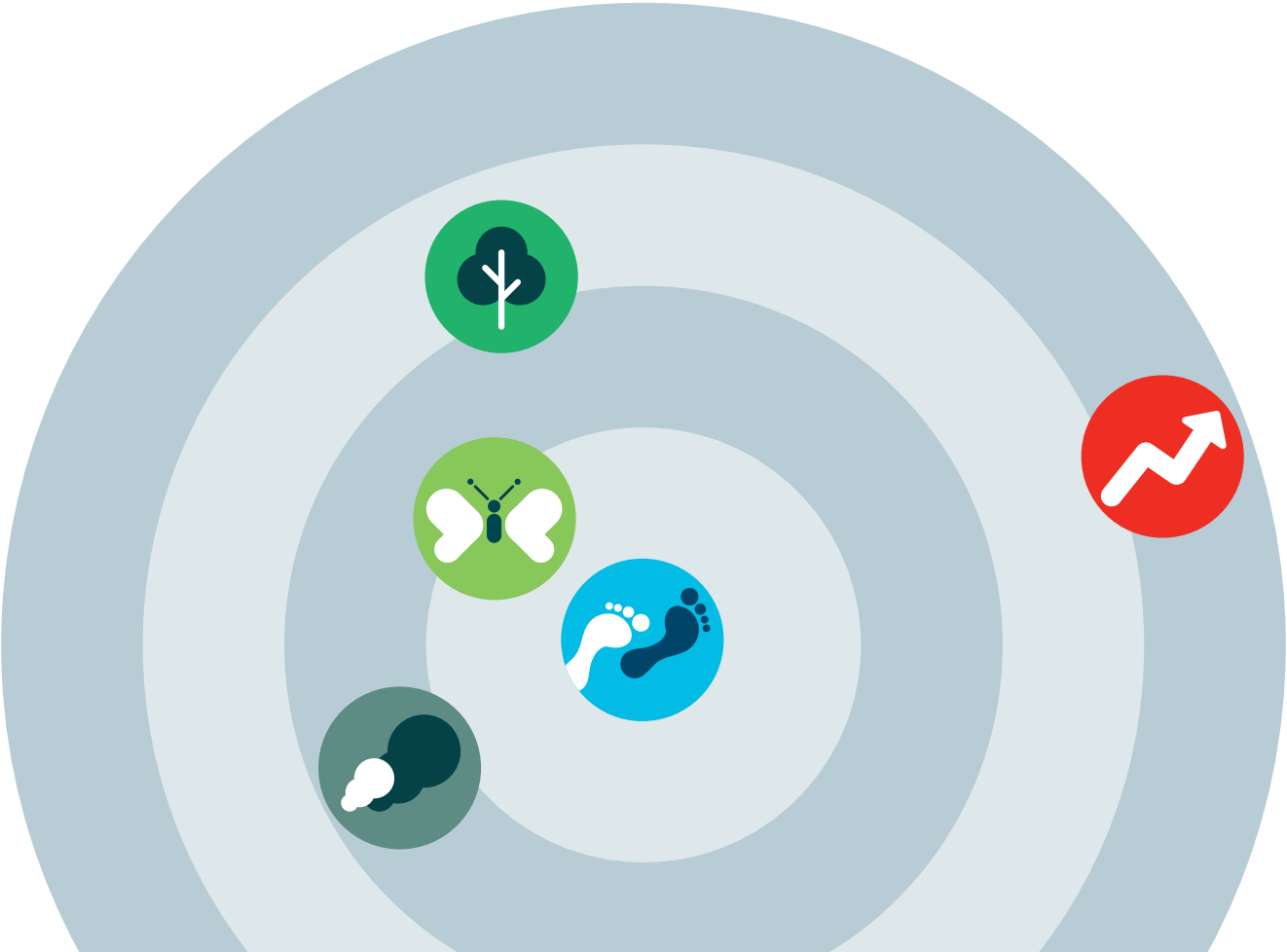


# Measuring up

“green alliance...”

The potential of targets to reduce resource use



## **Measuring up**

The potential of targets to reduce resource use

## **Authors**

Emily Carr and Libby Peake

## **Acknowledgements**

We would like to thank all the individuals and organisations interviewed and consulted for this report, which included: Maddie Harris at the Joint Nature Conservation Committee (JNCC). Thanks also to Heather Plumpton and Roz Bulleid at Green Alliance.

## **Green Alliance**

Green Alliance is an independent think tank and charity focused on ambitious leadership for the environment. Since 1979, we have been working with the most influential leaders in business, NGOs and politics to accelerate political action and create transformative policy for a green and prosperous UK.

The Green Alliance Trust  
Registered charity no 1045395  
Company limited by guarantee  
(England and Wales) no. 3037633

Published by Green Alliance  
June 2024

ISBN 978-1-915754-37-0

Designed by Howdy

---

© Green Alliance, June 2024

The text and original graphics in this work are licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International licence. To view a copy, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>. Any use of this content should credit Green Alliance as the original author and source. Photographic images are subject to separate copyright and are not covered by this licence.



 creative commons

# Introduction

**“UK raw material consumption is now undeniably beyond the limits of what is sustainable.”**

Globally, the use of resources is skyrocketing. The UN’s *Global resources outlook 2024* finds that the extraction of metals, minerals, fuels and bioresources, including food, has nearly quadrupled since 1970.<sup>1</sup>

This is having dire environmental and social consequences. Extraction and processing is driving 90 per cent of biodiversity loss and over 55 per cent of all global greenhouse gas emissions, as well as 40 per cent of health related impacts from particulate air pollution.<sup>2</sup> The clear culprit, according to the UN, is throwaway culture, characteristic of high income countries since the 1950s, when it was touted as the way to end household chores.

These stark figures should be a wake up call for the UK, where raw material consumption is now undeniably beyond the limits of what is sustainable.

High income countries consume six times more material per capita than low income countries, and benefit from the ‘unequal exchange’, whereby embodied materials, energy and labour flow from poorer to richer countries at low prices that fail to reflect the harms caused.<sup>3</sup>

UK statistics suggest this flow is increasing; in 1997, domestic extraction accounted for 40 per cent of the material needed to meet the UK’s final demand but, by 2018, this had fallen to 27 per cent.<sup>4</sup>

The UK government said, in its 2018 resources and waste strategy, that “we can no longer ignore” our unsustainable level of resource use. In practice, though, that is exactly what has continued to happen. After publishing its strategy, the government abandoned plans to set a resource efficiency target under the 2021 Environment Act due to “complexity”.<sup>5</sup>

As the 2021 Dasgupta review of the economics of biodiversity stated, much more clarity in how resource use is measured, based on science, is crucial to building a sustainable economy in which resource demand does not outpace supply.<sup>6</sup>

As the adage goes, ‘you can’t manage what you can’t measure’. At present, the UK is groping in the dark, but there are options that shed light on the situation by quantifying resource consumption. The UK government, for instance, publishes data through the Office for National Statistics on the UK’s material and emissions footprints (ie consumption emissions) and is developing datasets that quantify the impacts of consumption. Investing in these metrics to improve their reliability and usefulness, as well as to understand the limits of sustainability, will allow the government to target its interventions more effectively.

In this report, we examine the main consumption based metrics available to inform the setting of new targets, to reduce resource extraction and avoid its negative impacts on people and the environment.

# The main options for measuring resource use



---

## Material footprint

### What is it?

The total mass of new material extracted to satisfy demand, (usually in tonnes or tonnes per person). It can be based on domestic material consumption (DMC), which does not fully account for materials used in supply chains, or raw material consumption (RMC), which does reflect this.<sup>7</sup>

### How is it improved?

By reducing the consumption of materials by mass.

### Who measures it?

In the UK, the Department for Environment, Food and Rural Affairs (Defra) and the Office for National Statistics (ONS) publish data, based on a University of Leeds methodology.



---

## Resource productivity

### What is it?

An economic ratio of the total amount of new materials directly used by an economy, compared to its economic growth, usually considered as its material footprint in relation to gross domestic product (GDP).

### How is it improved?

By increasing economic growth and reducing consumption.

### Who measures it?

In England, under the 25 year environment plan, Defra publishes an indicator based on material footprint data, complemented with ONS data on gross value added (GVA) by industry and population.



---

## Ecological footprint

### **What is it?**

The biologically productive area, measured as global hectares, required to produce the resources needed to satisfy demand and absorb waste like greenhouse gases.

### **How is it improved?**

By reducing the consumption of products that require land or emit greenhouse gases.

### **Who measures it?**

Developed in 1990 by academics Mathis Wackernagel and William Rees at the University of British Columbia, datasets for all nations are now maintained by the Footprint Data Foundation, established in 2019 by the Global Footprint Network think tank and York University in Toronto.



---

## Global Environmental Impacts of Consumption (GEIC) indicator set

### What is it?

A new suite of metrics based on natural accounting methods to measure the changes in the stock and condition of ecosystems. The aim is to evaluate factors including the biodiversity loss, water impacts and deforestation associated with a country's consumption.<sup>8</sup>

### How is it improved?

By reducing consumption and increasing the sustainability of production methods.

### Who measures it?

This was developed by the Joint Nature Conservation Committee (JNCC), the advisory body to the government and devolved administrations on nature conservation, and the Stockholm Environment Institute.



---

## Consumption emissions

### What is it?

The greenhouse gas emissions generated to meet a country's demand for goods and services, including those generated abroad (minus exports).




### How is it improved?

By reducing consumption and the carbon intensity of production methods.



### Who measures it?

Defra publishes estimates of UK consumption emissions, calculated by the University of Leeds, updating work done by the Stockholm Environment Institute.

## Strengths and weaknesses of the measures

	Is it mainly a measure of consumption?	Does it cover all materials?	How granular is the data?	How reliable is the data?
<b>Material footprint</b> 	Yes. Results are entirely based on reductions in consumption	It can cover biomass (including food), fossil fuels, metal ores and non-metal ores. Some countries remove some of these resources from their measurements	The UK's material flow accounts are broken down by sector into 106 categories	The data is complex. The UK's approach estimates material footprint based on trade flows converted from monetary values into raw material equivalents
<b>Resource productivity</b> 	No. Improvements in resource productivity can happen even with a consumption increase if the economy grows enough	As with material footprint, it can cover biomass, fossil fuels, metal ores and non-metal ores, but does so in relation to economic growth	Data can be broken down to the same extent as the material footprint	As with the material footprint, data relies on complex estimations
<b>Ecological footprint</b> 	Partly. Improvements can occur through decreasing consumption or by reducing greenhouse gas emissions	It only fully accounts for biomass resources and the land they require and the greenhouse gas emissions they can absorb (ie mineral and metal resources are weighted less heavily since it only accounts for them insofar as they require land or emit greenhouse gases in their extraction and processing)	Data has six components of demand: cropland, grazing land, forest, fishing grounds, built up land and carbon. Each can be separated into consumption, production, import and export, and broken down to footprints at the commodity or sector level	The reliability of estimations has been criticised, particularly around assumptions about how much carbon average forests absorb <sup>9</sup>



	Is it mainly a measure of consumption?	Does it cover all materials?	How granular is the data?	How reliable is the data?
<b>Global Environmental Impacts of Consumption (GEIC) indicator</b> 	Partly. Improvements can occur by reducing consumption or increasing the sustainability of production methods, as well as changing sourcing patterns	Currently it only covers agri-crop commodities, cattle and timber, though further products will be added	This is considerably more granular than other metrics in terms of quantifying impacts, and is also broken down by commodity. However, it can currently only track agricultural commodities	The data is classed as being 'in development'. This is largely related to increasing the types of commodities included, rather than because of the quality of the existing data
<b>Consumption emissions</b> 	Partly. Improvements can occur by reducing consumption or improving the carbon intensity of production	It covers the greenhouse gas emissions associated with the consumption of all goods and services	Datasets vary and can cover from 25 to over 500 sectors	Emissions associated with overseas production, which make up just under half of consumption emissions in the UK, are more difficult to measure than those generated within UK borders

### Combining measures for the biggest impact

It is clear, from this evaluation, that the material footprint metric is the most useful for monitoring overall reductions in resource use. However, this economy-wide measure is relatively blunt and cannot account for differing impacts of resource use from factors like material type, location and processes. Therefore, combining a mass-based metric with an impact-based metric, like the GEIC indicator set, offers a more comprehensive solution. The GEIC indicator tool's granularity and strong focus on sustainability in production methods are important strengths, and government support could address limitations around coverage and reliability.

## What is ‘sustainable’ resource use, according to the different measures?

Estimating a sustainable level of resource use has methodological challenges, as well as ethical, including whether all nations should have the same targets. Below are judgements of sustainable levels, based on available information for each type of measure.



Assuming equal access, based on the global availability of resources and the current global population, estimates for a sustainable material footprint for the UK (the only metric we have assessed as wholly responsive to consumption) range from three to eight tonnes per person per year.<sup>10</sup>



It is impossible to set a target for resource productivity that would guarantee sustainable levels of resource use, as improvements can be made simply by increasing GDP, or whatever economic measure forms part of the calculation. However, the UK government has set a non-binding target to double resource productivity by 2050.<sup>11</sup>



A sustainable ecological footprint has been estimated at between 1.6-1.7 global hectares per person.<sup>12</sup>



The GEIC dataset is intended to track trends. For some of its indicators, it is difficult to see how a target for sustainability could be set. But, for some, it could be easier to set an absolute target, such as aiming for zero deforestation, or a relative target, such as limiting species loss associated with UK consumption.



As global greenhouse gas emissions need to reach net zero, a long term consumption emissions reduction target, like the existing territorial emissions target, should simply be net zero. In the UK, consumption emissions have only decreased by 36 per cent since 1990, while territorial emissions have fallen by 52 per cent.<sup>13</sup>

# How is the UK doing?

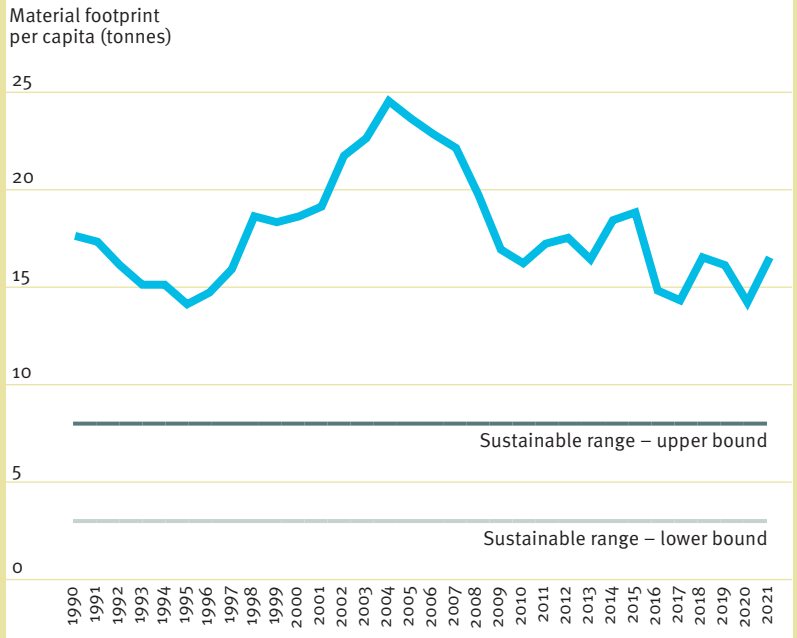
Across the different metrics, improvements are apparent, but inconsistent, and the overall picture remains bleak. The UK is progressing far too slowly by all measures, and resource use – however it is defined – is at nowhere near sustainable levels. Both material and ecological footprints are at least double what is considered sustainable. Increases in resource productivity have stalled, and consumption emissions are not declining as fast as territorial emissions, giving an inaccurate picture of progress where only territorial emissions are measured.

When it comes to the material footprint in particular, it is worth noting that, in the absence of a target, there has been a worrying jump in the latest figures from 13.9 tonnes per person in 2020 to 16.5 tonnes per person in 2021. What's more, although the fossil fuel portion has shrunk rapidly, thanks to efforts to meet carbon budget commitments, the other resources that contribute to its make up – minerals, metals and biomass, including food – have not seen such a decline. Even if the UK achieved zero fossil fuel use today, its material footprint would still be 68 to 350 per cent higher than the sustainable range.<sup>14,15</sup>

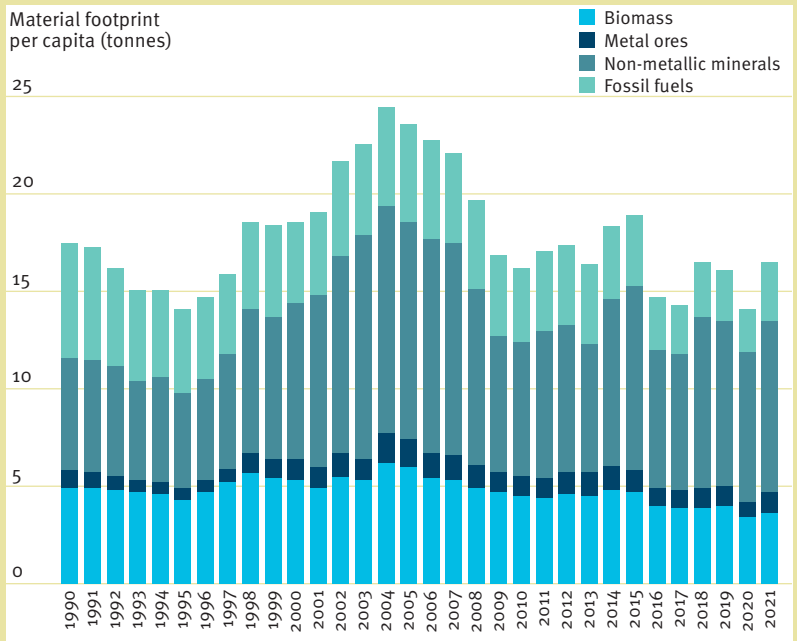
Here, we illustrate the picture, according to the different metrics.



The UK's per capita material footprint has decreased, but jumped in 2021 and is double what is considered sustainable<sup>16</sup>

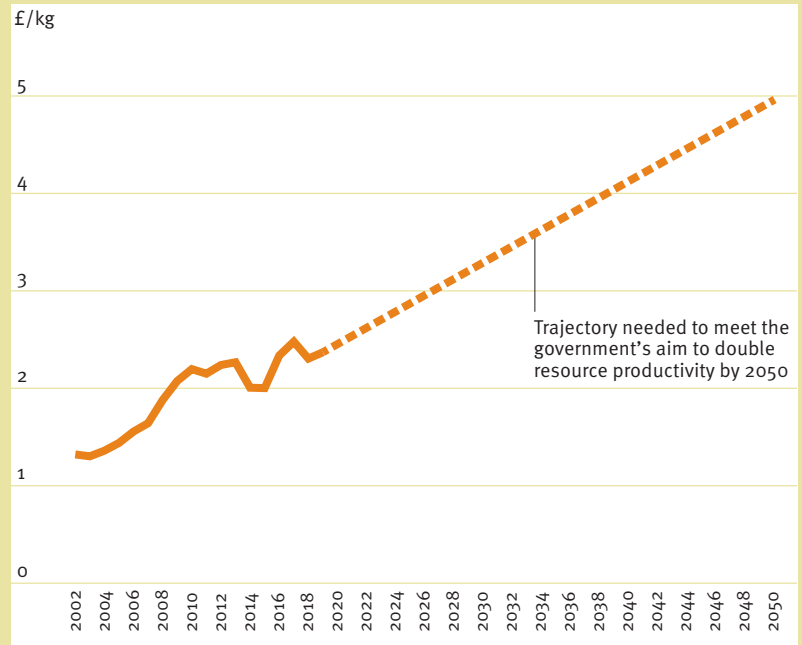


The proportion of the material footprint from fossil fuels is decreasing, though the use of other resources remains high<sup>17</sup>

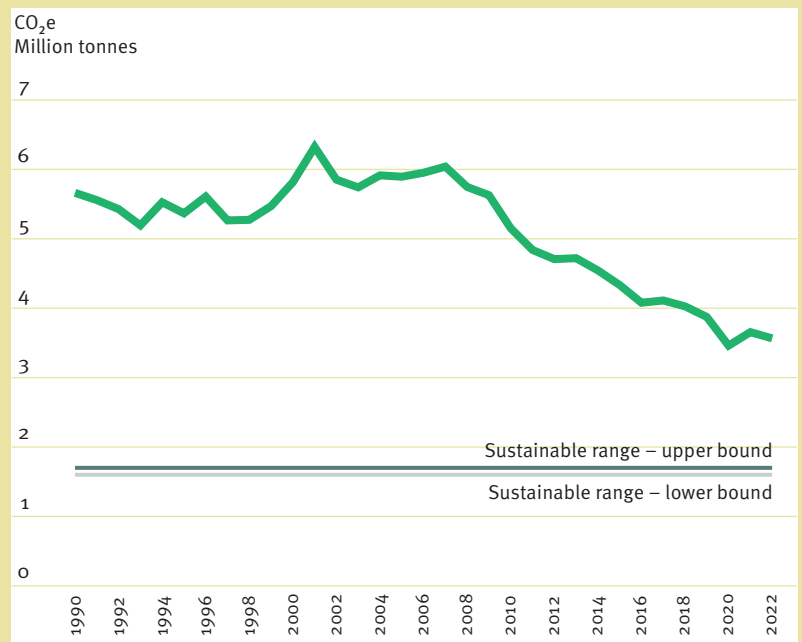




Although England's resource productivity has improved, progress has not been consistent<sup>18</sup>

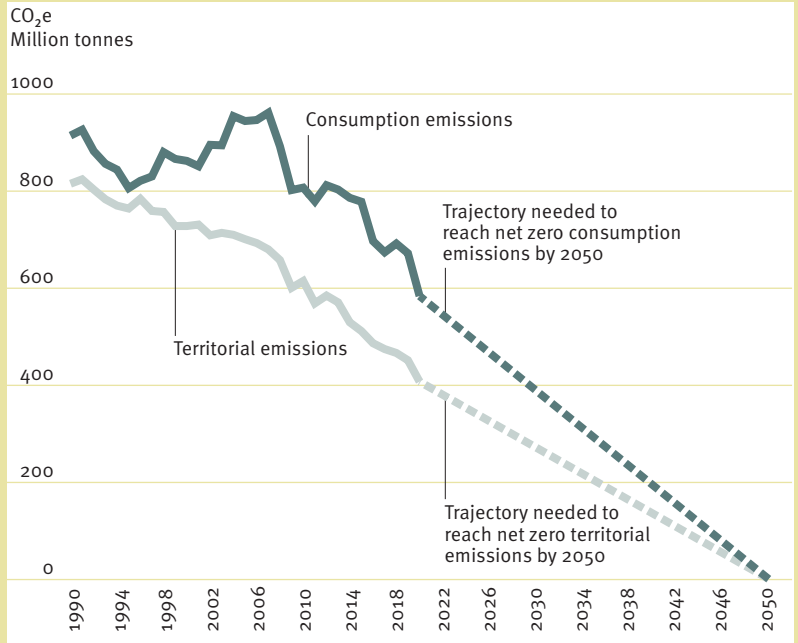


The UK's ecological footprint has shrunk quickly, along with emissions, but is still over double what is considered sustainable<sup>19</sup>





## The UK's total consumption emissions are coming down, but not as fast as its territorial emissions<sup>20</sup>



## What are other countries doing?

“















**The nations of the UK have a chance to stand out in the world and lead.”**

Resource reduction ambitions are becoming more common across Europe, but none are yet legally binding anywhere. A leaked draft of the European Commission’s 2020 Circular Economy Action Plan included a target for member states to halve their material footprints by 2050, but this was absent in the final plan, though the parliament continues to push for action. In 2021, the European Parliament publicly called on the commission to introduce statutory targets. Pressure is also increasing from civil society: 110 organisations have written an open letter to EU legislators calling for a target to reduce resource use to five tonnes per person per year by 2050.<sup>21</sup>

Similarly, no countries yet have legally binding targets for consumption emissions, but some are increasingly discussing these or beginning to monitor them to ensure they are on the trajectory required under the Paris agreement. Front runners in this area include Sweden, France and Denmark.

Wales is in the process of developing its own more detailed targets to underpin its goal for “one planet resource use” by 2050, and these could become statutory. The nations of the UK have a chance to stand out in the world and lead by setting legally binding, ambitious targets to reduce resource use.

# Which countries have ambitions to reduce resource use?

	2030	2035	2045	2050
Finland		 ≤2015 levels	 +100% <sup>21</sup>	
Sweden			 Net zero* <sup>14</sup>	
UK				 +100% <sup>16</sup>
Northern Ireland				 -50% <sup>18</sup>
Wales				 'One planet resource use' <sup>17</sup>
Netherlands	 -50% <sup>22</sup>			
Flanders region, Belgium	 -30% <sup>28</sup>			
Wallonia region, Belgium	 -25% <sup>26</sup>	 +25% <sup>27</sup>		
Austria	 +50% <sup>19</sup>			 7t/person/year <sup>20</sup>
Basque region, Spain	 +30% <sup>25</sup>			
Spain	 -30% <sup>23</sup>			

\* Proposed





Material footprint



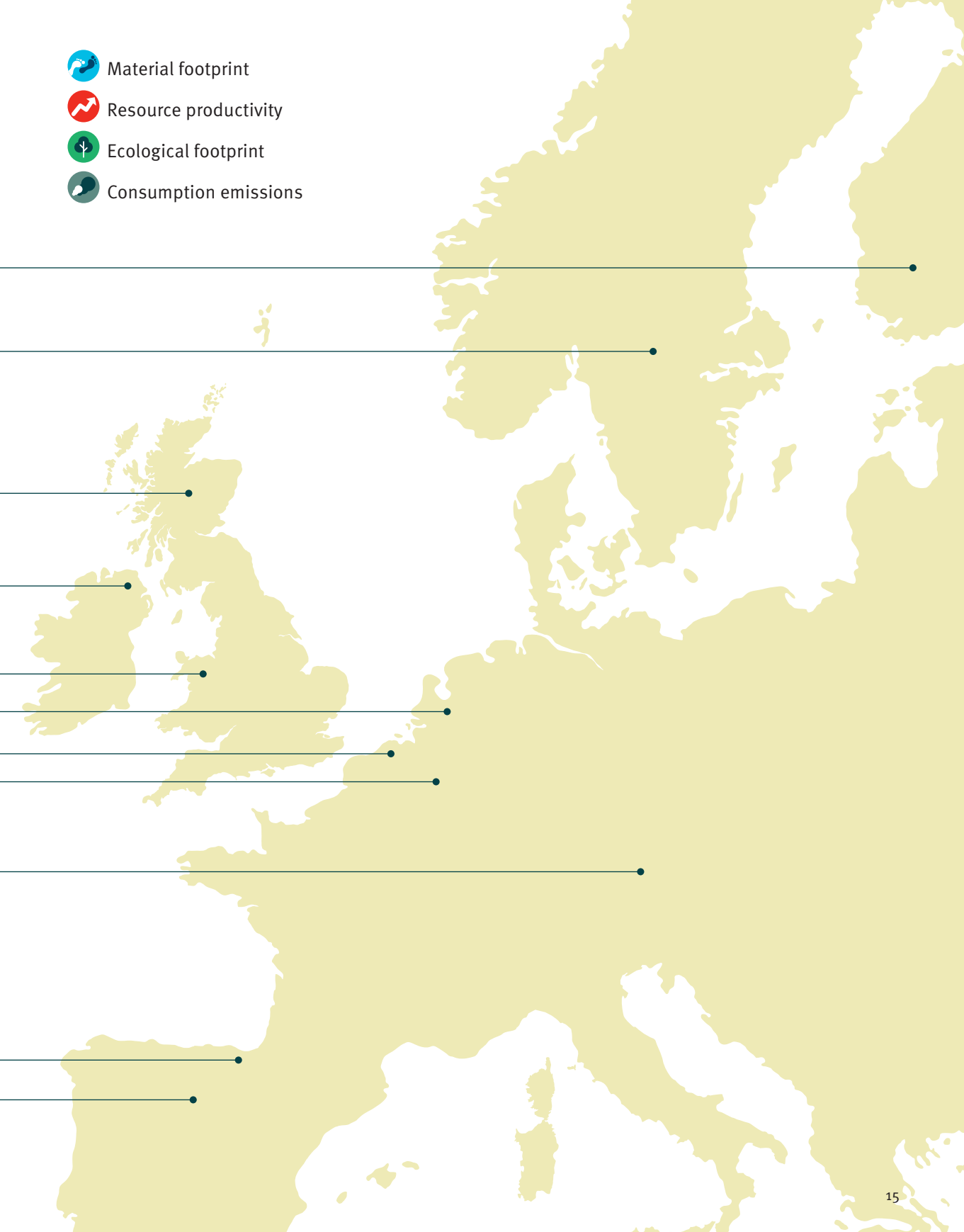
Resource productivity



Ecological footprint



Consumption emissions



## Why does the UK need a target?

“

**Better resource use is essential for the green growth and economic resilience the UK wants to achieve.”**

As a wealthy nation, the UK continues to consume many more primary resources than the world can sustainably supply and it has been too slow to act against ambitions without a target to drive progress.

As the Office for Environmental Protection (OEP) noted in its advice to government, statutory targets are “extremely significant” as they “crystallise and lay bare the level of government ambition for the environment, at a time when so much ambition is needed, and with change required at pace in so many areas”. The independent oversight body went on to urge the government to “add a target which addresses resource use and the associated environmental impacts of consumption.”<sup>35</sup>

Better resource use is essential for the green growth and economic resilience the UK wants to achieve. As a resource poor, but high demand country heavily reliant on imports, the UK is exposed to volatile international supply chains. And the degradation of nature – at home and abroad – comes with considerable financial impacts. A report led by the Green Finance Institute suggested that the impact of nature’s degradation in UK supply chains could wipe six per cent off UK GDP by 2030. This would be a greater impact than the global financial crisis of 2007-08.<sup>36</sup>

A coherent approach to reducing the need to extract resources, driven by an economy-wide target, would reduce the risk of economic shocks as well as the UK’s impact on the environment and communities abroad.

# How can the UK get ahead?

“

**The only metric that exclusively targets the urgent issue of unsustainable resource consumption is the material footprint.”**

Each approach to setting targets for reducing resource use has strengths and weaknesses, but the only metric that exclusively targets the urgent issue of unsustainable resource consumption is the material footprint. We recommend that the UK adopts this measure, in addition to the other supportive actions set out below, to create a comprehensive strategy for sustainable resource use, while providing the economy with all it needs to develop.

## Set a target to more than halve primary resource use

Our main recommendation is to set an overall resource reduction target to more than halve the UK's material footprint. In the absence of a target, progress has been inconsistent and the latest figures for 2021 show a worrying jump from 13.9 tonnes per person per year to 16.5 tonnes per person per year. This is more than twice the sustainable range. A target to more than halve the UK's material footprint would bring it to the middle of the range considered sustainable under this measure. This would drive action across the economy to improve efficiency and minimise wasteful resource use.

## Prioritise granular datasets, especially the GEIC

A material footprint target alone is likely to be too crude because not all materials are equal, eg a tonne of timber is not the same as a tonne of iron ore and the impacts of both depend on factors including how and where they are extracted and produced.

Recognising this complexity, the EU has created a monitoring tool that tracks multiple metrics. In May 2023, the European Commission published a revised 'circular economy monitoring framework' to track material footprint, resource productivity, waste generation and

**“  
Any future  
target should  
fully account  
for material use  
throughout the  
whole supply  
chain.”**

management, the use and trade of secondary materials, investment in circular economy sectors and material import dependency.<sup>37</sup> The UK can supply most of these figures, so should continue to mark its progress against similarly developed economies like EU member states.

However, it should go further and lead the way by more fully accounting for the impacts of different types of resources, using the GEIC indicator tool to complement existing datasets. Prioritising its development would help to identify gaps and impacts and address the lack of reliable data necessary to guide policy interventions.

We also recommend:

### **Measurement of whole supply chains**

There are two main ways to measure material footprints: domestic material consumption (DMC), which does not fully account for materials used in supply chains, and raw material consumption (RMC), which does. Some countries base their ambitions on DMC, but this would replicate the problem with emissions counting, where countries only aim to reduce emissions generated within their borders (territorial emissions), ignoring those generated abroad in creating all the goods and services they use (consumption emissions). As nearly three quarters of materials that meet UK demand are extracted abroad, any future target should fully account for material use throughout the whole supply chain.

The overarching material footprint target should be as comprehensive as possible, including all material resources, whether biomass, metals, minerals or fossil fuels. In developing its first tranche of Environment Act targets in 2022 the government investigated resource productivity. Although the target was dropped in the end, it said it would have excluded fossil fuels on the grounds that “fossil fuel use might be better managed in terms of climate impacts than their mass”.<sup>38</sup> However, the UK does not currently manage the greenhouse gas emissions generated abroad associated with its consumption. Climate targets only cover the impacts within UK borders.

Other countries, such as the Netherlands, have excluded biomass from their (non-binding) material footprint targets

“

**Extraction and processing of some materials has a much higher environmental impact per tonne than others.”**

on the grounds that it is a renewable resource. But this would be wrong for the UK. Although we are not recommending setting an ecological footprint target, this metric clearly shows there is a limited supply of biologically productive land in the world and pressure on that resource must be reduced, especially as human needs compete with nature’s needs.

### **Commodity and sector specific resource reduction targets**

Extraction and processing of some materials has a much higher environmental impact per tonne than others, so reducing their use would, proportionally, have more positive impact. Specific targets should be set for such resources to maximise the benefits.

Expected increases in demand for some materials in the short term should also be considered. This includes critical raw materials (CRMs), which are being used in greater quantities to decarbonise the economy. Targets should be set to establish the necessary infrastructure so that, once extracted and processed, such valuable materials stay in circulation for as long as possible, instead of simply extracting more and more.

Some sectors have an outsized impact, as identified in the government’s resources and waste strategy. These include: construction, furniture, electronics, textiles, packaging, and food and drink. Our research has identified major potential in the construction and textiles industries. We have shown that construction techniques and technologies available today could cut upfront raw material use by 39 per cent.<sup>39</sup> And an ambitious approach in the textiles sector – maximising reuse and recycling and enabling people to make fewer purchases – could see raw material use fall drastically by as much as 63 per cent.<sup>40</sup>

It should be possible to set resource reduction obligations for producers in all these sectors. The government has a broad power to do so under the 2021 Environment Act. At a minimum, producer obligations could and should include targets to reduce raw material use and waste, and not simply focus on recycling.

# Endnotes

- 1 UNEP, 2024, *Bend the trend: pathways to a liveable planet as resource use spikes*. The report explains: “Global material extraction surged from 30 billion tonnes in 1970 to 106.6 billion tonnes in 2024, an average annual growth of 2.3 per cent.”
- 2 Ibid. The UN categorises the air pollution as “particulate matter health related impacts” and notes that it costs “over 200 million disability-adjusted life years every year”.
- 3 Ibid
- 4 Office for National Statistics (ONS), May 2021, ‘Material footprint in the UK: 2018’
- 5 Department for Environment, Food and Rural Affairs (Defra), 2022, *Resource efficiency and waste reduction targets: detailed evidence report*
- 6 Professor P Dasgupta, 2021, *The economics of biodiversity: the Dasgupta review*, HM Treasury
- 7 Domestic material consumption (DMC), which is more commonly used, is production based and shows the total quantity of materials directly used within an economic system. It is calculated as the sum of domestic extraction and imports minus exports. Raw material consumption (RMC) shows the total amount of domestic and foreign extraction of materials needed along all supply chains to produce the final products consumed in a country. Certain measurements of material footprints also exclude certain material groups. For instance, Defra’s measurement excludes fossil fuels, and WWF has proposed a target that excludes biomass.
- 8 Different impacts are measured in different units depending on impact, including mass of materials, hectares of land, cubic metres of water use and number of species lost. The Global Environmental Impacts of Consumption (GEIC) indicator set was developed by the Joint Nature Conservation Committee (JNCC), the public body that advises the UK government and devolved administrations on nature conservation, and the Stockholm Environment Institute (SEI), to monitor the overseas impact of consumption. To date, it is only tracking agricultural commodities. While its scope is being increased, it is classed as an official statistic in development.
- 9 Critics have questioned elements of the calculation, including the estimates used to calculate the ‘average forest sequestration’, which has considerable bearing on the footprint size. See, for instance: M S Mancini et al, 2016, ‘Ecological footprint: refining the carbon footprint calculation’, *Ecological Indicators*, vol 61, pp 390-403. Additional limitations of the methodology are that it does not account for the depletion of non-renewable resources, nor does it illustrate the impact of inherently unsustainable activities, such as the release of heavy metals, radioactive materials and persistent synthetic compounds. It does not directly measure ecological degradation, such as deforestation, soil loss, or increased soil salinity from irrigation, which could affect future bio-productivity, nor does it account for the resilience or vulnerability of ecosystems. For more, see Global Footprint

- Network, 2020, *Ecological footprint accounting: limitations and criticism*
- 10 Similar figures for ‘sustainable’ levels of per person global consumption of materials have been reached across many different studies. In 2012, M Dittrich et al, 2012, *Green economies around the world?*, first suggested a sustainable material footprint of eight tonnes per capita per year. Other calculations include: UNEP, 2014, *Managing and conserving the natural resource base for sustained economic and social development*, which suggested a sustainable material footprint of six to eight tonnes per capita per year; S Bringezu, 2015, *Possible target corridor for sustainable use of global material resources*, calculated three to six tonnes per capita per year; D W O’Neill et al, 2018, *A good life for all within planetary boundaries*, suggested 7.2 tonnes per capita per year; and WWF and 3Keel, 2021, *Thriving within our planetary means*, said the material footprint to aim for was 6.4 tonnes per capita per year, of which 1.6 tonnes would be biomass. It should be noted, though, as the global population increases, it would be reasonable to assume the ‘per person’ figures would have to decrease correspondingly to account for limitations on resources, so the figures on the upper end are likely to be overestimates.
  - 11 The reference scenario produced for that exercise suggested the UK is not on course to meet a doubling of resource productivity against a 2017 baseline, with various reference scenarios seeing increases of 1.4 to 1.6 times. Crucially, in two out of three of the reference scenarios, the material footprint was expected to increase. See: Defra, 2022, *Resource efficiency and waste reduction targets: detailed evidence report*
  - 12 Sustainable ecological footprint of 1.7 global hectares per person, cited in: WWF and 3Keel, 2021, op cit; sustainable ecological footprint of 1.6 global hectares per person cited in: Global Footprint Network, www.footprintnetwork.org/resources, ‘Glossary’
  - 13 In 2022, a Swedish parliamentary committee unanimously proposed adopting a consumption-based net zero greenhouse gas emissions reduction target alongside the 2045 territorial net zero target. If taken forward, it would be legally binding. See, for instance, Green Alliance, 2022, *The bigger picture: addressing the UK’s hidden carbon footprint*. To get the UK on a trajectory towards net zero consumption emissions, WWF advocated, in 2021, for the overseas carbon footprint of UK’s consumption of imports to be reduced by 33 per cent by 2030. See: WWF and 3Keel, 2021, op cit
  - 14 Removing fossil fuels from the material footprint still leaves the measure at 13.5 tonnes per person, compared to the three to eight tonne sustainable range.
  - 15 The UK’s figures exclude fossil fuels.
  - 16 ONS, 2023, ‘Material flows account for the United Kingdom 1990-2022’
  - 17 Ibid
  - 18 Defra, 2022, ‘Outcome indicator framework for the 25 year environment plan 2022 update’
  - 19 Global Footprint Network, 2023, ‘National footprint and biocapacity accounts 2023 public data package’
  - 20 ONS, 2024, ‘Measuring UK greenhouse gas emissions’
  - 21 Zero Waste Europe et al, 16 April, 2024, open letter, ‘Yes to an EU legislation on sustainable resource management’
  - 22 Defra, 2018, *A green future: our 25 year plan to improve the environment*. It is based on raw material consumption (RMC) per capita excluding fossil fuels, and the amount of gross value added (GVA) per unit of raw material consumption. The baseline year is unclear.
  - 23 Welsh Government, 2021, *Beyond recycling: Wales’s circular economy strategy*
  - 24 Northern Irish Department for the Economy, 2021, *Draft circular economy strategy for Northern Ireland*. The material footprint target is based on the more comprehensive raw material consumption (RMC) measure.
  - 25 Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, 2022, *The Austrian Circular Economy Strategy*. The resource productivity target uses 2015 as its baseline. The strategy also has targets to increase the circularity rate to 18 per cent and to reduce the material consumption in private households by ten per cent compared to a 2015 baseline.

- 26 Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, 2022, *The Austrian circular economy strategy*. The material footprint target is based on the more comprehensive raw material consumption (RMC) measure. The strategy also includes an interim target to reduce the less comprehensive domestic material consumption (DMC) measure to 14 tonnes per person per year by 2030.
- 27 Finnish Ministry of the Environment, 2021, *Strategic programme to promote a circular economy*. The material footprint target is based on the more comprehensive raw material consumption (RMC) measure. Resource productivity is measured in terms of GDP and RMC, with a baseline year of 2015. Finland also has a target for circular material use rate to double by 2035 compared to a 2015 baseline.
- 28 Netherlands Ministry of Infrastructure and the Environment and the Ministry of Economic Affairs, 2016, *A circular economy in the Netherlands by 2050*. The material footprint target is based on the more comprehensive raw material consumption (RMC) measure, but excludes biomass. The Netherlands is also targeting full circularity by 2050.
- 29 Spanish Ministry for Ecological Transition and the Demographic Challenge, 2020, *Spanish national circular economy strategy*. The resource productivity target is based on GDP and domestic material consumption (DMC) and uses 2010 as its baseline.
- 30 This has been proposed by Sweden's cross party parliamentary environment committee. If this is enacted, it is likely to be the first legally binding target for consumption emissions. See: *Climate Home News*, 8 April 2022, 'Sweden set to be world's first country to target consumption-based emission cuts'
- 31 Basque Department of the Environment, Spatial Planning and Housing, 2020, *Basque Country circular economy strategy 2030*. The region also has a target to increase circular material use rate by 30 per cent by 2030 on a 2016 baseline. The resource productivity target is based on GDP and domestic material consumption (DMC) and uses 2016 as its baseline.
- 32 Wallonie Service Public, 2021, *Circular Wallonia: deployment strategy of the circular economy in Wallonia*. The material footprint target is based on the less comprehensive domestic material consumption (DMC) measure, with a baseline year of 2013.
- 33 Ibid. The resource productivity target is based on GDP and DMC.
- 34 Flemish Department of Chancellery and Foreign Affairs, 2020, *Flanders 2020-2030 circular economy roadmap*
- 35 Office for Environmental Protection, 27 June 2022, Letter to then Defra Secretary of State George Eustice and Environment Minister Rebecca Pow, 'Advice on environmental targets'
- 36 Green Finance Institute, April 2024, *Assessing the materiality of nature-related financial risks for the UK*
- 37 Eurostat, 2023, 'Circular economy monitoring framework'
- 38 Defra, 2022, op cit
- 39 Green Alliance, 2023, *Circular construction: building for a greener UK economy*
- 40 Green Alliance, 2024, *Changing fashion: what people want from a greener clothing industry*





Green Alliance  
18th Floor  
Millbank Tower  
21-24 Millbank  
London SW1P 4QP

020 7233 7433  
[ga@green-alliance.org.uk](mailto:ga@green-alliance.org.uk)

[www.green-alliance.org.uk](http://www.green-alliance.org.uk)  
@GreenAllianceUK  
blog: [www.greenallianceblog.org.uk](http://www.greenallianceblog.org.uk)