in 2018—Data Booklet, (2018)
219 Office for National Statistics, National Population Projections: 2016-based statistical bulletin, (Accessed 13 August 2019)
220 Office for National Statistics, National Population Projections: 2016-based statistical bulletin, (Accessed 13 August 2019)
221 The World Bank, UK Urban population (per cent of population), (Accesses 13 August 2019)
222 Sarah Whitmee et al., 'Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health', The Lancet, Vol. 386 (2015), pp.1973–2028
223 Local Government Association and Public Health England, Health and wellbeing in rural areas, (2017)

> Average life expectancy is higher [in rural areas], infant mortality is lower and the number of potential years of life lost (PYLL) from common causes such as cancers, coronary heart disease (CHD) and stroke is lower. […] Life expectancy has been highest in districts with at least 80 per cent of their population living in rural settlements and larger market towns. Men born in these areas in 2008/10 were expected to live over two years longer than men born in major urban areas, and women were expected to live one and half years longer than women born in major urban areas.[224]

133. Health problems that have been associated with urban environments include non-communicable diseases such as cancer, diabetes and asthma and mental-health problems such as depression.[225] Our 2018 report on heatwaves found that the rise in average temperatures combined with the urban heat island effect—urban areas being significantly warmer than their surrounding rural areas due to human activities—is likely to increase heat-related deaths from 2000 per year today to around 7000 per year by the 2050s.[226]

Environment and cities

Climate breakdown

134. Cities contribute to climate change. Rachel Huxley, C40 Cities, told us that cities "occupy only 2 per cent of the [global] land area but they are responsible for 70 per cent of the [global] emissions and that increases when you include consumption".[227] She noted that if policies on tackling climate change were right, then, "we are not just averting the global catastrophe of climate change, but we are creating much more liveable, healthy, prosperous cities".[228]

Poor air quality

135. City design and lifestyles contribute to poor air quality. The impact of pollution is a problem for both human and environmental health, with issues ranging from asthma to diabetes, and have an estimated mortality impact of up to 40,000 deaths a year.[229] Estimates of the costs to society and the economy exceed £22 billion per year.[230] Actions to limit air pollution not only reduce the health burden of poor air, but bring co-benefits and improve well-being through incentivising outdoor activities like walking and gardening which, in turn, can help mitigate climate change.[231]

224 Ibid.
225 Professor Michael Davies, Professor Sir Andy Haines, Professor Paul Wilkinson, Professor Tony Capon and Dr Melanie Crane (PLA0012); Wellcome Trust (PLA0019)
226 Environmental Audit Committee, Ninth Report of Session 2017–19, Heatwaves: Adapting to Climate Change, HC 826
227 Q290
228 Ibid.
229 Committee on the Medical Effects of Air Pollutants, Associations of long-term average concentrations of nitrogen dioxide with mortality, (2018); Royal College of Physicians, Every breath we take: the lifelong impact of air pollution, (2016)
230 Royal College of Physicians, Reducing air pollution in the UK: Progress report 2018, (2018)
231 UK Health Alliance on Climate Change (PLA0013)

136. We heard that indoor air pollution was becoming a major area of concern. Dr Anastasia Mylona from the Chartered Institution of Building Services Engineers (CIBSE) said that "air pollution and urban heat island effect are some of the issues that we face today, but they are projected to be even worse. This will have an effect on people's indoor air quality, so in their homes and in the places where they work".[232]

137. In our joint report with three other House of Commons Select Committees, *Improving Air Quality*, published March 2018,[233] we noted the impacts of poor air quality on human health. We recommended the introduction of a new Clean Air Act to improve existing legislation and enshrine the right to clean air in UK law. The Government subsequently published the Clean Air Strategy 2019 (January 2019), in which it stated that: "We plan to set out our ambitions in primary legislation".[234] The last Clean Air Act was in 1993.[235] The Strategy stated that: "New legislation will create a stronger and more coherent framework for action to tackle air pollution. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem".[236]

138. **We look forward to the introduction of air quality legislation as soon as possible, and encourage the Government to draft it with cross-cutting planetary health outcomes in mind.** ***We recommend that any new legislation on clean air brings UK legal limits for air pollution in line with WHO recommended limits (10ug/m³).***

Urban planning

139. Integrated urban planning is essential to ensure better planetary health outcomes. For example, Dr Mylona, CIBSE, told us that: "it is a very important aspect, the urban planning, at this point. If we manage to improve the outdoor environment, opening windows will get the fresh air that we are supposed to be getting as well, just to go back to the point that there are multiple benefits in looking at these different aspects of urban planning".[237] Integrated urban planning should also limit urban sprawl. Professor Mike Davies pointed out the problems with a lack of integrated planning policy:

> In the absence of effective policies to reduce environmental footprints, rapid urbanisation impinges on peri-urban arable land historically used for agriculture. Peri-urban green space, which supports biodiversity and ecosystem services such as flood protection as well as assisting in passive cooling of the cities is also vulnerable to urban expansion.[238]

232 Q242
233 Environment, Food and Rural Affairs, Environmental Audit, Health and Social Care, and Transport Committees, Fourth Report of the Environment, Food and Rural Affairs Committee, Fourth Report of the Environmental Audit Committee, Third Report of the Health and Social Care Committee and Second Report of the Transport Committee of Session 2017–19, Improving air quality, HC433
234 Department for Environment, Food and Rural Affairs, Clean Air Strategy, (2019)
235 Department for Environment, Food and Rural Affairs, Clean Air Strategy, (2019)
236 Ibid.
237 Q257
238 Professor Michael Davies, Professor Sir Andy Haines, Professor Paul Wilkinson, Professor Tony Capon and Dr Melanie Crane (PLA0012)

140. In addition, UPSTREAM[239] recommended that the UK Government should "commission a full examination of the urban planning and development system with a focus on aligning those in control of planning and development with planetary health objectives".[240]

141. There has been a call for sustainable urban planning, to promote healthier lifestyles with cities built "clean by design".[241] Professor Cosford, Public Health England, told us that "Whenever a new community is developed, it has to have all the elements of clean housing, good quality housing, but also walking/ cycling routes, ways of making that the easy choice".[242]

Transport networks and urban planning

Transport and planetary health

142. We were told that: "The transport sector is the largest consumer of energy in the UK, and relies heavily on unsustainable fossil fuel energy".[243] Transport is a major contributor to climate change and air pollution, which contributes to poor environmental outcomes (for example, impacts on biodiversity).[244]

143. We were also told that cars contribute significantly to poor human health outcomes. Professor Mike Davies explained that:

> Motorised urban private travel also contributes to reduced physical activity and increased risk of obesity, poorer mental health, social severance and increased risk of injuries which could be prevented by the use of (affordable) public transport or active travel (walking and cycling), though care is needed to ensure improved separation of walking and cycling routes from road traffic to reduce injury risks.[245]

144. We also heard that: "Even if we switched to entirely zero-emission vehicles, we would still get a huge amount of particulate matter from tyre and brake wear".[246] There was strong support from witnesses for a reduction in the use of private vehicles in cities, and as Rachel Huxley, C40 Cities, stated, it would require "bold, ambitious policies".[247]

Transport and sedentary lifestyles

145. Cars are a contributor to sedentary lifestyles, and the rise in non-communicable diseases, like obesity and diabetes. The LSHTM told us: "on average, 21 per cent of men and 25 per cent of women are classified as inactive".[248]

239 UPSTREAM is a three year research project funded by the Wellcome Trust and led by the University of West England to look at how cities can support an escalating global population whilst adapting to health and environmental concerns.
240 UPSTREAM (PLA0010)
241 Q436 [Professor Paul Cosford]; also UPSTREAM (PLA0010)
242 Q436
243 Professor Michael Davies, Professor Sir Andy Haines, Professor Paul Wilkinson, Professor Tony Capon and Dr Melanie Crane (PLA0012)
244 Ibid.
245 Ibid.
246 Q297
247 Q297
248 London School of Hygiene and Tropical Medicine (PLA0022)

146. In order to reduce poor health outcomes, witnesses encouraged "active transport".[249] Professor Michael Davies *et al* stated that "Increased physical activity from urban walking and cycling could bring major health benefits and avert costs to the NHS amounting to about £17bn over 20 years".[250]

147. There are ways in which cycling can be encouraged. Rachel Huxley, C40 Cities, mentioned that in New Orleans, by painting on the roads, it sends a message that: "as a cyclist you are meant to be here, and you are welcome here".[251] However, painted road markings in the UK have been criticised by Britain's cycling and walking commissioners, describing them as "gestures" which do not deliver improved safety for cyclists.[252] This view is supported by recent research showing on-road bicycle lanes have the effect of reducing passing distance from motor vehicles, making roads less safe for cyclists.[253]

148. Walkers, cyclists, and car drivers are exposed to air pollution, with research suggesting that the risks are highest for those in cars. A Lancet review of air pollution found that car commuters lost up to one year in life expectancy more than cyclists.[254] Rachel Huxley, told us that: "The concern that as a cyclist you are exposed to more pollution is not necessarily always true and the benefits you gain from physical activity outweigh the pollution risk by an order of magnitude".[255]

149. Professor Blythe, Chief Scientific Adviser at the Department for Transport (DfT), told us that one of the Department's goals included: "trying to persuade people to use their vehicles less and to use more sustainable forms of transport such as public transport, walking and cycling more".[256] Kit Malthouse, then Minister, Ministry of Housing, Communities and Local Government, told us about Government initiatives including the Healthy New Town Standard,[257] alongside the Department of Health and Social Care; the Manual for Streets 3 Guidance;[258] and the Walking and Cycling Investment Strategy,[259] alongside the DfT.[260] He also told us that there is a "general obligation" on local authorities, through the National Planning Policy Framework, to use their planning policies to encourage sustainable modes of transport.[261] Dr Thérèse Coffey, DEFRA, told us that:

249 Including the LSHTM Planetary Health Alliance (PLA0020); UK Health Alliance on Climate Change (PLA0013)
250 Professor Michael Davies, Professor Sir Andy Haines, Professor Paul Wilkinson, Professor Tony Capon and Dr Melanie Crane (PLA0012)
251 Q295
252 'Painted bike lanes are waste of money, say cycling commissioners', The Guardian, (17 June 2019)
253 Ben Beck et al., How much space do drivers provide when passing cyclists? Understanding the impact of motor vehicle and infrastructure characteristics on passing distance, Accident Analysis & Prevention. Vol. 128 (2019), pp.253–260
254 Magda Cepeda et al., Levels of ambient air pollution according to mode of transport: a systematic review, The Lancet Public Health. Vol. 2 (2016), pp.23–34
255 Q297
256 Q321
257 NHS England, Healthy New Towns, (2016)
258 Department for Transport, Manual for Streets, (2007)
259 Department for Transport, Cycling and Walking Investment Strategy, (2017)
260 Q433
261 Ibid.

> Councils are producing walking and cycling strategies. They use things like the air quality grant fund. That is also what we have done to help with certain schemes. A lot of money has gone from the DfT in particular to areas they have nominated as cycle cities. There is also wider funding available from the DfT for councils to bid for.[262]

150. Daniel Black and Associates pointed to a good example of urban planning, which ensured that green spaces and active transport networks were combined:

> The outstanding example that urban planners have been pointing to for a long time is the Vauban district of Freiburg in southern Germany, an urban extension of 5,000 inhabitants where just 16 per cent [of people] use a car and only 40 per cent of people own a car, and where walking, cycling and use of public transport is at 75 per cent (Grant et al, 2008,[263] Hall, 2014[264]). The low car usage and significant green infrastructure means it is also quiet and positive for mental health despite it being a high-density urban environment.[265]

Buildings and urban planning in the UK

151. Poor quality housing has significant harmful impacts on public health and life expectancy. For example, Professor Yvonne Rydin, UCL, told us that: "The review that we did suggested that low-quality housing in the UK cost the National Health Service £1.4 billion in first-year treatments".[266] We also heard that UK building stock was a major contributor to national greenhouse gas emissions. Professor Michael Davies wrote that: "In the UK in 2017, direct greenhouse gas (GHG) emissions from buildings were 85 $MtCO_2e$ and buildings were responsible for a further 48 $MtCO_2e$ of indirect emissions related to electricity consumption–thus accounting for ~29 per cent of UK GHG emissions in total".[267] Reducing the burden of UK buildings on the climate is possible, but may lead to adverse human health problems. Professor Davies, told us that:

> The design of buildings and quality of materials used contribute to energy efficiency through improved insulation and ventilation control but, without careful design, implementation and maintenance, there are dangers of adverse effects on indoor environmental quality. Those adverse effects include possible increases in a range of indoor air pollutants which can increase risks of some types of cancer, including radon-related lung cancer,[268] cardiorespiratory diseases and associated mortality/morbidity. Increases in thermal insulation and efficient heating systems of homes have the potential to reduce the still substantial burden of winter- and cold-related mortality/morbidity in the UK and help tackle fuel poverty.[269]

262 Q432
263 Grant et al. (2008) Freiburg Study Tour: Planning, Public Health, Urban Design. WHO Collaborating Centre for Healthy Cities and Urban Policy and NHS South West
264 Hall. P (2014) Good Cities, Better Lives: How Europe Discovered the Lost Art of Urbanism. Routledge, Abingdon
265 UPSTREAM (PLA0010)
266 Q253
267 Professor Michael Davies, Professor Sir Andy Haines, Professor Paul Wilkinson, Professor Tony Capon and Dr Melanie Crane (PLA0012)
268 James Milner et al., Home energy efficiency and radon related risk of lung cancer: modelling study, BMJ. Vol. 348 (2014)
269 Professor Michael Davies, Professor Sir Andy Haines, Professor Paul Wilkinson, Professor Tony Capon and Dr Melanie Crane (PLA0012)

152. The Adaptation Sub-Committee of the Committee on Climate Change recently published a report, *UK housing: Fit for the future*?.[270] Professor Davies, told us that the majority of UK housing stock, almost 29 million homes, are not fit for the risks of climate change, and need to be swiftly decarbonised.[271] The CCC's report found that:

- the UK's legally-binding climate change targets will not be met without the near-complete elimination of greenhouse gas emissions from UK buildings.[272]
- emissions reductions from the UK's 29 million homes have stalled, with uptake of energy efficiency measures having declined significantly in recent years. Installation of loft and wall cavity insulation is at just 5 per cent of the peak market delivery in 2012.[273]
- "energy use in homes"–which accounts for 14 per cent of total UK emissions–increased between 2016 and 2017".[274]
- efforts to adapt the UK's housing stock to the impacts of the changing climate, for higher average temperatures, flooding and water scarcity, are lagging far behind what is needed to keep us safe and comfortable, as these climate change risks grow.[275]

153. The CCC's report recommended that future homes should not be built on the gas grid.[276] In the Spring Statement, the Treasury partially accepted this recommendation introducing a Future Homes Standard, which will mandate the end of fossil-fuel heating systems in all new houses from 2025. However, the CCC had advised that new houses should be fully disconnected from the gas grid, ending the use of gas for cooking and heating water, not just for heating. This would reduce energy demand and could help tackle poverty in cities driven by high energy costs.

154. ***We recommend that the Government adopts the Committee on Climate Change's recommendations on off-grid new housing in full. This would include stopping the connection of new homes to the gas grid from 2025. The Government should respond to each recommendation from the Committee on Climate Change's report on UK housing.***

155. ***We note that the number of energy efficiency installations (e.g. loft and wall cavity insulation) has collapsed since 2012.[277] A new energy efficiency scheme should be developed and implemented by no later than April 2020 to create warmer homes which are cheaper to run.***

156. ***DEFRA should also manage risk of water security in cities and set a default 100 litres per capita per day consumption target for water as recommended by the Committee on Climate Change.***

270 Committee on Climate Change, UK housing: Fit for the future?, (2019)
271 Q246
272 Committee on Climate Change, UK housing: Fit for the future?, (2019)
273 Committee on Climate Change, UK housing: Fit for the future?, (2019)
274 Committee on Climate Change, UK housing: Fit for the future?, (2019)
275 Committee on Climate Change, UK housing: Fit for the future?, (2019)
276 Committee on Climate Change, UK housing: Fit for the future?, (2019)
277 Committee on Climate Change, UK housing: Fit for the future?, (2019)

Building regulations

157. Our witnesses criticised other building regulations that are currently in place. Dr Mylona, CIBSE, noted how Part F of the building regulations on adequate ventilation of buildings, "assumes that the air outside is clean".[278] Professor Davies, UCL, thought that there was "certainly a strong need for the relevant parts of the regulations to be addressed",[279] but that the "complex system of indoor air pollutants, which are generated indoors and pollutants that are generated outdoors… [made it]. difficult to develop generic rules".[280]

158. UPSTREAM, a research project on urban planning and health, suggest that "poor indoor air quality costs £250 per person per year mainly in terms of lost productivity (due to headaches), while lack of green space costs over £220 per person per year due to mental health problems alone".[281]

159. The CCC report on the future of UK housing recommended that the Government modify the building regulations (specifically part F and part L) in order to keep pace with improvements in the energy efficiency of buildings, in order to mitigate these negative impacts.[282]

160. In addition to the content of building regulations, witnesses were also concerned about enforcement, particularly in light of the Grenfell Tower tragedy.[283] Professor Rydin, UCL, explained:

> You need to look at how the whole building reg system is resourced, the ability of local councils to have officers to check that they are being implemented appropriately, because we do know that the building industry has skills loopholes, shall we say, which mean that what we plan does not always end up being what is built on the ground.[284]

161. Kit Malthouse, former Minister, MHCLG, recognised the importance of effective building regulations and told us: "Through the planning system and the building regulation system we try to set the framework within which the delivery arm, local authorities, is able to operate and deliver the kind of policies that are devised as a whole across Government".[285] He also told us that: "As a Department, we rely on a variety of technical advice that we glean from outside experts".[286] The Minister informed us of ongoing consultations reviewing building regulations including how to improve environmental standards.[287]

278 Q254
279 Q256
280 Q257
281 UPSTREAM, Moving planetary health upstream in urban development decision-making – a three-year pilot research project, (2019)
282 Committee on Climate Change, UK housing: Fit for the future?, (2019)
283 Q258 [Professor Rydin]
284 Ibid.
285 Q371
286 Ibid.
287 Q428

162. The Minister also commented on enforcement, agreeing that this was a major issue for future work:

> One of things that came out, sadly, from the awful Grenfell tragedy was the fact that notwithstanding us having a building regulation system, the effectiveness of that system, and the policing and the implementation of it also need review. As part of our packet implementation plan, we are looking generally at the building regulation system and at what are the conflicts within it, to ensure that not only are we putting the rules in place but that they are being adhered to.[288]

163. **Air pollution (indoor and outdoor) from human activity is an increasing concern and harms public health. The Committee on Climate Change Adaptation Sub-Committee has provided expert guidance on ways to strengthen the building regulations for new and existing housing. We welcome the Government's plans to update the building regulations, including reviewing whether the current enforcement regime is effective.**

164. ***We recommend that the Government's review of the building regulations takes an integrated approach to ensure that sustainability and public health are properly reflected in any new code. We recommend that, in line with advice from the Committee on Climate Change, the Government change building regulations (specifically part F and L) to mitigate negative impacts of indoor air pollution.***

Green spaces and urban planning

165. In written evidence, UPSTREAM stated that the "UK's main urban development leaders, from both the public and private sector […] fully acknowledge that health is not adequately accounted for in the urban planning and development process".[289] They noted that urban planning is driven by "landowners, investors and developers" and the costs to health from poor urban planning should be better communicated.[290] UPSTREAM suggest that "the lack of green space costs over £220 per person per year due to mental health problems alone".[291]

166. A number of witnesses to this inquiry proposed the improvement and expansion of urban green spaces to promote health. Professor Michael Davies, UCL, argued:

> Increased access to green space may yield mental health and other benefits particularly for disadvantaged groups and ecosystem approaches such as wetland protection or biodiversity corridors can increase resilience to extreme events.[292]

288 Q428
289 UPSTREAM (PLA0010)
290 ibid
291 ibid
292 Professor Michael Davies, Professor Sir Andy Haines, Professor Paul Wilkinson, Professor Tony Capon and Dr Melanie Crane (PLA0012); See also WHO Europe, Urban Green Space Interventions and Health, (2017)

167. Professor Rydin from UCL, identified new opportunities in urban planning to increase activity in cities, incorporate more green spaces, reduce air pollution and improve public health:

> … how we can make cities better connected for walking and cycling… That can involve also a lot of incorporation of green infrastructure, which has been shown to be important for combating air pollution and for mental health as well. I think there has been a big shift in the urban planning agenda towards this kind of new way at looking at things.[293]

168. UPSTREAM researchers found:

- a strong link between an increase in neighbourhood walkability and a reduction in the risk of high blood pressure;
- a strong link between improved access to open green space and improved mental health;
- a strong link between improved infrastructure for cycling and increased physical activity.[294]

169. Increasing green space can also reduce the urban heat island effect, reducing the health risks of heatwaves. The surface temperature in an urban green space may be 15–20°C lower than that of surrounding streets, resulting in an air temperature 2–8°C cooler.[295] However, urban green space in England has declined from 63 per cent of urban area in 2001 to 56 per cent in 2016.[296] With the average number of heat-related deaths in the UK expected to more than triple to 7,000 a year by the 2050s, increasing green space in cities could mitigate some of the risks of rising temperatures.[297]

170. The Government told us that there were a number of competing priorities in the allocation of land. Kit Malthouse, former Minister of State for Housing, MHCLG, told us:

> What we try to do in the planning system is create an obligation on the local authorities to think about the sustainability of their communities and those that they are constructing, and that includes the provision of green space and play space and all those kinds of things. At the same time, though, we have to recognise that there are some local authorities where that is a challenge, because of constraints that they have, green belt, AONBs [Areas of Outstanding Natural Beauty], whatever it might be. They need to think about notions of density within an urban environment, even gentle density, and how they can accommodate that so as to protect what green space they have.[298]

293 Q251
294 Daniel Black et al., Moving Health Upstream in Urban Development: Reflections on the Operationalization of a Transdisciplinary Case Study. Global Challenges. Vol. 3 (2018)
295 Environmental Audit Committee, Ninth Report of Session 2017–19, Heatwaves: Adapting to Climate Change, HC 826
296 Charles Ffoulkes, Research to provide updated indicators of climate change risk and adaptation action in England, Submission to the Committee on Climate Change, (2017)
297 Environmental Audit Committee, Ninth Report of Session 2017–19, Heatwaves: Adapting to Climate Change, HC 826
298 Q400

171. The Government's *Urban Tree Challenge Fund* aims to stimulate tree planting in cities.[299] However, current tree planting targets of 20,000 hectares/year across the UK nations, due to increase to 27,000 by 2025, are being missed by 50 per cent. Less than 10,000 hectares were planted, on average, over the last five years.[300] The Committee on Climate Change have advised at least three times current rates (30,000 hectares a year) will be needed to achieve net zero emissions by 2050.[301]

172. **Urban green space can improve public health and mental health outcomes, particularly for disadvantaged groups.** ***The National Planning Policy Framework needs to be better updated to promote opportunities for active travel, green spaces and access to healthy, sustainable food in planning authorities' local plans.***

173. **Green space is proven to reduce the urban heat island effect, reducing the risks from heatwaves.** ***Our 2018 'Heatwaves: adapting to climate change' report recommended that national targets be set to increase urban green space back up to 2001 levels or higher. We repeat this recommendation.***

174. **Increasing tree planting should be a priority to improve air quality, capture carbon and create green spaces in cities. Whilst we welcome the 'Urban Tree Challenge Fund', we note that tree targets are not being met, with only half the target number of trees having been planted in the last five years.** ***The Government should update targets to align with the recommendation from the Committee on Climate Change. The Government should review its Tree Challenge Fund and set out how it will meet the CCC's target of 30,000 hectares of tree planting a year. Councils should be mandated to state how many trees they will plant per house built with a minimum standard of one tree per house. Green infrastructure should be specified in planning permission.***

Food and urban planning

175. A number of witnesses highlighted the problems around food and urban living. They pointed to a lack of access to healthy food and a proliferation of unhealthy fast food outlets, leading to a rise in the prevalence of obesity.[302] Contributors emphasised the challenges of dietary change in communities with few food choices. Medact said that: "A focus on "individual behaviour" and "nudging" will do little to provide alternative, healthy, local and sustainable food to certain communities when the most readily available food on the market is ultra-processed, high-fat and high sugar".[303]

176. Dr Jennifer Cole, Royal Holloway, University of London, wrote that:

> UK diets reflect the typical Western/urban shift from fresh, healthy food with low fat/sugar/salt content to poor quality packaged food. The government, public and private sector needs to do more to address this through making healthier food easier to access and more affordable rather than just 'shaming' fast food and ready meals; this will become increasingly important as food prices may increase as climate impacts become more severe.[304]

299 Forestry Commission, Urban Tree Challenge Fund, (Accessed 08 August 2019)
300 Forest Research, Provisional Woodland Statistics, (2019)
301 Committee on Climate Change, Reducing UK emissions, 2019 Progress Report to Parliament, (July 2019)
302 For example, Dr Jennifer Cole (PLA0003); Q312 (Rachel Huxley); London School of Hygiene & Tropical Medicine (PLA0022)
303 Medact (PLA0027)
304 Dr Jenifer Cole (PLA003)

177. Dr Cole argued that urban lifestyles with poor diet and low levels of physical activity, were not a "'lifestyle choice' as it is often presented which blames the poorer socioeconomic groups", but instead were "a consequence of systems that make any other options impractical for too many people".[305]

178. We heard evidence that in Birmingham, the UK's second largest city by population, urban planning was leading to poor health outcomes. Councillor Paulette Hamilton, Birmingham City Council, explained that residents have easy access to unhealthy food that was contributing to the obesity epidemic. Councillor Hamilton told us that: "Between school and the house [children] probably pass about 10 fast food places. The issue is between the planners and licensing and what have you are not joined up enough".[306]

179. Dr Cole, Royal Holloway, University of London, argued that insufficient effort was being made to address over-consumption saying that there should be "stronger action against junk food sold on high streets and sweets/ crisps/ ready meals sold in supermarkets".[307]

180. When asked about access to healthy foods and the proliferation of fast food outlets, Professor Cosford, Public Health England (PHE), echoed the Committees concerns:

> There are 50,000 [fast food outlets] across the country and we know that they are more frequent in areas where diets tend to be poorer anyway, where people tend to have less-good health and they tend to push less-healthy diets—not always, not every fast food outlet is necessarily unhealthy, but the majority will be in that direction. As part of our guidance on what the evidence says about planning for health, that is one of the issues that we think is really important, fast food outlets close to schools.[308]

181. Professor Cosford told us that PHE aims to "translate a complex set of evidence into practical tools that local government can use in its planning processes. We do that in relation to fast food outlets and healthy planning, to air pollution and planning, for healthy, sustainable communities. The extent to which local authorities manage to implement them is a separate question".[309]

182. Kit Malthouse, then Minister of State for Housing, MHCLG, told us that the National Planning Policy Framework, "does give local authorities the ability to set limits of use within the high street they are curating, if the evidence allows them. If there is a proliferation of a particular use, they can limit it through their planning powers now".[310] But the Minister noted that the local authorities had to provide sufficient evidence and that "the problem comes where you already have a proliferation and beyond shutting them down, there is not much that can be done about it at the moment".[311]

305 Ibid.
306 Q293
307 Dr Jenifer Cole (PLA003)
308 Q430
309 Q431
310 Q430
311 Q431

183. **The Government has a responsibility to increase equitable access to healthy, sustainable food for city dwellers.** ***The Government should review its planning policy guidance to measure how well the current restrictions on fast food outlets are working in practice and it should ensure that planning authorities are able to restrict the numbers of fast food outlets without stringent evidence requirements. The Government's forthcoming National Food Strategy should set out how the Government will work with food providers, including restaurants, fast food outlets and supermarkets to transform the way that people consume food in the UK.***

6 Governance for planetary health

Global Action

184. Whilst many of the impacts of planetary health transcend national boundaries, local action and governance can be effective. Professor Georgina Mace, UCL, noted that there was "not really any effective global governance of the environment at the moment".[312] She stated that the United Nations Framework Convention on Climate Change (UNFCCC) is "an important force" and reflected that this was because climate is "an interconnected global system".[313] However, Professor Mace said she was not convinced that international governance was needed:

> We can do an awful lot with better national governance of local environmental problems. A lot of the things we have talked about—biodiversity, insect declines, water quality and air quality—can be managed nationally.[314]

185. The Government has announced an independent review of the link between biodiversity and economic growth, led by Professor Sir Partha Dasgupta. The review intends to report in 2020, ahead of the 15th meeting of the Conference of the Parties (COP15) to the Convention on Biological Diversity (CBD) in October 2020.[315] This is an ideal opportunity for the UK to show international leadership on the protection and governance of biodiversity, and we urge Prof Gupta to consider the relationship between biodiversity and interconnected planetary health concerns, including food security and urban planning.

Leadership

186. The UK was the first Government to legislate for climate change targets in 2008,[316] and is the first major economy to set legally binding net zero emissions targets.[317] As UPSTREAM noted, the UK Government should "communicate clearly the threat posed to our society from climate change and planetary health".[318] The public should know about the dangers from environmental damage posed to their health and the environments that they live in and depend on for survival.

187. The prospect of the UK hosting the 2020 UN Climate Change Conference provides another opportunity for global leadership on this issue.[319]

188. **To tackle the urgent concerns relating to public health, food security and the environment raised in this planetary health inquiry, strong national and international governance is required. *Continuing the global leadership shown by legislating for net zero emissions by 2050, the UK Government should now highlight planetary health at forthcoming international meetings, including the 2020 Conference of the Parties to the***

312 Q166
313 Q174
314 Ibid.
315 Gov.UK, 'Spring Statement 2019: Philip Hammond's speech' (March 2019)
316 Climate Change Act 2008
317 Gov.UK, 'UK becomes first major economy to pass net zero emissions law', (27 June 2019)
318 UPSTREAM (PLA0010)
319 Madeleine Cuff, 'COP26: UK and Italy strike partnership clearing way for UK to host crucial climate summit', Business Green, (18 June 2019)

Convention on Biological Diversity. As host of the 2020 UN Climate Change Conference (Conference of the Parties) the Government should ensure that planetary health is a key theme of the discussions.

Cross-departmental working

189. A theme of our inquiry has been the need for cross-departmental working. Professor Ian Boyd, Chief Scientific Adviser, DEFRA, used air quality, and DEFRA and the Department for Transport's Joint Air Quality Unit, as an example of needing to be "very aware of other departmental interests".[320]

190. In particular, the Ministry of Housing, Communities and Local Government (MHCLG), Department for Environment, Food & Rural Affairs (DEFRA), the Department of Health and Social Care, (DHSC) and Department for Transport (DfT) need to work together closely to ensure that the future of living in cities in the UK is healthier and more sustainable. We were therefore concerned to hear that there had been no Chief Scientific Adviser in the MHCLG for seven years, although an appointment has now been made.[321]

Operating in silos: health organisations

191. A major concern amongst witnesses has been the tendency for departments and decision-making organisations to work in silos. Dr Richard Horton, the Lancet, expressed frustration that even the healthcare bodies were not interacting with each other:

> In terms of the vision across our health infrastructure just think about it. We have a dozen or so royal colleges. We have the British Medical Association. We have a CMO [Chief Medical Officer]. We have Public Health England. Are they working together in a coordinated fashion? The answer is "no". The Chief Medical Officer does fantastic work but she is utterly disconnected from the work of Public Health England. Our colleges are utterly disconnected from public health. This is no way to run the health system.[322]

192. A lack of co-operation contributes to a fragmented, and therefore weakened voice from health organisations when advising the Government on issues such as planetary health.

Data sharing

193. The UK possesses a huge wealth of knowledge about the environment, but not enough of that data is available to health organisations or medical professionals. Professor Lora Fleming, University of Exeter Medical School, told us that:

> There are huge amounts of environmental data out there—things like the Met Office, world famous, fabulous data—but how do you link that up with human health data and how do you train people to be able to work with these huge datasets linking up variables that traditionally are not analysed

320 Q316
321 Q359–60; Gov.UK 'MHCLG announces Chief Scientific Adviser appointment' (July 2019)
322 Q236

> as such? There is almost a research and training gap there to prepare people to really be able to look at things on a planetary scale from an analysis point of view.[323]

194. There is a role for Government to play in ensuring that the data is shared appropriately. Professor Howard Frumkin, Wellcome Trust, told us that:

> As a governance issue, what that may mean is directing or incentivising the owners of different databases to get those databases to be interoperable and then to perform the analytics that are needed.[324]

195. We heard evidence that the Government is using data for health-related work. Professor Charlotte Watts, Department for International Development (DfID), told us that it was "doing a range of activities to respond and to support countries to respond to what we foresee as the extreme impacts of climate change",[325] and that DfID was "using data to understand what might be future rainfalls, risks of flooding, what might be the flow of a river and what might be the next round of infectious disease spread and how we ensure that the programmes we are supporting are aware of what is coming ahead and are responding effectively".[326]

196. **We note that Government departments and agencies are increasingly seeking to share data and work together to tackle planetary health concerns. However, more needs to be done. Improving public health in the UK while improving the environment will require significantly improved data sharing and cross-departmental working in the future.**

197. ***To ensure cross-government working we recommend that the Government ensures single point accountability for planetary health at both ministerial and senior civil service levels. The Government should also establish a forum or joint unit to manage planetary health across Government. To support these meetings, health leaders and organisations must be in attendance: the Chief Scientific Advisers, Public Health England and the Chief Medical Officer all have a major role to play in providing advice on this crucial matter.***

198. **We find it extraordinary that MHCLG had not had a Chief Scientific Adviser for 7 years, especially given that UK buildings are a source of significant harm to public health and make up nearly a third of the UK's carbon footprint. We note the crucial importance of scientific advice in policy making and support the Chief Scientific Adviser network in their excellent work.** ***We recommend that the Government Chief Scientific Adviser (GCSA) assumes responsibility for oversight of the Chief Scientific Adviser network to ensure that such personnel gaps do not happen again. The GCSA should also ensure that the Government's digital service makes its data available to researchers to map hunger, obesity and poverty so they can be incorporated into emerging policy solutions. The next round of research funding should include an element of planetary health research to combine the strong evidence base and expertise in this area from the UK research community.***

323 Q9
324 Ibid.
325 Q329
326 Ibid.

Conclusions and recommendations

Environmental change and human health

1. Without rapid action to curb greenhouse gas emissions and efforts to safeguard the environment we risk causing irreversible damage to the planet. This is already having a significant and growing impact on human health, with impacts set to become more severe. (Paragraph 21)

2. We are concerned that the NHS and the pharmaceutical industry is not sufficiently resourced to deal with these projected changes. Non-communicable diseases (NCDs) kill 41 million people each year, equivalent to 71 per cent of all deaths globally. We note that more people now die from non-communicable diseases than communicable diseases. We also note the recent stalling in life expectancy in the UK as a result of lifestyle changes with increased pressure for NHS resources. Public Health England should broaden its key performance indicators to include climate resilience and adaptation measures to tackle emerging diseases. These should include guidance to general practitioners and the pharmaceutical industry on Lyme disease, malaria, the zika virus and other emerging tropical diseases. We repeat our recommendation from our toxic chemicals report that Public Health England should introduce a comprehensive UK wide human and wildlife bio-monitoring scheme to measure the effects of toxic chemicals. A focus on lifestyle change means that it does not prioritise the impacts that wider economic and ecological changes will have on human health. Secondly, Public Health England must work across Government to advise local Government on the impacts of heat stress and protecting vulnerable communities, particularly the elderly, people living in care homes and those with kidney failure. (Paragraph 22)

3. *The NHS has shown some progress in reducing carbon emissions by 18.5 per cent since 2007. It is deeply disappointing that it will miss its Climate Change Act target of a reduction in emissions of 34 per cent by 2020. As the largest employer, and one of the largest consumers of goods and services in the UK, the NHS should bring forward its targets to end the use of coal (2023/24) and oil (2028/29) for primary heating on NHS sites. This target should now be revised to reflect the Government's commitment to achieve net zero greenhouse gas emissions by 2050 at the very latest. A new pathway for carbon reduction should be developed by April 2020 and communicated to all stakeholders. The NHS' carbon footprint should be clearly communicated to staff, patients and suppliers, with messages on how they can contribute.* (Paragraph 31)

4. *Fluorinated gases remain a major problem, with inhalers contributing to over 3 per cent of total annual emissions from the NHS. We reiterate our recommendation that Government should work with medical professionals, pharmacists, the pharmaceutical industry and patients to significantly improve the recycling of Metered Dose Inhalers (MDIs); this makes both environmental and economic sense. We encourage the Government to investigate all the means of removing the barriers to the safe re-use of those valuable quota-restricted gases. The Government should also ensure that by 2020, at least 50 per cent of MDIs are recycled. It should also set out how it will reduce medical waste, such as MDIs, in its waste strategy.* (Paragraph 32)

5. We are concerned that, at current rates of progress, the NHS will fall far short of the Committee on Climate Change's recommendation of 100 per cent of low emission vehicles by 2035 at the latest. The current target of 66 per cent of vehicles being low emission by 2028 is not ambitious enough. The NHS should be taking the lead in the mitigation of climate change, given its size, budget and workforce, particularly when a major impact of climate change is likely to be a deterioration of several measures of population health. The Committee on Climate Change is clear that early uptake of electronic vehicles (EVs) brings co-benefits from reductions in air pollution. NHS direct fleet procurement and "Grey fleet" purchased through tax schemes should prioritise EVs. *We recommend that the NHS aligns its plans with the Committee on Climate Change's cost-efficient path for electric vehicle uptake to benefit from the financial savings and co-benefits (e.g. reduction in air pollution) of earlier EV uptake.* (Paragraph 34)

Nature, wildlife and the environment

6. Progress towards meeting the Aichi targets by 2020 falls woefully short, and meeting only five of them will not protect the UK's precious wildlife and fragile habitats. *We recommend that the Government engage with the public on the next set of targets before the 2020 UN Biodiversity Conference and set out clear priorities for action. The targets should be formally reviewed every four years and the Government should task Natural England and devolved administrations with the responsibility for their domestic delivery.* (Paragraph 52)

7. The Government's 25 Year Plan for the environment sets out actions that the Government intends to take but there are no SMART targets against which its performance can be measured. *Legislative targets are needed to drive action across Government Departments and not just DEFRA. We reiterate our previous recommendations that the Environment Bill must include a framework for statutory nature and biodiversity targets and interim milestones to be achieved by Government Departments, including by the Treasury, to help them achieve the Greening Government targets. Once these targets have been established through stakeholder collaboration, the Cabinet Office must issue guidance directing Departments to explain how their work programmes will achieve the delivery of these targets in their Single Departmental Plans and the next round of Greening Government Commitments.* (Paragraph 55)

8. *We are disappointed that Natural England has lost half of its budget over the last 10 years. It needs a rapid increase in funding to achieve current objectives. Any new obligations placed under new legislation should be adequately resourced. The Environment (Principles and Governance) Bill is an opportunity to consider holistically the governance frameworks for planetary health in the UK. We recommend that a principle to achieve a high level of environmental protection is put on the face of the Bill and all public bodies be required to achieve this. The Government provided us with the draft version of the first half of the Environment (Principles and Governance) Bill, on which we reported earlier this year. Much of the detail of the Government's proposals for environmental protection, such as on biodiversity net gain, will be contained in the second half of the Bill and we urge the Government to make this available to the Committee for pre-legislative scrutiny as soon as possible, especially given the severe environmental and public health risks of a no-deal Brexit on October 31st.* (Paragraph 63)

9. *The Environment (Principles and Governance) Bill should include provision for new targets to increase green and blue urban infrastructure. Our heatwaves report recommended that the revised National Planning Policy Framework should set a target for councils to achieve, which aims to increase urban green space to 2001 levels, and higher if possible. This should also be included in the revised National Planning Policy Framework to ensure space for nature and people to help adaptation to climate change.* (Paragraph 64)

10. *In response to this report, the Government should set out the principles behind the design of the new environmental land management schemes, and the 'public money for public goods' principle, should the UK leave the EU as set out in the future for food, farming and the environment policy statement. These should include steps to minimise high pesticide use and actions to align land use, food production and mitigation and adaption to climate change.* (Paragraph 70)

11. *We were told that UK companies currently sell chemicals to countries with no regulation of pesticides whose use is banned here. UK policy should be consistent at home and abroad. In the event we leave the EU, the Government has said it will replicate the EU REACH system. Any new UK regulations should review pesticide laws. In the meantime, the Government should review pesticide export regulations and ensure that UK businesses protect planetary health and do not export toxic chemicals which are driving wildlife loss globally.* (Paragraph 71)

Food systems

12. Climate change poses significant risks to international food and water security that may lead to hunger and undernutrition for millions of people. Some commentators have drawn links between food insecurity, political instability and conflict. Others have identified the risk of up to one billion climate refugees by 2050. (Paragraph 83)

13. *The Government needs to work with UN bodies and national Governments to ensure the Department for International Development budget helps to guarantee national and international food and water security, environmental protection and climate resilience.* (Paragraph 84)

14. *We are concerned that the Government is complacent about the risks to food security posed by climate breakdown. The Government is due to publish an updated UK Food Security Assessment by the end of 2019. We recommend that the Government accepts the advice from the Committee on Climate Change about food security risks and set out how it plans to maintain UK food security in a changing climate. Government should publish immediately, in advance of the food security assessment due by the end of 2019, all information relating to food security and cost risks associated with no-deal Brexit.* (Paragraph 90)

15. Environmental change is projected to have increasingly major impacts on global food systems which would affect the UK's food security and ability to deliver healthy, sustainably produced diets. The development of a UK National Food Strategy is an important opportunity to link national food production, international food trade, and environmental protection. *The Agriculture Bill should support this by*

incentivising a switch in UK agriculture towards more sustainably produced food, including agroecological farming methods, bringing about reductions in greenhouse gases associated with UK agriculture. (Paragraph 95)

16. Healthier, more sustainable diets can deliver co-benefits for people and the environment. The Government has a responsibility to raise public awareness of the Eatwell Guide and identify ways to promote the consumption of healthy and sustainable diets, including how they will achieve at least a 20 per cent reduction in meat and dairy consumption as recommended by the Committee on Climate Change's Net Zero report, and a shift away from intensive livestock production systems. There is a need to coordinate efforts across Government to ensure that healthy and sustainable diets are available and affordable to all in the UK. *This should be reflected in the Government's procurement policies and in the next set of Greening Government Commitments. Food provided by the Government should be "sustainable by default" and comply with the Eatwell Guide recommendations. This could lead to an estimated reduction of 30 per cent in the carbon footprint of the Government's purchased food. This is an important step in achieving net zero emissions by 2050.* (Paragraph 108)

17. *Consumer information, including clear labelling, can help shift diets. The Government should expand the restriction of advertising on high fat, sugar and salt products and consider using financial incentives to promote access to, and consumption of, healthy and sustainably produced food.* (Paragraph 119)

18. *We recommend that the Government establish a National Council for Food Policy similar to the work of the Nordic Council of Ministers - to bring together the bodies responsible for food production, nutrition, public health, citizens representatives, and environmental experts to share data and expertise, and ensure greater alignment around promoting healthy diets from sustainable production.* (Paragraph 124)

19. *The National Food Strategy and other Government policy actions relating to food and diets, must place equal emphasis on the importance of healthy diets produced sustainably and national food security. Public Health England's Eatwell Guide should be revised to emphasise foods with lower environmental footprints and make clear recommendations to help the public choose healthy and sustainable diets. To deliver the transformational changes necessary in UK diets the Government should establish a National Food Council as part of its upcoming Environment (Principles and Governance) Bill. It should lead on the roll out of the National Food Strategy.* (Paragraph 125)

20. *We recommend that the National Food Strategy:*

    a) *Recognises the risks to national food security from the UK importing 40 per cent of the food we consume, and explores policies to mitigate these risks and ensure that the UK delivers healthy diets to all, especially in the event of a no-deal Brexit.*

    b) *Works with farmers, supermarkets and the food industry to deliver transformational shifts in access to and affordability of healthy and sustainable diets.*

c) *Sets out annual targets to reduce food waste at every level of the food supply chain consistent with the Government's aim to achieve net zero emissions by 2050 at the very latest. This target should be consistent with SDG 12.3 (reduce food waste) to halve food waste by 2030.*

d) *Recommends policies made by the Committee on Climate Change including shifts towards lower meat and dairy consumption, to achieve the net zero target. The Strategy should set out how public procurement teams, as well as the food and agriculture industry can deliver this goal.*

e) *Incentivises production of fruit and vegetables using sustainable methods in the UK to close the fresh fruit and vegetable trade gap and reduce food security risk.*

f) *Set out clear guidelines for Government procurement of food in schools, hospitals and prisons to be sustainable by default.*

g) *Alongside this, increase teaching within schools around food production, nutrition, food preparation and the environmental impacts associated with the food system.* (Paragraph 126)

Sustainable Cities

21. We look forward to the introduction of air quality legislation as soon as possible, and encourage the Government to draft it with cross-cutting planetary health outcomes in mind. *We recommend that any new legislation on clean air brings UK legal limits for air pollution in line with WHO recommended limits (10ug/m^3).* (Paragraph 138)

22. *We recommend that the Government adopts the Committee on Climate Change's recommendations on off-grid new housing in full. This would include stopping the connection of new homes to the gas grid from 2025. The Government should respond to each recommendation from the Committee on Climate Change's report on UK housing.* (Paragraph 154)

23. *We note that the number of energy efficiency installations (e.g. loft and wall cavity insulation) has collapsed since 2012. A new energy efficiency scheme should be developed and implemented by no later than April 2020 to create warmer homes which are cheaper to run.* (Paragraph 155)

24. *DEFRA should also manage risk of water security in cities and set a default 100 litres per capita per day consumption target for water as recommended by the Committee on Climate Change.* (Paragraph 156)

25. Air pollution (indoor and outdoor) from human activity is an increasing concern and harms public health. The Committee on Climate Change Adaptation Sub-Committee has provided expert guidance on ways to strengthen the building regulations for new and existing housing. We welcome the Government's plans to update the building regulations, including reviewing whether the current enforcement regime is effective. (Paragraph 163)

26. *We recommend that the Government's review of the building regulations takes an integrated approach to ensure that sustainability and public health are properly reflected in any new code. We recommend that, in line with advice from the Committee on Climate Change, the Government change building regulations (specifically part F and L) to mitigate negative impacts of indoor air pollution.* (Paragraph 164)

27. Urban green space can improve public health and mental health outcomes, particularly for disadvantaged groups. *The National Planning Policy Framework needs to be better updated to promote opportunities for active travel, green spaces and access to healthy, sustainable food in planning authorities' Local Plans.* (Paragraph 172)

28. Green space is proven to reduce the urban heat island effect, reducing the risks from heatwaves. *Our 2018 'Heatwaves: adapting to climate change' report recommended that national targets be set to increase urban green space back up to 2001 levels or higher. We repeat this recommendation.* (Paragraph 173)

29. Increasing tree planting should be a priority to improve air quality, capture carbon and create green spaces in cities. Whilst we welcome the 'Urban Tree Challenge Fund', we note that tree targets are not being met, with only half the target number of trees having been planted in the last five years. *The Government should update targets to align with the recommendation from the Committee on Climate Change. The Government should review its Tree Challenge Fund and set out how it will meet the CCC's target of 30,000 hectares of tree planting a year. Councils should be mandated to state how many trees they will plant per house built with a minimum standard of one tree per house. Green infrastructure should be specified in planning permission.* (Paragraph 174)

30. The Government has a responsibility to increase equitable access to healthy, sustainable food for city dwellers. *The Government should review its planning policy guidance to measure how well the current restrictions on fast food outlets are working in practice and it should ensure that planning authorities are able to restrict the numbers of fast food outlets without stringent evidence requirements. The Government's forthcoming National Food Strategy should set out how the Government will work with food providers, including restaurants, fast food outlets and supermarkets to transform the way that people consume food in the UK.* (Paragraph 183)

Governance for planetary health

31. To tackle the urgent concerns relating to public health, food security and the environment raised in this planetary health inquiry, strong national and international governance is required. *Continuing the global leadership shown by legislating for net zero emissions by 2050, the UK Government should now highlight planetary health at forthcoming international meetings, including the 2020 Conference of the Parties to the Convention on Biological Diversity. As host of the 2020 UN Climate Change Conference (Conference of the Parties) the Government should ensure that planetary health is a key theme of the discussions.* (Paragraph 188)

32. We note that Government departments and agencies are increasingly seeking to share data and work together to tackle planetary health concerns. However, more needs to be done. Improving public health in the UK while improving the environment will require significantly improved data sharing and cross-departmental working in the future. (Paragraph 196)

33. *To ensure cross-government working we recommend that the Government ensures single point accountability for planetary health at both ministerial and senior civil service levels. The Government should also establish a forum or joint unit to manage planetary health across Government. To support these meetings, health leaders and organisations must be in attendance: the Chief Scientific Advisers, Public Health England and the Chief Medical Officer all have a major role to play in providing advice on this crucial matter.* (Paragraph 197)

34. We find it extraordinary that MHCLG had not had a Chief Scientific Adviser for 7 years, especially given that UK buildings are a source of significant harm to public health and make up nearly a third of the UK's carbon footprint. We note the crucial importance of scientific advice in policy making and support the Chief Scientific Adviser network in their excellent work. *We recommend that the Government Chief Scientific Adviser (GCSA) assumes responsibility for oversight of the Chief Scientific Adviser network to ensure that such personnel gaps do not happen again. The GCSA should also ensure that the Government's digital service makes its data available to researchers to map hunger, obesity and poverty so they can be incorporated into emerging policy solutions. The next round of research funding should include an element of planetary health research to combine the strong evidence base and expertise in this area from the UK research community.* (Paragraph 198)

Formal minutes

Tuesday 3 September 2019

Members present:

Mary Creagh, in the Chair

Geraint Davies	Ruth Jones
Philip Dunne	Kerry McCarthy

Draft Report (*Our Planet, Our Health*), proposed by the Chair, brought up and read.

Ordered, That the Chair's draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 198 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Twenty First Report of the Committee to the House.

Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

[Adjourned till 4 September 2019 at 10am

Witnesses

The following witnesses gave evidence. Transcripts can be viewed on the inquiry publications page of the Committee's website.

Tuesday 15 January 2019

Professor Lora E. Fleming, Chair, European Centre for Environment and Human Health, University of Exeter Medical School, **Professor Sir Andy Haines**, Professor of Environmental Change and Public Health, London School of Hygiene and Tropical Medicine, **Professor Howard Frumkin**, Head of Our Planet, Our Health, Wellcome Trust — Q1–49

Tuesday 29 January 2019

Professor Sir Charles Godfray, Director, Oxford Martin School, **Professor Claire Heffernan**, Director and Professor of International Development, Royal Veterinary College, **Dr Philip Thornton**, Flagship Leader and Principal Scientist, CGIAR Research Programme on Climate Change, Agriculture and Food Security, **Dr Sonja Vermeulen**, Associate Fellow, Hoffmann Centre for Sustainable Resource Economy, Chatham House, **Professor Tim Lang**, Professor of Food Policy, City, University of London, **Judith Batchelar**, Director of Sainsbury's Brand, Corporate Responsibility and Public Affairs, J Sainsbury's PLC, **Simon Billing**, Executive Director, Eating Better — Q50–130

Tuesday 12 February 2019

Professor Georgina Mace, Professor of Biodiversity and Ecosystems, University College London, **Dr Mark Mulligan**, Head of the Department of Geography, King's College London, **Professor Peter Cox**, Professor of Climate System Dynamics, University of Exeter, **Dr Richard Horton**, Editor-in-Chief, The Lancet, **Sonia Roschnik**, Director, Sustainable Development Unit, **Matt Shardlow**, Chief Executive Officer, BugLife–the Invertebrate Conservation Trust — Q131–239

Tuesday 12 March 2019

Professor Mike Davies, University College London, **Professor Yvonne Rydin**, University College London, **Dr Anastasia Mylona**, Head of Research, Chartered Institution of Building Services Engineers, **Daniel Black**, Independent consultant and company Director, Daniel Black and Associates, **Mr Lawrie Robertson**, Head of Strategic Planning, BuroHappold Engineering, **Councillor Paulette Hamilton**, Holyhead Ward, Birmingham City Council, **Rachel Huxley**, Director of Knowledge and Learning, C40 Cities — Q240–312

Tuesday 2 April 2019

Sir Patrick Vallance, Government Chief Scientific Advisor, **Professor Chris Whitty**, Chief Scientific Adviser, Department of Health and Social Care, **Professor Ian Boyd**, Chief Scientific Advisor, Department for Environment, Food and Rural Affairs, **Professor Charlotte Watts**, Chief Scientific Adviser, Department for International Development, and **Professor Phil Blythe**, Chief Scientific Adviser, Department for Transport; **Dr Thérèse Coffey MP**, Parliamentary Under-Secretary of State and **David Rutley MP**, Parliamentary Under-Secretary of State, Department for the Environment, Food and Rural Affairs, **Kit Malthouse MP**, Minister of State for Housing, Ministry of Housing, Communities and Local Government, **Jonathan Marron**, Director General, Community and Social Care, Department for Health and Social Care, and **Professor Paul Cosford**, Director of Health Protection and Medical Director, Public Health England Q313–437

Published written evidence

The following written evidence was received and can be viewed on the inquiry publications page of the Committee's website.

PLA numbers are generated by the evidence processing system and so may not be complete.

1 Anglian Water Services (PLA0011)
2 Benton, Professor Tim (PLA0026)
3 Black, Mr Daniel (PLA0029)
4 British Dietetic Association (PLA0018)
5 British Retail Consortium (PLA0023)
6 British Veterinary Association (PLA0002)
7 Cole, Dr Jennifer (PLA0003)
8 Committee on Climate Change (PLA0016)
9 Davies, Professor Michael (PLA0012)
10 Davies, Professor Michael (PLA0030)
11 Defra (PLA0028)
12 Feedback (PLA0004)
13 Game & Wildlife Conservation Trust (PLA0031)
14 Gee, David (PLA0009)
15 Lang, Professor Tim (PLA0033)
16 London School of Hygiene & Tropical Medicine (PLA0022)
17 LSHTM Planetary Health Alliance (PLA0020)
18 Magnone, Dr Daniel (PLA0005)
19 McGhie, Mr Henry (PLA0021)
20 Medact (PLA0027)
21 Met Office (PLA0015)
22 National Trust (PLA0032)
23 Petrikova, Dr Ivica (PLA0025)
24 Soil Association (PLA0014)
25 Summers, Mr William (PLA0001)
26 Sustainable Food Trust (PLA0006)
27 UK Faculty of Public Health (PLA0017)
28 UK Health Alliance on Climate Change (PLA0013)
29 UK Research and Innovation (PLA0024)
30 The University of Sydney (PLA0008)
31 UPSTREAM (PLA0010)
32 VermEcology (PLA0007)
33 Wellcome Trust (PLA0019)

List of Reports from the Committee during the current Parliament

All publications from the Committee are available on the publications page of the Committee's website. The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

Session 2017–19

First Report	Plastic bottles: Turning Back the Plastic Tide	HC 339
Second Report	Disposable Packaging: Coffee Cups	HC 657
Third Report	The Ministry of Justice: Environmental Sustainability	HC 545
Fourth Report	Improving air quality	HC 433
Fifth Report	UK Progress on Reducing F-gas Emissions	HC 469
Sixth Report	Green finance: mobilising investment in clean energy and sustainable development	HC 671
Seventh Report	Greening Finance: embedding sustainability in financial decision making	HC 1063
Eighth Report	The Government's 25 Year Plan for the Environment	HC 803
Ninth Report	Heatwaves: adapting to climate change	HC 826
Tenth Report	Hand car washes	HC 981
Eleventh Report	UK Progress on Reducing Nitrate Pollution	HC 656
Twelfth Report	The Changing Arctic	HC 842
Thirteenth Report	Sustainable Development Goals in the UK follow up: Hunger, malnutrition and food insecurity in the UK	HC 1491
Fourteenth Report	Sustainable Seas	HC 980
Fifteenth Report	Interim Report on the Sustainability of the Fashion Industry	HC 1148
Sixteenth Report	Fixing fashion: clothing consumption and sustainability	HC 1952
Seventeenth Report	Pre-appointment hearing with the Government's preferred candidate for Chair of Natural England	HC 1979
Eighteenth Report	Scrutiny of the Draft Environment (Principles and Governance) Bill	HC 1951
Nineteenth Report	UK Export Finance	HC 1804
Twentieth Report	Toxic Chemicals in Everyday Life	HC 1805
First Special Report	The Future of Chemicals Regulation after the EU Referendum: Government Response to the Committee's Eleventh Report of Session 2016–17	HC 313
Second Special Report	Marine Protected Areas Revisited: Government Response to the Committee's Tenth Report of Session 2016–17	HC 314

Third Special Report	Sustainable Development Goals in the UK: Government Response to the Committee's Ninth Report of Session 2016–17	HC 616
Fourth Special Report	Plastic bottles: Turning Back the Plastic Tide: Government Response to the Committee's First Report	HC 841
Fifth Special Report	Disposable Packaging: Coffee Cups: Government's Response to the Committee's Second Report	HC 867
Sixth Special Report	The Ministry of Justice: Environmental Sustainability: Government's Response to the Committee's Third Report	HC 982
Seventh Special Report	Improving air quality: Government Response to the Committee's Fourth Report	HC 1149
Eighth Special Report	UK Progress on reducing F-gas Emissions: Government's Response to the Committee's Fifth Report Eighth	HC 1406
Ninth Special Report	Green finance: mobilising investment in clean energy and sustainable development: Government Response to the Committee's Sixth Report	HC 1450
Tenth Special Report	Heatwaves: adapting to climate change: Government Response to the Committee's Ninth Report	HC 1671
Eleventh Special Report	Greening Finance: embedding sustainability in financial decision making: Government Response to the Committee's Seventh Report	HC 1673
Twelfth Special Report	The Government's 25 Year Plan for the Environment: Government Response to the Committee's Eighth Report	HC 1672
Thirteenth Special Report	UK Progress on Reducing Nitrate Pollution: Government Response to the Committee's Eleventh Report	HC 1911
Fourteenth Special Report	Hand car washes: Government Response to the Committee's Tenth Report	HC 1910
Fifteenth Special Report	The Changing Arctic: Government Response to the Committee's Twelfth Report	HC 2069
Sixteenth Special Report	Pre-appointment hearing with the Government's preferred candidate for Chair of Natural England: Government Response to the Committee's Seventeenth Report	HC 2096
Seventeenth Special Report	Sustainable Seas: Government Response to the Committee's Fourteenth Report	HC 2118
Eighteenth Special Report	Fixing fashion: clothing consumption and sustainability: Government Response to the Committee's Sixteenth Report	HC 2311
Nineteenth Special Report	Sustainable Development Goals in the UK follow up: Hunger, malnutrition and food insecurity in the UK: Government Response to the Committee's Thirteenth Report	HC 2310