

17. Global biodiversity impacts of UK consumption

Type: Pressure indicator

Additional research work undertaken in 2019/20. The next step is to develop a basic indicator and time series as an experimental statistic.

Indicator Description

Indicator under development. Production and consumption in the UK has an impact on the natural environment beyond our shores through the import and export of goods and services. A range of research work has been undertaken, and progress is being made towards developing an indicator.

Progress to date

Research has been undertaken to (i) assess how patterns of UK consumption impact on the key drivers of biodiversity change overseas and (ii) identify options for mitigating those impacts. This research includes:

- Analysis and modelling of trade pathways and supply chains for goods and services in order to identify important sources of production; and
- Identification of the potential impact of key production systems and products on biodiversity.

Separate research carried out both in 2013/14 and in 2018-20 has supported the use of environmentally extended multi-regional input-output (MRIO) modelling as the most appropriate basis for this indicator. This approach is also used in the [UK Carbon Footprint](#), which measures the carbon dioxide emissions relating to UK consumption. MRIO is an economic tool used to model global trade flows through tables representing the monetary inputs and outputs across different countries and their commercial sectors (e.g. oilseeds, cattle farming, paddy rice, etc). Many MRIO models also have environmental extensions that link this trade to environmental impacts. It is also recommended that this approach would be hybridised with physical data (e.g. FAO – Food and Agriculture Organisation data) and UK specific consumption data, in order to improve both geographic and commodity resolution of the data.

The 2013 work developed an assessment framework to provide information on the direct and indirect links between consumption of goods and services in the UK and the environmental impacts that occur due to the production of these goods and services in other countries. A [global trade model](#) that retains product-level production detail and quantitative links to associated environmental impacts has been developed to allow top-down assessment of potential impacts. This model facilitates the selection of priority commodities and regions which can then be investigated in more detail using a case-study approach. [Further research](#) was undertaken in 2014 to develop this approach at a Scotland level.

During 2018/19, work was undertaken under contract to the Joint Nature Conservation Committee (JNCC) to review literature and test the extension of multi-regional input-output modelling to measure environmental impact. The aim was to develop an indicator to support the 25 Year Environment Plan. Characterisation factors from the [European Commission's Life Cycle Impact](#) project were used to convert several important pressures on biodiversity (land use, water use and nitrogen / phosphorous emissions) that are caused by UK consumption into the risk of biodiversity loss from each pressure. This was broken down by sector and by production country. This work has been peer reviewed and awaiting publication.

During 2019/20, JNCC completed further research internally, which focused on:

- Setting the direction for building an overall footprint-style indicator to measure the total overseas environmental impacts of UK consumption (including biodiversity loss), which would ultimately respond to multiple policy levers;
- Providing a roadmap for developing evidence to support setting more specific targets for particular policy priorities and the relationship of this to an overall footprint indicator. It is envisaged that a 'second tier' of more detailed indicators will be needed to help track specific targets;
- Identifying the tools and techniques that can help a range of policy levers to reduce the environmental impacts of consumption, including risk of biodiversity loss.

The roadmap recommends that the indicator is developed in 2 phases. The first phase should focus on development of a basic indicator and time series as an experimental statistic, using the simplest and most readily available pressure metrics (such as land use and water use). The second phase should take place over a longer time period and incorporate more innovative impact metrics (such as deforestation and biodiversity loss) and improvement of the methodology, as well as consultation and investigation of how the indicator is interpreted.

Relevance

Production and consumption in the UK has an impact on the natural environment beyond our shores through the import and export of goods and services. Each of the countries of the UK has introduced or is introducing policies to promote sustainable production and consumption and thereby reduce our impact on biodiversity and promote the sustainable use of natural resources.

The 25 Year Environment Plan highlights the government's commitment to "*leave a lighter footprint on the global environment by enhancing sustainability and supporting zero deforestation supply chains*" in a way which "*avoids improving our domestic environment at the expense of the environment globally.*" In order to fulfil this commitment, a greater understanding of the global environmental impacts of UK consumption is required.

The indicator is relevant to a number of outcomes in [Biodiversity 2020; A strategy for England's wildlife and ecosystem services](#) (see Annex A). The indicator is also relevant to international goals and targets (see Annex B of the aforementioned publication for further details).

Web links for further information

Defra: ['A Green Future: Our 25 Year Plan to Improve the Environment'](#)

Defra: [Official Statistics UK's carbon footprint](#)

Defra-funded research study: West, C., Dawkins, E., Croft, S., Brugere, C., Sheate, W. and Raffaelli, D. (2013). [Measuring the impacts on global biodiversity of goods and services imported into the UK](#). Final Report for Defra. April 2013.

Defra-funded research study: Route2 Sustainability and Carbon Smart (2019) Piloting Indicators For The Global Environmental Impacts Of UK Consumption. [Towards indicators of environmental sustainability \(BE0166\)](#) – [Awaiting publication]

Defra-funded research study: Hawker, J., Smith, M., Way, L., Harris, M., Donovan, D., Wright, E. and Wilkinson, S. (2020) The LET (Linking Environment to Trade) Guide. JNCC, Peterborough, ISSN 0963-8091. Awaiting publication

European Commission: [Life Cycle Impact](#)

Scottish Natural Heritage and Joint Nature Conservation Committee funded research study: Croft, S., Dawkins, E. and West, C. (2014). [Assessing physical trade flows of materials of biological origin to and from Scotland](#). JNCC Report No. 533.

Last updated: October 2020

Latest data available: N/A

