CLIMATE & CIRCULARITY CALCULATOR
by ihobe

USER MANUAL

Environmental footprint, carbon footprint and circular economy indicators for organisations, products and services

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1 INTRODUCTION

1.1 Purpose and objective

This document seeks to guide users through the Ihobe CLIMATE & CIRCULARITY CALCULATOR as the tool for the integrated calculation of environmental assessment metrics.

Organisations have two motivating factors to conduct environmental assessments of their products, services and of their organisations.

The first is transparency. Transparency, in turn, can be driven by (1) legal requirements – such as the Energy Transition and Climate Change legislation both of the Spanish State and of the Basque Country – or corporate reporting standards; (2) market requirements, associated with the decarbonisation processes from a value chain approach, or green procurement processes; or (3) by the organisation's mere conviction that transparency and environmental assessment is part of the path towards sustainability.

The second is environmental improvement. Measuring is the first step to work on environmental improvement. Environmental assessment from an organisation approach is a means to provide an overall picture, by identify possible improvements and monitoring the progress towards environmental goals. By applying the assessment to a product or service approach, design decisions can be made aimed at reducing the environmental impact of the product or service from its conception; in other words, ecodesign.

Ihobe is making the CLIMATE & CIRCULARITY CALCULATOR tool available to Basque organisations in order to facilitate that environmental assessment, and to address both motivating factors. The main aim of the tool is to provide Basque organisations with a tool for the integrated calculation of different environmental performance metrics of their products, services and organisations overall.

The tool draws on the knowledge generated by Ihobe from its work with companies to address organisation and product metrics in an integrated way. The tool, with a common entry information base, is therefore able to calculate different metrics, either of the organisation or of products and services.

Thus, from the organisation approach, the tool can be used to calculate the corporate environmental footprint, as per the methodology published by Ihobe[1], the carbon footprint, as per UNE-EN ISO 14064-1: 2018, and a selection of circular economy indicators following the "*Circular Transition Indicators 3.0*"[2] methodology, and compatible with the future ISO 59020 standard.

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[1] The Ihobe Methodology Guide on the Application of the Corporate Environmental Footprint(2021)

[2] *Circular Transition Indicators v3.0 – Metrics for business, by business*, WBCSD (2022)

From a product approach, the tool is used to perform the life-cycle assessment of products and services[3] (in line with ISO 14040 and ISO 14044), along with calculating the carbon footprint as per ISO 14067:2018.

The fact that the tool is simplified means that it has a limited database that cannot be customised to the characteristics of the organisation and its environmental aspects. In other words, it provides an order of magnitude of the environmental impacts, but it would not be applicable to an exhaustive life-cycle assessment a per the EN ISO 14040 / EN ISO 14044 standards, or to produce product environmental declarations as per the EN ISO 14025 standard.

This tool is an improved and extended version of the earlier ECO-it tool that Ihobe made available to companies over 15 years ago, and of the carbon footprint tool for organisations.

Ihobe will work on expanding and updating the database, in response to the demands for new characterisation factors by the potential user organisations.

1.2 Target audience

The tool's target audience are those organisations and, in particularly SMEs, that – given current legislative and market demand – require a starting point in ecodesign or an initial approach for the assessment of environmental performance in their activity by considering the environmental footprint, climate change and circularity, all from the life cycle perspective.

The aim is to provide a holistic picture of the activity of the organisation and, in turn, facilitate design departments with guidance on the environmental impact of products and processes that allow them to:

- Steer design (or redesign) options of their products by providing a complementary environmental criterion in a multicriteria approach.
- Improve knowledge of the materials and processes with an environmental perspective (simplified assessment of the environmental performance).

1.3 Methodological information

1.3.1 Database

The tool's life cycle inventory database is based on life cycle inventories in international databases, adapted to the reality of the Basque industrial fabric to represent the environmental impacts of materials, processes, energies, transport and life-cycle treatments used in the design and manufacturing of its products.

[3] Product and Service Environmental Assessment Methods. Life cycle assessment. Ihobe (2020)

Figure 1. Life cycle perspective concept (author produced)

The holistic vision of the assessment tools allows the whole life cycle of each activity assessed by means of the stages and of each associated environmental aspect. Thus, the processes to be selected for each environmental aspect includes the whole life cycle thanks to the life cycle inventories used in its environmental assessment1 (see).

1.3.2 Impact categories

The list of environmental assessment methods and impact categories that have to be taken into consideration and which can be used to determine the impact on the tool are shown below. This section will include the detailed description of each of them.

Table 1. Impact categories included in the web tool indicating the methodology used and the reporting unit:

Impact category	Methodology	Unit
Climate change	IPCC 2023 (v1.03, October 2016)	t CO_2 e
Depletion of the ozone layer	ILCD 2011 + (version 1.0.9, May 2016)	kg CFC-11-eq
Human toxicity, cancer effects		CTUh
Human toxicity, non-cancer effects		CTUh
Suspended particulates		kg PM2.5 eq
HH ionizing radiation		kBq U235-eq
EE ionizing radiation		CTUe
Formation of photochemical ozone		kg NMVOC-eq
Acidification		H+eq molc
Terrestrial eutrophication		N-eq molc
Fresh water eutrophication		kg P-eq
Marine eutrophication		kg N-eq
Fresh water ecotoxicity		CTUe
Land use		kg C deficit
Depletion of water resources		m^3 water-eq
Depletion of renewable, fossil and mineral resources		kg Sb-eq

Impact category	Methodology	Unit
ReCiPe Endpoint 2008 (H,A) Total	ReCiPe 2008 (version 1.13 November 2016)	Pt
Energy consumption: non-renewable, fossil	CUMULATIVE ENERGY DEMAND, Frischknecht R., Jungbluth N., et.al. (2003)	MJ
Energy consumption: non-renewable, nuclear		MJ
Energy consumption: non-renewable, biomass		MJ
Energy consumption: non-renewable, TOTAL		MJ
Energy consumption: renewable, biomass		MJ
Energy consumption: renewable, wind, solar, geothermal		MJ
Energy consumption: renewable, hydropower		MJ
Energy consumption: renewable, TOTAL		MJ

IPCC 2013

The IPCC 2013 method was developed by Intergovernmental Panel on Climate Change (IPCC) experts, who have established the respective characterisation factors expressed as global warming potential on a 100-year time horizon (GWP100).

The factors are based on the "*Climate Change 2013. The Physical Science Basis. Working Group I contribution to the Fifth Assessment Report of the IPCC*[4]"

The method has been included to supplement the ILCD-Climate Change method, as that takes the carbon sequestration of the organic materials into account, while the method of IPCC 2013 does not.

ILCD 2011

The ILCD Midpoint method was published by the *Joint Research Centre* of the European Commission 2012, using the characterisation factors for the impact assessment as recommended in "*Recommendations for Life Cycle Impact Assessment in the European context - based on existing environmental impact assessment models and factors (EC-JRC, 2011)*".

This life cycle assessment methods includes 16 impact categories, which are:

1. Climate change: global warming potential over a time horizon of 100 years (*Intergovernmental Panel on Climate Change*).
2. Ozone depletion: ozone depletion potential (ODP) calculating the destructive effects on the stratospheric ozone layer over a time horizon of 100 years. World Meteorological Organization (WMO)
3. Human toxicity, cancer effects: Comparative Toxic Unit for humans (CTUh) expressing the estimated increase in morbidity in the human population per unit mass of a chemical product emitted (cases per kilogramme). USEtox (recommended + interim).

[4] *The Working Group I contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC) - https://www.ipcc.ch/report/ar5/wg1/

4. Human toxicity, non-cancer effects: Comparative Toxic Unit for humans (CTUh) expressing the estimated increase in morbidity in the human population per unit mass of a chemical product emitted (cases per kilogramme). USEtox (recommended + interim).
5. Particulate matter: quantification of the impact that the emission of inorganic particulates has on premature death or disability of the population, compared to $PM_{2.5}$. Includes the assessment of primary (PM_{10} and $PM_{2.5}$) and secondary particulates (the creation of secondary particulates due to SO_x, NO_x and NH_3 emissions) and CO. Rabl & Spadaro 2004.
6. HH (human health) ionizing radiation: quantification of the impact of ionizing radiation on the population, in comparison to Uranium 235. Frischknecht et al. 2000.
7. EE (ecosystem) ionizing radiation: Comparative toxic units for ecosystems (CTUe), an estimate of the potentially affected fraction of species (PAF) integrated over time and volume, per unit mass of a radionuclide emitted (PAF m^3 year / kg). Relevant for fresh water ecosystems. Garnier-Laplace et al. 2008.
8. Photochemical ozone formation: expression of the potential contribution to the photochemical ozone formation. Only for Europe. Van Zelm et al. 2008.
9. Acidification: Accumulated Exceedance (AE) characterizing the change in critical load exceedance of the sensitive area in terrestrial and main freshwater ecosystems, in which acidifying substances deposit. European-country dependent. Seppälä et al. 2006 and Posch et al. 2008.
10. Terrestrial eutrophication: Accumulated exceedance that characterises the change in the exceedance of critical loads of the sensitive area, where the eutrophication substances are deposited. European-country dependent. Seppälä et al. 2006 and Posch et al. 2008.
11. Fresh-water eutrophication: Expression of the degree to which the emitted nutrients reach the freshwater end compartment (phosphorus considered as limiting factor in fresh water). European validity. Averaged characterization factors from country dependent characterization factors. ReCiPe version 1.05.
12. Marine eutrophication: Expression of the degree to which the emitted nutrients reach the marine end compartment (nitrogen considered as limiting factor in marine water). European validity. Averaged characterization factors from country dependent characterization factors. ReCiPe version 1.05.
13. Fresh water ecotoxicity: Comparative Toxic Unit for ecosystems (CTUe) expressing an estimate of the potentially affected fraction of species (PAF) integrated over time and volume per unit mass of a chemical emitted (PAF m^3 year / kg). USEtox (recommended + interim).
14. Land use: reflects the changes in the use of the Soil Organic Matter (SOM), measured (kg C / m^2 / a). Impacts on biodiversity not covered by the set of data. Mila i Canals et al. 2007.
15. Depletion of water resources: reflects consumption and lack of fresh water. Swiss ecological scarcity method.
16. Depletion of renewable, fossil and mineral resources: reflects the consumption and scarcity of renewable, fossil and mineral resources. van Oers et al. 2002.

More information on the European Platform on Life Cycle Assessment[5].

ReCiPe 2008

The ReCiPe method was created by RIVM, CML, PRé Consultants, Radboud Universiteit Nijmegen and CE Delft. It comprises methods to calculate the weighted or midpoint environmental impact, and each method envisages three different perspectives. The method uses in this report is the hierarchical final weighting with European standardisation and set of average weightings (ReCiPe Endpoint (H/A) Europe).

ReCiPe 2008 was used instead of updating to the ReCiPe 2016, which is the most recent, as some PCR still require the calculation of some impact categories of the 2008 version. Due to significant methodological differences, the ReCiPe 2008 and ReCiPe 2016 results cannot or must not be compared.

The environmental impact as per the ReCiPe method is shown in the points unit, where 1 point represents the hundredth part of the annual environmental load of an average European citizen.

CUMULATIVE ENERGY DEMAND

Method to calculate the Cumulative Energy Demand (CED) in the materials and energy consumptions associated to their full life cycle, based on the method published by Frischknecht R., Jungbluth N., et.al. (2003).

The cumulative energy demand is expressed in MJ units and includes the following types of associated energy consumption:

1. Non-renewable energy demand, fossil: represents the energy from fossil fuels such as oil, natural gas and coal.
2. Non-renewable energy demand, nuclear: includes the energy generated from nuclear sources.
3. Non-renewable energy demand, biomass: comprises the energy from biomass and biofuels.
4. Non-renewable energy demand: sum of the three above types.
5. Renewable energy demand, biomass: energy from renewable sources such as biomass.
6. Renewable energy demand, wind, solar, geothermal: includes the energy generated by specific renewable sources.
7. Renewable energy demand, hydropower: represents hydroelectricity.
8. Renewable energy demand, total: sum of the aforementioned renewable sources.

[5] *European Platform on Life Cycle Assessment – Joint Research Centre (JRC)*

1.4 Integrated instruments

1.4.1 Carbon footprint

The carbon footprint (CF hereinafter) is defined as the total amount of greenhouse gases (GHG) directly or indirectly emitted by the activity of an organisation, a product or a service. It is therefore a GHG inventory, which is measured in tonnes of CO2 equivalent and takes into account the six gas types considered in the Kyoto Protocol (CO_2, CH_4, N_2O, PFCs, HFCs and SF_6). It does not include NF_3 as that gas is not used in production processes in the Basque Country

Each type of GHG has a different capacity to increase the greenhouse effect. This capacity is provided for through the "global warming potential" factor, which compares the effect of any GHG with the effect of CO_2.

The purpose of calculating the carbon footprint is threefold:

1. Obtain in-depth knowledge of our product or organisation in order to identify the main environmental and economic points for improvement (in general, a reduction of energy consumption and raw materials is associated with economic savings)
2. Inform the envisaged users about the climate change impact of our organisation or product, so that they have the necessary information so that they can adopt green procurement and purchasing criteria, and to showcase the environmental commitment of the organisation.
3. To define a roadmap towards decarbonisation.

1.4.2 Environmental footprint

The environmental footprint (EF hereinafter) is a multi-vector environmental assessment that provides a full picture of the environmental performance of an organisation, service or product, taking into account the different impact categories[3].

The corporate environmental footprint (CEF hereinafter) consists of a compilation and assessment of the inputs, outputs and potential environmental impacts associated to the goods or services portfolio (products from now on) of the company and taking the supply chain into account.

It reveals those activities or processes involved in the supply of the product portfolio that are environmentally key and on which the company should focus its energies and interventions. The analysis of certain important environmental impacts, such as climate change or water use, has heightened the concern and understanding of the environmental problems by companies and society in general[1].

1.4.3 Circular economy indicators

Circular economy indicators (CEI hereinafter) help to depict the circularity of a product and organisation by means of the energy and material flows that enter and leave the organisation, and considering their nature from the circularity perspective. In this case, the tool limits its application to an organisation approach; calculating products and services is still not available.

2 TOOL ACCESS

2.1 Register with Ihobe

Any company wishing to use the free web tool will need 'User Access' to the Ihobe website (Ihobe.eus). You will therefore need to personally register indicating the organisation to which you belong by using the 'ENTER' option in the heading of the Ihobe website (Image 1).

Image 1. Ihobe website heading

To register you should select the 'Don't have a password? Register' link and fill in the following form (Image 2).

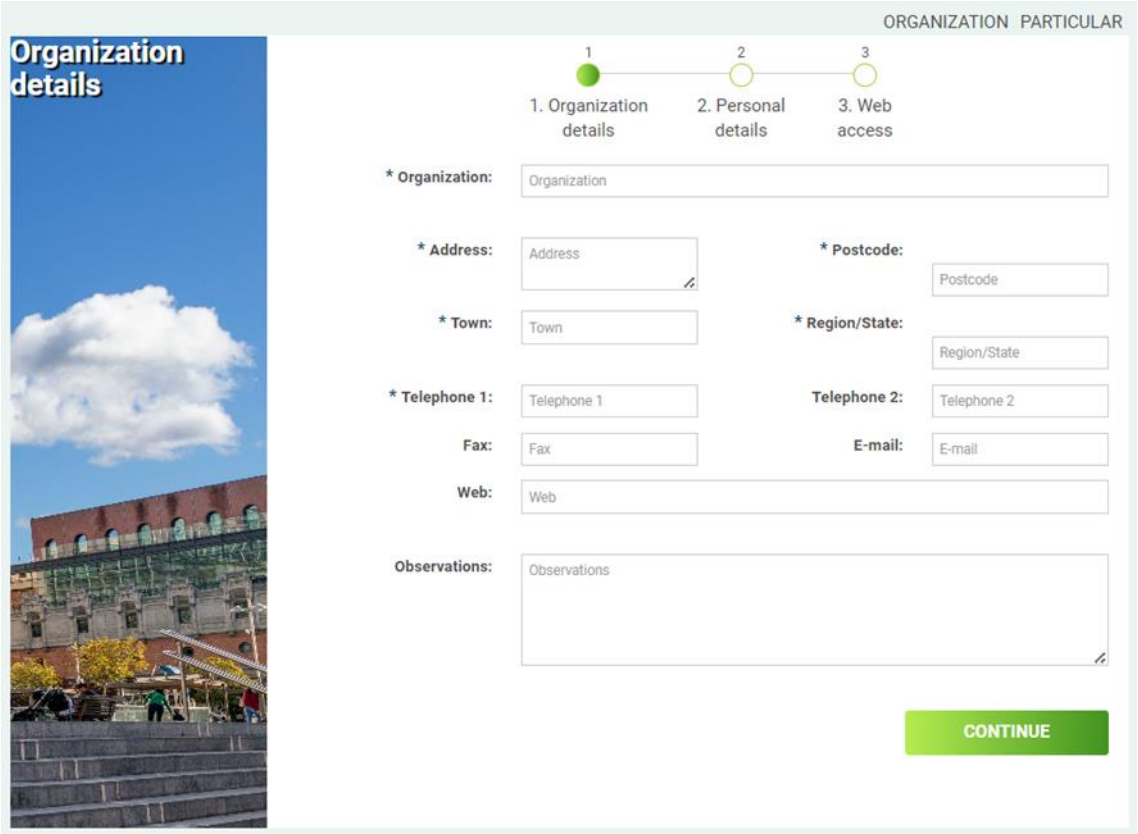


Image 2. 'Personal details" to register as a private user on the Ihobe website (ihobe.eus).

The registration is validated manually and may take a few days; you will be sent an email confirmation and once you have access, you can enter the web tool platform as shown in Section 2.2 below.

There is always an option in the tool heading to end the session.

2.2 Access to the platform.

You will need to have started a session with your credentials on the Ihobe website in order to access the web tool platform.

You should then click to dropdown the 'Services and Resources" tab in the heading. Access to the tool is in the 'Companies' section,

Once you have selected the section, a page will appear with a short description of the tool and access to the platform is at the bottom of that page.

2.3 Terms & conditions of use

Once you have accessed the platform, the following terms and conditions to use the tool will appear; you need to read and accept them the first time you access the tool:

1. These Terms & Conditions of Use regulate the use of the product Environmental Footprint calculation tool, which can be accessed from the Ihobe website www.ihobe.eus.

2. ID of the application owner: Ihobe, Sociedad Pública de Gestión Ambiental (hereinafter) is a publicly-owned company attached to the Basque Government's Ministry for Economic Development, Sustainability and the Environment; its registered office is at C/ Alameda Urquijo 36, 6º -48011- Bilbao (Bizkaia).

3. IHOBE is the owner and holder of all the rights regarding the tool; accordingly, it only grants the user the right to use the tool in accordance with the uses for which it has been designed and, in particular, as envisaged in these Terms & Conditions and/or the applicable legislation. Users will not acquire any ownership right regarding the tool by downloading, installing and/or using the tool.

4. Use of the tool gives the person in question user status and implies the acceptance of all the conditions included in this document and in the Privacy Policy and Legal Notice of that website.

5. It is forbidden to alter or modify any part of the Tool, circumvent, deactivate or manipulate in any other way (or try to circumvent, deactivate or manipulate) the security features or other features of the program, and to use the Tool or its content for commercial or advertising purposes. The use of the Tool to impair the goods, rights or interests of IHOBE or of third parties is forbidden. Any other use that alters, damages or disables the networks, servers, equipment, products and computer programmes of IHOBE or of third parties is likewise forbidden.

6. IHOBE reserves the right to monitor the activity in the Tool; as applicable, it may use the data hosted in the Tool to prepare reports and statistics in anonymous form.

7. The Tool and its content (text, photographs, graphics, images, technology, software, links, content, graphic design, source code, etc.), along with the brands and other distinctive signs are the property of IHOBE or of third parties; the user does not acquire any right in that regard by merely using the tool. Users must abstain from:

a) Reproducing, copying, distributing, making available to third parties, publicly disclosing, transforming or modifying the Tool or its content, except in the cases envisaged by law or expressly authorised by IHOBE or by the holder of those rights.

b) Reproducing or copying the Tool or its content for private use, along with publicly disclosing or making them available to third parties when that involves their reproduction

c) Extracting or reusing all or a substantial part of the content of the Tool. Subject to the conditions established in the above Section, IHOBE grants the User permission to use the Tool on a non-exclusive, free basis for personal use.

8. In any event, it is up to the User to have the appropriate tools to detect and remove malware or any other harmful computer element. IHOBE will not be liable for any damage to computer equipment when using the Tool. Furthermore, IHOBE will not be liable for any damage to the Users when such damage is due to failures or disconnections in the telecommunication network that disrupt the service.

9. The User undertakes to use the Tool properly, in accordance with the Law, with these Terms and Conditions, and with the other regulations and instructions that, where appropriate, may be applicable. The User shall be liable to IHOBE and to third parties for any damage or losses incurred due to the former's failure to comply with these obligations.

3 STRUCTURE AND FEATURES

The tool functions by creating projects to assess products, organisations and services. It is an intraorganisational tool, in other words, people of the same organisation can see and edit the projects on the basis of cooperation.

The environmental impact is determined using the activity data entered in the created projects; it is displayed using specific result sheets for each of the different integrated instruments.

3.1 General structure

In general, the tool has the following sections:

- Header
- Content
- Footnote
- Pop-ups
- Notifications
- Messages for the user.
- Execution errors.

3.1.1 Header

The header is the section that appears in the upper part of the screen and always above the content displayed on the screen:

Image 3.Web tool header.

As can be seen in Image 3, the header has the following features:

- Logo: Ihobe logo. You can click on it at any time to go to the main project screen.
- Title: name shown for the web application.
- User options: the full name is shown in the user section. The option to log out will appear when you click on the element. After logging out, you will be taken back to the main Ihobe website.
- Application language: list of the languages available for the application: Spanish, Basque and English.

3.1.2 Footnote

The footnote (

Image 4) identifies the project promoter and the version of the tool.

Image 4. Web tool footnote

3.1.3 Pop-ups

Pop-ups are squares that are displayed over the content. They are usually forms or simply confirmation messages.

3.1.4 Restore projects

To restore a project, the user must click on the button for the project row in question from the list. You can also restore multiple projects by using the checkboxes to select the desired projects and then clicking on the button that is enabled above the list.

You must always confirm the action:

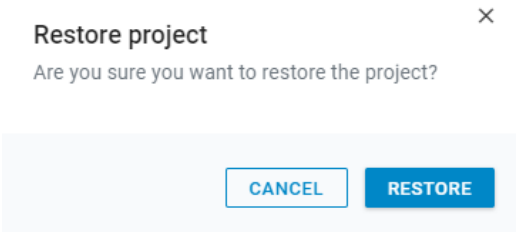


Image 5. Project restoration confirmation.

3.1.5 Notifications

Notifications are shown when you perform certain actions. Rapid messages are shown that appear after a few seconds (for example, Image 6).

Image 6. Notification

The different notifications are set out in Table 2 below:

Table 2. Type of notifications

Type	Colour	Description
Success	Green	The requested action has been completed correctly.
Warning	Amber	Warning indicating that the requested action cannot be executed, without being an error.
Error	Red	The requested action has not been completed due to an error.

3.1.6 Messages for the user

The different forms that must be completed for the tool to function include a series of messages marked with the ⓘ icon.

When you place the cursor over the icon, an information note will appear in the adjacent field.

3.1.7 Execution errors

A screen with a title and a message is shown to notify you of an execution error. Two buttons are shown; one to cancel the action and the other to restart it.

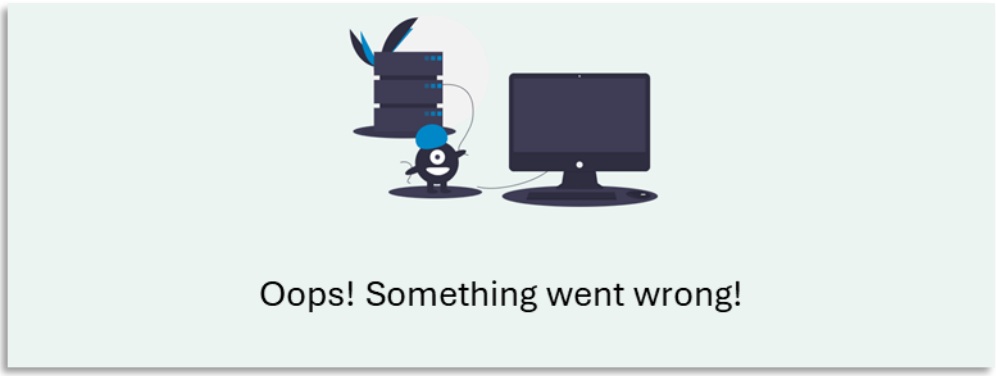


Image 7. Execution error screen.

A pop-up, accessible using the button with the information icon ⓘ has been included to report any unexpected error to the support team.

3.2 Project list

Once you have accessed the tool, you will see the 'Project List' screen (Image 8).

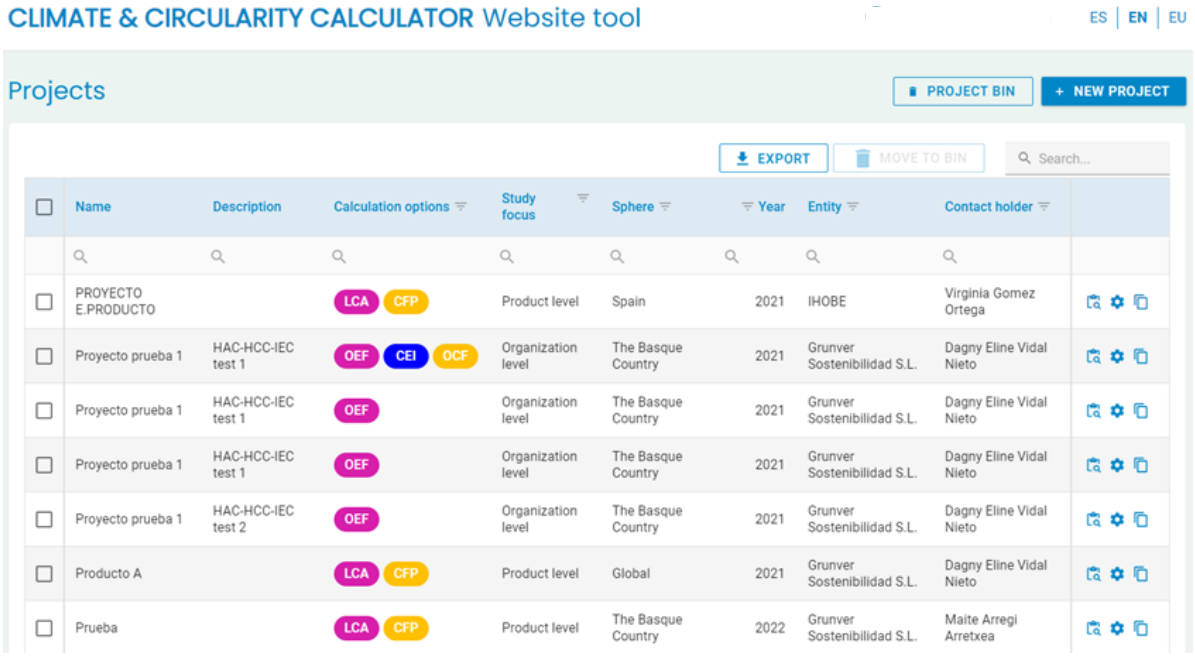


Image 8. Project list screen

You can perform the following actions from the '**Project List**':

a. Create a new project

b. Access the project bin.

c. Access a project.

d. Modify a project:[6].

e. Copy a project.

f. Remove a project: by removing a project.

The approach is the only point that cannot be modified in a project. The calculation setting can be modified, but the following is recommended:

6

If in doubt, you should select the largest number of calculation parameters as the forms are dependent on the selected calculation setting in the case of the projects with organisation approach. If the CEI calculation is added after initially creating the project, each data input form must be revised to complete the additional information needed

3.3 Project creation

Clicking on the '+ NEW PROJECT' icon will take you to the project creation screen and the form shown in Image 9 will appear. Fields marked with (*) are compulsory.

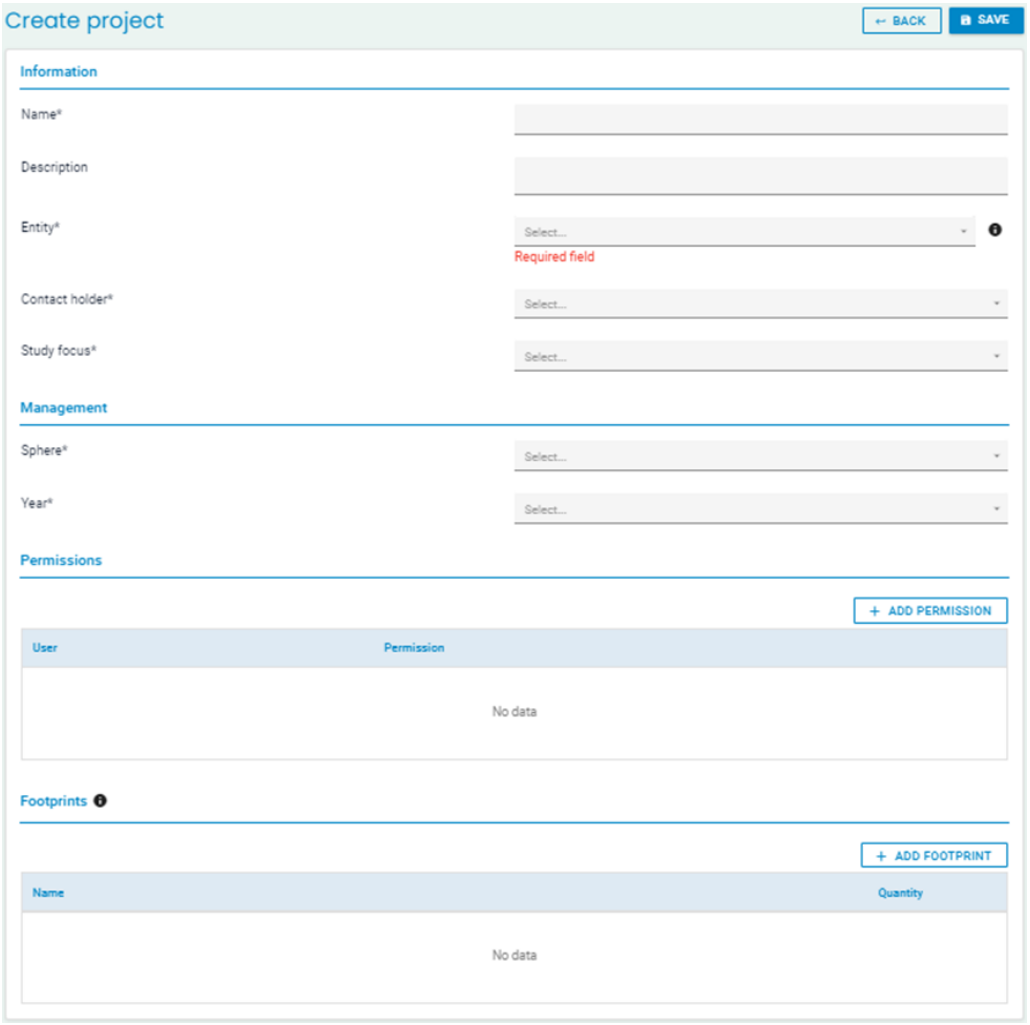


Image 9. Project creation screen.

a. Information

- **Name***: visible name of the project.
- **Description:** project description.
- **Editable by other people in the company:** if selected, users from the same entity will have editing permissions for the project. This field can only be edited by the project creator.

- **Study approach:** you can select this if you wish to conduct a product or organisation study.

3.3.1 Product approach

Once the product approach is selected in 'Study Approach*', the form will change (Image 10) and the product approach calculation options will appear:

1. Life Cycle Assessment (LCA)
2. Product Carbon Footprint (PCF)

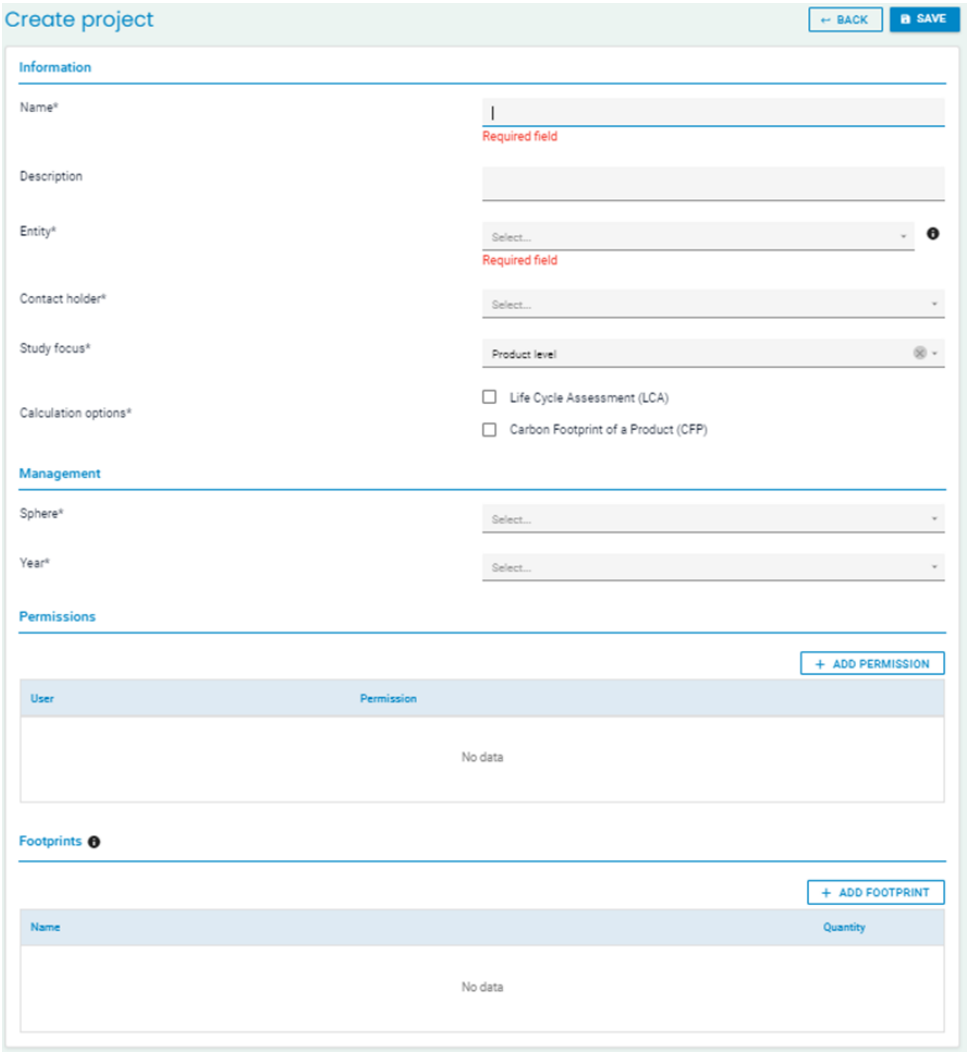


Image 10. Project creation with product approach screen.

b. Management

- **Scope*:** information value. Select from among the different geographical scopes on the dropdown menu.
- **Year*:** information value. Indicate the year to which the study refers.

c. Footprints

In this section, projects can be interlinked so that the information included in them can be simultaneously assessed. In other words, the input data of the included project will be added to the input data of the project on which you are working.

Use the '+ ADD FOOTPRINT' button shown in Image 11 to link a project, and the dialogue box to 'Add a new footprint' will appear (See

Image 11. '+ADD FOOTPRINT' button

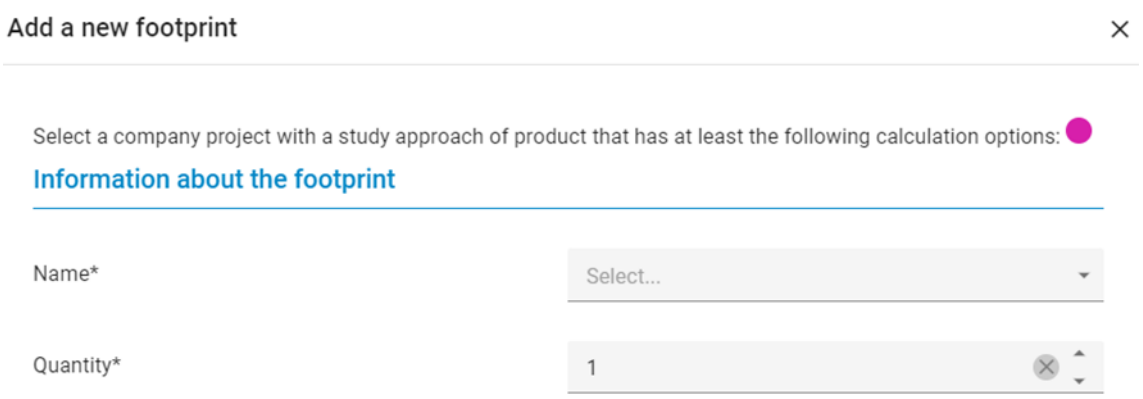


Image 12. Dialogue box to link projects.

- **Name*:** a dropdown menu is shown in this field where you can select the project that you wish to link to the project on which you are working. Only the projects that are compatible will appear; in other words, that have the same approach and the same calculation option.
- **Quantity*:** you can use this field to indicate how many times to include the activity data of the project that you wish to link to the project underway.

Only two projects that have the same approach and the same defined calculation option can be linked. The information of the related projects will be taken into account when calculating the different results.

Once you have selected the project and the quantity, click on the 'APPLY' button and the linked project will appear in the footprint table shown in Image 10.

The input data associated with the added project will be visible on the browsing pages where the input data of the project in development are included; the added items and processes are indicated by a header with the name of the project and in yellow. (See Image 13).

Image 13. Icons indicating input data from the linked project in the 'Footprints' section. From left to right: project icon, item icon and process/material icon.

The project input data will not be editable from the project in development to which it has been linked, and will only be visible. In any event, as it is a link, any editing of the original project will be logged and visible in all the projects to which it has been linked. For more

streamlined linking, a hyperlink to the original project will be enabled from the data input browsing pages in order to be able to edit the source project at any time.

Any footprint added to the one on which you are working will only be available to be viewed and cannot be edited from the project in development. Hyperlinks are enabled to the source project for as streamlined linking as possible.

Once you have inserted the field, you must click on the 'Save' button, located at the top of the section (Image 14) to create the project.

Image 14. 'Save' button.

3.3.2 Organisation approach

Once the organisation approach is selected in 'Study Approach*', the form will change (Image 15) and the product approach calculation options will appear:

1. Corporate Environmental Footprint (CEF)
2. Circular economy indicators (CEI)
3. Corporate carbon footprint (CCF)

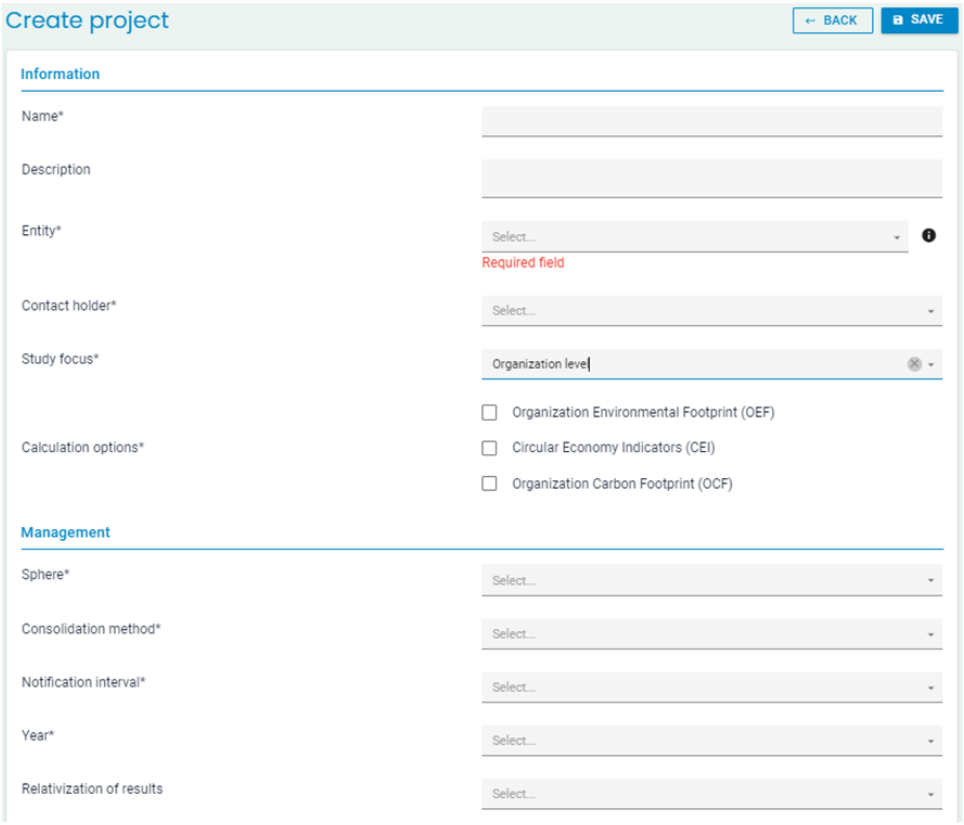


Image 15. Project creation with organisation approach screen.

b. Management

- **Scope*:** information value. Select from among the different geographical scopes on the dropdown menu.
- **Consolidation method*:** information field. Select the control approach or the participation share according to the study to be conducted.
  - **Control:** the organisation considers all the activities at the facilities where it has operational control or financial control.
  - **Participation share:** the organisation is accountable for its part of the activities of the respective facilities as per its share.
- **Notification interval*:** information field. Select if the interval is annual, half-yearly or other as per the study to be conducted.
- **Year*:** information value. Indicate the year to which the study refers.
- **Turnover*:** field only visible and necessary to calculate the CEI.

- **Results relativisation:** optional data to downscale the results of the environmental assessment both for CEF and CEI.
    - Turnover
    - Main raw material mass
    - Total units.
    - Others: the user must specify the included unit (singular)

c. Footprints

The operating mechanism of this section is the same as in the case of the projects with product approach (See Point c. Footprints in Section 3.3.1. in this manual).

Only projects with the same approach and with the same calculation setting can currently be linked.

If the projects that are going to be linked belong to previous years, the emission factors of the retailers should be updated to the closest emission factor in term to the year being assessed for those aspects that require electricity consumption[7].

Once you have inserted the field, you must click on the 'Save' button, located at the top of the section (Image 14) to create the project.

Data input

Once the project information at product level has been saved, the home page of the tool is shown with the following sections:

- **Project Name:** name indicated for the project.
- **Calculation setting:** the calculation setting selected for the study is shown next to the name using a colour code.
- **Stages/scopes:** the left column shows the different stages/scopes in which to classify the inventory input data of the product or of the organisation. In the product case, we have the stages shown in Image 16, and in the case of organisation, the scopes[1] shown in Image 17.

[7] The retailer and the retailer year closest in time to the year being assessed will therefore need to be selected. See how to add a process/material in the 'PROCESS/MATERIAL' point of Section 3.3.3 of this manual.

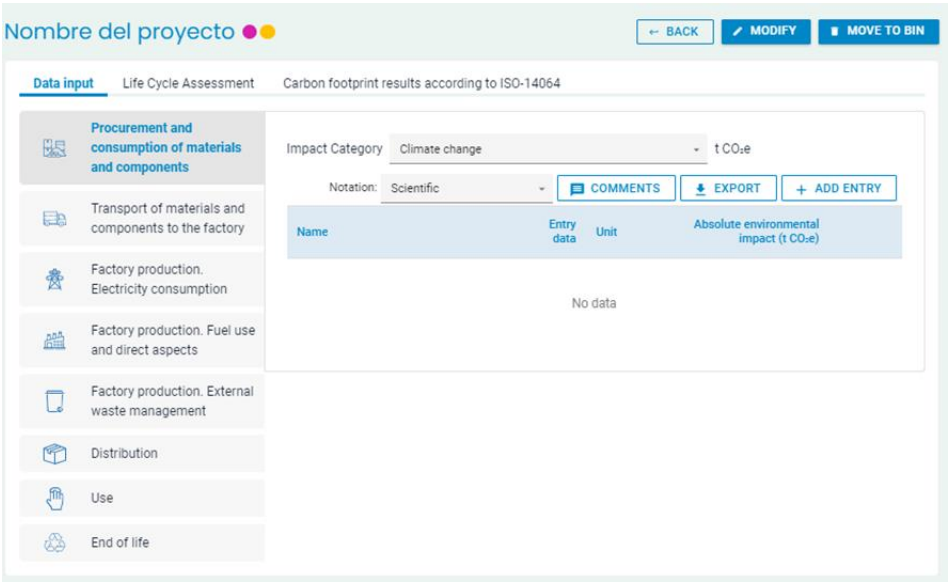


Image 16. Main browsing page for input data at product level (LCA+PCF).

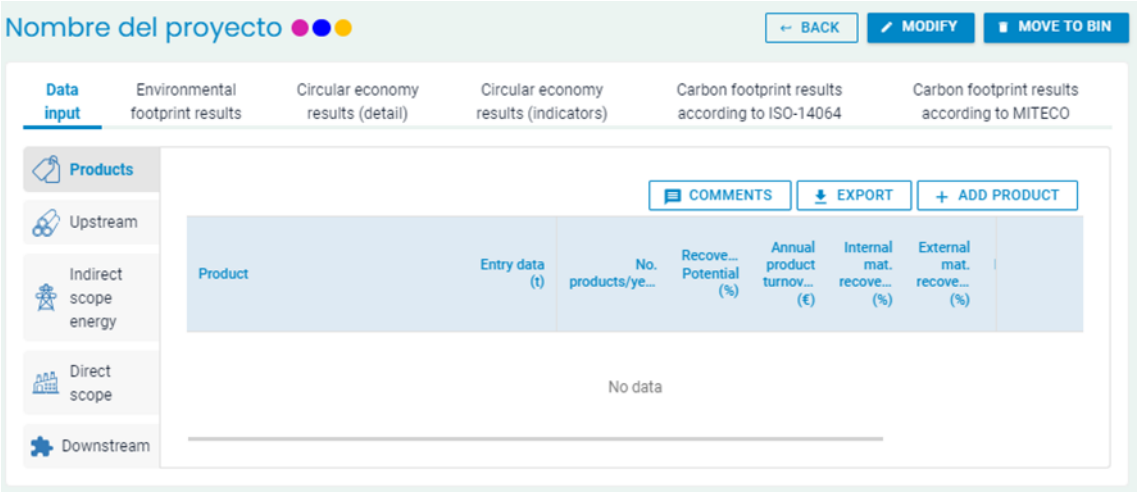


Image 17. Main browsing page for input data at organisation level (CEF+CCF+CEI).

Not all the data input browsing pages apply to all the calculation settings or metrics. Table 3 shows the metrics to which each of the scopes in which the input data are structured apply.

Table 3. Summary table of the calculation settings associated to the different data input and scope pages:

Type	Description
Product	CEI
Upstream indirect scope	CEF, CCF (ISO 14064-1), CEI
Energy indirect scope	CEF, CCF (MITECO + ISO 14064-1), CEI
Direct scope	CEF, CCF (MITECO + ISO 14064-1), CEI
Downstream indirect scope	CEF, CCF (ISO 14064-1)

- **Browser tabs:** the 'Data Entry' page is shown in the upper part, along with the different result sheets as per the selected calculation setting.
- **Impact Category:** dropdown menu where the impact category is selected to show the results in the table.
- **Data Table:** a table will appear in each tab/stage and show the content referring to the included data: the input data and the different attributes of that data in Data Entry, and the data referring to the results in Results.
- **Modify:** button to modify the information on the project.
- **Move to Bin:** button to move the project to the Project Bin.
- **Notation:** dropdown menu to select the notation to be used to display the results.
- **Comments:** comments section for each stage.
- **Export:** button to export the table visible on the page.
- **Add Entry:** button to access the form to include activity data in the project.

3.3.3 Add a new entry

Image 18. Add Entry button

When you click on the Add Entry button (Image 18), the form to add input data will appear (Image 19).

PROCESS/MATERIAL

A process/material is the database process that represents the input data to be entered by the user. The information of the record that must be included will comprise:

- Record information
  - **Main item*:** item to which the process/material is added. The activity data entered in the process/material will be multiplied by the number of units of the main item in which it is included.
  - **Family*:** family of the process/material.
  - **Sub-family*:** sub-family of the process/material.
  - **Name*:** selected process/material.

  The following compulsory fields will appear in the case of filling in an organisation study with CCF calculation setting:
  - **Retailer*:** the own retailer of the organisation will be selected on the dropdown menu.
  - **Retailer year*:** the year of carrying out the study will be selected.
- Data Entry

- **Amount*:** magnitude of the input data to be added to the project in the unit marked in the free field. Entry data can only be currently added with the units marked by the database that contain the tool. Furthermore, the amount field allows for a specific number of digits:
    - 'Data Entry' 'Process/Material': unit of mass over 0.1 g and under 9,999,999,999 kg.

- **Comments**: Comments section exclusive for added input data that can be consulted from the visible data table from the 'Data Entry' main browsing page.

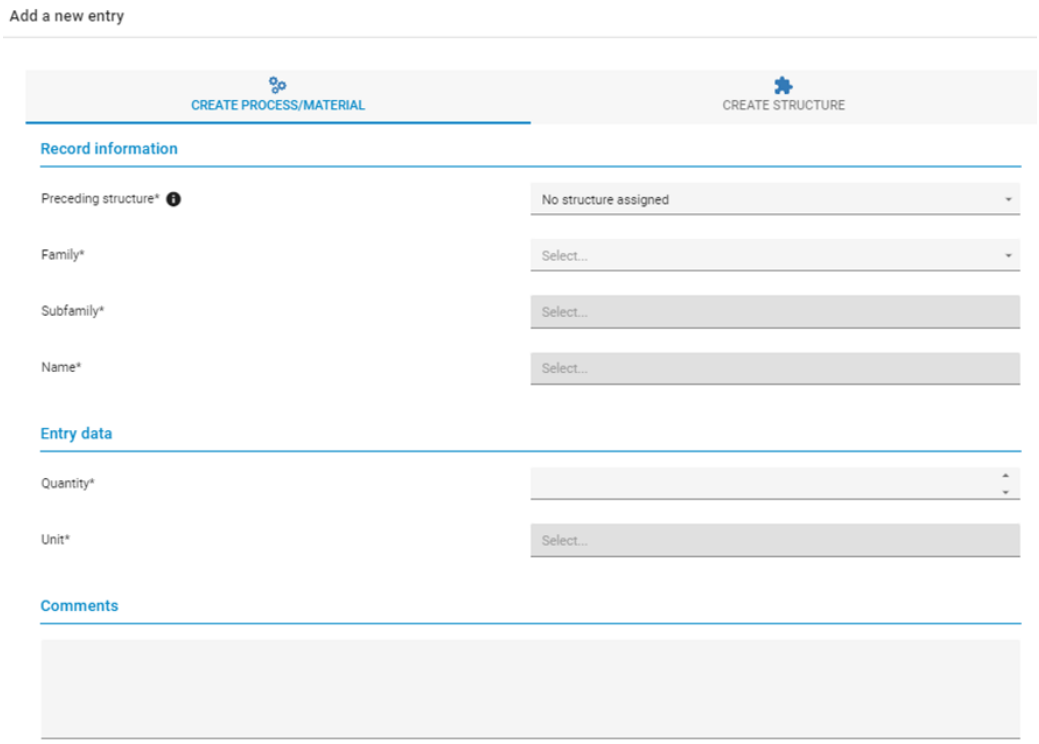


Image 19. Form for 'PROCESS/MATERIAL' in 'Add a New Entry'.

- **Circular Economy Values**: an additional block will appear in the form that refers to CEI [2] (Image 20) in the case of selecting a process/material that refers to the consumption of a raw material, to energy consumption, to water consumption or to waste management, and the calculation setting includes CEI:
    - Materials:
        - **Secondary mat %:** the percentage of this material that is secondary, see, recycled.
        - **Renewable mat. %:** the percentage of this material that is renewable.
    - Energy:
        - **% renewable energy:** the percentage of renewable energy of the mix of the retailer contracted by the organisation that can be consulted in official sources such as the CNMC (direct link from the tool.
    - Water:

- Water output (m^3): amount of water discharged to a natural environment in m^3.
- The water discharge is of an adequate quality (as per the law): yes or no

- Waste Management:
  - Internal material recovery.
  - External material recovery.
  - Elimination.
  - Energy recovery.
  - Incineration without waste recovery.

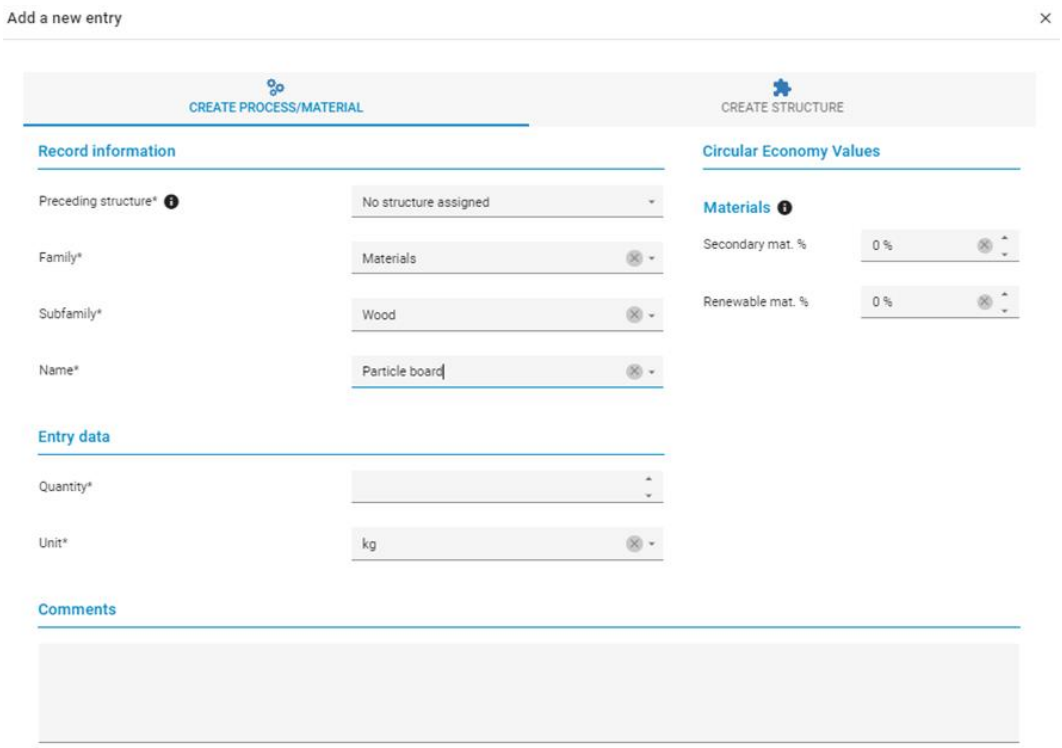


Image 20. Form for 'PROCESS/MATERIAL' in 'Add a New Entry' in an organisation project.

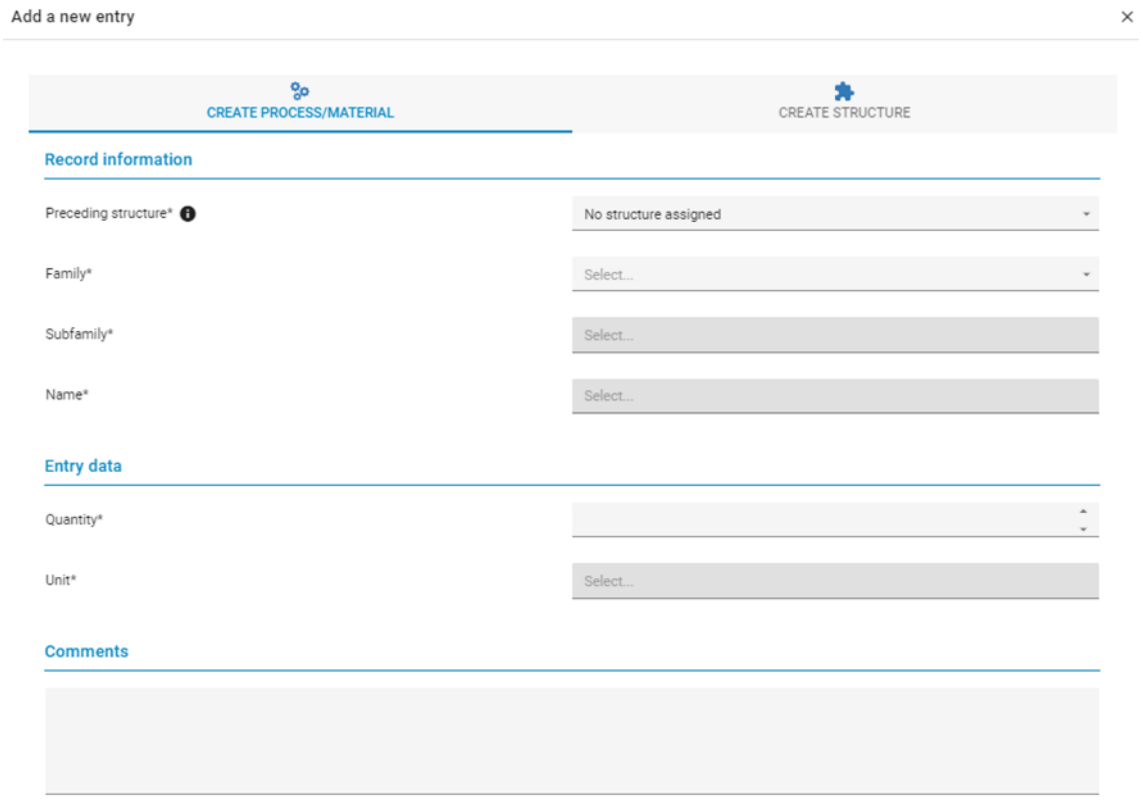


Image 21. Form for 'ITEM' in 'Add a New Entry'.

ITEM

Record of an item (or several units) that is used to classify the items/processes or to multiply the entry data record for a specific number of units. It is a useful feature when displaying the results, particularly in the case of the LCA and the CEF (Image 21).

- Item information
  - Main item*: item to which add the item. The item unit will be multiplied according to the item in which it is added.
  - Name*: visible name for the created item.
- Data Entry
  - Number*: item units. These units will multiply each item or process/material included here. Entry data can only be currently added with the units marked by the database that contain the tool. Furthermore, the amount field allows for a specific number of digits:
    - 'Data Entry' 'Item' magnitudes: number over 0.01 units and under 9,999,999,999 units.
- Comments: comments section exclusive for added input data that can be consulted from the visible data table from the 'Data Entry' main browsing page.

3.3.4 Add a product

If the information is filled in for an organisation project with the CEI calculation setting, the 'Product' section will be visible (Image 22).

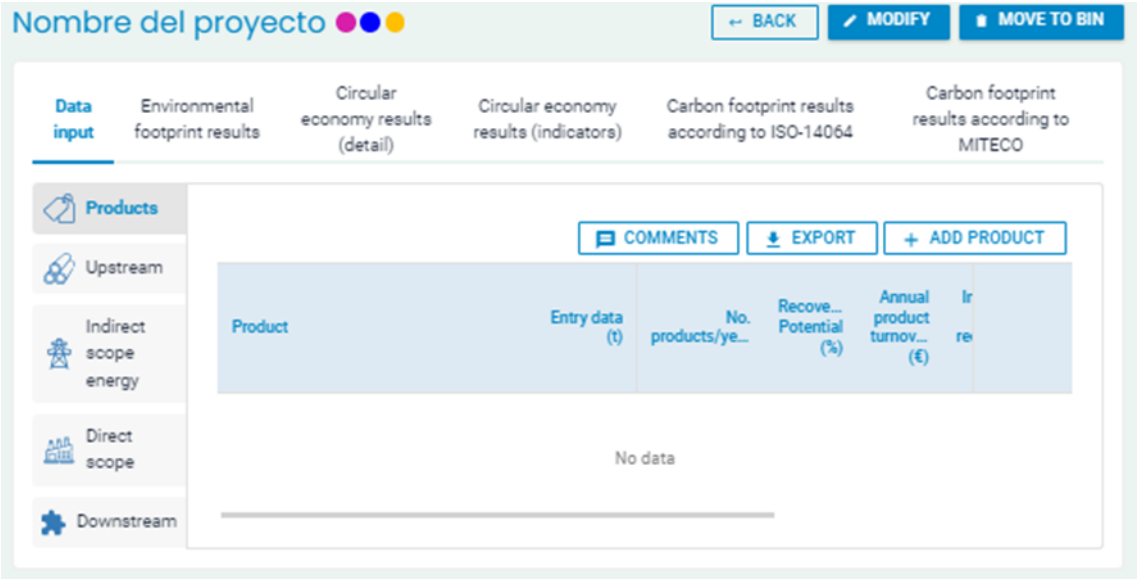


Image 22. Screen of the 'Product' section in an organisation project (CEF+CCF+CEI).

To add a product, click on the button shown in Image 23 which will take you to the form in Image 24.

Image 23. 'ADD PRODUCT' button.

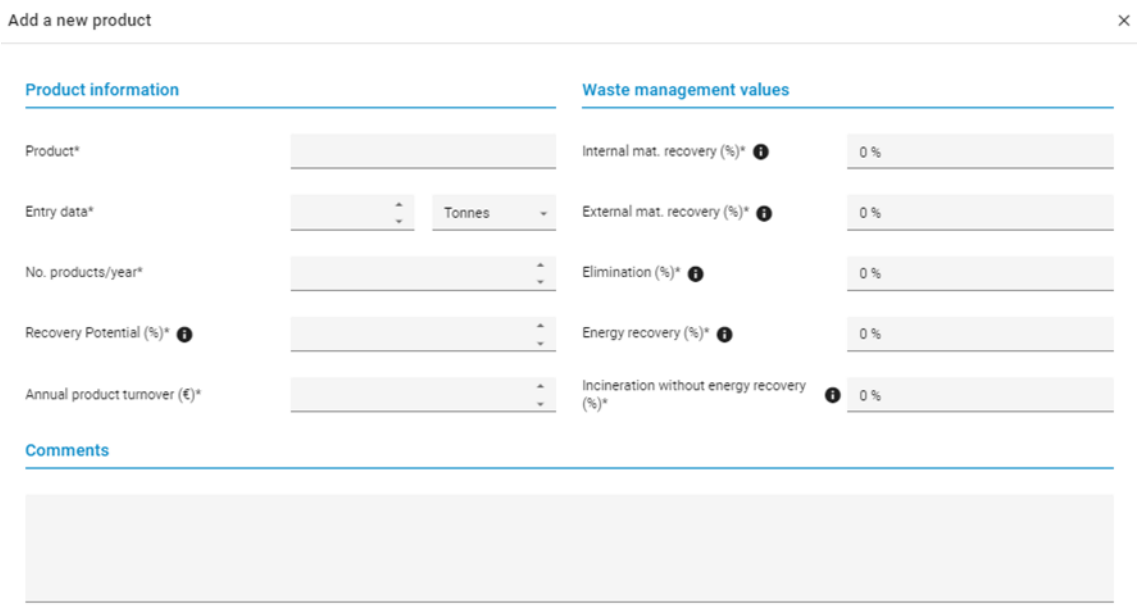


Image 24. Screen of the 'Add a New Product' form.

- Product information:
  - **Product***: name of the product.

    - Entry Data*: value in tonnes in the product entry. The amount field allows for a specific number of digits:
        - Product magnitudes: unit of mass over 1 g and under 9,999,999,999 tonnes.
    - No. Products/Year*: number of products per year.
    - Recovery Potential*: percentage value associated with the potential of product to be integrated in the economy again.
    - Annual Product Turnover*: turnover of the products in euros.
- Waste Management Values: product management values in percentage units. The sum of the entered values must be 100.
    - Internal material recovery
    - External material recovery
    - Elimination.
    - Energy recovery.
    - Incineration without waste recovery.
- Comments: comments about the product.

3.4 Result display

3.4.1 Product approach

LIFE CYCLE ASSESSMENT (LCA)

Once all the input data have been entered, the results of the life cycle assessment will be shown in the table by stage and activity data entered with the subtotals and characterisation factors for each item or process/material (Image 25).

- Impact Category: dropdown menu where the impact category is selected to show the results in the table
- Entry Data: input data included for each process/material in the project.
- Characterisation factor: characterisation factor that represents the impact per material/process unit included in the project.
- Absolute environmental impact: absolute environmental impact of each process/material with the subtotals of each item (where available) and of each scope.

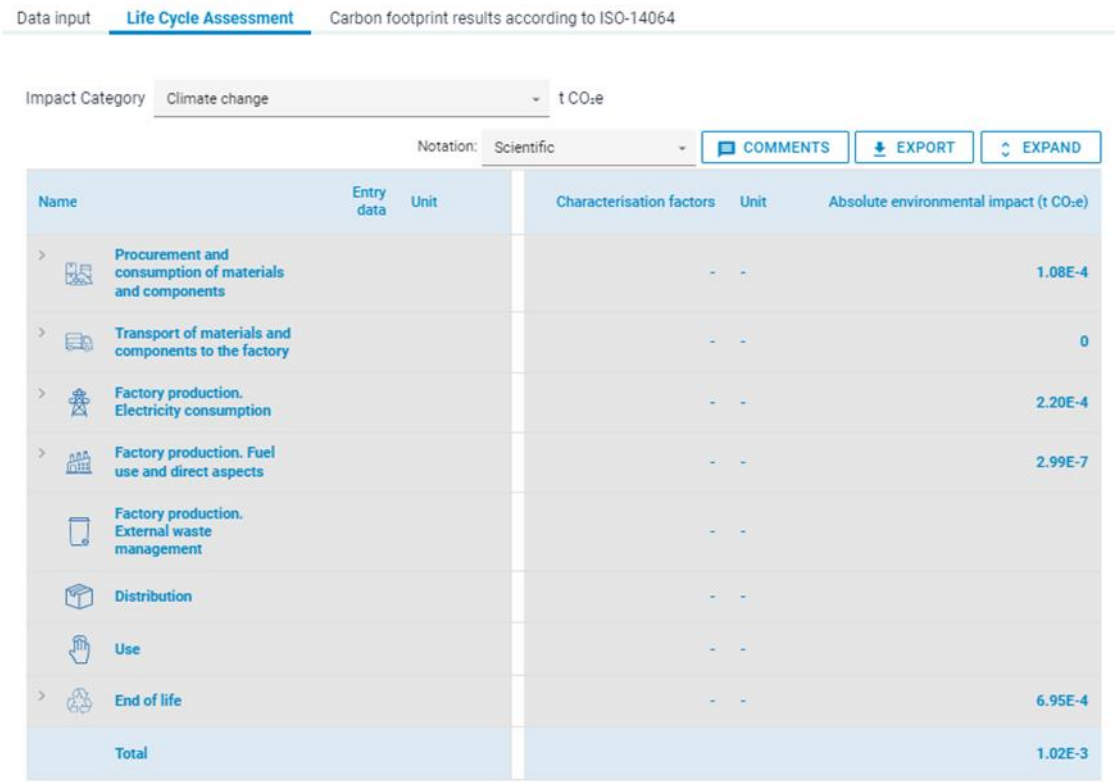


Image 25. Life cycle assessment result screen

CARBON FOOTPRINT RESULTS as per ISO-14067

The 'Carbon Footprint Results as per ISO 14067' tab will show the GHG emissions in tonnes of CO2 equivalent associated with each stage, classified as per "ISO 14067:2018 Greenhouse Gases – Product Carbon Footprint – Quantification Requirements and Guidelines" (See Image 26):

- Total GHG emissions
- Fossil GHG emissions
- Biogenic GHG emissions
- LUC GHG emissions

Data input | Life Cycle Assessment | **Carbon footprint results according to ISO-14064**

Notation: Scientific | COMMENTS | EXPORT | EXPAND

Name	Entry data	Unit	Total GHG emissions (t CO_2e)	Net fossil GHG emissions (t CO_2e)	Biogenic GHG emissions (t CO_2e)	LUC GHG emissions (t CO_2e)
Procurement and consumption of materials and components			1.08E-4	1.05E-4	1.46E-7	3.09E-6
Transport of materials and components to the factory			0	0	0	0
Factory production. Electricity consumption			2.20E-4	2.18E-4	5.36E-7	6.15E-7
Factory production. Fuel use and direct aspects			2.99E-7	2.99E-7	4.23E-11	5.37E-11
Factory production. External waste management						
Distribution						
Use						
End of life			6.95E-4	6.95E-4	2.06E-8	5.27E-9
Total			1.02E-3	1.02E-3	7.03E-7	3.71E-6

Image 26. Product carbon footprint results as per ISO 14067 screen.

3.4.2 Organisation approach

ENVIRONMENTAL FOOTPRINT RESULTS

Once the activity data have been entered in 'Data Entry', the corporate environmental footprint results will be shown in the table including the impact per process/material included with the subtotal by scopes and with the downscaled and absolute impact (Image 27).

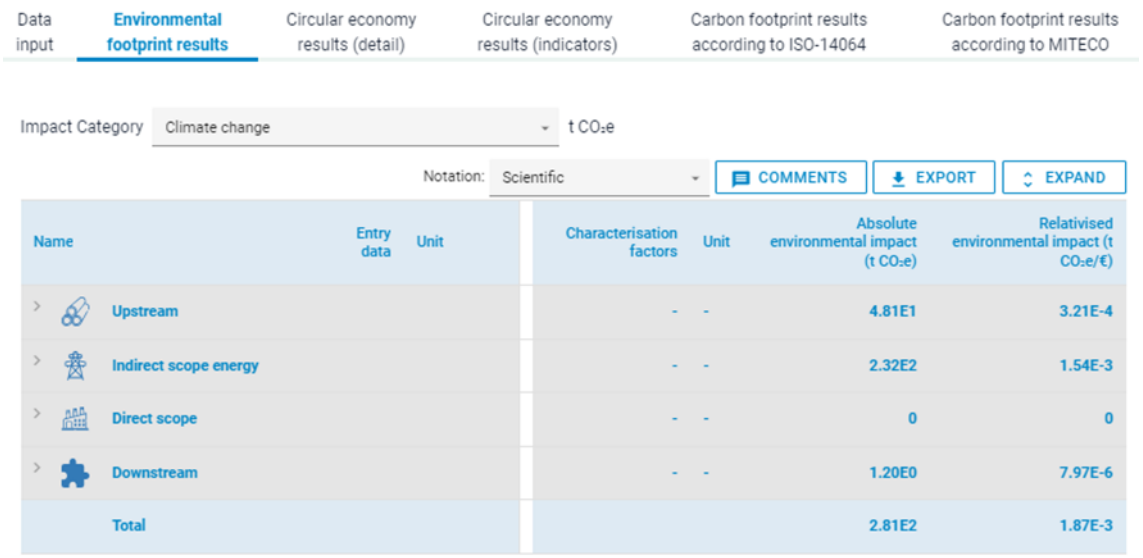


Image 27. Corporate environmental footprint result screen

- **Impact category:** dropdown menu where the impact category is selected to show the results in the table.
- **Entry Data:** input data included for each process/material in the project.
- **Characterisation factor:** characterisation factor that represents the impact per material/process unit included in the project.
- **Absolute environmental impact:** absolute environmental impact of each process/material with the subtotals of each item (where available) and of each scope.
- **Relativised environmental impact:** the downscale unit defined when creating the project to show the value of the downscaled environmental impact will be used.

CIRCULAR ECONOMY RESULTS (DETAIL)

This tab shows the circular economy information of each process/material entry in the project. The entries are shown groups by scopes (Image 28).

Data input | Environmental footprint results | **Circular economy results (detail)** | Circular economy results (indicators) | Carbon footprint results according to ISO-14064 | Carbon footprint results according to MITECO

Notation: Scientific | COMMENTS | EXPORT | COLLAPSE

Name	Entry data	Unit	Inputs: Mater... (t)	Seconda... mat. %	Renewa... mat. %	Ener... (GJ)	Renewa... energy %	Internal materi... recov... (%)	External materi... recov... (%)
Upstream									
MMPP	1	unit	-	-	-	-	-	-	-
Alloyed aluminum	12000	kg	1.20E1	25 %	0 %	N/A	N/A	N/A	N/A
Transporte MMPP	1	unit	-	-	-	-	-	-	-
Heavy truck cargo transportation (OBSOLETE)	555	units	N/A	0 %	0 %	N/A	0 %	N/A	N/A
Passenger transport by articulated lorry (more than 33 t) B30 (input km)	156	km	5.49E-2	0 %	0 %	2.14E0	0 %	N/A	N/A
Indirect scope energy									
Direct scope									

Image 28. Circular economy results (detail)

CIRCULAR ECONOMY RESULTS (INDICATORS)

The 'Circular Economy Circular (indicators)' page is shown in the circular economy indicator scorecard.

- Scorecard:
  - **Indicator:** name of the circular economy indicator.
  - **Description:** description of the circular economy indicator represented.
  - **Result:** result of calculating the indicator.
  - **Unit:** unit in which the result is represented.
  - **Relativised Result:** the result of the indicator downscaled with respect to the unit defined in the creation of the project is shown.
  - **Target:** icons are used to show the desired trend in line with the ethics of the circular economy.
  - **Calculation:** the formula used to calculate each indicator is shown.
- **Show additional indicators:** this button is used to display a table of indicators in the lower part of the window, following the same table structure as that of the header indicators.
- **Sankey Diagram:** a still image Sankey diagram is shown and which describes the different indicator flows calculated in the CEI study (Image 30).

- **Key:** the icons descripted in the 'Target' column are defined.

Data input | Environmental footprint results | Circular economy results (detail) | **Circular economy results (indicators)** | Carbon footprint results according to ISO-14064 | Carbon footprint results according to MITECO

Notation: Scientific | EXPORT | SHOW ADDITIONAL INDICATORS | SANKEY DIAGRAM | LEYEND

Indicator	Description	Result	Unit	Relativised results	Unit	Target	Calculation	ID
Headline indicators								
Material productivity	It represents the company's dependence on the consumption of linear primary materials	1.66E4	€/t	N/A	N/A	▲	Representative unit / A	-
Circular inflow	% of recycled and renewable material as a percentage of total input material	24.89	%	N/A	N/A	▲	H / N	P
Circular outflow	% of recovered material as a proportion of total waste generation	0	%	N/A	N/A	▲	O / (Ñ + O)	Q
Circularity index	Weighted average between % of circular inflows and % of circular outflows	0	%	N/A	N/A	▲	(P + Q) / N + Ñ + O	K
Waste generation	% of generated waste of the total material input	0	%	N/A	N/A	▼	(Ñ + O) /N	-
% renewable energy input	% of renewable energy consumed of the total energy consumption	0	%	N/A	N/A	▲	ER / Etot	-
Circular water outflow	% of total circularity of all water outlets	0	%	N/A	N/A	▲	AC / AV	-

Image 29. Circular economy results screen (indicators)

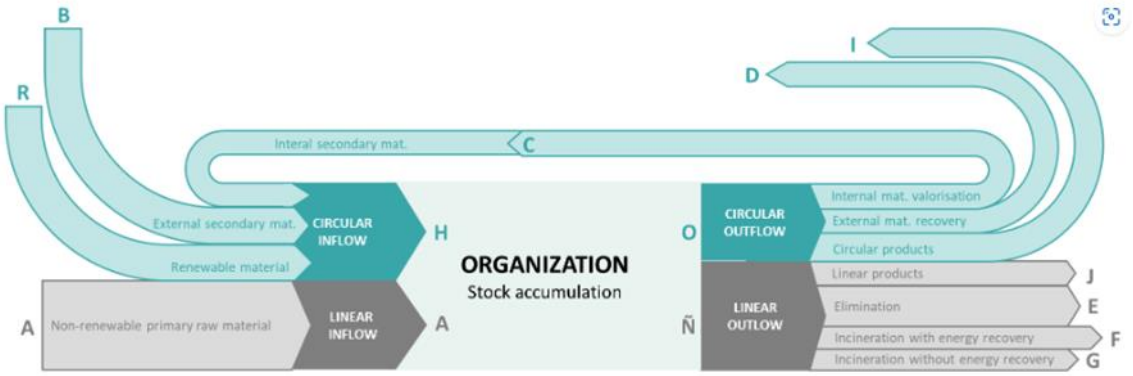
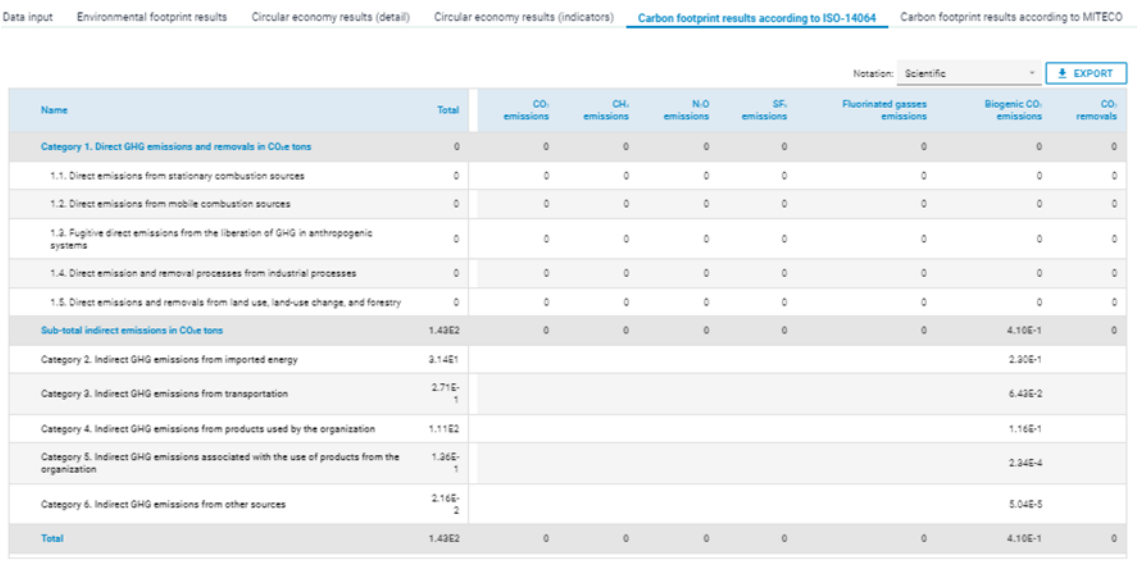


Image 30. Sankey Diagram.

CARBON FOOTPRINT RESULTS as per ISO-14064

The 'Carbon Footprint Results as per ISO-14064' tab shows a table that classifies the emissions aligned with "UNE-EN ISO 14064-1:2019 Greenhouse Gases. Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals" (Image 31).



Name	Total	CO_2 emissions	CH_4 emissions	N_2O emissions	SF_6 emissions	Fluorinated gasses emissions	Biogenic CO_2 emissions	CO_2 removals
Category 1. Direct GHG emissions and removals in CO_2e tons	0	0	0	0	0	0	0	0
1.1. Direct emissions from stationary combustion sources	0	0	0	0	0	0	0	0
1.2. Direct emissions from mobile combustion sources	0	0	0	0	0	0	0	0
1.3. Fugitive direct emissions from the liberation of GHG in anthropogenic systems	0	0	0	0	0	0	0	0
1.4. Direct emission and removal processes from industrial processes	0	0	0	0	0	0	0	0
1.5. Direct emissions and removals from land use, land-use change, and forestry	0	0	0	0	0	0	0	0
Sub-total indirect emissions in CO_2e tons	1.43E2	0	0	0	0	0	4.10E-1	0
Category 2. Indirect GHG emissions from imported energy	3.14E1						2.30E-1	
Category 3. Indirect GHG emissions from transportation	2.71E-1						6.49E-2	
Category 4. Indirect GHG emissions from products used by the organization	1.11E2						1.16E-1	
Category 5. Indirect GHG emissions associated with the use of products from the organization	1.36E-1						2.34E-4	
Category 6. Indirect GHG emissions from other sources	2.16E-2						5.04E-5	
Total	1.43E2	0	0	0	0	0	4.10E-1	0

Image 31. 'Carbon footprint results as per ISO 14064' screen.

The table shows the categorised direct and indirect emissions. Category 1 refers to direct emissions and are classified according to the sources; Categories 2, 4, 5 and 6 refers to indirect GHG emissions.

The direct emissions are broken down by GHG (CO_2, CH_4, N_2O, fluorinated, biogenic and absorptions) in tonnes of CO_2 equivalent.

In the case of indirect emissions, a distinction is made between total GHG emissions and biogenic GHG emissions.

Correctly completing the 'Data Entry' will be very important ss regards the result sheet; the processes/materials must be included in the relevant scope and using the process/material indicated in each of the cases.

CARBON FOOTPRINT RESULTS as per MITECO.

The 'Carbon Footprint Results as per MITECO' page shows the direct and indirect energy emissions aligned with the MITECO tool (Image 32). The indirect emissions are not taken into account in this case.

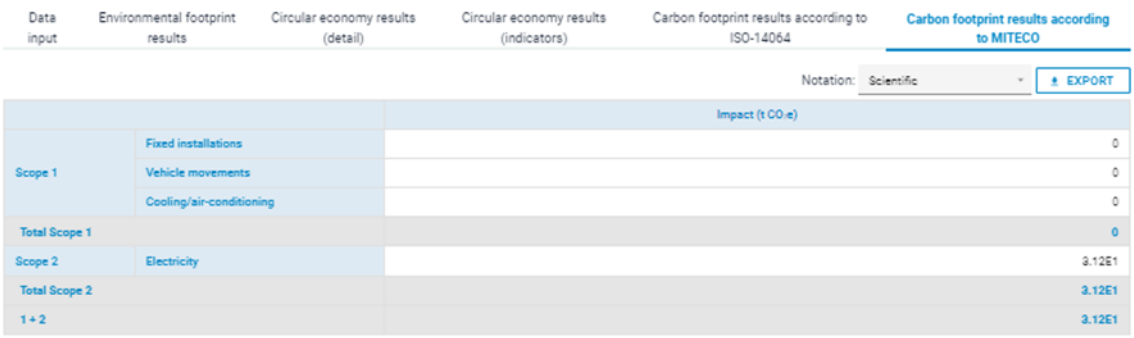


Image 32. 'Carbon footprint results as per MITECO' screen.

3.5 Project bin

You need to click on the relevant button to access the project bin (Image 33).

Image 33. 'Project bin' button

The project bin contains all the company's projects that have been removed and will be displayed as in Image 34.

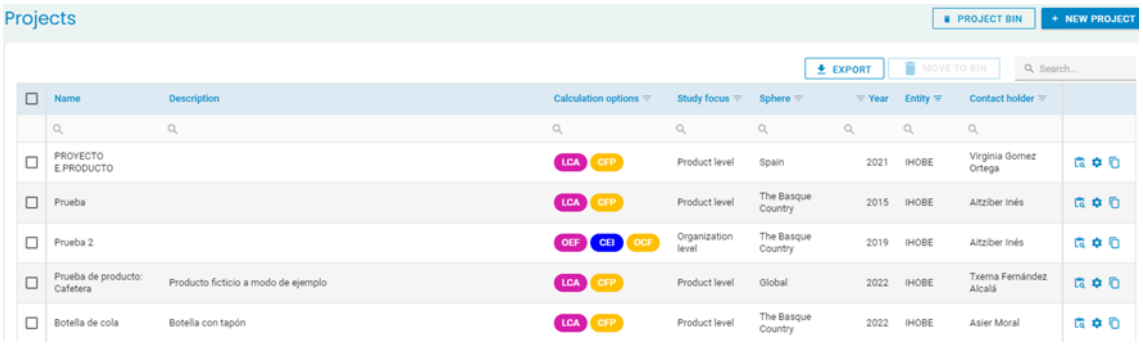


Image 34. 'Project Bin' screen.

In this section, the user can carry out the following actions:

- Restore projects
- Permanently eliminate projects

3.5.1 Permanently eliminate projects

To eliminate a project, you need to click on the button of the bin for the project row in question from the list. You can also eliminate multiple projects by using the checkboxes to select the desired projects and then clicking on the button that is enabled above the list.

You must always confirm the action (See Image 35).

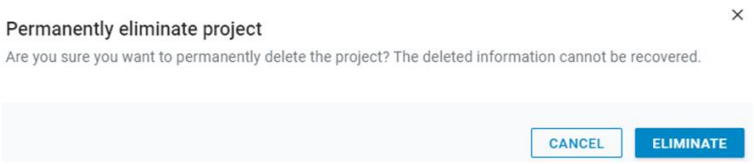


Image 35. Confirmation to definitely eliminate the project.

4 CASE STUDIES

4.1 Product approach: soft drink bottle

Determining the environmental profile of a 1.5-litre soft drink bottle by means of the life cycle assessment and the product carbon footprint. Cradle to gate study taking into account the estimated fictitious activity data shown in Figure 2.

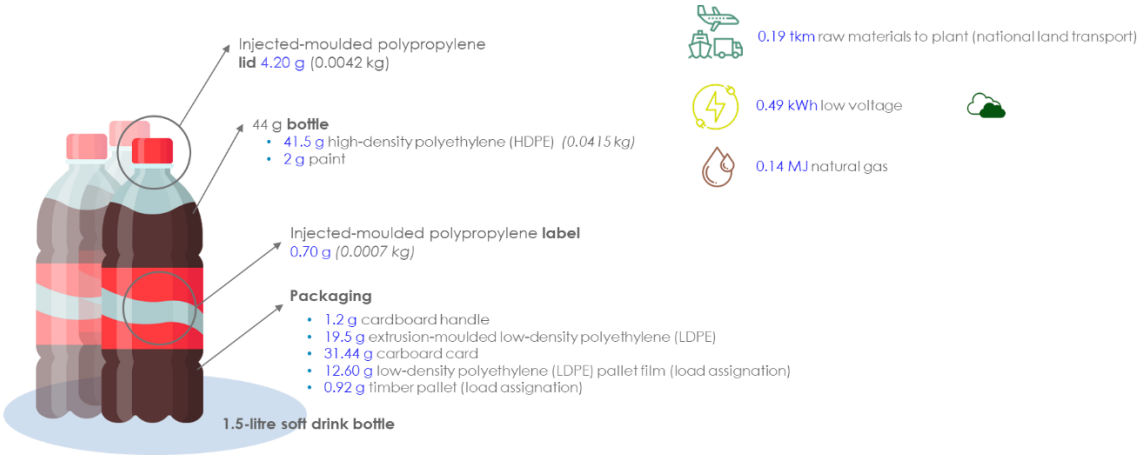


Figure 2. Fictitious case study for the environmental profile of a 1.5-litre soft drink bottle.

4.1.1 Images of the resolved case study:

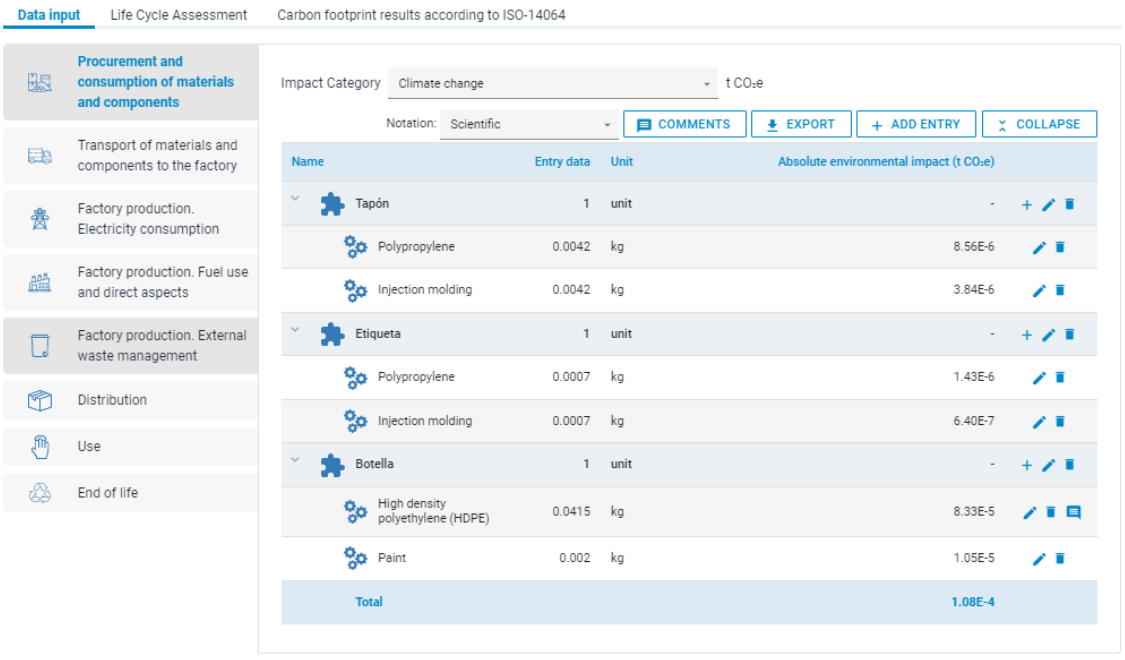


Image 36. Bottle case study: 'Obtaining and consumption of materials and components'.

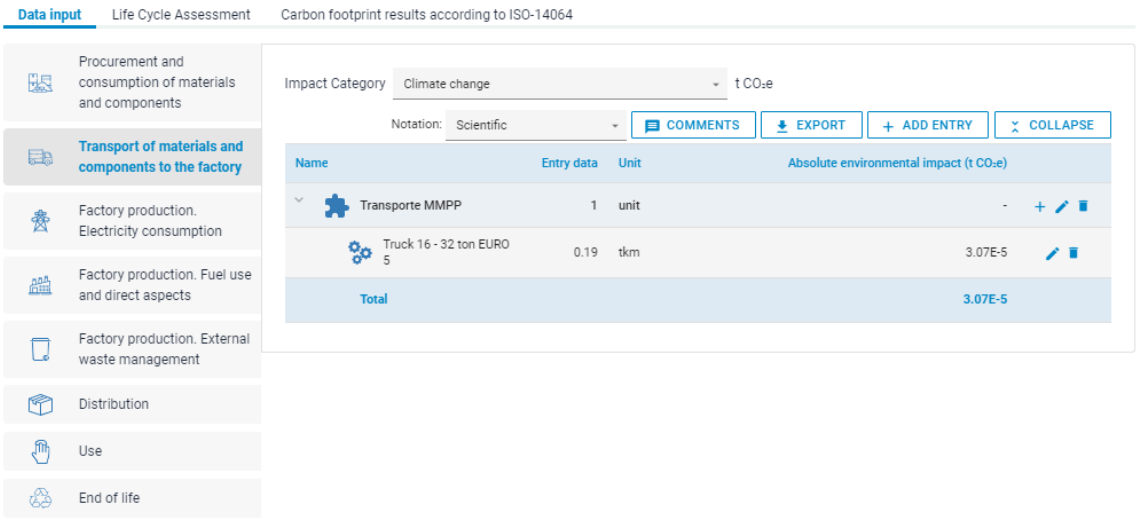


Image 37. Bottle case study: 'Transporting materials and components to factory'.

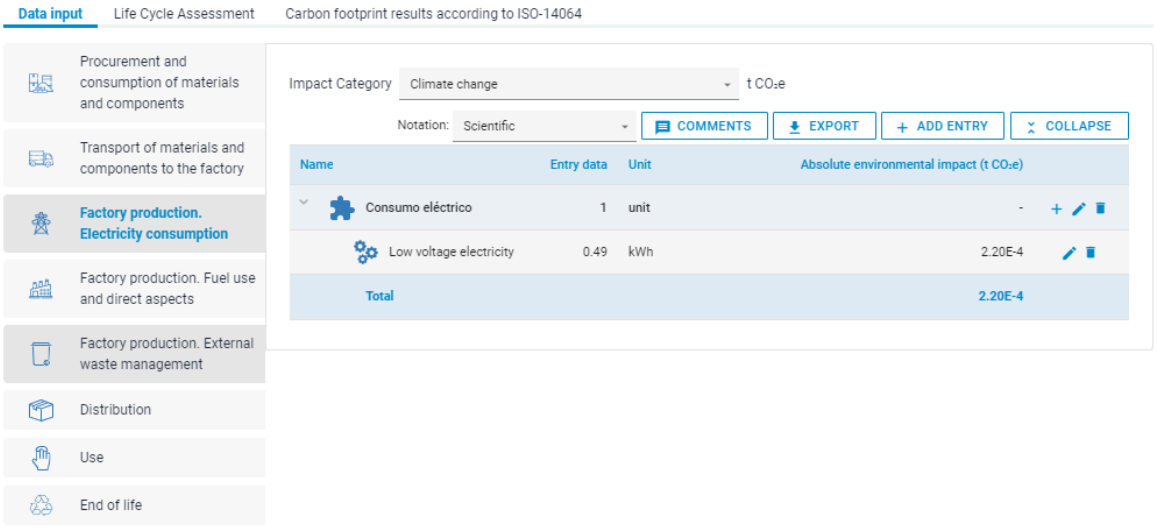


Image 38. Bottle case study: 'In-factory production. Electricity consumption'.

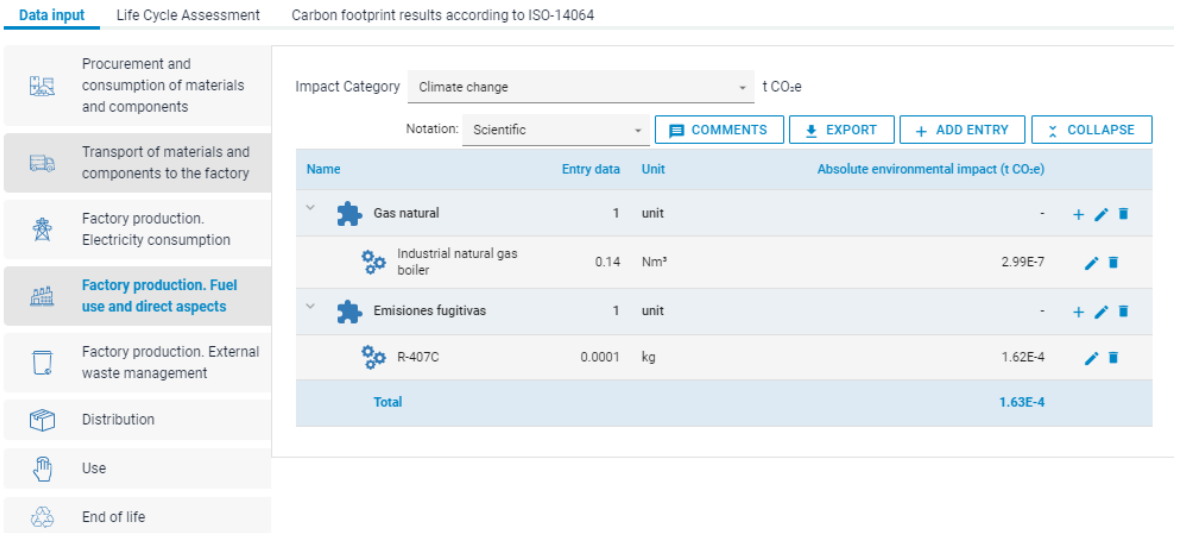
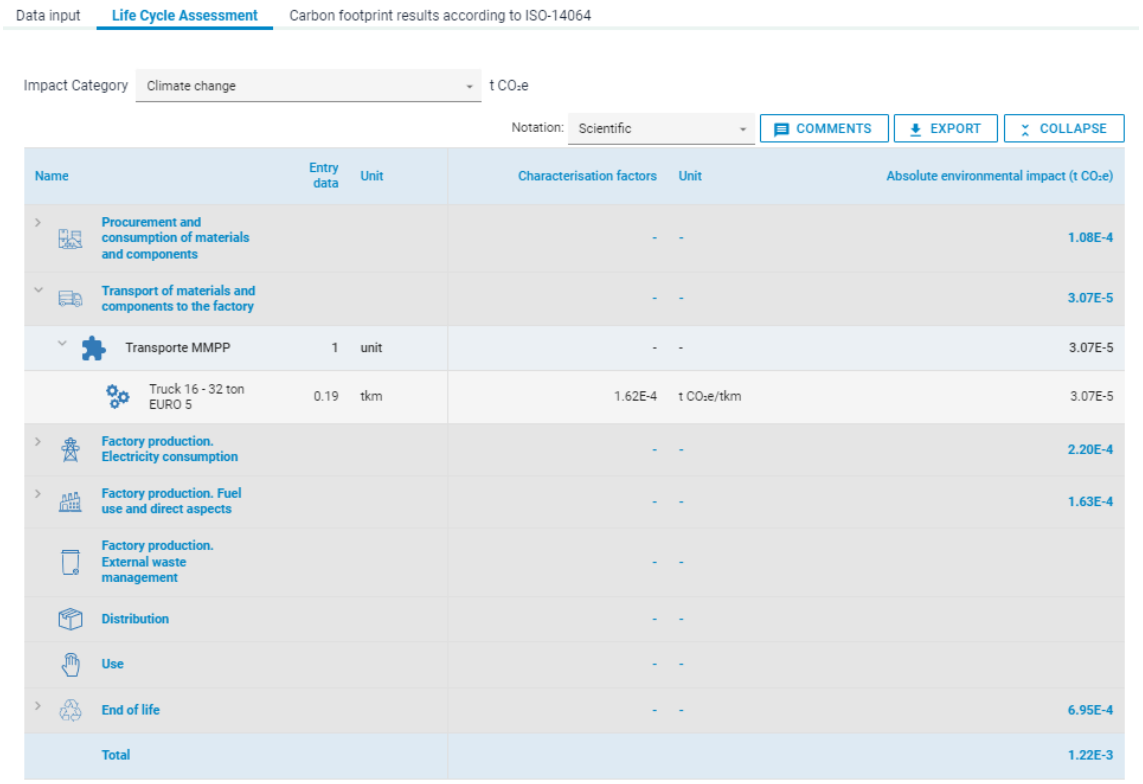


Image 39. Bottle case study: 'In-factory production. Use of fuels and direct aspects'.



Data input | Life Cycle Assessment | Carbon footprint results according to ISO-14064

Impact Category: Climate change — t CO_2e

Notation: Scientific | COMMENTS | EXPORT | COLLAPSE

Name	Entry data	Unit	Characterisation factors	Unit	Absolute environmental impact (t CO_2e)
Procurement and consumption of materials and components			-	-	1.08E-4
Transport of materials and components to the factory			-	-	3.07E-5
Transporte MMPP	1	unit	-	-	3.07E-5
Truck 16 - 32 ton EURO 5	0.19	tkm	1.62E-4	t CO_2e/tkm	3.07E-5
Factory production. Electricity consumption			-	-	2.20E-4
Factory production. Fuel use and direct aspects			-	-	1.63E-4
Factory production. External waste management			-	-	
Distribution			-	-	
Use			-	-	
End of life			-	-	6.95E-4
Total					1.22E-3

Image 40. Bottle case study: 'Life cycle assessment' results.

Data input | Life Cycle Assessment | Carbon footprint results according to ISO-14064

Notation: Scientific | COMMENTS | EXPORT | COLLAPSE

Name	Entry data	Unit	Total GHG emissions (t CO_2e)	Net fossil GHG emissions (t CO_2e)	Biogenic GHG emissions (t CO_2e)	LUC GHG emissions (t CO_2e)
Procurement and consumption of materials and components			1.08E-4	1.05E-4	1.46E-7	3.09E-6
Transport of materials and components to the factory			3.07E-5	3.07E-5	5.03E-9	9.55E-9
Transporte MMPP	1	unit	3.07E-5	3.07E-5	5.03E-9	9.55E-9
Truck 16 - 32 ton EURO 5	0.19	tkm	3.07E-5	3.07E-5	5.03E-9	9.55E-9
Factory production. Electricity consumption			2.20E-4	2.18E-4	5.36E-7	6.15E-7
Factory production. Fuel use and direct aspects			1.63E-4	1.63E-4	4.23E-11	5.37E-11
Factory production. External waste management						
Distribution						
Use						
End of life			6.95E-4	6.95E-4	2.06E-8	5.27E-9
Total			1.22E-3	1.21E-3	7.08E-7	3.72E-6

Image 41. Bottle case study: 'Product carbon footprint results as per ISO 14067'.

4.2 Organisation approach: KUTXASA

Determining the environmental performance of KUTXASA, a fictitious company located in the Basque Autonomous Community (BAC) that produces and distributed cardboard boxes. To assess the performance and measure for improvement, the corporate environmental footprint, the corporate carbon footprint and the circular economy indicators will be determined using the 2021 data shown in Figure 3.

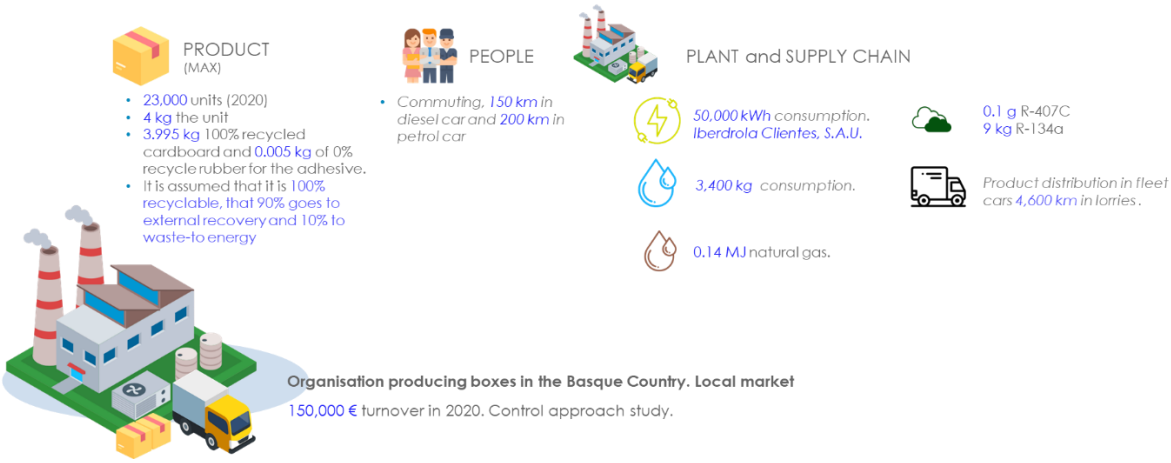


Figure 3. Fictitious case study, 2021 data for the KUTXASA organisation.

4.2.1 Images of the resolved case study:

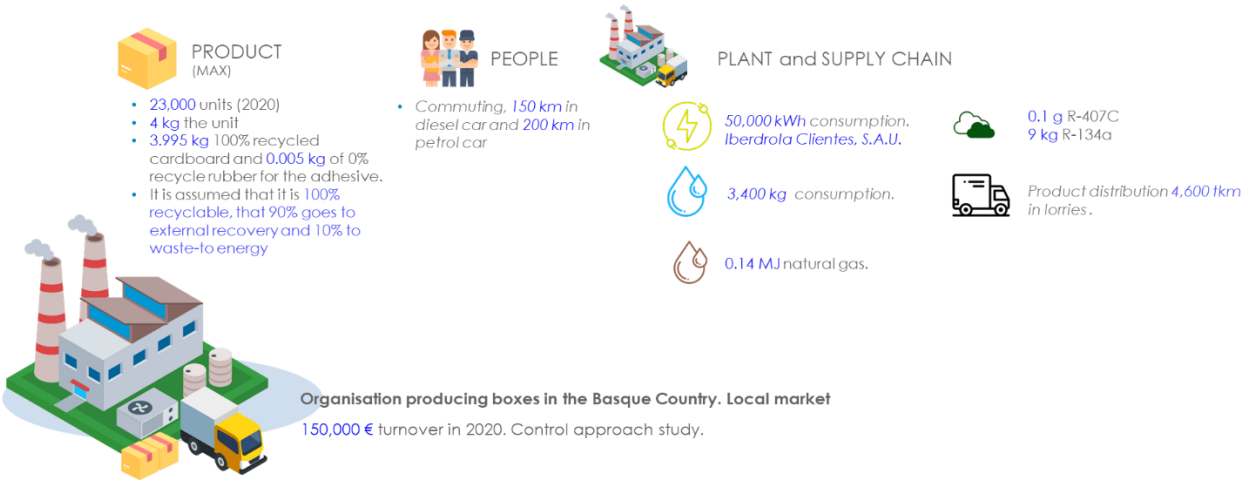


Image 42. KUTXASA case study: 'Data Entry'. 'Upstream Indirect Scope' section.

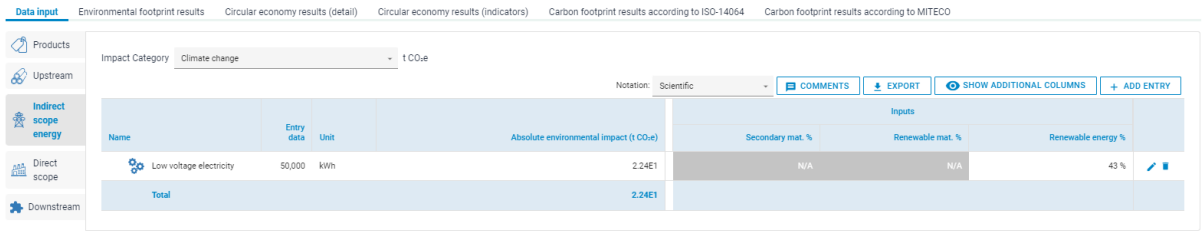


Image 43. KUTXASA case study: 'Data Entry'. 'Energy Indirect Scope' section.

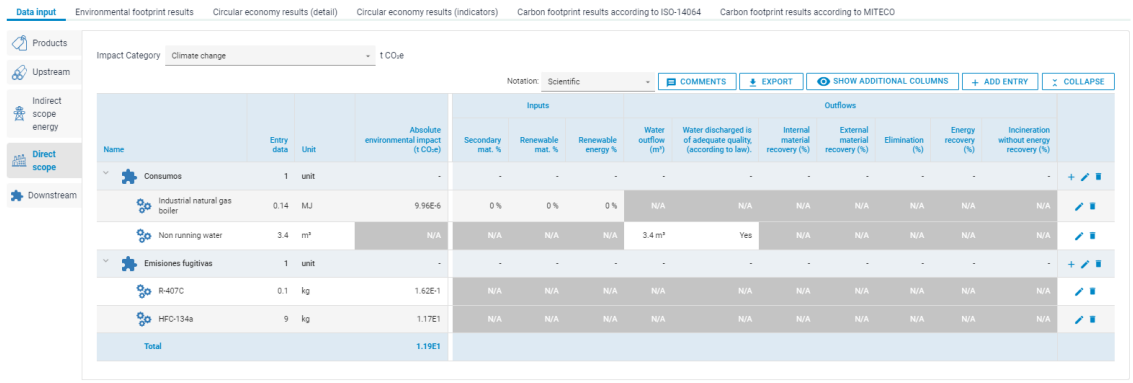


Image 44. KUTXASA case study: 'Data Entry'. 'Direct Scope' section

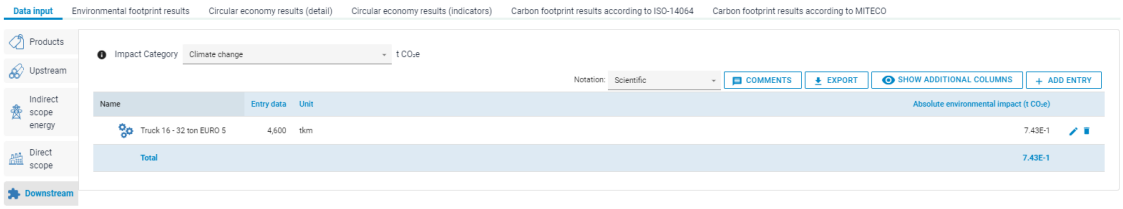


Image 45. KUTXASA case study: 'Data Entry'. 'Downstream Indirect Scope' section.

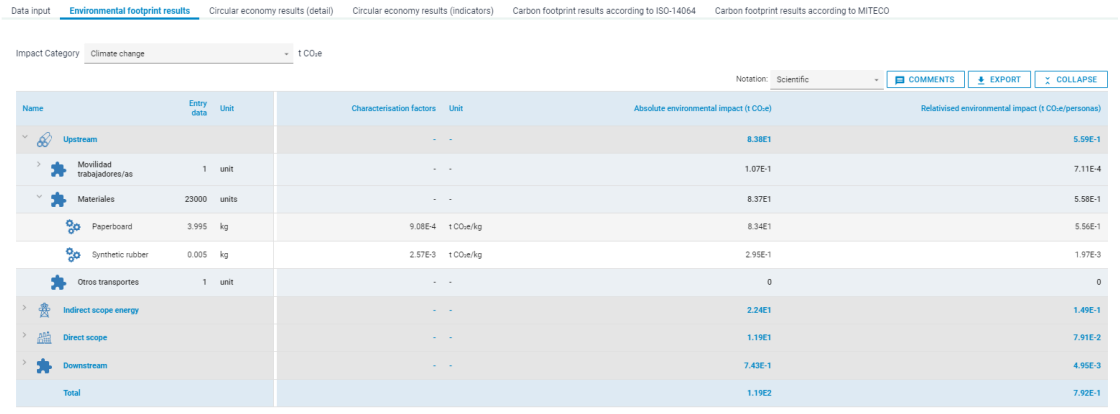


Image 46. KUTXASA case study: 'Environmental footprint results'

Data input | Environmental footprint results | **Circular economy results (detail)** | Circular economy results (indicators) | Carbon footprint results according to ISO-14064 | Carbon footprint results according to MITECO

Notation: Scientific | COMMENTS | EXPORT | COLLAPSE

Name	Entry data	Unit	Inputs: Material (t)	Secondary mat. %	Renewable mat. %	Energy (GJ)	Renewable energy %	Outflows: Internal material recovery (%)	External material recovery (%)	Elimination (%)	Energy recovery (%)	Incineration without energy recovery (%)
Upstream												
Movilidad trabajadores/as	1	unit	-	-	-	-	-	-	-	-	-	-
Materiales	23000	units	-	-	-	-	-	-	-	-	-	-
Paperboard	3.995	kg	9.19E1	100 %	100 %	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Synthetic rubber	0.005	kg	1.15E-1	0 %	0 %	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Otros transportes	1	unit	-	-	-	-	-	-	-	-	-	-
Indirect scope energy												
Low voltage electricity	50000	kWh	N/A	N/A	N/A	1.80E2	43 %	N/A	N/A	N/A	N/A	N/A
Direct scope												

Image 47. KUTXASA case study: 'Circular Economy Results (detail)'.

Data input | Environmental footprint results | Circular economy results (detail) | **Circular economy results (indicators)** | Carbon footprint results according to ISO-14064 | Carbon footprint results according to MITECO

Notation: Scientific | EXPORT | SHOW ADDITIONAL INDICATORS | SANKEY DIAGRAM | LEYEND

Indicator	Description	Result	Unit	Relativised results	Unit	Target	Calculation	ID
Headline indicators								
Material productivity	It represents the company's dependence on the consumption of linear primary materials	-1.63E3	€/t	N/A	N/A	▲	Representative unit / A	-
Circular inflow	% of recycled and renewable material as a percentage of total input material	199.71	%	N/A	N/A	▲	H / N	P
Circular outflow	% of recovered material as a proportion of total waste generation	90.00	%	N/A	N/A	▲	O / (Ñ + O)	Q
Circularity index	Weighted average between % of circular inflows and % of circular outflows	0	%	N/A	N/A	▲	(P + Q) / N + Ñ + O	K
Waste generation	% of generated waste of the total material input	2299481.03	%	N/A	N/A	▼	(Ñ + O) /N	-
% renewable energy input	% of renewable energy consumed of the total energy consumption	0	%	N/A	N/A	▲	ER / Etot	-
Circular water outflow	% of total circularity of all water outlets	100.00	%	N/A	N/A	▲	AC / AV	-

Image 48. KUTXASA case study 'Circular Economy Results (indicators)'.

Data input | Environmental footprint results | Circular economy results (detail) | Circular economy results (indicators) | **Carbon footprint results according to ISO-14064** | Carbon footprint results according to MITECO

Notation: Scientific | EXPORT

Name	Total	CO_2 emissions	CH_4 emissions	N_2O emissions	SF_6 emissions	Fluorinated gasses emissions	Biogenic CO_2 emissions	CO_2 removals
Category 1. Direct GHG emissions and removals in CO_2e tons	1.19E1	7.86E-6	1.96E-8	3.71E-9	0	1.19E1	0	0
1.1. Direct emissions from stationary combustion sources	7.88E-6	7.86E-6	1.96E-8	3.71E-9	0	0	0	0
1.2. Direct emissions from mobile combustion sources	0	0	0	0	0	0	0	0
1.3. Fugitive direct emissions from the liberation of GHG in anthropogenic systems	1.19E1	0	0	0	0	1.19E1	0	0
1.4. Direct emission and removal processes from industrial processes	0	0	0	0	0	0	0	0
1.5. Direct emissions and removals from land use, land-use change, and forestry	0	0	0	0	0	0	0	0
Sub-total indirect emissions in CO_2e tons	1.08E2	0	0	0	0	0	5.92E-1	0
Category 2. Indirect GHG emissions from imported energy	7.55E0						5.47E-2	
Category 3. Indirect GHG emissions from transportation	8.15E-2						3.25E-3	
Category 4. Indirect GHG emissions from products used by the organization	9.91E1						5.34E-1	
Category 5. Indirect GHG emissions associated with the use of products from the organization	7.43E-1						1.22E-4	
Category 6. Indirect GHG emissions from other sources	2.84E-2						3.67E-5	
Total	1.19E2	7.86E-6	1.96E-8	3.71E-9	0	1.19E1	5.92E-1	0

Image 49. KUTXASA case study: 'Carbon Footprint Results as per ISO-14064

Data input | Environmental footprint results | Circular economy results (detail) | Circular economy results (indicators) | Carbon footprint results according to ISO-14064 | **Carbon footprint results according to MITECO**

Notation: Scientific | EXPORT

		Impact (t CO_2e)
Scope 1	Fixed installations	7.88E-6
	Vehicle movements	0
	Cooling/air-conditioning	1.19E1
Total Scope 1		**1.19E1**
Scope 2	Electricity	7.50E0
Total Scope 2		**7.50E0**
1 + 2		**1.94E1**

Image 50. KUTXASA case study: 'Carbon Footprint Results as per MITECO'.

5 GLOSSARY

1. Life cycle assessment:

Methodology that quantifies the environmental impacts associated with products/services, by detecting areas for improvement by means of the product/service life cycle assessment.

Source: Product and Service Environmental Assessment Methods. Life cycle assessment. Ihobe (2020)

2. Life Cycle Inventory:

Compiling and quantifying inputs/outputs of a product system throughout its life cycle.

Source: ISO 14044:2006 Environmental Management. Life cycle assessment. Requirements and guidelines.

3. Life cycle inventory database:

A LCI database is a system aimed at organising, storing and easily recovering large amounts of LCI digital data sets. It consists of an organised collections of LCI data sets that totally and partially are in line with a common set of criteria that include methodology, format, review and naming. The database will allow sets of individual data to be connected to create LCI models. The calculated results can be used with life cycle impact assessment (LCIA) methods established for the life cycle assessment (LCA). The databases are administered using the database management system, which store the content, which allows the data to be created and maintained, searching and other means of access. By contrast, a data set library is a collection of data sets that cannot be adjusted to common criteria and which do not allow interconnections and common applications for LCA or LCIA purposes.

Source: Shonan Guidance Principles (UNEP, 2011, pg. 86)

4. Consolidation method:

The consolidation method defines the activities set out in the scope of the assessment: financial control approach or operational control approach. The operational control approach includes all the activities of which the company has control; those activities where the company has financial control are taken into account in the case of the participation share approach.

Source: A Methodology Guide on the Application of the Corporate Environmental Footprint. Ihobe (2021)

5. Recycled material:

Material that has been reprocessed using material recovered by means of a manufacturing process and converted into a final product or a component for a final product.

Source: *Circular Transition Indicators v3.0 – Metrics for business, by business. WBCSD*

6. Renewable material:

Resources managed sustainably (preferably endorsed by international certifications), where the replacement rate is greater than their extraction rate.

Source: *Circular Transition Indicators v3.0 – Metrics for business, by business. WBCSD*

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