

# Emissions from consumption

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## Overview

### What are consumption emissions?

Consumption-based emissions can be seen as a nation's carbon footprint. Consumption-based emissions are emissions related to the production and transport of goods and services consumed by a nation. Emissions from consumption include all the emissions caused by our consumption, whether those emissions take place inside a country's territory or abroad.<sup>1</sup> Consumption-based emissions can also be seen as a redistribution of production-based emission. Territorial emissions are those emissions that take place within a country's territorial boundaries excluding fuels for international aviation and navigation and are the base for the UNFCCC reporting and the base for many countries' nationally determined contribution (NDC) under the Paris agreement. **Figure 1** below shows the relation between consumption-based and production-based accounting of emissions.

The emissions accounted as country n's consumption-based emission is the country's production-based emissions for domestic consumption plus imports.

Consumption-based emissions are mainly estimated through environmental extended

multi-regional input-output analysis (MRIO) or life cycle assessment (LCA). In general, the LCA method gives lesser estimation uncertainties compared to MRIOA when estimating sub-sectors (i.e. food, housing). While the MRIOA is an easier and more comprehensive method to estimate consumers-based emissions for a whole country.

For many developed countries, consumption-based emissions are higher than territorial emissions. In **Figure 2**, consumption-based emissions provide a holistic view of a country's greenhouse gas (GHG) emissions, and it addresses emissions that are not covered by the Paris agreement, emissions such as international shipping and aviation. This puts light on the emissions abroad that a country is causing through their domestic consumption. Consumption-based accounting can encourage and give more opportunities to implement more and/or stronger climate policies.

However, under current international convention, nations are only responsible for the measures to reduce emissions within their borders and not the part of their consumption footprint that arises in other countries or regions. However, countries could reduce their imported emissions through more efficient consumption of goods and/or services and potentially through applying policy on their imported goods and/or services.<sup>3</sup> The technical and diplomatic challenges that are being considered by several countries are covered in the ICCN briefing on trade instruments.

## Approaches

Many countries (such as Sweden, New Zealand, Denmark, and UK) are producing statistics on consumption-based emissions. A parliamentary committee in Sweden has proposed new climate objectives on consumption-based emissions and benefits from exports.<sup>4</sup> Denmark is working to make emissions from consumption visible and to improve calculation methods and is planning to set a climate target for public procurement.<sup>5,6</sup>

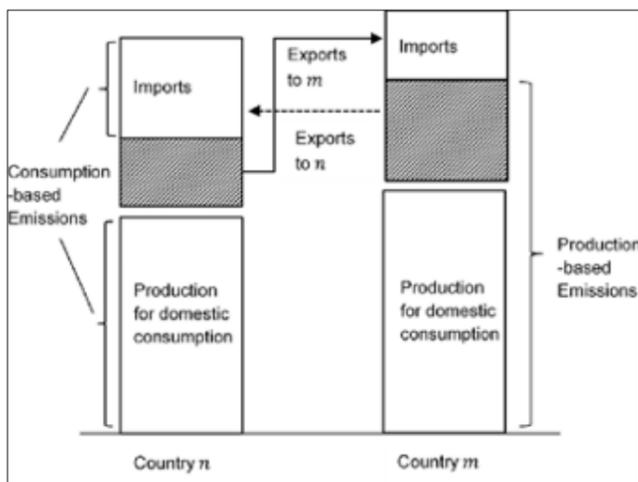


Figure 1: Consumption vs. production-based accounting concepts. Source: Steiner, et al. (2017)<sup>2</sup>.

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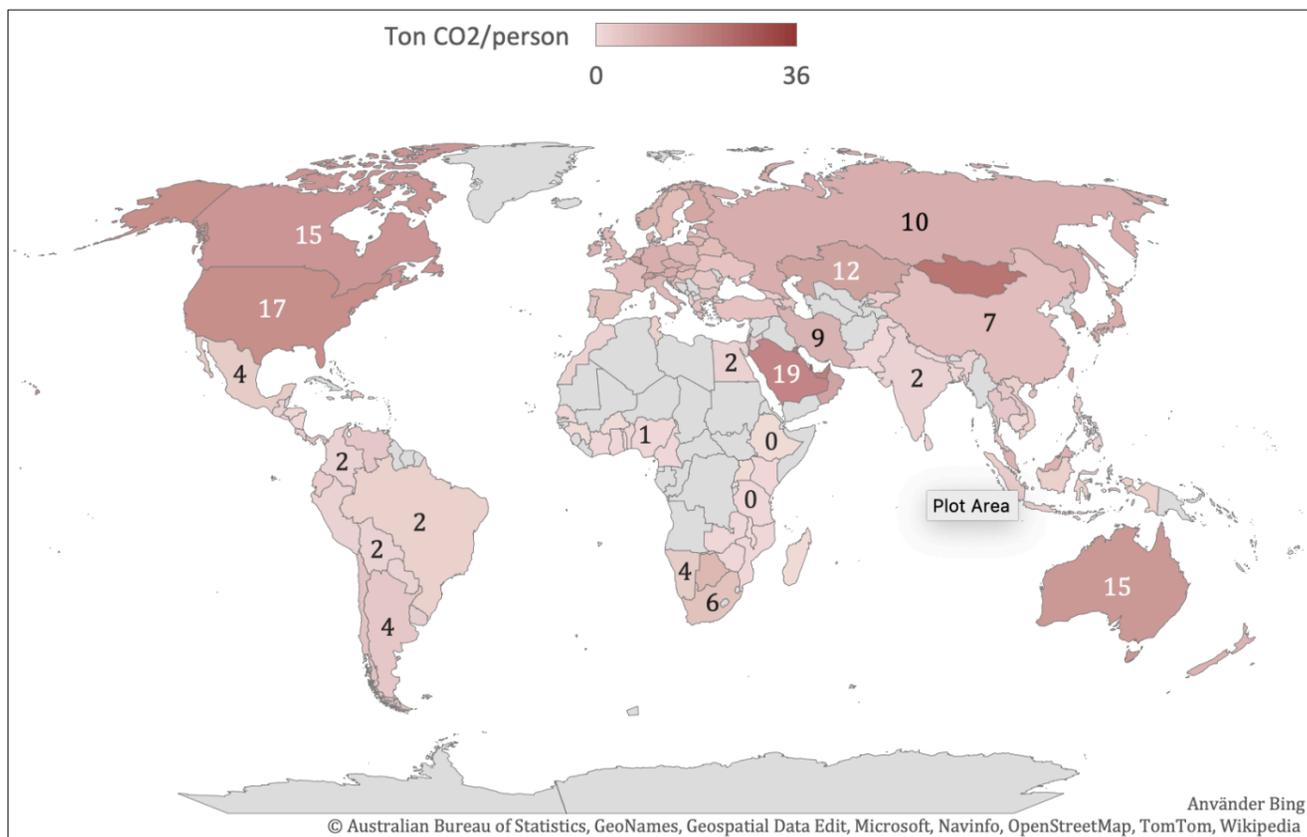


Figure 2: Consumption-based emission 2019. Source: Global Carbon Atlas. Note: Global average in 2019 was 4.5 tonnes CO<sub>2</sub> per person per year (The World Bank).

The UK has objectives to mitigate emissions from international bunker fuels. The UK Climate Change Committee used its annual **Progress Report** to the UK Parliament to set out a framework of measures to reduce its consumption emissions. It also plans to set out a pathway for UK consumption emissions in 2023, against which it will track progress. It also used the report to recommend improvements in UK consumption emissions data collection and reporting.<sup>7</sup>

The French High council on climate published a report on consumption emissions where it detailed the levers Governments can use to influence consumption emissions and suggested a target for consumption emissions that would be coherent with France's Net Zero by 2050 target. The French Energy-Climate Act makes provision for an indicative ceiling to be set in 2023 for the French carbon footprint, which includes imported emissions.<sup>8</sup>

## Ways forward

As a next step Climate Councils could:

Acknowledge the opportunity to increase climate ambition by encouraging governments to include in their NDC, for example, emissions from international bunker fuels, as in the UK, and/or consumption-based targets on GHG intensive sub-sectors; or broader consumption-based emission targets.

- Encourage governments to develop the accounting for consumption emissions and the use of consumption emissions as indicators and follow-up measures.
- Encourage governments to strengthen their efforts to put in place policies that can address consumption-based emissions. This could be through climate requirements in public procurement, incentives to sustainable behaviour changes, circular economy and trade policies, resource and energy efficiency measurements, or political instruments targeting reduction of the climate burden from certain products, such as soya and palm oil.
- Acknowledge that there is a need for more research and harmonisation of consumption-based accounting. In particular, there is a need for more research and harmonisation of methods on quantifying the impact of the Land-Use, Land-Use Change and Forestry (LULUCF) sector in consumption-based accounting, especially for MRIOA.

## References

1. OECD (2016). OECD CO2 emissions embodied in consumption.
2. Steiner et al. (2017), Austria's consumption-based greenhouse gas emissions: Identifying sectoral sources and destinations.

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3. Azar, C. (2022). Targets for Consumption-Based Greenhouse Gas Emissions - Reflections on the Swedish Parliamentary Inquiry.
4. Summary of SOU 2022:15. Sweden's global climate footprint, interim report of the Cross-Party Committee on Environmental Objectives.
5. Økonomistyrelsen. Strategi for grønne offentlige indkøb. <https://oes.dk/indkoeb/strategi-for-groenne-offentlige-indkoeb/>
6. Energistyrelsen. Global afrapportering 2022. <https://ens.dk/service/fremskrivninger-analyser-modeller/global-afrapportering-2022>
7. 6. Climate Change Committee (2022). Progress in reducing emissions - 2022 Report to Parliament.
8. Haut Conseil pour le Climat (2020). Tackling France's Carbon Footprint.

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### About ICCN

The International Climate Councils Network (ICCN) was launched in 2021 as a forum for climate councils from around the world to share experiences, discuss common challenges and support one another in their work.

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