

Life cycle assessment-based consumption footprint indicators to address environmental and social Sustainable Development Goals and their interplay

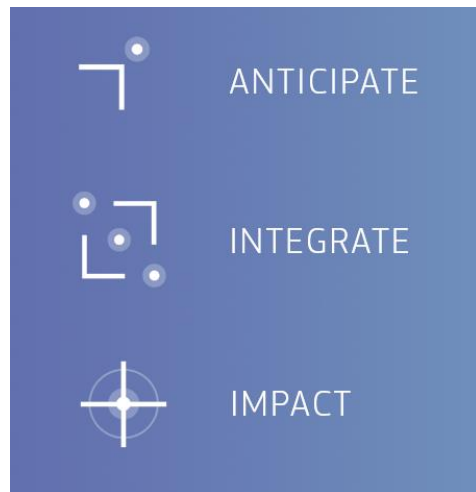
Esther Sanye Mengual, Serenella Sala

Land resources and supply chain assessments unit

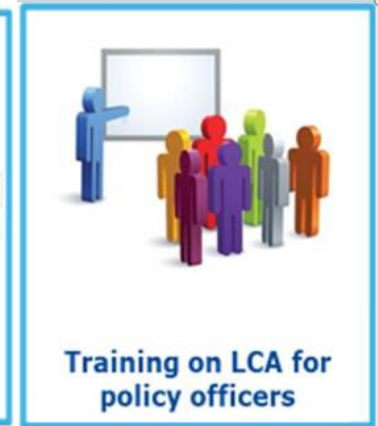
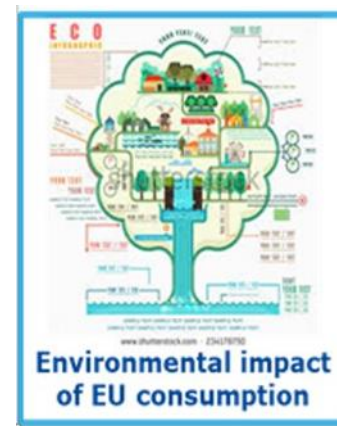
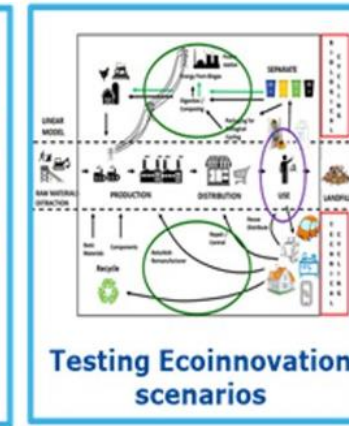
Joint Research Centre, European Commission

The Life Cycle Assessment (LCA) team at the European Commission Joint Research Centre (EC- JRC)

The **Joint Research Centre** provides independent, evidence-based knowledge and science, supporting EU policies to positively impact society.



<https://eplca.jrc.ec.europa.eu/>



Life Cycle Thinking: Core concept for sustainability assessment



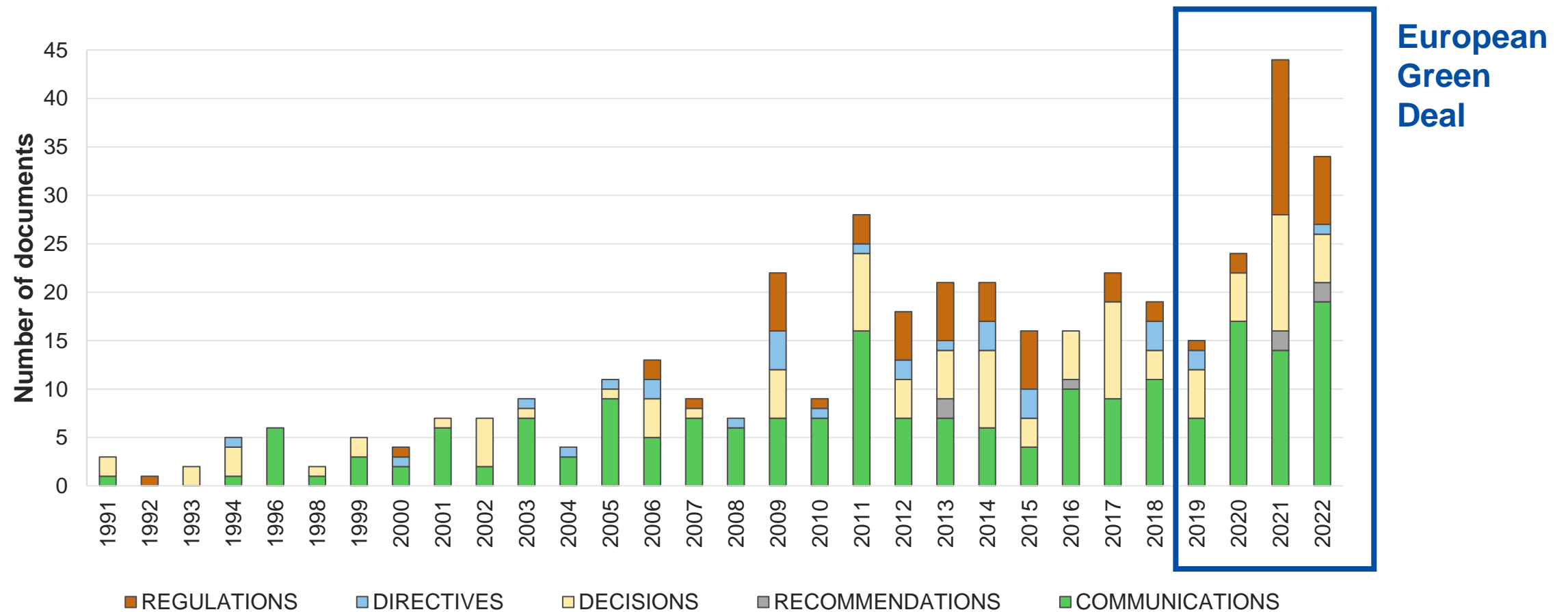
Integrated environmental assessment



Identification of trade-offs



Evolution of Life Cycle Assessment in EU policies



Adapted from Sala et al. (2021). The evolution of life cycle assessment in European policies over three decades. *The International Journal of Life Cycle Assessment*, 26, 2295-2314.

Life cycle assessment for new indicators

EU COUNCIL: (...) improve the proposed **indicators** or consider developing new ones in order to cover the **full life cycle of products and services** (...) (Environment Council conclusions of June 2018)

EUROPEAN PARLIAMENT: (...) Urges the Commission to introduce by 2021 **harmonised, comparable and uniform circularity indicators**, consisting of material footprint and **consumption footprint indicators**, as well as a number of sub-indicators on resource efficiency and ecosystem services (...) (Own Initiative Report of February 2020)

8th ENVIRONMENT ACTION PROGRAMME (2022): Article 3): **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.

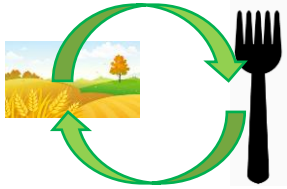


COMMITTEE OF THE REGIONS: (...) imperative to **decouple growth and resource use** (...), reduction of CO₂ **along product life cycles** (...) (Opinion of October 2020)

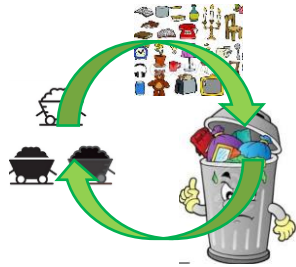
Life cycle thinking is central in the EUROPEAN GREEN DEAL and beyond

Key Policies

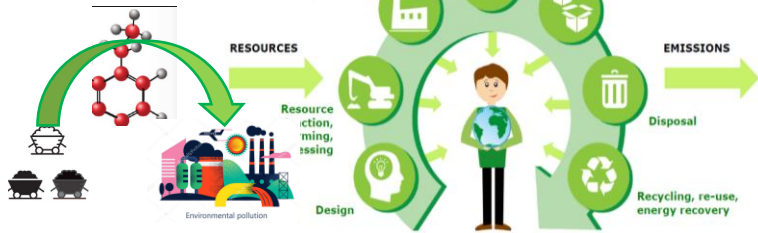
Farm to fork



Circular economy

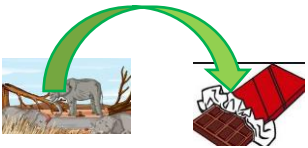


Zero pollution and chemical strategy



Life Cycle Assessment

Biodiversity strategy



Sustainable Development Goals



Bioeconomy strategy
Industrial strategy
Better regulation
New Consumer Agenda

and many others...

Implementing tools



Environmental footprint

Comparing product A and product B



Consumption Footprint

Domestic Footprint

Macro-scale assessment of EU consumption and production

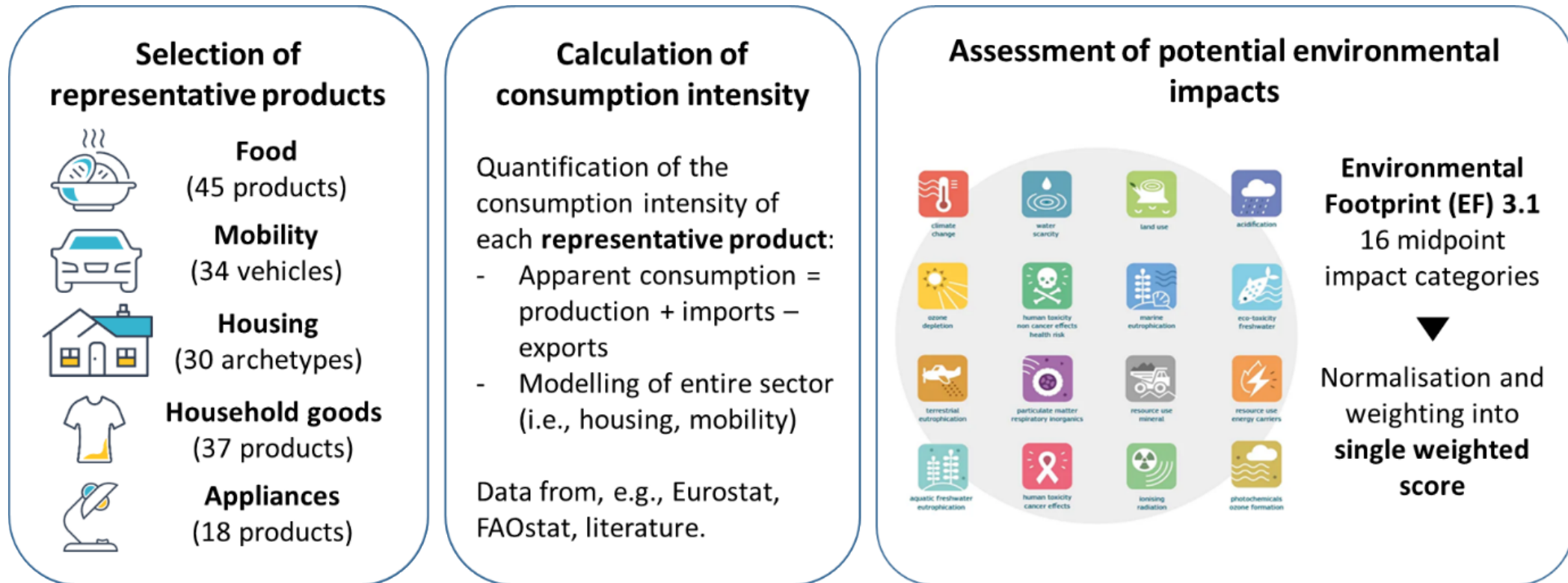


Consumer Footprint

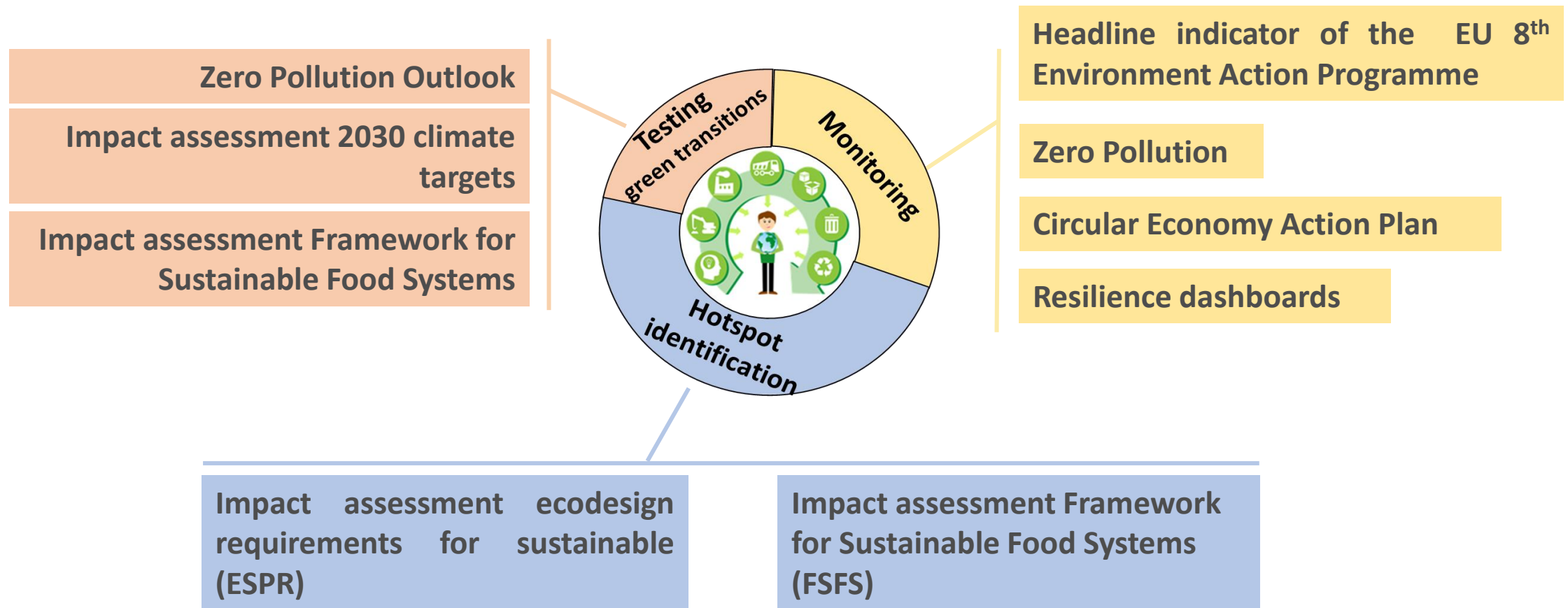
Assessing impacts of individual consumption

The Consumption Footprint

The **Consumption Footprint** is a set of 16 life cycle assessment-based indicators to assess the environmental impacts of EU production and consumption.



Examples of policy use of consumption footprint



Linking environmental impacts with the SDGs framework

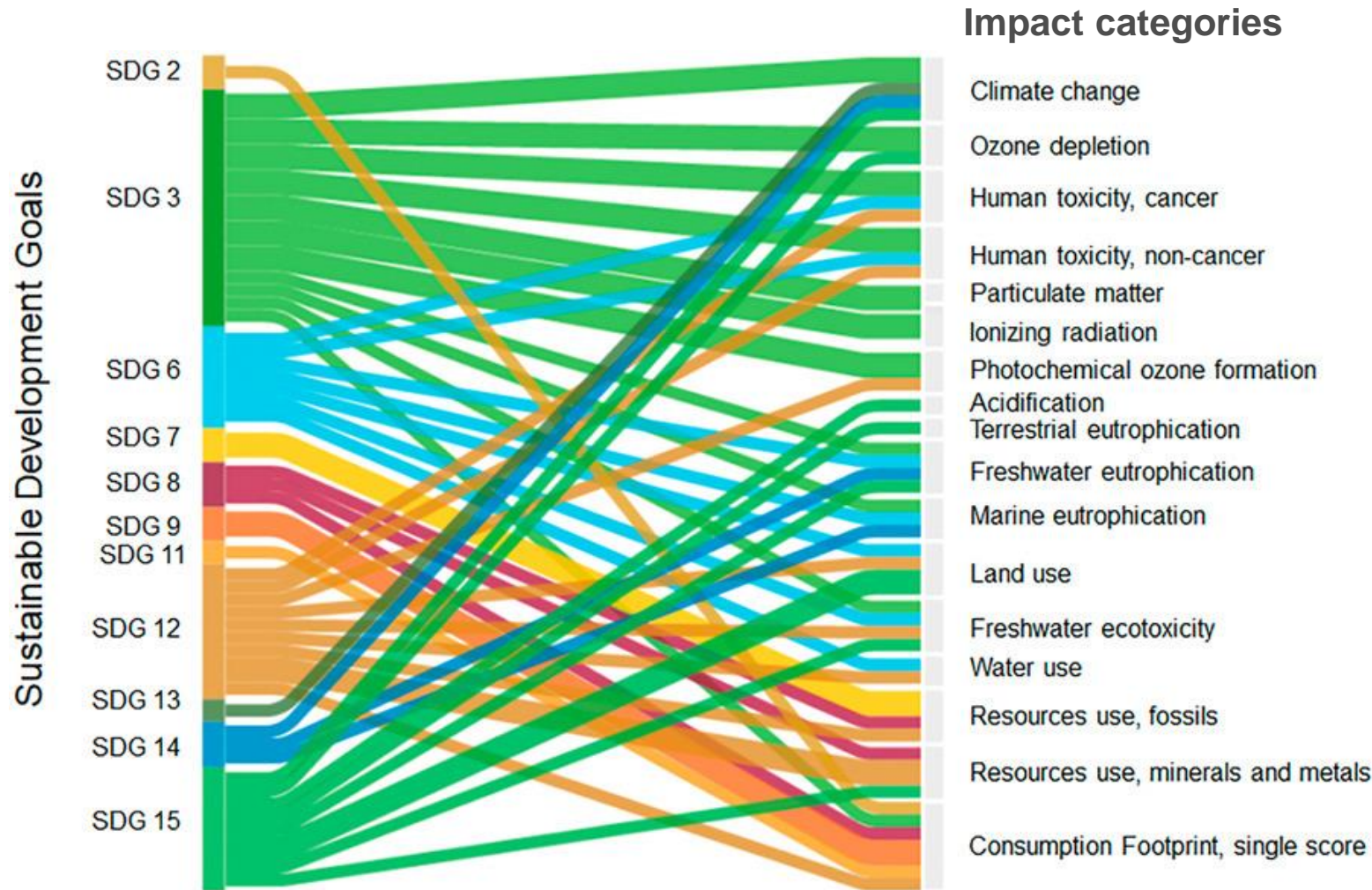
Integrated Environmental Assessment and Management

Special Series: Integrating Science in Environmental Management Practices
Inspired by UN SDGs

Life Cycle Assessment support to environmental ambitions of EU policies and the Sustainable Development Goals

Open Access

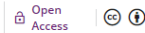
Link between the 16 Environmental Footprint impact categories with the SDGs framework (target level)



Linking environmental impacts with the SDGs framework

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Link of the environmental assessment with Consumption Footprint with SDGs framework (goal level)



Fully addressed: CF assess sustainable consumption and production

Partially addressed:
CF assesses aspects of the goal but not fully
Impact indicators of the EF related to aspects of the goal

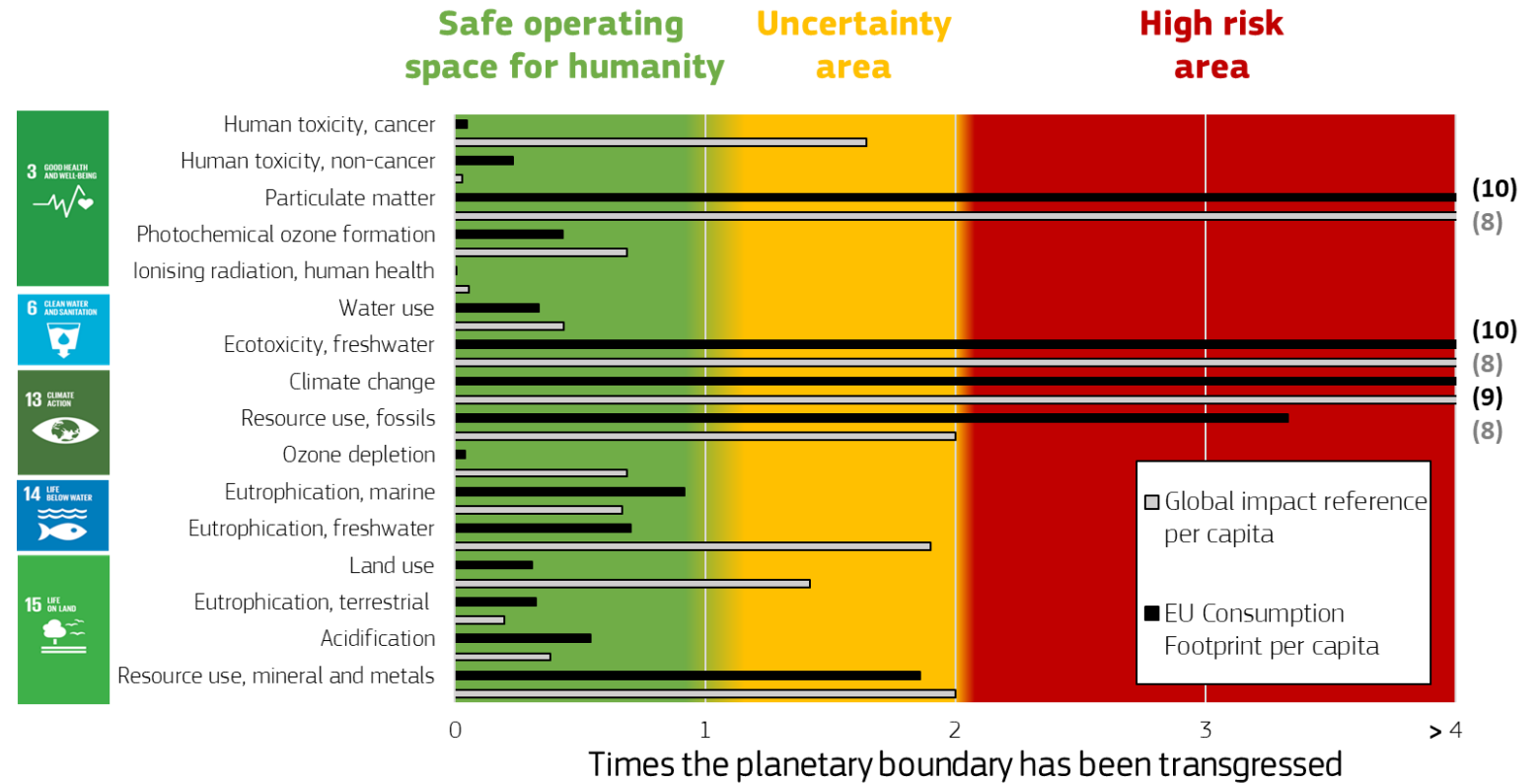
Not directly addressed:
SDG aspects determines consumption, but they are not addressed by specific indicators

Linking environmental impacts with the SDGs framework



Link with Planetary Boundaries through Consumption Footprint

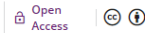
*Addition of 'resources use' boundary



Linking environmental impacts with the SDGs framework

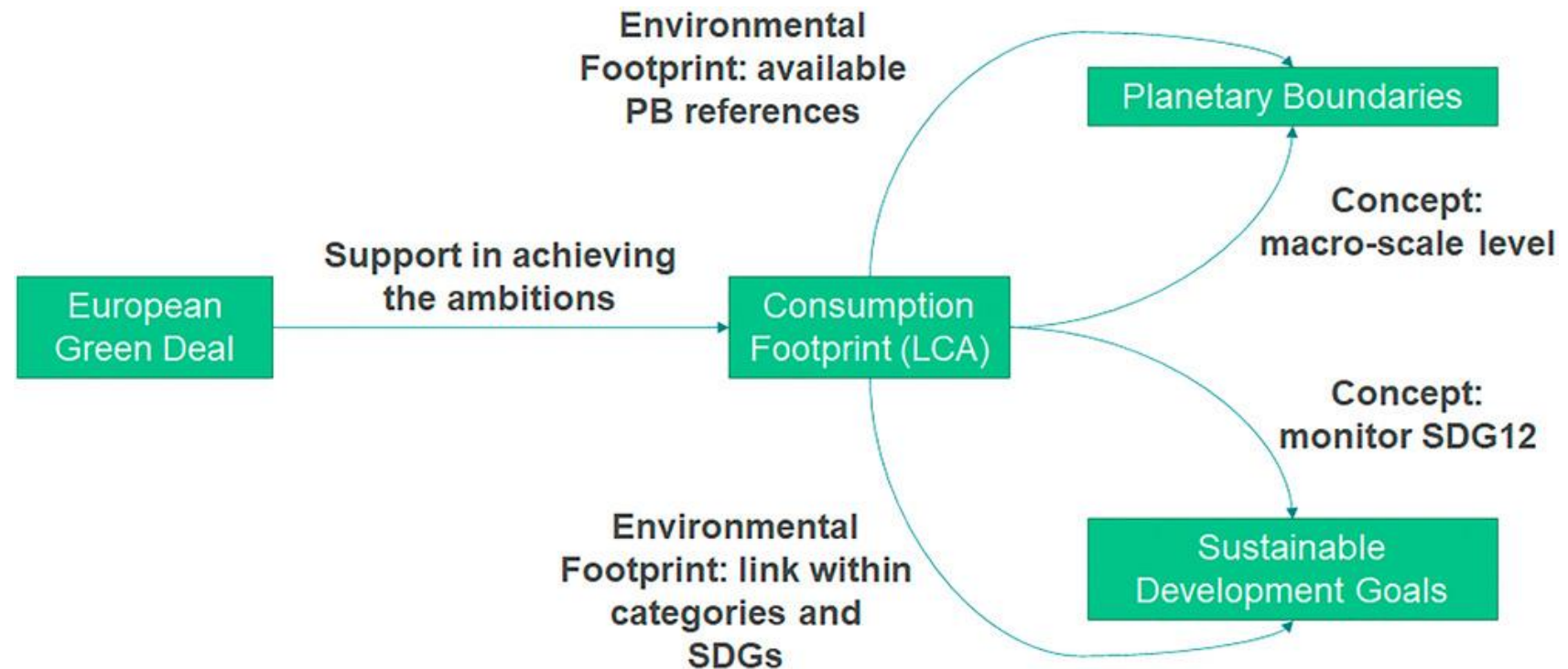
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Life Cycle Assessment support to environmental ambitions of EU policies and the Sustainable Development Goals

LCA-based indicators to enable the assessment of policy ambitions with link to SDGs and PBs

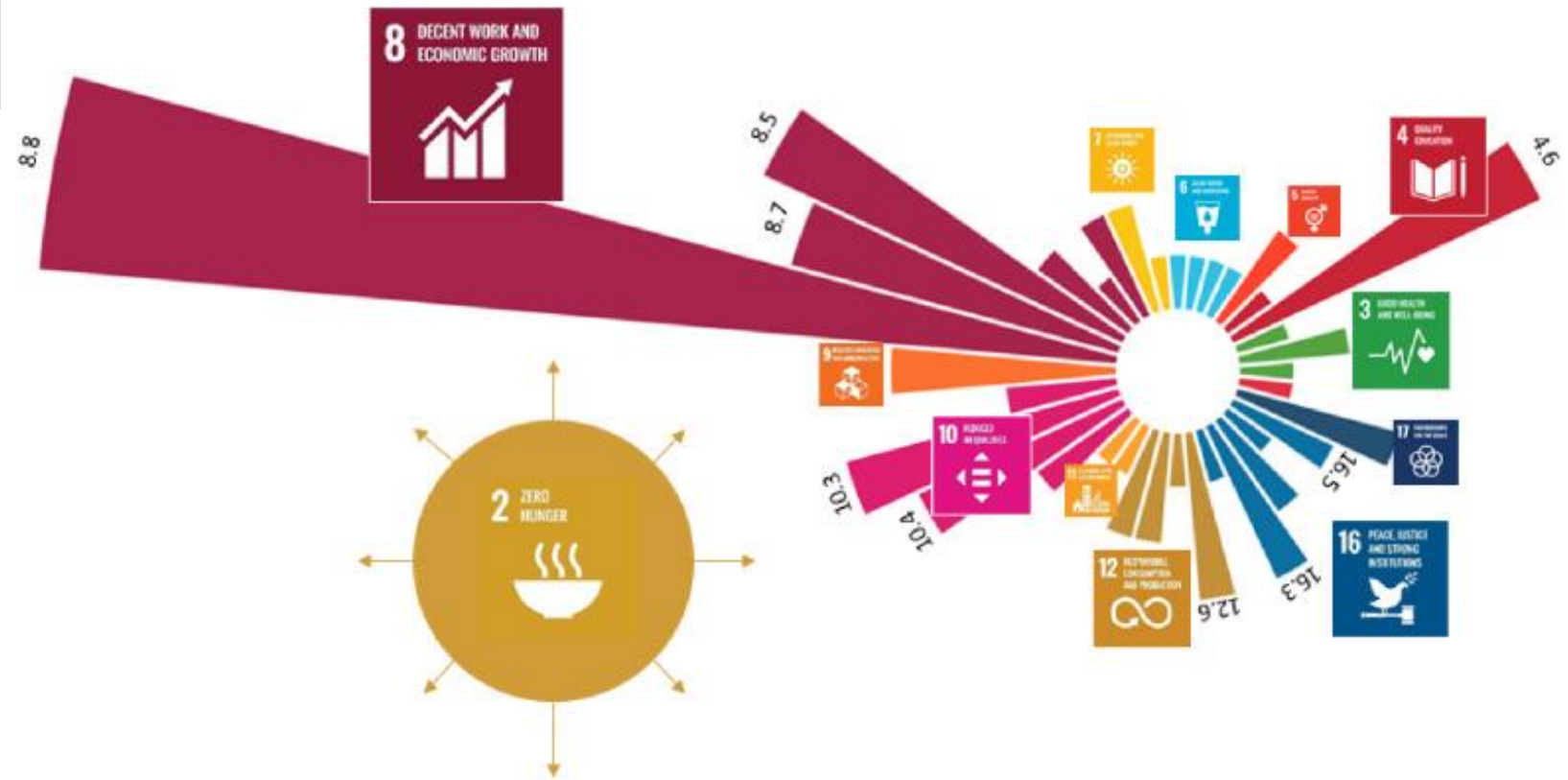


Linking social impacts with the SDGs framework

 Sustainable Production and Consumption
Volume 35, January 2023, Pages 287-299

Social footprint of European food production and consumption

Mapping SDGs framework (target level) with social LCA indicators (PSILCA database)

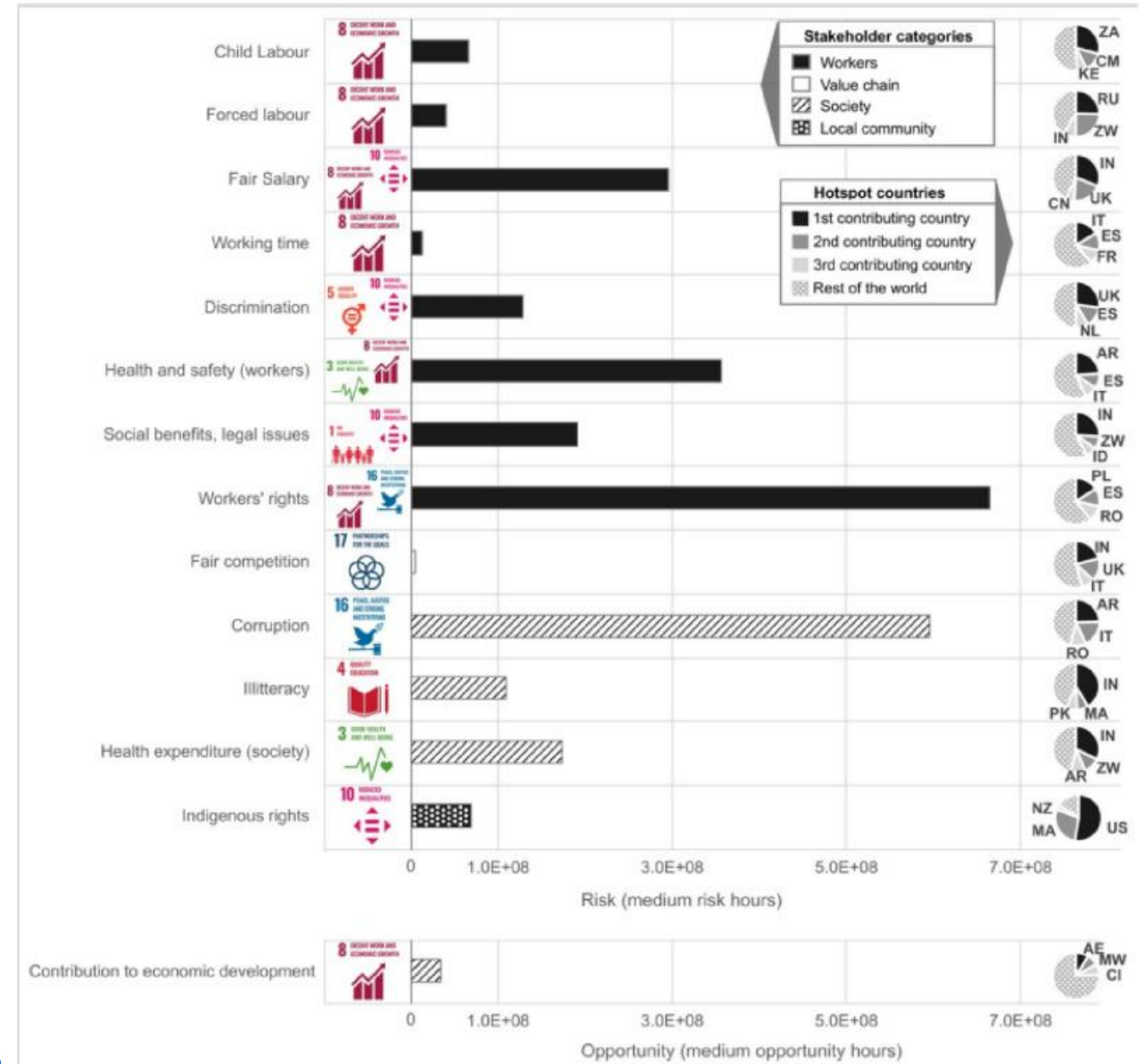


Linking social impacts with the SDGs framework



EU food consumption linked to high risk associated to workers rights and corruption

Production and trade patterns of food products as drivers of social footprint



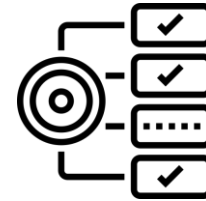
Consumption Footprint Tools



Online tool



Targeted stakeholders



Main goal

Consumption Footprint Platform

Policy-makers
 Researchers
 Stakeholders

Explore data
 Access and download data

Member States – Consumption Footprint Tool

Member States

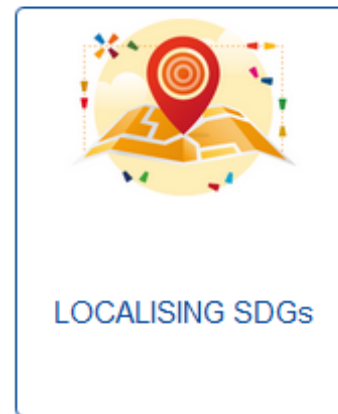
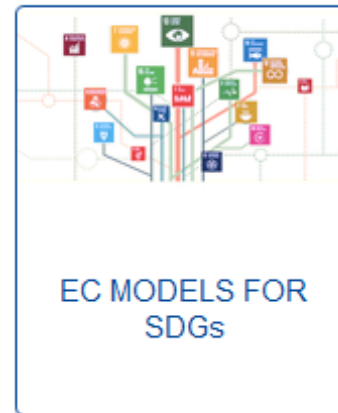
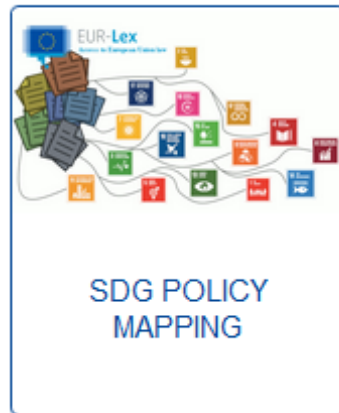
Explore data
 Test alternative data sources

Consumer Footprint Calculator

Citizens

Assess their own Consumer Footprint
 Increase awareness and promote sustainable lifestyles

KnowSDGs platform

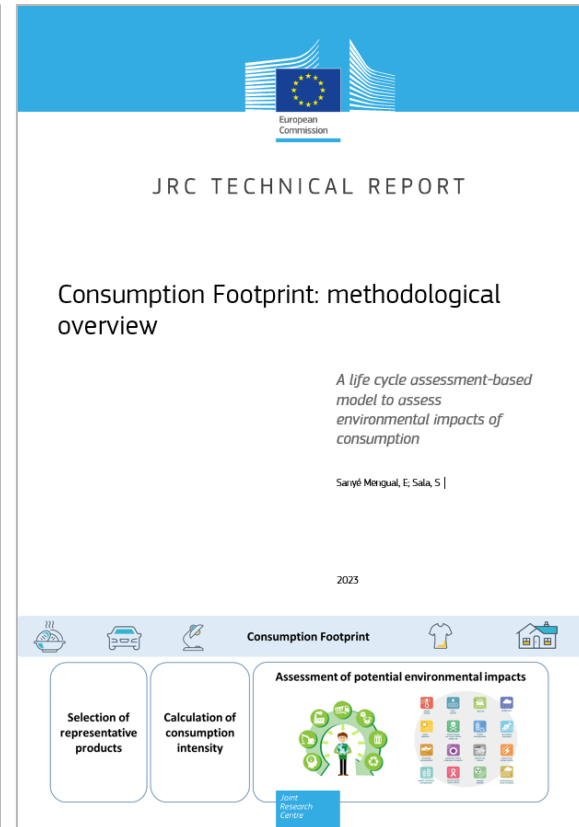
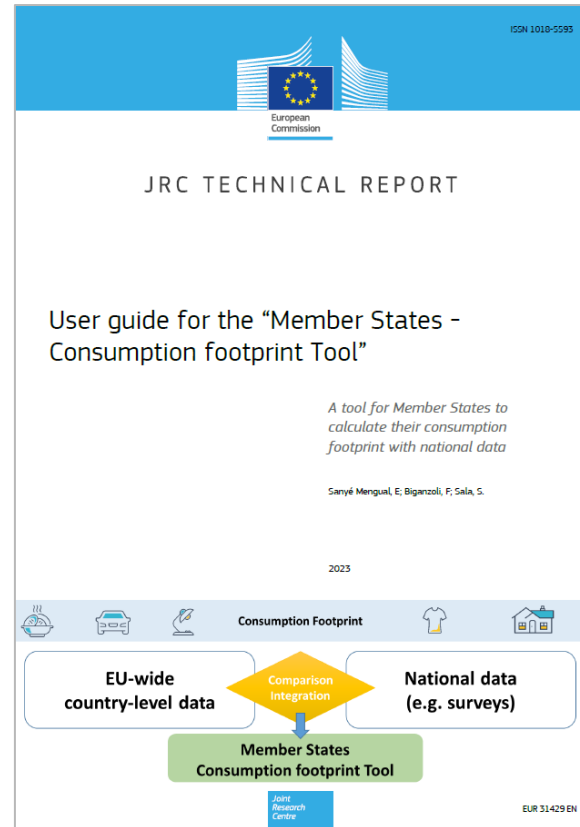
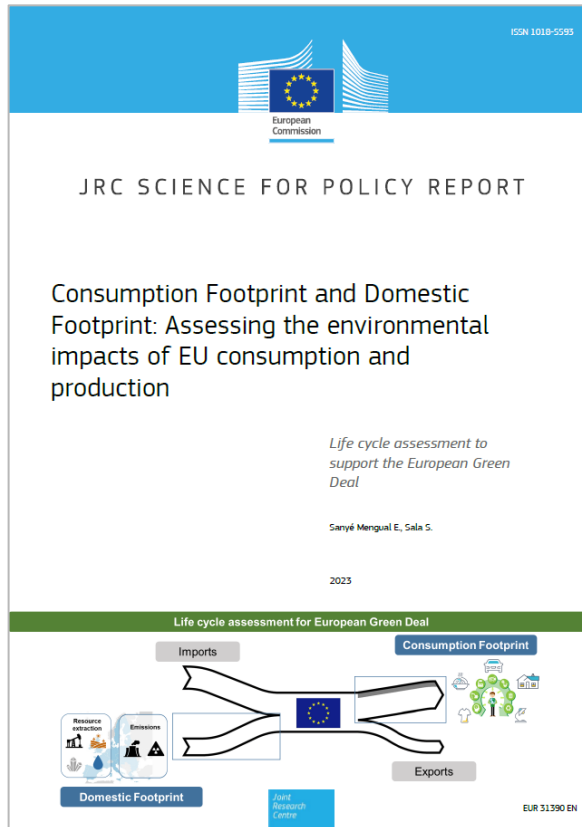


<https://knowsdgs.jrc.ec.europa.eu/>

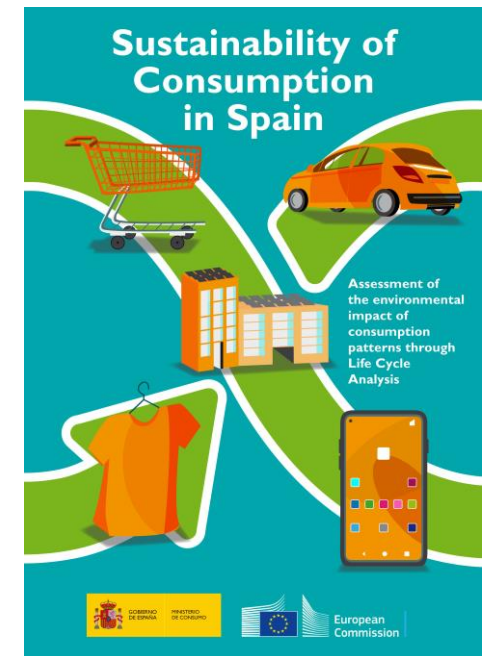
Conclusions

- Towards global sustainability, a footprint approach considering the **entire supply-chain** and a **consumption perspective** is key.
- Considering the impacts embedded in imported goods allows considering as scope the **overall ‘responsibility’ of consumption patterns** of countries.
- Consumption Footprint can provide information related to the **broad scope of the SDG framework** from an LCA perspective.
- Link with the PBs framework allows for an **absolute sustainability** approach to the assessment of macro-economic systems.
- Future developments might explore the potential **link with the social dimension of the Doughnuts Economics**, which defines minimum criteria for well-being.

Recent publications



Collaboration with Spanish Ministry of Consumer Affairs:



Reports available at:

<https://eplca.jrc.ec.europa.eu/sustainableconsumption.html>

Links and contact



<https://eplca.jrc.ec.europa.eu/sustainableConsumption.html>

Consumption Footprint Platform

<https://eplca.jrc.ec.europa.eu/ConsumptionFootprintPlatform.html>

Member States - Consumption Footprint Tool

<https://eplca.jrc.ec.europa.eu/MSConsumptionFootprint.html>

Consumer Footprint Calculator

<https://eplca.jrc.ec.europa.eu/ConsumerFootprint.html>



JRC-ConsumptionFootprint@ec.europa.eu

Thank you



<https://eplca.jrc.ec.europa.eu/sustainableConsumption.html>



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