

# The Greenhouse Gas Emission Calculator

An Introduction - September 2024 (v1)

The Greenhouse Gas (GHG) Emission Calculator<sup>1</sup> 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.

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General Name of the site Camp 10	Assessment description GHG tool showcase 2024	Latitude of the site 21.189743 Decimal Degrees	ra + Lucknow Kathinandu Pintutan H - P Varanasir o Patna Ogu	wahati	Ligrang 300 km
Longitude of the site 92.154259 Decimal Degrees	Country Bangladesh •	default: 21189743 Total population 31178	DIA pal Ranch Kolkatao Nagpur Bhiai	MYANMAR (BURMA)	Han
default: 92154259       Daily solar peak hours       4.9460001	Ave. People per household 5	original population (2022): 31178 total households 6236	Bhubaneswar O Bhubaneswar	S Nay Pyi Taw	LAOS
4.95 h (from 2022 site data) UNHCR data: 2022			Vitayawada		THAILAND

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.



Figure 2: Comparable technologies in the tool.

<sup>&</sup>lt;sup>1</sup> The GHG Emission Calculator was developed by the <u>Swiss Federal Institute of Technology Lausanne (EPFL)</u> and <u>UNHCR, the UN Refugee Agency</u>, in the context of the <u>Geneva Technical Hub</u>, an initiative funded by the <u>Swiss</u> <u>Agency for Development and Cooperation (SDC)</u>.



#### **Examples of usage and results**

1. Compare water pumping based on different energy sources



Diesel-powered system ©UNHCR Results from the GHG Emission Calculator:



Hybrid solar-diesel system GUNHCR

#### 0 🛃 Results pe 1 and 2 emis rgy - Facilities 🛑 Energy - Cooking 📖 Energy - Lighting 🛑 WASH - Water Supply 🌗 WASH - Domestic solid waste 180 150 120 90 60 30 Baseline Total Baseline CO2 Emissions: 191 (tCO2e/year) Endline Total Endline CO2 Emissions: 82 (tCO2e/year) **T** -57% (-109 tCO2e/year)

vs.

#### 2. Compare different cooking solutions



Artisanal cookstove used with wood CUNHCR

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 <u>link</u>. 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".

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	مر Indicators Analysis	on of settlement, shelter, WASH and energy services and monitoring of technical standards in UNHCR operations serving refugees and other forcibly
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3. Under the TSS applications, the GHG Emission Calculator is located on the right side. Simply click on the icon





## **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 ?

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

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#### **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.

The GHG Emission Calculator:	MANAGING GREENHOUSE GAS EMISSIONS IN HUMANITARIAN OPERATIONS			
Managing Greenhouse Gas Emissions in Humanitarian Operations	A Geneva Technical Hub project			
Emergency Environmental Health Forum (EEHF) 2024 Dr. Cara Tobin <sup>1</sup> , Natalia Andrea Montoya <sup>1</sup> , Manuel Krähenbühl <sup>2</sup> , and Diana Benato <sup>3</sup> <sup>1</sup> EPFL Essential Tech Centre <sup>2</sup> Geneva Technical Hub <sup>3</sup> UNHCR	EPFL EssentialTech (MUNHCR UNHCR			
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 <u>Geneva Technical Hub</u> via <u>DRSTSS@unhcr.org</u>

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

