European Environment Agency

8th Environment Action Programme

Consumption footprint (based on life cycle assessment)

8TH EAP HEADLINE INDICATOR, 2023

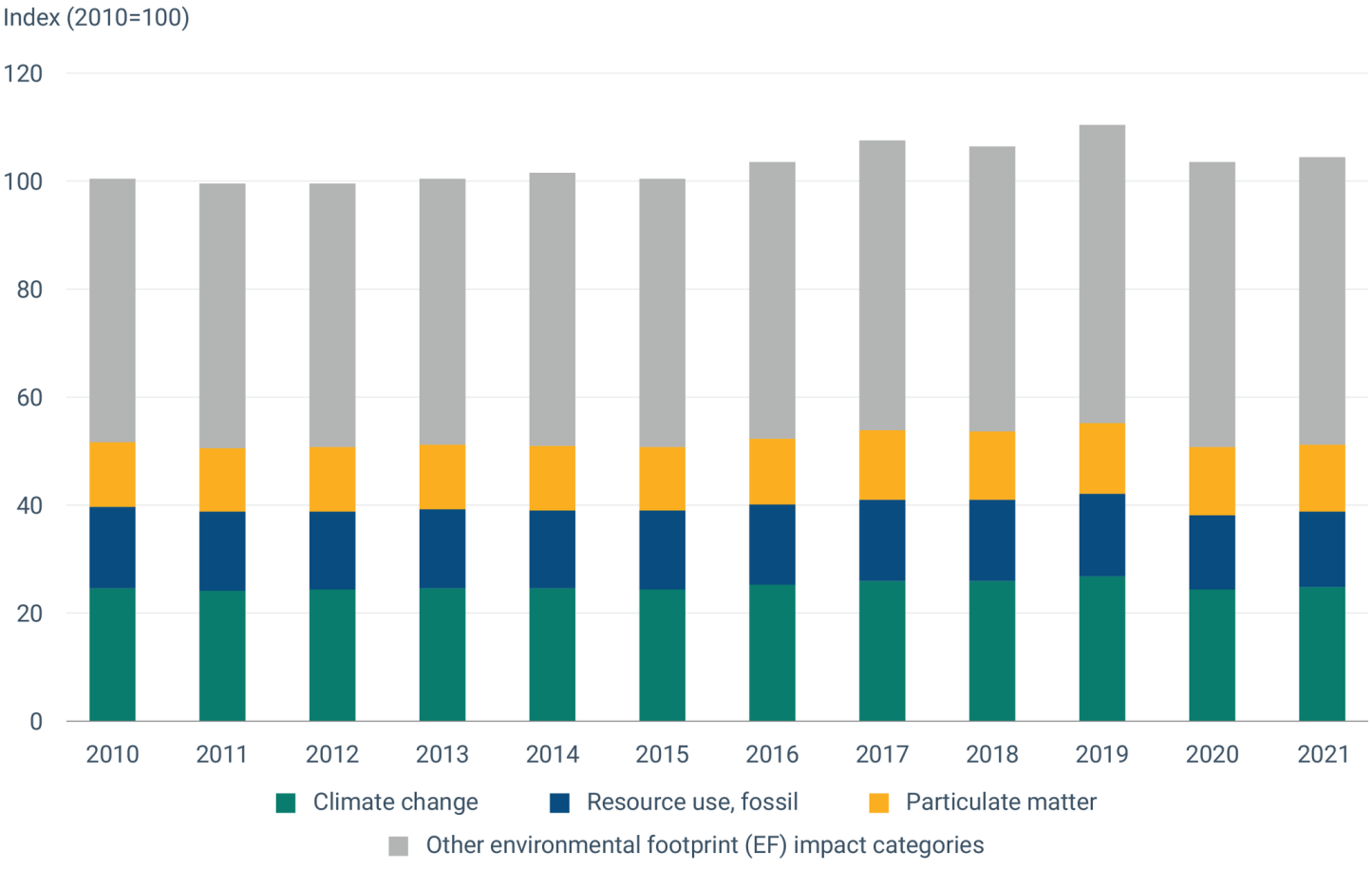
European Environment Agency

Consumption footprint (based on life cycle assessment)

Published 14 Sept 2023

The Eighth Environment Action Programme calls for the EU to significantly reduce its consumption footprint by 2030, i.e. the environmental and climate impacts of its consumption, irrespective of whether products consumed are produced in or outside the EU. From 2010 to 2021, the consumption footprint increased, albeit only slightly, by around 4%. Projections indicate that it will increase further by 2030, triggered by economic growth and current consumption patterns and therefore that the EU is rather unlikely to meet its aim by 2030. Switching to less environmentally harmful products and curbing increasing consumption levels would be necessary to keep the impacts of EU consumption within planetary boundaries.

Figure 1. EU consumption footprint, in a single indexed score (2010=100), broken down into the most significant contributing impact categories of the Environmental Footprint (EF) method, from 2010 to 2021



Source: Joint Research Centre.

The EU's Eighth Environment Action Programme (8th EAP) calls for a significant reduction in the Union's consumption footprint, to bring it within planetary boundaries as soon as possible. To fulfil this ambition, the EU must accelerate its transition towards adopting a regenerative growth model, to give back to the planet more than it takes, as outlined in the EU's 2020 circular economy action plan [1]. The consumption footprint represents the environmental and climate impacts of the consumption of goods and services [2] by EU citizens, irrespective of whether these goods and services are produced within or outside the EU.

Different approaches can be used to calculate a consumption footprint. The methodology used for this indicator [2] is based on life cycle assessment (LCA): LCA data for a basket of representative products are used to calculate environmental impacts and these are then scaled up to represent impacts from entire EU consumption, based on consumption statistics. The indicator uses the European Commission's environmental footprint method to assess environmental impacts in 16 different categories, including climate change and resource depletion, which can be aggregated to give a single score, based on a normalisation and weighting system.

In the period 2010-2021, the EU's consumption footprint increased slightly, by almost 4%. In the same period, gross domestic product (GDP) increased by almost 8%. This indicates that the impacts of the EU's consumption are growing at a slower pace than its economy, suggesting a decoupling of the consumption footprint from economic growth [4][3]. However, the consumption footprint and GDP still appear to be somewhat correlated (e.g. they both declined in 2020 during the economic slowdown caused by pandemic-related measures). This means that reducing the impacts of EU consumption in a growing economy will be challenging.

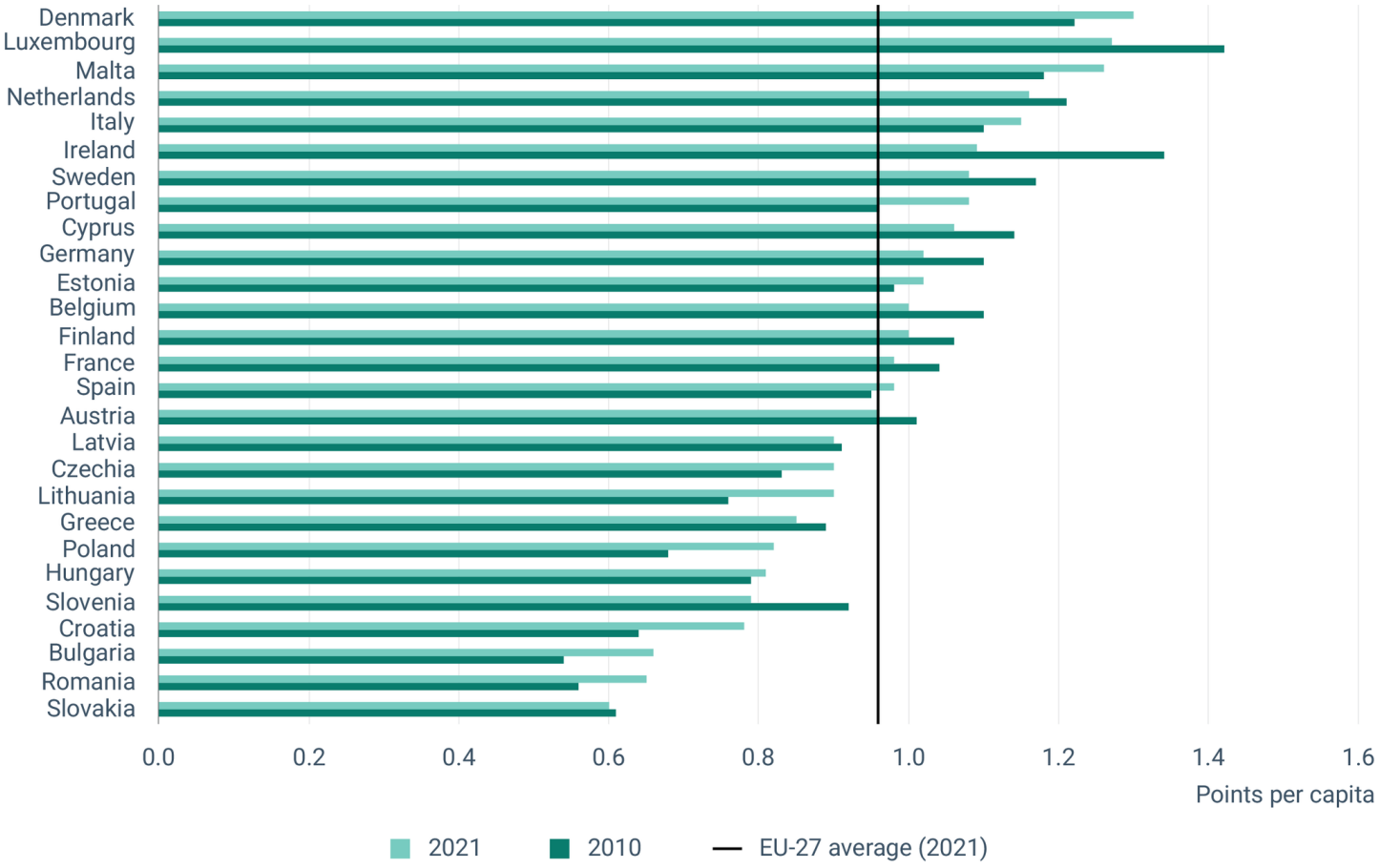
In 2021, the consumption of food contributed the most (48%) to the total environmental impact of consumption in the EU, followed by housing (19%) and mobility (15%). The types of environmental impact that make the largest contributions to the consumption footprint are those related to climate change (24%), the use of fossil resources (14%) and the release of particulate matter (12%) [4].

Overall, the environmental impacts of EU citizens' consumption is considered high. Scientific evidence increasingly suggests that, based on current consumption footprint levels, the EU exceeds its fair share of planetary boundaries for five environmental impact categories, including particulate matter, climate change and resource use (EC, 2023; Sanye Mengual and Sala, 2023) [5].

Based on current consumption patterns and expected economic growth, the EU's consumption footprint is projected to increase further by 2030 [6]. Therefore, the EU is rather unlikely to meet its aim of significantly reducing this footprint by 2030.

The EU could reduce its consumption footprint by (1) reducing the overall amount of goods and services consumed, (2) shifting to the consumption of goods with a lower environmental impact or (3) a combination of the above. In this regard, it is worth noting that, in general, service consumption has less of an impact on the environment than the consumption of goods. Adopting circular business models based on, for example, sharing or product-as-a-service schemes would help the EU to move in this direction.

Figure 2. Level of consumption footprint (points per capita) for EU countries in 2021 compared to 2010



Source: Joint Research Centre.

In 2021, Denmark had the highest consumption footprint of the 27 EU Member States and Slovakia had the lowest, with a score less than half that of Denmark.

Between 2010 and 2021, 13 Member States showed increases in their consumption footprints, while 14 showed decreases. These changes were relatively small in most countries, however. The largest increases, of more than 15%, were registered for Croatia, Bulgaria, Poland, Lithuania and Romania. On the other hand, significant decreases, of more than 10%, were registered for Ireland, Slovenia and Luxembourg, indicating that reducing a national consumption footprint in a growing economy is possible.

Supporting information

Definition

The EU consumption footprint indicator represents a summary of the environmental and climate impacts associated with the EU's consumption of goods and services, regardless of where in the world these goods and services are produced. The indicator is based on consumption statistics and process-based life cycle assessment (LCA) structured in a basket of representative product of main areas of consumption. The assessment includes the 16 impact categories of the European Commission's environmental footprint method [7], which are aggregated into a single weighted score.

Methodology

Different methodological approaches can be taken to calculating consumption footprints. The two most widely used are the 'top-down' and the 'bottom-up' approaches. The former derives environmental impacts of EU consumption from the observed environmental impacts of economic production, using macro-economic (input-

output) modelling. The latter is based on combining macro-scale consumption statistics and LCA data to construct the consumption footprint by focusing on a basket of representative products for a number of consumption areas.

The footprint presented in this indicator is based on the latter methodological approach, as this has been developed by the European Commission's Joint Research Centre. The methodology documents available through the Consumption Footprint Platform explain the precise method and calculations used to derive this consumption footprint [4].

Policy/environmental relevance

This indicator is a headline indicator for monitoring progress towards meeting targets of the 8th EAP. It contributes mainly to monitoring progress in relation to aspects of 8th EAP Article 3(s), which requires the following: 'significantly decreasing the Union's material and consumption footprints to bring them into planetary boundaries as soon as possible, including through the introduction of Union 2030 reduction targets, as appropriate' [8]. The European Commission Communication on the 8th EAP monitoring framework specifies that this indicator should be used to monitor the EU's progress towards achieving the target to 'significantly decrease the EU's consumption footprint, i.e. the environmental impact of consumption' [9].

Accuracy and uncertainties

Data sources and providers

- Consumption Footprint, Joint Research Centre (JRC)

Metadata

DPSIR

Impact

Topics

Sustainability solutions

Tags

WST010 # 8th EAP # service consumption # Sustainability # consumption footprint # EU consumtion

Temporal coverage

2010-2021

Geographic coverage

Austria
Belgium
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Latvia

Lithuania
Malta
Poland
Romania
Slovenia
Sweden
Luxembourg
Netherlands
Portugal
Slovakia
Spain

Typology

Performance indicator (Type B - Does it matter?)

UN SDGs

Responsible consumption and production

Unit of measure

Figure 1: The EU consumption footprint is shown as a single indexed score (2010=100) and is broken down according to the impact categories of the environmental footprint (EF) method that make the most significant contribution to the consumption footprint — 'climate change', 'resource use, fossil' and 'particulate matter' — and other EF impact categories

Figure 2: Points per capita

Extra figure: Number of times the planetary boundaries are transgressed

Frequency of dissemination

Once a year

Contact

info@eea.europa.eu

References and footnotes

1. A new Circular Economy Action Plan.pdf, (https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF) accessed July 10, 2023.
2. Sanye Mengual, E. and Sala, S., 2023, *Consumption footprint and domestic footprint: assessing the environmental impacts of EU consumption and production*, JRC Science for Policy Report, European Commission, Joint Research Centre, Publications Office of the European Union, Luxembourg.
3. Note that, when compared with other metrics such as human well-being (e.g. Human Development Index), the consumption footprint shows no decoupling with more intense growth (EC, 2023).
4. EC, 2023, 'Consumption Footprint Platform — EPLCA', *European Commission* (https://eplca.jrc.ec.europa.eu/ConsumptionFootprintPlatform.html) accessed February 1, 2023.

5. The EU's consumption footprint is transgressing the planetary boundaries for the environmental footprint categories of particulate matter, freshwater ecotoxicity, climate change and resource use (for both fossil and mineral and metal resources) (EC, 2023; Sanye Mengual and Sala, 2023).
↵

6. EC, 2022, 'Zero pollution outlook 2022', *EU Science Hub* (https://joint-research-centre.ec.europa.eu/scientific-activities-z/zero-pollution-outlook-2022_en) accessed July 5, 2023.
↵

7. EU, 2021, Commission Recommendation (EU) 2021/2279 of 15 December 2021 on the use of the environmental footprint methods to measure and communicate the life cycle environmental performance of products and organisations, OJ L 471, 30.12.2021, p. 1-396.
↵

8. EU, 2022, Decision (EU) 2022/591 of the European Parliament and of the Council of 6 April 2022 on a general Union environment action programme to 2030, OJ L 114, 12.4.2022, p. 22-36.
↵

9. EC, 2022, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the monitoring framework for the 8th Environment Action Programme: measuring progress towards the attainment of the programme's 2030 and 2050 priority objectives, COM (2022) 357 final of 26 July 2022.
↵