Climate Action Accelerator

TOOLKIT

CARBON FOOTPRINTING

May 2025

About the Climate Action Accelerator

The Climate Action Accelerator is a Geneva-based not-for-profit initiative created in 2020 with the aim of leveraging a critical mass of high human impact organisations in order to scale up climate solutions, contribute to greater resilience, and ultimately limit global warming to well below 2°C in order to avoid adverse impacts on communities around the world. Its overall goal is to help shift the aid, health and higher education sectors towards a radical transformation of their practices, halving greenhouse gas (GHG) emissions by 2030 on a 'net zero' trajectory in line with the Paris Agreement, and transitioning to low-carbon, resilient, sustainable models.

Acknowledgements

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The toolkit also builds on implementation projects from the climate and environmental roadmaps of Climate Action Accelerator partners. We are grateful for their commitment and for the wealth of knowledge and experience developed through their collaboration.

It was edited by Macarena Castro (Communications Officer).

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About

This toolkit is a living document that will be continuously updated and expanded as work progresses, incorporating user feedback and good practices from various organisations.

If you have any feedback, please get in touch with us at: contact@climateactionaccelerator.org.

License

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INTRODUCTION

Purpose of the toolkit

This document is designed as a practical toolkit to assist organisations in calculating their carbon footprint. It gathers the necessary tools and approaches, allowing users to follow a methodological framework **without being a comprehensive guide itself**. The aim is to provide users with the resources (gathered in the Knowledge base) and **step-by-step processes** to support them in defining the scope of what will be computed, collecting the necessary data, and finally producing a carbon footprint report. The approach is chronological, starting from determining the boundaries of the measurement and ending with the reporting phase, ensuring that users can easily navigate through the stages of carbon accounting.

What is a carbon footprint?

A carbon footprint quantifies the total greenhouse gas (GHG) emissions attributed to an organisation, event, or product, measured in equivalent carbon dioxide. It illustrates the climate impact and the participation of the calculated element to the global warming. The process is defined by standards, norms, and sometimes regulations.

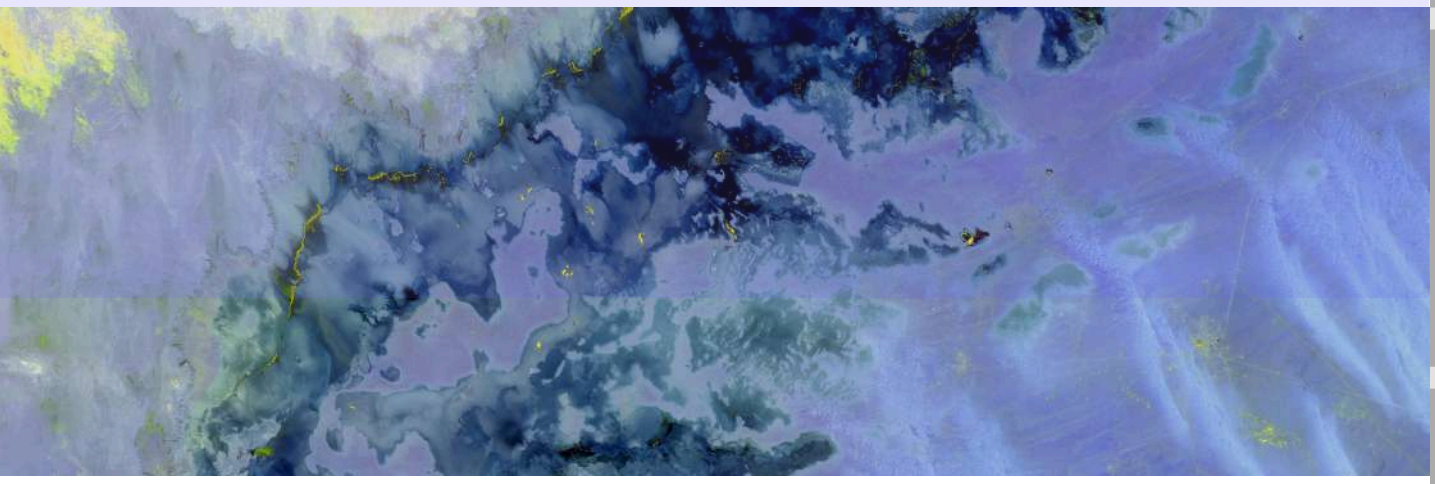
If you are not familiar with carbon footprints and would like to learn more about the general principle of a carbon footprint and the various stages of the process that we will detail in this document, here is a presentation for you: What is a carbon footprint methodology ? (CAA, 2024).

Why assessing a carbon footprint matters?

Measuring an organisation's carbon footprint is not an end in itself. It is a means to understand the climate impact of the organisation and to inform strategies for reducing emissions. Without a clear plan for reduction, carbon calculation loses its purpose. It is essential to recognise that the calculation process is an estimation based on available data and statistical averages (e.g. how much CO2 is produced on average per litre of fuel, average impact of a specific supply chains or product, ...). These estimations come with inherent uncertainties, and it is crucial to approach carbon accounting with this awareness, acknowledging the limits of precision.

Target audience

This toolkit is intended for non-specialists within organisations, particularly those without sustainability management or carbon engineering background, who are tasked with measuring their carbon footprint. However, it is recommended to have a minimum of technical experience (data processing, good knowledge of Excel, etc.) in order to use this toolkit. It provides practical, easy-to-follow steps to translate methodological guidelines into actionable processes. Whether they are undertaking a first carbon footprint assessment or renewing an existing one, this document will guide them through the essential steps with the tools and approaches necessary to succeed. Short training programmes are available to complement the use of the carbon measurement toolkit, and it is recommended to take one of these in order to get a thorough grounding in carbon measurement. The GHG Protocol offers an e-learning program that provides a solid foundation in carbon accounting principles. Similarly, the Institut de Formation Carbone (IFC) offers specialised training on the Bilan Carbone® tool, helping participants gain a strong understanding of carbon accounting. Additionally, Carbon Action provides a focused training program on carbon footprint calculation, with an emphasis on ISO standards, making it a valuable resource for those looking to gain more technical knowledge. These programs can help users build a stronger foundation in the field and enhance their ability to measure and manage carbon effectively.



OVERVIEW OF THE TOOLKIT COMPONENTS

A step-by-step process to calculate a carbon footprint for an organisation starting its climate journey. From defining what will be measured to creating valuable reports.

Step 1: Set boundaries

- Boundaries
- Mapping of operation

Step 2: Data collection

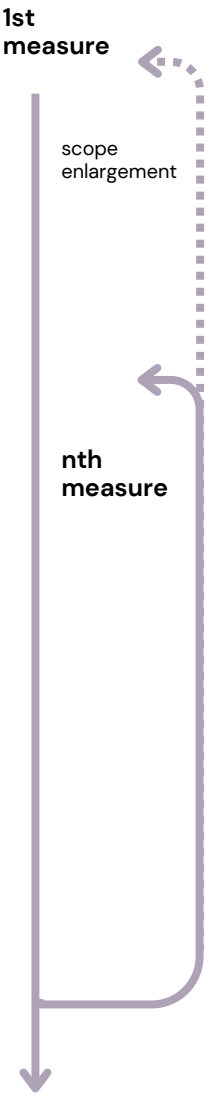
- List of main data to collect

Step 3: Footprint calculation

- Data treatment
- EF selection
- Step-by-step calculation sheets

Step 4: Reporting

- Interpretating results
- Methodological documentation



OVERVIEW OF THE TOOLKIT COMPONENTS

In each step, the tasks marked as “Advanced” in **purple** are intended for users with advanced knowledge of the carbon footprinting methodology and can be skipped by more novice users who will be able to use them in future footprints.

Documents and tools referenced in **grey** are documents that have not yet been created but will be in the next version of the toolkit. If you know of any tools or have any specific requirements, please don't hesitate to contact us and let us know by email: contact@climateactionaccelerator.org.

STEP 1: SET BOUNDARIES

Aim: Outline the process of defining the carbon footprint (GHG) measurement scope to ensure clarity on what will be measured, identify key emission sources and boundaries.

Actions:

1. **Define organisational boundaries**
   a. Take a look at the carbon footprinting process timeline[ii] in order to forecast the time required for the process.
   b. Choose the control approach (operational or financial).
   c. Analyse the organisation's ownership and control structures to determine the most appropriate approach.
   d. Document the chosen method and the rationale for this choice.
2. **Define operational boundaries**
   a. Identify direct emission sources (Scope 1) owned or controlled by the organisation (e.g., on-site fuel combustion, fugitive emissions).
   b. Identify indirect energy emissions sources (Scope 2) from purchased electricity, steam, heating, and cooling.
   c. Identify other indirect emissions sources (Scope 3) in the organisation's value chain (e.g., purchased goods and services, business travel, use of sold products).
   d. Based on the time and resources available, define the operational boundaries[iv] of your organisation's carbon footprint. (Guide for the decision: Perimeter Decision Tree)[iii].
3. **Engage relevant internal departments**
   a. Collaborate with departments responsible to ensure all emission sources are correctly identified.
   b. Align with internal stakeholders (HR, procurement, operations, etc.) to ensure comprehensive and consistent data collection.

Outputs:

- A document outlining existing initiatives per solution area.
- A value chain map of activities, listing organisational and operational boundaries.
- A contact list with key people owning data

Resources:
i. GHG Protocol (Ch. 3 & 4)
ii. Carbon footprinting process timeline

Tools:
iii. Perimeter Decision Tree

Examples:
iv. Operational Perimeter

STEP 2: DATA COLLECTION

Aim: Ensure comprehensive and accurate data collection for GHG emissions measurement, covering all relevant sources within the defined boundaries defined at Step 1.

Actions:

1. **Identify data requirements**
   a. Determine specific data needed for Scope 1, Scope 2, and Scope 3 emissions.
   b. Review peers' footprint and methodology to ensure all necessary data points are included.
   c. Engage with departments to understand existing data sources and any potential data gaps.
2. **Develop data collection framework**
   a. Create templates and/or use tools for data collection, ensuring they are user-friendly and comprehensive. (Example: Data collection survey Template[ii], Employee Commuting Survey (p.23)[iv])
   b. Establish data collection procedures and timelines.
   c. Train relevant staff on data collection processes and the importance of accurate data recording. (**Advanced**)
3. **Collect data**
   a. Gather data from internal sources (e.g., energy bills, fuel usage records, procurement data) in a data management file. (Example: Data collection management Template[iii])
   b. Request data from external partners and suppliers as necessary, especially for Scope 3 emissions. (Advanced)
   c. Ensure data is collected regularly and consistently, adhering to established procedures.
4. **Validate and verify data (Advanced)**
   a. Implement quality control measures to check the accuracy and completeness of collected data.
   b. Conduct internal audits to verify data integrity.

Outputs:

- A comprehensive list of data requirements for GHG measurement.
- Templates and tools for efficient data collection.
- A centralized database with all relevant data. (Example: Data collection management Template[iii])
- Validated and verified data ready for analysis and reporting.

Resources:
i. GHG Protocol (Ch. 6)

Tools:
ii. Data collection survey Template
iii. Data collection management Template
iv. Employee Commuting Survey (p.23)

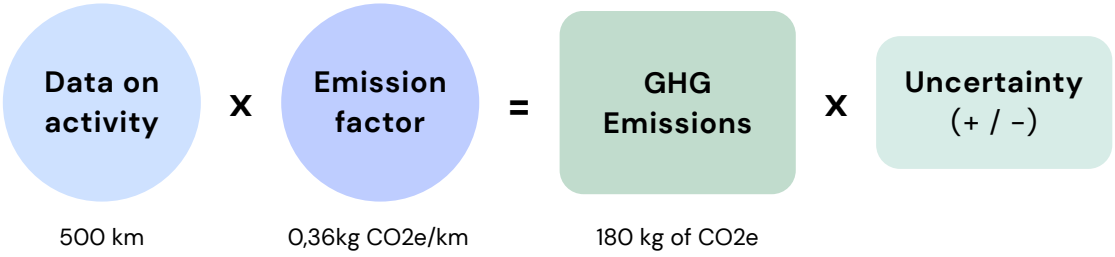
STEP 3: FOOTPRINT CALCULATION

Aim: Accurately calculate the organisation's GHG emissions footprint using collected data at Step 2 and standardised methodologies.

A standard tool can be used (HCC +[v] (humanitarian organisations), Bilan Carbone®[vi] (general), HealthCare Without Harm's Climate impact Checkup tool[vii] (Healthcare facilities),...) but it is not mandatory. This toolkit contains GHG Calculation Sheets[iv] to help calculate the carbon emissions for each category based on the data available. The sheets also include emission factors associated with the data.

Actions:

1. **Organise data processing**
   a. Clean and organise collected data to ensure it is ready for analysis (sort data, avoid double counting, format data (standardise accounting codes, office names, etc.)).
   b. Address any data gaps or inconsistencies identified during the collection phase.
   c. Convert all data into consistent units of measurement for uniformity (gallons to litters, m3 to kWh, ...)
2. **Emission factor (EF) selection**
   a. Identify needed emission factors for each type of emission source.
   b. Use reputable sources for emission factors, such as government databases, industry standards, or the GHG Protocol. (Example: Emission factors databases[iii]).
   c. Document the chosen emission factors, including their sources and any assumptions made (currency conversion, ...)
3. **Compute emissions**
   a. Match your data with the selected emission factors.
   b. Assess the uncertainty of the data and the emissions factors. (**Advanced**)



Outputs:

- Excel file with all values matched with emission factors and calculated CO_2 emissions.
- Documented list of selected emission factors with sources and assumptions. (Example to come in the next version)
- Detailed calculation sheets for emissions. (Example of a completed calculation tool[viii])

Resources:
i. Guideline to convert financial emission factors
ii. GHG Protocol methodology (Ch. 6)
iii. Emission factor databases

Tools:
iv. GHG Calculation Sheets
v. Humanitarian Carbon Calculator (HCC+)
vi. Bilan Carbone®
vii. HealthCare Without Harm's Climate impact Checkup tool

Examples:
viii. Example completed calculation tool

STEP 4: REPORTING

Aim: Effectively report the calculated GHG emissions footprint at Step 3, interpret the results, and document the methodologies used to ensure transparency and facilitate future assessments.

Actions:

1. **Methodological documentation**
   a. Create a detailed report documenting the methodologies used for data collection, emission factor selection, and emissions calculation. (Example to come in the next version)
   b. Include all assumptions, emissions factors, and data sources in the documentation.
   c. Ensure the documentation is clear, transparent, and follows standards (GHG Protocol, ISO 14064).
2. **Carbon footprint reporting**
   a. Prepare a comprehensive GHG emissions report that includes:
      i. Executive summary with key findings and recommendations.
      ii. Detailed breakdown of emissions.
      iii. Graphs and charts to visualise emissions data and trends.
   b. Provide actionable recommendations for reducing emissions and improving data accuracy.
   c. Highlight any significant changes, anomalies, or areas of concern in the emissions data.
3. **Define a review policy (Advanced)**
   a. Establish a policy for revising GHG measurements in the event of new data availability or errors.
   b. Outline procedures for data verification and correction to maintain accuracy and reliability.
   c. Ensure the policy includes regular review intervals and criteria for triggering a review.

Outputs:

- Comprehensive methodological documentation detailing data collection, EF selection, and calculation processes. (Example: NRC Carbon Report 2022 – See Annex A p. 16)[iv].
- A finalised GHG emissions report, including executive summary, detailed emissions data, visualisations, and recommendations.
- A documented review policy for revising GHG measurements based on new data or identified errors. (**Advanced**) (Example to come in the next version)

Resources:
i. GHG Protocol (Chapter 9)

Examples:
ii. Terre des Hommes' footprint report
iii. Médecins Sans Frontières OCG's footprint report
iv. NRC Carbon Report 2022 – See Annex A p. 16)
v. Other examples of footprint reports

ANNEXES

Annexes

ANNEX 1
KNOWLEDGE BASE

This knowledge base contains links to the documents and tools mentioned in the toolkit and any other resources that complement it. Some documents are produced by The Climate Action Accelerator (CAA) and some by other humanitarian or carbon actors, all are publicly available.

E-learning programmes

GHG Protocol e-learning program
- **What?** Online (recorded or live) training on the GHG Protocol standards. There are both free access recorded online training courses and paid live training courses.
- **For whom?** For beginners, to get a global GHG accounting principles and framework.

Institut de Formation Carbone (IFC)
- **What?** Online and in-person trainings by the French Carbon training Institute. The trainings are only in French and for a fee.
- **For whom?** For French speakers wishing to learn more about the Bilan Carbone® methodology.

Carbon Action
- **What?** Online and in-person trainings in London for a fee. A focused training program on carbon footprint calculation, with an emphasis on ISO standards.
- **For whom?** For those looking to gain more technical knowledge on carbon footprinting.

Standards and protocols

GHG Protocol
- **What?** The GHG protocol, which complies with international standard ISO 14064, provides a framework for measuring, accounting for and managing greenhouse gas emissions from an organisation's activities. It classifies an organisation's GHG emissions into different categories and sets out the methodology to be used to produce the footprint.
- **For whom?** For every international organisation.

[International standard ISO 14064]

- **What?** This document specifies principles and requirements at the organisation level for the quantification and reporting of greenhouse gas (GHG) emissions and removals. This standard helps organisations manage their carbon footprint and ensure transparency in emissions reporting.
- **Why?** Respecting ISO 14064 ensures credible and transparent greenhouse gas (GHG) reporting, enhancing an organisation's environmental responsibility and reputation. It helps comply with regulatory requirements, meet stakeholder expectations, and improve sustainability performance.

[BEGES Methodology (ADEME - France)]

- **What?** This method sets out the compulsory methodological principles for quantifying the GHG emissions of French organisations and companies, in accordance with a 2010 law of the French Environment Code.
- **For whom?** Can be used by French organisations.

[Bilan Carbone® Methodology (ABC - France)]

- **What?** The Bilan Carbone® method is a key pillar in the assessment and reduction of greenhouse gas (GHG) emissions in France. It encompasses not only the historical method, the reference standard, but also the tools distributed by the ABC or compliant with it, as well as the training provided by accredited training organisations, forming a complete package at the service of its community.
- **For whom?** Can be used by French organisations.

Emission factors (EF)

All emission factor databases referenced below are public and freely available. Some carbon calculator tools (e.g. HCC) include many emission factors from these databases. Note that there are other databases (not referenced here) that are available for a fee (e.g. EcoInvent). Please note that we are not aware of all existing open source emission factor databases; others may exist.

General EF databases

[Base Empreinte® - ADEME]

- **What?** The Base Empreinte® is ADEME's official public database of emission factors. It contains more than 10,000 generic emission factors for France and the rest of the world in all categories.
- **Why?** It contains a wide range of reliable and public emission factors on various sectors.

[DEFRA (UK, 2024)]

- **What?** The UK's government emission factors for GHG reporting. The emission factor spreadsheets provide the values to be used for such conversions, and step by step guidance on how to use them.
- **Why?** It contains specific and reliable emission factors.

EF databases for specific sectors

AGRIBALYSE® (Food and agriculture)

- **What?** AGRIBALYSE® provides emission factors for 2,500 food products and 200 raw agricultural products through a database built using Life Cycle Assessment (LCA) methodology. The database only exists in a French version but can be use with a translator.
- **Why?** These emission factors can be used to assess carbon emissions from food distribution.

Boavitza (IT equipment)

- **What?** This database provides an understanding of the environmental impacts of servers, cloud instances and user terminals.
- **Why?** These emission factors can be used to assess the carbon emissions of IT equipment in detail (depending on the model of laptop/monitor…).

EMBER (Energy)

- **What?** This tool provides the annual intensity of electricity per country.
- **Why?** These emission factors can be used to assess the Scope 2 emissions of the organisation (GHG emissions from the generation of purchased electricity consumed by the organisation).

Hotel footprints tool (Hotel and meeting)

- **What?** This tool provides the carbon footprint of a hotel stay or meeting anywhere in the world, using real data supplied by the industry's global benchmarking index Cornell Hotel Sustainability Benchmarking (CHSB) Index 2024
- **Why?** These emission factors can be used to assess the carbon emissions of the hotels stays (for business travels or participant travels).

INIES (Building and material)

- **What?** This (French) database provides the carbon footprint for building and material.
- **Why?** These emission factors can be used to assess the carbon emissions of the organisation's own office space and building materials (e.g. for shelter projects).

Carebone® EF (Drugs, medical devices)

- **What?** This (French) database from APHP provides the carbon footprint of various medicines and medical devices. It's only available in French.
- **Why?** These emission factors can be used to assess the carbon emissions of medical supplies.

Healthcare LCA (Drugs, medical devices)

- **What?** This database in the form of a repository lists the life cycle analysis of various medicines and medical devices.
- **Why?** These emission factors can be used to assess the carbon emissions of medical items.

Financial EF databases

[EXIOBASE (EU)]
- **What?** This database was created by a European consortium using commercial data from 44 regions (including the EU, China, the USA…). It is the reference for financial emission factors.
- **Why?** These emission factors can be used when only financial data is available.

[DEFRA Financial EF (in £, 2021)]
- **What?** The UK's government financial emission factors for GHG reporting.
- **Why?** These emission factors can be used whenever only financial data is available.
- **Be careful!** This database was built in 2021 and per £, if you want to use its emission factors, please be aware that you should integrate the inflation and convert it in your currency. See the Note on currencies and inflation (CAA).

Tools

[Humanitarian Carbon Calculator - HCC (ICRC - IFRC)]
- **What?** The HCC allows organisations to assess the direct and indirect GHG emissions associated with their activities. It is an Excel file that automatically calculates an organisation's carbon footprint from the data entered.
- **Why?** This tool was developed over a year by more than 100 humanitarian organisations, experts and the European Civil Protection and Humanitarian Aid Operations (ECHO[QR1]) specifically for the humanitarian sector.

[Climate impact Checkup tool (HealthCare Without Harm)]
- **What?** This tool helps the health care facilities do the carbon footprint of the whole infrastructure without going into procedures or drugs details.
- **Why?** This tool is easy to work with for beginners and gives a good overall impact of the health care facility.

[Carbone® tool (APHP, Paris Hospitals)]
- **What?** This tool can be used to carry out lifecycle analyses of the patient pathway in a hospital, of a procedure, a drug or a medical device. However, it does not provide a complete carbon footprint of a hospital. It also has a large database on medicines and medical devices. The tool is available in English and in French.
- **Why?** It can be used by people who want to carry out life cycle analyses on specific processes.

[Data collection survey Template (CAA)]
- **What?** This tool is a survey in the form of an Excel file that can be sent to different offices of the organisation to collect the data needed to compute its carbon footprint.
- **Why?** This tool can help you find out what type of data and in what form is needed for the carbon footprint. It can be easily modified and customized to fit perfectly with any organisation. The data collected through these surveys can be centralised and stored in the 'Data collection management Template (CAA)'.

[Data collection management Template (CAA)]

- **What?** This tool is a data management file in the form of an Excel file that can be used to centralise all the data needed for the carbon footprint.
- **Why?** This tool can be used in parallel with the '[Data collection survey Template (CAA)]' to centralise the data from all the offices and the different sources.

[Flight footprint calculator (CAA)]

- **What?** This tool computes the distance and carbon footprint of a flight based on the IATA codes of the departure and arrival airports.
- **Why?** This tool can be used to quickly compute the air travel footprint of an organisation.

[Carbon Travel App (Epicentre - MSF)]

- **What?** This is a multi-function app designed to raise awareness and help minimise the carbon emissions caused by travel in humanitarian organisations. It is organised in two parts:
  - The Meeting Place Planner helps decision makers identify suitable meeting/event locations to minimise the CO2 emissions.
  - The Single Travel Estimation allows users to estimate the distance and CO2 emissions of a specific travel route. This can be done for passenger or freight.
- **Why?** This app can be used by decision maker to find solutions to travel better.

Tool to compute air conditioning gas leaks (Available in the next version of the toolkit)

- **What?** This tool estimates gas leaks (and their carbon emissions) from cooling systems (fridges, freezers, air conditioning, etc.) based on the type of technology.
- **When?** It will be available in the next version of this toolkit.

Other resources

Carbon footprint computing tips

[Note on uncertainty management (CAA)]

- **What?** This is a popularisation of the [IPCC methodological framework for computing the uncertainty], for associating the data and emission factors uncertainty in a carbon footprint.
- **Why?** This method can be followed for any carbon footprint.

[Note on currencies and inflation (CAA)]

- **What?** This note explains the process to adapt or convert financial emission factors, enabling users to remove bias when estimating emissions associated with expenditures.
- **Why?** Given that emission factors are not published annually and do not encompass all markets, it can be challenging – or even nearly impossible – to locate a financial emission factor that aligns with the correct currency and year.

- **Be careful!** It is imperative to emphasize that financial emission factors should not be given preference. When accounting for carbon emissions, physical data – along with corresponding emission factors – such as tons of materials, total kilometres, etc., must be prioritized. Financial data – and their associated emission factors – should only be utilized as a last resort.

Methodological guide Humanitarian Carbon Calculator (ICRC & EcoAct)

- **What?** This practice oriented how-to guide walks through the key steps of how organisations can run an engaging and solid process for accounting for GHG emissions, setting targets and making a climate action plan. This guide is meant to be used with the Humanitarian Carbon Calculator, which will help you calculate your organisation's carbon footprint
- **Why?** This guide can be used as another reference for carbon accounting, and it contains more details on the use of the Humanitarian Carbon Calculator (HCC).

Reporting

What is a carbon footprint methodology? (CAA, 2024)

- **What?** This is a presentation of the key steps to elaborate a carbon footprint.
- **Why?** This is a good medium to present the methodology that led to the carbon footprint result to management, steering committee, or to decision makers.

What is a carbon baseline report? (CAA, 2024)

- **What?** This is a walkthrough example of a baseline carbon footprint report. It contains the methodology, the results by scopes, the results by activity, a summary and recommendations.
- **Why?** This is a general medium to present the methodology and the requirement of an organisation's the carbon footprint report to management, steering committee, or to decision makers.

Example of a Carbon Emissions Report (NRC, 2022)

- **What?** This is an example of a carbon emissions report for an organisation in the humanitarian sector. Appendix A on page 16 details the methodology used for data collection and processing (data available, assumptions made, recommendations for improving data collection), the use of emission factors and the method of computing emissions.
- **Why?** It is a very good example of the methodology to be followed for the drafting of a carbon emissions report and the methodology for computing it.

Solutions to reduce carbon emissions

Toolkits (Climate Action Accelerator)

- **What?** The Climate Action Accelerator toolkits are designed to provide environmental coordinators and decision-makers with hands-on advice, often in the form of a step-by-step process, along with a suite of practical tools.
- **Various subject covered:**
  - Travel
  - Procurement
  - Solarisation
  - Fleet
  - Good office practices

[Global solutions (Climate Action Accelerator)]

- **What?** This is a database of global solutions to reduce emissions from organisations in the humanitarian sector.
- Various subject covered:
  - Transport
  - Procurement
  - Energy and buildings
  - Digital
  - Waste
  - Water
  - Ecosystems
  - Transversal
  - Service delivery models
  - Strategy and implementation

ANNEX 2
GHG CALCULATION SHEETS

These sheets summarise, by GHG Protocol category, the data processing methods applied to the aid sector. These calculation assistance sheets include information, advice and reminders specific to each category. They are not intended to be exhaustive, but to provide quick and easy access to the most useful information. These sheets are sorted according to their GHG Protocol scope and category.

SCOPE 1 – Direct GHG emissions

1.1 Direct emissions from stationary combustion sources
1.2 Direct emissions from mobile combustion sources.
1.3 Direct fugitive emissions
1.4 Direct process emissions[1]

SCOPE 2 – Electricity indirect GHG emissions

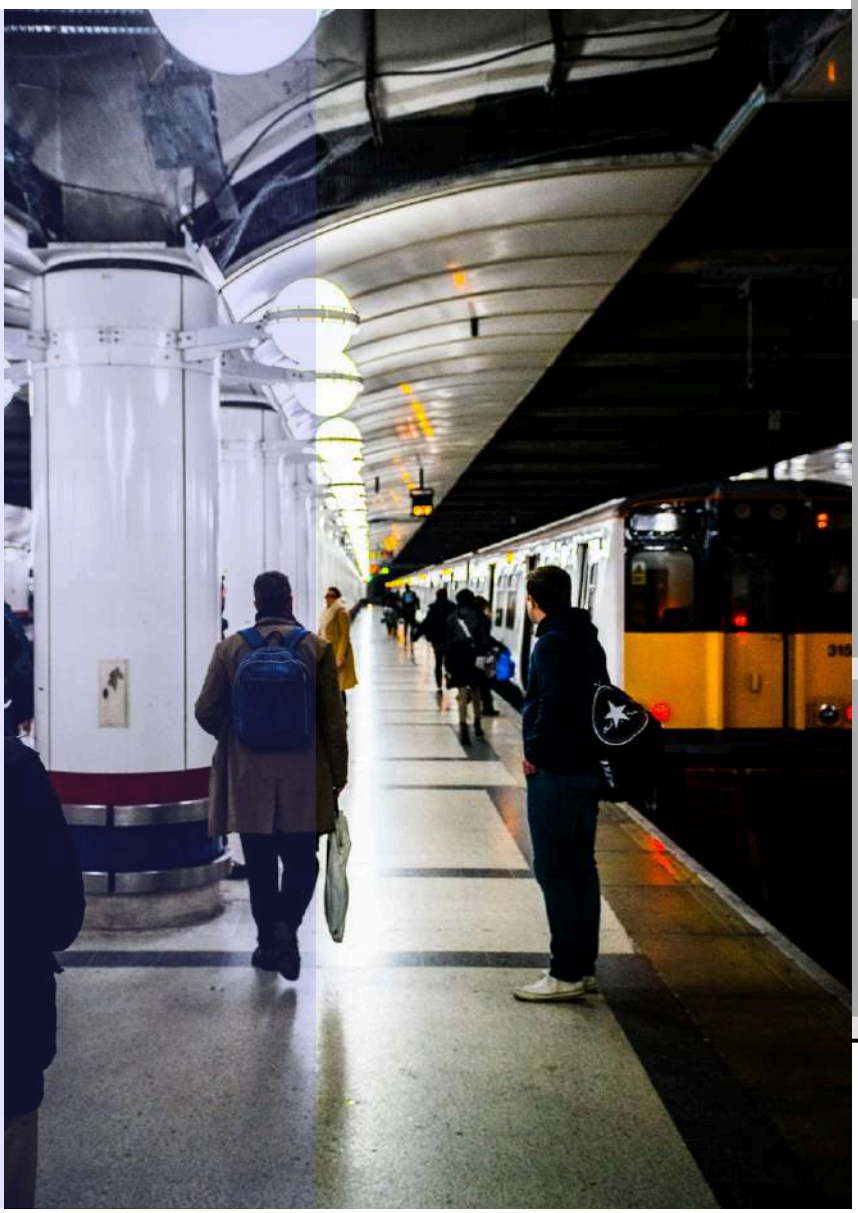
2. Indirect energy emissions

SCOPE 3 - Other indirect GHG emissions

3.1.1 Purchased goods
3.1.2 Purchased services
3.2 Capital goods
3.3 Fuel and energy related activities (not included in Scope 1 or 2)[2]
3.4/3.9 Upstream and downstream transportation and distribution (goods)
3.5. Waste
3.6.1. Business travel (transport)
3.6.2 Business travel (hotel stays and meals)
3.7 Employee/staff commuting.
3.8 Upstream leased assets[1]
3.9 Downstream transportation and distribution (participant travels)
3.10 Processing of distributed products[3]
3.11 Use of distributed products[3]
3.12 EoL treatment of distributed products[3]
3.13 Downstream leased assets[3]
3.14 Franchises[1]
3.15 Investment (funding)

ANNEX 2
GHG CALCULATION SHEETS

[1] Not relevant for the sector.
[2] The Scope 3 part of energy calculation approach is considered in Scope 1 and 2 sheets.
[3] These sheets are currently unavailable as they are still being drafted. They will be published in the next version of the toolkit.



SCOPE 1 – Direct GHG emissions

Direct GHG emissions occur from sources that are owned or controlled by the organisation, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment.

1.1 Direct emissions from stationary combustion sources

Definition: Scope 1 direct emissions from stationary combustion refer to emissions from fixed installations owned or operated by the organisation, which generate GHG emissions through the combustion of various fuels. They include boilers, generators, heaters and other combustion equipment used for energy or production purposes on a fixed site.

Data sources to be used

★★★★★ : Fuel consumption statement
★★★★☆ : Statement of generator operating hours or m² heated
★★☆☆☆ : Statement of fuel consumption in €/$
★☆☆☆☆ : Number of generators and number of buildings

Data processing

	Case n°1	Case n°2	Case n°3	Case n°4
Description	Consumption data are available	Operating hours are available	Fuel costs are available	No data available
Process	1. Separate consumption by fuel type 2. Use the emission factor associated with each fuel (kgCO2e/L, kgCO2e/kWh)	1. Identified the average consumption of each piece of equipment per hour or m². 2. Extrapolate hours into fuel consumption 3. See ***Case n°1***	1. Separate expenses by fuel type if possible. 2. Extrapolate expenditure in L of fuel or kWh of gas. 3. See ***Case n°1***	1. Establish an equipment usage scenario based on the tasks performed by the generators or on the size of the infrastructure. 2. Derive a consumption estimate for the period 3. See ***Case n°1***
Data and calculation uncertainty	★★★★★	★★★★☆	★★☆☆☆	★☆☆☆☆

Nota bene

1. Fuel emission factors include a Scope 3 component (extraction, refining, transport) which must be distinguished from Scope 1 emissions.
2. Scope 1 emissions explained here correspond to "Direct emissions from stationary sources", and Scope 3 emissions to "Energy-related emissions not included in the categories 'direct GHG emissions' and 'indirect energy GHG emissions' (Bilan Carbone® category).
3. Stationary sources include all equipment whose fuel combustion does not result in movement. For example, a lawnmower uses fuel to turn the blade, not the wheels, and is therefore a stationary source.
4. Most stationary sources run on diesel for movement, and kerosene, gasoline or natural gas to generate heat.

Annexes

Emission factors				**Useful data**	
Name	Source	Value	Unit	Name	Value
Gasoline	ADEME	2,2 + 0,494	kgCO2e/L	General consumption (L/h)	3,0 L/h
Diesel	ADEME	2,49 + 0,609	kgCO2e/L	General consumption (kWh/L)	10 kWh/L
Fuel oil	ADEME	2,66 + 0,519	kgCO2e/L	Heating consumption (Oil)	20 L/year/m^2
Kerosene	ADEME	2,54 + 0,479	kgCO2e/L	Heating consumption (Gas)	100 kWh/year/m^2
Natural gas	ADEME	0,202 + 0,0253	kgCO2e/kWh		

1.2 Direct emissions from mobile combustion sources

Definition: Scope 1 mobile direct emissions refer to emissions associated with vehicles, engines and equipment owned or operated by the organisation, which generate GHG emissions through the combustion of various fuels while moving from one place to another. They include vehicles used on the road for employee transport or distribution trucks, as well as off-road vehicles, engines and equipment used for other purposes.

Data sources to be used

★★★★★ : Statement of vehicle fuel consumption
★★★★☆ : Vehicle mileage log
★★☆☆☆ : Statement of vehicle consumption in €€€€
★☆☆☆☆ : Number of vehicles

Data processing

	Case n°1	Case n°2	Case n°3	Case n°4
Description	Consumption data are available	Kilometres are available	Fuel costs are available	No data available
Process	1. Separate volumes by fuel type 2. Use the emission factor associated with each fuel (kgCO2e/L)	1. Identified the average consumption of each vehicle per km 2. Extrapolate km into L of fuel 3. See ***Case n°1*** **OR** 1.Separate vehicle km by vehicle type 2. Use the emission factor associated with each vehicle type (kgCO2/km)	1. Separate expenses by fuel type if possible. 2. Extrapolate expenditure in L of fuel (Appendix). 3. If no separation possible, then consider the country's dieselization rate. 4. See ***Case n°1***	1. Establish a vehicle usage scenario based on the tasks performed by the vehicles or on the number of vehicle users. 2. Derive a mileage estimate for the period 3. See ***Case n°2***
Data and calculation uncertainty	★★★★★	★★★★☆	★★☆☆☆	★☆☆☆☆

Nota bene

1. Fuel emission factors include a Scope 3 component (extraction, refining, transport) which must be distinguished from Scope 1 emissions.
2. Scope 1 emissions explained here correspond to "Direct emissions from combustion engine-driven mobile sources" and Scope 3 emissions to "Energy-related emissions not included in the categories 'direct GHG emissions' and 'indirect energy GHG emissions'" (Bilan Carbone® category).

Annexes

Emission factors				Useful data	
Name	Source	Value	Unit	Name	Value
Gasoline	ADEME	2,2 + 0,494	kgCO2e/L	Consumption Sedan	5,2 L/100km
Diesel	ADEME	2,49 + 0,609	kgCO2e/L	Consumption 4x4	9,8 L/100km
Mid-size car	ADEME	0,16 + 0.03	kgCo2e/km	Consumption Utility	6,4 L/100km

1.4 Direct fugitive emissions

Definition: Scope 1 direct fugitive emissions refer to GHG emissions that escape **unintentionally or uncontrollably from containment systems owned or operated by the organisation**. They mainly include refrigerant leaks from **air conditioning and refrigeration systems**, emissions from the maintenance, repair or decommissioning of such equipment, and certain medical gases.

Data sources to be used

★★★★★ : Record of gas leaks by equipment (use and end-of-life)
★★★★☆ : Measurement of gas volumes in equipment
★★☆☆☆ : Equipment power readings
★☆☆☆☆ : Number of refrigeration units

Data processing

	Case n°1	Case n°2	Case n°3	Case n°4
Description	Leaks are available	The volumes contained are available	Devices electrical powers are available	Number of devices available
Process	1. Separate fugitive gases by type 2. Use the emission factor associated with each gas (kgCO2e/kg)	1. Separate fugitive gases by type 2. Establish average leakage scenarios during use and at end-of-life, depending on the volumes contained in the equipment. 3. See ***Case n°1***	1. Extrapolate electrical power into the volume of gas theoretically contained, depending on the type of equipment. 2. See ***Case n°2***	1. Extrapolate possible devices power ratings 2. See ***Case 3***
Data and calculation uncertainty	★★★★★	★★★★☆	★★☆☆☆	★☆☆☆☆

Nota bene

1. In some countries, if too much leakage is detected during maintenance, it must be reported. This can be a source of data. At the end-of-life of equipment that is not taken care of in a dedicated channel, all the gas present in the equipment must be included in the leaks.
2. Several notations exist for the power of refrigeration equipment: kW refrigeration, kW absorbed, BTUh, ... Care must be taken when handling data.
3. To convert absorbed power into cooling power, the absorbed power must be multiplied by the equipment's COP (Coefficient of Performance) or EER (Energy Efficiency Ratio).

Annexes

Emission factors				Useful data	
Name	Source	Value	Unit	Name	Value
R32	ADEME	677	kgCO2e/kg	Air/Air conditioning gas load	0,25 kg gaz/kWh fridge
R410A	ADEME	1929	kgCO2e/kg	Air/Water cooling gas load	0,3 kg gaz/kWh fridge
R600A	ADEME	3,3	kgCO2e/kg	COP Clim	3 (dimensionless)
R134A	ADEME	1300	kgCO2e/kg	Average office power	150 W/m^2
				Average annual air/air conditioning leakage	10%
				Average annual air/air conditioning leakage	15%

SCOPE 2 – Direct GHG emissions

Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the organisation. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

2. Indirect energy emissions

Definition: Scope 2 Indirect energy emissions refer to emissions linked to the production by the supplier of the energy purchased by the organisation. They include the purchase of electricity, steam and cooling. They correspond to continuous, non-storable network flows. The use of these energies does not require any chemical reaction.

Data sources to be used

★★★★★ : Invoice consumption statement (kWh)
★★★☆☆ : Statement of amount spent on invoice (€/$)
★★☆☆☆ : Building surface area by use
★☆☆☆☆ : No data available

Data processing

	Case n°1	Case n°2	Case n°3	Case n°4
Description	Consumption data are available	Expenses are available	Surfaces are available	No data available
Process	1. Separate volumes by energy type and country 2. Use the emission factor associated with each energy and country (kgCO2e/kWh)	1. Separate expenditure by energy type and country 2. Extrapolate €€ in kWh according to the average price of each energy in each country. 3. See ***Case n°1***	1. For electricity, extrapolate the surface area of each room according to its use to estimate electricity consumption. 2. See ***Case n°1***	1. For electricity, estimate building surface areas using satellite views or land registry tools, then see Case 3. For other quantities, define a consumption scenario based on the processes used by the organisation. 2. For other quantities, apply the emission factors associated with each energy source.
Data and calculation uncertainty	★★★★★	★★★★☆	★★☆☆☆	★☆☆☆☆

Nota bene

1. Energy emission factors include a Scope 3 component (extraction, network, transport) which must be distinguished from Scope 2 emissions.
2. Scope 2 emissions explained here correspond to "Indirect emissions from electricity consumption" or "Indirect emissions from steam, heat or cooling consumption", and Scope 3 emissions to "Energy-related emissions not included in the 'direct GHG emissions' and 'indirect energy GHG emissions' categories" (Bilan Carbone® category).

Annexes

Emission factors				Useful data	
Name	Source	Value	Unit	Name	Value
Electricity France	ADEME	0,038 + 0,0138	kgCO2e/kWh	Office consumption excluding heating	283 kWh/m² year
Electricity EU	ADEME	0,42 + ??	kgCO2e/kWh		
Heat Paris	ADEME	0,157 + 0,023	kgCO2e/kWh	Office consumption heating only	121 kWh/m² year
Cooling Paris	ADEME	0,007 + 0,009	kgCO2e/kWh		

Country specific emission factors can be found in the ADEME database, HCC EF set, or IEA.

SCOPE 3 - Other indirect GHG emissions

Scope 3 emissions are a consequence of the activities of the organisation but occur from sources not owned or controlled by the company. Some examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services.

3.1.1 Purchased goods

Definition: Scope 3 emissions linked to the purchase of a good correspond to the emissions emitted during the extraction of the raw materials needed to manufacture the good, during transport between the place of extraction and the place of processing, and during the processing stages necessary to produce the product purchased.

Data sources to be used

★★★★★ : Carbon footprint of purchased goods
★★★★☆ : Carbon footprint of goods supplier
★★★☆☆ : Weight of goods purchased
★★☆☆☆ : Money spent to buy the item
★☆☆☆☆ : Money spent by good category
☆☆☆☆☆ : Money spent on all goods purchased

Data processing

	Case n°1	Case n°2	Case n°3
Description	Property footprint available	Supplier footprint available	The weight of the good available
Process	1. Multiply the footprint of the good by the number of goods purchased.	1. Calculate the total amount paid to this supplier 2. Divide this amount by the supplier's total sales. 3. Multiply this result by the supplier's footprint.	1. Use the emission factor by weight for this item if possible, or for the nearest category if not. 2. Multiply the weight of a good by the number of goods purchased with this emission factor.
Data and calculation uncertainty	★★★★★	★★★★☆	★★★☆☆

	Case n°4	Case n°5	Case n°6
Description	Money spent per item is available	The money spent per category of goods is available	Money spent on all goods is available
Process	1. Find the emission factor at the price of this good if possible, or of the nearest category if not. 2. Multiply the total price spent on this good by this emission factor.	1. Find the emission factor at the category price. 2. Multiply the total price spent on this category by this emission factor.	1. Multiply this sum by a generic emission factor for the purchase of goods in your region.
Data and calculation uncertainty	★★☆☆☆	★☆☆☆☆	☆☆☆☆☆

Nota bene

1. The important thing is first to identify the goods that weigh most heavily in your footprint, and then to improve the calculation of their footprint by progressively improving the data source used for that good.
2. To improve the source of the data used, it is necessary to work directly with your suppliers, especially those of the goods that are most important in your footprint.
3. It's not possible to access five-star sources for all your purchases from the very first footprint, so it's important to make progress as you go along, especially on the most emissive goods.
4. It's important to consider both the manufacturing and distribution aspects of the goods you buy.

Annexes

Type of goods	Database
Computer hardware	Résilio
Generic goods	ADEME
Generic goods	DEFRA
Hardware	Boavizta

3.1.2 Purchased services

Definition: Scope 3 emissions linked to the purchase of a service correspond to emissions emitted by the service provider during all stages of service delivery. These emissions may, for example, include emissions linked to the service provider's office, commuting emissions from its employees, or emissions linked to the service itself in the case of digital services, notably emissions linked to the power consumption of servers and datacentres

Data sources to be used

★★★★★ : Carbon footprint of purchased service
★★★★☆ : Service provider's carbon footprint
★★☆☆☆ : Money spent on purchasing the service
★☆☆☆☆ : Money spent by service category
☆☆☆☆☆ : Money spent on all service purchases

Data processing

	Case n°1	Case n°2	Case n°3
Description	The service footprint is available	The supplier's footprint is available	Money spent per service is available.
Process	1. Multiply the footprint by the number of goods purchased.	1. Calculate the total amount paid to this supplier 2. Divide this amount by the supplier's total sales. 3. Multiply this result by the supplier's footprint.	1. Find the emission factor for the price of this service if possible, or for the nearest category if not. 2. Multiply the total price spent on this service by this emission factor.
Data and calculation uncertainty	★★★★★	★★★★☆	★★☆☆☆

	Case n°4	Case n°5
Description	Money spent by service category is available	Money spent on all services is available
Process	1. Find the emission factor at the category price. 2. Multiply the total price spent on this category by this emission factor.	1. Multiply this amount by a generic emission factor for the purchase of services in your region.
Data and calculation uncertainty	★☆☆☆☆	☆☆☆☆☆

Nota bene

1. Obtaining carbon footprint data from suppliers can be difficult, so initially, you may only have financial data.
2. Engage in discussions with suppliers to improve data quality over time. Suppliers may be surprised or resistant, but persistence is key. The more customers request similar data, the higher the chances of obtaining accurate information and influencing supplier practices.
3. Adjust financial emission factors for inflation to better reflect actual emissions and ensure consistent comparisons between different footprints.
4. Ensure that expenditures and emission factors are converted to the same currency for correct analysis.

Annexes

Type of service	Value	Source
Generic services	170 kgCo2e/k€	ADEME

Type of service	Value	Source
Professional services	163 kgCO2e/k£	DEFRA

3.2 Capital goods

Definition: Scope 3 emissions linked to capital goods correspond to the emissions released during the upstream phases of these goods, including the extraction and processing of raw materials needed to manufacture the capital goods, the emissions generated during the production processes required to create the capital goods, and the emissions from transporting raw materials to manufacturing sites.

Data processing

Emissions linked to the assets are the same as those linked to the '3.1.1 Purchased goods', the methodology (Data processing and appendices) to be followed and the different sources are the same.

The only difference is that these emissions are amortized over the useful life of the goods. However, you can't decide to amortize just any emissions, and this also depends on the methodology you decide to follow:

- The BEGES methodology (the French carbon footprint methodology) allows these emissions to be amortized. If you apply this methodology, you should amortize the emissions according to the accounting practices within the organisation. In this way, accounting practices for amortization extend to carbon amortization, which helps maintain internal consistency.
- The GHG Protocol methodology does not allow for any carbon amortization. If certain purchases of goods, which you will use for a long time and therefore not renew each year, represent too large a share of your carbon footprint and prevent you from comparing the emissions of this year with the emissions of a “classic” year, the Accelerator advises you to apply amortization to these emissions.

The specificity of this category is that it may not only contain emissions linked to the calculation year, but also some linked to previous years due to assets purchased before and still on use. To calculate the emissions of this item, you need to add up all the emissions of goods whose base year is one of the depreciation years if you have chosen the BEGES methodology.

Nota bene

- Certain services may also be included under this category, such as architectural studies for building construction and software development services. To calculate the footprint of these services, please refer to appendix '3.1.2 Purchased Services'

3.4 Upstream and downstream transportation and distribution of goods

Definition:

Upstream transportation and distribution: Emissions linked to the transportation and distribution of products purchased during the reference year, between suppliers and the organisation in vehicles not belonging to the organisation. This may involve air, rail, road or sea transport. Storage of purchased products in warehouses and distribution centers is also included in these emissions.
Downstream transportation and distribution: Emissions linked to the transportation and distribution (storage) of products sold/donated during the reference year between the organisation and its partners/beneficiaries in vehicles not belonging to the organisation.

Data sources to be used

★★★★★ : Transport and storage records for each purchase made
★★★☆☆ : Expenses for transport and storage.
☆☆☆☆☆ : No data available

Data processing

	Case n°1	Case n°2	Case n°3
Description	Transport records for purchases made	Transport and storage costs are available	No data available
Process	1. Separate data by mode of transport. 2. Separate types of expenditure related to storage in the warehouse: electricity, building rental, use of refrigerant gases. 3. Use the emission factor associated with each type of transport (kgCO2e/t.km) and each type of emission (kgCO2e/kWh).	1. Estimate the quantity of goods transported based on the average transport price per t.km. 2. Estimate warehouse energy consumption based on energy prices. 3. Use the emission factor associated with each type of transport (kgCO2e/t.km) and energy (kgCO2/kWh).	1. Estimate the amount of purchasing and storage according to the type and size of your organisation. 2. Use the emission factor of the most appropriate type of transport for your organisation (kgCO2e/t.km) and energy (kgCO2/kWh).
Data and calculation uncertainty	★★★★★	★★★☆☆	☆☆☆☆☆

Nota bene

1. If a good has been transported by several modes of transport (e.g. truck - plane - truck), it is necessary to consider all steps of transportation.
2. The classification of emissions linked to the internal transport of goods (e.g. moving products from one warehouse to another) depends on the ownership and control of the means of transport used:
   a. If the organisation directly owns or controls the vehicles used for these transports, the emissions are considered direct emissions and fall under Scope 1, in the category: '1.2. Direct emissions from mobile combustion sources'.
   b. If the organisation uses an external transporter for these deliveries (even if they are "internal" to the organisation's supply chain), then these emissions will be classified in Scope 3, in the current category '3.4.1 Upstream and Downstream transportation and distribution'.
3. For certain products delivered directly (e.g. paper delivery to the office), the emissions linked to freight are already included in the product's emission factor, so it is not necessary to account for them in this category.

Annexes

Emission factors Freight			
Name	Source	Value	Unit
Road	DEFRA	0,0969	kgCO2e/tonnes.km
Air (flight < 3700 km)	DEFRA	1,668	kgCO2e/tonnes.km
Air (flight > 3700 km)	DEFRA	1,099	kgCO2e/tonnes.km
Rail	DEFRA	0,0277	kgCO2e/tonnes.km
Maritime	DEFRA	0,0161	kgCO2e/tonnes.km
More details	DEFRA	-	-

Average freight cost			
Name	Source	Value	Unit
Road	French Ministry of Ecology	0,16	€$_{2015}$/t.km
Air	French Ministry of Ecology	0,4	€$_{2015}$/t.km
Rail	French Ministry of Ecology	0,046	€$_{2015}$/t.km
Maritime	French Ministry of Ecology	0,050	€$_{2015}$/t.km
More details	French Ministry of Ecology	-	€$_{2015}$/t.km

3.5 Waste

Definition: CO2 emissions associated with waste. These emissions correspond to the GHG Protocol "Waste generated in operations" emissions. Emissions linked to waste treatment depend on the type of waste and the type of treatment. For solid waste, there are four main treatment methods: incineration, landfill, recycling and biological treatment (methanization, composting).

Data sources to be used

★★★★★ : Recording of waste weights/volumes collected
★★☆☆☆ : Recording of collected waste volumes missing from some infrastructures
☆☆☆☆☆ : No data available

Data processing

	Case n°1	Case n°2	Case n°3
Description	A detailed statement of the weight of waste collected is available.	Some infrastructure recoding are missing.	No data available
Process	1. Separate waste quantities by waste type and treatment method. 2. If you have access to volumes, convert them to weight (see conversion table below). 3. Depending on the level of detail available, use the emission factor associated with each waste type and treatment method (kgCO2e/t).	1. Group infrastructures by type of activity (HQ/Operations). 2. Collect the number of employees by type of structure (HQ/operations) 3. On the basis of infrastructures with available data, calculate the quantity of waste per FTE (Full Time Equivalent). 4. Extrapolate the quantity of waste per FTE to infrastructures with missing data (depending on the infrastructure's activity). 5. Use the emission factor associated with each type of waste (kgCO2e/t).	1. Collect number of employees by type of structure (HQ/operations). 2. Compute the amount of waste produced by all employees, based on the average waste production for each type of structure. 3. Use the average emission factor for waste treatment (kgCO2e/t).
Data and calculation uncertainty	★★★★★	★★☆☆☆	☆☆☆☆☆

Nota bene

1. Sometimes it's not possible to obtain the weight of the waste, only the volume. It is possible to make a weight/volume conversion (see conversion table in appendix).

2. Waste treatment very rarely appears as a major GHG emission item, but it has a major impact on the state of biodiversity and the depletion of natural resources, so it is still important to set up a waste data collection process.
3. The carbon impact of waste depends on its end-of-life stage. Therefore, if the information is available, it is preferable to select the emission factor corresponding to the type of waste and its end-of-life stage.

Annexes

Emission factors - Average end-of-life			
Name	Source	Value	Unit
Household waste	ADEME	386	kgCO2e/tons
Plastic	ADEME	123	kgCO2e/tons
Paper/Cardboard	ADEME	737	kgCO2e/tons
Wood	ADEME	269	kgCO2e/tons
Other waste and all end-of-life	ADEME	-	-

Average quantity of waste by type of structure			
Name	Source	Value	Unit
Paper/ cardboard produced by an office worker (HQ type)	Zero Waste France	77	kg/employee/year
Household waste produced by an office employee (HQ type)	Zero Waste France	55	kg/employee/year
All waste for a humanitarian project	Climate Action Accelerator	6,5	m^3/employee/year

Categorization of waste from the aid sector		
Name	Source	Value
Cardboard, paper	Groupe URD Report	35%
Organic (leaves, kitchen waste, etc.)	Groupe URD Report	32%
Tires	Groupe URD Report	14%
Plastic (hard/soft)	Groupe URD Report	7,5%
Oil change	Groupe URD Report	6%
Electronic waste	Groupe URD Report	3%
Glass	Groupe URD Report	2%
Aluminium	Groupe URD Report	2%

Waste volume/weight conversion table for non-compacted waste			
Name	Source	Value	Unit
Paper	SEPA	0,36	ton/m^3
Organic (leaves, kitchen waste, etc.)	SEPA	0,3	ton/m^3
Tires	SEPA	0,46	ton/m^3
Plastic (hard/soft)	SEPA	0,14	ton/m^3
Oil change	SEPA	0,9	ton/m^3
Glass	SEPA	0,85	ton/m^3
Average for all types of household waste (Europe)	Senat Report (France)	0,18	ton/m^3
Average for all types of household waste (Middle East)	Research Waste in Oman	0,31	ton/m^3
Average for all types of household waste (United States)	U.S. Environmental Protection Agency	0,16	ton/m^3

3.6.1 Business travel (transport)

Definition: Emissions linked to the transport for business travel are classified in Scope 3 category « 3.1 Business travel », represent the GHG generated by the transportation of employees for business purposes, excluding commuting. These activities encompass a wide range of modes of transport, including air, rail, car rental and the use of personal vehicles for business purposes.

Data sources to be used

★★★★★ : Record of transportation: tickets purchased (plane, train, bus, boat, cab) and car journeys.
★★☆☆☆ : Record of transport expenses
☆☆☆☆☆ : No data available

Data processing

	Case n°1	Case n°2	Case n°3
Description	Detailed transport statements	Transport expenses are available	No data available
Process	1. Separate trips by mode of transport. 2. If possible, separate trips by class, train type or car model. 3. Use the emission factor associated with each mode of transport according to class and/or train/car model (kgCO2e/pers/km).	1. Separate trips by mode of transport. 2. Estimate the number of km using financial data and cost/km estimates for each means of transport (see average price table in appendix). For cars : • If reimbursement of mileage expenses (€/km), calculate the km covered. • In the case of fuel costs, calculate the number of km travelled based on the average price of fuel. 3. Use the average emission factor associated with each mode of transport (kgCO2e/pers/km).	1. List meetings and assignments requiring travel. 2. Estimate the number of participants, their means of transport and the average number of km travelled by each. 3. Use the average emission factor associated with each mode of transport (kgCO2e/pers/km).
Data and calculation uncertainty	★★★★★	★★☆☆☆	☆☆☆☆☆

Nota bene

1. Rail transport emissions factors vary according to the country of travel.
2. Air transport emission factors vary according to :
    a. The distance travelled
    b. The ticket class
    c. The vapor trail inclusion or exclusion.
3. We encourage you to choose emission factors that take contrail (RF) into account.
4. Contrails are line-shaped clouds produced by aircraft engine exhaust or changes in air pressure, typically at aircraft cruising altitudes several kilometres/miles above the Earth's surface.
5. Sometimes, CO2e emissions are already computed and available for each trip (especially flights). It is possible to keep these values for a quicker footprint, but in order to master the methodology and emission factors used, it is recommended to recalculate the emissions. This ensures the consistency of all travel-related computing.
6. Emission factors for cars vary according to engine and car model. If you have sufficient information, we recommend that you apply the most accurate emission factor possible.
7. This emission category can be difficult to account for some as the data may not be available within the organisation. However, for future footprints, it is recommended that you set up a process for gathering information (means of transport, distances, type of accommodation, etc.) regarding travel.

Annexes

Transport emissions factors (including contrail)				
Distance	Class/Type	Source	Value	Unit
Airplane (including contrail)				
Short-haul Distance < 3700 km	Average passenger	DEFRA	0,18592	kgCO2e/pers/km
	Economy	DEFRA	0,18287	kgCO2e/pers/km
	Business	DEFRA	0,27430	kgCO2e/pers/km
Long-haul Distance > 3700 km	Average passenger	DEFRA	0,17580	kgCO2e/pers/km
	Economy	DEFRA	0,13464	kgCO2e/pers/km
	Economy premium	DEFRA	0,21542	kgCO2e/pers/km
	Business	DEFRA	0,39044	kgCO2e/pers/km
	First class	DEFRA	0,53854	kgCO2e/pers/km
Trains				
European Union	Average	ADEME	0,0475	kgCO2e/pers/km
France	TVG	ADEME	0,00293	kgCO2e/pers/km
France	Intercités	ADEME	0,00750	kgCO2e/pers/km
Germany	Average	ADEME	0,0668	kgCO2e/pers/km
Belgium	Average	ADEME	0,0484	kgCO2e/pers/km
Switzerland	Average	ADEME	0,00374	kgCO2e/pers/km
Other EU countries		ADEME	See ADEME	kgCO2e/pers/km
Road				
Car	Gasoline	DEFRA	0,16450	kgCO2e/km
Car	Diesel	DEFRA	0,16984	kgCO2e/km
Car	Hybrid	DEFRA	0,12607	kgCO2e/km
Car	Electric	DEFRA	0,09360	kgCO2e/km
Car	Average	DEFRA	0,16691	kgCO2e/km
Motorcycle	Average	DEFRA	0,11367	kgCO2e/km
Bus	Average	DEFRA	0,151	kgCO2e/km
Vans	Average	DEFRA	0,25023	kgCO2e/km
Other		DEFRA	See DEFRA	kgCO2e/km

Average fuel consumption by vehicle type			
Name	Source	Value	Unit
Sedan	ADEME	5,2	L/100km
4X4	ADEME	9,8	L/100km
Utility	ADEME	6,4	L/100km
Electric car	ENGIE 2024	15	kWh/100km

Average price per kilometer			
Name	Source	Value	Unit
Flights by type of organisation (in 2022)			
Flights from an NGO (such as MSF)	Climate Action Accelerator Data	0,102	€/passenger/km
Flights from a secretariat/donor	Climate Action Accelerator Data	0,249	€/passenger/km
Trains by country (in 2023)			
European Union	IRG-Rail 2023, p.43	0,26	€/passenger/km
Germany	IRG-Rail 2023, p.43	0,24	€/passenger/km
Belgium	IRG-Rail 2023, p.43	0,10	€/passenger/km
France	IRG-Rail 2023, p.43	0,17	€/passenger/km
United Kingdom	IRG-Rail 2023, p.43	0,81	€/passenger/km
Others	IRG-Rail 2023, p.43	See IRG-Rail 2023, p.43	€/passenger/km
Car mileage (in 2023)			
European Union	Euro Dev 2023	0,33	€/km
Germany	Euro Dev 2023	0,38	€/km
Belgium	Euro Dev 2023	0,4259	€/km
France	Euro Dev 2023	0,55	€/km
Switzerland	Euro Dev 2023	0,72	CHF/km
United Kingdom	Euro Dev 2023	0,45	£/km
Other EU countries	Euro Dev 2023	See Euro Dev 2023	€/km

3.6.2 Business travel (hotel stays and meals)

Definition: Emissions linked to the hotel stays and meals for business travel are classified in Scope 3 category '3.1 Business travel' and represent the greenhouse gases generated by the hotel stays and meals of the organisation's staff. The environmental impact of accommodation, including energy and water consumption and waste production, is considerable and must be accurately assessed to enable effective mitigation strategies.

Data sources to be used

★★★★★: Record of hotel stays and meals
★★★☆☆ : Record of journey times and locations (no information on hotels and meals).
★★☆☆☆: Record of hotel and meal expenses
☆☆☆☆☆: No data available

Data processing

	Case n°1	Case n°2
Description	Record of hotel stays and meals	Record of journey times and locations
Process	1. Separate hotel nights by country and category (number of stars). 2. Separate meals by type (vegetarian, meat based...) 3. Compute the total number of nights per hotel and type of meals. 4. Use the emission factor associated with each type of hotel by country (kgCO2e/night/room) and type of meal (diet) (kgCO2e/meal).	1. For each trip, collect the destination and the number of people travelling. 2. Compute the number of nights from the travellers' arrival and departure dates. 3. Use an average emission factor for a hotel by destination country (kgCO2e/night/room) and for an average type of meal (kgCO2e/meal).
Data and calculation uncertainty	★★★★★	★★★☆☆

	Case n°3	Case n°4
Description	Record of hotel expenses	No data available
Process	1. If available, collect and sort expenses by country or continent. 2. Compute the number of nights based on the average price of a hotel night. 3. Compute the number of meals based on the average price of a meal. 4. Use an average emission factor for a hotel by destination country (kgCO2e/night/room) and for an average type of meal (kgCO2e/meal).	1. List the events and missions that required travel. 2. Estimate the number of travellers and the number of hotel nights booked and meals eaten. 3. Use an average emission factor for a hotel by destination country (kgCO2e/night/room) and for an average type of meal (kgCO2e/meal).
Data and calculation uncertainty	★★☆☆☆	☆☆☆☆☆

Nota bene

- Emissions factors for hotel nights vary depending on the country and the category of hotels. It is important to try to obtain the most accurate data possible. The Hotel Footprint Tool computes the footprint of hotel nights by country.

Annexes

Average hotel emission factors by continent (in kgCO2e/night/room)
Source: Hotel Footprint Tools

Continent	Average hotels	2 to 3-star hotels	4 to 5-star hotels
Africa	52,7	30,1	57,1
Asia	58,1	33,0	70,2
Europe	12,3	8,2	17,5
Latin America and the Caribbean	22,2	15,0	42,8
Northern America	14,3	28,5	31,6
Oceania	36,5	30,1	57,1

Average price of budget hotel nights (in $/night) Source: Viqual		
Continent	Large city	Medium-sized town
Asia	100	70
Europe	150	100
Northern America	150	100

Average meal emission factors			
Name	Source	Value	Unit
Average meal	ADEME	2,04	kgCO2e/meal
Vegetarial meal	ADEME	0,51	kgCO2e/meal
Meal with chicken	ADEME	1,58	kgCO2e/meal
Meal with beef	ADEME	7,26	kgCO2e/meal

3.7 Employee/staff commuting

Definition: Staff commuting emissions fall under indirect Scope 3 emissions and represent the greenhouse gases generated by employees' daily travel to and from the workplace. These emissions vary depending on factors such as the distance travelled, mode of transportation, and frequency of commuting. As these activities are not directly controlled by the organisation, they require estimation based on employee commuting patterns to accurately account for their impact within the organisation's carbon footprint.

Data sources to be used

★★★★★ : HR data mentioning distances and mode of transportation for staff
★★★★☆ : Results of a commuting survey
★☆☆☆☆ : Only list of staff

Data processing

	Case n°1	Case n°2	Case n°3
Description	HR data mention distances and mode of transportation for all staff	A commuting survey had been carried out	Only list of staff is available (with occupancy rate)
Process	1. Multiply the distances for each staff by the number of working days, occupancy rate, and the rate of home-office to get the total km done by year (round-trip each day) 2. Sum all distances done by mean of transportation 3. Use the correct emission factor (kgCO2e/pass.km) to interpret distances made during the year	1. Extrapolate the commuting pattern to people that have not answered the survey based on the results of the survey or personal information on staff if available. 2. See ***Case n°1***	1. Make a general commuting scenario that take into consideration the shape of the city and the transportation offer that consider an average distance and a splitting of km done by mean of transportation 2. See ***Case n°1***
Data and calculation uncertainty	★★★★★	★★★★☆	★☆☆☆☆

Nota bene

1. It is almost impossible to have something perfect for staff commuting. People may not use the same road between the morning and the afternoon, have activities after the workday, etc. So, keep in mind that you are designing the "best hypotheses possible".
2. If people are starting their contract during the year, do not forget to consider only the part of the year effectively worked (full time started the 1st of April = 75% of the yearly commuting done).

Average meal emission factors				Useful data	
Name	Source	Value	Unit	Name	Value
Car average	ADEME	0,231	kgCO2e/km	Average Home-Office distance (Brussels)	15 km
Bus in > 250k hab cities	ADEME	0,151	kgCO2e/km	Average share of car commuter (Brussels)	45%
Metro, tramway in > 250k hab cities	ADEME	0,00329	kgCO2e/km	Average share of public transport commuter (Brussels)	45%
Walking	-	0	kgCO2e/km	Average share of bike/walk commuter (Brussels)	10%
Homeworking UK	DEFRA	0,3338	kgCO2e/working hour		
Homeworking France	Climate Action Accelerator data	0,05202	kgCO2e/working hour		

3.9 Downstream transportation and distribution (participant travels)

Definition: Emissions from participant travel are generated by the **travel, meals and hotel stays of participants at the organisation's events or trainings**. The emissions fall under Scope '3.9 Downstream Transport and Distribution'.

Data sources to be used

★★★★★: Record of participants' transport, meals and hotel accommodation
★★★☆☆ : Length, location and number of participants at the events + results of a participant transport survey
★☆☆☆☆: Duration, location and number of event participants

Data processing

	Case n°1	Case n°2	Case n°3
Description	Tickets for transport, meals and hotel accommodation for participants	Length, location and number of participants at the events + results of a participant transport survey.	Duration, location and number of event participants.
Process	1. Separate hotel nights by category (number of stars) and by country. 2. Separate journeys by mode of transport, class, type of train or car model. 3. If possible, separate meals by diet. 4. Use the emission factor associated with : • Each type of hotel by country and category (kgCO2e/night/room) • Each mode of transport according to class and/or train/car model (kgCO2e/pers/km) • Each type of meal (diet) (kgCO2e/meal)	1. Collect the survey results and extract the departure locations, mode of transport and type of accommodation of participants for each event. 2. Compute the distances travelled by mode of transport by extrapolating the survey data. 3. Compute the number of nights based on the duration of the event. 4. Use the emission factor associated with : • A hotel in the country of the event (kgCO2e/night/room) • Each mode of transport (kgCO2e/pers/km) • An average meal (kgCO2e/meal)	1. Estimate the distance travelled by the participants and the mode of transport used. 2. Compute the number of nights based on the duration of the event. 3. Use an average emission factor for : • A hotel in the country of the event (kgCO2e/night/room) • Each mode of transport (kgCO2e/pers/km) • An average meal (kgCO2e/meal)
Data and calculation uncertainty	★★★★★	★★★☆☆	★☆☆☆☆

Nota bene

1. If transport data is available for certain events, it can be used for other events of the same type in order to estimate transport for other events of the same type.

2. This category of emissions is often very difficult to account for because the data is not available within the organisation. However, it is advisable to carry out participant surveys for each future event or training.

Annexes

Average hotel emission factors by continent (in kgCO2e/night/room) Source: Hotel Footprint Tools			
Continent	Average hotels	2 to 3-star hotels	4 to 5-star hotels
Africa	52,7	30,1	57,1
Asia	58,1	33,0	70,2
Europe	12,3	8,2	17,5
Latin America and the Caribbean	22,2	15,0	42,8
Northern America	14,3	28,5	31,6
Oceania	36,5	30,1	57,1

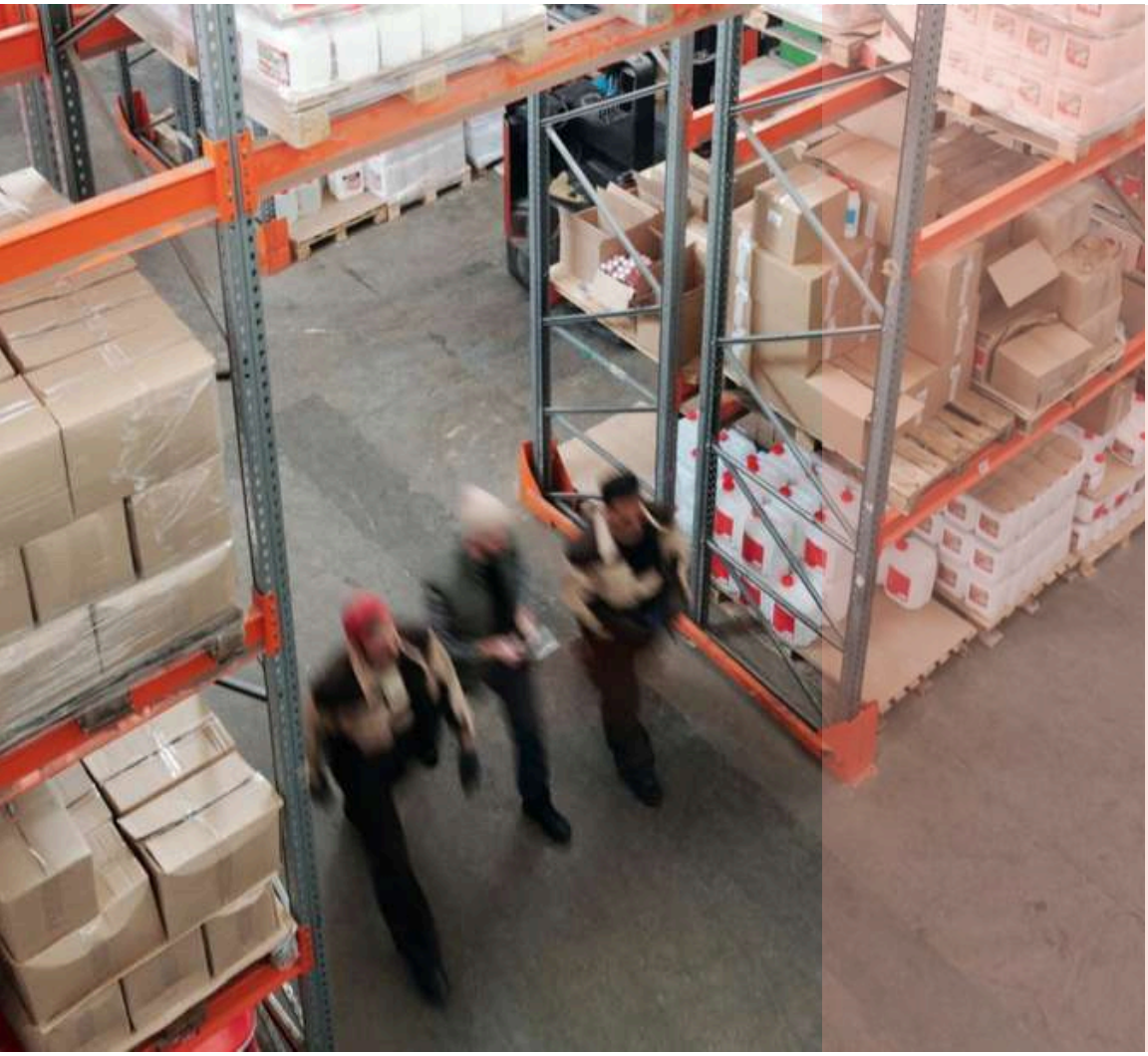
Transport emissions factors (including contrail)				
Distance	Class/Type	Source	Value	Unit
Airplane (including contrail)				
Short-haul Distance < 3700 km	Average passenger	DEFRA	0,18592	kgCO2e/pers/km
	Economy	DEFRA	0,18287	kgCO2e/pers/km
	Business	DEFRA	0,27430	kgCO2e/pers/km
Long-haul Distance > 3700 km	Average passenger	DEFRA	0,17580	kgCO2e/pers/km
	Economy	DEFRA	0,13464	kgCO2e/pers/km
	Economy premium	DEFRA	0,21542	kgCO2e/pers/km
	Business	DEFRA	0,39044	kgCO2e/pers/km
	First class	DEFRA	0,53854	kgCO2e/pers/km
Trains				
European Union	Average	ADEME	0,0475	kgCO2e/pers/km
France	TVG	ADEME	0,00293	kgCO2e/pers/km
France	Intercités	ADEME	0,00750	kgCO2e/pers/km
Germany	Average	ADEME	0,0668	kgCO2e/pers/km
Belgium	Average	ADEME	0,0484	kgCO2e/pers/km
Switzerland	Average	ADEME	0,00374	kgCO2e/pers/km
Other EU countries		ADEME	See ADEME	kgCO2e/pers/km

Transport emissions factors (including contrail)				
Distance	Class/Type	Source	Value	Unit
		Road		
Car	Gasoline	DEFRA	0,16450	kgCO2e/km
Car	Diesel	DEFRA	0,16984	kgCO2e/km
Car	Hybrid	DEFRA	0,12607	kgCO2e/km
Car	Electric	DEFRA	0,09360	kgCO2e/km
Car	Average	DEFRA	0,16691	kgCO2e/km
Motorcycle	Average	DEFRA	0,11367	kgCO2e/km
Bus	Average	DEFRA	0,151	kgCO2e/km
Vans	Average	DEFRA	0,25023	kgCO2e/km
Other		DEFRA	See DEFRA	kgCO2e/km

Average meal emission factors			
Name	Source	Value	Unit
Average meal	ADEME	2,04	kgCO2e/meal
Vegetarial meal	ADEME	0,51	kgCO2e/meal
Meal with chicken	ADEME	1,58	kgCO2e/meal
Meal with beef	ADEME	7,26	kgCO2e/meal

Under development, to be made available in the next version of the toolkit:

3.11 Use of distributed products
3.12 End of Life (EoL) treatment of distributed products
3.13 Downstream leased assets



3.15 Investment (funding)

Definition: Investment-related emissions include the indirect emissions associated with the activities financed by the organisation. They are included in Scope 3 category '3.12 Investment'. For donors, this corresponds to the projects that they support financially, including the infrastructures, programmes or initiatives that they make possible. These emissions reflect the environmental impact of the projects financed, even if they are not directly related to the organisation's internal operations.

Data sources to be used

★★★★★ : Carbon footprint of projects financed
★★★☆☆ : Detailed budget for funded projects
★★☆☆☆ : Simplified budget for funded projects

Data processing

	Case n°1	Case n°2	Case n°3
Description	Carbon footprint of projects financed	Detailed budget for funded projects	Simplified budget for funded projects
Process	1. Multiply the carbon footprint of each project by the proportion of funding provided by your organisation (e.g. a project has a footprint of 10 tCO2e and is 50% funded by your organisation -> 5 tCO2e).	1. Separate expenditure by type (purchase of goods, purchase of services, travel, etc.) 2. Interpret them €€ with monetary emission factors adapted to each category 3. See ***Case n°1***	1. Interpret the total project budget with a financial emission factor that represents the overall project activity. 2. See ***Case n°1***
Data and calculation uncertainty	★★★★★	★★★☆☆	★★☆☆☆

Nota bene

1. It is essential to distinguish between an investment and a purchase of services: funding can be considered an investment if it corresponds directly to the organisation's social mission and is an end in itself. On the other hand, if this funding contributes to the implementation of another project or activity, it is a purchase of services.
2. As the emission factors for this category are often monetary, it is recommended that inflation be taken into account from one year to the next to take account of changes in currency values, as emission factors are rarely updated from one year to the next.
3. Tools such as Exiobase (EEMO) can be used to obtain monetary emission factors by country and by year, taking purchasing power parity into account.
4. The HR costs of projects should not be directly taken into account in a project's footprint. However, they can be used to estimate emissions linked to commuting.

Annexes

Average emission factors of different type of organisation

Name	Source	Value	Unit
NGO health - 2019 (Type MSF)	Climate Action Accelerator data (MSF)	0,30	kgCO2e/€
NGO humanitarian food 2021	ACF Carbon Footprint (2021)	0,74	kgCO2e/€
Global humanitarian NGO 2021 (Type ICRC)	Climate Action Accelerator data (ICRC)	0,58	kgCO2e/€
Research NGO	Climate Action Accelerator data (DNDI)	0,27	kgCO2e/€
National health NGO	Climate Action Accelerator data	~0,001	kgCO2e/€

ANNEX 3
OPERATIONAL PERIMETER

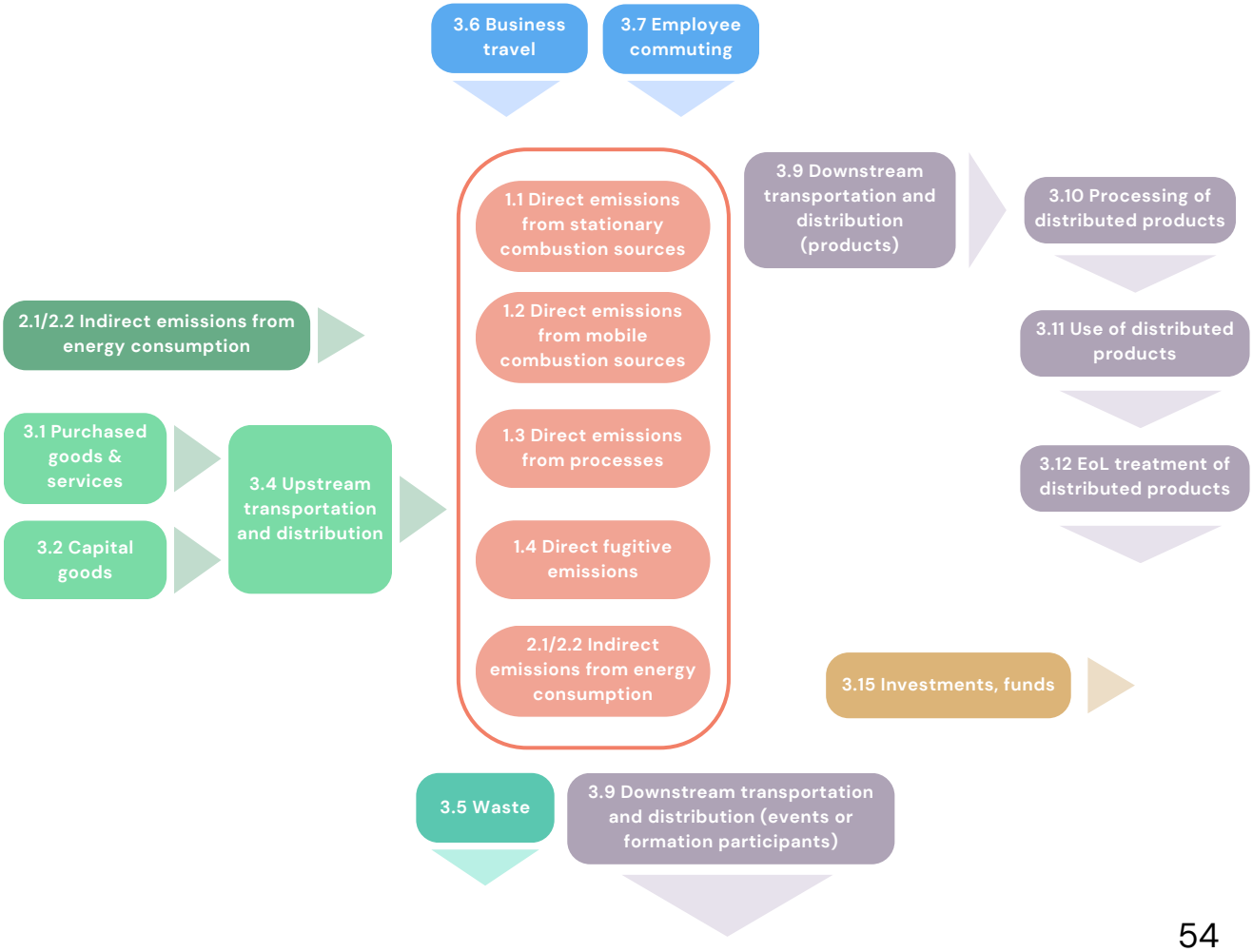
Categories

A carbon footprint assessment relies on the concept of operational boundaries, which define the scope of emissions accounted for by an organisation. These boundaries help structure emissions into different categories, ensuring a comprehensive and standardised evaluation.

The diagram visually represents these categories, highlighting the distinction between direct, indirect, and value chain emissions. On this graph are placed all the relevant emissions categories from the GHG protocol.

This graph is designed to help you clearly define these boundaries to conduct the most accurate and effective carbon footprint assessment possible, ensuring that no significant emission source is overlooked.

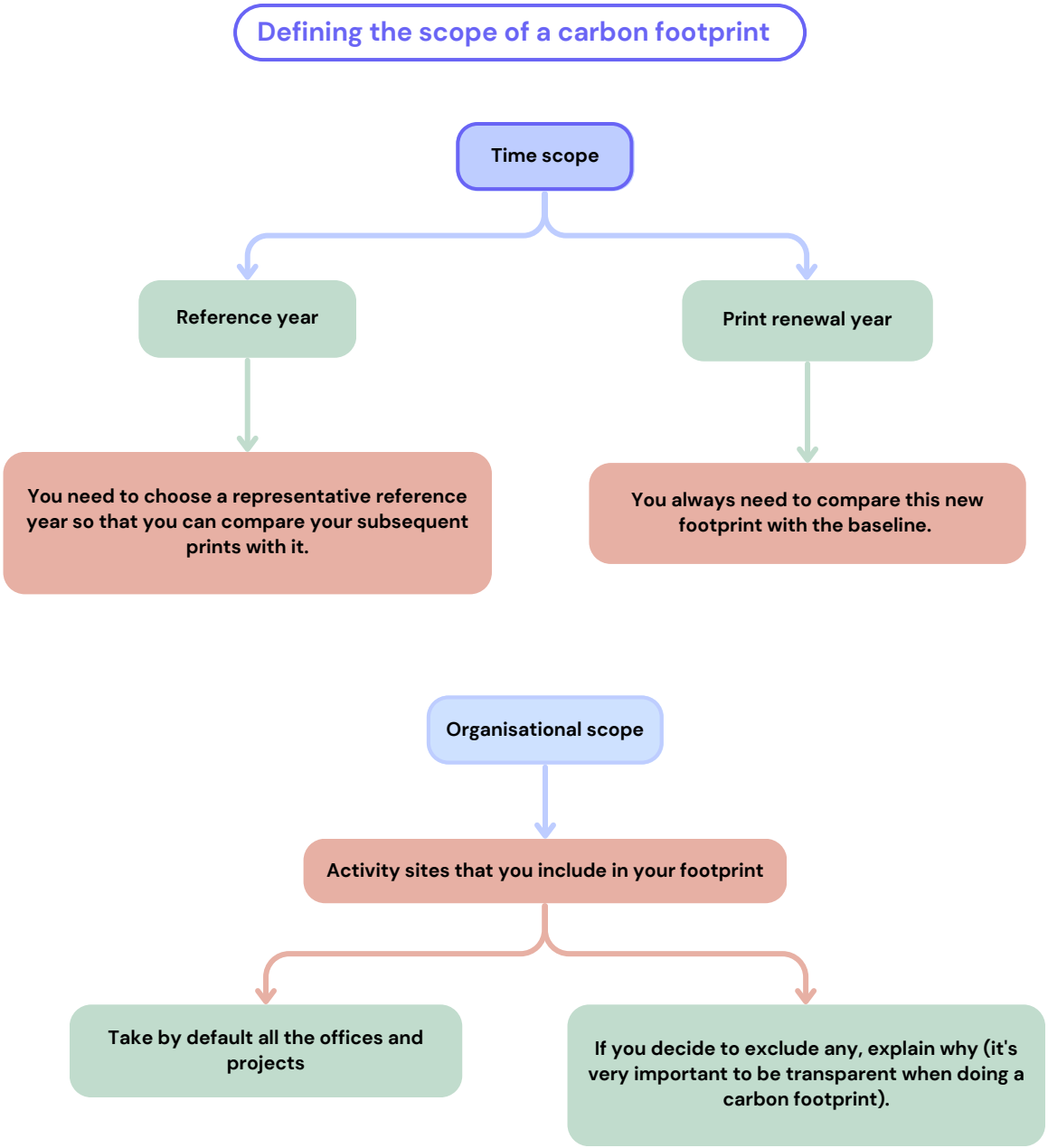
Establishing precise operational boundaries enables organisations to identify key emission sources and implement targeted reduction strategies.



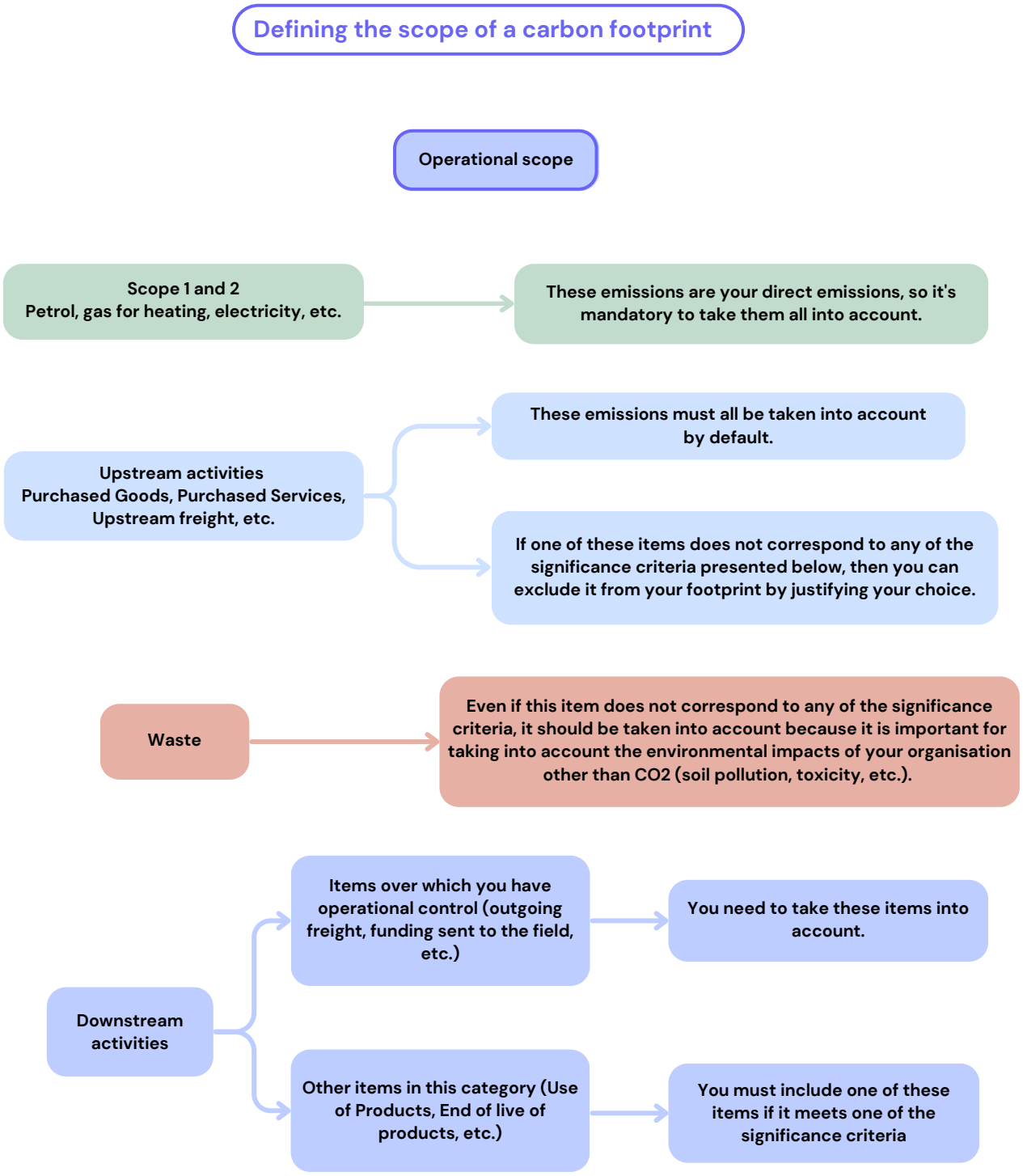
ANNEX 4
PERIMETER DECISION TREE

The purpose of this decision tree is to help you understand which categories are necessary and important to you, and which ones you shouldn't spend too much time and energy on.

To determine this, it is sometimes useful to refer to the criteria listed below this graph.



ANNEX 4
PERIMETER DECISION TREE



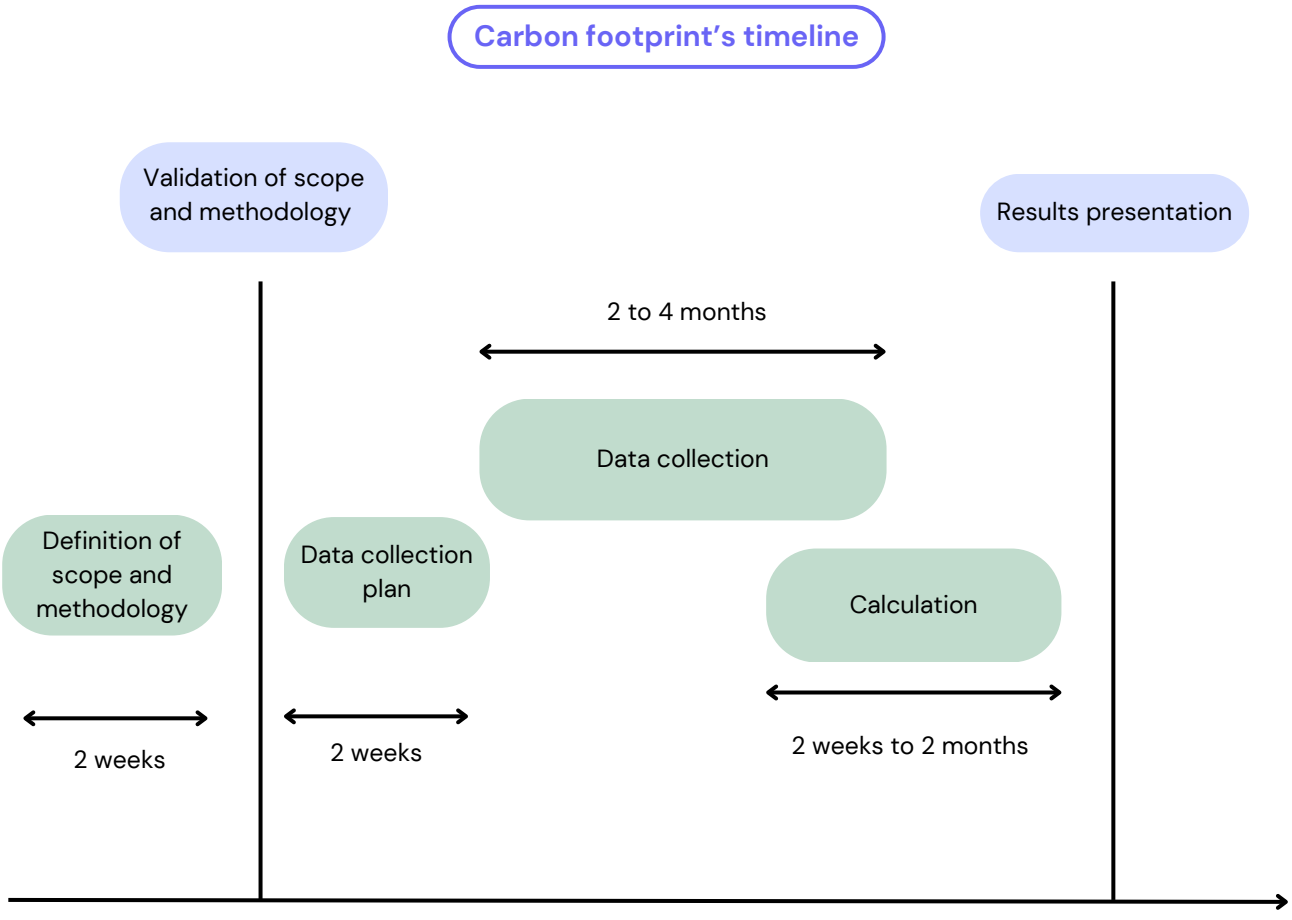
ANNEX 4
PERIMETER DECISION TREE

Significance criterion, emissions encompassed with at least one of these points should be taken into account.

1. **Scope criterion**: if this item represents a significant proportion, above a certain threshold, which you need to define (The Climate Action Accelerator advises you to set this threshold at 2%), you must include it in your footprint. You should therefore first make a rough estimate of the emissions from this item and then, if the estimate exceeds 2%, include it in your footprint.
2. **Influence criterion**: if you have levers for action concerning this item which would enable you to reduce the induced emissions, you must include it in your footprint.
3. **Strategic/vulnerability criterion**: if this item presents a risk or an opportunity for the organisation, it is advisable to include it in your footprint.
4. **Personal commitment criterion**: if the calculation of this item and the potential reduction actions linked to it help you to involve staff, it is advisable to include it in your footprint.

ANNEX 5
CARBON FOOTPRINT TIMELINE

This timeline illustrates the time needed to complete each stage of a carbon footprint. These are approximations. The aim is to give you an idea of which stages are likely to take a long time, so that you can plan an ambitious but realistic schedule for your organisation.



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