

TOWARDS AN INTEGRATED OUTCOME APPROACH TO MEASURE AND REDUCE THE ENVIRONMENTAL IMPACT OF FOOD

SUMMARY

This work will explore the possibility for an integrated approach to measure and reduce the environmental impact of food, and support WWF-UK's efforts to inform and influence political policy and business advocacy.

Currently, many methods are used to understand the environmental impacts of food on the environment – from product approaches to landscape approaches, farm level initiatives to accreditation schemes. These different approaches often lead to confusion amongst food stakeholders and hinder action.

It is only by understanding how the various approaches are part of a cohesive whole, that we can make useful policy changes and decisions about the food we produce, provide and consume.

Focusing on the impact of livestock/animal protein production, this project will explore how the various approaches WWF-UK is directly and indirectly involved with can be brought together as an integrated outcome approach to understand the impact of the UK food system and establish a framework for policy development and advocacy.

BACKGROUND

The global food system causes about 30% of global greenhouse gas (GHG) emissions¹ and represents the single largest human pressure on nature. Understanding the environmental impact of food products is a key to developing policies and making decisions about the food we produce (farm level), provide (food business level) and consume (citizen level) to ensure we live within planetary boundaries.

The climate and nature impact of livestock/animal protein production and consumption is disproportionate to its calorie supply. Total global meat production more than quadrupled between 1961 and 2021² with the global per capita meat consumption nearly doubling during the same time-

¹ IPCC, (2022), Climate Change 2022: Mitigation of Climate Change. Available at: <https://www.ipcc.ch/report/ar6/wg3/>

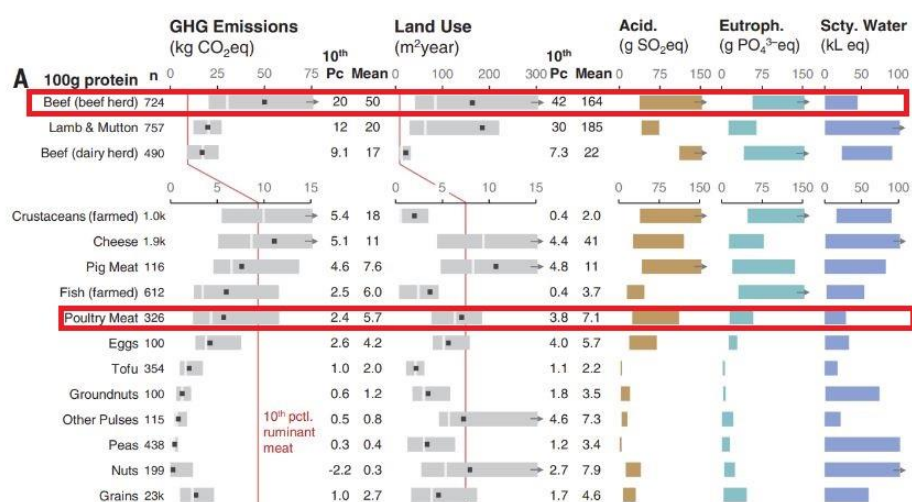
² Our World in Data, (n.d.), Meat and Dairy Production. Available at: <https://ourworldindata.org/meat-production#global-meat-production>

period.³ Today livestock production contributes almost a third of the total emissions⁴ and over 80% of land used for food production is used for grazing or animal feed production. Yet, it only contributes 18% of global calorie supply and 37% of global protein supply.⁵ The global situation is reflected in the UK; the way we farm and use the land is responsible for 12% of our territorial greenhouse gas emissions and our nation is one of the most nature-depleted countries on Earth.⁶ Additionally, the footprint of the average UK diet far exceeds where we need to get to if we are to limit global warming to 1.5C and achieve net zero by 2050; we consume more protein than needed for good health, with the majority of the protein coming from animal sources.⁷

NUMEROUS APPROACHES AND INDICATORS TO MEASURE AND REDUCE IMPACT

Actions are taken by stakeholders across the food system to measure and reduce the environmental impact of food, but it's a complex and complicated system and most approaches developed to inform decisions have, by necessity, a specific and narrow focus. We are now in a position where we have numerous approaches which operate in silos, some approaches are incompatible, and others appear to be in direct competition with each other. This in turn complicates policy development and advocacy.

A common example of the limitations to a single-methodology approach is that of poultry versus beef. The impact of producing 100g poultry is significantly lower than producing 100g of beef across several environmental indicators, as seen below.⁸



³ Our World in Data, (n.d.), Per capita meat consumption by type, World, 191 to 2020. Available at: <https://ourworldindata.org/grapher/per-capita-meat-consumption-by-type-kilograms-per-year?facet=none>

⁴ SRCCL, (2019), Chapter 5, Food Security. In Climate Change and Land. Available at: https://www.ipcc.ch/site/assets/uploads/sites/4/2022/11/SRCCL_Chapter_5.pdf

⁵ WWF, (2020), Living Planet Report 2020 - Bending the curve of biodiversity loss. Almond, R. E. A., Grooten, M. and Petersen, T. (Eds), WWF, Gland, Switzerland. Available at: https://www.wwf.org.uk/sites/default/files/2020-09/LPR20_Full_report.pdf

⁶ WWF, (2021), Land of Plenty. Available at: https://www.wwf.org.uk/sites/default/files/2022-02/WWF_land_of_plenty.pdf

⁷ Halevy, S., Trewern, J. (2023) Eating for net zero. How diet shift can enable a nature positive, net zero transition in the UK. Available at: https://www.wwf.org.uk/sites/default/files/2023-05/Eating_For_Net_Zero_Full_Report.pdf

⁸ Poore, J. and Nemecek, T., (2018), Reducing food's environmental impacts through producers and consumers. In: Science, vol. 360, no. 6392. Available at: <https://www.science.org/doi/10.1126/science.aag0216>

However, this per kg approach using existing LCA impact categories, although highlighting the great diversity of impact within the beef category, doesn't adequately consider how extensive farming systems with few inputs and spaces can be part of nature's recovery.⁹ Grazing animals can convert biomass that humans cannot eat and transfer nutrients from grassland to cropland via their manure, and well-managed grazing systems can in some contexts support carbon sequestration.¹⁰

Moreover, the graph above doesn't capture the impact at a landscape level and is, as with all approaches, limited by the indicators analysed. Although the impact of producing 100g poultry is lower than producing 100g of beef based on the environmental metrics above, the intensive chicken industry as a whole (and in light of the exponential growth of per capita poultry consumption from 2.86kg in 1961 to 16.21 kg in 2020¹¹), is associated with grassland conversion and pressure on arable land, high soy consumption, reliance on antibiotics, poor animal welfare, and pollution of land and waterways.^{12 13 14}

WWF-UK is also concerned with the adequacy of methods to address biodiversity impacts. Despite increasing recognition of the crucial role of biodiversity in maintaining human and planetary health, biodiversity is declining faster than at any time in human history.¹⁵ Since 1970 global wildlife populations have decreased, on average, by 69%.¹⁶ The production of food is the primary cause of biodiversity loss globally.¹⁷ Whilst land conversion is the key cause of habitat loss, other aspects of the food system cause biodiversity loss – the use of fertilisers and pesticides, heavy tilling, impacts on freshwater and marine systems and so on. Different approaches to measuring food impacts use different methods to assess biodiversity loss and can produce misleading and conflicting results.

APPROACHES WWF-UK ENGAGE WITH

Colleagues from across WWF-UK and the wider Network manage, drive and engage with numerous approaches to measure and reduce the environmental impact of food.

WWF-UK has been working with the University of Oxford on the **Hestia**¹⁸ platform since 2018, an open-access data platform that aims to provide harmonised and transparent models to calculate

⁹ Ibid. 5

¹⁰ Garnett, T., et al (2017), *Grazed and Confused? Ruminating on cattle, grazing systems, methane, nitrous oxide, the soil carbon sequestration question – and what it all means for greenhouse gas emissions*. FCRN, University of Oxford. Available at: https://www.oxfordmartin.ox.ac.uk/downloads/reports/fcrn_gnc_report.pdf

¹¹ Ibid. 2

¹² Ibid. 2

¹³ Eating Better Alliance, (2020), *We Need to Talk about Chicken*. Available at https://www.eating-better.org/uploads/Documents/2020/EB_WeNeedToTalkAboutChicken_Feb20_A4_Final.pdf

¹⁴ Ibid. 5

¹⁵ Chatham House, (n.d.), *Food Systems Impact on Biodiversity Loss*. Available at: <https://www.chathamhouse.org/2021/02/food-system-impacts-biodiversity-loss>

¹⁶ WWF, (2022), *Living Planet Report 2022 – Building a Nature-Positive Society*. Almond, R.E.A., Grooten, M., Juffe Bignoli, D. & Petersen, T. (Eds). WWF, Gland, Switzerland. Available at: <https://www.wwf.org.uk/our-reports/living-planet-report-2022>

¹⁷ Ibid 14

¹⁸ **HESTIA** – or Harmonised Environmental Storage and Tracking of the Impacts of Agriculture – is an open-access platform that stores standardised data on agricultural production. It contains data on farming, food processing, and other processes in the agricultural food system, detailing the sustainability and productivity of different food products and production practices. The HESTIA team doesn't collate farm level data but enables storage of this in a highly standardised manner allowing harmonisation across data mining approaches and therefore comparison of data.

multiple environmental impact indicators and enable benchmarking against similar farms, enabling users to discern sustainable producers, products, and practices, and deliver science- and data-driven improvements in sustainability.

WWF-UK also engages with on-farm data initiatives, notably the **Global Farm Metrics**,¹⁹ that provides a whole-farm framework to measure sustainability on farm and monitor change across different farming systems and landscapes, as well as **Soil Association Exchange**²⁰ and **Cool Farm Tool**.²¹ Through the Innovation Connections accelerator programme, we have worked closely with the **Farm Carbon Toolkit** to develop their tool to align with the needs of other downstream supply chains looking to integrate farm level data into their scope 3 reporting.

The **WWF Basket** is key to our work to reduce the environmental impact of food. With the ambition to halve the environmental impact of UK baskets by 2030, the focus is on seven of the most impactful environmental issues in the food system. Under each area sit several measures that represent the priority areas for intervention to drive change.²² The measures are calculated at a retailer level but cover many different tiers of environmental reporting, using indicators that are calculated at the product (LCA methodologies), farm (certification schemes), and landscape levels.

Through the WWF Basket, we are working directly with UK retailers on climate (particularly scope 3), agriculture, and deforestation. On climate, in addition to understanding what the levers are to reduce farm stage emissions we are engaging with the sector on various initiatives (including the Food Data Transparency Partnership, the BRC Monda Coalition, and the WRAP Net Zero Collaborative Action Programme) which are exploring how to increase the consistency and accuracy of calculating scope 3 emissions across the sector, whether companies are using secondary LCA databases, calculating footprints at the ingredients level, or integrating farm data into their scope 3 reporting.

WWF is a partner in the **Science Based Targets Network** (SBTN). Building on the momentum of the SBTi with a focus on climate, it works to enable companies to set targets for climate *and* nature. It is developing methods and resources, and securing commitment from companies – including those in the food sector – to measure their impacts and dependencies on nature, set reduction targets and implement action plans. We are also engaged in the Taskforce for Nature related Financial Disclosure (TNFD) that focuses on disclosure recommendations and guidance for business and finance to integrate nature into their decision making and ultimately shift global finance flows to nature positive outcomes. Arguably less stringent than SBTN in that target setting is not currently a requirement, these two initiatives share common methods and metrics.

¹⁹ [GFM](#) offers a framework to which metrics should be considered when looking at on-farm impacts. They suggest 10 criteria: Climate, Community, Nature, Soil & Water, Governance, Resources, Inputs, Farmer & Workers, Crops & Pasture, Livestock, Products, and Economics.

²⁰ [Soil Association Exchange](#) is a measurement tool for use across the supply chain. They focus on six impact areas: soils, climate change, biodiversity, water, animal welfare and society. The platform looks at measuring and recording social and environmental outcomes, and offers a platform for knowledge exchange and provides advice to farmers on financial incentives for transitioning.

²¹ [Cool Farm Tool](#) is an online GHG, Water and Biodiversity calculator for farmers providing a guide on how to take measurements.

²² WWF-UK, (2021), WWF Basket. Blueprint for Action. Available at: <https://www.wwf.org.uk/sites/default/files/2021-11/WWF-Basket-Blueprint-for-Action.pdf>

WWF has developed a series of nature risk filter tools, methods for assessing risks in supply chains based on dependencies and impacts on nature. SBTN draws on these methodologies but is also seeking more specificity.

WWF believes that **agroecological approaches** are key to achieving nature-positive food production at scale in an inclusive way. Agroecology can help to prevent and resolve potential conflicts between conservation, food production and other socio-economic interests, and we're committed to exploring how agroecological approaches can be implemented at pace and scale.

All these initiatives – and others – present a myriad of approaches applicable to measuring the environmental impact of food. Whilst these are necessary and welcome, they present a confusing landscape hindering action by business, and government policy to support, the transition to a nature and climate positive food system.

PROJECT DETAILS

MAIN PURPOSE AND SCOPE

This work will explore the development of an integrated approach to measure and reduce the environmental impact of food. Currently, many methods are used to understand the environmental impacts of food on the environment – from product approaches to landscape approaches, farm level initiatives to accreditation schemes. These different approaches often lead to confusion amongst food stakeholders and hinder action as illustrated above.

It is only by understanding how the various approaches are part of a cohesive whole, that we can make useful policy changes and decisions about the food we produce, provide and consume.

This project will explore how the various approaches WWF-UK is directly and indirectly involved with, as highlighted above, can be brought together as an integrated approach to understand the impact of the UK food system and establish a framework for business implementation, policy development and advocacy.

To make the work manageable it's necessary to focus on one area of food production. Based on the impact and scale of livestock/animal protein production, this will be the focus whilst ensuring the integrated approach mapped out remains relevant and replicable to other areas of food production.

OBJECTIVES

- To map out the details of the various approaches WWF-UK is involved with and
 - establish how the various approaches address biodiversity loss
 - establish what the various approaches can help answer in terms of the environmental impact of livestock/animal protein production (at a systems level, LCA/product, farm-level, landscape)

- map out what the various approaches can't help answer in terms of the environmental impact of livestock/animal protein production (at a systems level, LCA/product, farm-level, landscape)
- To explore how to align approaches in order to provide comprehensive advice on the environmental impact of food (notably livestock/animal protein production)

METHODS

- Desk review of papers/documents/report etc. relating to various approaches
- Interviews with stakeholders representing various approaches to understand how the approaches they represent contribute towards understanding what 'better protein' is?

DELIVERABLES

- A technical report outlining the research, an analysis of the results, and recommendations
- A brief for decision makers presenting the work
- A guide/decision tool/dashboard to illustrate the benefits and challenges of the various approaches and guide decision making

CONTRACTING

THE REQUIREMENTS OF A PARTNER

In their response, an external partner must be able to demonstrate and evidence:

1. Understanding of the brief and propose options for the approach. Please outline possible time frames and requirements of us in a high-level project plan.
2. Depth and breadth of expertise in this field in the charity/not for profit/NGO and government/commercial/private sectors. Please include names of recent clients for who you have delivered similar work.
3. A strong team that can provide responsive service – i.e. not key person dependent – continuous service available. Please provide short biographies for all those who would be involved on the project.
4. A strong alignment with WWF's vision and mission with values that respect diversity, equality and inclusivity and evidence of partnership working. Please provide a short statement on this and how you evidence your values in your work.
5. Value for money; competitive pricing for expertise. We need fees to be clear and structured in a flexible way. Please state day / hourly rates and price per project element, ideally with capped fees.
6. Confidentiality and Data protection. Please provide your confidentiality statement and GDPR principles.
7. Diversity, Equality and Inclusivity (DE&I). Please share your approach to DE&I and how you would approach the project in this respect.

8. References. Please provide two referee clients. (We would not approach without your permission).

THE SELECTION PROCESS

In line with our procurement process, we are now approaching four organisations (to ensure we get at least three responses) who might be able to provide the above services. A panel comprising members from our Science, Advocacy and Procurement teams will consider the responses and make a decision based on the following criteria, with approximate weightings shown:

- 5%: The organisation's proposed approach to the 8 points above
- 20%: Depth and breadth of expertise as evidenced by recent client work
- 20%: Values, partnership, inclusivity – alignment with WWF
- 35%: Price – value for money

TIMELINES AND NEXT STEPS

- **Date issues:** w/c 18 December 2023
- **Closing date to submit proposals:** 19 January 2024
- **Project start:** 29 January 2024
- **Completion of project:** end of April 2024
- **Budget:** up to £45,000 incl. VAT
- **Commissioned by:** WWF-UK, Living Planet Centre, Brewery Road, Woking, GU21 4LL
- **Contact person:** Sarah Halevy, Food Systems Sustainability Manager WWF-UK, shalevy@wwf.org.uk, available to answer queries from 2 January 2024
- **Alternative contact:** Procurement Team, procurement@wwf.org.uk

CONTRACTING WITH WWF-UK

It is our requirement that an appointed external partner adopts our standards terms and conditions for engaging with us. These are included within the tender documents. Please confirm you are willing to accept these terms. Should you have any amends you wish to make, these will need to be discussed with the WWF-UK legal team.

WWF-UK asks all suppliers to comply with the Supplier Code of Conduct and WWF-UK 3rd Party Expenses Policy. Both documents are enclosed within the tender pack. Please confirm your acceptance of both.

All contracted suppliers are required to register on Panda Purchasing (WWF-UK's PO and invoice system). Should you be successful in your bid, please confirm you will be willing to register on the system.

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.