

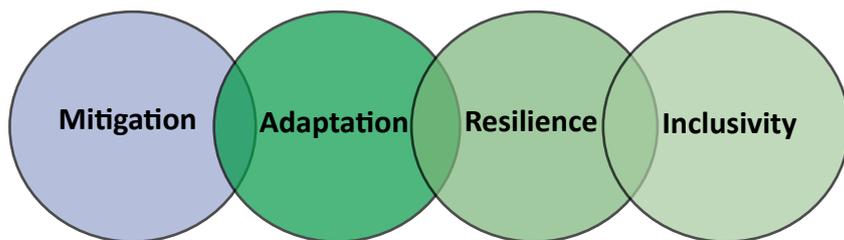


Towards the next generation of the European food supply chain: The ENOUGH Emissions Database

Part 1: Terminology

In Europe, 53% of the food system emissions are related to the supply chain. The ENOUGH project will establish an emissions database for 1990 and 2019 baselines and predict future (2030 and 2050) emissions for the European food supply chain, for a number of representative European countries. This will help to provide the EU Farm to Fork strategy with scenarios aligned with the future needs to achieve Mitigation, Adaptation, Resilience and Inclusivity of the European food sector.

ENOUGH will help to transition the EU food chain to become more sustainable, energy efficient and climate friendly.



The project considers:

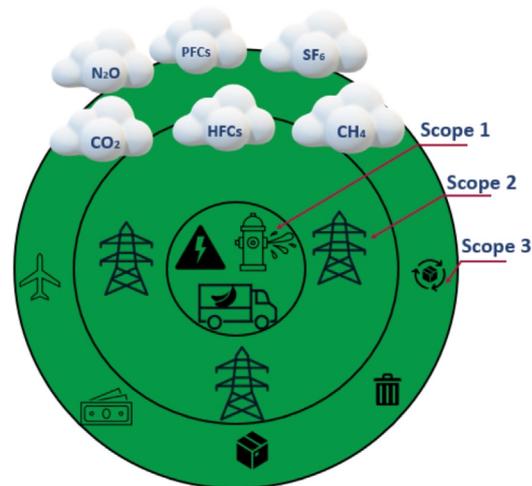
Scope 1 Emissions from on-site fuel combustion for heat and electricity generation, fuels used for food transport and refrigerant (f-gas) leakage from the refrigeration equipment.

Scope 2 Emissions from the energy generation (thermal or electrical) from the grid.

Scope 3 Emissions as a consequence of the activity of the sectors, in ENOUGH, only packaging and waste are included.

Horizon scanning is one of the main novelties being developed in the ENOUGH project. To establish a robust emissions database and predict accurate emissions figures for 2030 and 2050, the project has identified the potential main drivers of change that would positively or negatively impact carbon emissions from the food sector in the future.

The identified key drivers are: **climate change**, **changes in demographics**, **business and economics**, **social and behavioral change**, **policy and technology** and **infrastructure**. The key drivers are further refined into sub-drivers, these are indexed and scored for each representative country to identify the most impactful wins and risks subdrivers. At a later stage, the sub-drivers are implemented into emissions calculation models for an accurate and a country specific prediction of the future emissions.



Adopted terminology for the emissions

Three models with different levels of complexities are being developed within the project to establish the baseline emissions and predict future emissions: These consist of a **top-down**, **bottom-up** and a **hybrid model**. The three model approaches will be compared to verify the consistency of results.

The **top-down model** uses national data on scope 1 and 2 emissions of each food chain sector together with scope 3 emissions from waste and packaging to calculate emissions.

The **bottom-up model** is based on mass of food passing through the food chain in a country and the associated emissions. To calculate the emissions from each sector and each food type, the model applies CO₂eq/kg figures from published data.

The **hybrid model** combined elements of both the top-down and bottom-up models. The model uses data from government statistics, literature, trusted bodies e.g. Eurostat, UN, IEA etc.

Find more about this study from the original publication: [10.18462/ijr.nh3-co2.2023.0033](https://doi.org/10.18462/ijr.nh3-co2.2023.0033)



ENOUGH webpage: <https://enough-emissions.eu/>
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