



The EUSTEPs University's Footprint Calculator

Guidance Material for Users

- Draft version -

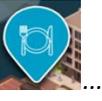
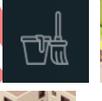
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EUSTEPs is a project carried out, under the leadership of Aristotle University of Thessaloniki, by the strategic partnership between four European universities and non-governmental organization Global Footprint Network, the official home of the Ecological Footprint methodology and applications.

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DRAFT VERSION

1. The EUSTEPs Project

EUSTEPs – Enhancing Universities’ Sustainability Teaching and Practices through Ecological Footprint - is a three-year (2019-2022) project funded by the ERASMUS+ program and directed by the Greek State Scholarship Foundation (IKI). The project is carried out by the strategic partnership between four Universities in Europe - Aristotle University of Thessaloniki (AUTH-Greece), University of Aveiro (UAV-Portugal), Universidade Aberta (UAb-Portugal), and University of Siena (UNISI-Italy) and one non-governmental organization, Global Footprint Network.

By recognizing the key role of Higher Education Institutes in conveying the proper knowledge around sustainability issues, EUSTEPs aims at empowering Universities to become pro-active sustainability agents and practice what they preach. To this aim, the project designed and developed an online, open-access University Footprint Calculator to monitor and manage the natural resources and the ecosystem services demanded by Universities’ activities and operations through a standardized methodological approach. This tool was created through a participative approach and by leveraging the shared experiences/skills of the 4 Universities involved in the project and the expertise of Global Footprint Network.

2. Scope of the Calculator

The EUSTEPs University Footprint Calculator (hereafter the Calculator) is an open digital tool allowing Higher Education Institutions (HEIs) to monitor and manage their consumption of natural resources and ecosystem services via a standardized methodological approach – i.e., Ecological Footprint Accounting – specifically tailored for use at the University level. This calculator allows each HEI to monitor and manage its use of natural resources and ecosystem services for running the activities and operations needed to provide education and conduct research. The Calculator thus helps HEIs to become real transformative agents of sustainability by identifying major drivers of impact of their operations, as well as their efficiency in the use of resources and ecosystem services.

The calculator can also be used to streamline the collection and management of data required to assess the scale and significance of Footprint results. It is expected to eventually help trigger fruitful discussions on the improvements and actions needed for improving the sustainability of University Institutions by involving its whole community.

Ultimately, the Calculator allows to identify HEI’s unsustainability drivers and initiate a process of reducing their ecological impact, thus contributing to SDGs 11 (sustainable cities & communities), 12 (responsible consumption & production), and 13 (climate action).

Since its release in April 2022, the Calculator is freely available and accessible by any University around the globe at <https://eusteps.footprintcalculator.org/>. However, since the EUSTEPs project is an European funded project, a library of conversion factors and Footprint intensities are used in the Calculator, which are country specific and thus relative to the EU-27 countries only, plus the United Kingdom. This does not prevent Universities from outside the EU to use the calculator, but they will be limited in that they will have to select an EU country as location and accept a certain degree of approximations in their final results.

Future expansions of the library behind the Calculator are already on the radar and anyone interested in such geographical expansion of the Calculator is welcome to contact Global Footprint Network at info@footprintnetwork.org.

3. Intended users of the Calculator

The Calculator is intended to be used by the management and/or administrative bodies of the University, possibly an office dealing with environmental or sustainability practices (e.g., a HEI’s Sustainability Office), which may have access to all the technical and specific information regarding the whole University as well its different departments, units and offices.

Beside such primary target audience, anyone else can also use the Calculator: a professor from a university, for instance, might want to use it to try assessing the Footprint of its institution although it might experience issues in

[Type here]

collecting all the necessary data. That is why the ideal user is the sustainability officer of the university or any other person from the administration/management who has access to data.

3.1. Types of Users

The Calculator can be accessed either by registering and creating an account into the platform or directly without registration (see **How to access the Calculator**). There are 3 main types of users of the Calculator:

- **Client:** this user can only be assigned by the administrators of the Calculator upon official invitation through an email containing a specific link. This type of user is intended to be used by the heads of Universities who want an official profile to calculate the Ecological Footprint of their institution. The Client can in turn “invite” other users to the Calculator, with a role of User or View only (see below). The Client has access to all functionalities of the Calculator (all explained in this document).
- **User:** each user self-registering into the platform is automatically assigned the role of User, which is intended as a private account able to use a fully working version of the calculator.
- **View:** the View user is invited from an User or a Client to access the Calculator and has the sole possibility to navigate through all the Calculator’s sections and download facts and figures from the results section. This type of user cannot edit any data inside the calculator.
- **Guest:** this is automatically assigned when users access the calculator without registration of an account. This user can use the calculator by entering data and editing them; it can also see results but can benefit of limited functionalities (see [Access without registration](#)).

4. The landing page

The Calculator can be accessed from the EUSTEPs website (www.eusteps.eu) nested under the menu of Resources, or directly at <https://eusteps.footprintcalculator.org/>.

The landing page displays the information related to the funding agency/program of the EUSTEPs project, a brief description of the Project and the logos of all the project partners.

The Calculator is automatically set on the English language, but this setting can be changed by clicking on the top right button displaying the available flags and language types.

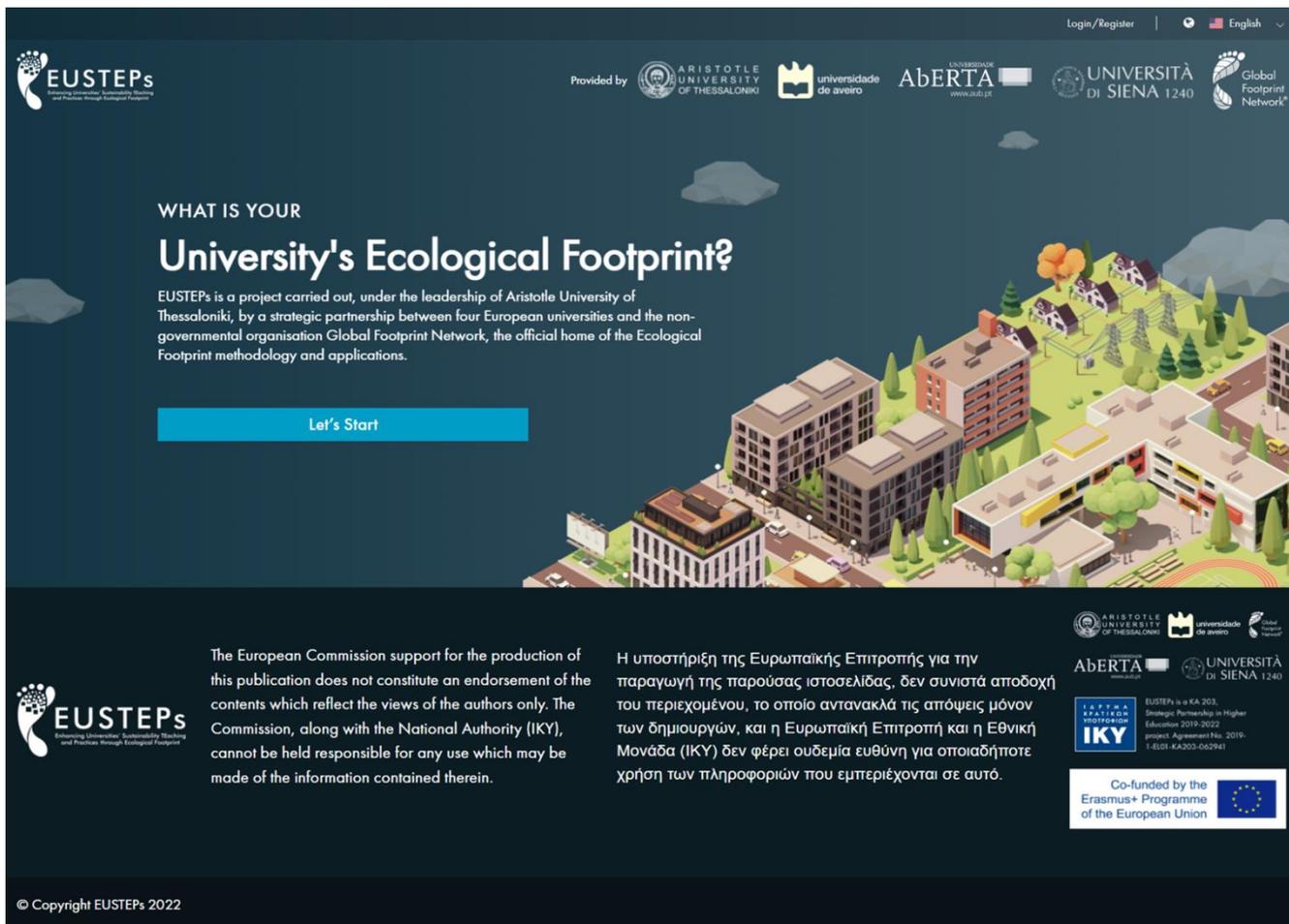


Figure 1 Landing page of the EUSTEPs Footprint Calculator. Available at: <https://eusteps.footprintcalculator.org/>

5. Language selection

As of its release in April 2022, the Calculator is available in 4 languages: English, Greek, Italian, Portuguese – based on the national languages of the 5 partners of the EUSTEPs Project. To select the desired language, click on the top right of the screen and select from the dropdown menu any of the available languages.

Users can select a different language at any point and time while using the calculator, without losing any data or results. Data and results available for download will be in the language selected at the moment of download, except for the headings of the file, which are provided in English only.

Eventually, additional languages can be implemented in the Calculator.

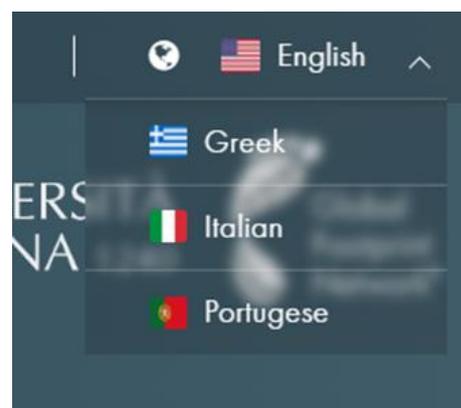


Figure 2 Panel for choosing the available languages of the Calculator.

6. How to access the Calculator

6.1. Access without registration

The calculator is freely accessible to everyone. Users can access it without registering an account into the platform, thus being automatically assigned the role of Guest. This option however prevents users to benefit from the many functionalities of the Calculator. Some of the limitations of not creating an account are:

- The account dashboard, which allows users to save all the different calculations attempted over time, is not available thus preventing users from keeping track of the Footprint results of their Universities over time.
- Inputted data can be temporarily saved in order to progress throughout the calculator and get to the Result page, but once users close the page of the Calculator all data (input data and results) will be lost. Should the user be disconnected/kicked out from the calculator for any reason, or should the user decide to close the session at any point, no data will be saved and the next time of accessing the Calculator data will have to be entered from scratch.

To use the calculator without registering, users will have to scroll down under the account fields and click on the **“Continue without Registration”** button. Users accessing the Calculator without registering are automatically assigned the role of “Guest” users.

Right after clicking on the button, users are directed into the calculator on the home page.

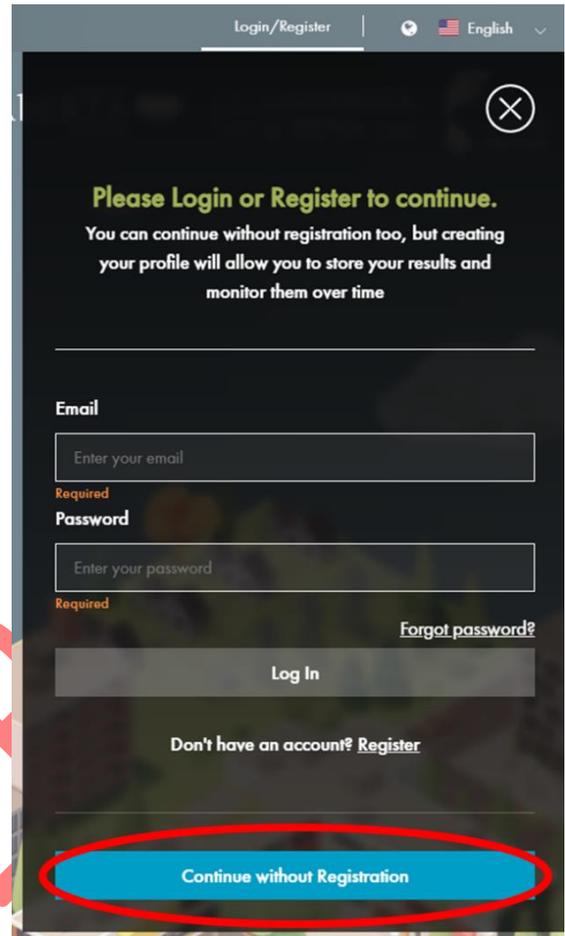


Figure 3: main panel for accessing the Calculator. Highlighted in the red circle is the button to access the Calculator without registration

6.2. Access with the Login/Register mode

For a best experience in using the calculator, users are suggested to create an account and thus have a personal profile in the platform.

When accessing the calculator for the first time, users need to register by indicating few personal information, choosing a username and a password, agreeing on the Privacy Policy (mandatory) and eventually registering to the EUSTEPs project newsletter (not mandatory).

From the second access on, it will be sufficient to type the registered username and password to enter the calculator.

The registration procedure allows users to have a series of advantages in the use of the calculator, including the possibility of Saving input data and results while progressing, and keeping track of all the calculations and the dynamic showing of the corresponding EF results.

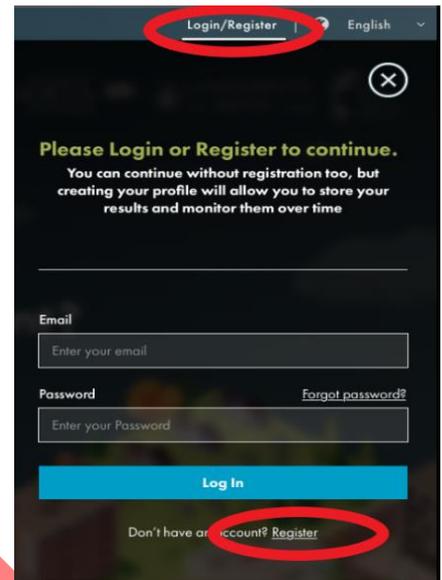
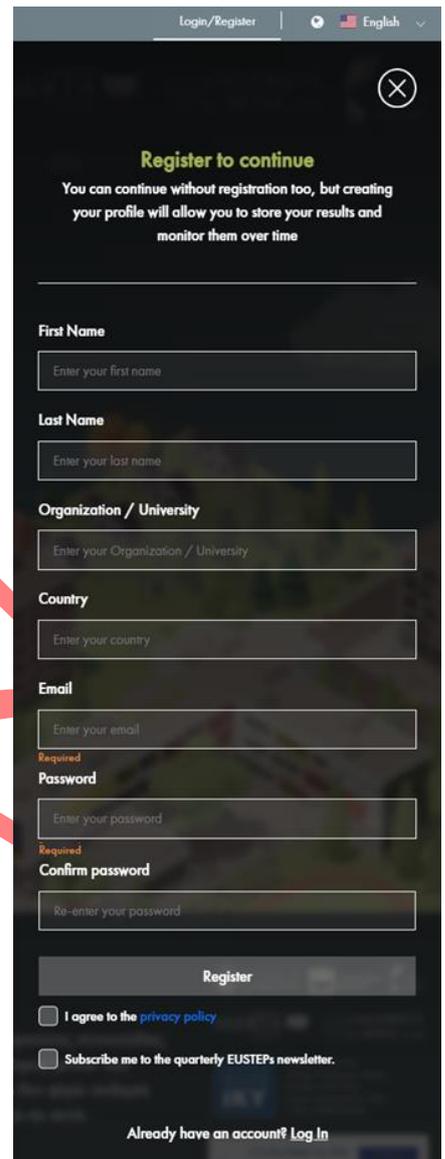


Figure 4: the Login/Register panel

All the functionalities explained in this document are included among the prerogatives of having an account.



The image shows a mobile registration form with a dark background. At the top, there is a header with 'Login/Register' and 'English'. Below the header, there is a close button (X) and a title 'Register to continue'. A sub-header explains that users can continue without registration but creating a profile allows for storing results and monitoring them over time. The form consists of several input fields: 'First Name', 'Last Name', 'Organization / University', 'Country', 'Email', 'Password', and 'Confirm password'. Each field has a placeholder text. Below the 'Confirm password' field is a 'Register' button. At the bottom, there are two checkboxes: 'I agree to the privacy policy' and 'Subscribe me to the quarterly EUSTEPs newsletter.' A link 'Already have an account? Log In' is located at the very bottom.

Figure 5: the registration panel for the first-time access to the Calculator

7. Home page of the Calculator

Once logged in, users are presented with the Home Page of the Calculator, from where they can start a new calculation session.

Figure 6 shows how the Home Page looks like when logging into the Calculator. It displays a menu on top of the page with buttons redirecting to all sections of the Calculator. Underneath, two maps mimic a likely University campus with all its facilities and buildings (the map on the left) and a personal house from which students and staff can commute to the University (the smaller map on the right). Similarly to the top menu, the pinpoints on the maps re-redirect to each single section of the Calculator.

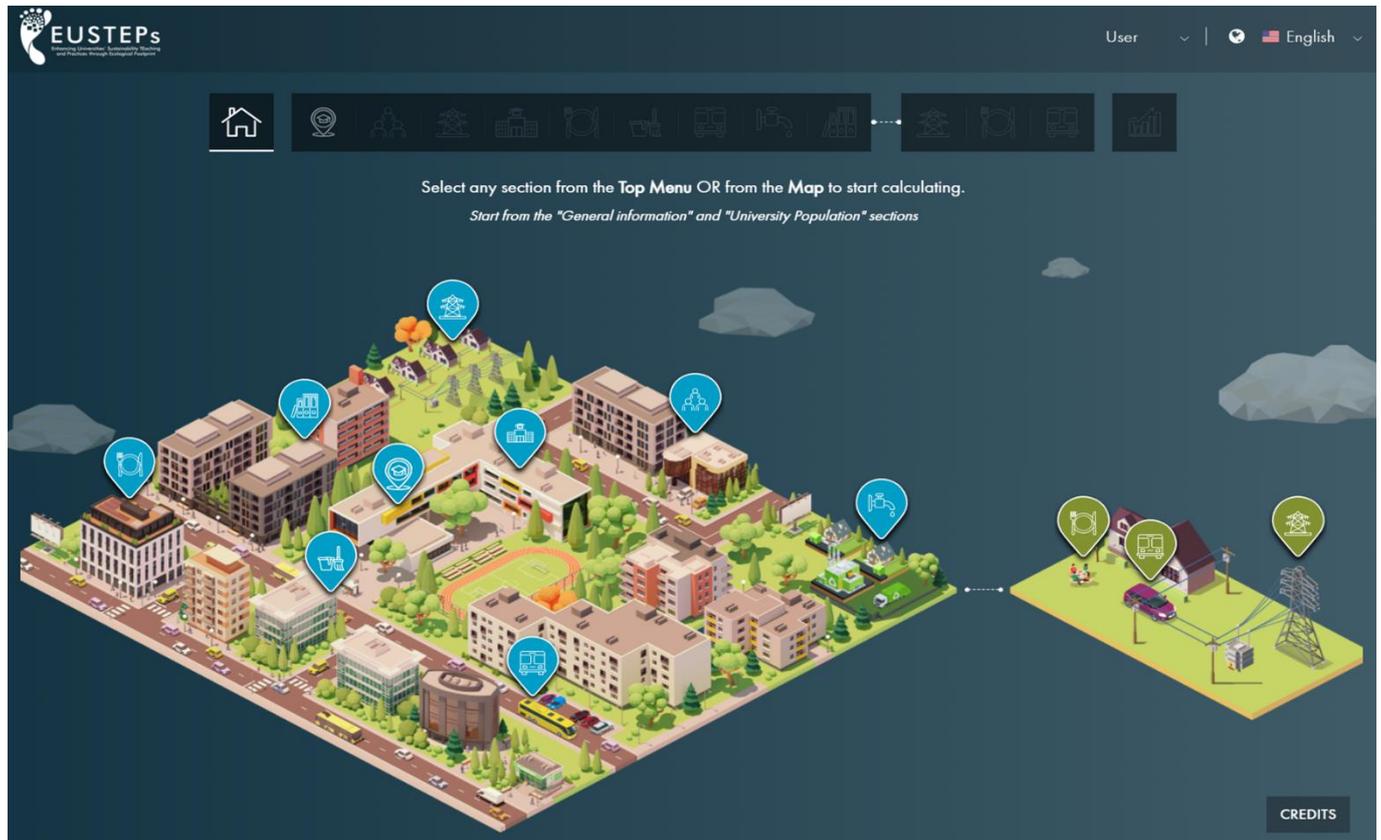


Figure 6: Home page of the Calculator, depicting the areas under the Direct Responsibility and the Indirect Responsibility of the University.

When starting a new calculation, the Calculator requires users – for calculation reasons behind the tool – to start from the General information and then the Population section. Once these two sections are completed, all other sections are unlocked and can be selected (Figure 7) in any order preferred by the user.



Figure 7: menu on top of the page. From left to right: Home page button, the 9 buttons related to the activities under the Direct control of the University (general information, University population, energy consumption, Buildings, feeding staff&students, cleaning service, travels, water consumption & waste, Materials &Equipment), the 3 buttons related to the activities under the indirect control of the University (Energy at home, Food at home, commuting), and finally the button of the Results page.

7.1. General structure of the calculator

The University Footprint calculator is organized in two main sections to distinguish the actions of consumption under the **Direct Control of the University administration** versus the actions under the **University administration's Indirect Control**.

[Type here]

7.1.1. Direct control of the University administration

This part of the calculator groups all the services, operations and the infrastructures necessary to allow the activities of education, research and administration of the University. Such services are directly managed and/or controlled by the administration bodies of the University, which thus have the responsibility to decide upon any related choices on them. Such services include:

- The **Energy use**   for running all the infrastructures and facilities of the University
- The **University buildings & recreational areas**   in which such facilities are located
- The **Cleaning services**   for their maintenance
- **Feeding staff and student**  , that is the food provided in the University canteens and cafeterias
- The **Travels**   for teaching, research or administrative purposes done within or outside the University
- The **Water use and waste management**   within the premises of the University
- The purchasing of key **Materials and equipment**  

In the home page of the calculator, the Direct Control part of the calculator is represented by the bigger map on the left onto which each service is highlighted with a specific pinpoint. Likewise, the Direct Control part is also represented by the first 9 buttons on the top menu (see Figures 6 and 7).

7.1.2. Indirect control of the University administration

The *Indirect control* area deals with actions and consumption activities by the University's staff and students that happen outside the boundaries of the University but that are still related to studying, research or teaching programs. Such activities are thus not under the direct management of the University administration, whose decisions have minimal effects upon these actions. These include:

- The **Commuting**   from home to University: it depends on individual choices and possibilities over the means of transport available to reach the work- or study-place.
- The **Energy at home & internet connectivity**  : when staff works from home and students study from home they consume an amount of energy (electricity and heating) as well as an amount of data traffic for the internet connectivity that is related to the education or teaching purposes of the University.
- The **Food at home**  : the food **consumed** outside the university and specifically when studying/working from home. In fact, people need to eat to sustain their activities, as they would do if working/studying from the University's premises.

In the home page of the calculator, the Indirect Control part of the calculator is represented by the detached smaller map on the right along with the related three pinpoint. Likewise, on the top menu the 3 consumption activities of the Indirect part are also represented by the last 3 buttons on the right (see Figures 6 and 7).

7.2. The personal dashboard

Registered users can find their dashboard on the top right corner of the screen, where the name of their account is visualized. Scrolling over the account name with the mouse, a drop-down menu will open up showing the account settings.

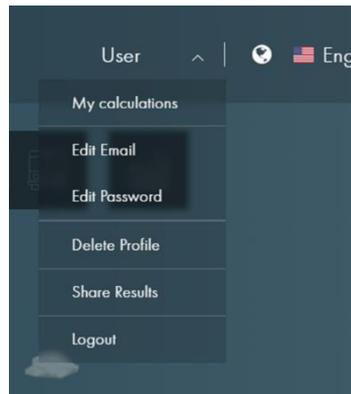


Figure 8: the Calculator dashboard displaying all personal settings

The settings included in the dashboard are the following:

- **My calculations:** users can find here all the saved calculations they have made over time. Each calculation is identified by the name of the University and the year of reference of the calculations, whose data

comes automatically from the **General information**

Per each calculation, it is shown the Status, indicating the percentage of advancement (i.e In Progress x% or Complete 100%) and the calendar day that calculation was started.

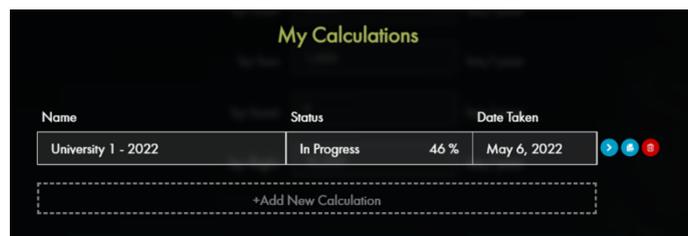


Figure 9: My calculation panel where all attempts taken at the Calculator are reported

For each calculation instance, the 3 buttons on the right allow to (from left to right):

- o access that specific calculation to edit data and/or visualize results.
 - o download input data and results. A compressed folder will be downloaded on the computer and it will contains two files in .csv format: one with the input data and one with the Footprint results, broken down by land type and sections of activities.
 - o delete that specific calculation instance
- **Edit email:** this function allows to change the email associated with the account

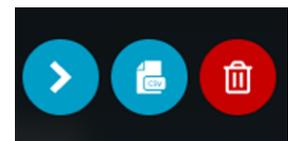


Figure 10: Action buttons shown in correspondence of each calculation

- **Edit password:** this function allows to edit the password associated with the account
- **Invite users:** this function allows to invite other users to access the calculator with their own account
- **Delete profile:** this function allows to delete the account from the calculator
- **Share results:** this function allows to reach out to the EUSTEPs partnership and share the results obtained with the Calculator
- **Logout:** this function allows to log out from the current Calculator session

8. How to use the Calculator – section by section

This section will describe how to use the Calculator in each of its sections

8.1. General instructions

The general instructions reported here below hold true throughout the entire Calculator.

- When entering data into the calculator, regardless of the language selected, users shall use a dot (.) as per the English standard to enter decimals in the various fields. From this, it follows that thousands are separated by a comma (,). Despite such necessary procedure when entering data, please note that the visualization of thousands and decimals in the results page will depend on the internationalization standard of the chosen language. For instance, if the calculator is used in the Italian language, users will have to enter decimals by using the dot (.), while in the final results, decimals will be displayed as separated by the comma (,).
- From the home page, it is possible to browse across all sections of the Calculator by clicking either on the pinpoints on the map or on the top menu buttons. Within each page, when data is entered in the required fields, it is necessary to first save the inputs by clicking on the Save button and then click on the Next button to move to the next section (or click any button on the top menu to move to the desired section) (see Figure 11).

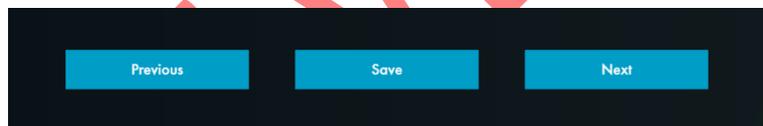


Figure 11: the action buttons at the bottom of each page. It is necessary to click on the Save button to save the entered data before then moving to the next section.

- Upon starting a new session, the Calculator compulsorily requires to fill the section "General information" and then the section "University Population" (see Figure 6). Once these two sections are completed and saved, the calculator allows to enter data in any desired section, without necessarily following a pre-established order. A tick will be shown over the buttons of the top menu once each section is completed.

8.2. Direct control

Following the order of sections on the top menu, the 9 buttons after the Home button (see also Figure 7) refer to the sections of the Direct Control of the University Calculator. The following paragraphs describe step by step how to move across these sections.

8.2.1. General information



This section requires to provide some key general information about your University related to one specific year of reference.

- **Country:** select from the drop-down menu the country in which your University is located.
- **Name of the Higher Education Institution (HEI):** type the name of your University or Institution.

[Type here]

- *Calendar year of data*: indicate the solar year related to which all data of the following sections is collected and reported in the calculator. The “Solar Year” for the purposes of the Calculator is one full calendar year from January to December.
- *Number of annual publications in peer-review journals*: indicate the number of papers being published in peer-review journals during the chosen year of reference by the whole staff of your university. This information can be easily retrieve from online systems such as <https://www.scopus.com>.
- *Number of annual graduations*: indicate the number of students that have graduated in the chosen year of reference, or alternatively in the related academic year (see University Population section).
- *Total funds received for research in the year of reference*: indicate the total amount of funds received by any financial institution (including national research grants) for doing any type of research in the year of reference, or alternatively in the related Academic Year.

Click on the Save button at the bottom of the page, and then the Next button to move to the next section.



8.2.2. University Population

This section requires to provide information on the population actively attending the University, including both students and staff.

- ***Number of students enrolled in the year of reference***: indicate the number of students enrolled in the Calendar year indicated in the previous “General Information” section. It might be the case that the number of enrolled students is counted on an Academic-base year, rather than a solar year. In such case, the Academic year to choose is defined as the Academic year that ended in the solar year of reference. For example: if the chosen solar year of reference is 2019, the Academic year to consider for counting the students is 2018-2019.

The typology of students to take into account is defined as **undergraduate and postgraduate students who are studying for higher education programs such as bachelor’s, master’s, doctoral or other equivalent degrees or components of those programs**. It should include:

- students on placements
- visiting/exchange students who are studying for programs that result in credits at your institution (e.g. incoming students)

It should NOT include:

- Exchange students who are currently studying at another institution (e.g. outgoing exchange students, who are not currently studying for credits at your institution)
 - Students who are not currently active
 - Postdoctoral students
- ***Average ECTS for a full-time student in one Academic year***: indicate the number of ECTS that a full-time student should get in one academic year calculated as average among all the courses of the University and across all years of study. The European Credit Transfer and Accumulation System (ECTS) is a tool of the European Higher Education Area for making studies and courses more transparent. ECTS allows credits taken at one higher education institution to be counted towards a qualification studied for at another. ECTS credits represent learning based on defined learning outcomes and their associated workload. Each ECTS is generally considered equivalent to 25 hours in between frontal lessons, exercise, home study, etc.
 - ***Number of FTE staff contracted for the reference year***: indicate the number of staff working at the university on a full time basis. Staff includes all academic and non-academic individuals who are working for the University and hired for a wage, salary, fee or payment to perform work for the University. It should

[Type here]

also include people working for core university services that have been outsourced (for example cleaners, janitors, caterers, gardeners where the relevant services are provided by an external company). The Full Time Equivalent for an employee can be calculated as the total number of hours worked during the year, divided by the number of working hours of a full-time person. More precisely, the categories to include under STAFF are:

- Senior Academic Staff (e.g. full time Professors, Deans, Chancellors, Rectors, Presidents, Vice-chancellors, Deputy vice-chancellors, Chairs)
 - Academic Staff, meaning individuals employed in an academic post (e.g. lecturer, reader, professor), who teach, research or do both (e.g.: assistant and associate professors, research only staff, post-doctoral researchers, invited teachers/educators/professors if they have a contract)
 - Non-Academic Staff, including administrative, operational and technical staff (e.g. research assistants, clinicians of all types, technicians and staff that support the general infrastructure of the institution or students of all levels)
- **Definition of the full time equivalent in your university:** indicate the definition of a full time equivalent in your institution, expressed as the number of working hours in a year, per person.

Click on the Save button at the bottom of the page, and then the Next button to move to the next section.

8.2.3. Energy use



This section aims at collecting data on the annual energy consumption of your university, including electricity, heating and hot water, as well as annual data on energy production from multiple renewable resources in place at the University. Data should be collected from the periodic bills of each utility referring to the year of reference and added up to make the annual amount. The section is made of 2 pages:

Page 1 requires to input annual data related to:

- **The annual electricity consumption:** provide the annual consumption in kilowatt hours of your University, by summing up the periodic bills of that period
- **The Heating & Hot water system:** provide the annual energy consumption for heating and hot water of your University by adding up the periodic bills. Fill data only related to the specific applicable energy sources – and the related unit of measure - among those listed: natural gas (m³), LPG (liters), Heating oil (liters), Biofuels (liters), Biomass (tons). Fields related to not applicable sources can remain blank.

For both utilities (electricity and heating & hot water), bills of energy consumption should be referred either to the total consumption of the whole University (thus summing up all the energy bills for which the University is paying) or can be detailed in the different buildings making up the University. In this latter case, buildings to consider are:

- **Teaching & Administrative:** buildings hosting teaching classrooms, laboratories, lecture halls, auditoriums, libraries, Professors' and researchers' rooms, studying rooms, as well as administrative and management offices.
- **Dormitories:** any building hosting the students residencies for which the University pays the bills
- **Canteen/cafeterias:** buildings in which any food service is offered to students
- **Other:** any other building not listed above

When clicking on the button "Save" at the end of the page, the second page open up.

Page 2 requires to input annual data related to the eventual self-generation of electricity from alternative sources, which complement the energy from the national grid. If self-generation systems are not in place, users can select No. On the contrary, when responding Yes, a list of alternative sources opens up, including sources from photovoltaic, wind, geothermal, hydroelectric and diesel. Annual data should be filled in correspondence of each sources.

[Type here]

Click on the Save button at the bottom of the page, and then the Next button to move to the next section.



8.2.4. University buildings & recreational areas

This section aims at collecting data on the physical occupation of the built areas pertaining to the HEI, that is the surface expressed in m².

Users have the option to refer data to either the **Whole entity** or by different types of building and areas by clicking on “Or add Details”:

- **Whole entity:** input data relative to the whole surface of the University by adding up the surface of all buildings, paved areas and green areas pertaining to it. Unit of measure must be expressed in m².
- **Add Details:** if data is available, users can input data related to the single areas expressed in m², which include:
 - o **Teaching & administrative buildings:** buildings hosting teaching classrooms, laboratories, lecture halls, auditoriums, libraries, Professors’ and researchers’ rooms, studying rooms, as well as administrative and management offices.
 - o **Dormitories:** any building hosting the students’ residencies
 - o **Canteens:** buildings in which any food service is offered to students
 - o **Parking lots:** all the parking areas pertaining to the University
 - o **Roads:** any paved ground owned or managed by the University to connect different buildings
 - o **Green Areas:** any botanical garden, park, forest, farm, crop owned or managed by the University
 - o **Blue areas:** any areas occupied by water surfaces (e.g., wetlands, lakes, rivers, ponds) owned or managed by the University.
 - o **Other:** any other area occupied by the infrastructures owned or managed by the University and not specified elsewhere above.

Click on the Save button at the bottom of the page, and then the Next button to move to the next section.



8.2.5. Feeding staff and student

This section aims at collecting data on the food supplied either directly by a specific University service or by any third party service provider subcontracted by the University for feeding its population. Food may be served in canteens, restaurants, cafes, dining halls, or any other location pertaining to the University.

To input data on the food in the calculator, users are required to collect raw data on all the food items offered in one year and categorize each element in one of the 12 macro-categories as classified by the COICOP classification.

Annex 1 – Food Macro-categories description and details provides a detailed indication of what to include in each macrocategory. Depending on the category, users are asked to provide data on:

- **The total quantity of each macro-category supplied in the year of reference.** The quantities must be expressed in TONNES of food (for the solid food) and in LITER for the beverages (alcoholic and non-alcoholic). In each macro-category, users should sum up the quantities of each food items to have the total of the specific category.
- **The method of production** expressed as the percentage (%) of the total food provided in the University that is produced via **organic practices**. This data is not required for the categories of Fish, Product NEC and beverages.
- **The origin of the food**, expressed as the percentage (%) of the total provided food that is sourced locally, meaning within 60 km of distance from the University location. This data is not required for the categories of Product NEC and for the beverages.

[Type here]

- **The type of packaging of the beverages** (alcoholic and non-alcoholic) expressed as percentage (%) of **Plastic and Aluminum** (e.g., plastic bottles, cans), **glass** (e.g. glass bottles) and **draughts** (e.g., tap water, draught beer). **Please note** that data on the packaging should fit in these three modes only, so that answers should add up to 100%. Should other type of packaging be used, users may want to allocate them in one of these existing categories.

Remember to click on the Save button at the bottom of the page, and then the Next button to move to the next section.

8.2.6. Cleaning services



This section aims at collecting data on the cleaning services deployed in all infrastructures of the University, which are either directly supplied by a specific University unit or by any third party subcontracted by the University for such services.

Users can input data either on the “Total annual hours dedicated to cleaning” or alternatively on the “Annual budget assigned to the cleaning service provider”:

- **Total annual hours dedicated to cleaning:** this is the main information referring to the annual hours spent in total for the cleaning services. In this case, the Footprint associated with the cleaning services is calculated on the basis of unique Footprint intensities related to the cleaning trolley and time. Please refer to **Annex 2 – Constants parameters for the calculation behind the Calculator** for the specific conversion factors
- **Annual budget assigned to the cleaning service provider:** should annual hours data be unavailable, users have the option to click on OR ADD ANNUAL BUDGET and input data on the annual budget (i.e. monetary information in the national currency) spent on the cleaning services. In this case, the Footprint of the cleaning service is calculated on the basis of the average annual hourly cost of the cleaning service country by country. Please refer to **Annex 2 – Constants parameters for the calculation behind the Calculator** for the specific conversion factors

Click on the Save button at the bottom of the page, and then the Next button to move to the next section

8.2.7. Travels



This section aims at collecting data on the mobility done by the University Population (including both staff and

students, see the related definitions in the **University Population**  ) for teaching, research, administrative and education purposes, whose expenditures are entirely covered by the University, either because directly paid by the University or because subject to a full reimbursement by the University.

The Travels section is made up of 2 pages to collect data about Travels made by using University owned or rented vehicles (Page 1) as well as data on the staff and/or students' mobility for teaching, studying, research and administrative purposes (Page 2) done through other motor vehicles.

University owned or rented vehicles (Page 1 of 2)

In this page, the Calculator aims at collecting data on the vehicles owned or rented by the University. Users need to collect and sum up data of all the owned and/or rented vehicles on the annual fuel consumption – expressed in liters – of 4 fuel types: gasoline, diesel, methane and LPG.

[Type here]

Staff and/or students' mobility for teaching, studying, research and administrative purposes (Page 2 of 2)

In the second page, the Calculator requires to collect data on the distance covered by the University population by using private vehicles or public transportation, which includes modes such as train, bus, boat, and flight.

Users thus need to collect and sum up the distances - expressed in kilometers - of all single travels done through each mean of transport and for the various purposes by the staff and students. Users should also pay attention whether the raw data they get is referred to as the whole round-trip or just the single-way trip, in which case the distance should be doubled if done with the same means of transport. Please note that daily commuting to the work- or study-place should not be considered in here but rather under the Indirect Control sections of the



calculator (see **Commuting**)

Click on the Save button at the bottom of the page, and then the Next button to move to the next section

8.2.8. Water use and waste management



This section aims at collecting University data on two types of utilities: the consumption of water (and related wastewater) and the production of (multiple types of) waste. The section is made up of two pages: Page 1 on water consumption and Page 2 on waste production.

Water consumption (Page 1 of 2)

Page 1 is used for collecting data about the annual consumption of water and wastewater, both expressed in m³. Data should be collected from the periodic bills in the reference year (as chosen in the General Information section) and added up to derive the annual amount.

Data can be referred to the total consumption of the whole University (thus summing up all the energy bills for which the University is paying) or can be detailed in the different buildings the University consists of. In this latter case, users can click on OR ADD DETAILS and the buildings to consider are Teach & Admin, Dormitories, Cafeterias, Others. When users enter detailed data for the different buildings, the total value is automatically updated as the

sum of all fields. For the description of these buildings see the **Energy use**  section above.

Note on the Wastewater: The volume of wastewater produced is usually between 90% and 95% of the water use volume (Defra/DEC 2012). If the wastewater quantity is known and provided as input data, the calculator takes into account that value. Contrarily, should users not have a value for wastewater and leave the field empty, the calculator automatically applies a factor of 0.9 (90%) to the quantity of water consumption to get a value for wastewater.

Once all data about the water consumption is entered, click on the Save button and then the Next button to move to Page 2 of the same section.

Waste production (Page 2 of 2)

Page 2 is collecting data about the annual production of wastes, expressed in tons per year. Data should be collected from any document the University may have available on this matter (e.g., detailed periodic bills, internal recording of waste production, reports on this subject) referring to the year of reference (as chosen in the General Information section). Data on waste production may be referred to as the total production of all wastes or to the different waste types. In this latter case, users can click on ADD DETAILED DATA and input data under the related types, which include Plastic, Paper, Glass/can, Organic, Waste Electrical and Electronic Equipment (WEEE), Undifferentiated.

[Type here]

Regardless of whether the users have data on the total waste volume or on the volume by waste types, they can next decide to input data either for the whole University or for the different buildings where waste are produced. In this case, users can click on OR ADD DETAILS and the buildings to consider are Teach & Admin, Dormitories,



Cafeterias, Others. For the description of these buildings see the [Energy use](#) section.

Users are allowed to input data **either** under the Total for all fields **or** under the detailed building sub-categories for all fields. If users opt for reporting details on the sub-categories they have to do so for all of them.

Once all data about the waste production has been entered, click on the Save button at the bottom of the page, and then the Next button to move to the next section.



8.2.9. Materials and equipment

This section aims at collecting data about the purchasing of specific categories of materials and equipment by using University funds, in the reference year. The categories for which data is required – i.e., the total amount of money spent in the reference year and expressed in the national currency – are:

- **Furniture and furnishings:** including desks, chairs, closets, filing cabinets, whiteboards, blackboards, shelves, bookcases/bookshelves, furnishing for the dormitories, and the alike.
- **Electronic equipment:** including laptop, computers, tablets, printers, scanners, cameras and all other electronic device.
- **Newspapers, books and stationery:** this category includes all the paper and printed materials purchased for research, study, teaching or administrative purposes, as well as the tools needed for desk and writing work (i.e. pen, pencils, text markers, rubbers, staplers, adhesive tapes, clips, paper notebooks, various binders). This category **excludes** the white/virgin paper needed to write/print over it.

In addition, two more categories of materials are listed in this section, for which data is required as number of items (not as money spent):

- **Reams of A4 paper:** users are required to input the total number of reams of paper in format A4 (29.7x21 cm) purchased in the year of reference. A paper ream is a pack of paper that usually contains 500 sheets per package.
- **Ream of A3 paper:** users are required to input the total number of reams of paper in format A3 (29.7x42 cm) purchased in the year of reference. A paper ream is a pack of paper that usually contains 500 sheets per package.

Once all data about the Materials&Equipment has been entered, click on the Save button at the bottom of the page, and then the Next button to move to the next section or any button on the top menu to jump to another section.

8.3. Indirect control

Following the order of sections on the top menu, the last three buttons point to the three sections under the Indirect Control of the University. For each section of the indirect part, users can choose between a Tier 1 and a Tier 2 method to calculate the Ecological Footprint of the activities for which the University has sole indirect responsibility.

[Type here]

8.3.1. Indirect control: Tier 1 vs. Tier 2 method

To calculate the Ecological Footprint of the activities listed within the Indirect Control section of the calculator, the tool allows to choose between 2 methods of calculation – Tier 1 vs. Tier 2 - depending on data availability by the University administration.

- **Tier 1 method** is a default calculation that the Calculator performs automatically without any input data to fill in. This method should be selected when data collected through specific surveys is not available (if available see Tier 2). The calculation allocates student's and staff's workload to the individual country's consumption Footprint into household components calculated by Global Footprint Network, which are specifically related to housing (for the **energy consumption at home** section), personal transportation (for the **mobility to commute** section), or food (for the **Food consumption outside the University** section). The workload of staff is calculated assuming a working hour equal to the FTE data provided in the general information section of Direct part of the Calculator. The workload of students is calculated by considering the average number of ECTS annually required to each student. The number of ECTS is an input data required in the general information section of Direct part of the Calculator. Each ECTS is considered equivalent to 25 hours in between frontal lessons, exercises, and home study.
- **Tier 2 method** relies on specific data that the administration commits to collect among a representative sample of staff and students and it should respect the proportion of males and females of the overall population of the University. Possible survey templates to be used in data collection can be found in **Annex 3 – Survey for the Indirect Responsibility Tier 2**. Once surveys are collected from all the interviewees, each data pertaining to the same field need to be summed up and the average calculated, keeping the differentiation between the group of staff and the group of students. Average data can then be inputted into the relative fields in the calculator. The Calculator will then allocate the inputted data to the total number of students and staff - based on the information given in the "University population section". The calculation assumes that for students the work/study load spans over 4 weeks in a month and a total of 10 months in a year, while for staff the workload spans over 4 weeks in a month, during a total of 11 months in a year.

8.3.2. Energy at home & internet connectivity



This section tracks the Ecological Footprint due to the energy consumed at home as well as the use of internet by Staff and Students when they work or study from home.

At first, users need to choose between the Tier 1 or Tier 2 method of calculation for this section.

Tier 1: If the Tier 1 is selected, click on the Save button and then on the Next button to move to the following section.

Tier 2: Tier 2 requires specific data to be entered, which the Administration of the University should have collected among a sample of Staff and Student ahead of time. Select Tier 2 and click on the Save button and then on the Next button. At this point the Calculator is made of 2 pages in which the list of questions is displayed for the group of Staff and the group of Students.

Page 1 requires to enter annual data related to:

- **The annual electricity consumption at home:** it requires data on the annual consumption of electricity (expressed in kilowatt hours) occurring in the private houses of Students and Staff in the year of reference. The Administration using the calculator should input the average data calculated out of all the collected data in the sample for both Student and Staff

[Type here]

- **Annual energy consumption for heating and hot water at home:** indicate data on the annual consumption of energy for both heating and hot water (combined) by selecting the applicable sources – and the related unit of measure - among those listed: natural gas (m³), LPG (liters), Heating oil (liters), Biofuels (liters), Biomass (tons).
- **Average number of hours spent at home for working/studying in a week:** indicate the average number of hours spent in a week for working (in the case of staff) and studying (in the case of students) from home.
- **Number of people living at home:** indicate the average number of components living in the same house for staff and students

Page 2 requires to enter annual data related to time spent on internet for the various purposes of working and studying. Users need to indicate the average hours calculated from the data collected from the group of staff and students. The type of uses of internet are:

- **Online teaching/classes and videoconferences:** indicate the average hours spent on internet in a week for providing teaching (in the case of staff) or attending classes (in the case of students) done via online modes, including also attendance to live conferences, training, workshops and so on.
- **Emailing/messaging:** include the average hours spent in a week by the staff and students for sending/receiving or just checking university-related emails or other types of online messages.
- **Conducting research:** include the average hours spent in a week by the staff and student to conduct research by browsing the various online resources
- **Streaming videos:** indicate the average hours spent in a week by the staff and students to watch online recorded videos for working and studying purposes.
- **Social media:** indicate the average hours spent in a week by the staff and students to work and study on all kind of social media (if any).

Once all data is entered, click on the Save button and then on the Next button to move to the following section.

8.3.3. Food at home



This section tracks the Ecological Footprint due to the food consumed at home in a week.

At first, users need to choose between the Tier 1 or Tier 2 method of calculation for this section:

Tier 1: If the Tier 1 is selected, click on the Save button and then on the Next button to move to the following section.

Tier 2: Tier 2 requires specific data to be entered, which the Administration of the University should have collected among a sample of Staff and Student ahead of time. The calculator will allocate the weekly quantity of food consumed to the numbers of hours spent at home for working/studying as indicated in the energy at home section. When users select the Tier 2 method, then they need to click on the Save button and then on the Next button.

Then, the list of food macrocategories is displayed for the group of Staff and the group of Students. For each macrocategory of food, users are required to provide data on:

- **The quantity:** indicated the average per capita quantity of consumption of each macrocategory in a week for the group of staff and the group of students. The quantities must be expressed in KILOGRAM (kg) of food (for the solid food) and in LITER for the beverages (alcoholic and non-alcoholic) and should be calculated from the data collected from the surveys of the group of staff and students. Please refer to **Annex 1 – Food Macro-categories description and details** for a detailed description of the food macrocategories.

[Type here]

- **The method of production:** indicate the average percentage (%) of the total provided food that is produced via **organic practices**. This data is not required for the categories of Fish, Product NEC and beverages.
- **The origin of the food:** indicate the average percentage (%) of the total provided food that is sourced locally, meaning within 60 km of distance from the University location. This data is not required for the categories of Product NEC and the beverages.
- **The type of packaging of beverages:** indicate the average percentage (%) of **Plastic and Aluminum** (e.g. plastic bottles, cans etc), **glass** (e.g. glass bottles) and **draughts** (e.g. tap water, draught beer etc.) consumed by staff and students. **Please note** that data on the packaging should fit in these three modes only, so that answers should add up to 100%. Should other type of packaging be used, users may want to allocate them in one of these existing categories.

Once all data is entered, click on the Save button and then on the Next button to move to the following section.

8.3.4. *Commuting*



This section tracks the Ecological Footprint due to the modes of commuting of each individual to go from home to the University.

This section offers the possibility to have 3 methodological options. At first, users need to choose between the Tier 1, Tier 1bis or Tier 2 method of calculation for this section:

Tier 1: If the Tier 1 is selected, click on the Save button and then on the Next button to move to the following section.

COMMUTING NOT APPLICABLE FOR STUDENTS (Tier 1bis): this option is an alternative to the Tier1 and should be selected when the commuting is done only by the University staff to go to the work-place (e.g., University buildings), while students are not supposed to commute because teaching and classes are happening online only. This might be the case of long-distance Universities. When this option is selected, users need to click on the save button and then on the Next button.

Tier 2: Tier 2 requires specific data to be entered, which the Administration of the University should have collected among a sample of Staff and Student ahead of time. When users select the Tier 2 method, then they need to click on the Save button and then on the Next button.

Tier 2 requires to enter the average per-capita distance covered weekly (round trip), by both an average student and an average staff person, by the following mean of transportation:

- **Walk:** indicate the average distance covered in a week to commute via foot.
- **Bike:** indicate the average distance covered in a week to commute via bicycles or other non-motor bikes (e.g. push scooter)
- **Motorbike:** indicate the average distance (round trip) covered in a week to commute via motorbikes/motorcycles
- **Private car:** indicate the average distance (round trip) covered in a week to commute via any type of car
- **Bus:** indicate the average distance (round trip) covered in a week to commute via public buses
- **Commuter rail:** indicate the average distance (round trip) covered in a week to commute via rails connecting an urban center to adjacent suburbs (e.g. regional train, suburban rails)
- **Transit rail:** indicate the average distance (round trip) covered in a week to commute via rails that stay within an urban center (e.g. subways, elevated railways, metros, streetcars, trolleys and tramways)
- **Boat:** indicate the average distance (round trip) covered in a week to commute via any type of boat (e.g. ferryboats)

[Type here]

Once all data has been entered, click on the Save button and then on the Next button to move to the following section.

9. Ecological Footprint results

The University Footprint Calculator has been developed as a dynamic tool; as such it allows to monitor Ecological Footprint results as each section gets filled. At the bottom of each page, a ribbon shows the Footprint value of the section that is being filled as well as the Total Footprint value given by the sum of all the sections completed up to that point. Likewise, a colored bar below shows the Footprint of all the completed sections as a percentage contribution of the total Footprint results (Figure 12).



Figure 12: ribbon bar at the bottom of each page of the calculator showing the Footprint results in progress. The colored value on the left provides the Footprint value of the specific category being visualized, also indicated in the title on top (in this image it's the Food category). The white value on the right provides the total Ecological Footprint value as the sum of all the categories filled in. The colored bar on the bottom, which evolves in a dynamic way as the calculator gets filled, shows the percentage share of all the filled categories on the total value, each color corresponding to a specific category.

9.1. The Footprint results page

The overall Results Page can be accessed either from the icon in the ribbon in each section or from the extreme right button of the top menu (Figure 13).

The Results page shows the Ecological Footprint of your University based on the data entered in each category. Results are provided and visualized in multiple ways, each one providing different information.



Figure 13: buttons to access the overall results page

At first, Ecological Footprint results are given by measures of efficiency of the University: these indicators refer to the efficiency in using resources for providing education and conducting research (Figure 14). Such results can be used to compare the Ecological Footprint of one HEIs throughout different years of reference:

- **Footprint per students and per staff:** it indicates the quantity of natural resources and ecosystem services used by the University per single individual receiving (student) or providing (staff) education, respectively. This type of results is particularly useful to compare the Footprint intensity of a University over time (or with other Universities) as the number of students and staff varies, making the comparison of total Footprint values of little value.
- **Footprint per number of graduations:** it indicates the quantity of natural resources and ecosystem services a University requires to allow a student to receive its graduation. Monitoring this result annually allows a university to understand how efficient its operations are in using natural resources and ecosystems services to educate students.
- **Footprint per number of publications:** it indicates the quantity of natural resources and ecosystem services a University requires to publish a peer-review Journal article in the year of reference. Monitoring this result annually allows a university to understand how efficient its staff is in using natural resources and ecosystems services to produce research published in peer-reviewed publications.
- **Footprint per thousand euro of funds received:** it indicates the quantity of natural resources and ecosystem services used by the University per euro of research funds received. Monitoring this result

[Type here]

annually allows a university to understand how resource- and ecosystem-services-intensive are the activities for which the University received financial support.

Then, the **Total Ecological Footprint of your University** is provided as last value on the right end of the results bar (see Figure 14) indicating the overall Footprint impact of the HEI under analysis. This value indicates the total natural resources and ecosystem services required by the University for its operations and activities conducted in the year of reference. The Ecological Footprint of a University is expressed in global hectare (gha), a hectare-equivalent unit of bioproductive area needed to provide those resources and services, and thus support the activities and operations. The total value is given by the sum of the total EF of the Direct Control and the total EF of the Indirect part.



Figure 14: the Ecological Footprint results given on top of the Result page.

Footprint results are then shown in a bar graph broken down by activities/operations and distinguished between the direct and the indirect responsibility of the University administration (see Figure 15). This breakdown looks at how the total Footprint spans across all the various activities and operations maintained by the University, being them under the direct or indirect control of the University. Such indications help understand which areas are posing the greatest impacts and thus require major attention on how to be managed/conducted differently. Within each activity, Footprint results are also provided per sub-component making up that activity, thus providing further details to understand specific driver and intervention points.

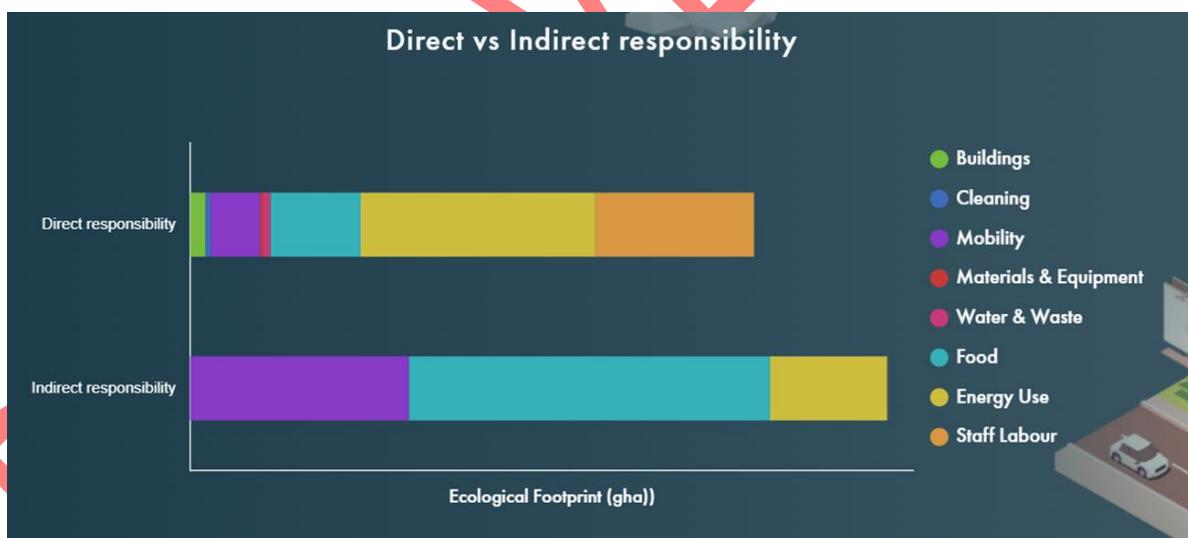


Figure 15: bar graph showing the Ecological Footprint of the university, broken down by responsibility (Direct vs. Indirect) and activities.

Scrolling down, a toggle button allows to look in detail at the Footprint results of the two areas of the Calculator, Direct and Indirect. The Footprint value of the direct/indirect part is shown next to the overall Footprint value of the University and a detailed bar chart underneath shows the Footprint results of each section broken down by land types.

[Type here]



Figure 16: the toggle button set on the Direct responsibility and the related bar graph showing the Footprint results of its categories

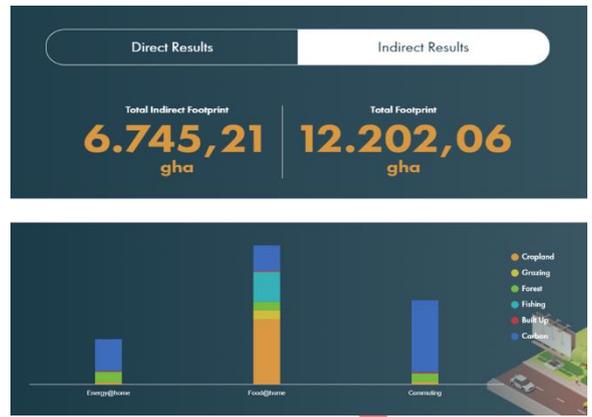


Figure 17: the toggle button set on the Indirect responsibility and the related bar graph showing the Footprint results of its categories

Finally, a menu shows the buttons related to each consumption activities and by clicking on each one, results graphs related to each section's Footprint are shown.

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10. Annex 1 – Food Macro-categories description and details

MACROCATEGORY	DESCRIPTION
Bread and Cereals	<p>01.1.1 Bread and cereals (ND)</p> <ul style="list-style-type: none"> – Rice in all forms; – maize, wheat, barley, oats, rye and other cereals in the form of grain, flour or meal; – bread and other bakery products (crispbread, rusks, toasted bread, biscuits, gingerbread, wafers, waffles, crumpets, muffins, croissants, cakes, tarts, pies, quiches, pizzas, etc.); – mixes and doughs for the preparation of bakery products; – pasta products in all forms; couscous; – cereal preparations (cornflakes, oatflakes, etc.) and other cereal products (malt, malt flour, malt extract, potato starch, tapioca, sago, cassava starch and other starches). <p>Includes: farinaceous-based products prepared with meat, fish, seafood, cheese, vegetables or fruit. Excludes: meat pies (01.1.2 Meat); fish pies (01.1.3 Fish and seafood); sweetcorn (01.1.7 Vegetables).</p>
Meat	<p>01.1.2 Meat (ND)</p> <ul style="list-style-type: none"> – Fresh, chilled or frozen meat of: <ul style="list-style-type: none"> - bovine animals, swine, sheep and goat; - horse, mule, donkey, camel and the like; - poultry (chicken, duck, goose, turkey, guinea fowl); - hare, rabbit and game (antelope, deer, boar, pheasant, grouse, pigeon, quail, etc.); – fresh, chilled or frozen edible offal; – dried, salted or smoked meat and edible offal (sausages, salami, bacon, ham, pâté, etc.); – other preserved or processed meat and meatbased preparations (canned meat, meat extracts, meat juices, meat pies, etc.). <p>Includes: meat and edible offal of marine mammals (seals, walruses, whales, etc.) and exotic animals (kangaroo, ostrich, alligator, etc.); animals and poultry purchased live for consumption as food. Excludes: land and sea snails (01.1.3 Fish and Seafood); lard and other edible animal fats (01.1.5 Oils and fats animal based); soups, broths and stocks containing meat (01.1.9 Product n.e.c.).</p>
Fish and Seafood	<p>01.1.3 Fish and seafood (ND)</p> <ul style="list-style-type: none"> – Fresh, chilled or frozen fish; – fresh, chilled or frozen seafood (crustaceans, molluscs and other shellfish, sea snails); – dried, smoked or salted fish and seafood; – other preserved or processed fish and seafood and fish and seafood-based preparations (canned fish and seafood, caviar and other hard roes, fish pies, etc.). <p>Includes: land crabs, land snails and frogs; fish and seafood purchased live for consumption as food. Excludes: soups, broths and stocks containing fish and seafood (01.1.9).</p>
Milk, cheese, and eggs	<p>01.1.4 Milk, cheese and eggs (ND)</p> <ul style="list-style-type: none"> – Raw milk; pasteurized or sterilized milk; – condensed, evaporated or powdered milk; – yoghurt, cream, milk-based desserts, milkbased beverages and other similar milkbased products; – cheese and curd; – eggs and egg products made wholly from eggs. <p>Includes: milk, cream and yoghurt containing sugar, cocoa, fruit or flavourings; dairy products not based on milk such as soya milk. Excludes: butter and butter products (01.1.5 Oils and Fats plant-based).</p>
Oils and fats, plant based	<p>01.1.5a Oils and fats, plant based(ND)</p> <ul style="list-style-type: none"> – Butter and butter products (butter oil, ghee, etc.); – margarine (including “diet” margarine) and other vegetable fats (including peanut butter); – edible oils (olive oil, corn oil, sunflower-seed oil, cottonseed oil, soybean oil, groundnut oil, walnut oil, etc.);
Oils and Fats, animal based	<p>01.1.5b Oils and fats, animal based (ND)</p> <ul style="list-style-type: none"> – edible animal fats (lard, etc.). <p>Excludes: cod or halibut liver oil (06.1.1).</p>

Annex 1 - Continue

<p>Fruit</p>	<p>01.1.6 Fruit (ND) – Fresh, chilled or frozen fruit; – dried fruit, fruit peel, fruit kernels, nuts and edible seeds; – preserved fruit and fruit-based products. Includes: melons and water melons. Sesame and sesame seeds, coconuts, oil palm fruits, cottonseed Excludes: vegetables cultivated for their fruit such as aubergines, cucumbers and tomatoes (01.1.7); jams, marmalades, compotes, jellies, fruit pureés and pastes (01.1.8); parts of plants preserved in sugar (01.1.8); fruit juices and syrups (01.2.2).</p>
<p>Vegetables</p>	<p>01.1.7 Vegetables (ND) – Fresh, chilled, frozen or dried vegetables cultivated for their leaves or stalks (asparagus, broccoli, cauliflower, endives, fennel, spinach, etc.), for their fruit (aubergines, cucumbers, courgettes, green peppers, pumpkins, tomatoes, etc.), and for their roots (beetroots, carrots, onions, parsnips, radishes, turnips, etc.); – fresh or chilled potatoes and other tuber vegetables (manioc, arrowroot, cassava, sweet potatoes, etc.); – preserved or processed vegetables and vegetable-based products; – products of tuber vegetables (flours, meals, flakes, pureés, chips and crisps) including frozen preparations such as chipped potatoes. Includes: olives; garlic; pulses; sweetcorn; sea fennel and other edible seaweed; mushrooms and other edible fungi. Excludes: potato starch, tapioca, sago and other starches (01.1.1 Bread and Cereals); soups, broths and stocks containing vegetables (01.1.9 Product n.e.c.); culinary herbs (parsley, rosemary, thyme, etc.) and spices (pepper, pimento, ginger, etc.) (01.1.9 Product n.e.c.); vegetable juices (01.2.2 Non-Alcoholic beverages).</p>
<p>Sugar, jam, honey, chocolate, confectionery</p>	<p>01.1.8 Sugar, jam, honey, chocolate and confectionery (ND) – Cane or beet sugar, unrefined or refined, powdered, crystallized or in lumps; – jams, marmalades, compotes, jellies, fruit purees and pastes, natural and artificial honey, maple syrup, molasses and parts of plants preserved in sugar; – chocolate in bars or slabs, chewing gum, sweets, toffees, pastilles and other confectionery products; – cocoa-based foods and cocoa-based dessert preparations; – edible ice, ice cream and sorbet. Includes: artificial sugar substitutes. Excludes: cocoa and chocolate-based powder (01.2.1).</p>
<p>Food products not else classified (n.e.c.)</p>	<p>01.1.9 Food products n.e.c. (ND) – Salt, spices (pepper, pimento, ginger, etc.), culinary herbs (parsley, rosemary, thyme, etc.), sauces, condiments, seasonings (mustard, mayonnaise, ketchup, soy sauce, etc.), vinegar; – Paste of tomatoes and tomatoes peeled – Prepared baking powders, baker’s yeast, dessert preparations, soups, broths, stocks, culinary ingredients, etc.; – homogenized baby food and dietary preparations irrespective of the composition; – homogenized vegetable preparations, homogenized cooked fruit – Soya sauce, soya paste, soya curd Excludes: milk-based desserts (01.1.4); soya milk (01.1.4); artificial sugar substitutes (01.1.8); cocoa-based dessert preparations (01.1.8).</p>
<p>Non-alcoholic beverages (liters)</p>	<p>01.2.1 Coffee, tea and cocoa (ND) – Coffee, whether or not decaffeinated, roasted or ground, including instant coffee; – tea, maté and other plant products for infusions; – cocoa, whether or not sweetened, and chocolate-based powder. Includes: cocoa-based beverage preparations; coffee and tea substitutes; extracts and essences of coffee and tea. Excludes: chocolate in bars or slabs (01.1.8); cocoa-based food and cocoa-based dessert preparations (01.1.8). 01.2.2 Mineral waters, soft drinks, fruit and vegetable juices (ND) – Mineral or spring waters; all drinking water sold in containers; – soft drinks such as sodas, lemonades and colas; – fruit and vegetable juices; – syrups and concentrates for the preparation of beverages. Excludes: non-alcoholic beverages which are generally alcoholic such as non-alcoholic beer (02.1).</p>
<p>Alcoholic beverages (liters)</p>	<p>02.1.1 Spirits (ND) – Eaux-de-vie, liqueurs and other spirits. Includes: mead; aperitifs other than wine-based aperitifs (02.1.2). 02.1.2 Wine (ND) – Wine, cider and perry, including sake; – wine-based aperitifs, fortified wines, champagne and other sparkling wines. 02.1.3 Beer (ND) – All kinds of beer such as ale, lager and porter. Includes: low-alcoholic beer and non-alcoholic beer; shandy.</p>

11. Annex 2 – Constants parameters for the calculation behind the Calculator

CALCULATOR SECTION	TYPE OF CONVERSION FACTORS	SOURCE	AUTHORS	Link (if any)
University Population – Labor Footprint	National average Footprint values by categories of household consumption	National Footprint account by Consumption Land Use Matrix (CLUM) from MRIO-based CLUM results for GTAP10 year 2014	Global Footprint Network	
Energy Use (Direct Responsibility and Indirect Responsibility Tier 2)	National Electricity Carbon Intensity	National Footprint Account (2021 ed.)	Global Footprint Network	
	Heating & Hot Water carbon intensity (kg CO ₂ unit ⁻¹)	Natural gas (methane)	EPA 2020.	https://www.epa.gov/sites/production/files/2020-12/documents/stationaryemissions.pdf
		LPG (propane)	EPA 2020.	https://www.epa.gov/sites/production/files/2020-12/documents/stationaryemissions.pdf
		Heating oil	UK POST, 2016 (Parliamentary Office for Science and Technology). Carbon Footprint of heat generation	https://researchbriefings.files.parliament.uk/documents/POST-PN-0523/POST-PN-0523.pdf
		Biofuels	2020 Government greenhouse gas conversion factors for company reporting, The Department for Business, Energy and Industrial Strategy, UK	https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020
		Biomass	EPA 2020.	https://www.epa.gov/sites/production/files/2020-12/documents/stationaryemissions.pdf
		Electricity self-generation (kg CO ₂ unit ⁻¹)	Solar panel (photovoltaic - PV)	UK POST (Parliamentary Office for Science and Technology)
	Wind		UK POST (Parliamentary Office for Science and Technology)	http://www.geni.org/globalenergy/library/technical-articles/carbon-capture/parliamentary-office-of-science-and-technology/carbon-footprint-of-electricity-generation/file_9270.pdf
	Geothermal		US EIA (Energy Information Administration)	https://www.eia.gov/tools/faqs/faq.php?id=74&t=11
	Hydroelectric		UK POST (Parliamentary Office for Science and Technology)	http://www.geni.org/globalenergy/library/technical-articles/carbon-capture/parliamentary-office-of-science-and-technology/carbon-footprint-of-electricity-generation/file_9270.pdf
	Diesel		assumed equal to petroleum from thermoelectric generator	

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Annex 1 - Continue

CALCULATOR SECTION	TYPE OF CONVERSION FACTORS	SOURCE	AUTHORS	Link (if any)
Energy Use (Indirect Responsibility)	Carbon Footprint of Internet Connectivity (CO2 emissions per hour of connectivity for various uses (gCO2/hr))	Literature review	Obringer, R., Rachunok, B., Maia-Silva, D., Arbabzadeh, M., Nateghi, R., & Madani, K. (2021). The overlooked environmental footprint of increasing Internet use. Resources, Conservation and Recycling, 167, 105389.	
Buildings	Equivalence Factors (EQFs) and Yield Factors (YFs)	National Footprint Accounts (2021 ed.)	Global Footprint Network	
Feeding Staff and Students (Direct responsibility and Indirect responsibility Tier 2)	Footprint Intensities by COICOP categories (gha/kg)	Global Footprint Network internal elaboration	<ul style="list-style-type: none"> - Food Footprint MRIO 2014 - FAOSTAT food balance sheets - NFA World (2021 ed.) 	
	Organic to conventional ratio per food macrocategories	Global Footprint Network internal elaboration of literature review	Clune, S., Crossin, E., & Verghese, K. (2017). Systematic review of greenhouse gas emissions for different fresh food categories. Journal of Cleaner Production, 140, 766-783.	
	Weighted Average Distance of imported food per foodmacrocategories per EU countries	Global Footprint Network internal elaboration	<ul style="list-style-type: none"> - NFA-MRIO analysis (Global Footprint Network) - Trade and the Greenhouse Gas Emissions from International Freight Transport. Available at: http://www.nber.org/papers/w17117.pdf 	
	Carbon Footprint intensities of drinks packaging	Global Footprint Network	NFA world (2021 ed.)	
Cleaning service	Footprint intensity of cleaning trolley - manufacture of materials (gha/hour)	Literature review	Martinez-Rocamora et al., 2016. Ecological Indicators 69(2016) 66-77	
	Hourly cost of the cleaning service	Web sourcing and internal elaboration	National currency/hour	https://londoncleaningsystem.co.uk/how-much-do-cleaners-get-paid-in-the-eu/

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Travels (Direct Responsibility and Indirect Responsibility Tier2)	Fuel emissions (kgCO2/liter)	Internal elaboration of IPCC and OECD/IEA data	<ul style="list-style-type: none"> - IPCC, 2006. Guidelines for National Greenhouse Gases Inventories. Vol2. Ch.3. - OECD/IEA, 2004. Energy statistics Manual 	
	Carbon Footprint intensities for public transportations (KgCO2/pkm)	Internal analysis and web sourcing	<ul style="list-style-type: none"> - Global Footprint Network - 2020 Government greenhouse gas conversion factors for company reporting, The Department for Business, Energy and Industrial Strategy, UK - Business Travel Emission Factors Table 8 - Air travel data 	<ul style="list-style-type: none"> - (https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020) - (https://www.epa.gov/sites/production/files/2015-12/documents/emission-factors_nov_2015.pdf)
Water & Waste	Water supply (kWh/m3)	Literature review	Majid et al., 2020.	Majid, A., Cardenes, I., Zorn, C., Russell, T., Colquhoun, K., Bañares-Alcantara, R., & Hall, J. W. (2020). An analysis of electricity consumption patterns in the water and wastewater sectors in South East England, UK. <i>Water</i> , 12(1), 225.
	Wastewater treatment (kWh/m3)	Literature review	Wakeel et al., 2016	Wakeel, M., Chen, B., Hayat, T., Alsaedi, A., & Ahmad, B. (2016). Energy consumption for water use cycles in different countries: A review. <i>Applied Energy</i> , 178, 868-885.
	Energy consumption of waste treatments (kgCO2eq/ton)	Web sourcing	DEFRA/DEC 2012	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69554/pb13773-ghg-conversion-factors-2012.pdf
Materials & Equipments	Footprint intensities of paper materials (gha/ton)	NFA 2021 - data World 2017	Global Footprint Network	
	Footprint intensities of purchased furniture and materials (gha/national currency)	NFA-MRIO analysis	Global Footprint Network	

12. Annex 3 – Survey for the Indirect Responsibility Tier 2

Commuting

Please answer to the following question from the sample of staff and students interviewed		
Please indicate the average weekly distance (km) travelled per person from home to university	Student	Staff
<i>Input data</i>	<i>km travelled</i>	<i>km travelled</i>
By walk		
By bike		
By motorbike		
By private car		
By bus		
By commuter rail - between a central city and adjacent suburbs (also called regional rail or suburban rail)		
By transit rail - rail typically within an urban center, such as subways, elevated railways, metropolitan railways (metro), streetcars, trolley cars, and tramways		
By boat		

Energy consumption at home

Please answer to the following question from the sample of staff and students interviewed			
<i>Input data</i>	Unit of measure	Student	Staff
Annual electricity consumption at home	kWh		
Annual energy consumption for heating and hot water at home	Natural gas - m ³		
	LPG / Heating Oil / Biofuels - liter		
	Biomass - ton		
Average number of hours spent at home for working/studying in a week	#		
Number of people living at home	#		
How many weekly hours do you spend at home on average on internet for the following working/studying purposes:			
Online teaching/classes and videoconferences	# weekly hours		
Conducting research	# weekly hours		
Other uses (Emailing/Messaging, Streaming videos, Social Media, etc)	# weekly hours		

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Food consumption at home

Please answer to the following questions from the sample of staff and students interviewed			
	Unit of measure	Student	Staff
Average number of hours spent at home for working/studying in a week	hour/week		

Indicate the weekly consumption (in kg) at home of the following food categories						
Student						
Food categories	quantity (kg)	% organic	% local	% draught	% glass packaged	% plastic /aluminium packaged
Bread and Cereals						
Meat						
Fish and Seafood						
Milk, cheese, and eggs						
Oils and fats, plant based						
Oils and Fats, animal based						
Fruit						
Vegetables						
Sugar, jam, honey, chocolate, confectionery						
Food products n.e.c.						
Non-alcoholic beverages						
Alcoholic beverages						
Staff						
Food categories	quantity (kg)	% organic	% local	% draught	% glass packaged	% plastic /aluminium packaged
Bread and Cereals						
Meat						
Fish and Seafood						
Milk, cheese, and eggs						
Oils and fats, plant based						
Oils and Fats, animal based						
Fruit						
Vegetables						
Sugar, jam, honey, chocolate, confectionery						
Food products n.e.c.						
Non-alcoholic beverages						
Alcoholic beverages						

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