

# How are the Consumer Footprint and the Consumption Footprint calculated?

## The standard LCA (Micro scale)

### Goal and scope

Product oriented



LCA of a product of typology X, assuming a use for Y years, produced in country Z, etc.

### Life Cycle Inventory

For each stage of the life cycle of a product (e.g. resource extraction, manufacturing, use, etc.) data on resources used (e.g. metals, crude oil) and emissions released into the environment (e.g. CO<sub>2</sub>, benzene, organic chemicals) are collected in an inventory



### Life Cycle Impact Assessment

Each emission to the environment and resource used is then characterized in terms of potential environmental impacts in the life cycle impact assessment phase, covering the 16 impact categories recommended in the European Environmental Footprint method, including:



### Results

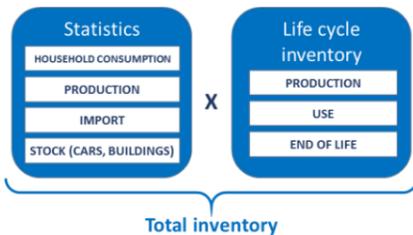
Environmental impacts of a product, e.g. following the Environmental Footprint methodology (Communication 2013/196) and the recommended impact assessment models (Recommendation 2013/179/EU).

## The Consumer Footprint (Micro scale, BOTTOM UP)

LCA of a selection of products representative of the consumption of an average EU citizen



- Focusing on resources used and emissions released during the production and consumption of a number of products belonging to **selected consumption areas** (food, mobility, housing, household goods and appliances)
- Combining **life cycle data** (environmental profiles of products) with **consumption statistics**

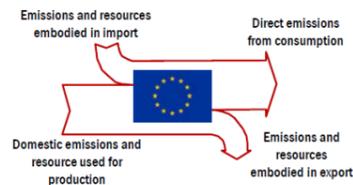


## The Consumption Footprint (Macro scale, TOP DOWN)

Economy wide assessment of apparent consumption in the EU



- Focusing on resources used and emissions due to production and consumption activities in **all sectors in one year**, considering:
  - EU domestic emissions, based on **environmental statistics**
  - Emissions embodied in trade**, based on life cycle inventories of representative imported/exported products (based on **trade statistics**) or, alternatively, obtained with an Environmentally Extended Input-Output Approach



# Environmental impacts of EU consumption

The Consumer Footprint and the Consumption Footprint indicators, developed by the European Commission, monitor EU progress towards decoupling economic growth from the use of resources and their environmental impacts, by assessing the environmental impacts of EU consumption. The 2 sets of indicators are essential to understand drivers and impacts in relation to the Sustainable Development Goal (SDG) 12 on responsible consumption and production and SDG 8 on sustainable economic growth.



### Key features of the indicators

#### Bottom-up and Top-down approaches

The Consumer Footprint refers to the impacts of goods purchased by citizens (micro scale), whereas the Consumption Footprint assesses the impacts of consumption at the macro-scale (overall impact across the EU) and at the meso-scale (impact associated with each country and sector)

#### Consumer Footprint

Assessment of **lifestyles** and **eco-innovations** in the most relevant areas of consumption (food, mobility, housing and household goods, including electronic appliances)

#### Consumption-oriented accounting

This approach goes beyond a production-oriented accounting and allocates environmental impacts to the final users of products and services

#### Beyond carbon footprint

The indicators are based on Life Cycle Assessment methodology and assess potential impacts considering **16 environmental impact categories**, linked to relevant SDGs

#### Link to the Planetary Boundaries (PBs)

The results can be compared with the PBs ("Living well, within the limits of our planet", 7th Environmental Action Programme).

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

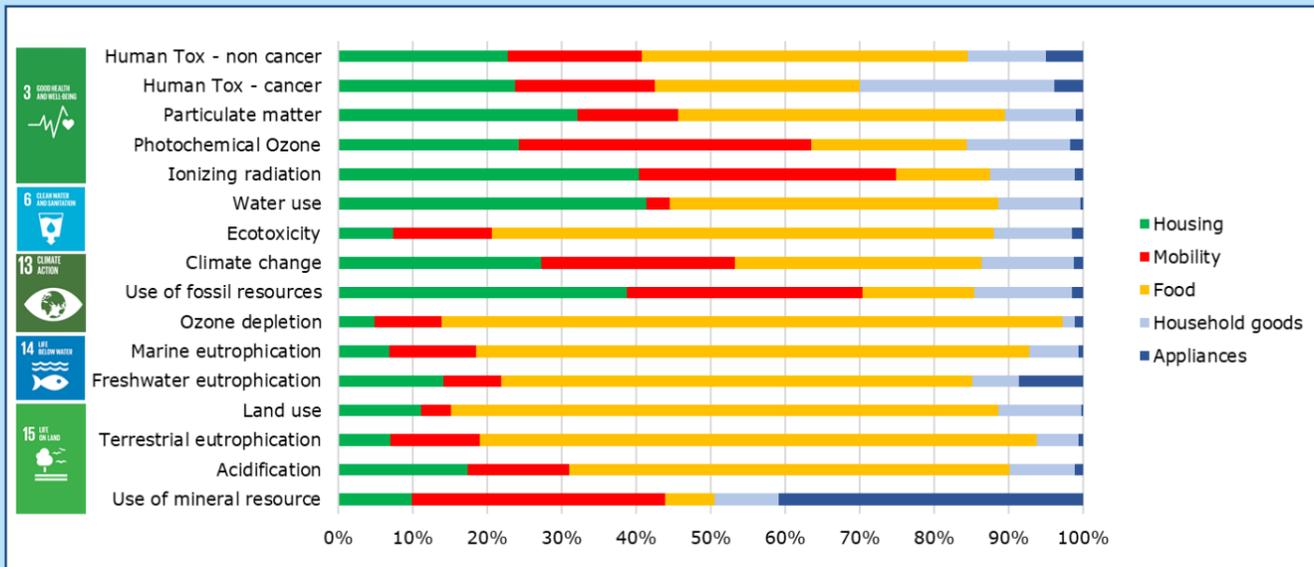
# The Consumer Footprint

The EU Consumer Footprint calculates the environmental impacts of an average EU consumer. It covers 5 key consumption areas: Food, Housing, Mobility, Household goods, and Appliances. Each area is modeled on a Basket of representative Products. The 5 baskets include more than 100 life cycle inventory models of products that are used and consumed by the European citizens.

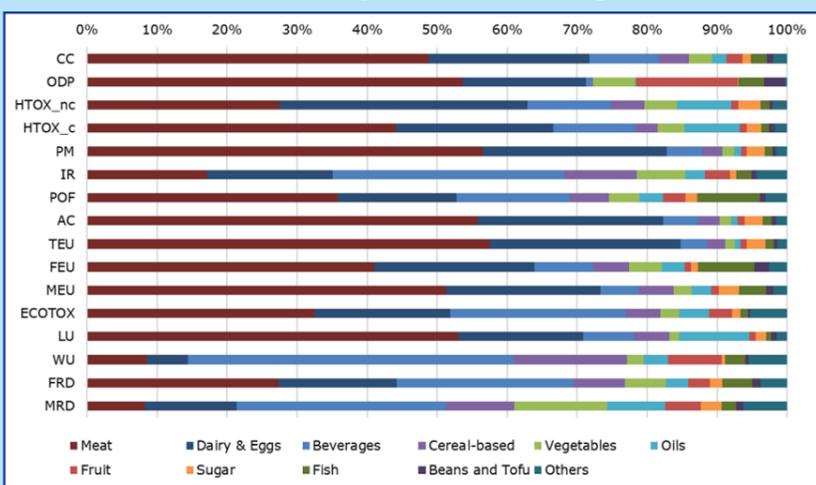


## What can the Consumer Footprint tell us?

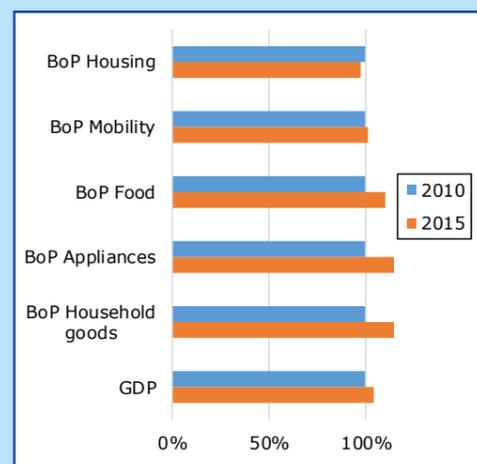
Which are the areas of consumption responsible for the highest environmental impacts? Which categories of impacts are affected? And which is their link with the Sustainable Development Goals?



Which are the main products driving the overall impact (e.g. for food)?



Has the Consumer Footprint evolved over time?



Evolution of the Consumer footprint (here presented as percentage variation of the single score) from 2010 to 2015.

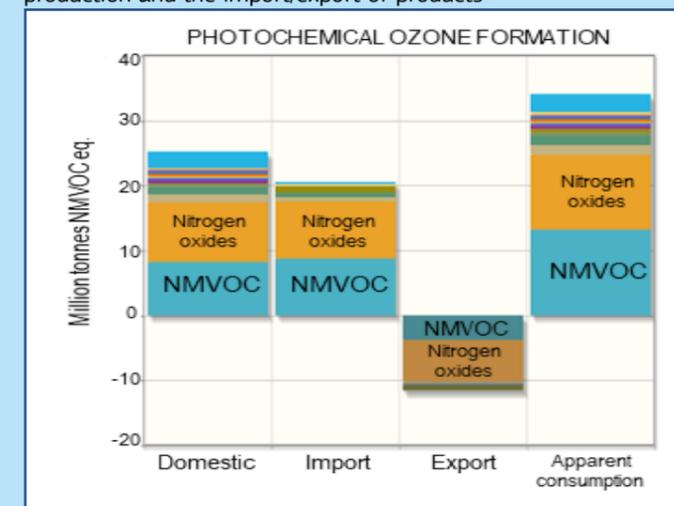
# The Consumption Footprint

The EU Consumption Footprint is an assessment of the environmental impacts of the EU apparent consumption, calculated as the environmental impacts of EU domestic production, plus impacts embodied in imported products minus impacts related to exported products. It combines national databases and trade statistics. With the consumption footprint it is possible to assess the progress in decoupling economic growth from environmental impacts (RP: resource productivity)

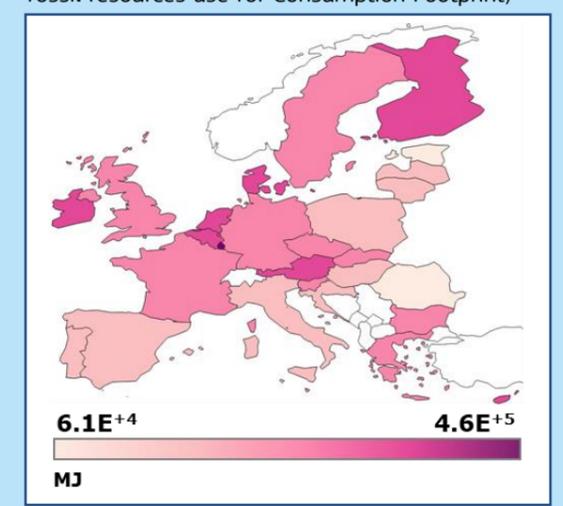


## What can the Consumption Footprint tell us?

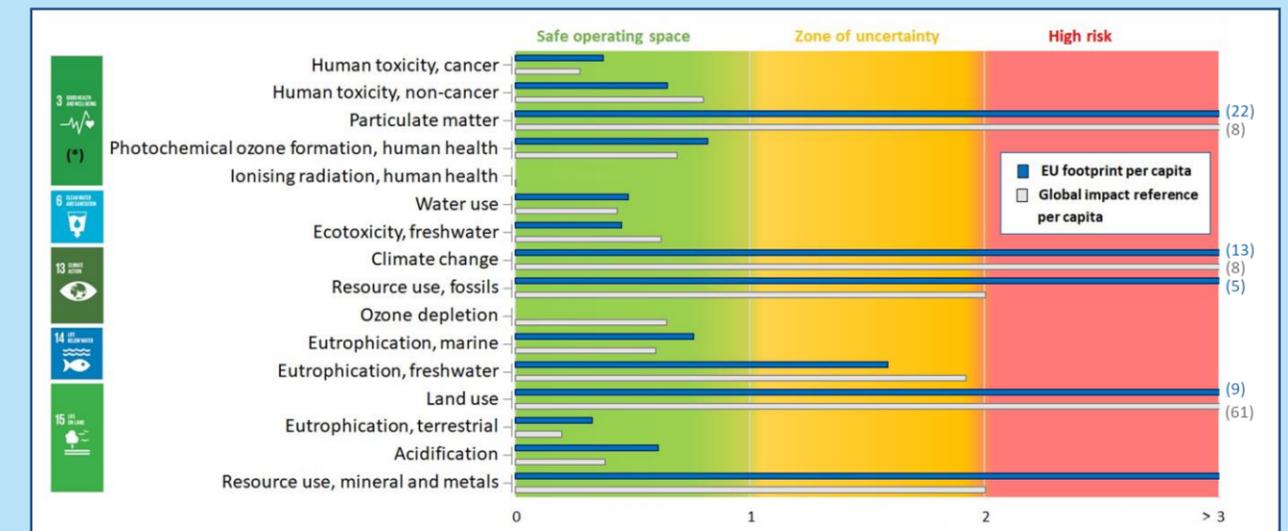
Key pollutants, for each impact category, caused by the domestic production and the import/export of products



Geographical distribution of impacts per person (e.g. fossil resources use for Consumption Footprint)



Environmental impacts due to the consumption of an average EU citizen compared to the Planetary boundaries



\*Boundaries for human health-related impact categories are a preliminary proposal.

## Why Life Cycle Assessment (LCA)?

The environmental impacts of consumption are assessed by means of modelling production and consumption in the EU, through the application of Life Cycle Assessment.

**Production**  
Products' characteristics, production chains, structure of the economy

**Infrastructure**  
Presence and typology of infrastructures (including those for waste management and waste water management)

**Consumption**  
Product selection and use of the products by EU citizens

**Environmental impacts**  
Contribution of different areas of consumption to the overall EU impacts

Each task of the project was devoted to model these elements and to test different scenarios for environmental impact assessment reduction, at the level of products, production options, infrastructure, consumer choices and behaviors.

**Abbreviations for the environmental impact indicators:** CC = Climate change; ODP = Ozone depletion; HTOX\_nc = Human toxicity, non cancer; HTOX\_c = Human toxicity, cancer; PM = Particulate matter; IR = Ionising radiation; POF = Photochemical ozone formation; AC = Acidification, terrestrial; TEU = Eutrophication, terrestrial; FEU = Eutrophication, freshwater; MEU = Eutrophication, marine; ECOTOX = Freshwater ecotoxicity; LU = Land use; WU = Water use; FRD = Resource use, fossil; MRD = Resource use, mineral and metals.

Results are based on the technical report: Sala S., Benini L., Beylot A., Castellani V., Cerutti A., Corrado S., Crenna E., Diaconu E., Sanyé-Mengual E, Secchi M., Sinkko T., Pant R. (2019) *Consumption and Consumer Footprint: methodology and results. Indicators and Assessment of the environmental impact of EU consumption.* Luxembourg: Publications Office of the European Union, ISBN 978-92-79-97255-3, doi 10.2760/15899, JRC 113607.