

## EXPLANATORY MEMORANDUM TO

### THE ENVIRONMENTAL TARGETS (WATER) (ENGLAND) REGULATIONS 2022

2022 No. [XXXX]

#### 1. Introduction

- 1.1 This explanatory memorandum has been prepared by the Department for Environment, Food and Rural Affairs (“Defra”) and is laid before Parliament by Command of His Majesty.
- 1.2 This memorandum contains information for the Joint Committee on Statutory Instruments.

#### 2. Purpose of the instrument

- 2.1 The purpose of this instrument is to create four legally binding long-term targets in the priority area of water. The targets will address nutrient pollution from agriculture and wastewater, a target to reduce the concentration of metals in rivers from abandoned metal mines, and a target to reduce water demand.
- 2.2 This instrument will satisfy the requirement in section 1(2) of the Environment Act 2021 (“the Environment Act”) to set at least one target in the priority area of water.

#### 3. Matters of special interest to Parliament

##### *Matters of special interest to the Joint Committee on Statutory Instruments*

- 3.1 This instrument, along with the other 5 environmental target instruments, sets legally binding long-term targets on the Secretary of State. The instrument does not, in itself, set specific policies or new legislation that sectors must follow nor does it directly impose or require immediate changes of behaviour by others. Given the importance of setting targets without delay, the instrument will come into force at the earliest date after approval (one day after the day it is made).
- 3.2 Under the Environment Act the statutory deadline to lay this instrument was 31 October 2022. As stated by Dr Thérèse Coffey MP Secretary of State for Environment, Food and Rural Affairs in a [Written Ministerial Statement on 28 October 2022](#): “We received over 180,000 responses [to the environmental targets consultation], which all needed to be analysed and carefully considered. In light of the volume of material and the significant public response we will not be able to publish targets by 31st October, as required by the Act.”

#### 4. Extent and Territorial Application

- 4.1 The extent of this instrument is England and Wales.
- 4.2 The territorial application of this instrument (that is, where the instrument produces a practical effect) is England.

#### 5. European Convention on Human Rights

- 5.1 Trudy Harrison MP, The Parliamentary Under Secretary of State at the Department for Environment, Food and Rural Affairs has made the following statement regarding Human Rights:

“In my view the provisions of the Environmental Targets (Water) (England) Regulations 2022 are compatible with the Convention rights.”

## **6. Legislative Context**

- 6.1 Section 1 of the Environment Act requires the Secretary of State to set a long-term target in respect of at least one matter in each of the four priority areas including water.
- 6.2 This instrument will fulfil that duty and is part of a group of instruments that will set targets in water, air quality, biodiversity, resource efficiency and waste reduction and tree and woodland cover.

## **7. Policy background**

### *What is being done and why?*

- 7.1 The long-term targets within this instrument seek to address specific pressures that are causing harm to the water environment and tackle some of the serious challenges that remain in achieving the ambition in the 25 Year Environment Plan of clean and plentiful water. The new targets will complement the existing targets in the 25 Year Environment Plan, and do not replace them. Freshwater species make up 22% of indicator species for the Environment Act species abundance target, so the targets will have a considerable positive impact on biodiversity recovery.
- 7.2 This instrument contains four new targets to improve the water environment and the resilience of water supplies: to reduce nutrient pollution from agriculture and wastewater, to reduce pollution from abandoned metal mines and to reduce water demand.

### *Nutrient pollution from agriculture and treated wastewater*

- 7.3 Excess nitrogen and phosphorus currently present the most significant pressures on the water environment. The Environmental Targets (Water) (England) Regulations 2022 refer to total nitrogen, which means all forms of nitrogen, and total phosphorus, which means all forms of phosphorus. Phosphorus is the most common reason a water body fails to meet near natural state (the government’s ambition in the 25 Year Environment Plan). Excess nitrogen increases the cost of producing clean drinking water. Both lead to eutrophication which causes the overgrowth of algae and plants, resulting in toxic algal blooms, decreasing oxygen levels and negative impacts on invertebrates and fish. This damages the wider ecology and amenity value of water bodies, and impacts people’s ability to use water for recreation. Agriculture and wastewater are the biggest sources of nutrient pollution in the water environment.

### *Agricultural pollution*

- 7.4 Agriculture target: Reduce nitrogen (N), phosphorus (P) and sediment pollution from agriculture into the water environment by at least 40% by 31<sup>st</sup> December 2038, compared to a 2018 baseline.
- 7.5 Pollution from agriculture is the largest single source of harm preventing water bodies in England from achieving a near-natural state. Nitrogen and phosphorus are essential nutrients for crop growth, but they can move from fertilisers, manures and other nutrient-rich materials on farmland to pollute water bodies. Sediment runs off into water bodies from agricultural land, transporting nutrients and other pollutants

including microplastics, and disrupting river flow and the wider water ecosystem. This instrument puts in place targets to reduce the amount of nitrogen, phosphorus and sediment entering the water environment from agriculture, protecting over half of English catchments from excess nutrients.

- 7.6 The reporting date for the Agriculture Water Target is 1st February 2040.

***Wastewater pollution***

- 7.7 Wastewater target: Reduce phosphorus loadings from treated wastewater by 80% by 31<sup>st</sup> December 2038 against a 2020 baseline.

- 7.8 When wastewater has been treated, it is discharged back into the water environment. However, despite undergoing treatment processes, this effluent still contains contaminants including phosphorus. These discharges account for 60-80% of phosphorus entering rivers nationally. Over the last two decades, phosphorus in wastewater discharged into rivers has reduced by 67%. However, monitoring shows that the amount of phosphorus in treated wastewater is still damaging to the water environment and that water companies are still the largest source of this nutrient pollution. This target will ensure the water industry continues to take action to significantly reduce phosphorus loadings in wastewater.

- 7.9 The reporting date for the Waste Water Target is 1st February 2040.

***Metal mines pollution***

- 7.10 Abandoned metal mines target: Halve the length of rivers polluted by harmful metals from abandoned mines by 31<sup>st</sup> December 2038, against a baseline of around 1,500 km.

- 7.11 Metal mines are the most significant source of metal pollution in rivers. Up until 2000, mines could be abandoned without the mine operators having to take responsibility for the legacy of ongoing water pollution from their activities whose effects will typically continue for hundreds of years. As virtually all the metal mines in England were abandoned by the early 1900s, it falls almost entirely to the government to take action to mitigate continuing environmental harm.

- 7.12 The reporting date for the Abandoned Metal Mines Water Target is 1st February 2040.

***Pressures on water demand***

- 7.13 Water Demand Target: Reduce the use of public water supply in England per head of population by 20% from the 2019/20 baseline reporting year figures, by 31 March 2038.

- 7.14 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, agriculture and industry. Increased demand and reduced water availability due to less predictable precipitation as a result of climate change is affecting the environment and reducing security of water supply. Public water supply represents the majority of water abstracted across England but not returned directly to the environment. Of the additional 4,000 million litres of water a day expected to be required by 2050, half of this capacity is expected to be met by demand reduction through a reduction in water lost through leakage and a reduction in household and non-household water use. The water demand target will ensure a sustainable level of water demand and support leaving more water in the environment for nature.

7.15 The reporting date for the Water Demand Target is 30th April 2039.

### Monitoring and Evaluation

#### *How will the targets be assessed and measured?*

##### *Agriculture target*

- 7.16 The target will be measured through modelling, informed by monitoring during the target period.
- 7.17 Modelling: Land use modelling is a well-established area that has been used extensively to support policy analysis, with FARMSCOOPER being the leading policy tool for diffuse pollution management in England. FARMSCOOPER integrates multiple pollutant, emission, and erosion processes, at a range of spatial scales in order to estimate agricultural pollutant loadings (to the water environment). Throughout the timeframe of the long-term target it is possible that updated and more effective models will be developed, or changes made to the existing model to increase its accuracy. In these instances the newer model may be used to provide the most up to date picture of pollution levels in 2038 and in the baseline year (2018), using data collected during those sampling periods.
- 7.18 Water Quality monitoring: Field verification of model predictions will enable the model to be tested and improved during the target period, to ensure the final estimate of progress in achieving the target is robust. Catchment Sensitive Farming water quality monitoring has been in place since 2007 providing a relatively long-term data series and robust baseline. It is fully integrated within the Environment Agency's overall monitoring programmes
- 7.19 The outlined approach, combining modelling and monitoring assessments, will provide a robust evaluation of the success of the relevant policy interventions.

##### *Wastewater target*

- 7.20 The target will be measured using the existing monitoring and evaluation framework of the Environment Agency using both data collected from monitoring and modelling. For phosphorus, this includes monitoring conducted for assessment of good ecological status and analysis about the relative source apportionment of phosphorus to particular industries (such as discharges from wastewater treatment works) to be ascertained. Water companies monitor the effluent load and self report this to the Environment Agency, who review this information and assess compliance.

##### *Abandoned metal mines target*

- 7.21 The target will be measured using the existing monitoring and evaluation framework of the Environment Agency using data collected from monitoring. The Environment Agency will monitor the water bodies downstream of the metal mines to assess the change in pollutant level.
- 7.22 In early 2021, an independent analysis recommended that the Environment Agency should carry out a further review of the baseline evidence, including gathering additional water quality data. This work is in progress and will be used to set the formal baseline against which the target will be assessed.

### ***Water demand target***

- 7.23 The target will be measured using Distribution Input (DI) data collected annually by Environment Agency. DI is the total amount of treated water supplied to customers through water companies' distribution network. Water company provide DI data to the Environment Agency as part of their annual reviews of their Water Resources Management Plans (WRMPs), which they are under a statutory duty to carry out under the Water Industry Act 1991. Data is also collected by Ofwat through the price review process.

## **8. European Union Withdrawal and Future Relationship**

- 8.1 This instrument does not relate to withdrawal from the European Union / trigger the statement requirements under the European Union (Withdrawal) Act.

## **9. Consolidation**

- 9.1 This instrument does not amend another instrument and therefore consolidation is not applicable.

## **10. Consultation outcome**

- 10.1 Defra held a public consultation from 16<sup>th</sup> March 2022 to 27<sup>th</sup> June 2022, to seek views on introducing new environmental targets under the Environment Act. Respondents were asked to provide views on each of the proposed water quality targets.
- 10.2 There were 181,003 responses from a wide range of organisations. A government response to the consultation has been published with more detail on the specific points raised and the government's approach.

### ***Summary of the response to the agriculture target:***

- 10.3 There were 7,103 responses to the question on the ambition level for the nutrient targets. Most responses argued for a more ambitious agriculture target. Only a small number disagreed on the basis that the ambition is too great
- 10.4 We have not increased the target ambition in order to balance environmental improvement with pressure on farmers and the need to manage the impact on food production. Our evidence shows that the proposed 40% reduction is the right level of ambition to meet these other commitments and will address the agricultural drivers of freshwater eutrophication in over half of all catchments in England.
- 10.5 We have focussed specifically on the most damaging pollutants from agriculture where there is the most robust evidence base for their environmental impact. Reducing nitrogen, phosphorous and sediment will also reduce other pollutants, such as chemicals, faecal indicator organisms and microplastics at source and block their pathways to water bodies.
- 10.6 There were 833 responses to the question on catchment targets to support the agriculture target. The majority of respondents agreed that the main target should be underpinned by catchment specific objectives, whereas around a third disagreed leaving a small proportion undecided. We will work towards non-legislative mechanisms such as setting catchment objectives; drawing upon stakeholder suggestions and feedback to deliver reductions in pollution where it is needed most and in a collaborative way.

***Summary of the response to the wastewater target:***

- 10.7 There were 7,103 responses to the question on the ambition level for the nutrient targets. Most respondents that disagreed with the target level for nutrients gave ‘lack of ambition’ as a reason. Some responses asked for other pollutants in treated and untreated wastewater such as nitrogen, anti-microbials, and urban pollution to be included.
- 10.8 We have not adjusted the scope of the target as work is already being undertaken by government to address and further understand the impact of these pollutants. We have therefore kept this target focussed on reducing phosphorus pollution, the most common reason a water body fails to meet Good Status under the Water Framework Directive.
- 10.9 There were 7,112 responses to the question on the flexibility of the wastewater target. The vast majority of campaign respondents and minority of non-campaign respondents wanted to see more incentivisation of catchment-based approaches and provide greater flexibility to water companies to explore the best value solutions. We are creating two sector-specific targets on nutrient pollution to set clear expectations from government of what the agriculture sector and water industry need to deliver. The target is framed to allow water companies to make use of nature-based solutions as part of the wastewater treatment process.

***Summary of the response to the abandoned metal mines target:***

- 10.10 There were 7,114 responses to the abandoned metal mines target ambition question. The most common explanations for disagreement were a lack of ambition, and delivery and regulation concerns.
- 10.11 We considered calls for a higher level of ambition for the target however concluded this would not be feasible. The organisations responsible for delivering the target had low confidence that this substantial increase in projects could be accelerated further in time for 2038.
- 10.12 There were suggestions for a metric based on the mass of metals discharged into rivers (mass flux) and more information on the baseline. Mass flux is highest during heavy period of rainfall. The rain washes metal pollutants from mines into rivers. However, this is also when there is less environmental damage as the rainfall dilutes the metal pollutants. Therefore, this metric would not reflect environmental damage as accurately as the metric of metal concentrations in water bodies.
- 10.13 Some campaign and NGO responses, together with the OEP, queried if pollution from abandoned metal mines was of sufficient priority to set a target at national level while others recognised the regional impact of this pollution upon affected rivers, and wildlife in the north-east, north-west and south-west.

***Summary of the response to the water demand target:***

- 10.14 There were 7,100 responses to the water demand target ambition question. Concerns were raised about the proposed metric. We are retaining the metric of distribution input over population because it indicates level of water used per person in England per day, making it relatable to water users and will help to measure and improve water efficiency trends over time. The target will account for uncertainty around future population, housing needs and economic growth.

- 10.15 30% of non-campaign responses mentioned target definition and scope. They suggested the scope should be broader than public water supply and include total water abstracted from the environment. Public water supply represents the majority of consumptive water use across England and therefore we have retained the scope of the target rather than using total abstraction.
- 10.16 In response to the consultation, we have retained the target ambition. The target will provide the 2,000 million litres per day demand reduction needed to help reduce the 4,000 million litres per day projected gap between water supply and demand (the remaining 2,000 million litres per day [will be?] delivered through increased supply).
- 10.17 A complete summary of how consultation feedback has been considered is available in the Government Response document.

## **11. Guidance**

- 11.1 The targets set out in the instrument will be legally binding on government. The government will take measures to ensure the relevant sectors take the actions required to meet the targets through issuing permits, guidance and advice. The targets here do not, in themselves, set specific policies or new legislation that sectors must follow.

## **12. Impact**

- 12.1 The impact on the public sector, business, charities or voluntary bodies is dependent on policy pathways not prescribed by this instrument. Illustrative pathways are set out in the published Impact Assessment, with an assessment of potential costs and benefits.
- 12.2 A full Impact Assessment is submitted with this memorandum and published alongside the Explanatory Memorandum on the [legislation.gov.uk](http://legislation.gov.uk) website.
- 12.3 The agriculture target net present value for the entire appraisal period to 2100 is £17,804m (£5,497m costs against £23,301m benefits). This represents a benefit cost ratio of 4.24:1.
- 12.4 The wastewater target net present value for the entire appraisal period to 2100 is minus £1.05bn (£3.67bn costs against £2.62bn monetised benefits). This represents a benefit cost ratio of 0.7:1.
- 12.5 The abandoned metal mines target costs are estimated to be £276m in present value terms to 2100. The present value of monetised benefits is estimated at £184m which gives a net present value of minus £92m. This represents a benefit cost ratio of 0.67:1.
- 12.6 The water demand target net present value for the entire appraisal period to 2100 is £2,694m (£646m costs against £3,340m monetised benefits). This represents a benefit cost ratio of 5.17:1.

## **13. Regulating small business**

- 13.1 The legislation does not apply to activities that are undertaken by small businesses.

## **14. Monitoring & review**

- 14.1 Progress towards meeting the water targets will be monitored through the statutory cycle of monitoring, planning and reporting set out in the Environment Act.

14.2 The instrument does not include a statutory review clause as the legal obligations in this regard under the Small Business, Enterprise and Employment Act 2015 do not apply.

**15. Contact**

15.1 Catriona Penny at the Department for Environment, Food and Rural Affairs Telephone: +447920384197 or email: [catriona.penny@defra.gov.uk](mailto:catriona.penny@defra.gov.uk) can be contacted with any queries regarding the instrument.

15.2 Amira Amzour, Deputy Director for Water Quality, at the Department for Environment, Food and Rural Affairs can confirm that this Explanatory Memorandum meets the required standard.

15.3 Trudy Harrison MP, Parliamentary Under Secretary of State at the Department for Environment, Food and Rural Affairs can confirm that this Explanatory Memorandum meets the required standard.