



FOR  
YOUR  
WORLD

# THRIVING WITHIN PLANETARY MEANS

HOW TO REDUCE THE UK'S PRODUCTION AND  
CONSUMPTION FOOTPRINT BY 2030



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# RIGHT NOW, OUR PLANET IS UNDER THREAT LIKE NEVER BEFORE.

We are in an era of unprecedented global environmental change, driven almost entirely by human activities. The climate crisis, disruption of biogeochemical cycles, conversion of natural ecosystems, overfishing and pollution are driven by overconsumption, unsustainable extraction rates, and by the methods we use to produce and consume material goods. As a result, nature is in freefall – we’re destroying the one shared home we all depend on.

The science shows we need to halt and reverse the loss of nature - locally, regionally and globally - by 2030. We can’t achieve this through conservation measures alone – we also need to urgently address our unsustainable production and consumption.

To achieve this, we need to account for and act on our overseas and domestic environmental impacts. We must ensure we adopt ambitious reduction targets that are proportionate to different countries’ levels of development, capacity to invest in change, and historical contribution to the problems. For the UK, this means addressing the significant impact we have overseas through the goods we import. Together with other wealthy countries, the UK must assist poorer nations towards a ‘just transition’ that accounts for the need for sustainable development and eradication of poverty.

Reducing our impact on the environment does not imply that the UK economy has to shrink, or that our citizens must reduce their wellbeing or quality of life. It will require some reductions in consumption (e.g., meat and dairy), but for the most part the footprint reductions can be met by doing things differently. In fact, there is a clear opportunity for many economic sectors to grow substantially while making these changes.

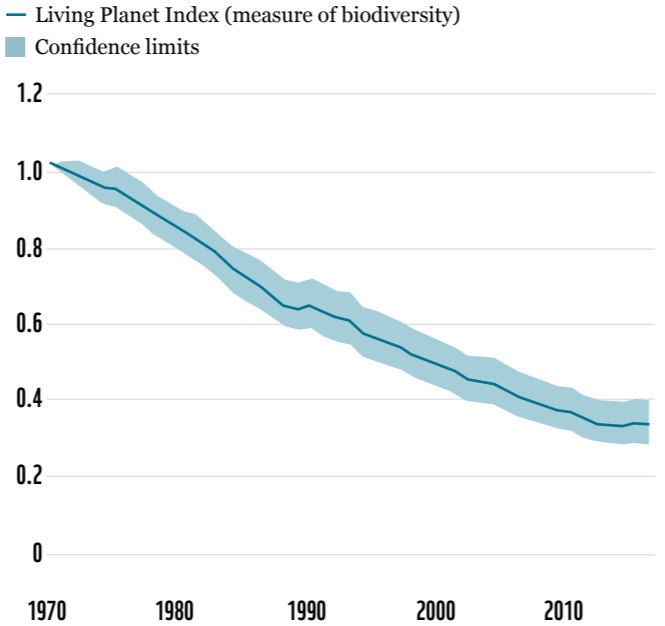
## WHAT IS THE UK’S FOOTPRINT?

A ‘footprint’ refers to the drivers and pressures that harm the environment, such as extraction of metals, production of goods, consumption of food and related socioeconomic activities. In a nutshell, it represents the environmental impact of the things we produce and consume.

This study assesses the UK’s total footprint, both domestic and overseas, covering not only what the UK produces but also what we consume. It looks at six key footprint areas to

determine whether we are living within planetary means. For each, we calculated the UK’s per capita footprint and compared it to the per capita footprint required to stay within environmental limits. This comparison allows us to understand what we need to reduce, and by how much.

## GLOBALLY, POPULATION SIZES OF MAMMALS, BIRDS, FISH, AMPHIBIANS AND REPTILES HAVE FALLEN AN AVERAGE OF 68 PER CENT SINCE 1970



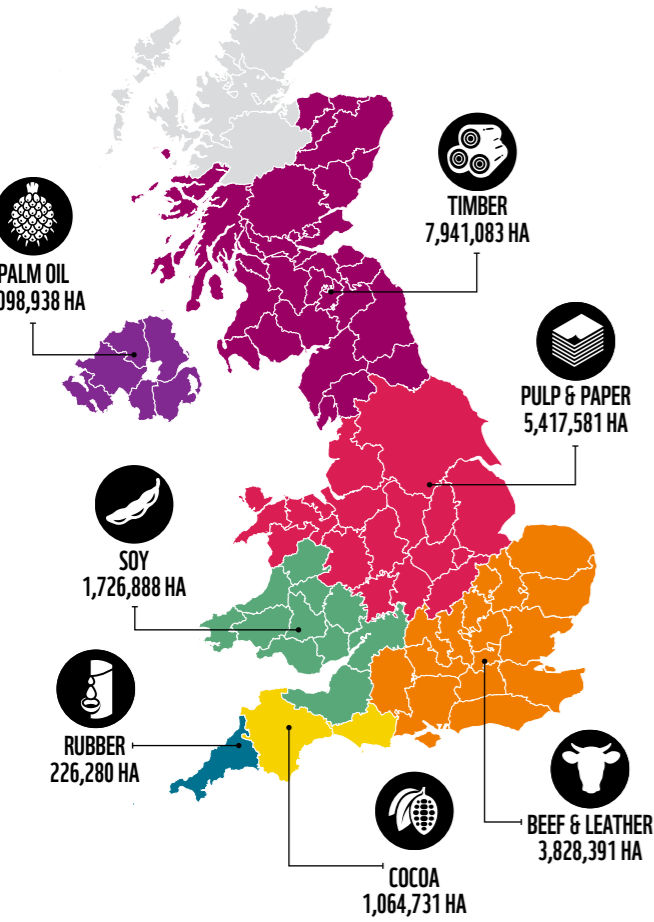
## THE UK’S FOOTPRINT AND PLANETARY ECOLOGICAL LIMITS



WHY MUST WE REDUCE THE UK’S FOOTPRINT?

The science is clear: we need to reduce the impact that human production and consumption has on the natural world if we are to restore nature, avoid dangerous climate change and ensure future generations of people have access to sufficient resources to thrive.

As a major economy, the UK’s production and consumption has a disproportionate footprint on the Earth’s systems and our planet’s biodiversity. On average, people living in high-income countries consume more than 13 times the quantity of materials per year that those in developing countries. By setting a legally binding footprint reduction target, the UK can lead the way in taking responsibility for the impacts of our production and consumption.



THE OVERSEAS LAND FOOTPRINT REQUIRED TO MEET OUR DEMAND FOR JUST SEVEN KEY COMMODITIES AMOUNTS TO THE EQUIVALENT OF 88% OF UK’S TOTAL LAND AREA

HOW MUCH DO WE NEED TO CUT THE UK’S FOOTPRINT BY?

We must reduce the UK’s environmental footprint by three-quarters by 2030 to help the world stay within planetary limits.

To show how we can meet this target, we used a framework for halving the global production and consumption footprint, developed by WWF and Metabolic<sup>1</sup>, as a basis to develop UK footprint reduction targets across 10 areas of environmental impact. Our findings are based primarily on a comprehensive literature review drawing from both academic and non-academic sources. This was supported by analysis of publicly available datasets, where relevant.

Except where otherwise specified, we use a date of 2030 for all targets, with a baseline of 2019. The 2030 date reflects both the urgent need to reduce the UK’s impact, and the UK’s obligation (as a wealthy nation with current and historically high global environmental impacts) to act first.

We also developed a suite of actions that are necessary to achieve these targets. These are summarised in the Recommendations. A full list of actions, and indicators to measure progress, plus the scientific basis for all targets and actions, are available in the [full technical report](#).

HOW CAN WE REDUCE THE UK’S FOOTPRINT?

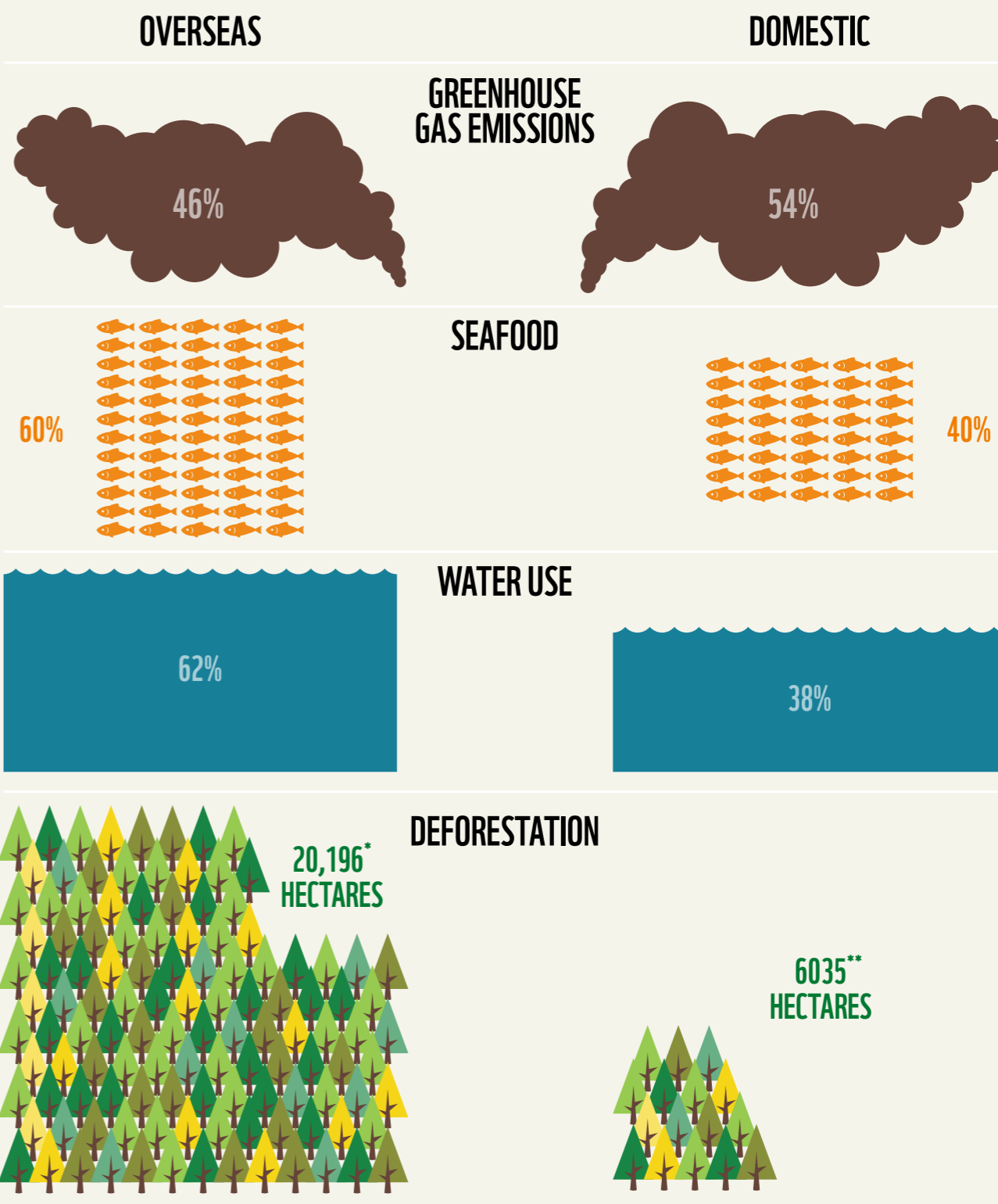
Reducing the UK’s footprint will require urgent, sustained and transformative action to change how we produce and consume materials. Targets for action should address the impacts of both production and consumption, including those impacts that occur overseas and are embedded in imports to the UK. This is critical, since nearly half of the UK’s carbon footprint occurs overseas, and the overseas land footprint required to meet our demand for just seven key commodities amounts to the equivalent of 88% of UK’s total land area<sup>2</sup>. There’s a risk that focusing only on domestic actions would simply ‘offshore’ our impacts to other countries.

A significant reduction in our footprint does not mean the UK’s economy must shrink, or that the wellbeing of UK citizens would be affected. With few exceptions, the proposed targets are about doing things differently: reducing waste, increasing recycling, increasing efficiency, and shifting towards production systems that work with nature.

An illustrative example of this is provided by actions to reduce greenhouse gas emissions. A major aspect of cutting the UK’s emissions involves decarbonising electricity production, which presents significant economic opportunities in the development of low-carbon technologies. As has been repeatedly shown with tackling climate change, taking meaningful action now is also far more economically desirable than having to take even more radical action later.

THE UK’S OFFSHORING OF ENVIRONMENTAL IMPACTS

A significant proportion of the UK’s footprint of production and consumption occurs overseas. Products imported for consumption in the UK have embedded impacts in the countries in which they are produced and processed. Often the magnitude of these overseas impacts is comparable to domestic impacts in the UK.



\* UK’s imports of agricultural commodities (excluding animal products) in 2017  
\*\* 6035 hectares of ‘forest, open land and water’ in England changed to agriculture in 2017-18.

# WE MUST REDUCE THE UK'S ENVIRONMENTAL FOOTPRINT BY THREE-QUARTERS BY 2030 TO HELP THE WORLD STAY WITHIN PLANETARY LIMITS



## AIR POLLUTION

Limit emissions of harmful air pollutants, by 1) meeting the European Environmental Bureau's 'Maximum Technically Feasible Reductions' for pollutants of concern set out in A Critical Guide to the New NEC Directive, and 2) assessing and mitigating the UK's contribution to overseas air pollution by 2030



## GREENHOUSE GAS EMISSIONS

Reduce domestic GHG emissions including international shipping and aviation by 39% and reduce the overseas carbon footprint of UK's consumption of imports by 33% by 2030



## CHEMICAL POLLUTION

Action must be taken to reduce the emissions of all chemical pollutants to levels at or below safe thresholds and restore social and ecological systems damaged by chemical pollution by 2030



## WATER POLLUTION

Protect, enhance and restore all bodies of water in the UK to achieve good ecological status and good chemical status by 2027, and reinforce the positive trend in coastal and marine waters to halve the harmful effects of water pollution on those ecosystems



## MARINE RESOURCE USE

100% of marine resources from sustainable sources by 2030



## BIOMASS CONSUMPTION

Reduce biomass consumption footprint by 50% by 2030



## DEGRADATION AND LAND USE CHANGE

UK supply chains of agricultural and forest commodities are responsible for no deforestation and conversion of ecosystems as soon as possible and no later than 2023, degradation of domestic environments is halted, and environmental degradation that occurs overseas as a result of the UK's demand for materials and goods is minimised by 2030



## NUTRIENT USE

Reduce nitrogen and phosphorus use by at least 80% by 2030



## WATER AVAILABILITY AND FLOWS

All surface water bodies and at least 90% of groundwater bodies in the UK must meet sustainable abstraction and ecological flow requirements by 2030, and the UK must support sustainable water management in key overseas sourcing regions based on quantification of the impact of its imports on overseas water availability and flows



## MATERIAL CONSUMPTION

Reduce material consumption footprint by 40% by 2030



# GREENHOUSE GAS FOOTPRINT

## OUTCOME TARGET

Reduce UK domestic greenhouse gas emissions (including from international shipping and aviation) by 39% compared to 2019 levels, and reduce the overseas carbon footprint of the UK’s consumption of imports by 33% by 2030.

### What is a greenhouse gas footprint?

Greenhouse gas emissions are gases that cause climate change by creating a greenhouse effect in the Earth’s atmosphere. The UK’s greenhouse gas emissions footprint includes emissions from domestic activities as well as those embodied in imports consumed in the UK.

### What reduction is needed?

Despite accounting for only 1% of the global population, the UK is historically the world’s fifth-largest contributor to greenhouse gas emissions<sup>3</sup>. Although territorial emissions have fallen by 44% between 1990 and 2019, this is partly due to increasing imports and the displacement of emissions overseas<sup>4,5</sup>.

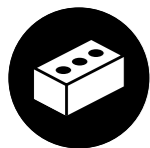
The UK’s historical and disproportionate contribution to global greenhouse gas emissions mean the UK’s reduction target must be more ambitious than the global average to represent a fair and equitable contribution to global greenhouse gas reductions<sup>6,7</sup>. The recent commitments to a 78% reduction by 2035 are in line with this, but the challenge will be to ensure that these targets are met.

### How can this vision be achieved?

Territorial emissions and the contribution to these by different sectors are well quantified for the UK. There are a number of actions that can be taken to address particular hotspots within these sectors, including reducing emissions from the use of fossil fuels in buildings, decarbonising energy production and supply, reducing emissions from agriculture, waste, and land, sea and air transport, and turning the UK’s land into a net carbon sink. Overseas greenhouse gas emissions are increasing as a proportion of the UK’s contribution to global emissions, but these are poorly quantified. The UK should adopt a significant share of the responsibility for cutting these emissions.



THE UK IS HISTORICALLY  
THE WORLD’S FIFTH-  
LARGEST CONTRIBUTOR TO  
GREENHOUSE GAS EMISSIONS



# MATERIAL CONSUMPTION

## OUTCOME TARGET

Reduce the UK's material footprint by 40% by 2030.

### What is material consumption?

Material consumption refers here to the extraction and consumption of raw materials, such as fossil fuels, metal ores and non-metal ores. These materials are present in a huge range of things – from buildings to cars to mobile phones. They include products and materials produced domestically or imported.

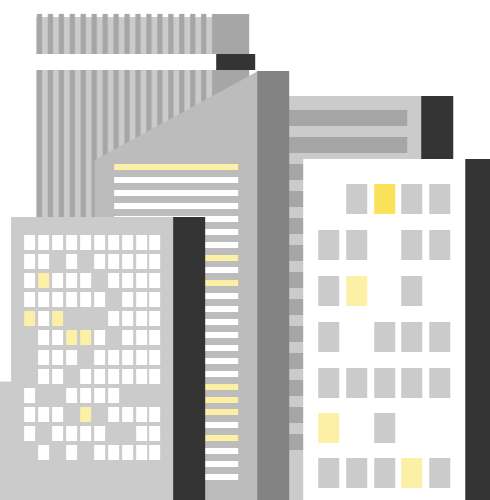
### What reduction is needed?

The UK's per capita material footprint in 2017 was 7.7 tonnes per person. Reducing this to within the planetary limit of 4.8 tonnes per person implies a near 40% reduction<sup>8</sup>.

### How can this vision be achieved?

To achieve a sustainable UK material footprint, we must cut our consumption of raw materials by, for example, increasing resource efficiency, efficient design, advanced manufacturing, reuse, remanufacturing, recycling and recovery technologies and processes.

Cutting consumption matters, since the processes of extraction and production are where ecological harm such as deforestation, water and air pollution, and biodiversity loss occurs. Increasing the circular use of materials requires a collaborative shift towards circularity by sectors including the construction industry, the waste management sector and manufacturing. If supported by appropriate policies and incentives, this can play a significant role in reducing the UK's material footprint.



THE UK ECONOMY CONSUMES 523  
MILLION TONNES OF NON-BIOMASS  
MATERIALS – EQUIVALENT TO TEN  
TIMES THE WEIGHT OF THE GREAT  
WALL OF CHINA – EACH YEAR





# BIOMASS CONSUMPTION

## OUTCOME TARGET

Reduce the UK's biomass consumption footprint by 50% by 2030.

### What is biomass consumption?

Biomass consumption covers the volume of biomass-based materials such as agricultural, forest and animal products that are consumed – both those produced within the UK and those imported from overseas.

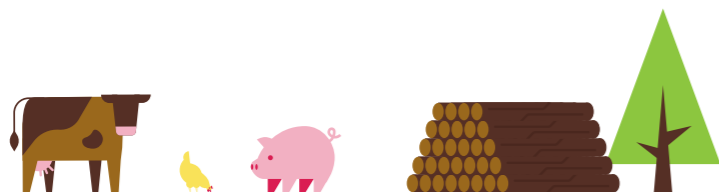
The impacts of the production or extraction of biomass-based materials, such as land-use change or greenhouse gas emissions, are covered under other environmental impact areas in this report. Fishery and aquacultural products are addressed in the marine resource use section.

### What reduction is needed?

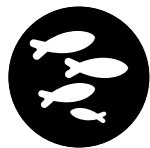
The per capita planetary limit for our biomass consumption footprint is estimated to be 1.6 tonnes per year<sup>9</sup>. The UK per capita biomass footprint is 3.1 tonnes per year<sup>10</sup>. So bringing UK biomass consumption within sustainable limits requires a near 50% reduction.

### How this can this vision be achieved?

The vision of a reduced biomass footprint comprises actions that will cut consumption of primary biomass materials, including through increased efficiency of processes (the same or greater output with less primary biomass use), reduced waste and the substitution of primary materials with recovered or recycled 'secondary' materials.



**10 MT OF FOOD AND DRINK  
WERE WASTED POST FARM  
GATE IN THE UK IN 2018 OF  
WHICH 70% WAS EDIBLE**



# MARINE RESOURCE USE

## OUTCOME TARGET

100% of marine resources from sustainable sources by 2030.

### What is marine resource use?

Marine resources include fin fish, shellfish and marine plants, wild caught or cultivated. Marine resources are consumed directly by people (e.g., eating fish or seaweed). They are also embodied within other products, such as fish feed and fish oils used in feed for livestock production.

### What reduction is needed?

The footprint of the UK's marine resource use is not well defined. In 2019, 40% of the UK's marine resource use came from domestic production and catches, where significant ecological issues are present. Some 60% of UK commercial fish stocks were reported to be unsustainably exploited or at high risk of unsustainable exploitation. The remaining UK demand is met by imports. Illegal and unregulated fishing, damaging practices, overfishing and unsustainable feed are prevalent issues globally. As pressure on global marine resources intensifies, the UK's sourcing must rapidly be made unambiguously sustainable.

### How this can this vision be achieved?

The vision is for UK production and consumption of marine resources to be from 100% sustainable sources and methods by 2030. This includes managing populations of fish stocks as well as impacts on the wider marine ecosystem, including services such as carbon sequestration and storage provided by marine life and habitats.

Actions must also address feedstocks for farmed fish (including support for the development and use of alternative feed ingredients such as insect meals and seaweed), bycatch of non-target species and the impacts that different production and capture techniques and equipment have on the environment. A lack of robust data has been highlighted as a barrier to sustainable marine resource management and must be improved to allow full traceability and transparency.



A THIRD OF GLOBAL FISH STOCKS  
ARE ESTIMATED TO BE EXPLOITED  
ABOVE SUSTAINABLE LEVELS



# DEGRADATION AND LAND-USE CHANGE

## OUTCOME TARGET

UK supply chains of agricultural and forest commodities are responsible for no deforestation and conversion of ecosystems as soon as possible and no later than 2023, degradation of domestic environments is halted, and environmental degradation that occurs overseas as a result of the UK's demand for materials and goods is minimised by 2030.

### What is degradation and land use change?

Environmental degradation describes the loss of ecosystem functioning and the deterioration of key ecosystem features caused by human activities. This leads to species loss, changes in species compositions and reduced ability of ecosystems to provide essential services<sup>11</sup>. Major activities that contribute to degradation are: forest management (for timber and forest products), agriculture and soil management, biomass harvesting (marine and terrestrial), mining and quarrying, leakages of hazardous materials and expansion of the built environment.

Land-use change is closely related and occurs when human activities (deliberately or unintentionally) cause sustained changes to an ecosystem, such that its structure and functioning is fundamentally altered. Historically, domestic UK land-use change is most directly attributed to changes in forest cover and the use of land for agriculture. Currently, tree cover across the UK stands at 13%, significantly lower than the EU average of 38%<sup>12</sup>. The overseas component of the UK's land-use change footprint arises from destructive activities overseas associated with products that the UK imports – such as commodities that are produced at the expense of overseas natural habitats.

### What reduction is needed?

The international dialogue around deforestation and conversion has reached a clear conclusion: any amount is too much. In 2017, UK supply chains were estimated to be responsible for more than 20,200 hectares of deforestation embodied in imports of agricultural commodities<sup>14</sup>. The UK footprint of degradation and nondeforestation land-use change is not well defined. Expert consensus is that the ecological threshold for deforestation, both at home and abroad, is zero and that all forms of degradation and land conversion should be minimised.

### How this can this vision be achieved?

The UK government has been advised, notably by the Global Resource Initiative Taskforce, that tackling the UK's land-

use change footprint will require eliminating both legal and illegal deforestation from supply chains by 2030 at the latest<sup>15</sup>. Many experts recommend exceeding the Global Resource Initiative Taskforce's suggestion by halting all forms of conversion (including deforestation) globally as soon as possible to remain within safe ecological limits.

As a result, the UK's goal for reducing its land-use change footprint should be to halt deforestation and other forms of land conversion associated with UK consumption and production by 2023, bearing in mind that many

commitments were taken by companies and governments to end deforestation by 2020 – for instance in the New York Declaration on Forests, the Amsterdam Declarations Partnership, the Consumer Goods Forum net zero deforestation resolution, and the Sustainable Development Goals.

The cut-off date for this commitment should be no later than 2020, meaning no commodities produced on land converted after 2020 should be deemed compliant. But earlier cut-off dates should be respected where applicable (e.g., where

THE AVERAGE AREA OF LAND REQUIRED EACH YEAR TO SATISFY THE UK'S IMPORTS OF SEVEN AGRICULTURAL AND FOREST COMMODITIES INCREASED BY 15% BETWEEN 2016-18 COMPARED WITH 2011-15<sup>13</sup>



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existing sector-wide cut-off dates or more ambitious voluntary commitments apply).

Defining a degradation footprint target for the UK is challenging – degradation is more difficult to quantify as it covers a broad scope of issues across different habitats and ecosystems and can be less easy to identify than a total change in land-use. As a result, the UK target is to work towards halting degradation.





# NUTRIENT USE

## OUTCOME TARGET

Reduce nitrogen and phosphorus use by at least 80%.

### What is nutrient use?

Nutrient use refers to the use of nitrogen and phosphorus, commonly in agricultural production. Globally, 80% of the nitrogen used by humans is wasted and lost to the environment<sup>6</sup>, often as run off into waterways, causing environmental damage as well as contributing to climate change and air pollution (see above and below).

### What reduction is needed?

To meet planetary boundaries, the UK's per capita nitrogen and phosphorus footprints need to be reduced by more than 80%<sup>17</sup>. In the UK, cereal farming is the biggest user of nitrates and general crop farming is the biggest user of phosphate. Sewage treatment plants are also hotspots for phosphorus loss into to waterways.

### How this can this vision be achieved?

Addressing nutrient use will require a reduction in the quantity of nutrients used and lost into the environment, along with an increase in nutrient recovery and recycling. Rates of nitrogen and phosphorus use in the UK are among the highest in the world.

Regulations in England<sup>18</sup>, Wales<sup>19</sup> and Scotland<sup>20</sup> limit fertiliser use to match crop requirements, at least for nitrogen. However, overuse and losses remain high, and there are currently no UK policies to address security of supply or recycling<sup>21</sup>. There is also significant nitrogen and phosphorus use (and pollution) embedded within imports to the UK<sup>22</sup> but limited analysis or policy to date to address this<sup>23</sup>.

Efforts to address the UK's nitrogen and phosphorus footprint must therefore include tracing and quantifying the nitrogen and phosphorus associated with the overseas production of UK imports and measures to facilitate a reduction in nutrient use in key regions the UK imports from.

A comprehensive economy-wide strategy to reduce the UK's use and waste of nutrients in an integrated way, based on nutrient budgets and reduction targets, will deliver benefits across the climate, nature, water, air and human health agendas. This strategy should include and address the import and export of nutrients, including those embedded in other products.



**RATES OF NITRATE AND  
PHOSPHATE USE IN THE UK ARE  
OVER TWICE AS HIGH AS THE  
AVERAGE AMONGST OTHER  
EUROPEAN COUNTRIES**



# CHEMICAL POLLUTION

## OUTCOME TARGET

Reduce the discharges and emissions of all chemical pollutants to levels that are at or below environmentally safe thresholds (preventing emissions where risks are unknown), and restore social and ecological systems that have been damaged by chemical pollution.

### What is chemical pollution?

Chemical pollution refers to the release and accumulation of toxic substances in the environment, for example in hazardous waste. It can come in many forms, as many of the products and by-products of economic activities are acutely or chronically toxic or have the potential to become toxic under certain conditions. Pollutants can cause illness and death to humans and wildlife, have impacts on the behaviour of species and their ability to reproduce, reduce the ability of ecosystems to perform their essential functions, and contaminate soil, sediments and water.

Point source chemical pollution occurring domestically in the UK is relatively well measured and monitored, less so diffuse source pollutants. A significant amount of chemical pollution is also embedded in the UK's imports from countries where there is very little quantification or tracing of chemical pollution.

As the ecological threshold for each pollutant can vary, the boundary of chemical pollution has been set as 'under allowable levels', as defined by the relevant body. This acknowledges that the understanding of a pollutant's harm can evolve over time.

### What reduction is needed?

There is not a specific estimated planetary limit associated with chemical pollution. For some especially harmful pollutants, the safe threshold is zero. For others, safe levels depend on conditions such as the ecosystem into which pollutants are released – one set of organisms may be able to cycle pollutants that would be uniquely harmful to another. So, adhering to a principle of precaution, the overall target should be taken as 'limiting chemical pollution to levels at or below allowable levels for individual pollutants of concern'.

### How this can this vision be achieved?

Because there is no unified indicator for chemical pollution, a quantitative outcome target based on an overall reduction by 2030 has not been set. Instead, the target for this topic area reflects the need to understand and act to prevent all forms of harmful chemical pollution, through, for example, improved management of hazardous waste, a 50% reduction in emissions of mercury, and eliminating persistent organic pollutant emissions.



AS OF 2016, ONLY 43% OF HAZARDOUS WASTE GENERATED IN THE UK WAS TREATED. FURTHER, THE PROPORTION OF TREATED HAZARDOUS WASTE HAS DECREASED WHILE THE GENERATION OF HAZARDOUS WASTE HAS INCREASED SINCE 2010



# WATER POLLUTION

## OUTCOME TARGET

Protect, enhance and restore all bodies of water in the UK to achieve ‘good ecological status’ and ‘good chemical status’ by 2027, and reinforce the positive trend in coastal and marine waters to halt the harmful effects of water pollution on those ecosystems.

### What is water pollution?

The footprint concept is a challenging one to apply to water pollution, as it is typically a local phenomenon. Phosphorus is one of the most significant pollutants in the UK and nitrates are a particular problem for coastal areas and estuaries. Both phosphorus and nitrates cause eutrophication, which has adverse impacts on aquatic life, water quality and water uses. Additional water pollutants of concern include mercury, polybrominated diphenyl ethers (PBDEs), perfluorooctane sulfonate (PFOS) and microplastics. Pollutants classified as some of the most hazardous to marine environments include cadmium, mercury, copper, lead, zinc and the organic compound lindane<sup>24</sup>.

### What reduction is needed?

Little progress has been made in improving the pollution status of the UK’s water bodies for several years. In England, only 16% of water bodies meet the criteria for ‘good ecological status’ and none meet the criteria for ‘good chemical status’<sup>25,26</sup>. The suggested outcome target is the target in the Water Framework Directive<sup>27</sup> and extends the commitment in the UK government’s 25 Year Environment Plan for at least three-quarters of water bodies in England to be ‘close to their natural state as soon as is practicable’.

### How this can this vision be achieved?

To achieve this ambition, greater efforts to return water bodies to good ecological status are required, along with specific actions on marine pollutants and microplastics, and on quantifying and reducing the water pollution embedded in the UK’s imported goods. Specific actions include preventing the discharge of untreated sewage into waterways, substantially reducing phosphorus entering waterways from sewage treatment plant discharge and reducing the loss of phosphorus and nitrates from farmland into water bodies.

While domestic water pollution occurring as a result of production in the UK is generally well measured and monitored, there is comparatively limited quantification or tracing of the overseas water pollution associated with UK consumption – although upcoming work from the JNCC and SEI on indicators for the overseas impact of UK consumption has potential to include nitrogen and phosphorus emissions.



**IN ENGLAND, ONLY 16% OF WATER BODIES MEET THE CRITERIA FOR ‘GOOD ECOLOGICAL STATUS’ AND NONE MEET THE CRITERIA FOR ‘GOOD CHEMICAL STATUS’**





# WATER AVAILABILITY AND FLOWS

## OUTCOME TARGET

All surface water bodies and at least 90% of groundwater bodies in the UK meet sustainable abstraction and ecological flow requirements and the UK supports sustainable water management in key overseas sourcing regions based on quantification of the impact of its imports on overseas water availability and flows.

### What is water availability and flows?

The term 'water availability and flows' relates to the abundance of fresh water and the levels and movement of water in channels and water bodies. Activities including abstraction, removal and redirection of water fundamentally alter water availability and flows. A reduction in water levels means less space for wildlife to live, feed and reproduce, and affects migration and life-stage cues. As water levels are reduced, pollutants entering the water environment also become more concentrated, and the water cannot provide a healthy environment for fish, insects and plants<sup>28</sup>.

### What reduction is needed?

The 2020 progress report on the UK's 25 Year Environment Plan states an ongoing commitment to achieving sustainable flow levels for 90% of surface water bodies and 77% of groundwater bodies by 2021<sup>29</sup>. In 2018, 84% of surface water bodies and 72% of groundwater bodies were considered to meet these standards. A more ambitious target should therefore be possible by 2030.

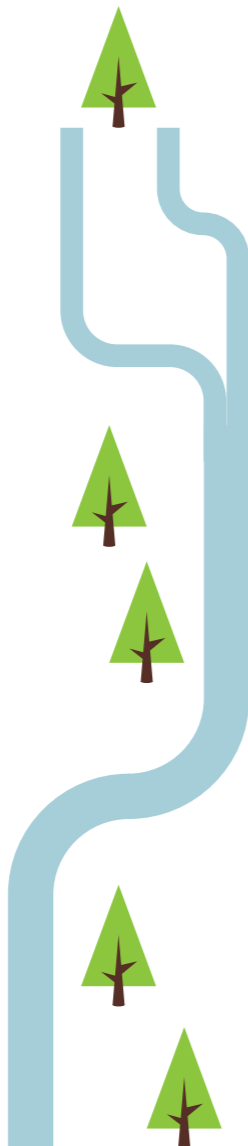
It is estimated that around 60% of the UK's water use occurs overseas, related to agricultural production and industrial processing of goods imported to the UK<sup>30</sup>. Over-abstraction is a particularly acute issue in arid and water-stressed regions.

### How this can this vision be achieved?

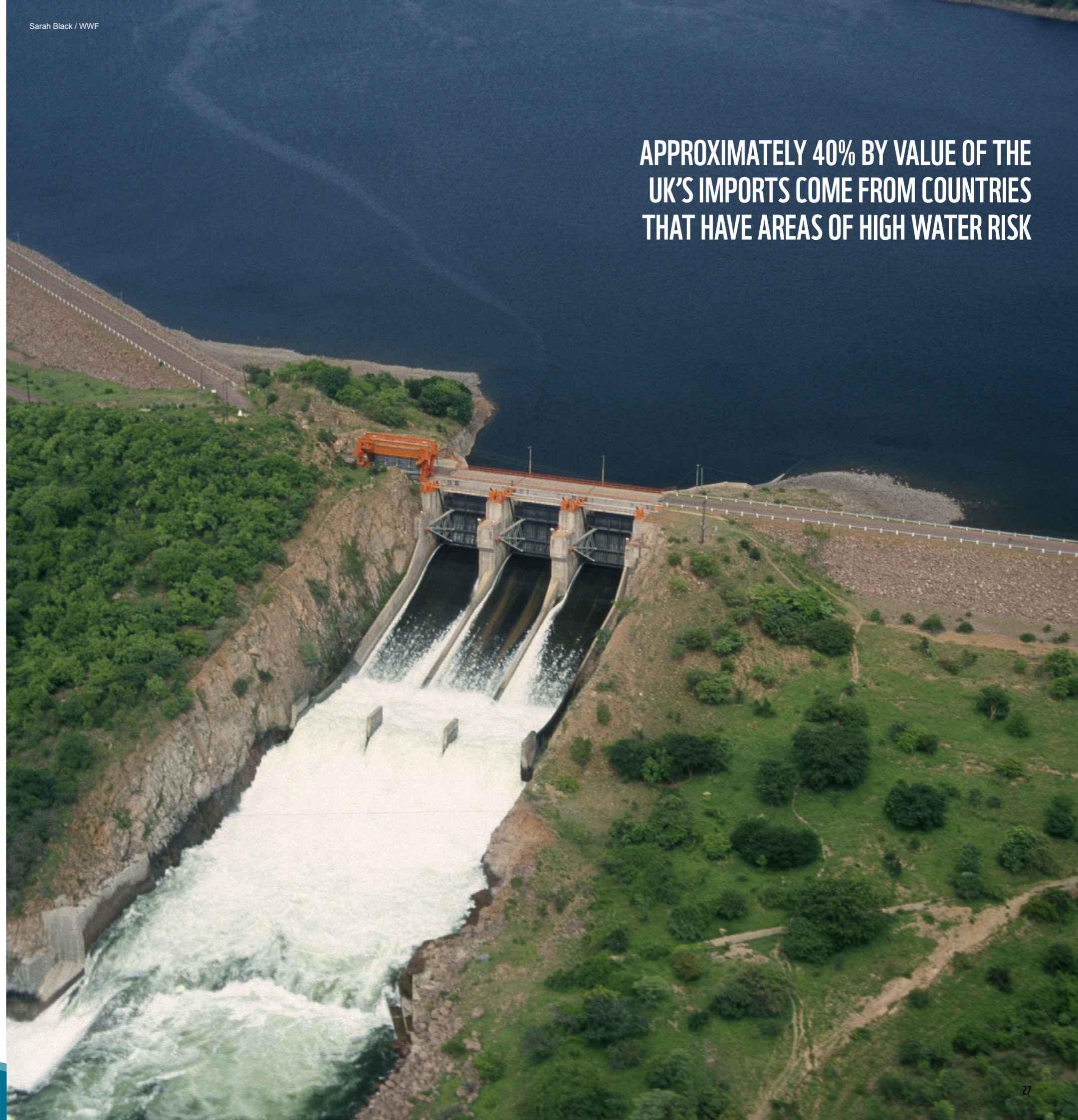
In the UK, the biggest drivers of water abstraction are public water supply and energy supply. Other drivers of domestic abstraction include agriculture, manufacturing, fish farming and industrial processes<sup>31</sup>.

Addressing water availability involves addressing leaks and the possibility of water recycling as well as reducing demand from both household and non-household users.

Impacts on water availability and flows overseas, embedded in UK supply chains, must be better quantified, monitored and tackled. UK policy and private actors must recognise the urgent implications for future food security of relying on sourcing from regions with unsustainable water management, and use their influence through supply chains to facilitate the implementation of sustainable water governance.



APPROXIMATELY 40% BY VALUE OF THE UK'S IMPORTS COME FROM COUNTRIES THAT HAVE AREAS OF HIGH WATER RISK





# AIR POLLUTION

## OUTCOME TARGET

Limit the emissions of harmful air pollutants by: 1) meeting the European Environmental Bureau's 'Maximum Technically Feasible Reductions' for pollutants of concern set out in *A Critical Guide to the New NEC Directive (2017)* and 2) assessing and mitigating the UK's contribution to overseas air pollution.

### What is air pollution?

Air pollution refers to emissions and atmospheric loading of primary and secondary pollutants. Key regulated air pollutants include:

- nitrogen oxides (NO<sub>x</sub>)
- ammonia (NH<sub>3</sub>)
- non-methane volatile organic compounds (NMVOCs)
- sulphur dioxide (SO<sub>2</sub>)
- particulate matter (PM).

These pollutants are among the most harmful substances emitted to the air. They damage human and animal health, degrade landscapes and alter ecosystem functions.

Primary pollutants are those emitted directly to the atmosphere (such as SO<sub>2</sub> and NO<sub>x</sub>). Secondary pollutants are those produced in the atmosphere from precursor gases – such as ground-level ozone (O<sub>3</sub>) and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>)<sup>32</sup>.

### What reduction is needed?

National and international legislation calls for reduced emissions of all air pollutants of concern. However, the UK's air pollution targets are insufficient to prevent significant harm. While there is not a well-defined ecological threshold for air pollution, more ambitious reductions will prevent avoidable deaths and ecological degradation.

### How this can this vision be achieved?

There are two issues for which the UK's current legislative targets for air pollution have been criticised and must be addressed: failure to set a high enough bar, and projected underperformance in pollutant reductions<sup>33,34</sup>. As a result, it is recommended that the UK should adopt the maximum technically feasible pollutant reductions suggested by the European Environmental Bureau and develop additional air pollution control measures to keep pace with these increased ambitions. Meeting increased ambitions for reducing emissions of pollutants is likely to involve tighter regulations and greater incentives around these measures.

EXPERT ASSESSMENT HAS CONCLUDED THAT THE UK'S PLAN TO REACH ITS 2030 AIR POLLUTION REDUCTION TARGETS WILL FALL SHORT: THE UK IS EXPECTED TO FULLY MEET THE REQUIRED 2030 EMISSIONS REDUCTION TARGETS FOR ONLY ONE POLLUTANT (SO<sub>2</sub>)

## RECOMMENDATIONS

# THE UK HAS A UNIQUE OPPORTUNITY TO LEAD.

# THE UPCOMING ENVIRONMENT BILL SHOULD EMBED THE GOVERNMENT'S COMMITMENT TO THE LEADERS PLEDGE FOR NATURE<sup>35</sup>.

Chairing the 26th Conference of Parties of the UN Framework Convention on Climate Change at the end of 2021 presents a further significant opportunity for the UK to influence positive change. Adopting a legally binding target to reduce the footprint of production and consumption by three quarters by 2030, with targets for key environmental impact areas, would cement Government's leadership.

For the UK to achieve this ambitious target urgent and collaborative action is required across all of society. The following recommendations are a highly summarised version of the actions developed to meet the targets for each of the 10 environmental impact topic areas. Readers should refer to the [full technical report](#) for the specific actions, which are quantified where possible.

## POLICYMAKERS

Policymakers have a key role to play in attaining these targets as they set regulations, taxes and subsidies as well as the wider policy framework to enable change. Key actions include:

- Apply a net zero test to all spending and taxation decisions to put and keep us on track to meet our climate and nature goals.
- Set greenhouse gas emission targets that cover UK imports, and strengthen targets on transport emission reductions, as well as ensuring the UK becomes a net carbon sink by 2040.
- Incentivise greater supply chain transparency for all sectors that are associated with significant environmental risk.
- Establish in law a set of core environmental standards for food, fishing and farming that apply to both imports and domestic production to support a shift to sustainable agriculture, fisheries and aquaculture without offshoring our environmental footprint.
- Make a commitment and plan to reduce greenhouse gas emissions in the UK agriculture sector by at least 24% by 2030 (13 MtCO<sub>2</sub>e) on 2020 levels, and by 50% by 2050 (27 MtCO<sub>2</sub>e), with no offshoring of potential impacts.
- Make a UK land-use commitment and plan to reduce land-related emissions so land is transformed to a net carbon sink no later than 2040 and achieves a 19 MtCO<sub>2</sub>e (and growing) carbon sink by 2050.
- Firmly, but fairly, enforced regulatory baselines must underpin public payments to land managers and equally be applied to those not participating in environmental schemes (e.g. Glastir; Environmental Land Management). Actions that are already near-universal (like hedgerow management) or required in law should not be publicly-funded.
- Develop a comprehensive strategy, including nitrogen budgets and accounting, to reduce the UK's nitrogen and phosphorus use by at least 80% by 2030.
- Prevent pollution of UK waterways with nitrogen, phosphorus, soil, untreated sewage and microplastics, especially where this is impacting protected areas (e.g. SSSIs).
- Commit to a 50% reduction in food waste from farm to fork by 2030 and increase consumption of plant-based foods in UK diets.
- Strengthen regulation of marine resources to prevent fish stock depletion and illegal activity, minimise incidental bycatch and impacts on blue carbon, and improve data to allow full traceability and transparency.
- Adopt sustainable feed policies to reduce the reliance on unsustainable feed ingredients, and provide regulatory and financial support for the development of alternatives such as insect meals, seaweed and microalgal oils.
- Enact due diligence legislation to ensure the UK's commodity supply chains are responsible for zero deforestation and conversion by 2023, and introduce stronger regulations to protect ecosystems both domestically and overseas.
- Broaden due diligence over time to address all key environmental risks and impacts to catalyse action to support the required reduction in our global footprint.
- Support producer countries to transition to more sustainable production methods through financial assistance and support.
- Require all UK financial institutions to implement a transition plan aligned to the 1.5 degree goal of the Paris Agreement, the provisions of which should be guided by regulation and applied to emissions related to all financial activities.
- Develop a clear business activity classification system, similar to the UK Green Taxonomy, but which is aligned to the UK Footprint Targets.
- Prioritise policies that increase resource efficiency and minimise waste arisings, in line with circular economy principles.
- Enact policies that follow the 'polluter pays' principle to ensure businesses take responsibility for a product's full lifecycle impact – from materials sourcing and production right through to end of life treatment.
- Improve municipal waste management so less is sent to landfill or exported to overseas markets where waste may be mismanaged.
- Ensure trade deals protect against chemical pollution, and that chemical pollution is properly measured (especially overseas) and is treated before disposal.
- Set more ambitious air pollution targets, ensure these cover pollution caused by imported goods, and take more action to meet those targets currently being missed.

# BUSINESSES

Businesses are spread across all sectors of the UK economy and will have to implement, and in some cases lead, efforts to reduce their impacts. Such action can reduce a business's environmental risk exposure and will present a number of business opportunities, including increased supply chain resilience, improved social licence to operate and better supply chain relationships. Key actions from business sectors include:



## RETAIL SECTOR<sup>36</sup>

- Set 1.5°C climate targets aligned with the Science Based Targets initiative for scope 1, 2 & 3.
- Support producers in the UK and abroad to transition to more sustainable agriculture, including sustainable water governance.
- Reduce waste across the value chain.
- Drive a reduction in overall materials consumption, ensuring all materials are recyclable (including packaging).
- Improve seafood sourcing to sustainable wild-caught fish and aquaculture.
- Ensure zero deforestation and conversion supply chains.
- Support the transition to healthy sustainable diets.



## FISHING AND AQUACULTURE SECTOR

- Address the use of unsustainable fishmeal, fish oil and soy meals in aquaculture feeds and promote the use of alternative feed ingredients such as insect meals, seaweed and microalgal oils.
- Ensure domestic and overseas fish stocks are fished at or below levels capable of producing maximum sustainable yields, eradicating illegal, unregulated and unreported fishing, minimising incidental bycatch and impacts on blue carbon and improving data to allow full traceability and transparency.



## IMPORTERS

- Address deforestation and ecosystem conversion in commodity imports.
- Ensure fish imports are sustainable or at least on the path of improvement and eradicate importation of illegal, unregulated and unreported seafood products.



## WASTE MANAGEMENT

- Minimise the creation of unnecessary waste, reduce avoidable plastic waste, and support the creation of better recovery and recycling infrastructure to reduce the quantity of waste that is sent to landfill, incineration or exported unprocessed.
- Minimise production of hazardous waste and ensure it is treated before disposal.



## AGRICULTURE SECTOR

- Measure, report and minimise farm-level food loss and waste.
- Incorporate farm-level carbon auditing into industry standards to support the reduction of agri-emissions by 24% by 2030.
- Increase the percentage of farmland in a robust environmental scheme, such as a LEAF Marque Standard, to 50% of UK farmland by 2030.



## FINANCE SECTOR

- Align to the 1.5 degree goals of the Paris Agreement, setting Science-Based Targets covering scope 1, 2 and 3 emissions. WWF's Big Smoke report<sup>37</sup> showed that UK finance contributes 1.8 times the UK's annual net emissions. UK financial institutions should invest in companies that have more ambitious climate targets, and dramatically increase transition finance and green finance.
- Manage the risks and impacts of portfolios, beyond climate. The financial sector should identify UK companies that have set ambitious, credible targets to manage the impacts of production and consumption in line with the recommendations of this report.

# RESEARCH COMMUNITY

Research and science must be central to establishing, informing and tracking the appropriate actions needed from different sectors of society to reduce the UK footprint by three-quarters. This encompasses further developing and monitoring indicators on key topic areas, where in some cases the UK's impact is not yet clearly understood – such as soil degradation, chemical and nutrient pollution overseas, and microplastic pollution.



# NON-GOVERNMENTAL ORGANISATIONS AND CIVIL SOCIETY

Non-governmental organisations have a role to play in raising awareness, supporting a changing in behaviours of the general population and holding private and public actors to account.

Citizens can help by ensuring they consume in a sustainable way – such as by reducing food waste, increasing plant foods in their diet, increasing reuse of products, correctly disposing of household waste, cutting transport emissions and buying sustainably sourced and certified products.



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