

**INVITATION FOR PROPOSALS**

**DEVELOPING A COMPREHENSIVE APPROACH TO NITROGEN IN THE UK**

**INTRODUCTION**

WWF is developing its advocacy to reduce the impacts of nitrogen overuse (this document uses ‘nitrogen’ as shorthand for ‘reactive nitrogen’), focussing on what the UK can do to reduce impacts domestically and through its food supply chains. We are calling on the UK Government to produce a comprehensive approach and delivery strategy, including budgets and reduction targets, as part of its commitments to meet net zero, reduce pollution and improve human health and nutrition.

We see the potential for action spanning across lifestyle and dietary change to on-farm technologies that have multiple benefits on climate, nature and people, led by regulation and supported by advice and investment.

We are seeking an experienced consultant to help us scope out the priorities and key interventions for this strategy in a UK and devolved context, in order to help us advocate for an integrated approach that will make most impact over the coming decade. This will support our strategic objectives to accelerate the transition to a sustainable and just global food and agriculture system and avert dangerous climate change for people and nature.

This report is the first of two studies to be commissioned by WWF on tackling nitrogen emissions in the UK – a second study focussing on farm-level interventions will be released for tender in due course.

**CONTEXT**

According to the [Global Nitrous Oxide 2020 Budget](https://www.globalcarbonproject.org/nitrousoxidebudget/20/files/GCP_NitrousOxideBudget_2020.pdf), the levels of nitrogen in atmosphere as nitrous oxide (N2O) have increased more than 20% from 270 parts per billion (ppb) in 1750 to 331 ppb in 2018. As a long-lasting greenhouse gas, N2O is considered almost 300 times more effective than CO2 over a 100 year period and currently responsible for 6.5% of global GHG emissions.

It is generally agreed that current trends in N20, methane and ammonia emissions are not compatible with even the least optimistic pathways consistent to achieve climate goals, and that urgent action is needed in the coming decade to reduce emissions of both N2O and methane (CH4) as part of the UK’s strategy to meet net zero.

The dominant source of N2O ([over 70%](https://edgar.jrc.ec.europa.eu/overview.php?v=50_GHG)) and UK ammonia emissions ([88%](https://www.gov.uk/government/publications/clean-air-strategy-2019)), and of nitrate loading to English rivers ([69%](https://consult.environment-agency.gov.uk/++preview++/environment-and-business/challenges-and-choices/user_uploads/nitrates-pressure-rbmp-2021.pdf)) is the agriculture sector, accelerated by growing demand for food and feed for animals. Although an essential requirement of food production, nitrogen (and phosphorus) cycles have been substantially disrupted by excess inputs of fertiliser, exceeding the “planetary boundary” by 2 to 3 times. The UK uses about 1 million tonnes of nitrogen per year as fertiliser and imports around 2-300,000 tonnes of nitrogen via feed, and, organic manures which include approximately 1/3 million tonnes of nitrogen across Britain from applied cattle farmyard manure and slurry alone. As a globally significant overuser of nitrogen, the UK and Europe have a particular global responsibility for significant rises in atmospheric nitrogen.

As well as climate impacts, this also causes significant human health and air quality impacts and impacts on biodiversity through pollution and runoff into freshwater and marine ecosystems: animal products (because of feed production and manure management) cause about 60% of eutrophication globally, and 70% in the UK (Source: [Planet Based Diets](https://planetbaseddiets.panda.org/)).

As we leave the EU and host the COP26 climate negotiations, we have a moment to define the political, policy and legal frameworks needed to reduce nitrogen overuse in the UK, in turn helping to meet net zero and restore nature.

**MAIN PURPOSE AND SCOPE**

We are seeking a highly experienced consultant or consortium to provide a scoping stage analysis of the available information on nitrogen, and a set of recommendations on the most impactful policy interventions to reduce nitrogen overuse.

We seek a global and UK assessment of the impacts of nitrogen overuse, followed by an assessment of the policy responses that can be applied in a devolved context. As such, the scope of the work is UK wide and global for Stages 1 and 2, followed by more detailed examination of devolved policy responses in Stage 3.

**Stage 1: Literature review and overview of impacts:**

This should seek to answer the following:

1. In order of impact, what are the primary factors leading to the overuse of nitrogen and leakage of nitrogen into the atmosphere and ecosystems in a UK, European and global context?
2. To what extent have nitrogen and methane emissions changed globally over the past 50 years and what is the UK’s role in the global production and consumption of nitrogen?
3. To what extent does the UK’s use of (and trends in) nitrogen jeopardise (or support) global efforts to meet the Paris 1.5 target, and UK efforts to achieve net zero, respectively?
4. What contribution does the UK make to the global nitrogen budget?
5. To what extent is the UK’s nitrogen use responsible for UK, European and global human health and biodiversity impacts?
6. In the UK, what are the costs to reactive nitrogen-users of either the wasted proportion of nitrogen they use, or, of dealing with nitrogenous waste in ways in which it will be used fully, rather than leaked into the environment?

**Stage 2: Identifying the key interventions:**

This should seek to answer the following:

1. In a UK context (quantifying impacts where possible), what interventions would be most impactful to reduce our nitrogen emissions footprint from:
   * Over-consumption of high-nitrogen foods
   * Domestic agri-food production for both animal and human consumption
   * Imports through global supply chains with a significant nitrogen footprint, eg imported meat and animal feed
   * Other non-agricultural sectors of the economy
2. To what extent (identifying figures if possible) would interventions to reduce nitrogen emissions also contribute to the transition to agroecology, as set out in the report [“Farming for Change: mapping a route to 2030”](https://ffcc.co.uk/news-and-press/farmingforchange) (FFCC)?
3. To what extent, if at all, could interventions to reduce nitrogen emissions contribute to a reduction in meat consumption in the UK?

For these interventions, please also highlight any other associated environmental synergies and risks where relevant, for example in terms of methane emissions, carbon sequestration, water pollution or biodiversity.

**Stage 3: Identifying the policy/regulatory frameworks in a four-country context**

This should seek to answer the following:

1. To what extent would the UK as a whole need to reduce its nitrogen (and methane) emissions to be consistent with net zero? What impact would this reduction have on air quality and water quality objectives in the Clean Air Strategy/25 Year Environment Plan?
2. What should a 2030 and 2050 integrated target look like (at UK and at devolved country level) for nitrogen and methane, to be consistent with the UK’s net zero obligations? What level of reduction in reactive nitrogen would be needed to meet this target from a current baseline?
3. Are any approaches adopted to reduce nitrogen use in other countries (in particular Scandinavian countries, The Netherlands and Germany but other examples welcome) a replicable model for England? What recommendations from the implementation of these models would be useful in a UK/devolved context?

For England, Scotland, Wales and Northern Ireland, please answer the following:

1. What are the existing legal mechanisms for reducing and controlling the level of excess nitrogen in each country, either through emissions or through agricultural regulations? What gaps exist in their effective regulation or enforcement?
2. How replicable is the [approach currently in development in Scotland](https://www.gov.scot/policies/climate-change/nitrogen-balance-sheet/) towards nitrogen balance sheets for other UK countries?
3. What would a nitrogen budget look like or need to contain for each country as part of a package of climate solutions, and how would it need to sit a potential wider international nitrogen budget?
4. What role could fiscal measures, such as a nitrogen tax, play in reducing nitrogen emissions, and how could it be designed?
5. What other considerations are needed in helping to develop a comprehensive strategy on nitrogen?

**KEY OUTPUTS AND TIMELINE**

Report in word and pdf format.

1 x 2 side A4 summary document with key findings and recommendations

**TIMELINE**

Deadline for proposals: 22 March 2021, Midday.

Kick off meeting: w/c 05 April 2021

Draft report: w/c 24 May 2021

Final report: w/c 07 June 2021

**REPORTING TO:**

Responses and questions should be sent to Tom Stuart, UK Landscapes Manager, [tstuart@wwf.org.uk](mailto:tstuart@wwf.org.uk) and Alec Taylor, Head of Programme (Land Use and Climate), [ataylor@wwf.org.uk](mailto:ataylor@wwf.org.uk)

We recommend that proposals are limited to eight sides in length. In your proposal, please include the following:

* A method statement to explain your proposed approach to carrying out the work.
* A brief project plan, showing key milestones and any interdependencies.
* Details about similar projects you have undertaken or your relevant experience in this field.
* A fee proposal including resource allocations and charging rates for all individuals, and any third party costs.
* Confirmation that you would be to accept the WWF Standard Terms and Conditions as the basis for contracting.

**BUDGET RANGE:**

We have approximately £45k including VAT to support this work.

Thank you for expressing an interest in working with and supporting WWF-UK with this important piece of work.  We look forward to receiving your response.

**RELEVANT SUPPORTING WWF MATERIAL**

Erisman, J.W.; J.N. Galloway; N.B. Dice; M.A. Sutton; A. Bleeker; B. Grizzetti; A.M. Leach & W. de Vries. 2015. Nitrogen: too much of a vital resource. Science Brief. WWF Netherlands, Zeist, The Netherlands <https://www.louisbolk.org/downloads/3005.pdf>

Lampkin, Nicolas; Smith, Laurence and Padel, Katrin (2019) Delivering on net zero: Scottish Agriculture. A report by Organic Policy, Business and Research Consultancy for WWF Scotland, Edinburgh. <https://www.wwf.org.uk/sites/default/files/2019-12/WWF%20Net%20Zero%20and%20Farming.pdf>