

Statistical bulletin

Measuring progress, well-being and beyond GDP in the UK: November 2024

Exploring quality of life and holistic progress in the UK, drawing on the latest economic, environmental and social statistics. This quarter we focus on climate change and the environment.

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Release date:
14 November 2024

Next release:
13 February 2025

Correction

4 June 2025 14:06

Please note that the climate change, environment and the economy section, regarding greenhouse gas emissions intensity, erroneously referred to tonnes instead of the correct thousand tonnes. We apologise for any inconvenience caused.

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1 . Main points

- The UK's climate is changing: there were increases between two 30-year periods (1961 to 1990 and 1991 to 2020) in the average UK temperature by 0.8 degrees Celsius, rainfall by 7.3% and sunshine by 5.6%.
- Despite a long-term decline in the abundance of UK priority species from a baseline index of 100.0 in 1970 to 36.6 in 2021, this has remained relatively stable since 2016.
- Around 6 in 10 (57%) adults in Great Britain reported climate change and the environment as an important issue for the UK, when asked in October 2024.
- Slightly under 9 in 10 (86%) of adults in Great Britain said they have made at least some changes to their lifestyle to tackle environmental issues, when asked in September 2024, with women (88%) more likely to report making changes than men (83%).
- While almost 2 in 5 (39%) UK businesses reported they had taken no action to reduce their carbon emissions, when asked in late September 2024, 30% reported they had switched to LED bulbs, 20% had adjusted heating and cooling systems, and 17% had installed a smart meter.
- UK residence-based emissions intensity decreased almost 60% between 1999 and 2024, an indication the UK is moving towards a lower carbon economy.

2 . Introduction

With two international conferences on [climate change](#) and [biodiversity](#) this year, we focus our latest [beyond gross domestic product \(GDP\)](#) bulletin to take an environmental perspective on the UK's progress and prosperity through relevant economic, social and environmental statistics.

3 . Changes to the UK's climate and environment

Met Office data on the UK's changing climate [between two 30-year periods \(1961 to 1990 and 1991 to 2020\), show increases in the average UK temperature by 0.8 degrees Celsius, rainfall by 7.3% and sunshine by 5.6%.](#)

The UK's warmest year on record was 2022, while 2023 was the second warmest. The mean UK temperature in 2023 was 9.97 degrees Celsius, which was 0.83 degrees above the 1991 to 2020 average and 1.66 degrees above the 1961 to 1990 average.

Changes in the climate and other factors such as land use affect our ecosystems and biodiversity. Between 2017 and 2023, the [total extent of land and sea protected in the UK has increased by 47.1%](#), from 27.6 million hectares (MHa) to 40.6 MHa.

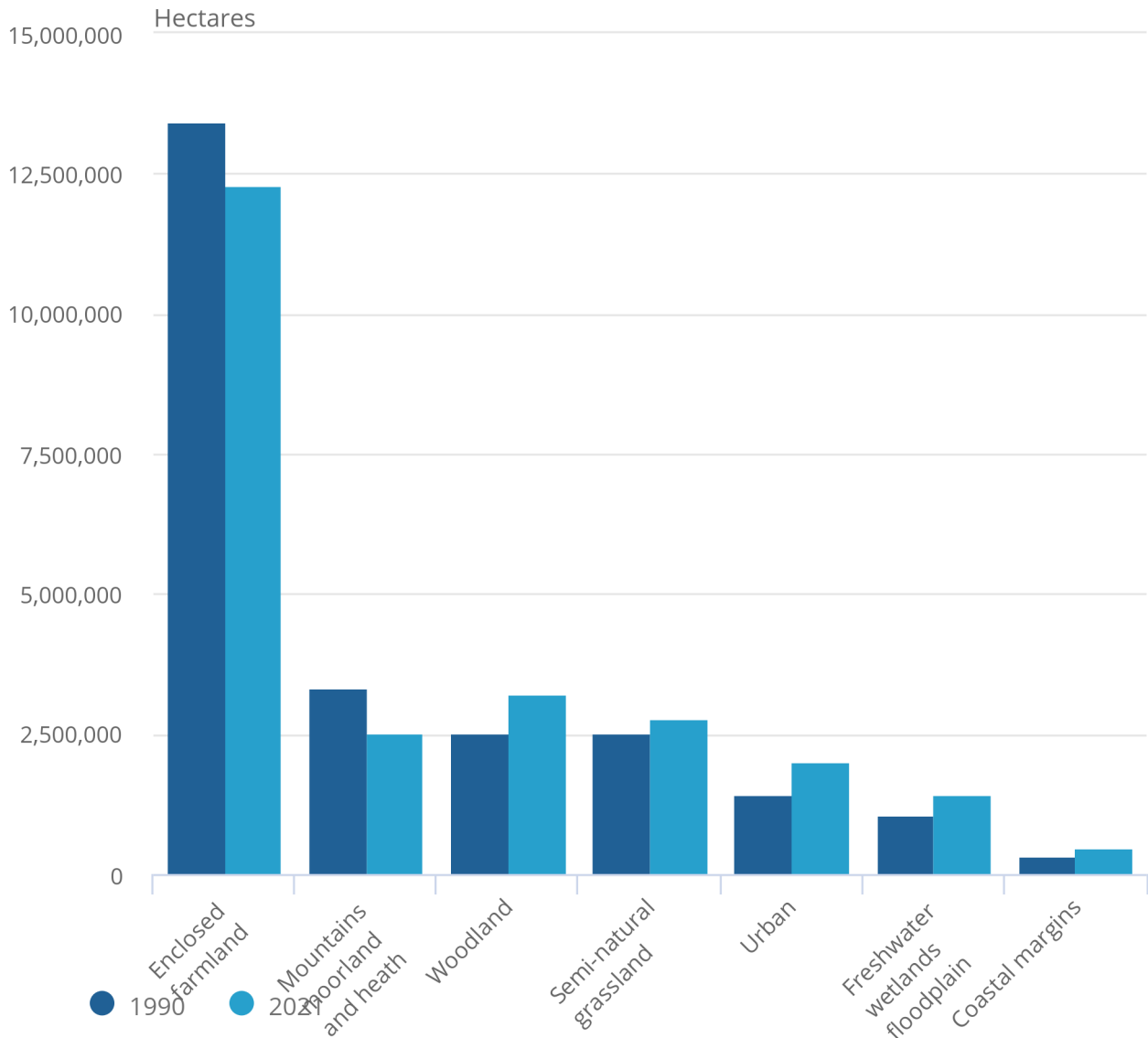
Our latest UK natural capital accounts estimate that [enclosed farmland accounted for 50% of UK land area in 2021, down 8% from 1990, while urban land area has increased by 41% in that period.](#)

Figure 1: The extent of UK urban land increased by 41%, while enclosed farmland decreased by 8%, between 1990 and 2021

Extent of terrestrial broad habitats in the UK, 1990 and 2021

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Extent of terrestrial broad habitats in the UK, 1990 and 2021



Source: Land cover maps from UK Centre for Ecology and Hydrology (UKCEH)

Notes:

1. Raster data are from UKCEH's Great Britain land cover maps for 1990 and 2021.
2. Land cover maps raster data for Great Britain from 1990 are from Rowland, C, Marston, C, Morton, R, and O'Neil, A (2020), 'Land Cover Map 1990 (25 metre raster, Great Britain) v2 dataset' from the Natural Environment Research Council (NERC) Environmental Information Data Centre.
3. Land cover maps raster data for Great Britain from 2021 are from Morton, R, Marston, C, O'Neil, A, and Rowland, C (2022), 'Land Cover Map 2021 (25 metre rasterised land parcels, Great Britain) dataset' from the Natural Environment Research Council (NERC) Environmental Information Data Centre.

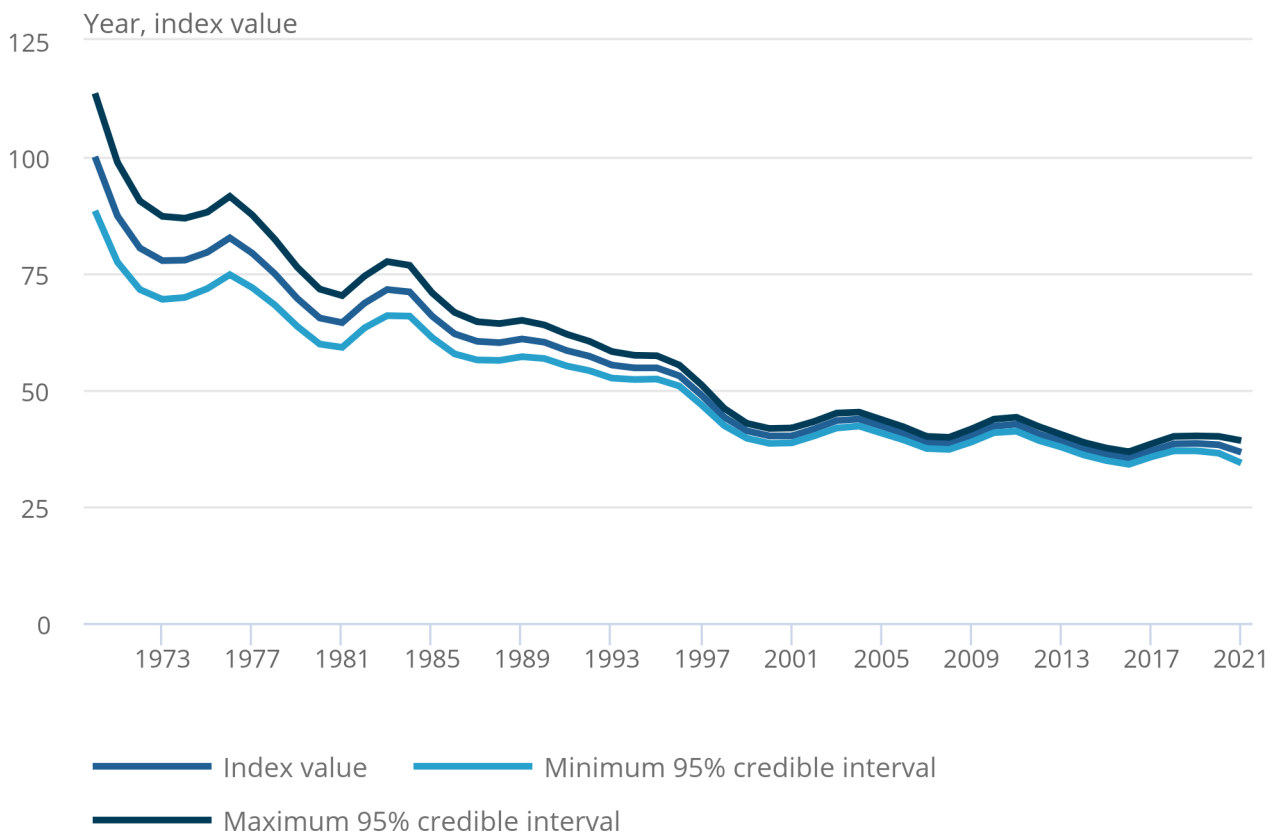
Despite a [long-term decline in relative abundance of UK priority species](#), from a baseline index of 100.0 in 1970 to 36.6 in 2021, this has remained relatively stable since 2016. For more details see the [UK biodiversity lists](#).

Figure 2: Abundance of UK priority species declined by 63% between 1970 and 2021

Relative abundance of UK priority species, 1970 to 2021

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Relative abundance of UK priority species, 1970 to 2021



Source: Biodiversity Indicators from the Joint Nature Conservation Committee and the Department for Environment, Food and Rural Affairs

Notes:

1. Priority species are defined as those appearing on one or more of the biodiversity lists of each UK country.

Butterfly numbers provide a good indication of the broad state of the environment because they respond rapidly to changes in environmental conditions and occur in a wide range of habitats. The [abundance of all species of butterfly in the UK has declined almost 40% between 1976 and 2023, with no change since 2013](#), according to Department for Environment, Food and Rural Affairs statistics.

4 . Climate change, environment and society

We produce a range of insights on [Public and business attitudes to the environment and climate change, Great Britain: 2024](#).

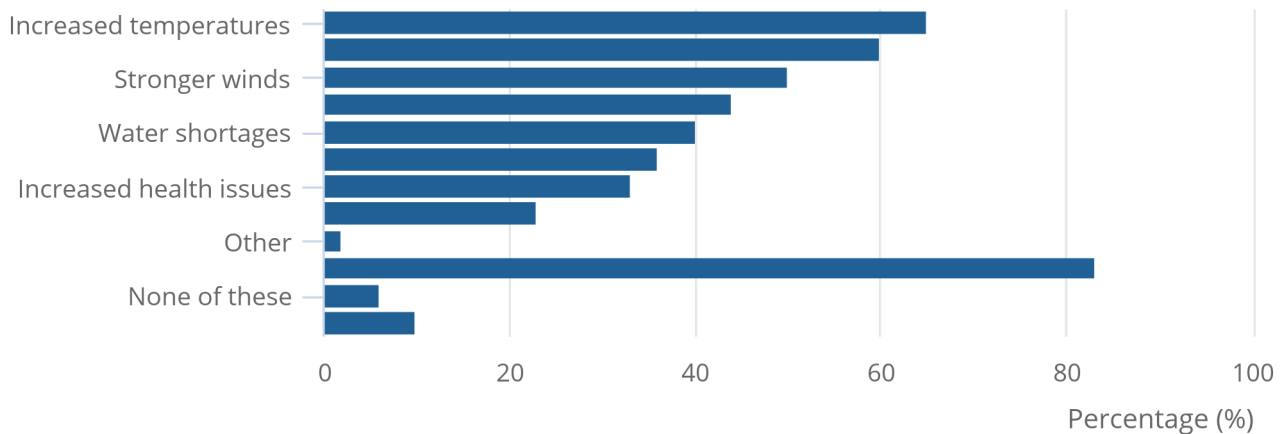
Around 6 in 10 (57%) adults in Great Britain reported climate change and the environment as an important issue for the UK, when asked in October 2024, while around two-thirds (65%) felt that they would be affected by increased temperatures in the next 10 years.

Figure 3: Over 4 in 5 adults (83%) felt climate change would affect them in the next 10 years

Proportion of adults reporting ways in which they think climate change will affect them in the next 10 years, Great Britain, October 2024

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Proportion of adults reporting ways in which they think climate change will affect them in the next 10 years, Great Britain, October 2024



Source: Opinions and Lifestyle Survey from the Office for National Statistics

Notes:

1. Question: "In which of the following ways, if any, do you think climate change will affect you in the next 10 years?".
2. Base: All adults, aged 16 years and over in Great Britain.
3. Respondents could select more than one option. The category "Affected in any way" represents the proportion of respondents who selected at least one option apart from "None of these" or "Don't know".

One way climate change affects people is through their health: Office for National Statistics analysis of [Climate-related mortality in England and Wales: 1988 to 2022](#) shows temperatures below negative 5 and above 25 degrees Celsius represent the greatest risk.

In 2022, the warmest year on record for the UK, an estimated 4,507 deaths were associated with the hottest days in England. This was around three times an estimated 1,401 deaths average for the hottest days between 1991 and 2020. Our [May 2024 Measuring progress, well-being and beyond GDP bulletin](#) also looked at how visiting green spaces and clean air can affect our health, and we are developing the first set of official metrics to [measure the impact of climate change on health](#).

Our UK Measures of National Well-being suggest the majority of people are making changes to their lives in response to environmental issues and concerns: slightly under [9 in 10 \(86%\) of Great Britain adults said they have made at least some changes to their lifestyle to tackle environmental issues, in September 2024](#). Women were more likely to report making changes (88%) than men (83%).

In terms of specific actions in response to climate change, the [Department for Energy Security and Net Zero public attitudes tracker: summer 2024](#) found that around 8 in 10 UK adults recycled household waste (86%), minimised food waste (78%) and minimised energy use at home (79%). UK adults reported choosing to walk or cycle (51%) or use public transport (41%) instead of using a car, with using public transport up from 34% in summer 2022.

One way to minimise energy use at home is through increased energy efficiency, which can be measured through Energy Performance Certificates (EPCs), ranging from band A (most efficient) to band G (least efficient). While homes in England and Wales had an average rating in band D, [in the 10 years to 2024, new homes had an average rating in band B](#).

5 . Climate change, environment and the economy

In response to our Business Insights and Conditions Survey, [the proportion of businesses that expressed concern \(very or somewhat concerned\) about the impact of climate change on their business, had fallen from around a third \(34%\) in June 2024 to less than 3 in 10 \(28%\) in late September 2024.](#)

Although almost 2 in 5 (39%) UK businesses reported they had taken no action to reduce their carbon emissions, when asked in late September 2024, 30% of businesses reported they had switched to LED bulbs, 20% had adjusted heating and cooling systems, and 17% had installed a smart meter.

We track the low carbon and renewable energy economy (LCREE) through an annual survey. In 2022, [LCREE turnover \(£69.4 billion\) and employment \(272,400 full-time equivalents\) were at their highest level since the first comparable figures in 2015.](#) The energy efficiency products group, including energy efficient lighting and energy monitoring, saving or control systems, has accounted for the largest employment among [LCREE subgroups](#) since the first figures for 2015.

Greenhouse gas (GHG) emissions intensity, or emissions per unit of economic activity measured through gross value added (GVA), can be used alongside other emissions and economic data as an indicator the UK is moving towards a lower carbon economy.

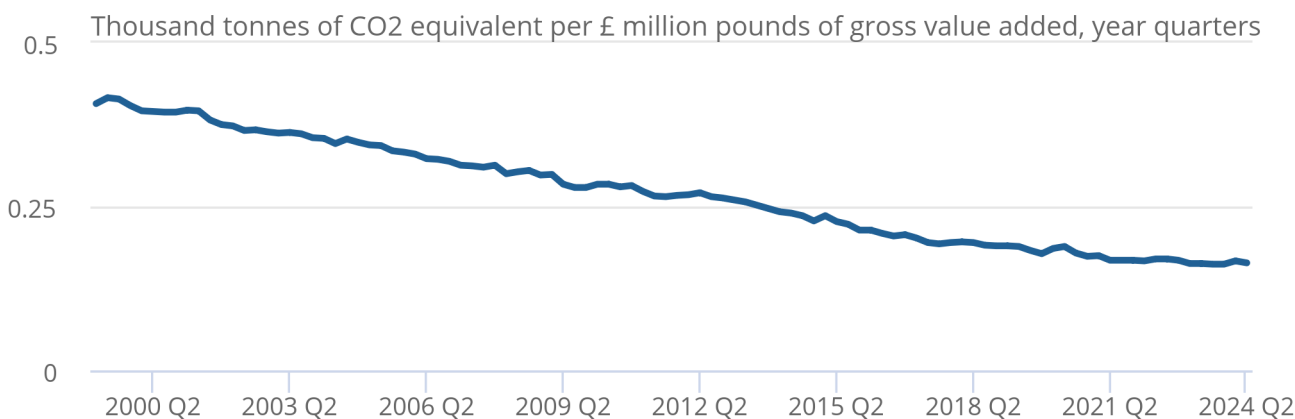
In the second quarter (April to June) of 2024, the [intensity of GHG emissions on a residence basis was estimated at 0.164 thousand tonnes of carbon dioxide equivalent \(CO₂e\) per million pounds of GVA.](#) This is down by 59.7%, or 0.243 thousand tonnes of CO₂e per million pounds of GVA, since 1999, the first available quarterly estimate. For more information about UK emissions measures go to [Section 7: Glossary](#) and our [explainer article on Measuring greenhouse gas emissions.](#)

Figure 4: UK residence-based emissions intensity fell by almost 60% between 1999 and 2024

Experimental estimates of greenhouse gas emissions intensity of gross value added (GVA) (seasonally adjusted), UK (residency basis), Quarter 1 (Jan to Mar) 1999 to Quarter 2 (Apr to June) 2024

Figure 4: UK residence-based emissions intensity fell by almost 60% between 1999 and 2024

Experimental estimates of greenhouse gas emissions intensity of gross value added (GVA) (seasonally adjusted), UK (residency basis), Quarter 1 (Jan to Mar) 1999 to Quarter 2 (Apr to June) 2024



Source: Environmental Accounts from the Office for National Statistics

Notes:

1. Q1 refers to Quarter 1 (Jan to Mar), Q2 refers to Quarter 2 (Apr to June), Q3 refers to Quarter 3 (July to Sept) and Q4 refers to Quarter 4 (Oct to Dec).
2. Emissions intensity is calculated by dividing the level of greenhouse gas emissions by gross value added (GVA). GVA is the difference for any given industry between the value of goods and services produced (output) and the cost of raw materials and other inputs, which are used up in production (intermediate consumption). GVA are chained volume measures, in constant prices with 2022 as the base and reference year.
3. All emissions intensity figures are calculated using seasonally adjusted estimates of greenhouse gas emissions excluding those from households that refer to consumer expenditure travel and non-travel.
4. For seasonal adjusted estimates, the predictor indicators used within the modelling were seasonally adjusted using X-13ARIMA-SEATS.

While not included in core economic measures such as gross domestic product (GDP), our [UK natural capital accounts](#) estimate the contribution of natural assets to the economy and society, including removing greenhouse gas emissions and air pollution from the atmosphere. In 2022, [the total asset value of our natural assets in the UK was just over £1.8 trillion, an increase of 11% since 2018](#).

Our innovative [UK Inclusive Wealth and Income Accounts](#) focus on the benefits associated with a range of capitals (that is, human and natural capitals) to better represent their value, such as worker experience and skills, or our natural resources.

Net inclusive income per person (NII) is a broad measure of sustainable income, including ecosystem services from natural capital and the implied income associated with unpaid household work.

In the UK, NII per person has seen an increase of 12.8% since 2005, the first year of comparable data, of which 2.3 percentage points was because of a decrease in natural capital depreciation in that time. This contribution from falling natural capital depreciation has primarily been driven by a decrease in the depletion of the atmosphere as a carbon sink, reflecting reductions in the UK's greenhouse gas emissions since 2005.

6 . Future developments

Our next Measuring progress, well-being and beyond GDP bulletin, is due to be published in May 2025.

If you have any feedback on this bulletin, please email qualityoflife@ons.gov.uk.

7 . Glossary

Abundance

The relative quantity or frequency of a species within a given area or ecosystem.

Ecosystem services

Ecosystem services estimate the contribution of natural assets to the economy and society, in either physical volume or monetary value.

Greenhouse gas emissions

Residence-based (production) emissions are part of our [UK Environmental Accounts](#). They enable emissions to be linked to economic sectors and the activity in them. They are one of three official measures of UK greenhouse gas emissions, [see our explainer article](#).

Greenhouse gas emissions intensity is calculated by dividing the level of greenhouse gas emissions by gross value added (GVA).

For a list of greenhouse gases, please see the [glossary of our UK Environmental Accounts: 2024](#).

Gross domestic product (GDP)

The total value of output in the economic territory. It is the balancing item on the production account for the whole economy. Domestic product can be measured as gross or net. It is presented in the accounts at market (or purchasers') prices.

Gross value added (GVA)

GVA is the difference between output and intermediate consumption for any given industry. This means the difference between the value of goods and services produced (output) and the cost of raw materials and other inputs that are used up in production (intermediate consumption).

Low carbon and renewable energy economy (LCREE)

Economic activities that deliver goods and services that are likely to help the UK generate lower emissions of greenhouse gases, predominantly carbon dioxide.

8 . Data sources and quality

Our “Measuring progress, well-being and beyond GDP” bulletin provides an opportunity to further bring together the latest data on both observed measures of well-being and the relationships with main drivers. It is timed to set our gross domestic product (GDP) update within a wider context of broader economic, environmental and social progress, and provide a more holistic view of national progress, prosperity and well-being.

GDP is a sound but incomplete measure of economic progress because it omits the gains or damage caused by GDP growth on society and the environment, or how that growth is shared among society.

The Office for National Statistics have been developing and improving new measures of national prosperity and well-being to improve understanding. For example, in 2023 for the first time we began publishing statistics on inclusive income (see [Section 4: Climate change, environment and the economy](#)), which augment GDP to account for, for example, unpaid household and ecosystem services, and depreciation of human capital. Additionally, in 2023, we reviewed our UK measures of national well-being, taking on board stakeholder feedback to update our measures and interactive dashboard, enhancing the range of environmental indicators.

Our “Measuring progress, well-being and beyond GDP” quarterly releases bring together existing published measures of progress to provide a more holistic view of quality of life in the UK.

Data coverage, strengths and limitations

This release brings together a wealth of published statistics to holistically consider the quality of life in the UK.

Please note that, as this release brings together statistics across different geographies, sampled populations and time periods, caution should be used when making comparisons.

Where possible, trend-over-time data have been commented upon using the latest available data.

These statistics include accredited official statistics (previously called National Statistics), accredited official statistics, official statistics under development (previously known as experimental statistics) and other statistics. Accreditations give the user confidence in their use, having been assessed against the standards of trustworthiness, quality and value as outlined in the [Code of Practice for Statistics](#). For more information on statistical accreditation, please see the Office for Statistics Regulation’s blog, [What does it mean to be an accredited official statistic?](#)

Each statistic has been hyperlinked in the text to allow the user to source the original data and methodologies.

For the indicators where the UK-wide data are not available, alternative data sources may exist for England and /or the devolved administrations (Wales, Scotland and Northern Ireland), but differences in methodology affect the comparability of the data.

Comparability and uncertainty

Where changes over time are presented in this bulletin, associated confidence intervals are used to assess the statistical significance of the differences, explained on our [Uncertainty and how we measure for it for our surveys web page](#).

For some of the indicators that are not based on survey data, confidence intervals are not available. In those cases, change over time has not been assessed or has been assessed based on guidance from the data owner.

Some of the data have come from self-completion household surveys; the estimates may not be representative for individuals who do not live in private residential households.

9 . Related links

[Quarterly personal well-being estimates – non-seasonally adjusted](#)

Dataset | Released 14 November 2024

Non-seasonally adjusted quarterly estimates of life satisfaction, feeling that the things done in life are worthwhile, happiness and anxiety in the UK.

[UK measures of national well-being dashboard](#)

Dashboard | Released 14 November 2024 An overview of well-being in the UK on an individual, community and national level. Considers change across 59 measures of well-being, grouped by 10 topic areas.

[UK environmental accounts](#)

Landing page

How the environment contributes to the economy, the impact that the economy has on the environment, and how society responds to environmental issues. This page also hosts the development of natural capital accounts.

[UK natural capital accounts: 2024](#)

Bulletin | 8 November 2024

Estimates of the financial and societal value of natural resources to people in the UK

[UK inclusive wealth and income accounts: 2005 to 2022](#)

Article | 13 November 2024

Estimates of sustainable economic progress encompassing a broad range of economic activities, such as unpaid household services, ecosystem services, and more.

[Public and business attitudes to the environment and climate change, Great Britain: 2024](#)

Article | 13 November 2024

Insights on individuals and businesses' attitudes towards climate change and the environment using data from our Opinions and Lifestyle Survey (OPN) and Business Insights and Conditions Survey (BICS).

10 . Cite this bulletin

Office for National Statistics (ONS), released 14 November 2024, ONS website, statistical bulletin, [Measuring progress, well-being and beyond GDP in the UK: November 2024](#)