The Greenhouse Gas Emission Calculator
An Introduction - September 2024 (v1)

The Greenhouse Gas (GHG) Emission Calculator[1] enables UNHCR and humanitarian partners to compare climate-relevant emissions of different activities and technologies used in displacement settings for water supply, clean cooking, facility electrification, lighting and solid waste management.
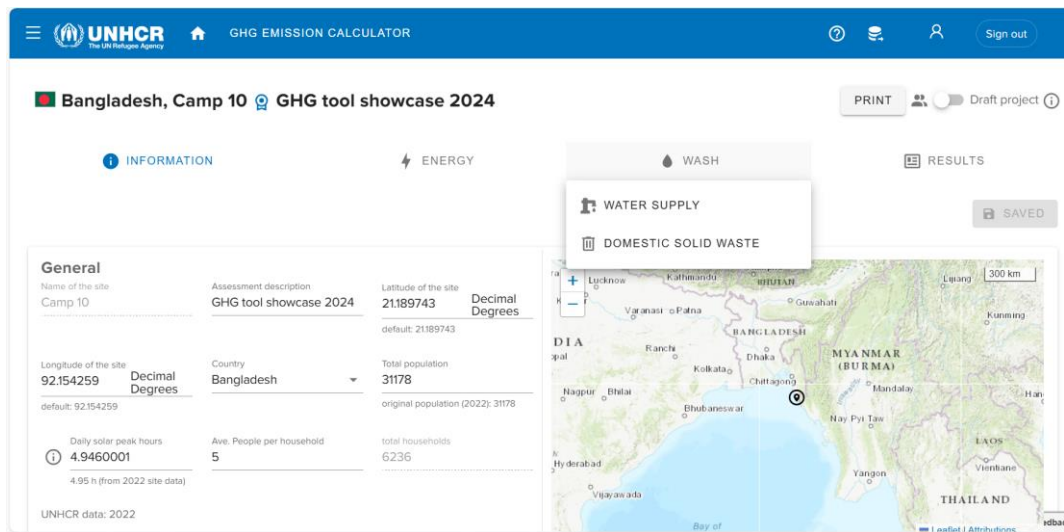

Figure 1: *Starting an assessment in the GHG) Emission Calculator.*

The web-based Calculator is a simple, user-friendly tool that requires no expert knowledge of emission calculations. It stores calculations in the background, offers links to pre-populated databases, and provides default values, minimizing the need for users to input data. This allows users to select defaults or input their data with minimal effort while maintaining accuracy in assessing the environmental impact of various technologies.
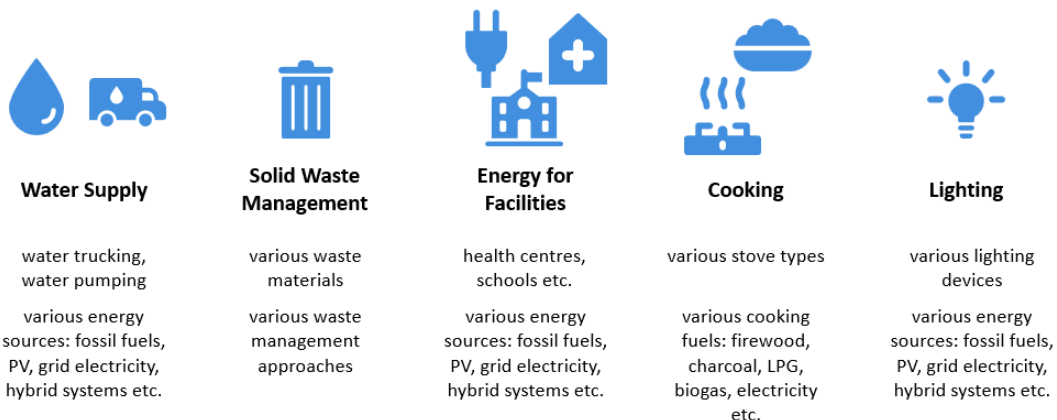

Water Supply	Solid Waste Management	Energy for Facilities	Cooking	Lighting
water trucking, water pumping	various waste materials	health centres, schools etc.	various stove types	various lighting devices
various energy sources: fossil fuels, PV, grid electricity, hybrid systems etc.	various waste management approaches	various energy sources: fossil fuels, PV, grid electricity, hybrid systems etc.	various cooking fuels: firewood, charcoal, LPG, biogas, electricity etc.	various energy sources: fossil fuels, PV, grid electricity, hybrid systems etc.

Figure 2: *Comparable technologies in the tool.*

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[1] *The GHG Emission Calculator was developed by the Swiss Federal Institute of Technology Lausanne (EPFL) and UNHCR, the UN Refugee Agency, in the context of the Geneva Technical Hub, an initiative funded by the Swiss Agency for Development and Cooperation (SDC).*

Examples of usage and results

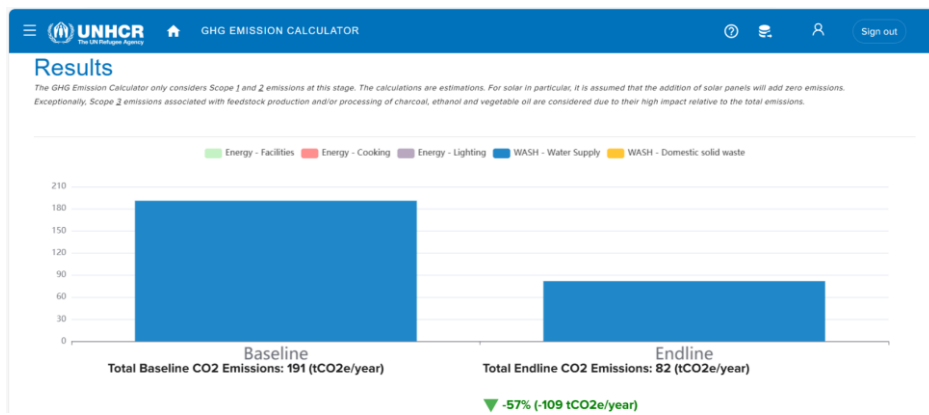## 1. Compare water pumping based on different energy sources

Diesel-powered system ©UNHCR

vs.

Hybrid solar-diesel system ©UNHCR

Results from the GHG Emission Calculator:
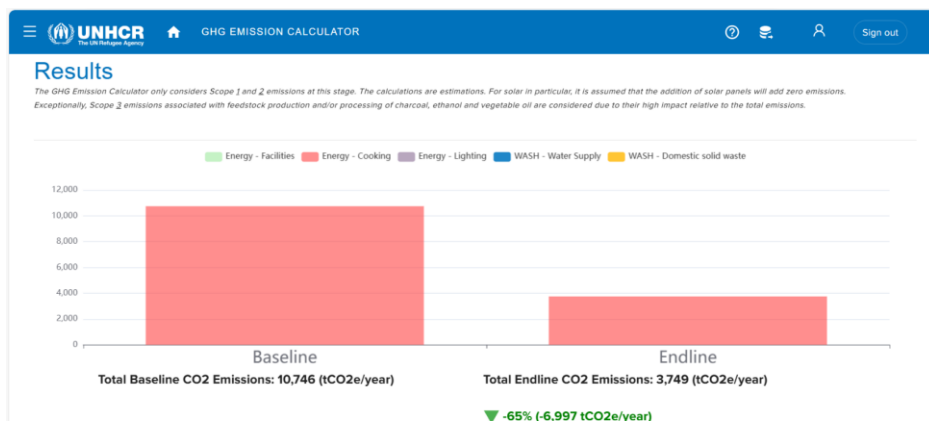

2. Compare different cooking solutions

Artisanal cookstove
used with wood ©UNHCR

vs.

Liquefied petroleum gas (LPG)
©UNHCR

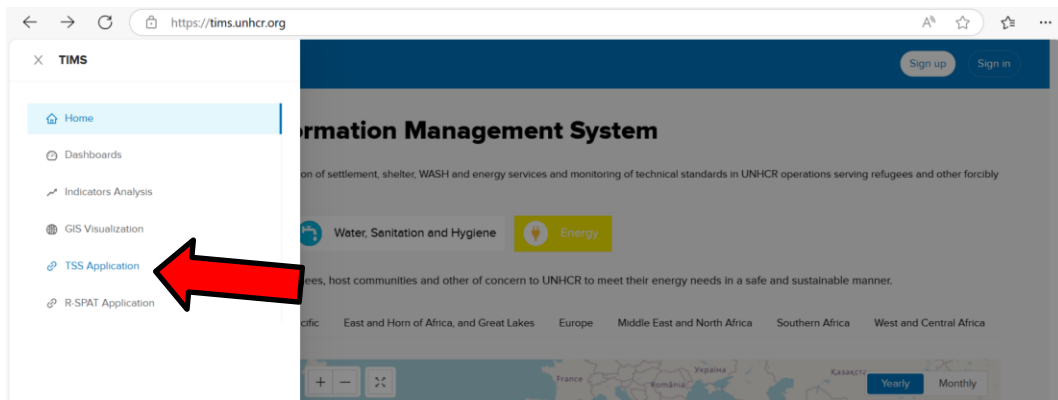Results from the GHG Emission Calculator:

Accessing the GHG Emission Calculator

The GHG Emission Calculator can be accessed via the UNHCR Technical Information Management System (TIMS) or directly through this link. In UNHCR TIMS, the GHG Emission Calculator is accessed with the following three steps.
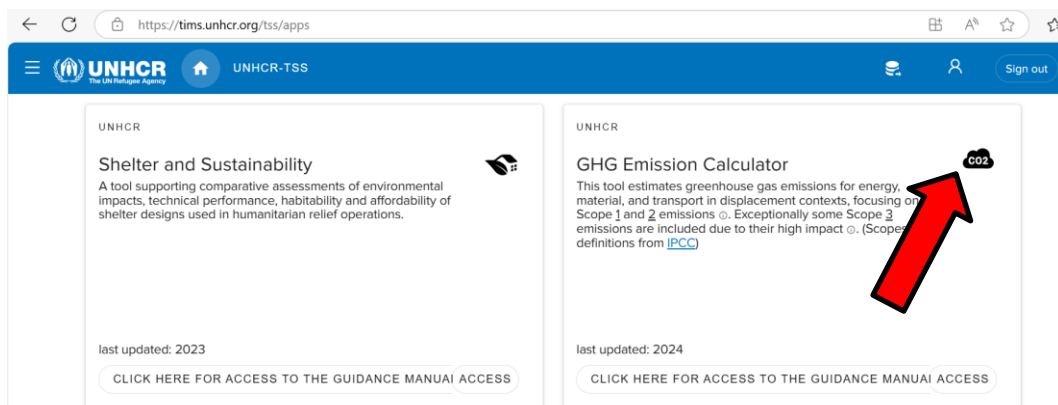
1. **Click on the three stripes at the top left side** ☰
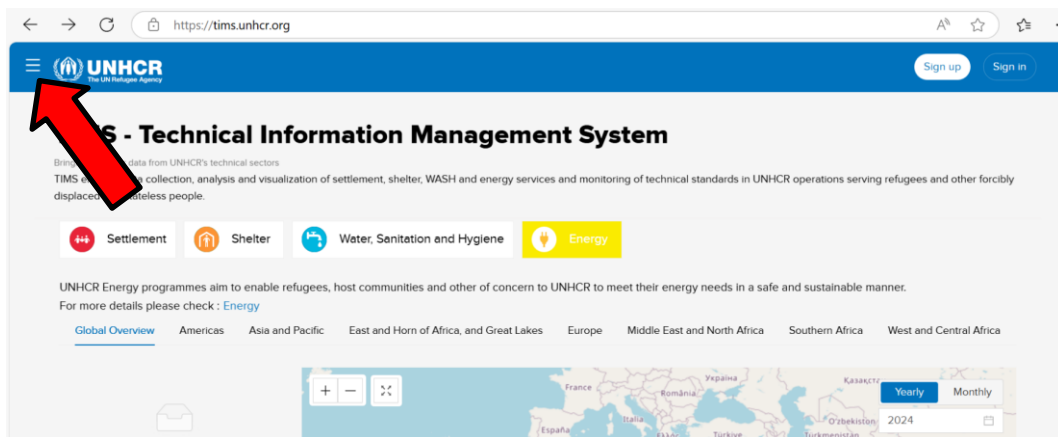

2. **In the vertical list, click on "TSS Application".**

3. **Under the TSS applications, the GHG Emission Calculator is located on the right side. Simply click on the icon** CO2
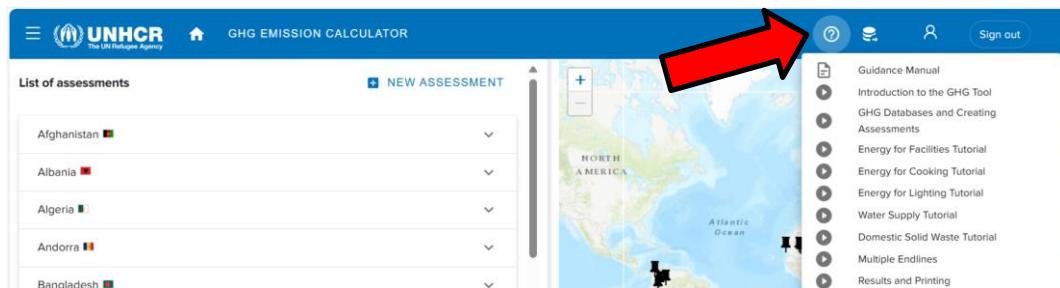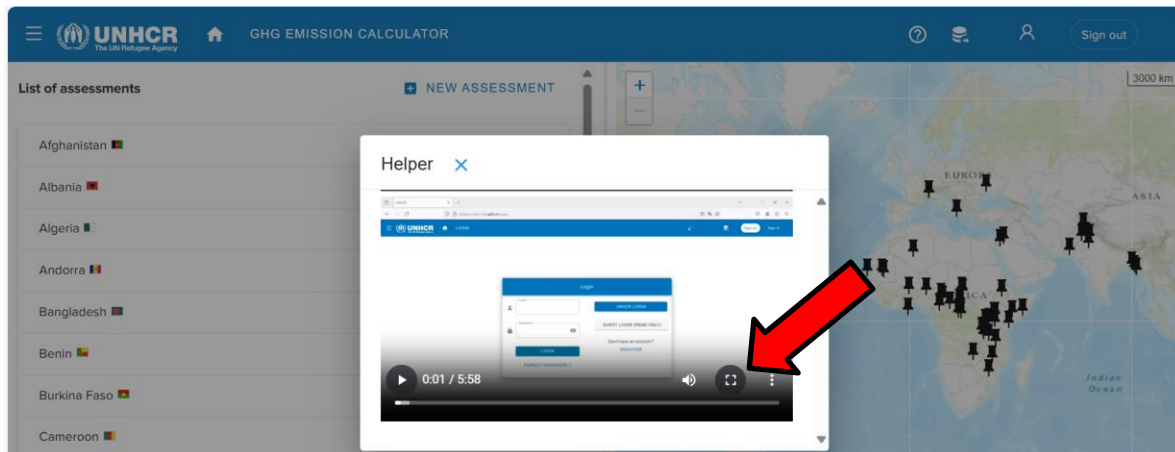
Guidance for the GHG Emission Calculator

A guidance manual and a variety of video tutorials are included in the tool. The guidance manual can be directly accessed on the front page by clicking on the button "CLICK HERE FOR ACCESS TO THE GUIDANCE MANUAL".
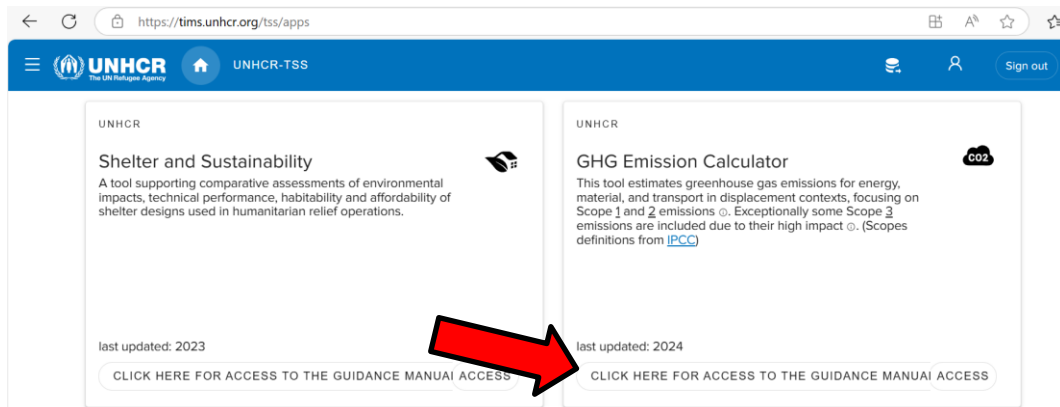
When using the tool, the guidance manual and video tutorials can be accessed at any point in time by clicking on the question mark icon

Video tutorials are directly played in the GHG Emission Calculator. The full screen mode is available by clicking on this icon
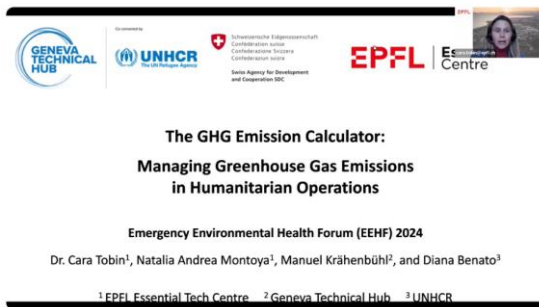
Further Information

Further information is provided in the following videos available on YouTube.com. To access the videos, click on the images below, or on the link provided in the captions.

Presentation of the tool and its functions (link)

Behind the scenes: the tool development (link)

Trainings and Support

Free and tailor-made trainings and support for the GHG Emission Calculator can be requested through the Geneva Technical Hub via DRSTSS@unhcr.org

Feedback on UNHCR TIMS can be made by clicking on the feedback button.