

Disclaimer:

The following report is a draft, and is available for discussion and background information only. Text is subject to revision and should not be considered definitive.

As it is not finalised, please refrain from sharing this report.

UK Case study: Inequality and environmental sustainability

Introduction

We don't have very much difficulty in meeting the goals... our compliance with these goals is the easy bit. The difficult bit is to get the rest of the world to be in a position to comply.

Oliver Letwin MP, giving evidence to the Environmental Audit Committee's Inquiry on the Government's Approach to Sustainable Development, 2015.¹

[Rich countries] will also have to do their homework and increase efforts towards a more sustainable and socially just economic model in their own countries. Promoting peaceful and inclusive societies, for instance, or ensuring sustainable consumption and production patterns are challenges that OECD countries need to take on just as much, if not more than, the developing world.

Kofi Annan, Forward to Bertelsmann Stiftung's report 'Sustainable Development Goals: Are the rich countries ready?' 2015²

The 2015 Sustainable Development Goals (SDGs) built on the ambition of the Millennium Development Goals in two important ways. Unlike their predecessors they are explicitly universal, applying to high as well as low-income countries. To match this geographical expansion, they also have a broader scope, moving beyond poverty reduction into a wider range of issues.

An independent report by Bertelsmann Stiftung in 2015 assessed all OECD member states' readiness to meet the SDGs. They ranked countries against indicators they deemed particularly relevant for high-income countries. Their findings were damning, identifying the growing social divide, and the overuse of resources as key areas of weakness for rich countries. The authors stated that 'In terms of sustainable development, all countries are now developing countries.'³

The UK is no exception and inequality and aspects of the environment were highlighted as areas requiring urgent improvement.⁴

This chapter explores the two issues of inequality and environmental protection in the UK context. It draws on a research base developed by UK-based think tank the New Economics Foundation. It does not contain the solutions, although some

suggestions are made in relation to specific areas. Rather, it aims to map some of what is known about the dynamics of inequality and environment to aid the major task of identifying routes for achieving the SDGs in the UK.

At the time of writing, the UK government's response to the SDGs suggests that it does not fully recognise the scale of the challenge that they represent for domestic policy. While Scotland was one of the first to sign up to the Sustainable Development Goals, two recent enquiries into the UK government's approach to sustainable development are particularly worrying.

In an enquiry set up by the Environmental Audit Committee, Oliver Letwin MP, then Minister for Government Policy at the Cabinet Office, explained that he did not see the SDGs as a challenge for domestic policy.⁵ In 2016, Justine Greening MP, then Secretary of State for International Development took a similar stance. When asked whether there will be a national action plan in the UK to deliver the SDGs she replied "the action plan we have is actually delivering on the [Conservative Party] manifesto, on which we were elected."⁶

Economic inequality and climate change are a particular focus in this report, but it is also important to consider broader issues in relation to inequality and the environment, as it is through the wider environment that climate change plays out, and other forms of inequality and environmental degradation will be considered. Poverty is also considered. Although poverty is importantly distinct from inequality, given that the experience of poverty in rich countries is so determined by one's income relative to others, poverty provides important insight into the experience of inequality in the bottom half of the distribution.

We start by describing where the UK currently stands in relation to key issues within the SDGs on inequality and environment, pulling out areas where the UK ranks poorly compared to other countries. We go on to summarise key drivers of economic inequality in the UK, and then consider who is most responsible for environmental degradation and who bears the greatest costs. We then describe two case studies of the systems and institutions in the UK that reproduce inequality and environmental degradation.

[Where does the UK stand on the environment and inequality?](#)

[Environment](#)

The Environmental Audit Committee's 2014-15 environmental scorecard scored the UK's performance as 'unsatisfactory or deteriorating'^a in all ten environmental

^a The Environmental Audit Committee define deteriorating as 'Deterioration since 2010, or progress at a pace unlikely to put improvement on a satisfactory trajectory by the end of the 2015-2020

categories of: emissions and climate change; air pollution; biodiversity; forests; soils; flooding and coastal protection; resource efficiency and waste; freshwater environment; water availability and marine environment.⁷

Reported statistics on the UK's **carbon emissions** often show a notable on-going downward trend.⁸ The most commonly cited statistics, however, refer to territorial emissions – emissions actually released in the UK, for example through UK manufacturing or household energy use. The decline in territorial emissions is in part the result of an increase in the UK's consumption of goods produced in other countries. Figures for the UK's *total* emissions – taking into account those emissions 'embedded' in imported goods and services – suggest that, while overall emissions are lower than they were in 1997, there has been a 3% increase between 2012-13.⁹ The Environmental Audit Committee report that the UK is now one of the world's largest net importers of emissions, and has one of the largest carbon footprints in the world.¹⁰

The UK is making progress on **renewable energy**. The Department for Business, Energy and Industrial Strategy calculated that 8.3% of energy consumption in 2015 came from renewable sources, compared to 7.1% in 2014.¹¹ However, these improvements come from a very low base compared to many countries (Bertelsmann Stiftung ranked the UK 33rd of 34 countries in 2015).¹²

Although the UK saw a long-term decline in **air pollution** until 2010, this trend seems to be reversing.¹³ The UK failed to meet EU Ambient Air Quality Directive targets for nitrogen dioxide pollution in 2012, and in 2014 the European Commission launched infraction proceedings against the UK government in relation to 16 zones which would not be compliant by 2015. The Department for Energy, Food and Rural Affairs have since stated that Greater London and two other areas would not meet the required levels until after 2030.¹⁴

Given its geography, the UK is particularly susceptible to **flooding**. The Environmental Audit Committee reported in 2014 "2.4 million properties are at risk of flooding from rivers or the sea, and three million from surface water."¹⁵

The Environmental Audit Committee has also raised serious concerns about the health of the **marine environment** in the UK, particularly due to **overfishing**.¹⁶ Definitive figures of UK overfishing are difficult given that fish stocks are shared, but estimates suggest that 37.5% of assessed fish stocks are currently overfished in the UK.¹⁷

Parliament,' and unsatisfactory as 'unsatisfactory progress'.
<http://www.publications.parliament.uk/pa/cm201415/cmselect/cmenvaud/215/215.pdf> Page 10

Bertlesmann Stiftung rank the UK poorly on **sustainable agriculture**, coming 27th of 34 OECD countries in terms of ecosystem pollution from agriculture. One measure of agricultural pollution is the nitrogen and phosphorous balance per hectare of agricultural land. Most countries suffer from a surplus, which indicates a risk of polluting soil, water, and air. Although OECD figures rank the UK relatively poorly on this indicator, the government's own figures for 2015 show a long-term downward trend between 2000 and 2015 in both nitrogen and phosphorous.¹⁸

Inequality

On **income inequality**, the UK is now one of the most unequal countries in the rich world. Using the Gini coefficient, the UK is more unequal than Lithuania or Portugal, but still behind countries such as Chile, the U.S. and Israel.¹⁹ Income for the richest fifth of households in the UK was twelve times higher than the poorest fifth, at £85,000 and £7,000 per year respectively.²⁰ Taking into account cash benefits and direct taxes, the income richest fifth had five times higher income.²¹ These figures also don't capture the effect of housing costs, which exacerbate inequalities in disposable income.²² This is because in recent years the cost of renting increased sharply relative to incomes whereas the cost of owning with a mortgage remained broadly stable.

Income inequality increased dramatically during the 1980s. Since the 1990s, *overall* income inequality seems to have plateaued and recently declined.^{23, 24} However, measures of overall inequality such as the Gini coefficient often mask increases in inequality at the very top of the distribution. Between 1990 and 2014-15, the share of total income going to the top 1% rose from 5.7% to 7.9%.²⁵ The distribution is also extremely skewed within that 1%. In 2012–13, over a third of the income in the top 1% flowed to the top 0.01%.²⁶

Wealth inequality^b is far more severe than income inequality in the UK. Statistics on inequalities in wealth are currently very poor, particularly on cross-country comparisons. The available data suggests that between 2006 and 2012 median net wealth fell in the United Kingdom, while net wealth of top percentiles increased. The share of wealth owned by the top 1% increased by 8.4% between 2006 and 2012.²⁷ A report for the OECD found that the UK saw much larger increases in wealth going to the top than the other five countries for which they had data – Australia, Canada, Italy, the Netherlands, and the United States. They concluded that 'inequality at the top of the wealth distribution has unambiguously risen' in the UK.²⁸

^b Wealth refers to the stock of assets (e.g. savings, shares or property) held at one point in time. Income refers to the amount of money you receive, (e.g. from a salary, or interest on savings) over a period of time.

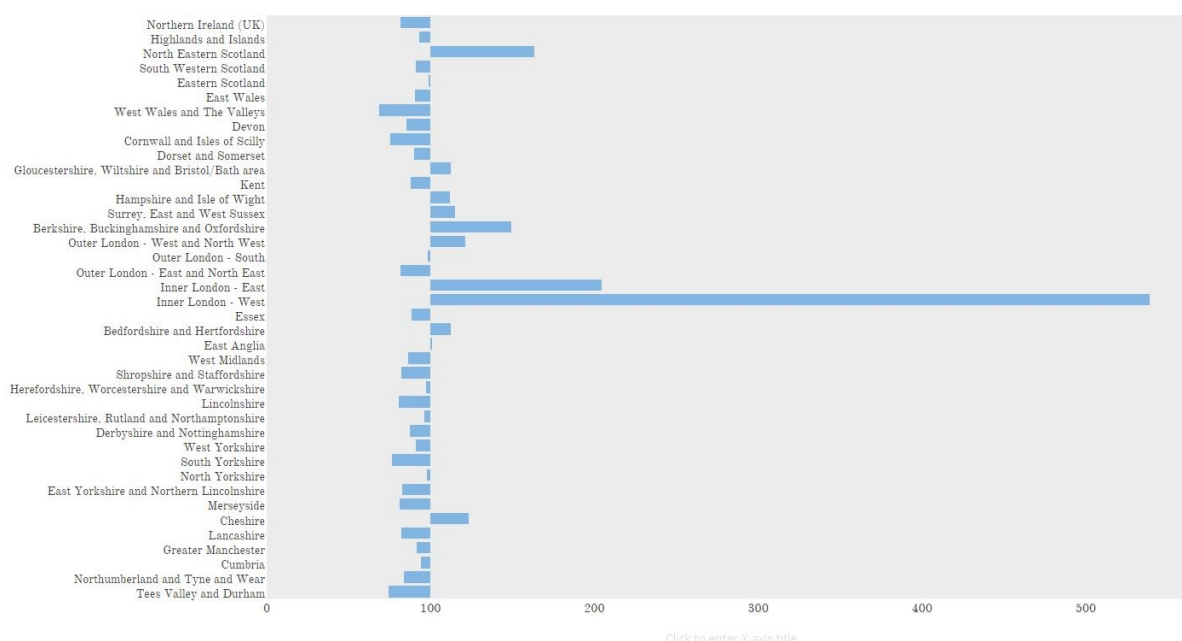
A new economic categorisation of the super-rich has been created to account for this soaring wealth concentration at the top – ultra high net worth individuals (UHNWIs). UHNWIs are people owning \$30 million or more. There are 10,400 UHNWIs in the UK, a 39% increase compared to 10 years ago.²⁹ This places the UK 7th in the world for the number of UHNWIs per population.³⁰

If the rungs of the economic ladder are further apart, they are also harder to climb. It isn't surprising that more unequal countries therefore also have lower **social mobility**. Changes in social status between different generations within the same family are particularly rare in the UK. A child growing up in a poor family in Denmark has three times the chance of doing better than his or her parents than a child growing up in Britain.³¹ A study of social mobility in the UK found that if your father's income was within the bottom 10% when you were born, you only have a 66% chance of making it to the top 10% of earners.³²

The high cost of housing in the UK means that **housing inequality** (as measured by the average number of bedrooms per person) is particularly high, and has been rising dramatically over the last half century.³³ In the UK hundreds of thousands of empty properties sit alongside growing numbers of rough sleepers.³⁴

In terms of **regional inequality**, the UK is one of the most centralised economies in the world. Figure 1 compares GDP per person, adjusted for purchasing power, between regions in the UK. This tells us how people in different areas are able to afford things like food or a place to live. The 100 line shows the average in the whole of Europe (EU28). More than half of UK regions are below the European average, whilst London far exceeds it.

Figure 1: GDP per person in regions across the UK



Gross domestic product (GDP) per inhabitant in purchasing power standard (PPS) in relation to the EU28 average, by NUTS2 regions, 2014 Source: Eurostat

The number of people living in severe absolute **poverty**, for example without access to food or shelter, has been declining over recent decades. However, in most rich countries poverty is defined in relative terms, assessing the extent to which people have the resources for a standard of living deemed acceptable in the society in which they live. In the UK, relative poverty is defined as living on an income below 60% of median income, and because it is relative, it can be considered a useful measure of inequality at the bottom of the distribution. Relative poverty has failed to significantly reduce in the UK.^{35, 36} The Office for National Statistics reports that the overall poverty rate for 2014 was 16.8% and that almost one in three people had experienced poverty at some point between 2011 and 2014.³⁷ Increasingly, those experiencing poverty are in-work, with the percentage of UK full-time employees in low pay^c at 20.5% and rising, compared to an OECD average of 17.1%.³⁸

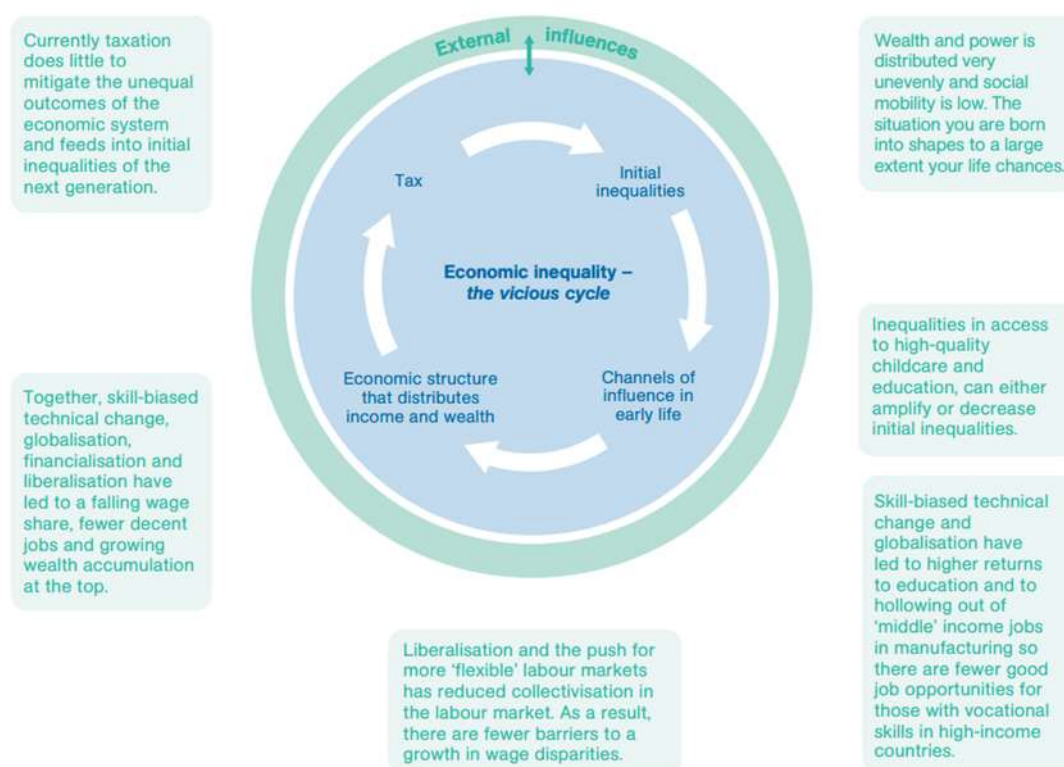
What are the key drivers of inequality in the UK?

For the last decade, the New Economics Foundation has undertaken an extensive programme of work on the drivers of economic inequality in the UK.^{39, 40}

This has included not only explorations of specific drivers, but also of how they interact across life course and recycled across generations. Figure 2 below illustrates these dynamics.⁴¹

^c Defined as hourly pay below two-thirds of the median

Figure 2: The vicious cycle of inequality



These drivers are summarised briefly, with further information in the references.

The **labour market** drives inequality in a number of ways. The UK's economy has become an 'hour-glass' shape, with a reduction in skilled and semi-skilled jobs in the middle, combined with an increase in very low paid, and very high paid jobs.⁴² The UK has also experienced a fall in the wage-to-profit ratio meaning more of the nation's wealth going to shareholders (a small, and already wealthy minority), and less to workers.⁴³ Although these dynamics are common to many industrialised economies, they are exacerbated in the UK by low union coverage and weakening employment regulation. Some have argued that these trends may be exacerbated by new technology giving rise to increases in the gig economy.⁴⁴

Financialisation (the growth in size and complexity of the financial sector) plays a key role in perpetuating inequality.⁴⁵ The UK is one of the most financialised countries in the world, playing host in London to one of the two main global financial centres equal with New York, but doing so with an economy a sixth of the size.⁴⁶ The financial sector's large increase in profits has contributed to the increase in the profit-to-wages ratio. The range of mechanism by which owners of firms increase profits on investments (enabled by financial deregulation) has further concentrated wealth. Financialisation has also promoted asset inflation, particularly in relation to housing,

fuelling housing inequality. Finally, notoriously high incomes for bankers and chief executives have also increased income inequality.

Taxation in the UK is regressive when considered in total; those on lower incomes pay a significantly higher proportion of their income in tax compared to those on higher incomes.⁴⁷ In the financial year ending 2015 (2014/15), the average income of the richest fifth of UK households before taxes and benefits was 14 times greater than that of the poorest fifth, but they paid only 6 times more in taxes. This discrepancy is because, although direct taxes (such as income tax) are progressive, this is offset by the UK's relatively high consumption tax (VAT). VAT disadvantages the poor because they spend (rather than save or invest) a higher proportion of their incomes. The UK has very low wealth tax, with a declining number of people subject to inheritance tax. The UK also already has relatively low corporation tax by international standards, and the government has pledged to cut it further.⁴⁸

There is evidence that the UK's **voting system** increases inequalities. It has been argued that more proportional and consensual political systems are more likely to enact policies to reduce inequality.⁴⁹ The UK has one of the most majoritarian political systems in the world. It combines a First Past the Post electoral system - whereby the party that receives the most votes wins outright - with significant powers concentrated in the premiership.

Who is responsible for environmental degradation and who suffers the consequences?

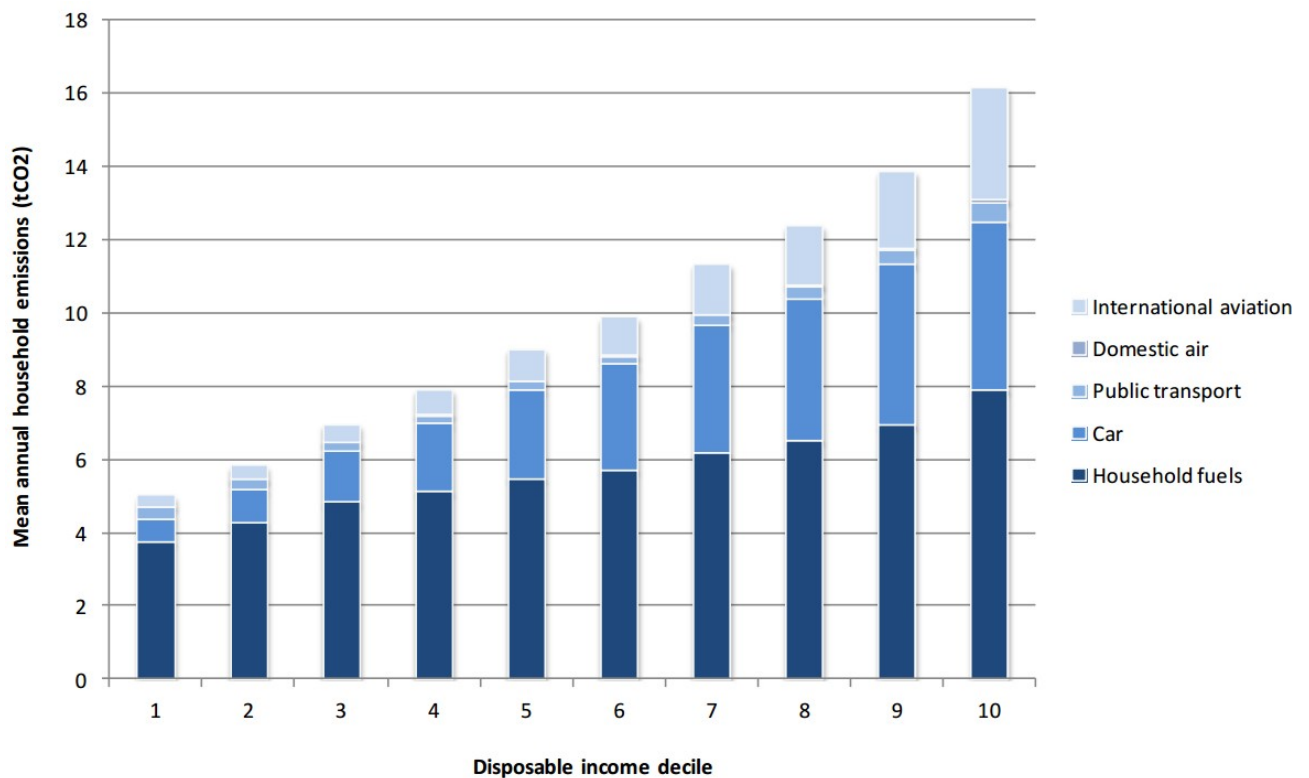
Those who are most responsible for environmental degradation are often least vulnerable to the consequences. In this section, we consider this double injustice in two ways. Firstly, we ask which individuals in the UK are most likely to contribute to emissions and then which are most likely to suffer from climate change and air pollution as a result of these emissions. We then consider how the unequal distribution of environmental degradation affects regional inequality, presenting a case study of coastal communities in the UK.

The double inequality of carbon consumption and its impacts

Those on higher incomes emit considerably more CO₂ than those on lower incomes.⁵⁰ This is the case not only on a global level (with richer countries emitting more emissions than poorer), but also within countries. Oxfam estimates that in the UK in 2015, the top 10% of earners emit almost 25 tonnes of household CO₂ compared to an average of just 5 tonnes in the bottom 40% of earners.⁵¹ Emissions from transport were found to play a major part in this. Analysis by Hargreaves et al. from 2013 mapped annual household CO₂ emissions across different uses, by income decile. They found that "emissions from transport show the largest variation

across the income spectrum, with the highest income decile emitting seven to eight times as much as the lowest income decile for private road travel, and ten times as much for international aviation.”⁵² It is estimated that 15% of the population takes 70% of flights, while 55% of the population took no flights abroad whatsoever in 2013.⁵³

Figure 3: Mean annual household CO2 emissions from all sources by disposable household income decile⁵⁴



Those who are most responsible for climate change are also most protected from its impacts.

For example, the impacts of flooding are unevenly distributed. A report for JRF found that flooding in the UK disproportionately affects the poorest and most vulnerable.

The authors explain that

‘people on lower incomes are less likely to have insurance, so reducing their access to safety nets at a point of crisis, while also having fewer resources to deal with the loss of possessions after floods occur or to take precautions in advance. Other factors, such as social isolation, or having a different language and cultural background (where people are unable to understand flood warnings), may also make people more vulnerable and less able to cope in an emergency.’⁵⁵

The authors identified those who would be disproportionately disadvantaged in a flood were children, older people, those with physical impairments and chronic illnesses, those receiving care at home and the homeless.⁵⁶ Anyone who is in one of these groups, and is also at risk of flooding, is at particular 'flood disadvantage'. The authors mapped flood disadvantage across the UK against planned expenditure on flood risk management. They found that rates of expenditure were not associated with levels of flood disadvantage.⁵⁷ This suggests that government efforts are likely to fail to protect the most vulnerable from the effects of flooding unless a new strategy which accounts for these inequalities is adopted.

Overheating of the planet due to climate change can also pose serious health risks such as heatstroke, heat cramps, fainting and heat exhaustion. Studies show that mortality rates increase dramatically during a heat wave, with estimates at 2,323 additional deaths in the 2006 heat-wave across England.⁵⁸ The most affected were those who were elderly, living alone, already unwell or immobile and those who were economically disadvantaged.⁵⁹

The double inequality of air pollution and its impacts

The impacts of air pollution are also uneven. There is now substantial evidence that vehicle emissions are higher in more deprived areas.^{60, 61} A recent study found that air pollution was responsible for a higher number of deaths from respiratory disease in the most deprived areas and where health needs were greatest.⁶² Those living in poor areas are generally less able to avoid air pollution, for example by moving house.⁶³

Not only do those on higher incomes have higher emissions overall (as we saw above), but car ownership and use specifically (which is the primary cause of poor air quality in the UK)⁶⁴ increases steadily up the income ladder.⁶⁵

There is a strong overlap in the populations that suffer most from flooding, overheating and air pollution. Although environmental inequalities are often looked at individually, in fact environmental impacts tend to be cumulative. The Environment Agency highlight the fact that:

*'People who are deprived may also be more vulnerable to the cumulative effects of environmental inequalities than others. Socio-economic, physical and demographic factors associated with deprivation (e.g. language barriers, ability to earn, old age, and health status) often affect people's ability to respond to other pressures, including those caused by environmental degradation.'*⁶⁶

However, they find that Environmental Impact Assessment rarely consider these cumulative impacts and are therefore at risk of severely underestimating the scale of environmental inequalities.⁶⁷ A broader understanding of how environmental inequalities intersect will be important to tackling environmental justice in the UK.

Coastal communities: The double challenge of climate change and over fishing

Today, coastal areas are some of the most deprived areas in the UK. When compared to non-coastal areas, they experience higher levels of underemployment, economic inequality, and educational underachievement. The recent report from the New Economics Foundation *Turning Back to the Sea* reported findings from three years of work with coastal communities around the UK.⁶⁸ Although many of the issues they face are common to other deprived areas of the UK, the impacts of environmental degradation hit coastal areas particularly hard given the dual challenge of climate change and overfishing.

Overfishing (when we catch too much fish for the ecosystem to support) is a key example where the deterioration of the marine ecosystem has entrenched deprivation in already deprived parts of the country. The consistent overexploitation of fish stocks⁶⁹ makes fishing less efficient today than the days when most boats in the UK fleet were powered by sail. The trawl fishing fleet today has to work 17 times harder to catch the same amount of fish than it did in 1889 due to overfishing.⁷⁰

Since the 1940s, the amount of fish landed in the UK has declined by more than half. Moreover, the number of jobs has been strongly affected by changes in fishing technology, and how the government distributes the fishing quota to different fishing fleets. The small-scale fishing fleet (boats under 10 metres in length) contributes to the economic sustainability of ports all around the country. They represent over 75% of the UK vessels but only receive just 1.5% of the quota. Figures 4 and 5 from our 2015 report track changes over time in fish landings and employment, showing substantial declines in each.

Figure 4: Decline in landings of fish in the UK (1948-2012)

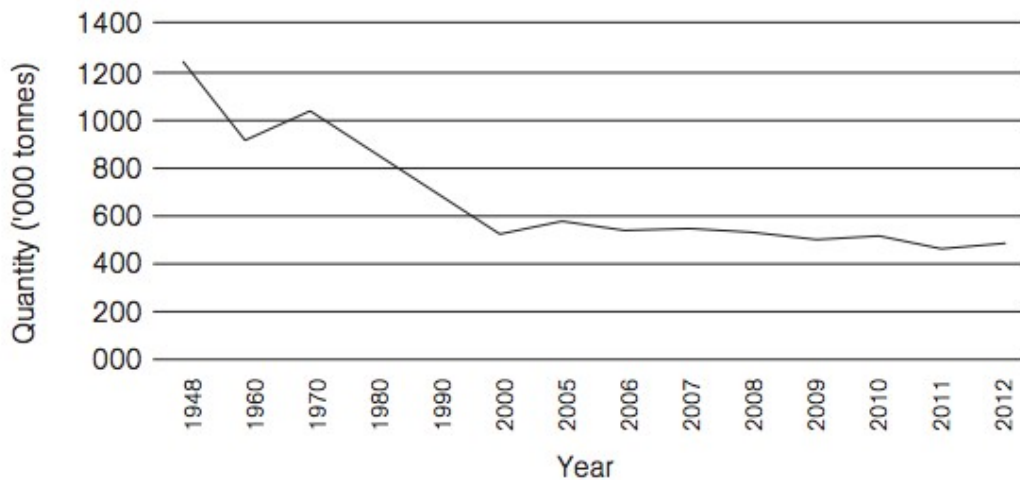
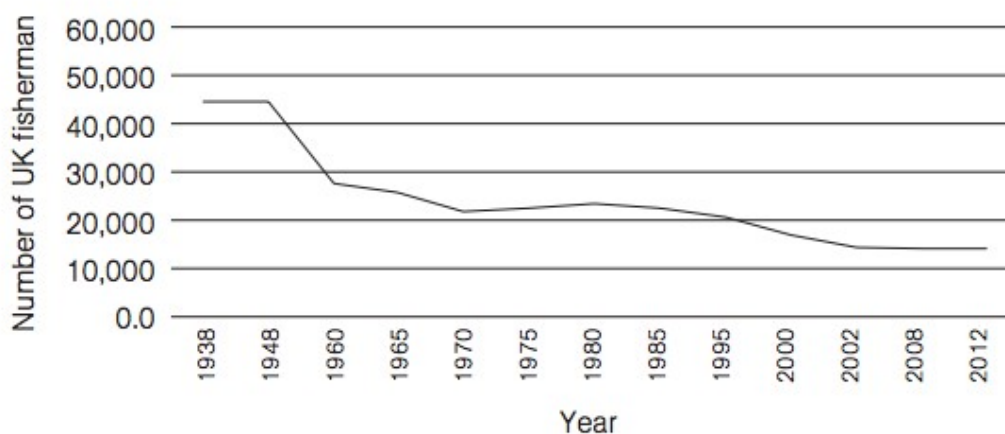


Figure 5: Decline in fishing jobs (1938-2011)



Currently, the UK fishing industry employs about one-third of the number of fishers as it did in the 1940s.⁷¹ Unless the lost jobs are replaced with other employment opportunities, this will further exacerbate the economic inequalities between coastal and non-coastal economies.

As the ability of the sea to provide employment falters, coastal communities are also at the frontier of the effects of climate change in the UK. Increasingly stormy and extreme weather as a result of climate change will affect coastal infrastructure, such as local energy supplies. These will pose particular challenges to those coastal areas that are isolated and have older populations who are reliant on public services, such as transport and health. More frequent flooding is likely to bring down house prices, affect tourism, discourage further investment, and have a negative impact on wellbeing. Rising sea levels are forcing many people to make difficult decisions, such as having to leave their homes and communities as they face with coastal erosion.⁷²

In conversation with coastal communities around the UK, the New Economics Foundation heard stories of how the sea, which was once a source of economic prosperity, is turning into an environmental threat. Their sense of place and identity is being threatened in the process.

What could be done? In *Turning Back to the Sea*,⁷³ The New Economics Foundation has proposed the development of a Blue New Deal to revitalise coastal areas and put communities in the driving seat. Priorities include putting communities in control of local economic development and defining the outcomes that matter most to them; government provision of finance directly to coastal communities; strengthening local supply chains and investing in marine renewable energy.

The systems and institutions that reproduce inequality and environmental degradation

In this section we set out some of the systems and institutions within the UK that produce inequality and environmental degradation: the UK's food system and energy system. These are not necessarily the most important drivers, but have been chosen to illuminate the interconnectedness of inequality and environmental degradation.

Case study: The UK's privatised energy system

The UK's energy system was privatised in the 1990s, as the result of an economic paradigm that assumed that competing companies would provide the lowest prices for the highest quality services. The hope was that social and environmental concerns could be dealt with through regulations and taxes and that the market should be left to its own devices as much as possible.⁷⁴

The New Economics Foundation has long argued that this economic experiment has failed, and this is particularly the case in relation to energy. This year, the Competition and Markets Authority concluded a two-year-long investigation into the energy market, finding a severe lack of competition and obfuscation tactics on consumer bills.⁷⁵

In two reports *Power Failure: Five fundamental faults of the UK's energy system*⁷⁶ and *Switched on London: Democratic energy in the capital*⁷⁷ The New Economics Foundation explored the effect of the UK's energy system on inequality and the environment.

High energy costs hit the poorest hardest. The UK has some of the highest energy prices in Europe, excluding taxes.⁷⁸ In 2014, 2.38 million people in England were living in fuel poverty –10.6% of households.⁷⁹ In England, households are defined as fuel poor if they have higher than average fuel needs and if, were they to spend that amount, their income would fall below the official poverty line. Scotland

and Wales use a more stringent measure, whereby a household is defined as fuel poor if they spend more than 10% of their income adequately heating their home. Both Scotland and Wales have fuel poverty rates of roughly 30%.⁸⁰

Many of those living in fuel poverty find themselves unable to heat their home or heat their food with profound impacts on health and wellbeing. Public Health England reported that fuel poverty and cold-home related health problems were a major cause of health inequalities.⁸¹ According to the Office for National Statistics, there were over 24,300 excess winter deaths in England and Wales in 2015/2016, primarily caused by lack of protection from the cold.⁸²

The current implementation of green levies is deeply regressive. Because they are passed onto consumers in energy prices (without offsetting additional income from other sources), green levies act like other consumption taxes: poorer households pay more as a proportion of their income than richer households while, at the same time, enjoying less access. The Department of Energy and Climate Change estimated that in 2013, out of an average household energy bill of £1,255, 9% was due to charges for energy and climate change policies.⁸³ Low-income households are thereby subject to a double injustice: although they make smaller contributions to carbon emissions than richer households, they pay proportionately more for the policies to mitigate its effects.⁸⁴ Given the crucial role that green taxes need to play in a transition to a low carbon economy, this imbalance must be tackled to ensure that transition to a low carbon economy is socially just.

Control of our energy system is in a small number of hands. Far from creating a competitive market, the energy sector is highly concentrated, with just six companies dominating the market. Although smaller energy suppliers have recently increased their share of the market, it still remains at 14% in the second quarter of 2016. Ownership of the six large companies has also become more concentrated; the proportion of shares owned by individuals in the UK fell from 54% in 1963 to 11% in 2012.⁸⁵

This concentration of ownership is fuelling wealth and income inequality at the very top. Ofgem estimated that the UK's six large energy suppliers earned £2.8 billion in profits in 2013. These profits are described as 'surplus capital' and a high proportion was devoted to dividend payouts and share buybacks. Buybacks see companies buying their own shares from the market to inflate the share price, thereby increasing the wealth of shareholders.⁸⁶ As larger companies tend to have a wider gap between the highest and lowest salaries, it is no surprise that the executives of the UK's six major energy companies receive remuneration packages worth millions of pounds each year, thereby increasing income inequality.

The UK's privatised energy system is failing to invest in renewables. Despite large profits, the energy sector is failing to rise to this challenge and UK investment in energy innovation per person is lower than most OECD countries.⁸⁷ The emphasis on quarterly profit reports to shareholders has motivated short-term investment in fossil fuel rather than long-term investment in renewable alternatives.

Our current energy system threatens the UK's ability to meet a number of the SDGs. Most obviously, our fossil-fuel intensive energy system threatens goal 7 – affordable and clean energy, and goal 13, taking climate action. But it also fuels inequality (goal 10), contributes to poverty, threatens health and wellbeing, and fails to promote decent work.

What could be done? The New Economics Foundation has argued that approaches to fixing these issues individually (such as green levies and winter fuel allowances) are not working. Instead, the Foundation has proposed an end to the privatised model of energy, to be replaced by a collaborative, decentralised approach which would put communities in control of energy generation, and create more affordable, greener and more equitable outcomes. To see these proposals in more detail, including case studies of where this approach is working now, see *Switched on London: Democratic energy in the capital*.⁸⁸

Case study: The UK's food system

Effectively producing and distributing food in an equitable and sustainable way should be one of the most important primary functions of an economy. In 2014 the New Economics Foundation published *Urgent Recall: Our food system under review*,⁸⁹ arguing that the UK's economy is currently failing in this regard.

The UK's food system is highly energy intensive. Our food is travelling further. Total UK CO₂ emissions from food transport increased by 15% between 1992 and 2010 while air food kilometres increased by 162%.⁹⁰ The UK's food system uses roughly eight calories of energy to produce every one calorie of energy from food, most of which is fossil fuels.⁹¹

Greater uniformity is threatening biodiversity. In a globalised market, standardisation and the convergence of diets at a global level are driving uniformity in food production. Nearly 80% of UK crop production consists of just three species – wheat, barley, and oilseed rape.⁹² Livestock production is also increasingly concentrated in a small number of genetic varieties. 100 out of 130 native breeds of poultry, cattle, sheep, goats, pigs, horses, and ponies are at risk.⁹³ Reductions in genetic and species diversity decrease disease resistance, ecosystem resilience and resistance to climate change.

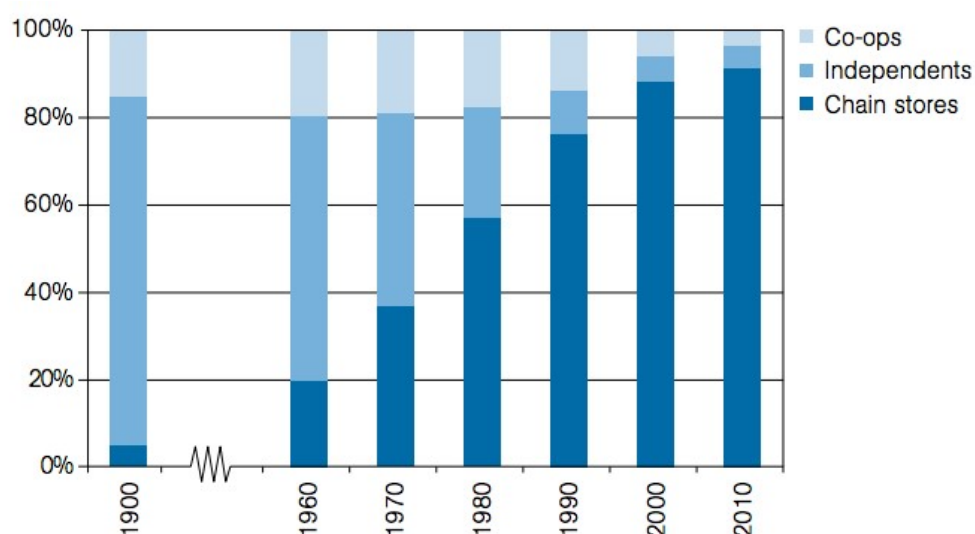
The food sector is failing to provide good jobs. Agriculture employs very few people per hectare of land compared to other European Nations and this figure is declining. For every 10 farmers in the UK, there are 41 people working in business and finance.⁹⁴ The jobs that are provided are of low quality; although the official average salary (£25,578) is only slightly below the UK average, many workers do not receive a salary at all and are paid by the hour and report being underpaid and over-worked.⁹⁵

Long and complex supply chains obfuscate poor quality food, and those on low-incomes may be most affected. In the UK, demand for food is relatively stable. In order to increase profits, companies therefore turn to increasing demand for products with 'added value'. This involves creating increased numbers of supply chain steps between the growing of food to its consumption, i.e. making food more 'processed'. This not only encourages less healthy food consumption, but also creates highly complex and opaque supply chains. This opaqueness was brought into sharp focus with the horsemeat scandal, where it was often those on low incomes with the least consumer clout who were being mis-sold sub-standard food.⁹⁶

Markets are becoming consolidated across the food supply chain. Farms in the UK are some of the largest in Europe and are increasing in size, from an average of 56 hectares in 2005 to 90 in 2010. The concentration is significant - just six UK potato producers now control 60% of production. Furthermore, the price of a hectare of land has increased threefold from 2004, as land in the UK is increasingly bought as a financial investment, pushing up prices across the board.⁹⁷ This not only creates a high barrier to new entrants, but also boosts the wealth of existing land owners.⁹⁸ Among the major European economies, the UK food manufacturing sector is also heavily dominated by large companies. A small number of retailers also control an increasing share of the grocery market (Figure 6).

This concentration of farms and businesses across the food supply chain increases inequality in two ways. Firstly, smaller businesses create a disproportionate number of jobs,⁹⁹ as many of the economies of scale obtainable in large companies require less labour. Concentration of farms and businesses is therefore likely to decrease the wage share and increase economic inequality. Secondly, larger corporations generally have higher income ratios and extremely high executive pay.¹⁰⁰

Figure 6: UK grocery market share by value, 1900–2010



In all, the UK’s food system has impacts across a range of SDGs. It has profound environmental impacts, both in terms of energy use (goals 7 and 13) and biodiversity (goal 15). The New Economics Foundation estimated the total environmental impact of the UK’s food system to be in the region of £5.7–7.2 billion per year, or 6.3–7.9% of the market price of food.¹⁰¹ At the same time, it fuels wealth and income inequality and fails to provide high quality jobs.

What could be done? In *Urgent Recall*, the New Economics Foundation proposes a new approach to the UK’s food system. The old economic goals of high output and low prices should be replaced with high wellbeing, social justice and environmental stewardship. This requires reorganising the UK’s food system around smaller-scale infrastructure, shorter and more integrated supply chains and circular and efficient resource use could improve social justice and environmental outcomes.¹⁰²

Conclusion

When it comes to inequality and the environment, the UK’s economic system is failing. Wealth and income are increasingly concentrated in fewer hands, and these inequalities have been increasing.

We suggest that these outcomes are the result of an economic system configured to pursue the wrong goals, leaving the production of crucial goods and services to the forces of the market. These markets are failing, even on their own terms. They cannot create the step change required to achieve environmental protection and investment or a more equitable economic distribution. In the meantime, the effects of environmental degradation are falling disproportionately on the poor and most vulnerable.

One of the major challenges to progress is that inequality and environmental issues are too often considered in isolation. The result is a patchwork of taxes, regulations and incentives that too often treat the symptoms rather than the cause. The SDGs could, and should, provide an opportunity to tackle these problems together, at root. But to do this will require a fundamental shift in belief about what the economy is for and how we measure its success.

Dethroning growth

The feasibility of economic growth coupled with declining carbon emissions is beyond the scope of this paper. However, at the very least, the seventeen SDGs indicate that growth on its own cannot produce an equitable and sustainable future.

Yet when it comes to trade-offs between growth and other environmental and social goals in UK politics economic growth almost always wins out. One example is the UK's decision to subsidise fossil fuels to promote economic growth.¹⁰³ This prioritisation has become deeply institutionalised into Whitehall and UK politics. We see this in the increasing dominance of the Treasury over and above other government departments and the status and authority given to the Chancellor.¹⁰⁴

There are many deep-rooted reasons for the primacy of economic growth. But one reason is the simplicity of growth as a goal and GDP as an indicator. The SDGs have 17 goals, 169 targets and 230 indicators, making it very difficult to gain an overall picture of the UK's progress or hold the government to account. The New Economics Foundation argues that in order for the SDGs to be able to direct policy making towards a wider set of objectives, a smaller set of priority indicators must be adopted.

To do this, however, requires political will and a genuine commitment to the SDGs. While many of the objectives in the SDGs are relatively uncontroversial across the political spectrum, goals related to inequality and the environment are less straightforward.

Where there's a will there's a way?

Inequality has long been condemned by parts of the political Left and – more recently – the Right. However, it is notable that no UK government has ever adopted an explicit target to reduce economic inequality. During the 13 years of Labour government between 1997 and 2010 overall inequality stayed stable as rising incomes at the bottom of the income spectrum were combined with soaring incomes of the very wealthy.¹⁰⁵ And there was certainly no consensus within the Labour party that inequality should be reduced (as evidenced by Peter Mandelson's infamous statement that he was 'intensely relaxed' about people getting filthy rich as long as they pay their taxes).

Although Theresa May has recently adopted the language of inequality, she has always been clear that this doesn't extend to inequalities of outcome e.g. in wealth, income, or health. In 2010, while abolishing the legal requirement for public bodies to reduce inequalities caused by class disadvantage, she argued that equality was associated with 'the worst forms of political correctness and social engineering',¹⁰⁶ a view that she recently echoed again in debates over grammar schools.¹⁰⁷

Political will to tackle environmental degradation and tackle climate change.

Reports from the Environmental Audit Commission over recent years repeatedly lament that recommendations on environmental issues have not been addressed.^{108, 109} The recent decision to abolish DECC was widely considered a downgrading of action on climate change,¹¹⁰ just as the abolition of the Sustainable Development Commission in 2011 was deemed a massive underestimation of the 'constant slog' required to embed the principles of sustainable development into government.¹¹¹ Mark Wallace, Chief Executive of Conservative Home, suggests that May will be happy to abandon Cameron's claims of being the 'greenest government ever',¹¹² and it is easy to see climate change falling even further behind as the UK faces the task of leaving the European Union.

It is hard to imagine these more challenging aspects of the SDGs being adopted without significant public and political pressure. Although the SDGs themselves have received very little attention in the UK so far, there is still inspiration to be found outside of Whitehall. The Welsh Wellbeing of Future Generations Act¹¹³ is one of the most ambitious attempts in UK politics to put sustainable development at the centre of policy making. An All-Party Parliamentary Group has recently been launched on the environmental limits to growth, demonstrating willingness by some across the political spectrum to think more systemically about economic change.¹¹⁴ Working to build these initiatives and movements in and outside of Whitehall has never been more urgent.

Appendix 1: OECD country rankings according to selected indicators¹¹⁵

Goal	Selected indicators	Further explanation	UK position (out of 34 unless otherwise stated)
Goal 1: End poverty in all its forms everywhere	Poverty rate	Percentage whose income falls below the poverty line, defined as half the median household income of the total population (an indication of the extent of poverty)	17 th . 10% of people in the UK are living in relative poverty
	Poverty gap	Percentage by which the mean income of the poor falls below the poverty line (an indication of the severity of poverty)	27 th . The mean income of those living in poverty is 34.7% below the poverty line.
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Agricultural nutrient balances	The nitrogen and phosphorous balance expressed as N and P surplus intensities per hectare of agricultural land - indicating nitrogen and phosphorous use in farming that pollutes the ecosystem	27 th .
	Obesity rate	Percentage of the population who are obese.	27 th . 24.7% of people in the UK are obese
Goal 3: Ensure healthy lives and promote wellbeing for all at all ages	Healthy life expectancy	The number of years expected to be lived in good health (i.e. free from disability)	14 th . Life expectancy in the UK is 71.
	Life satisfaction	How satisfied people are with their lives, on an 11 point scale (self-reported)	18 th (shared position with Chile). Those in the UK rate their life satisfaction as an average of 6.6 on an 11 point scale.
Goal 5: Achieve gender equality and empower all women and girls	Share of women in national parliaments		22 nd . 22.50% of the UK parliament is female.
	Gender pay gap	The difference between median wages of women relative to men	22 nd . Women earn on average 17.5% less than men
Goal 6: Ensure availability and sustainable management of water	Freshwater withdrawals as percent of total internal resources		15 th . Freshwater withdrawals 8.99% account for

and sanitation for all			
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all	Energy intensity	The ratio between total primary energy supply and GDP	3 rd (at 3.89)
	Share of renewable energy in total final energy consumption		33 rd of 34 (3.16% of the UK's energy consumption is from renewable sources)
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	GNI per capita		17 th
	Employment to population ratio	It is measured as the proportion of a country's working age population (generally those aged over 15) that is employed	10 th . 72.64% of the working age population is in employment.
Goal 10: Reduce inequality within and between countries	The Palma ratio	The share of all income received by the 10% of people with the highest disposable income divided by the share of all income received by the 40% of people with the lowest disposable income	29 th . The richest 10% receive 1.37 times the share of income compared to 40% of people with the least income.
	PISA social justice index	The strength of the impact of one's socioeconomic background on educational success	16 th
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	Particulate matter (a measure of air pollution)	The proportion of the population whose exposure to "PM2.5" is above the WHO threshold of 15 micrograms per cubic meter	Joint 1 st . the population is on average not exposed to particulate matter concentrations exceeding this threshold
	Rooms per person (a measure of overcrowding)	The average number of rooms in a dwelling per person.	Joint 10 th
Goal 12: Ensure sustainable consumption and production patterns	Municipal waste per person	How much waste is generated per capita and per year	20 th . 494kg of waste is generated per person in the UK
	Domestic material consumption	The annual quantity of raw materials extracted from the domestic territory minus	2 nd . 9.59 tonnes per capita

Goal 13: Take urgent action to combat climate change and its impacts	Production-based energy-related CO2 emissions	total exports plus total imports “Production-based” means that emissions refer to gross direct CO2 emissions from fossil fuel combustion, emitted within the national territory excluding bunkers, sinks, and indirect effects.	16 th
	Greenhouse gas emissions per GDP		11 th at 280.05
Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Ocean health index	The Ocean Health Index evaluates the condition of marine ecosystems according to ten human goals; food provision, artisanal fishing opportunities, natural products, carbon storage, coastal protection, sense of place, coastal livelihoods and economies, tourism and recreation, clean waters, and biodiversity.	10 th (74 on the index)
	Over-exploited fish stocks		25 (out of 25 as 9 countries could not be included due to data limitations) with 24.04% over-exploitation of fish stocks
Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation, and halt biodiversity loss.	Terrestrial protected areas		Joint 1 st (with 8 other countries) 17% or more of the UK’s terrestrial biome areas are protected
	Red List Index for birds	Percentage of threatened bird species	UK not included

These rankings are of course relative. A high ranking does not necessarily signify good performance, only good performance relative to other countries. In addition, it does not signify how far the UK needs to travel in order to meet the SDGs. This is particularly important for example when it comes to energy intensity.

Endnotes

¹Environmental Audit Committee (2015, 9 December).HC388 *Oral evidence: The Government's approach to sustainable development inquiry* [webpage]. (House of Commons, London). Available at: <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environmental-audit-committee/the-governments-approach-to-sustainable-development/oral/26027.html>. Accessed 20/12/2016

² Kroll, C. (2015) *Sustainable Development Goals: Are the rich countries ready?* Gutersloh: Bertelsmann Stiftung. Available at: <https://www.bertelsmann-stiftung.de/en/publications/publication/did/sustainable-development-goals-are-the-rich-countries-ready/>. Accessed 20/12/2016. p.9.

³ United Nations. (2015) Transforming our world: the 2030 Agenda for Sustainable Development [webpage]. Available at: <https://sustainabledevelopment.un.org/post2015/transformingourworld>, Accessed 20/12/2016

⁴Kroll, C. (2015) *Sustainable Development Goals: Are the rich countries ready?* Gutersloh: Bertelsmann Stiftung. Available at: <https://www.bertelsmann-stiftung.de/en/publications/publication/did/sustainable-development-goals-are-the-rich-countries-ready/>. Accessed 20/12/2016

⁵Environmental Audit Committee (2015, 9 December).HC388 *Oral evidence: The Government's approach to sustainable development inquiry* [webpage]. (House of Commons, London) Available at: <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environmental-audit-committee/the-governments-approach-to-sustainable-development/oral/26027.html>. Accessed 20/12/2016

⁶International Development Committee (2016, 11 January).*Oral evidence: Sustainable Development Goals* [webpage]. (House of Commons, London) Available at <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/international-development-committee/sustainable-development-goals/oral/26774.html>, Accessed 20/12/2016

⁷ Environmental Audit Committee (2015) *An Environmental Scorecard: Fifth Report of Session 2014-15* (House of Commons, London). Available at: <http://www.publications.parliament.uk/pa/cm201415/cmselect/cmenvaud/215/215.pdf> Accessed 20/12/2016

⁸Committee on Climate Change, Meeting carbon budgets (July 2014), page 55

⁹Department for Environment, Food & Rural Affairs (2016) *UK's Carbon Footprint 1997-2013*.

¹⁰Environmental Audit Committee, (2013). Fifth Report of Session 2013–14, Progress on carbon budgets, House of Commons. Available at: <http://www.gci.org.uk/EAC/60.pdf>. Accessed 18/11/2016. p. 9

¹¹Department for Business, Energy and Industrial Strategy (2016) *Digest of United Kingdom Energy Statistics 2016*.London. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/552060/DUKES_2016_FINAL.pdf Accessed 20/12/2016. p.155

¹² Kroll, C. (2015) *Sustainable Development Goals: Are the rich countries ready?* Gutersloh: Bertelsmann Stiftung. Available at: <https://www.bertelsmann-stiftung.de/en/publications/publication/did/sustainable-development-goals-are-the-rich-countries-ready/>. Accessed 20/12/2016

¹³Environmental Audit Committee (2014) *Action on Air Quality: Sixth Report of Session 2014-15*. (House of Commons, London). Available at: <http://www.parliament.uk/documents/commons-committees/environmental-audit/HC-212-for-web.pdf>. Accessed 20/12/2016

¹⁴Environmental Audit Committee (2015) *An Environmental Scorecard: Fifth Report of Session 2014-15* (House of Commons, London). Available at: <http://www.publications.parliament.uk/pa/cm201415/cmselect/cmenvaud/215/215.pdf> Accessed 20/12/2016 p.11

¹⁵Ibid p.11

¹⁶Ibid

¹⁷O'Brien, C. (2016) *Fish Stock Status*. Slide set presented to Friend's House, London, 10th November 2016. Available at: http://www.seafish.org/media/1664079/clg_nov2016_cefas.pdf, Accessed 20/12/2016. Slide 4

¹⁸Department for Environment, Food and Rural Affairs (2016). Soil Nutrient Balances: IUK Provisional Estimates for 2015. Available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/539139/soilnutrientbalances-UK-21jul16.pdf. Accessed on 17/10/2016

¹⁹OECD (2016), Income inequality (indicator).doi: 10.1787/459aa7f1-en. Accessed 23/11/2016

²⁰ONS (2017) *Statistical Bulletin: Household disposable income and inequality in the UK: financial year ending 2016*. Available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/householddisposableincomeandinequality/financialyearending2016>. Accessed 14/12/2016.

²¹Ibid.

²²Belfield, C. Cribb, J, Hood, A et al. (2016).*Living Standards, Poverty and Inequality in the UK 2016*. London, Institute for Fiscal Studies. Available at:

<https://www.ifs.org.uk/uploads/publications/comms/R117.pdf> Accessed 20/12/2016. p.22-23

²³Ibid. figure 3.6 p.24

²⁴ONS (2017) *Statistical Bulletin: Household disposable income and inequality in the UK: financial year ending 2016*. Available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/householddisposableincomeandinequality/financialyearending2016>. Accessed 14/12/2016.

²⁵Belfield, C. Cribb, J, Hood, A et al. (2016).*Living Standards, Poverty and Inequality in the UK 2016*.(London, Institute for Fiscal Studies). Available at:

<https://www.ifs.org.uk/uploads/publications/comms/R117.pdf> Accessed 20/12/2016 p.16

²⁶Ibid., referencing source: <http://www.wid.world/#Database>, accessed 20 June 2016. Figures for more recent years were not available.

²⁷Murtin, F. & d'Ercole, M. (2015) *Household wealth inequality across OECD countries: new OECD evidence* (OECD). Available at: <https://www.oecd.org/std/household-wealth-inequality-across-OECD-countries-OECD-SB21.pdf>. Accessed 12/12/2016.

²⁸Ibid.

²⁹Knight Frank. (2016). The wealth report 2016: the global perspective on prime property and wealth. Knight Frank.

³⁰Ibid.

³¹Padoan, P. C. (2010). A family affair: Intergenerational social mobility across OECD countries. *Economic Policy Reforms: Going for Growth 2010*, 181-198.

³²Gregg, P., Macmillan, L., & Vittori, C. (2014). Moving towards estimating lifetime intergenerational economic mobility in the UK (No. 13/332). Department of Economics, University of Bristol, UK.

³³Quick, A. Inequality is at the heart of our housing crisis. February 23rd, 2016. Not currently online but available upon request to the author. Quoting Tunstall, B. (2015) *Relative housing space inequality in England and Wales, and its recent rapid resurgence*, Taylor and Francis online, <http://www.tandfonline.com/doi/full/10.1080/14616718.2014.984826>.

³⁴Foster, D. (2016) 'Empty homes and rough sleepers: the numbers'. *The Guardian*. Published 10th March 2016. Available at <https://www.theguardian.com/housing-network/2016/mar/10/empty-homes-england-scotland-homelessness>. Accessed 10/12/2016

³⁵Belfield, C. Cribb, J, Hood, A et al. (2016).*Living Standards, Poverty and Inequality in the UK 2016*.(London, Institute for Fiscal Studies). Available at:

<https://www.ifs.org.uk/uploads/publications/comms/R117.pdf> Accessed 20/12/2016

³⁶House of Commons (2016) *Poverty in the UK: Statistics*. House of Commons. Available at: <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN07096><http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN07096>. Accessed 20/12/2016.

³⁷ONS (2016) *Article: Persistent Poverty in the UK and EU: 2014*. Available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/articles/persistentpovertyintheukandeu/2014>. Accessed 20/12/2016

³⁸Social Mobility & Child Poverty Commission (2015).*State of the Nation 2015: Social Mobility and Child Poverty in Great Britain*. House of Commons. Available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485926/State_of_the_nation_2015_social_mobility_and_child_poverty_in_Great_Britain.pdf. Accessed 12/12/2016. p.123

³⁹Kersley, H., Shaheen, F. (2014). *Addressing Inequality at Root: 5 goals for a fairer UK*. London, New Economics Foundation. Available at: <http://neweconomics.org/2014/07/addressing-economic-inequality-at-root/>. Accessed 12/12/2016

- ⁴⁰Lawlor, E., Spratt, S. Shaheen, F. et al. (2011). *Why the Rich are Getting Richer: The determinants of economic inequality*. London, New Economics Foundation. Available at: https://b.3cdn.net/nefoundation/9f13eb419294bb7cfe_abm6bc76e.pdf. Accessed 12/12/2016.
- ⁴¹Kersley, H., Shaheen, F. (2014). *Addressing Inequality at Root: 5 goals for a fairer UK*. London, New Economics Foundation. Available at: <http://neweconomics.org/2014/07/addressing-economic-inequality-at-root/>. Accessed 12/12/2016
- ⁴²Meadway, J. (2014) *Why we need a new macroeconomic strategy*. London, New Economics Foundation. Available at: <http://neweconomics.org/2013/04/why-we-need-a-new-macroeconomic-strategy/>. Accessed 12/12/2016
- ⁴³Onaran, Ö., Guschanski, A., Meadway, J., & Martin, A. (2015). *Working for the economy: the economic case for trade unions*. London, New Economics Foundation. Available at: http://b.3cdn.net/nefoundation/5237986e74dd1368f5_51m6b4u2z.pdf. Accessed 12/12/2016
- ⁴⁴Stears, M. (2016) 'Deliveroo: The next battle for the gig economy'. London, New Economics Foundation. Available at: <http://neweconomics.org/deliveroo-next-battle-gig-economy/>. Accessed 12/12/2016.
- ⁴⁵Martin, A., Greenham, T., & Kersley, H. (2014). *Inequality and financialisation: a dangerous mix*. London, New Economics Foundation. Available at: http://b.3cdn.net/nefoundation/005f379c2df9c812f1_gqm6ivky0.pdf Accessed 12/12/2016.
- ⁴⁶Ibid
- ⁴⁷ONS (2016). The effects of taxes and benefits on household income: financial year ending 2015. Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/theeffectsoftaxesandbenefitsonhouseholdincome/financialyearending2015>. Accessed 12/12/2016. Although In the financial year ending 2015 (2014/15), the average income of the richest fifth of UK households before taxes and benefits was £83,800, 14 times greater than that of the poorest fifth who had an average income of £6,100 per year. The richest fifth of households paid £29,800 in taxes (direct and indirect) compared with £5,200 for the poorest fifth.
- ⁴⁸Bowers, S. (2016) 'Corporation tax is on a downward trend, says OECD report'. *The Guardian*. Available at: <https://www.theguardian.com/business/2016/sep/22/corporation-tax-downward-trend-oecd-gdp-growth>. Accessed 12/12/2016
- ⁴⁹Lawlor, E., Spratt, S. Shaheen, F. et al. (2011). *Why the Rich are Getting Richer: The determinants of economic inequality*. London, New Economics Foundation. Available at: https://b.3cdn.net/nefoundation/9f13eb419294bb7cfe_abm6bc76e.pdf. Accessed 12/12/2016. p.40
- ⁵⁰Chancel, L., & Piketty, T. (2015). Carbon and inequality: from Kyoto to Paris. *Trends in the global inequality of carbon emissions (1998-2013) & Prospects for an equitable adaptation fund*. Paris: Paris School of Economics. Available at: <http://piketty.pse.ens.fr/files/ChancelPiketty2015.pdf>. Accessed 05/11/2016.
- ⁵¹Gore, T. (2015). *Extreme Carbon Inequality: Why the Paris climate deal must put the poorest, lowest emitting and most vulnerable people first*. Oxfam. Available at: <http://policy-practice.oxfam.org.uk/publications/extreme-carbon-inequality-why-the-paris-climate-deal-must-put-the-poorest-lowest-582545>. Accessed 12/12/2016. Figure 5 technical report
- ⁵²Hargreaves, K., Preston, I., White, V., & Thumim, J. (2013). The Distribution of Household CO2 Emissions in Great Britain. *JRF Programme Paper Climate change and social justice, Updated Version Supplementary Project Paper, (1), 1998-2004*. Available at: https://www.cse.org.uk/pdf/project_paper_1_household-emissions-distribution.pdf. Accessed 12/12/2016. p.5
- ⁵³Devlin, S., & Bernick, S. (2015). *Managing aviation passenger demand with a frequent flyer levy*. London, New Economics Foundation. Available at: http://b.3cdn.net/nefoundation/58e9fad2705500ed8d_hzm6yx1zf.pdf. Accessed on 12/12/2016.
- ⁵⁴Climate Just (2014). Which households emit the most carbon from energy use? [webpage]. **Figure 1.1**. Available at: <http://www.climatejust.org.uk/messages/which-households-emit-most-carbon-energy-use>. Accessed 12/12/2016.
- ⁵⁵England, K., & Knox, K. (2015). *Targeting flood investment and policy to minimise flood disadvantage*. Joseph Rowntree Foundation, York. Available at: <https://www.jrf.org.uk/report/targeting-flood-investment-and-policy-minimise-flood-disadvantage>. Accessed 12/12/2016.
- ⁵⁶Ibid.
- ⁵⁷Ibid.

-
- ⁵⁸Green, H. K., Andrews, N., Armstrong, B., Bickler, G., & Pebody, R. (2016). Mortality during the 2013 heatwave in England—How did it compare to previous heatwaves? A retrospective observational study. *Environmental research*, 147, 343-349.
- ⁵⁹McGregor, G. R., Felling, M., Wolf, T., & Gosling, S. (2007). *The social impacts of heatwaves*. The Environment Agency: London. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291052/scho0807bncw-e-e.pdf. Accessed 12/12/2016
- ⁶⁰King, K., & Stedman, J. (2000). *Analysis of air pollution and social deprivation*. AEA Technology. Available at: <http://webcache.googleusercontent.com/search?q=cache:dH7KHWtZQQcJ:uk-air.defra.gov.uk/assets/documents/reports/cat09/aeat-r-env-0241.pdf+&cd=1&hl=en&ct=clnk&gl=uk&client=firefox-a>. Accessed 12/12/2016
- ⁶¹Titheridge, H., Mackett, R. L., Christie, N., Oviedo Hernández, D., & Ye, R. (2014). *Transport and poverty: a review of the evidence*. p.1, p.18-19
- ⁶²Brunt, H., Barnes, J., Jones, S. J., Longhurst, J. W. S., Scally, G., & Hayes, E. (2016). Air pollution, deprivation and health: understanding relationships to add value to local air quality management policy and practice in Wales, UK. *Journal of Public Health*.
- ⁶³Reardon, L., Abdallah, S., Seaford, C. (2011) *The Road to Well-Being: The Relationships between Transport and Well-Being: A Report on the Existing Literature*, London, New Economics Foundation. Report commissioned by DfT – available from the New Economics Foundation by request
- ⁶⁴Environmental Audit Committee (2014) *Action on Air Quality: Sixth Report of Session 2014-15*. (House of Commons, London). Available at: <http://www.parliament.uk/documents/commons-committees/environmental-audit/HC-212-for-web.pdf>. Accessed 20/12/2016 p.7
- ⁶⁵National travel survey Table NTS0703: Household car availability by household income quintile: England, 1995/97 and 2015
- ⁶⁶Stephens, C., Willis, R., & Walker, G. P. (2007). *Addressing environmental inequalities: cumulative environmental impacts*. Environment Agency. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291062/scho0507bmrw-e-e.pdf. Accessed on 12/12/2016.
- ⁶⁷*Ibid.*
- ⁶⁸Vardakoulias, O. & Balata, F. (2016) *Turning Back to The Sea*. London: New Economics Foundation. Available at: http://neweconomics.org/turning-back-to-the-sea/?_sft_latest=research. Accessed 12/12/2016.
- ⁶⁹O'Brien, C. (2016) *Fish Stock Status*. Slide set presented to Friend's House, London, 10th November 2016. Available at: http://www.seafish.org/media/1664079/clq_nov2016_cefas.pdf, Accessed 20/12/2016. Slide 4
- ⁷⁰Balata, F. (2015). *Blue New Deal: Good jobs for coastal communities through healthy seas* New Economics Foundation: London. Available at http://b.3cdn.net/nefoundation/2ec4a9d52360c8dd5a_a7m6yt6ik.pdf, Accessed 12/12/2016. p.12
- ⁷¹*Ibid.* p.12
- ⁷²Vardakoulias, O. & Balata, F. (2016) *Turning Back to The Sea*. London: New Economics Foundation. Available at: http://neweconomics.org/turning-back-to-the-sea/?_sft_latest=research. Accessed 12/12/2016.
- ⁷³*Ibid.*
- ⁷⁴Devlin, S (2015). *Power Failure: Five fundamental faults of our energy system*. London: New Economics Foundation. Available at: http://b.3cdn.net/nefoundation/a8f5f886f667ebb4fc_97m6ivvw3.pdf. Accessed 12/12/2016. accessed 02/12/2016. p.4
- ⁷⁵uSwitch (2016) 'Competition and Markets Authority publishes final remedies for energy market reform'. Available at: <https://www.uswitch.com/gas-electricity/news/2016/06/24/competition-and-markets-authority-publishes-final-remedies-for-energy-market-reform/> Accessed 12/12/2016.
- ⁷⁶Devlin, S (2015). *Power Failure: Five fundamental faults of our energy system*. London: New Economics Foundation. Available at: http://b.3cdn.net/nefoundation/a8f5f886f667ebb4fc_97m6ivvw3.pdf. Accessed 12/12/2016. accessed 02/12/2016.
- ⁷⁷Devlin, S. (2016). *Switched On London: Democratic energy in the capital*. London: New Economics Foundation. Available at: http://neweconomics.org/switched-on-london/?lost=true&sf_s=+publications+++switched+on+london. Accessed 12/12/2016.
- ⁷⁸Devlin, S (2015). *Power Failure: Five fundamental faults of our energy system*. London: New Economics Foundation. Available at:

http://b.3cdn.net/nefoundation/a8f5f886f667ebb4fc_97m6ivvw3.pdf. Accessed 12/12/2016. accessed 02/12/2016., p.5

⁷⁹DEFRA (2016), *Annual Fuel Poverty Statistics Report, 2016*. Available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/557400/Annual_Fuel_Poverty_Statistics_Report_2016_-_revised_30.09.2016.pdf. Accessed 02/12/2016

⁸⁰Ibid.

⁸¹Institute of Health Equity (2014). *Local action on health inequalities: Fuel poverty and cold-home related health problems*. Public Health England. Available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/357409/Review7_Fuel_poverty_health_inequalities.pdf. Accessed 12/12/2016

⁸²ONS, 2016. Statistical bulletin: Excess winter mortality in England and Wales: 2015/16 (provisional) and 2014/15 (final) Released 23rd November 2017. Available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/excesswintermortalityinenglandandwales/2015to2016provisionaland2014to2015final> Accessed 13/01/2017. Accessed 12/11/2016.

⁸³Devlin, S (2015). *Power Failure: Five fundamental faults of our energy system*. London: New Economics Foundation. Available at:

http://b.3cdn.net/nefoundation/a8f5f886f667ebb4fc_97m6ivvw3.pdf. Accessed 12/12/2016. accessed 02/12/2016.p.11

⁸⁴Climate Just (2014). Which households emit the most carbon from energy use? [webpage]. **Figure 1.1:** Mean annual household CO₂ emissions from all sources by disposable household income decile (GB EFS dataset). Available at: <http://www.climatejust.org.uk/messages/which-households-emit-most-carbon-energy-use>. Accessed 12/12/2016.

⁸⁵Devlin, S (2015). *Power Failure: Five fundamental faults of our energy system*. London: New Economics Foundation. Available at:

http://b.3cdn.net/nefoundation/a8f5f886f667ebb4fc_97m6ivvw3.pdf. Accessed 12/12/2016. accessed 02/12/2016.p.6

⁸⁶Ibid p.8

⁸⁷Ibid p.8

⁸⁸Devlin, S. (2016). *Switched On London: Democratic energy in the capital*, London: New Economics Foundation. Available at: http://neweconomics.org/switched-on-london/?lost=true&_sf_s=+publications+++switched+on+london.

Accessed 12/12/2016.

⁸⁹Devlin, S. Dosch, T. (2014). *Urgent recall: Our food system under review*. London: New Economics Foundation. Available at: http://b.3cdn.net/nefoundation/1bfd1f66401d3b5f4b_fsm6vjoti.pdf. Accessed 12/12/2016.

⁹⁰Ibid

⁹¹Ibid

⁹²Ibid

⁹³Ibid

⁹⁴Ibid

⁹⁵Ibid

⁹⁶Paget, A. (2015) *British Aisles*. Demos, London. Available at:

https://www.demos.co.uk/files/476_1501_BA_body_web_2.pdf?1427295281. Accessed 12/9/2016

⁹⁷Martin, A., Greenham, T., & Kersley, H. (2014). *Inequality and financialisation: a dangerous mix*. London, New Economics Foundation. Available at:

http://b.3cdn.net/nefoundation/005f379c2df9c812f1_gqm6ivky0.pdf Accessed 12/12/2016.

⁹⁸Hetherington, P. (2015), 'Britain's farmland has become a tax haven. Who dates reform it?'

Available at: <https://www.theguardian.com/society/2015/sep/02/britain-farmland-tax-haven-reform>. Accessed 12/09/2016

⁹⁹Department for Business Innovation and Skills (2014). *Impacts Assessment: Summary Document. Small Business, Enterprise and Employment Act*. Available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/418684/bis-15-276-small-business-enterprise-and-employment-act-impact-assessment-summary.pdf Accessed 18/11/2016

¹⁰⁰Devlin, S. Dosch, T. (2014). *Urgent recall: Our food system under review*. London: New Economics Foundation. Available at: http://b.3cdn.net/nefoundation/1bfd1f66401d3b5f4b_fsm6vjoti.pdf. Accessed 12/12/2016.

¹⁰¹ Devlin, S. Dosch, T. (2014). *Urgent recall: Our food system under review*. London: New Economics Foundation. Available at: http://b.3cdn.net/nefoundation/1bfd1f66401d3b5f4b_fsm6vjoti.pdf. Accessed 12/12/2016.

¹⁰² Ibid.

¹⁰³ Jowit, J. (2015) 'Growth at all costs : climate change, fossil fuel subsidies and the Treasury'. *The Guardian*. Available at : <https://www.theguardian.com/environment/2015/may/24/growth-climate-change-fossil-fuel-subsidies-treasury-uk-oil-gas-renewable-energy>. Accessed 15/11/2016

¹⁰⁴ Berry, C., Gamble, A., Hay, C., Hunt, T. and Payne, T. (2016) *Reforming the Treasury, reorienting British capitalism*. Sheffield: Sheffield Political Economy Research Unit.

<http://speri.dept.shef.ac.uk/wp-content/uploads/2016/03/Brief-21-Reforming-the-Treasury.pdf>

¹⁰⁵ Joyce, R., & Sibieta, L. (2013). An assessment of Labour's record on income inequality and poverty. *Oxford Review of Economic Policy*, 29(1), 178-202.

¹⁰⁶ Gentleman, A. 'Theresa May scraps legal requirement to reduce inequality'. *The Guardian*.

Available at: <https://www.theguardian.com/society/2010/nov/17/theresa-may-scraps-legal-requirement-inequality>. Accessed 12/11/2016.

¹⁰⁷ Hansard (2016). House of Commons debate, 14th September 2016, Volume 614. Available at: 16091429000002/Prime Minister. Accessed 13/11/2016.

¹⁰⁸ Environmental Audit Committee (2014) *Action on Air Quality: Sixth Report of Session 2014-15*.

House of Commons. Available at: <http://www.parliament.uk/documents/commons-committees/environmental-audit/HC-212-for-web.pdf>. Accessed 20/12/2016

p.2

¹⁰⁹ Environmental Audit Committee (2015) *An Environmental Scorecard: Fifth Report of Session 2014-15* House of Commons. Available at:

<http://www.publications.parliament.uk/pa/cm201415/cmselect/cmenvaud/215/215.pdf> Accessed 20/12/2016 p.16

¹¹⁰ Vaughan. A. (2016) 'Abolition of Decc 'major setback for UK's climate change efforts'. *The Guardian*. Available at: <https://www.theguardian.com/environment/2016/jul/15/decc-abolition-major-setback-for-uk-climate-change-efforts>. Accessed 14/11/2016

¹¹¹ Porritt, J.(2010) 'The greenest government ever? Don't make me laugh'. *The Guardian*. Available at: <https://www.theguardian.com/environment/cif-green/2010/jul/23/sustainable-development-commission-porritt>. Accessed: 14/10/2016

¹¹² Wallace, M. (2016). 'How Trump will help May to bury "Vote blue, go green."' *Conservative Home*. Available at: <http://www.conservativehome.com/thetorydiary/2016/11/may-is-offering-vote-blue-get-real-not-vote-blue-go-green.html>. Accessed 16/11/2016

¹¹³ Welsh Government (2016) Well-being of Future Generations (Wlaes) Act 2015. [Webpage].

Available at: <http://gov.wales/topics/people-and-communities/people/future-generations-act/?lang=en>

¹¹⁴ APPG Limits to growth (N.D.). [Webpage]. Available at: <http://limits2growth.org.uk/>. Accessed 16/11/2016.

¹¹⁵ Kroll, C. (2015) *Sustainable Development Goals: Are the rich countries ready?* Gütersloh:

Bertelsmann Stiftung. Available at: <https://www.bertelsmann-stiftung.de/en/publications/publication/did/sustainable-development-goals-are-the-rich-countries-ready/>. Accessed 20/12/2016