Department
for Environment
Food & Rural Affairs

Consultation on environmental targets

Published: 06 May 2022

Updated to reflect evidence pack and impact assessment publication:

We are the Department for Environment, Food and Rural Affairs. We're responsible for improving and protecting the environment, growing the green economy, sustaining thriving rural communities and supporting our world-class food, farming and fishing industries.

We work closely with our 33 agencies and arm's length bodies on our ambition to make our air purer, water cleaner, land greener and our food more sustainable. Our mission is to restore and enhance the environment for the next generation, and to leave the environment in a better state than we found it.

Contents

Introduction

Nature is in decline worldwide, with this decline projected to continue or worsen. We need to take urgent action to halt biodiversity loss to meet our commitment to leave the environment in a better state than we inherited it. Our future target to halt the decline in species by 2030 embodies that commitment.

To support this, we need actions that support our marine environment, improve the water quality of our rivers and freshwater habitats as well as increase our woodland cover. We also need to use natural resources more sustainably and minimise the waste we produce. It is also critical to tackle one of our most pressing environmental risks to public health by taking urgent action to deliver clean air. This work will support the delivery of many of the government's priorities, including those set out in our 25 Year Environment Plan, to reach net zero by 2050, to build resilience against the impacts of a changing climate, and to level up all corners of the country. Enhancing natural capital will also support our food security, health and wellbeing, and economic prosperity.

Legally binding long-term environmental targets will drive action by successive governments to protect and enhance our natural world. They allow for objective scrutiny and accountability of government's progress to society. The duty to achieve targets rests with central government, but delivery will require action across the economy, including a step change in investment flows from the private sector. This is reflected by the government's aim to raise at least £500m in private finance for nature's recovery every year by 2027, rising to more than £1bn a year by 2030. This provides clear signals that investors need to be able to mobilise capital at scale, stimulating innovation and economic growth. In turn this will create and support green jobs.

We are seeking views on the first suite of Environment Act 2021 targets. The Act requires that at least one target in each of four priority areas is set in: air, water, biodiversity, and resource efficiency and waste reduction. It also requires targets to be set for fine particulate matter ($PM_{2.5}$) and species abundance. These targets need to be laid as draft Statutory Instruments by 31 October 2022 and will come into force once approved by Parliament. We are proposing targets that we consider will lead to action in areas that drive environmental outcomes where we face some of greatest threats and pressures. This is why we are considering targets over and above the minimum required; with additional proposals in biodiversity, water, marine and tree planting.

The Environment Act requires the government to always have an Environmental Improvement Plan (EIP) in place. This sets out the steps the government intends to take to improve the natural environment, including measures needed to meet its targets. The first review of the EIP will be completed by January 2023. As part of that review, it will be updated to include at least one interim target for each long-term target that has been set. Once we have finalised the development of long-term targets, we will be able to determine

the contribution that interim targets will make towards meeting the relevant long-term target.

Part 1: Developing target proposals

We are using a four-step process to systematically develop evidence to inform target proposals and are now commencing Step 3.

Step 1: Setting the scope of the targets: Our August 2020 Targets Policy Paper set out our overall approach to developing target proposals working with experts, as well as how we would involve stakeholders and Parliament. It also described the proposed scope for targets. See the Annex to this consultation for the criteria and principles that have been applied in developing target proposals.

Step 2: Developing evidence based target proposals: We have taken a systems approach to consider how targets will collectively drive improvements to our natural environment. For example, we have considered how setting ambitious water quality targets could promote action needed to support wider ecosystems and biodiversity. This is the first time we have been able to take a holistic, evidence led approach to target setting which takes into account our domestic context, rather than acting in a reactive and piecemeal fashion to meet a patchwork of EU and international obligations.

Since August 2020 we have been working with our statutory advisors and wider evidence partners to develop scientific evidence to underpin proposed targets. This has informed how they will deliver an achievable level of improvement to the environment over a given time period, and how this will be measured. Evidence reports[1] for each target proposal have been published alongside this consultation.

Expert groups have been invaluable in helping inform target development. They have provided bespoke guidance on evidence processes and best available evidence. Their insight has informed considerations about the scope and achievability of target options. More detail on their steers can be found in our evidence reports. The terms of reference for expert groups, membership details and minutes have been published[2].

---

[1] Evidence reports for all target areas are published at https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets
[2] Target Expert Group details are as follows
Biodiversity Target Advisory Group at: https://www.gov.uk/government/groups/defras-science-advisory-council
Resources and Waste Targets Expert Group at: https://www.gov.uk/government/groups/resources-and-waste-targets-expert-group#minutes

We have also been identifying potential measures to deliver proposed targets. Impact Assessments for each target area analyse potential delivery measures. The analytical approach is summarised in an overarching Impact Assessment[3]. This analysis has informed our assessment of target achievability and affordability.

Step 3: Public consultation on target proposals: Consultation views will help inform and finalise target proposals.

Step 4: Drafting target legislation, to be laid before Parliament by 31 October 2022: Target Statutory Instruments will come into force once approved by Parliament.

Part 2: Responding to this consultation

A wide range of stakeholders have a role in helping us to develop targets. This consultation starts on 16 March 2022 and closes on 27 June 2022. We strongly encourage responses via an online survey on Citizen Space, an online consultation tool. Consultations receive a high level of interest across many sectors and using the online tool assists our analysis of responses, enabling more efficient and effective consideration of issues. However, responses can be sent by email or post. In your response please state:

- Your name
- Your email address (If you are providing a second response following the publication of the supporting evidence documents, please use the same email address as used in your first response. This will help with our consultation analysis.)
- Your organisation (if applicable)
- Whether you would like your response to be confidential (if yes, please state your reasons)

Enquiries and responses should be directed:

Trees and Woodland Scientific Advisory Group at: https://www.gov.uk/government/groups/trees-and-woodlands-scientific-advisory-group#minutes
Water Targets Expert Advisory Group: https://www.gov.uk/government/groups/water-targets-expert-advisory-group#minutes
Committee on the Medical Effects of Air Pollutants at: https://www.gov.uk/government/groups/committee-on-the-medical-effects-of-air-pollutants-comeap#minutes
Air Quality Expert Group do not upload their minutes however they are available upon request and contact details can be found at: https://uk-air.defra.gov.uk/research/aqeg/
[3] Impact Assessments for all target areas have been published at https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

- By email to environmentaltargets@defra.gov.uk including whether you need a hard copy of the consultation.
- In writing to the Consultation Coordinator, Defra, 2nd Floor, Foss House, Kings Pool, 1-2 Peasholme Green, York, YO1 7PX.

This consultation is being conducted in line with the Cabinet Office "Consultation Principles". If you have any comments or complaints about the consultation process, please address them by email to: consultation.coordinator@defra.gov.uk or by post to the Consultation Coordinator (as above).

Confidentiality Question

Questions:
- **Would you like your response to be confidential? [Yes/No]**
    - **[If yes] Please give your reason.**

Confidentiality and data protection information

A summary of responses to this consultation will be published on the government website[4] but will not include personal names, addresses or other contact details. An annex to the consultation summary will list all organisations that responded. Defra may also publish some or all of the content of your response to this consultation.

If you choose 'Yes' in response to the above question, you are asked to state clearly what information you would like to be kept as confidential and explain your reasons for confidentiality. Information within responses to this consultation may be subject to release to the public or other parties in accordance with the access to information law. Under this law, we have an obligation to disclose information in certain circumstances. In view of this, explaining your reasons for requesting confidentiality would help us balance obligations of both disclosure and confidentiality. If we receive a request for the information that you have provided in your consultation response, we will take full account of your reasons for requesting confidentiality but cannot guarantee it can be maintained in all circumstances.

If you choose 'No' in response to the above question, we will be able to release the content of your response to the public, without including your personal name and private contact details.

---

[4] www.gov.uk/defra

There may be occasions when Defra will share the information you provide in response to the consultation, including any personal data with external analysts. This is for the purposes of consultation response analysis and provision of a report of the summary of responses only. Please find our latest privacy notice on Citizen Space for further details.

Part 3: What is included in the proposed initial suite of targets

Target proposals for biodiversity on land

Suite of biodiversity targets

There is no single way to measure the health of our biodiversity, so we need a number of indicators to pick up changes in the status of species and habitats. Taken together, they will help to provide a more holistic picture of the state of nature. The Environment Act provides for a nearer-term target to halt the decline in species abundance by 2030, a world-leading commitment. We also propose targets to:

- increase species abundance by at least 10% by 2042, compared to 2030 levels.
- improve the England-level GB Red List Index for species extinction risk by 2042, compared to 2022 levels.
- create or restore in excess of 500,000 hectares of a range of wildlife-rich habitats outside protected sites by 2042, compared to 2022 levels.

Nature has been in decline for decades and halting the decline of species in the timeframe of the 2030 species abundance target will be a substantial challenge. Through this target we are committing ourselves to an ambitious objective and leading the way internationally. For the long-term targets, we have proposed end dates of 2042 in order to align with our 25 Year Environment Plan goals.

Questions:
- **Do you agree or disagree that the proposed combination of biodiversity targets will be a good measure of changes in the health of our 'biodiversity'? [Agree/Disagree/Don't know]**
    - **[If disagree] What additional indicators do you think may be necessary?**

2030 and long-term species abundance targets

The problem

Since 1970 there has been a 68% decrease in population sizes of mammals, birds, amphibians, reptiles, and fish globally[5]. We have seen declines replicating these trends in England. For example, our farmland bird indicator today stands at less than half its value in 1970[6].

Proposed targets to address it

- halt the decline in species abundance by 2030.
- increase species abundance by at least 10% by 2042, compared to 2030 levels.

Species abundance is a good proxy for wider ecosystem health and this target will only be achieved by restoring a range of habitats and reducing pressures, such as water pollution. The 2030 species abundance target will be our apex target, driving fast and wide-ranging improvements to the state of nature, supported by a number of other environmental targets. We aim to turn the tide on nature's decline and drive recovery by 2042.

We propose using a species abundance indicator to measure progress, tracking changes in relative abundance of species which are widespread and characteristic of a wide range of habitats in England. The indicator will cover approximately 1,000 species for which we have sufficiently robust data, including farmland birds, bats, butterflies, moths, freshwater invertebrates, and plants. It is supported by robust data gathering, including through well-established recording schemes, many of which are run through partnerships between government bodies, NGOs, and research organisations.

The sample includes a range of species groups. Between them, these species depend on the majority of habitats found in England. This means that action will need to focus on the recovery of a broad range of habitats. Improvements to these habitats will benefit all of the species that depend on them, including those not included in the sample. Therefore, the sample acts as a reasonable proxy for the abundance of species in England. In turn, the abundance of species acts as a good proxy for biodiversity.

The indicator does not cover wider marine species, other than marine birds, because of the particular challenges with setting accurate and reliable targets for English marine species. Many marine species are highly mobile and widely dispersed and therefore assessments are done at a much larger scale (e.g. the North-East Atlantic). We also think

---

[5] WWF Living Planet Report - https://livingplanet.panda.org/en-us/
[6] https://www.bto.org/our-science/publications/developing-bird-indicators

that marine species are well-captured under our existing targets regime, which is set out further alongside our proposal for a Marine Protected Area target (see page 14).

Why we are proposing the targets at this level

The long-term target would require the species abundance indicator to increase by 10% between 2030 and 2042. Given that in the past 20 years, the average change in the England priority species index has been a decline of approximately 2% per year[7], this rate of recovery for the long-term target will be highly ambitious.

> **Questions:**
> - **Do you agree or disagree with the level of ambition of a 10% increase proposed for the long-term species abundance target? [Agree/Disagree/Don't know]**
>   - **[If disagree] What reasons can you provide for why the government should consider a different level of ambition?**

Long-term species extinction risk target

The problem

Our goal is that the species abundance target will drive an overall increase in population sizes. However, this target may not help specific rare and threatened species. We are therefore proposing a species extinction risk target which will focus on the recovery of threatened and near threatened species to complement the species abundance targets.

Proposed target to address it

- improve the England-level GB Red List Index of species extinction risk by 2042, compared to 2022 levels.

A global Red List Index tracks changes in the overall extinction risk of a sample of species. Species are assessed and classified following the International Union for the Conservation of Nature (IUCN) methodology: Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered and Regionally Extinct. The Index then aggregates these individual classifications to create an overall trend for extinction risk. The Index includes birds, mammals, reptiles, amphibians, some invertebrates, vascular plants,

---

[7] D6: Relative abundance and distribution of priority species in England - https://oifdata.defra.gov.uk/4/

bryophytes, lichens, and some fungi, and is the standard for measuring extinction risk internationally.

To understand trends at a more local level, we propose using a subset of species assessed at the Great Britain (GB) level to create a new Red List Index that is more representative of species in England as our target indicator (known as the England-level GB Red List Index). Baseline red list assessment data has been used to create a draft England-level GB Red List Index of over 6,500 species, and we plan to publish this by September 2022.

Why we are proposing it at this level

The State of Nature Partnership's 2019 report noted that 13% of species assessed in England are threatened with extinction within Great Britain. The recent Birds of Conservation Concern 5 shows that 70 species are now of the 'highest conservation concern' including the swift, house martin, greenfinch and Montagu's harrier, and that the status of UK bird populations continues to decline[8].

This target aims to prevent the loss of the rarest or fast declining species while preventing species at a lesser threat risk from further decline. Red List Indexes vary between zero (all species Regionally Extinct) and one (all species Least Concern). Setting a target to increase the Red List Index value will drive action to reduce biodiversity loss and overall extinction risk.

Change in the index value may be subtle as higher extinction risk species improve in status. This is because the index includes many Least Concern species, and a sufficient number of species need to change in status to register a trend in the Red List Index. In addition, there is a lag between the implementation of policies and the change they produce to improve biodiversity. For example, Finnish authorities have delivered one of the most taxonomically extensive national Red List assessments to date and found that only 4.7% of species changed in their Red List category between 2000 and 2010.[9] On average, Red List assessments are updated once every 10 years, which again means only long-term trends are tracked. However, the Red List Index remains the recommended, most consistent assessment available for measuring progress against extinction risk.

---

[8] Stanbury et al, 2021 - https://britishbirds.co.uk/content/status-our-bird-populations
[9] Julsen et al, 2013

Questions:

- **Do you agree or disagree with the ambition proposed for the long-term species extinction risk target to improve the England-level GB Red List Index? [Agree/Disagree/Don't know]**
  - **[If disagree] What reasons can you provide for why the government should consider a different level of ambition?**

Long-term wider habitats target

The problem

New or improved habitat is critical for the restoration of ecosystems and the recovery of biodiversity, which is essential for achieving our apex 2030 species abundance target. A habitats target will ensure the resilience and adaptability of species to future change. It will also drive wider environmental improvements, such as helping to improve water quality, and contribute to reaching net zero[10]. A target focused on habitat creation and restoration will help guide, inform and provide certainty, including for investors. The target will contribute towards the government's commitment to protect 30% of land by 2030 and help deliver England's Nature Recovery Network[11], which is key to reversing declines in species abundance.

Proposed target to address it

- to create or restore in excess of 500,000 hectares of a range of wildlife-rich habitat outside protected sites by 2042, compared to 2022 levels.

All habitats can have value for wildlife to varying degrees. 'Wildlife-rich' refers to priority habitats, which are habitats of principal importance for the conservation of biodiversity in England, as well as other habitat types of particular value for biodiversity.

This target will be measured by reported action to create or restore diverse wildlife-rich habitat through a range of measures. These measures include our new and existing agri-environment schemes, Biodiversity Net Gain, the Nature for Climate Fund as well as action funded through other sources, including private capital, for example, actions by external partners including utilities companies, banks and mineral companies.

---

[10] R Gregg et al, 2021 Carbon storage and sequestration by habitat, Natural England Research Report NERR094

[11] https://www.gov.uk/government/publications/nature-recovery-network

We propose that 'wildlife-rich' habitats, as defined in the evidence report[12], count towards the wider habitats target. 'Wildlife-rich' habitats are habitats that have value for biodiversity. Those may include the following:

- open habitats (e.g. peatland, grassland, coastal and heathland), native woodland habitats, other habitats with trees (e.g. hedgerows, scrub and traditional orchards).
- freshwater habitats including wetlands, rivers/streams, lakes and ponds.
- arable field margins.
- estuaries and coastal water habitats.

Why we are proposing it at this level

A statutory target of in excess of 500,000 hectares is expected to drive a net increase in creation and restoration of 'wildlife-rich' habitats across a range of habitat types. Maximising the habitat created and restored will support delivery of the 2030 species abundance target. Our ambition is to exceed 500,000 hectares outside protected sites, in order to drive wider nature recovery.

> **Questions:**
>
> - **Do you agree or disagree with the level of ambition of 'in excess of 500,000 hectares' proposed for the long-term wider habitats target? [Agree/Disagree/Don't know]**
>   - **[If disagree] What reasons can you provide for why the government should consider a different level of ambition?**
> - **Do you agree or disagree that all wildlife-rich habitat types should count towards the target? [Agree/Disagree/Don't know]**
>   - **[If disagree/Don't know]**
>   - **Are there any habitat types that you think should <u>not</u> count towards the target? [[peatland], [grassland], [heathland], [scrub], [native woodland], [hedgerows], [traditional orchards], [arable field margins], [estuarine and coastal water habitats], [wetlands], [rivers / streams], [lakes / ponds], [other habitat types that you think should not count towards the target]]**
>   - **What reasons can you provide for why these habitats should not count towards the target?**

---

[12] Detailed in the Biodiversity Targets Supplementary Evidence published at
https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

Terrestrial Protected Sites Target

Protected sites, including Sites of Special Scientific Interest, Special Areas of Conservation and Special Protection Areas, constitute a large proportion of our best wildlife sites, containing rare and characteristic habitats. However, the condition of many of these sites is not as good as it needs to be. This government has committed to recovering them through our 25 Year Environment Plan and improving the condition of sites will be critical in order to meet our proposed species abundance and extinction risk targets.

We are currently proposing ideas to reform our site protections to better enable the delivery of our nature goals through the Nature Recovery Green Paper, and so we believe it would be premature to set a protected sites target at this time. This is particularly the case when considering what metric we would use to measure such a target. However, in recognition of the significant importance to domestic biodiversity of protected sites, we will look to set a protected sites target in future when we have responded to the Nature Recovery Green Paper and following any future reforms.

Our approach to driving improvements in the condition of protected sites will be outlined further in the update of the EIP in 2023, alongside other actions to deliver the species targets. Other proposed legally binding targets will also have positive impacts on the condition of protected sites, for example, the water quality targets.

Target proposals for biodiversity in the sea

The problem

Under the Marine and Coastal Access Act and Habitat Regulations we have designated a series of Marine Protected Areas (MPAs). However, at present there is no time bound target for MPAs and their condition, which is crucial to restoring wider marine biodiversity. MPAs are designated to protect certain features, such as a reef or sandbank. Their objective is for their designated features to be in favourable condition, i.e. good health.

We have established an ecologically coherent network of MPAs across 40% of English waters to conserve our important, representative and vulnerable features (both habitats and species). We are now focussed on ensuring these sites have the required management measures in place to reduce the impact of potentially damaging activities and improve the MPA network's condition.

Proposed target to address it

- 70% of the designated features in the MPA network to be in favourable condition by 2042, with the remainder in recovering condition, and additional reporting on changes in individual feature condition.

The MPA network included in this target will cover English inshore and offshore Marine Conservation Zones, Special Areas of Conservation and Special Protection Areas, so far as they are below mean high water.

The proposed target will complement existing targets under the UK Marine Strategy Regulations 2010 to improve the marine environment as a whole. These are set out in the 2019 update to UK Marine Strategy Part One.

The target includes approximately 150 types of species and habitats which are designated features of sites[13]. We propose that pilot Highly Protected Marine Areas should not be in scope as they will take a new whole site approach rather than looking at specific features. The recoverability assessment for the MPA target is not suitable to assess at a whole site level as it was developed to assess MPA designated features independently. Recoverability assessments categorise biotopes, habitats or species, based on their resistance (ability to withstand) and resilience (ability to recover after) pressures caused by human activities. A resilience category is then assigned which gives a timeframe in which the recovery of a feature is expected after the pressure is removed.

If any further MPAs are designated in the future, we propose to consider their inclusion at the time. It would seem unreasonable to expect features in MPAs designated close to 2042 to have recovered by then.

Condition assessments allow Natural England and the Joint Nature Conservation Committee to determine if a feature in an MPA meets its conservation objectives. Each feature has a number of defined attributes, which are used to assess the health of that feature (such as extent, distribution, structure, function and supporting processes, e.g. water quality). If all attributes of a feature are in favourable condition, then the feature overall is considered to be in favourable condition. MPAs are considered to be 'recovering' once all pressures which the features are sensitive to are reduced or removed.

In order to recognise the importance of recovering individual attributes of a feature, such as a particular marine species, we propose including additional reporting through interim targets to show progress towards overall favourable condition for individual features.

---

[13] Detailed in the Marine Evidence Report published at https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

Why we are proposing it at this level

The MPA target reflects that recovery timescales depend on the biology of the feature and its biogeography (sediment type, depth, hydrodynamics, climate), and potential challenges of implementing effective management measures.

The proposed percentage of 70% for the target has a high level of scientific certainty that biological recovery rates are not overestimated. Recoverability is determined using our understanding of current condition and the ability of a protected feature to recover, based on the best-available evidence. The recoverability assessments are based on the assumption that all damaging activity is prevented by 2024 at the latest. Given slow growth and/or reproduction rates (for example maerl beds can take 50 years or so to recover), the remaining 30% of features may not have recovered by 2042, but we want to ensure they are on a recovering trajectory. Although these slow recovering species and habitats may recover quicker than assumed, setting the target at this level also allows for any challenges in implementing entirely effective management measures across all our MPAs.

Questions:

- **Do you agree or disagree with the level of ambition proposed for the Marine Protected Area target? [Agree/Disagree/Don't know]**
  - **[If disagree] What reasons can you provide for why the government should consider a different level of ambition?**

Target proposals to improve water quality and availability

Background

In the 25 Year Environment Plan we committed to restoring three quarters of our water bodies to be close to their natural state as soon as is practicable. We also committed to increasing water supply and incentivising greater water efficiency and reduced personal use. We propose setting long term targets to reduce specific pressures and tackle some of the serious challenges that remain in achieving our ambition in the 25 Year Environment Plan of clean and plentiful water. These will complement existing commitments under the Water Environment Regulations.

Proposed targets:

- Abandoned metal mines target: Reduce the length of rivers and estuaries polluted by target substances from abandoned mines by 50% by 2037 against a baseline of around 1,500km.

- Nutrient targets: to address the two principal sources of nutrient pollution by 2037:

    o Reduce nitrogen, phosphorus and sediment pollution from agriculture to the water environment by at least 40% by 2037 against a 2018 baseline.
    o Reduce phosphorus loadings from treated wastewater by 80% by 2037 against a 2020 baseline.

- Water demand: Reduce the use of public water supply in England per head of population by 20% by 2037 against a 2019/20 baseline.

We propose setting these targets for 2037, a shorter timeframe than several other target areas. Action taken now to achieve improvements in the water environment will support the delivery of the wider suite of proposed targets, including species abundance. We will also shortly outline our ambitions to reduce the harm caused by storm overflows in the Storm Overflows Plan. The evidence report[14] sets out further details of the development of these target areas.

Abandoned Metal Mines

The problem

Across England, about 1,500km of rivers are polluted by abandoned metal mines. Metal mines are the most significant source of metal pollution in rivers. Impacted rivers are polluted by high concentrations of at least one of the following substances: cadmium, nickel, lead, copper, zinc or arsenic. Up until 2000, mines could be abandoned without the mine operators having to deal with the legacy of ongoing water pollution from their activities which will typically continue for hundreds of years. As virtually all the metal mines in England were abandoned by the early 1900s, it falls to the government to take action to mitigate continuing environmental harm.

In 2011, the government set up the Water & Abandoned Metal Mines programme (WAMM), a partnership between Defra, the Environment Agency and the Coal Authority to begin to address this source of pollution.[15] This target will be a powerful lever for ensuring continued national and local action on water pollution from abandoned metal mines and increase the pace and ambition of our existing metal mines programme.

---

[14] Detailed in the Water Evidence Report at: Introduction; Context at https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets
[15] Explanatory video by the Environment Agency and Coal Authority 'Cleaning up rivers polluted by historical mining'; https://youtu.be/i6kAjPLb8j0

Proposed target to address it

- Reduce the length of rivers and estuaries polluted by target substances (cadmium, nickel, lead, copper, zinc, arsenic) from abandoned mines by 50% by 2037.

Existing treatment technologies range from "active" systems[16] that consume energy, use chemicals and require constant supervision to "passive" treatment ponds[17] which do not need energy or chemicals to be added and need much less frequent supervision. Where possible, we want to use passive technologies utilising nature-based solutions as they have lower whole-life cycle costs and a smaller carbon impact. We are also investing in trials of new technologies that can be installed in a smaller area of land, have lower operating costs and contribute to net zero and Environment Act biodiversity targets.

We will measure our progress towards the proposed target by monitoring pollutant concentrations in rivers to calculate the 'length of rivers' polluted by substances from abandoned mines. To achieve the proposed target, we will reduce the length of rivers polluted from about 1500km (baseline) to 750km. We believe this is the most effective and accurate way to measure improvements. This metric will allow us to effectively demonstrate progress and is a consistent proxy for environmental harm. The Environment Agency already measures the concentrations of the target substances in rivers for statutory River Basin Management Plans as these substances pose the greatest risk to people and wildlife. In addition to reporting the decrease in polluted river length, we will gather data on the amount of metals captured in mine water treatment sites operated by the Coal Authority under the WAMM Programme. Prevention of these substance being discharged into rivers will provide further data and evidence in support of achieving the proposed target.

Why we are proposing it at this level

We are proposing a 50% reduction of the current polluted river length as an ambitious but achievable target. This would require around 40 new schemes to be built and address 750km of polluted rivers, significantly increasing the number of schemes that are currently operating.

The abandoned metal mines target would be set at a national level, but action is only required in the river catchments which are polluted by abandoned metal mines; these are

---

[16] Case study of the Wheal Jane active treatment scheme: https://www.gov.uk/government/case-studies/wheal-jane-mine-water-treatment-scheme
[17] Case study of the Force Crag passive treatment scheme: https://www.gov.uk/government/case-studies/force-crag-mine-water-treatment-scheme

clustered in rural areas of the North East, North West, Yorkshire, West Midlands and the South West.

Nutrient Pollution

The problem

Excess nitrogen and phosphorus currently present the most significant pressures on the water environment. Phosphorus is the most common reason a water body fails to meet good status. Excess nitrogen increases the cost of producing clean drinking water. Together, they lead to eutrophication which causes the overgrowth of algae and plants, resulting in toxic algal blooms, decreasing oxygen levels and negatively impacting invertebrates and fish. This damages the wider ecology and people's ability to use the water for recreation.

Agriculture and wastewater are together the biggest sources of nutrient pollution in the water environment. Nutrients enter the water environment through run-off and leaching from agricultural land, accounting for an estimated 70% of nitrate inputs to our rivers[18], lakes and groundwaters, and 25% of the phosphorus load in our rivers and lakes.[19] When wastewater has been treated it is discharged back into the water environment, however despite undergoing treatment processes, this effluent contains contaminants including phosphorus. These discharges account for 60-80% of phosphorus entering rivers nationally.

Nutrient pollution can cause damage to ecosystems and biodiversity, which has affected housebuilding where local planning authorities have acted on statutory advice to prevent further damage to water-dependent protected habitats. This can cause delays and add cost. By committing to reduce nutrient pollution at source, we can bring the protected sites back to favourable condition and enable the delivery of sustainable development.

---

[18] Environment Agency (2019), *2021 River Basin Management Plan: Nitrate.* Available at: 20190221_NitratesNarrative_Draft (environment-agency.gov.uk).
[19] Environment Agency (2019), *Phosphorus and Freshwater Eutrophication Pressure Narrative.* Available at phosphorus-pressure-rbmp-2021.pdf (environment-agency.gov.uk).

We are creating two sector-specific targets under this heading, to set clear expectations from government of what the agriculture sector and water industry need to deliver. Reporting against these targets will enable clear accountability.

Nutrient pollution from agriculture

Despite many positive examples of farmers contributing to the health of the natural environment, many agricultural practices can harm water quality and biodiversity. Pressures from agriculture affect 40% of water bodies, causing them to not meet our ambition for near natural state, with nutrient pollution causing the most harm. Sediment run-off into water bodies from agricultural land plays a significant role in transporting nutrients, and can also inhibit navigation, block water industry infrastructure and increase flood risk, as well as decrease farm productivity through loss of valuable soil. We are therefore seeking to create an agriculture target that addresses the three biggest contributors of harm in the water from this sector.

Proposed target to address it

- Reduce nitrogen, phosphorus and sediment contribution from agriculture in the water environment by at least 40% by 2037 against a 2018 baseline.

There are already measures in development to reduce agricultural pollution through voluntary, incentivised and regulatory policy mechanisms as well as other mechanisms such as the Catchment Sensitive Farming Partnership. At present, we are not seeing significant change as fast as we need in order to achieve our environmental ambitions. This new, agriculture specific target, combined with the implementation of our new environmental land management schemes, an expanded Catchment Sensitive Farming advice offer and high compliance with pollution prevention regulations will help drive increased change at a catchment level. It will focus efforts on ensuring that less pollution reaches the water environment.

We are focussing on the pollutant input (load) rather than the presence of pollutants in water bodies, due to the time lag between action taken on rural land, and changes to the nutrient concentration of the water environment. Such concentrations vary across water bodies and can be unpredictable. This way we ensure that pollution reductions are identified immediately and we can drive and direct further action in a timely way where we can see that more progress is needed. We will measure progress against this target using modelling, validated using water chemistry data from the Catchment Sensitive Farming Enhanced Water Quality Monitoring Programme. The model uses data on agricultural practice and the uptake by farmers of agricultural schemes that seek to protect the environment. Alongside this, we plan to develop a national inventory showing the inputs used in the model to ensure transparency and accountability. This approach will not

require a dramatic expansion of water quality monitoring programmes which will allow us to focus investment on working with farmers to reduce pollution.

We will however need to expand our existing model and evidence base to assess reductions in total nitrogen. Currently, they only account for nitrate (one nitrogen-containing compound), but we will expand this to capture both the inorganic (e.g. ammonia and nitrate) and the organic (e.g. amino and nucleic acids) forms of nitrogen as they both have an impact.

We are proposing a national target because for nature to recover across England, water pollution from agriculture must be reduced across the whole country. However, in some regions and catchments agricultural pollution will be much more severe and require a higher reduction in nutrients entering the water environment to reach acceptable levels. We are therefore considering how we can set objectives at a catchment-level to reflect the different needs across the country.

Why we are proposing it at this level

We aim to achieve a 40% reduction in each of these pollutants loads by 2037 against a 2018 baseline (the most recent year data are available). This represents a high level of ambition and will rely on us making maximum use of the tools available in the new environmental land management schemes. In over 40 years between 1974 and 2018, surface water nitrate concentrations were reduced only slightly, and we must accelerate progress. Achieving the proposed target will require high uptake of on-farm measures to reduce the amount of contaminants that enter water bodies, high levels of compliance with existing regulations, and targeted land-use change e.g. incentivising the conversion of a small proportion of farmland to natural habitat.

Questions:

- **In addition to the proposed national target, we would like to set out ambitions for reducing nutrient pollution from agriculture in individual catchments. Do you agree or disagree that this approach would strengthen the national target? [Agree/Disagree/Don't know]**
    - **[If disagree] Why don't you think ambitions for reducing nutrient pollution from agriculture in individual catchments will strengthen the national target?**
    - **[If agree] Why do you think ambitions for reducing nutrient pollution from agriculture in individual catchments will strengthen the national target? What factors should the government consider when setting these ambitions?**

Nutrient pollution from wastewater

The problem

Over the last two decades, phosphorus in wastewater discharged into rivers has reduced by 67%. However, monitoring shows that there is still far too much phosphorus entering the water environment, and that water companies are still the largest source of this nutrient pollution.

Proposed target to address it

- Reduce phosphorus loadings from treated wastewater by 80% by 2037 (against a 2020 baseline)

We want to ensure water companies explore innovative, nature-based, and catchment-based approaches to reduce phosphorus pollution from wastewater in the water environment. That is why we haven't focussed solely on phosphorus treatment at sewage treatment works. This will deliver the best outcomes for our water bodies and the natural environment as a whole. We have also made this clear in our draft Strategic Policy Statement to Ofwat which encourages water companies to use nature-based solutions.

Water companies monitor the amount of phosphorus in the water released at the end of the sewage treatment process. This data is reported to the Environment Agency, who do their own monitoring to ensure the information is accurate. This will be used to measure progress towards meeting the proposed target for reducing the levels of phosphorus in wastewater against a 2020 baseline.

We previously considered including nitrogen reduction within this wastewater target but without further research into the links between elevated nitrogen levels and eutrophic impacts in rivers, the target might require very high-cost nitrogen removal from wastewater treatment work for highly uncertain environmental benefits. We want to focus investment on the area that has the biggest impact. Agriculture is the main source of nitrogen in the water environment, and this is covered by the target above. In the case of wastewater, our evidence shows that river eutrophication can be most effectively addressed by tackling phosphorus.

Why we are proposing it at this level

During the period of 2020-2027, water companies will undertake projects to deliver a phosphorus reduction of around 50% against a 2020 baseline. We want to see a higher level of ambition and propose setting a longer-term target to build upon this progress. Beyond 2027, this will involve setting the strictest Technically Acceptable Limit, the tightest limit for Environment Agency permits, across 400 wastewater treatment works serving a

population greater than 2,000. This means undertaking the more challenging and costly projects that have not been included in the current planning period.

Water companies will be primarily responsible for achieving reductions in phosphorus by implementing plans to reduce phosphorus loads. The government and the Environment Agency will assess the performance of water companies to achieve their environmental obligations and permit and regulate their activities. The Strategic Policy Statement to Ofwat makes clear the government's expectation that water companies must work to improve their environmental performance.

> **Questions:**
>
> - **The target needs to allow flexibility for water companies to use best available strategies to reduce phosphorus pollution, including the use of nature-based and catchment-based solutions. Do you agree or disagree that the proposed target provides this flexibility? [Agree/Disagree/Don't know]**
>   - **[If disagree] What reasons can you provide for why the target doesn't give this flexibility?**

Together, these proposed targets will address the dominant sources of nutrient pollution in the water environment, and play a crucial role in delivering the step change needed to reach our ambitions in the 25 Year Environment Plan.

> **Questions:**
>
> - **Do you agree or disagree with the level of ambition proposed for the nutrient targets? [Agree/Disagree/Don't know]**
>   - **[If disagree] What reasons can you provide for why government should consider a different level of ambition?**

Water Demand

The problem

We need to ensure that there is sufficient quality and flow of water in the water environment to meet the needs of people, the environment and industry. Increased demand and reduced water availability from less predictable precipitation as a result of climate change will affect the environment and reduce security of supply. The Environment Agency's National Framework[20] sets out that an additional 25% of the current daily volume of public water supply will be needed in England by 2050. Water demand reduction is

---

[20] [Meeting our future water needs: a national framework for water resources - GOV.UK (www.gov.uk)](www.gov.uk)

essential to support the delivery of this commitment without causing significant impacts on the environment. Therefore, we need a water demand target that addresses these existing pressures and future uncertainties.

There are a number of existing commitments and ambitions on water demand that are not statutory. These include commitments made by water companies to reduce leakage by 50% against 2017-18 levels by 2050; planning assumptions based on reducing household water consumption to 110 litres per person per day by 2050; and the recommendation that we should aim to achieve resilience under a 1 in 500 year extreme drought event by the end of 2030. The target adds value by introducing a statutory driver, setting the level of ambition for policies to reduce household consumption, ensuring that demand reductions will be delivered and by ensuring that all aspects of water consumption, such as non-household consumption are delivering reductions.

Proposed target to address it

- Reduce the use of public water supply in England per head of population by 20% by 2037.

We have considered two possible metrics: Distribution Input, and Distribution Input over population. Distribution Input (DI) is the total amount of treated water supplied to customers through water companies' distribution network. This includes public water supply to households and non-households, as well as water lost through leakage, but does not include non-potable water supplies. We have suggested using the metric of DI over population, as this indicates the level of water used per person in England and will help to measure and improve water efficiency trends over time. This target would take into consideration the uncertainty around future population, housing needs and economic growth.

Why we are proposing it at this level

Our proposed level of ambition aims to deliver the reduction in water demand needed to meet the expected pressure on the public water supply. An additional 4,000 million litres of water a day is expected to be required by 2050, and two thirds of this capacity is expected to be met by demand reduction.

The government's water efficiency policy informs water companies' Water Resources Management Plans, Ofwat's Price Reviews, and regulator/water company leakage targets. Alongside these existing levers, government plans to introduce new mandatory water efficiency labels on water using products and consider how building regulations can promote efficiency, to support delivery of this proposed target. This target draws together existing commitments, creating a statutory driver for delivering the level of ambition needed to meet the required reduction in water use by 2050. It will place an

additional driver on the water industry, which will need to be factored into their planning, targets and delivery. It will also create a target and drive action for the non-household sector. Implementation of this target will lead to monitoring of overall water demand in England.

We have arrived at the figure of a 20% reduction in the use of the public water supply per head of population by modelling a consumption level of 122 litres per person per day (l/p/d). This extends beyond the existing commitments to 2025 which aim to reduce domestic water consumption on average from 138 l/p/d to 132 l/p/d. The target of a 20% reduction in public water supply will require a 31.3% reduction in leakage (from 2017/18 levels) increased from 19% by 2025 and require the new additional target of a 9% reduction in non-household demand by 2037.

Overall water consumption in England has been increasing since 2013, with the impact of covid-19 causing a spike in consumption. This target will be vital in driving action towards reaching the 110 litres per person per day we need to meet by 2050 as set out in the National Framework report.

Questions:

- **Do you agree or disagree with the level of ambition proposed for a water demand target? [Agree/Disagree/Don't know]**
    - **[If disagree] What reasons can you provide for why government should consider a different level of ambition?**

Target proposals for woodland cover

The problem

Trees and woodland are critical to supporting our national commitment to reach net zero emissions by 2050, as one of the most cost-effective nature-based solutions to climate change. The right trees in the right places can boost nature recovery and promote biodiversity, along with offering a host of other potential benefits for flood management, water quality, health and wellbeing. We have already committed to increasing planting rates in England significantly beyond the current rate of approximately 2,100 hectares per year. Government aspired in the 25 Year Environment Plan to increase woodland cover in England from 10% to 12% by 2060. This is supported by the England Trees Action Plan which made a commitment to treble woodland creation by the end of this Parliament and the Net Zero Strategy commitment to maintain new planting at least at this level from 2025 onwards. The tree and woodland target will help to realise these aspirations and help to deliver net zero by sequestering approximately 170 Megatons of carbon dioxide by 2100.

Proposed target to address it

- Increase tree canopy and woodland cover from 14.5% to 17.5% of total land area in England by 2050.

This target includes increasing both England's total woodland canopy cover and canopy cover of small woods and trees outside of woodlands. By measuring woodland cover and tree cover outside of woodlands the proposed target recognises the range of benefits of all trees and woodland in England.

Woodland cover is currently reported through the National Forestry Inventory, which includes woodlands of at least 0.5 hectares in area, with a minimum of 20% canopy cover and 20 metres width with the potential to reach a height of at least 5 metres. Small woods, groups of trees and individual trees (including urban trees) will be assessed by remote sensing and published in the National Forestry Inventory Assessment of Tree Cover Outside Woodland.

> **Question:**
> - **Do you agree or disagree with the proposed metric for a tree and woodland cover target? [Agree/Disagree/Don't know]**

We propose that the vast majority of trees are in scope of the target: trees in woodlands, as well as trees in hedgerows, orchards, fields, and in towns and cities. The scope reflects the government's interest in promoting agroforestry and other diverse methods of planting. Agroforestry offers unique benefits to people and nature, allowing continued food production and creating new sources of income for land-managers, while also mitigating climate change and contributing to nature recovery. Recognising the importance of these benefits, the government is launching an agroforestry standard through the Sustainable Farming Incentive in 2024. We will review the ambition of the woodland cover target after the launch of the Sustainable Farming Incentive agroforestry standard, with a view to raising the target if this is deliverable and in line with expert advice.

We are proposing that purpose-grown (for biomass) short-rotation forestry and short-rotation coppice plantations should be excluded from the scope of the target because they are unlikely to provide the range of woodland benefits set out in the 25 Year Environment Plan. The evidence report[21] sets out further details of the development of this target area.

---

[21] Detailed in the Woodland cover Evidence Report published at: Introduction; Context at
https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

The government will publish a biomass strategy in 2022 which will review the amount of sustainable biomass available to the UK and how this resource could be best utilised across the economy to help achieve our net zero target by 2050.

> **Questions:**
> - **Do you agree or disagree that short rotation coppice and short rotation forestry plantations should be initially excluded from a woodland cover target? [Agree/Disagree/Don't know]**
> - **Do you agree or disagree with the proposed inclusion of trees in woodlands, as well as trees in hedgerows, orchards, in fields, and in towns and cities? [Agree/Disagree/Don't know]**

Why we are proposing it at this level

The target to increase tree and woodland cover in England from 14.5% to 17.5% by 2050, would represent a step-change in woodland creation which would mean 420,000 more hectares of tree cover in England. This is significantly higher than the 25 Year Environment Plan ambition, it represents an unprecedented increase in afforestation for England and could sequester a total of 170 million tonnes carbon dioxide by the end of the century, equivalent to around half the UK's CO2 emissions in 2020. Although this target is challenging, the actions the Government is currently taking to deliver the England Trees Action Plan, kickstarted by the Nature for Climate Fund, will get more trees planted to meet this target. Investment in enablers will be critical such as ensuring sufficient supply of saplings and a skilled workforce to deliver woodland creation.

> **Questions:**
> - **Do you agree or disagree with our proposed level of ambition for a tree and woodland cover target? [Agree/Disagree/Don't know]**
>   - **[If disagree] What reasons can you provide for why the government should consider a different level of ambition?**

Target proposals for resource efficiency and waste reduction

The problem

Since the 1990s, England has successfully shifted away from a waste management system reliant on landfilling. Today, we manage our waste through treatment options such as recycling, composting, anaerobic digestion, incineration (including with energy

recovery) and controlled landfilling. But we continue to send large amounts of waste to treatment processes which have more harmful impacts on the environment. Simultaneously, material resource use in England continues to grow. The extraction, production and disposal of material resources produces significant environmental pressure.

In 2019, 29 million tonnes of waste (excluding major mineral wastes) were sent to landfill, energy recovery or incinerated, with nearly half landfilled[22]. In the same year, approximately 3 million tonnes of waste were sent for energy recovery treatment overseas[23].

Proposed target to address it

- Reduce residual waste (excluding major mineral wastes) kg per capita by 50% by 2042 from 2019 levels. It is proposed that this will be measured as a reduction from the 2019 level, which is estimated to be approximately 560 kg per capita[24].

Residual waste originates from a range of sectors, including households, ("black bag waste") commercial and industrial, and construction, demolition and excavation sources. It is usually sent for incineration at an energy recovery plant or to landfill. Tackling residual waste reduces the environmental impacts of treatment, including air, soil, and water pollution, and unnecessary energy use. It is more sustainable to prevent waste completely and, where waste is unavoidable, to recycle it.

Our proposed target includes all residual waste, excluding major mineral wastes. These are largely inert waste categories from construction and demolition, and excavation and mining activities. This focus will ensure attention on where the environmental impact is greatest, and where our evidence is strongest. The large tonnages associated with major mineral wastes would also risk perverse outcomes if they were included, because the target could be achieved more easily by focussing on these wastes rather than those we believe have greater environmental impact.

The proposed target ensures that a holistic view of waste is taken, which avoids potentially perversely incentivising material substitution with potentially worse environmental impacts through material specific targets. To address the significant public concern towards plastic

---

[22] Environment Agency. Waste Data Interrogator; 2019

[23] Environment Agency. International Waste Shipments exported from England; 2022

[24] Derived from 'Waste Data interrogator' and International Waste Shipments data; see Resource efficiency and residual waste Evidence Report; Methodology; Evidence to inform ambition level published at https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

waste, there is a separate, existing government commitment within the 25 YEP to eliminate avoidable plastic waste by 2042.

The proposed target can drive both waste minimisation and recycling of unavoidable waste. Measuring in relation to population size ensures a target remains comparable over time and isn't affected by impacts beyond our control. This is described in Figure 1 below.

Figure 1: Proposed metric for reducing residual waste

$$\text{Residual waste (excl. major mineral waste) per capita (kg)} = \frac{\substack{(\text{Tonnes of waste sent to landfill} + \text{put through incineration} + \text{sent overseas for energy recovery} \\ + \text{used in energy recovery for transport fuel excl. major mineral waste}) * 1000}}{\text{Population}}$$

We propose to measure at the end-point of waste management to include the treatments that are typically associated with mixed residual waste, covering waste that is sent to landfill, put through incineration (including energy from waste incineration), sent overseas for energy recovery or used in energy recovery for transport fuel. The government will continue to review which treatments are appropriate to include as new technologies and treatment options emerge. Environment Agency data on permitted waste site activities and international waste shipments will be used to report on the metric. This will provide a robust approach, recognising that there is limited data availability at the point waste is collected.

Incineration with energy recovery is preferable to disposal of waste via landfill or incineration without energy recovery. However, it is important to include all of these treatment options to:

a. provide the best proxy measure for waste that isn't separately collected;
b. help drive real improvement via waste minimisation and increased recycling, rather than simply diverting waste from landfill to incineration with energy recovery.

The proposed target excludes waste sent for anaerobic digestion (AD), which treats separately collected food waste. AD is one of the least detrimental end of life treatment options for food waste, when considering climate change impacts and depletion of natural

resources[25]. It recycles food into digestate fertiliser and recovers energy from biogas. We are exploring how AD may be used in the future to generate carbon dioxide from waste.

Data will be required to develop robust indicators to monitor progress towards a target related to residual waste, future recycling targets and landfill reduction targets. Until recently, there was a legal requirement on Local Authorities (LAs) to provide data on waste, which would assist in this monitoring[26]. To ensure such data will be available, we propose reinstating a similar obligation for LAs in England to provide it.

Questions:

- **Do you agree or disagree that our proposed method of measuring the target metric is appropriate? [Agree/Disagree/Don't know]**
    - **[If disagree] What reasons or potential unintended consequences can you provide or forsee for why the government should consider a different method?**
- **Do you agree or disagree that local authorities should have a legal requirement to report this waste data, similar to the previous legal requirement they had until 2020? [Agree/Disagree/Don't know]**

Why we are setting it at this level

The proposed target level is based on modelling the collective impacts of the planned Collection and Packaging Reforms (CPR) on residual waste, as well as considering potential future pathways. These could include policies to separate more waste materials for recycling and to divert waste from residual waste treatment. The Government believes it is important that local authorities continue to support comprehensive and frequent rubbish and recycling collections to households. Our consistent collection proposals have included consulting on expanding food waste collections, supporting garden waste collections, and introducing a minimum collective frequency for residual waste. Such reforms would help ensure households continue to have access to a comprehensive and frequent service, whilst improving environmental outcomes.

---

[25] WRAP. *Environmental Benefits of Recycling: 2010 Update*. Available from: https://wrap.org.uk/resources/report/environmental-benefits-recycling-2010-update

[26] Detailed in Resource efficiency and waste reduction Evidence Report; Methodology; Evidence to inform baseline published at https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

This target is ambitious, with the major changes set out in CPR only expected to get us halfway towards our target. Meeting the target will require progress beyond the current commitment to achieve a 65% municipal recycling rate by 2035, and would represent a municipal recycling rate of around 70-75% by 2042. This pathway assumes sufficient private investment in necessary infrastructure and significant behavioural change.

> **Questions:**
> - **Do you agree or disagree with the level of ambition proposed for a waste reduction target? [Agree/Disagree/Don't know]**
>   - **[If disagree] What reasons can you provide for why the government should consider a different level of ambition?**

Resource productivity

In the Resources and Waste Strategy (RWS)[27], we set a strategic ambition to at least double resource productivity by 2050. Resource productivity measures the economic value per unit of raw material use. Given the complexity of the resource productivity target, more time is needed to develop the evidence base and assess policies. We seek views now to inform future work on developing this target.

Between 2001 and 2018, England's material footprint (excluding fossil fuels) decreased by 15%[28]. Increasing resource productivity through further reducing our material use can help us avoid resource depletion and reduce environmental impacts. In addition, resource productivity can build the economy's resilience to price volatility, increase resource security, and enhance our international competitiveness.

We are exploring how we might measure this as a ratio of economic output (gross domestic product) in money value to raw material consumption (excluding fossil energy carriers) estimated by material weight (i.e. gross domestic product divided by raw material consumption). This indicator is published on an annual basis by Defra as part of the RWS 'monitoring progress' publication. The evidence report[29] sets out further details of the development of this target area.

---

[27] HM Government. Resources and Waste Strategy for England. Available from: https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england
[28] HM Government. England's Material Footprint; 2021
[29] Detailed in the Resources and Waste Evidence Report: Introduction; Context published at https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

The Environment Act 2021 provides the required legal framework for realising many of the policy aims of the RWS, leading to increased resource productivity. These include reforms to, and the introduction of, extended producer responsibility schemes, the necessary powers to introduce eco-design measures on non-energy related products and requirements for the mandatory provision of consumer information. Further information about these approaches will be included in the second Waste Prevention Programme when it is published later this year. Further possible policy instruments to improve resource productivity, which Defra is currently exploring, include regulatory, information-based, price-based, as well as possible spend interventions. The Net Zero Strategy also summarise cross-government ambitions to reduce emissions by encouraging circular economy models in industry.

Target proposals for air quality

The problem

Air pollution poses the biggest environmental risk to public health and is a particular risk to vulnerable groups, including the elderly, the very young, and those with existing health conditions. It can also impact on the natural environment, damaging habitats, impeding the ecosystem services we rely on, and contributing to climate change. Further details on

impacts related to air pollution can be found in the air quality evidence report[30]. Although air pollution has reduced significantly in recent decades, there is more to do to deliver clean air.

The government's Clean Air Strategy, published in 2019, outlined a comprehensive suite of actions required across all parts of Government to improve air quality and maximise public health benefits. This included national regulations to reduce emissions from domestic burning, industry and farming, alongside stronger powers and an improved framework for local government to tackle more localised issues, as well as a commitment to set a legally binding target for $PM_{2.5}$.

Proposed targets to address it
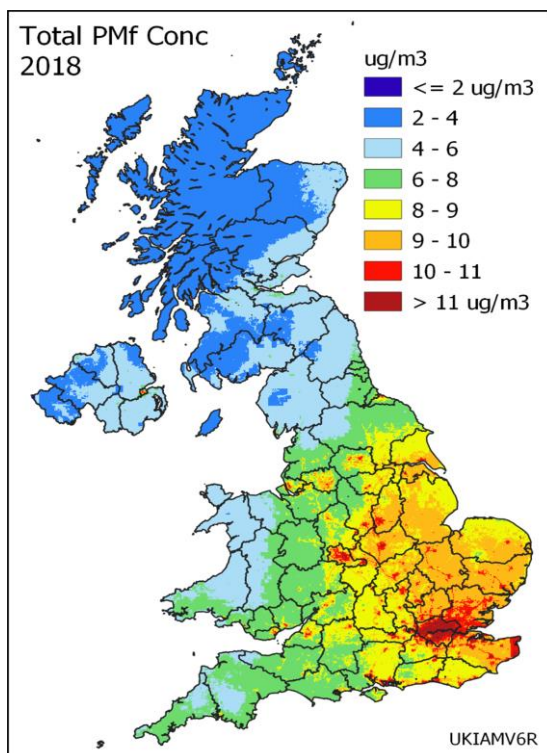
- Annual Mean Concentration Target ('concentration target') – a target of 10 micrograms per cubic metre ($\mu g\ m^{-3}$) to be met across England by 2040.
- Population Exposure Reduction Target ('exposure reduction target') – a 35% reduction in population exposure by 2040 (compared to a base year of 2018).

These targets focus on reducing concentrations of fine particulate matter ($PM_{2.5}$) as evidence shows that this is the pollutant of greatest harm to human health. Particulate matter (PM) is anything in the air which is not a gas. It can come from natural sources or human-made sources and be formed through chemical reactions between other pollutants in the atmosphere. $PM_{2.5}$ is particulate matter with a diameter of 2.5 microns or less, which is one 400th of a millimetre. Further information on $PM_{2.5}$ can be found in the evidence report.

Whilst it is likely that some components of $PM_{2.5}$ may be more harmful than others, evidence is not sufficiently developed to be able to focus on specific components for the purposes of target setting. Therefore, current evidence supports a focus on $PM_{2.5}$ total mass. However, as the evidence develops, there may be scope to develop more specific targets that are able to align more closely with the most harmful components of $PM_{2.5}$.

---

[30] Detailed in Air quality targets Evidence Report: Introduction; Context published at
https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

Figure 2 Modelled PM2.5 concentrations for 2018 (Imperial College, 2021)

PM2.5 concentrations vary considerably across the country, as illustrated in the map in Figure 2. By setting these two targets, we are ensuring action that, not only reduces PM2.5 levels where concentrations are highest, but also reduces exposure to PM2.5 across the whole country. This dual-target approach is particularly important, given there is no known safe level and that concentrations differ greatly across the country.

The targets we are proposing focus on reducing impacts from long-term exposure and, therefore, consider changes in concentrations from year to year.

Reducing PM2.5 to meet these ambitious targets will have a significant benefit on health. A reduction in population exposure in England of just 1 μgm^{-3} could prevent an estimated 50,000 cases of coronary heart disease, 16,500 strokes, 9,000 cases of asthma and 4,000 lung cancers over 18 years[31]. The full cost-benefit analysis can be found in the separate impact assessment[32].

These targets will also reduce health inequalities and contribute to levelling up objectives. Currently, areas of high deprivation tend to have greater exposure to PM2.5. Our proposed

---

[31] Health matters: air pollution - GOV.UK (www.gov.uk)

[32] Impact Assessment is published at https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

targets would ensure that this gap decreases, so that exposure is more consistently lower across all communities. Finally, these targets will reduce the impact of air pollution on ecosystems and have large co-benefits for climate change objectives. **Table 1** outlines how it is proposed that the two targets will be assessed. Further information on these areas is provided in the evidence report[33].

Table 1 Proposed Air Quality Target Assessment Details

	Concentration Target	**Exposure Reduction Target**
Time based averaging	• Annual mean assessment (calendar year), at each monitoring location.	• Three-year average (the average of three consecutive calendar years).
Location based averaging	• Monitoring sites will need to meet (report measurements at or below) the concentration level by the achievement date. • If any site exceeds the level at the target end point, an assessment will look at measurements four years. • If the target was met in 3 out of the four previous years, then the target will be considered to have been met.	• A national indicator based on the average of representative monitoring sites across the country.
Assessment Locations	• Monitoring locations on the Automatic Urban and Rural Network*	• Representative site locations on the Automatic Urban and Rural Network* indicative of average population exposure
Assessment	• Targets will be monitored at a minimum number of representative locations across the country. • We plan to increase the number of monitoring sites on the Automatic Urban and Rural Network* to support assessment of these targets. • Requirements for monitoring will be defined in regulations made to set the targets.	

The Automatic Urban and Rural Network is the national monitoring network operated by the Environment Agency on behalf of Defra.

---

[33] Detailed in Air quality targets Evidence Report; Defining target metrics; Assessment method published at https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets

Why we are proposing targets at this level

To determine the proposed target, a range of future emission scenarios were modelled each producing different $PM_{2.5}$ concentrations. Each scenario consists of 50 to 70 illustrative measures of varying levels of ambition. The modelling shows that the proposed targets are achievable, but that action will be required across all sectors of society including transport, manufacturing, construction, agriculture and energy, and to be taken by government, industry and individuals. Some action will need to be taken nationally, some will need to be targeted at urban areas where concentrations and population density are highest, and others will require international collaboration. The same measures will contribute to both targets, but urban measures will have greatest impact on delivery of the concentration targets.

Two areas where further action may be needed are domestic burning and road transport. For instance, changing to cleaner stoves and cleaner and more efficient fuels in domestic burning. The use of electric vehicles will eliminate tailpipe emissions but there is some debate about the magnitude of emissions from non-exhaust sources (brakes, tyres and road wear – as well as resuspension of road dusts from vehicle movements) compared to traditionally powered vehicles. Further assessment is needed to determine the impacts of increased electric vehicle use (e.g. from regenerative braking) and research into innovative abatement technologies is already underway and will need to continue over the coming years to inform our approach.

These are not the only areas where action will be needed – reductions will be needed across all of society as reducing $PM_{2.5}$ is not a single source issue. We believe that the proposed targets strike an appropriate balance between being ambitious and achievable - delivering significant health benefits through utilising proportionate and viable measures.

Achieving these targets by 2040 will require sustained, long-term progress and many actions will require significant investment and behaviour change in order to be effective. However, actions we are already taking (e.g., on burning of wet wood and coal) will contribute to achieving these targets, and interim targets will ensure suitable progress is made towards the final target. Importantly, as policy pathways for achievement of the targets is developed, there will be further opportunities for consultation on specific measures that are tailored to local areas and their sources. We are currently exploring the role local authorities will play in helping to meet these targets, as part of the Air Quality Strategy review. We will be consulting on this in late 2022, before it is finalised, and we will publish a revised National Air Quality Strategy in 2023.

Questions on concentration target

Questions on exposure reduction target

Part 4: Monitoring and evaluation of our suite of targets

The Environment Act 2021 creates a new statutory cycle of monitoring, planning and reporting on environmental improvement, based around a long-term Environmental Improvement Plan. The 25 YEP is the first such Environmental Improvement Plan, which will be reviewed at least every five years.

The government must report annually on what it has done to implement the Environmental Improvement Plan and on whether the natural environment (or particular aspects of it) has improved. That report will also consider the progress that has been made towards meeting targets.

The new independent statutory environmental body, the Office for Environmental Protection, must also report annually on the progress made in improving the natural environment, in accordance with the Environmental Improvement Plan, and on progress towards meeting targets. That report may also include recommendations to government about how it can improve progress, to which the government will have to respond.

Future legally binding targets

While we believe that these are the appropriate targets to set at this moment for the reasons included above, the Act allows for additional long-term targets to be set in the future. We expect any future long-term targets will be developed in a similar way to the

first suite, through expert advice, stakeholder engagement, and public consultation, as part of the robust, evidence-led target-setting process. The natural environment is complex, and we see target-setting as an iterative process, built upon over time as our evidence base and understanding develops. We want to use targets to meaningfully drive the environmental outcomes that we need.

We will regularly test whether the suite of targets we have in place has the necessary breadth and ambition. At least every five years, we will conduct the Significant Improvement Test and assess whether meeting the targets set under the Environment Act's framework, alongside any other statutory environmental targets, would significantly improve England's natural environment. The Secretary of State will use the outcome of the test to decide whether to modify existing targets to make them more ambitious or set additional long-term targets.

We will conduct the first test and lay a report on the outcome before Parliament by 31 January 2023. This is the same deadline for the first review of the Environmental Improvement Plan. These two processes are designed to work together to ensure successive governments continue to take steps to improve the natural environment.

Part 5: After the consultation

Once the government has collated responses from this public consultation, these will be summarised and included in a published response on www.gov.uk/defra.

Glossary

25 Year Environment Plan (25 YEP): The [25 Year Environment Plan](#) was published in January 2018. It sets out the government's ten goals for improving the environment within a generation and leaving it in a better state than we found it. The 25 YEP became the first Environmental Improvement Plan under the Environment Act 2021.

Interim target: Each long-term target will be accompanied by interim targets, of up to 5 years in duration, that will help set the trajectory for progress. The Act requires Government to set interim targets in the Environmental Improvement Plan. This will ensure that there is always a shorter-term goal Government is working towards, as well as the long-term target.

Long-term target: Long-term targets a e the legally binding targets that will be set in legislation and which span at least 15 years. The Environment Act gives the Secretary of State the power to set long-term targets relating to matters across the breadth of the natural environment. It specifically requires Government to set at least one long-term target each in four priority areas: air quality, biodiversity, water, and waste reduction and resource efficiency.

Target metric: Target metrics are the measure of a target that show whether its standard has been achieved. For example, for the $PM_{2.5}$ concentration target, the metric is the annual mean concentration of PM2.5 (mass).

Annex: Criteria and principles for developing Environment Act Targets

All targets, both long-term and interim, must meet certain requirements that are set out in the Environment Act 2021. These requirements alongside best practice principles are reflected in the box below.

BOX 1. New legal requirements for targets:

- long-term targets can be set in respect of matters that relate to the natural environment or people's enjoyment of it;
- at least one long-term target must be set in each of the four priority areas (air quality, biodiversity, water, and resource efficiency and waste reduction).
- a target for fine particulate matter ($PM_{2.5}$) and for species abundance must also be set;
- more than one target could be set within a given priority area;
- a long-term target must be at least 15 years or longer;
- targets must have a clearly defined level or quality standard to be achieved, which can be objectively measured. The method for objective measurement should be clear and repeatable, to allow results to be reproducible within reason;
- a specific date must be identified for achieving each target. This ensures targets are time-bound and there is a clear deadline to focus policy action;
- when developing targets we must make sure that they are achievable.
- independent expert advice needs to be sought by government when developing long-term targets. A range of experts will play a role in informing the development of targets including academics, scientists or expert practitioners; and
- targets should be developed in a way that is consistent with the requirements of the policy statement on environmental principles, established under the Environment Act.

Best practice principles in developing proposed targets:

- Help meet the key goals and outcomes in the 25 Year Environment Plan.
- Where possible, base on environmental outcomes or intended benefits to the environment.
- Use a system-based approach to the natural environment to collectively understand interdependencies and with the wider environment.
- Consider how proposed targets will inform the Significant Improvement Test.
- Consider relevant international best practice and commitments and their relevance to our domestic environmental agenda.
- Consider whether they offer value for money to society and offer the best balance of costs, benefits, risks, taking into account factors which cannot easily be costed.
- Make sure they are resilient and 'future proofed' as far as possible.