Heliopolis University
for Sustainable Development

HELIOPOLIS UNIVERSITY CARBON FOOTPRINT REPORT

https://www.hu.edu.eg/

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TABLE OF CONTENT

ACRONYMS & ABBREVIATIONS

GHG	Greenhouse Gases
GWP	Global Warming Potential
CO2e	Carbon Dioxide Equivalent
ISO	International Organization for Standardization
WRI	World Resources Institute
WBCSD	World Business Council for-Sustainable Development Department
DEFRA	for Environment, Food & Rural Affairs
UNFCCC	United Nations Framework Convention on-Climate-Change
EF	Emission Factor
KWH	Kilowatt per hour
MtCO2e	Metric Tones of Carbon Dioxide Equivalent
WTT	Well-to-Tank
L	Liter
Kg	Kilograms
M3	Cubic Meter

DEFINITIONS

Climate Change	Long-term shifts in temperatures and weather patterns. These shifts may be natural or human driven activities.
IPCC	The Intergovernmental Panel on Climate Change is an intergovernmental body of the United Nations responsible for advancing knowledge on human-induced climate change.
Emission Factor	A factor allowing GHG emissions to be estimated from a unit of available activity data (e.g., tones of fuel consumed, tones of product produced) and absolute GHG emissions).
Green House Gas (GHG)	A gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect.
Direct Emissions	Greenhouse gas emissions from facilities/sources owned or controlled by the museum.
Indirect Emissions	Greenhouse gas emissions from facilities/sources that are not owned or controlled by the organization , but for which the activities of the organization , are responsible (electricity purchase).

ABOUT HELIOPOLIS UNIVERSITY

Heliopolis University for Sustainable Development was founded with the mission of advancing sustainable development in Egypt, tackling challenges that extend beyond environmental conservation to include the creation of equitable, resilient living conditions for both present and future generations. Established in 2009 by Dr. Ibrahim Abouleish (1937–2017), the university reflects the principles of HU, an initiative Dr. Abouleish launched in 1977 to foster human potential and promote economic activities grounded in ecological and ethical practices. Heliopolis University is notably the first institution in the Middle East to prioritize sustainable development as its central guiding mission. Operating as a non-profit institution since 2012, Heliopolis University comprises five faculties: Engineering, Pharmacy, Business and Economics, Physical Therapy, and Organic Agriculture. Each faculty is an interdisciplinary approach to sustainability, integrating teaching, research, and practical applications to address diverse areas, including innovative business models, engineering solutions, organic agricultural practices, and holistic healthcare. In addition to their primary academic studies, students participate in a Core Program—a cross- disciplinary curriculum encompassing arts, music, theater, and language. This program enriches students' perspectives on sustainability while fostering creativity and individual development. Heliopolis University also places a strong emphasis on promoting a campus culture of respect and safety, with initiatives such as workshops, performances, and awareness programs focused on gender equality and the prevention of sexual harassment. As a collaborative academic environment, Heliopolis University encourages students and faculty to actively engage in addressing sustainable development challenges, engaging with the community, and sharing knowledge. Through this community-focused approach, the university continues to promote sustainable practices and contribute positively to Egypt and the wider region.

EXTENDED SUMMARY

Climate change represents one of the most critical global challenges of our era, with extensive consequences for our planet and its inhabitants. As the world addresses these impacts, all organization are urged to evaluate their environmental impact and integrate sustainable practices.

Heliopolis University's commitment to Environmental, Social, and Governance (ESG) principles is evident in every aspect of its operations. Recognizing its pivotal role, the organization not only champions sustainability but also conducts a comprehensive carbon footprint analysis, demonstrating its unwavering dedication to environmental stewardship, transparency, and accountability.

We hereby present our Carbon Footprint Report for the reporting period spanning from January 1st, 2024, to December 31st, 2024. This report encompasses direct emissions from HU owned assets (Scope 1), indirect emissions stemming from purchased electricity (Scope 2), and partial activities of (Scope 3).

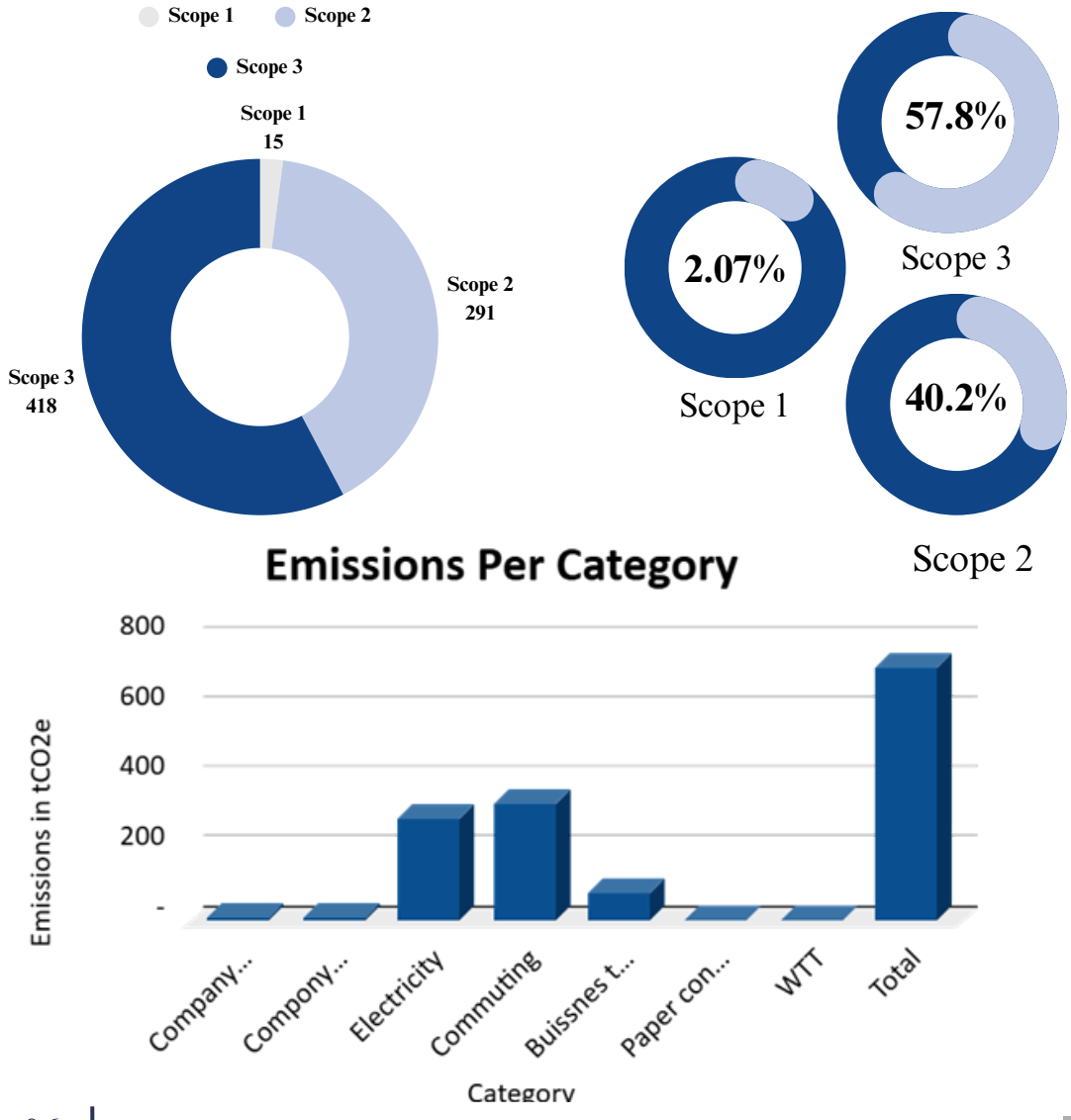
The analysis and calculations of this assessment adheres rigorously to the Greenhouse Gas Protocol Guidelines, the 2006 IPCC Guidelines for Greenhouse Gas Inventories, and the ISO 14064-1:2018 Standards.

The The report encompasses all operational facilities, including Heliopolis University in Egypt. The university employs 500 staff members across academic, administrative, and support services. Greenhouse gas (GHG) emissions were calculated using activity data and emission factors from DEFRA and the Environmental Protection Agency (EPA).

The **total carbon footprint** of **Heliopolis University** for 2024 was **723 mtCO2e**, distributed as follows:

Scope 1 (direct emissions): **15 mtCO$_2$e (2.07%)**
Scope 2 (indirect emissions from electricity): **291 mtCO$_2$e (40.2%)**
Scope 3 (other indirect emissions): **418 mtCO$_2$e (57.8%)**

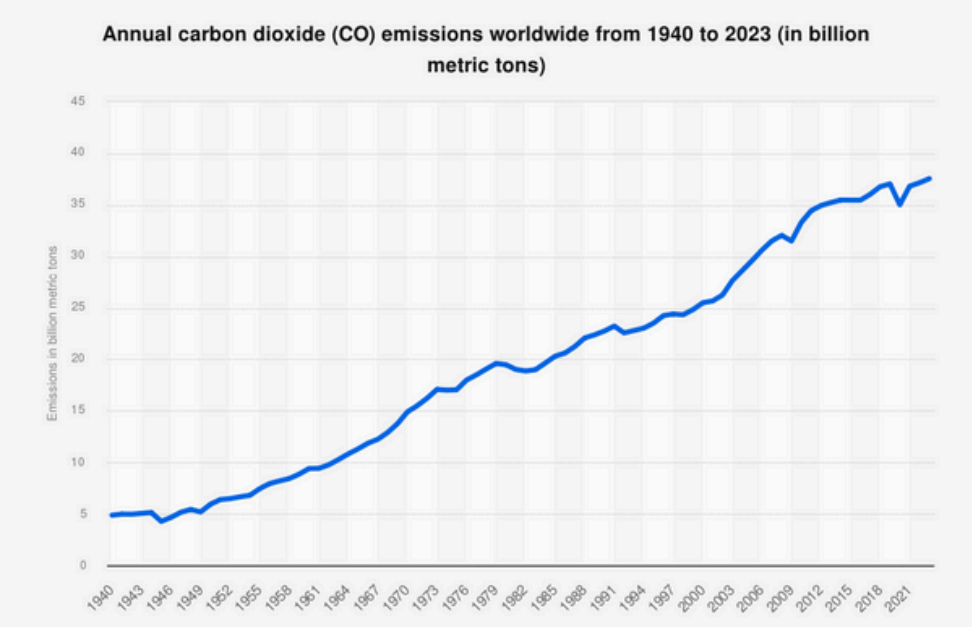
The emissions breakdown for the organization reveals that the largest contributor to total emissions is commuting, which accounts for 335 tCO$_2$e, or 46.33% of the total emissions. Following this, electricity consumption contributes 291 tCO$_2$e, making up 40.25% of the total emissions. Business travel results in 76 tCO$_2$e, representing 10.51% of the total emissions.
Emissions from university-owned cars amount to 15 tCO$_2$e, with diesel-powered vehicles contributing 10 tCO$_2$e (1.38%) and petrol-powered cars accounting for 5 tCO$_2$e (0.69%). Paper consumption contributes 3 tCO$_2$e, or 0.46%, while Well-to-Tank (WTT) emissions account for 4 tCO$_2$e, making up 0.55% of the total emissions.
Overall, the total emissions for the organization stand at 723 tCO$_2$e.



EGYPT'S CLIMATE LEADERSHIP

Climate change represents one of the most critical global challenges of our era, with extensive consequences for our planet and its inhabitants. As the world addresses these impacts, all organization are urged to evaluate their environmental impact and integrate sustainable practices.

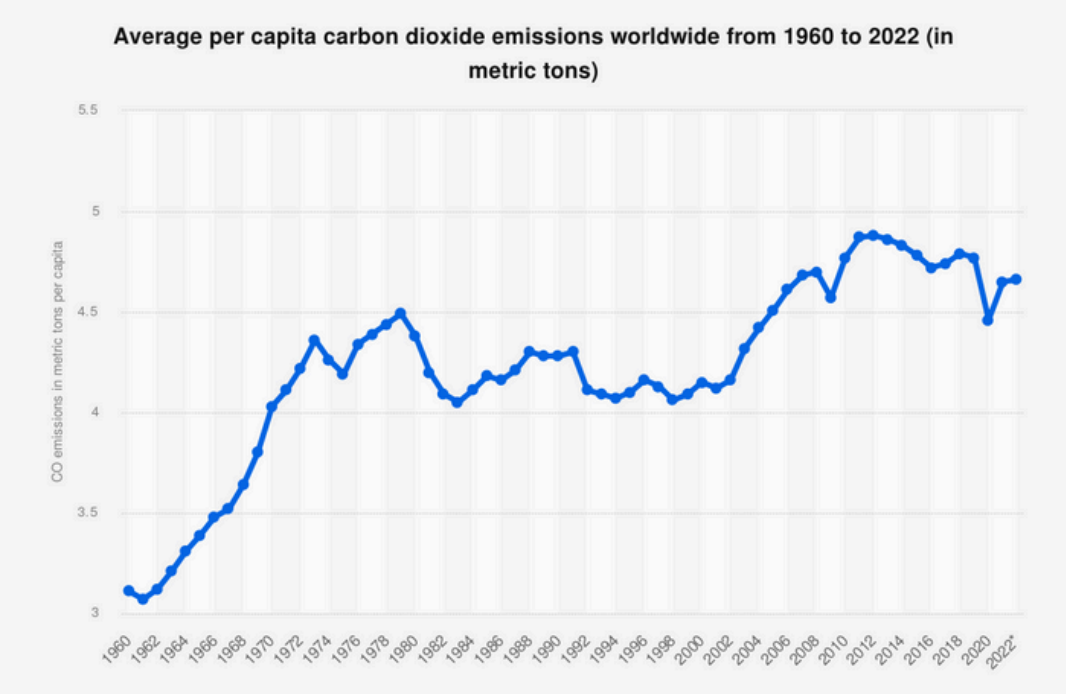
In 2021, Egypt's total greenhouse gas (GHG) emissions were approximately 0.6% of the global total, encompassing sectors such as energy, industry, agriculture, and waste. Egypt's economic and emissions growth are still tightly linked to each other, as reflected in total GHG emissions from 1990 to 2019, which grew 163% in absolute terms and 47% per capita. Between 2005 and 2015, emissions increased by about 31%, from 248 Mt CO2eq to 325 Mt CO2eq.



Egypt has long been a proactive leader in addressing climate change on both regional and global stages. Since ratifying the UNFCCC in 1994, Egypt has consistently advocated for measures to mitigate human interference with the climate system. The nation reaffirmed its dedication to global climate efforts by signing the Paris Agreement in April 2015, with parliamentary ratification following in June 2017. These pivotal steps reflect Egypt's steadfast commitment to promoting environmental sustainability in alignment with international frameworks such as the Sustainable Development Goals.

Acknowledging the imperative of transitioning to a low-carbon, climate-resilient pathway, Egypt recognizes the need for substantial investments, innovation, and transformative decision-making processes across governmental and private sectors. Over the past years, Egypt has extended its leadership in climate change beyond its borders, notably by supporting Africa's energy and water sectors, pivotal areas for climate change mitigation and adaptation efforts.

Climate change is expected to increase mean temperatures and heat extremes in an already dry, arid environment. Over the past three decades, temperatures have risen in Egypt by 0.53°C per decade. By mid-century, temperatures are expected to increase between 1.5°C and 3°C, with greater increases in the country's interior and during the growing season. Higher temperatures and more heat waves will raise the already high evaporation rate, accelerate crop transpiration, functionally increase soil aridity, and elevate water requirements for human consumption and agriculture. Finally, evidence shows that temperature increases from 26°C to 31°C can result in a 30% drop in labour productivity.



The Nile River provides about 97% of Egypt's freshwater resources. Changes in temperature, evapotranspiration (ET), and precipitation in the Nile Basin induced by climate change will significantly affect Egypt's water availability. While global models recognized by the Intergovernmental Panel on Climate Change (IPCC) consistently predict increased temperatures in the Basin, they show a wide range of possible precipitation changes.

Acknowledging the imperative of transitioning to a low-carbon, climate-resilient pathway, over the past years, Egypt has extended its leadership in climate change beyond its borders, notably by supporting Africa's energy and water sectors, pivotal areas for climate change mitigation and adaptation efforts. After successfully hosting COP27, Egypt continues to play a vital role in shaping international climate agendas, advancing ambitious climate goals and fostering global cooperation towards a sustainable future.

Domestically, recent initiatives focus on reducing greenhouse gas emissions, enhancing climate resilience, and promoting renewable energy adoption. Egypt Vision 2030 integrates economic, social, and environmental dimensions of development, serving as a framework for combating climate change and achieving sustainable development goals.

Egypt's Nationally Determined Contributions (NDCs) outline the country's commitments and contributions to addressing climate change under the United Nations Framework Convention on Climate Change (UNFCCC). As of January 2022, Egypt has submitted its NDCs, which include mitigation targets, renewable energy development, energy efficiency, adaptation measures, and requests for international support in finance, technology transfer, and capacity building.

By assessing its carbon footprint, HU can contribute to Egypt's mitigation targets by identifying and reducing greenhouse gas emissions within its operations. This assessment also supports the Sustainable Development Goals (SDGs) by promoting renewable energy development, enhancing energy efficiency, and implementing adaptation measures. These actions not only help in reducing the environmental impact but also foster sustainable business practices that align with global climate goals. The findings from this carbon footprint assessment will provide valuable insights for further integrating sustainability into HUstrategies, reinforcing Egypt's broader climate objective.

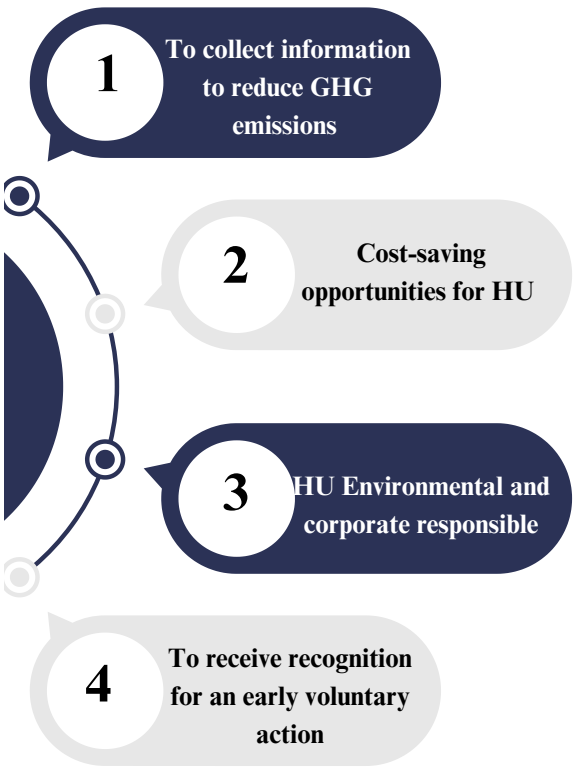
GENERAL INFORMATION

Introduction

This carbon footprint calculation was carried out upon request of the HU and done by the CFC team. The study aims to lay out and calculate the corporate carbon footprint of HU. This report is based on the reported HU emissions from January 1st, 2024, until December 31st, 2024.

Goals of a carbon footprint

This assessment results in the carbon footprint of HU. The goal is to identify sources of greenhouse gas emissions and to calculate numerous of such gases emitted due to the operation of the assessed organization over one determined year. The carbon footprint serves to identify the environmental performance of a specific organization regarding greenhouse gas emissions, thus assessing its impact on climate change.



METHODOLOGY

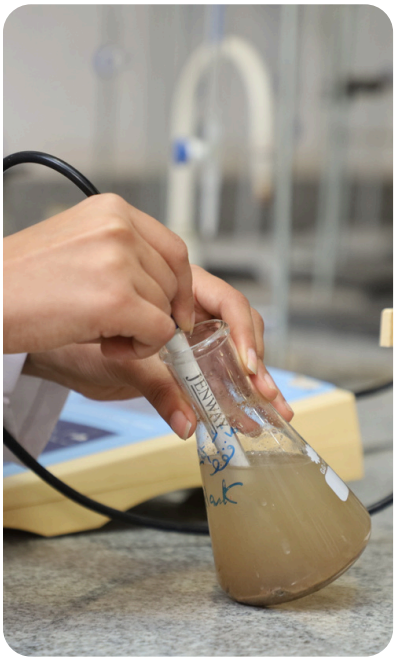
The assessment methodology

The methodology used for this assessment is based on the guidelines of the GHG protocol. The GHG protocol is a global corporate standard for carbon footprint measurement and reporting. It standardizes the measurement, management, and reporting of Greenhouse gas (GHG) emissions generated by a company. The GHG protocol was created jointly by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). The GHG protocol categorizes emissions related to company operations into three scopes (areas) and has become a widely used international standard. The carbon footprint assessment is conducted based on several international and widely applied standards, protocols, and guidelines specially developed for accounting and reporting, including the following:

- Intergovernmental Panel on Climate Change (IPCC) Guidelines.
- The GHG Protocol: corporate accounting and reporting standard.
- ISO 14064-1:2018 Greenhouse gases Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.

System boundary and scopes

In this chapter, the system boundary, as well as the scopes of assessed companies will be described. The term boundary refers to the parameters that are accounted for in the carbon footprint of a specific corporation.



In this assessment, the boundaries were set to cover all corporate facilities and staff-related emissions in their organization.

Once this boundary has been defined, the greenhouse gas emissions arising from the corporate's operations will be identified and assigned to three different scopes, as introduced in the Greenhouse Gas Protocol.

In line with the approach of the Greenhouse Gas Protocol, the emissions identified within the system boundary and the different levels are assigned to three different scopes as follows:

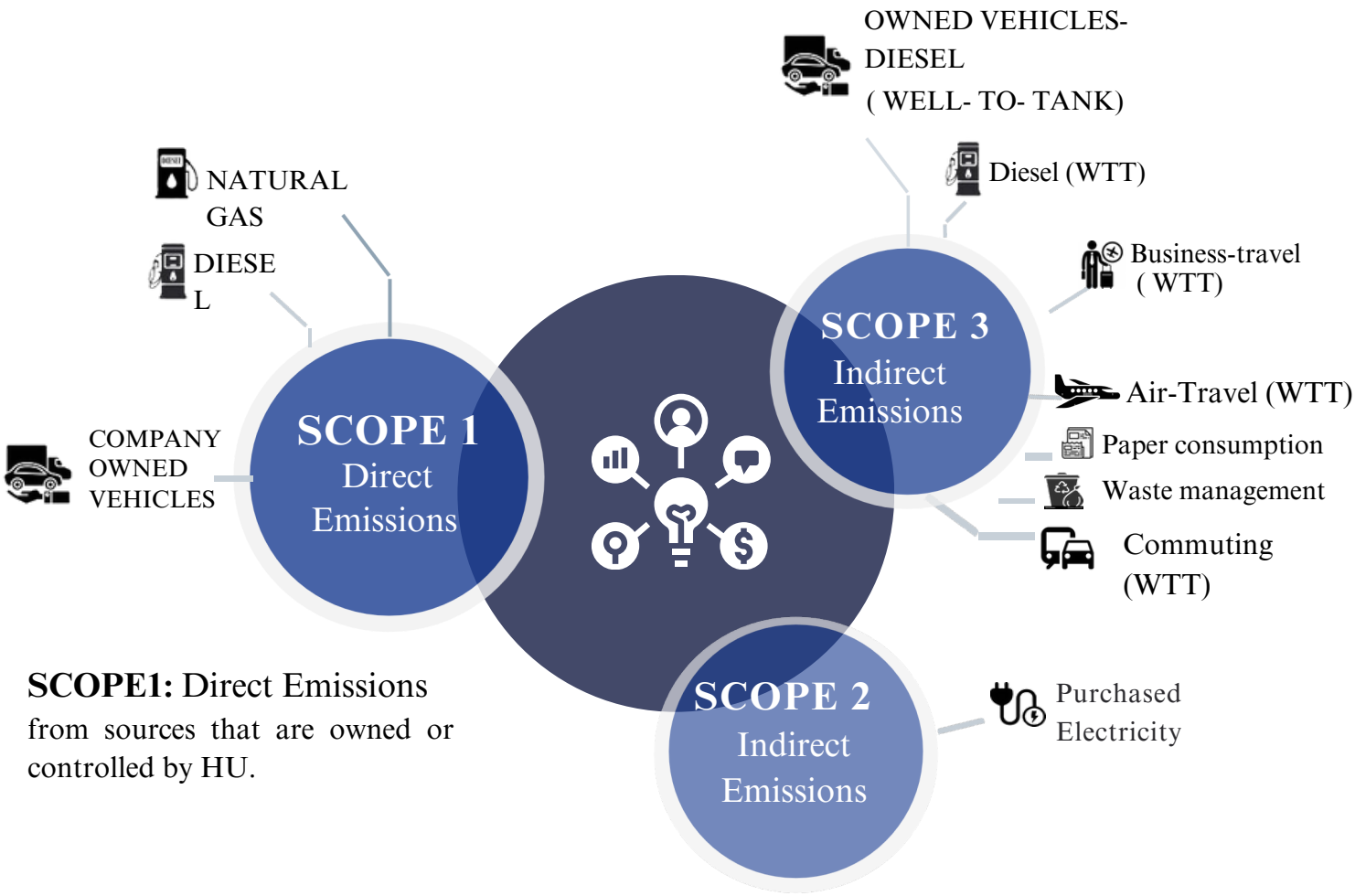
Scope 1: Emissions include the direct greenhouse gas emissions of a corporation. These emissions arise from sources that are owned or controlled by the corporate or employees.

Scope 2: Emissions include indirect greenhouse gas emissions caused by the corporate. These are emissions from the generation of purchased electricity consumed by the corporation.

Scope 3: Emissions include all the other indirect greenhouse gas emissions of the corporation. These emissions are a consequence of the activities of the corporation but (mostly) occur at sources owned or controlled by another entity.

SUMMARY OF EMISSIONS REPORTING

SCOPE 3: Indirect Emissions from other activities of HU.



SCOPE1: Direct Emissions from sources that are owned or controlled by HU.

SCOPE 2: Indirect Emissions from sources with the consumption of purchased electricity that is consumed by HU.

EMISSION FACTORS

Greenhouse gases (GHG) can be measured by recording emissions at the source, by continuous emissions monitoring, or by estimating the amount emitted using activity data (such as the amount of fuel used) and applying relevant conversion factors. These conversion factors allow organizations and individuals to calculate GHG emissions from a range of activities, including energy use, water consumption, waste disposal, recycling, and transport activities. Below are the sources used for the study, these have been screened among all options available and selected due to their accuracy and appropriateness for this particular case:

- **DEFRA Department for Environment, Food & Rural Affairs UK 2024**
- **Egypt's Specific Grid Emission Factor, the national grid average emission factor for the Arab Republic of Egypt, is 0.43 MT CO_2e/MWh, based on the National Egypt ERA.**

Data sources

Different types of data may be taken to carry out a corporate carbon footprint. The most commonly used types of data are:

- Primary data: data taken from documents that are directly linked to the assessment
- questionnaire, such as electricity invoices to calculate emissions caused due to electricity.
- Secondary data: such as databases, studies, and report
- Assumation; Assumptions help to ensure that the analysis is appropriate for the data and the problem being addressed, and that the conclusions drawn are valid and reliable.

Scope of the Inventory

Organizational Boundary

The organizational boundaries considered in this report include the buildings of Heliopolis University. This encompasses the main campus in Cairo, located at 3 Belbeis – Cairo Desert Road, Cairo. Heliopolis University employs a total of 500 staff members, who collectively commute a distance of 1971329 km per year.

GHG Emission Calculation

According to the WBCSD/WRI GHG Protocol, all Kyoto Protocol greenhouse gasses have been included in the assessment where applicable and material. Global warming potentials (GWPs) are used in GHG accounting to convert individual greenhouse gas emissions to a standardized unit for comparison; carbon dioxide equivalent (CO2e).

To calculate the GHG emissions, the main formula used to calculate GHG emissions is:

GHG Emissions = Activity Data (unit of activity) ×Emission Factor (kgCO2e/unit of activity)

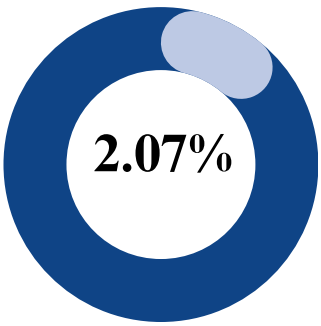
Where:

- Activity Data = Quantitative measure of activity that results in a GHG emission (varies among different types of emission sources (e.g. electricity, diesel consumption, etc.).
- Emission Factors (EF) = Site-specific or default emission factors.
- Since there are no emission factors released by Egypt, except for the national grid emission factor, all other emission factors were adapted from DEFRA Databases

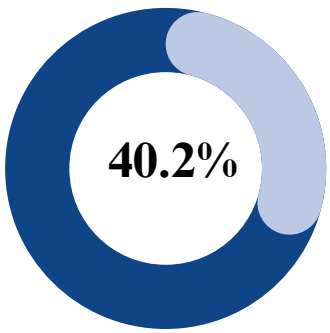
Scope 1 Emissions
15 mtCO2e

Scope 2 Emissions
291 mtCO2e

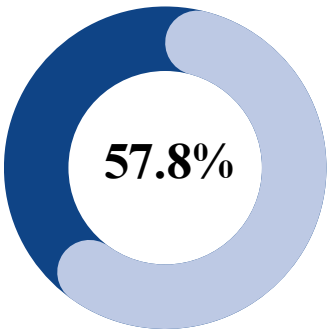
Scope 3 Emissions
418 mtCO2e



Scope 1



Scope 2



Scope 3

HELIOPOLIS UNIVERSITY GHG EMISSIONS

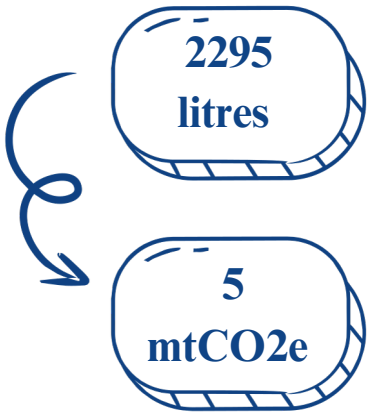
Power related emissions

In alignment with the United Nations Sustainable Development Goals (SDGs) 7 (Affordable and Clean Energy), 9 (Industry, Innovation, and Infrastructure), and 12 (Responsible Consumption and Production), it is crucial to address the power-related emissions that stem from the corporation's electricity purchases, as well as its consumption of natural gas and petrol.

These emissions are linked to the purchase of electricity the corporation used, as well as its Natural Gas and petrol consumption.

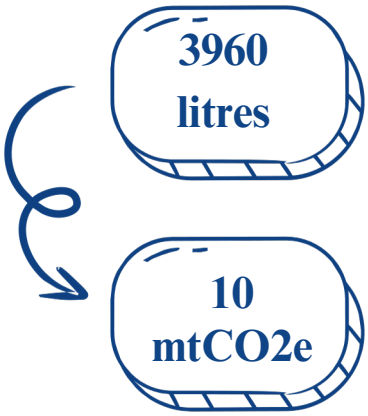
Company Owned Cars: Petrol

Heliopolis University-owned cars consumed **2295 liters** of petrol in the year 2024, resulting in **5 mtCO_2e** of emissions. These emissions from company-owned cars are also considered direct emissions, accounted for under Scope 1.



Company Owned Cars: Diesel

Heliopolis University-owned cars consumed **3960 liters** of diesel in the year 2024, resulting in **10 mtCO_2e** of emissions. These emissions from company-owned cars are considered direct emissions, accounted for under Scope 1.



Electricity

Electricity is indirect emission under scope 2. Heliopolis University uses electricity from the grid as an energy source for lighting and cooling, etc. The Heliopolis University consumed 6**76569.3 kWh in 2024 which resulted in 291 mtCO2e.**
The power related emissions are linked to the purchase of electricity the corporation used, as well as petrol consumption. shown in the table

Scope	Emission component	Emissions resulting in mtCO2e
scope 1	Company owned cars Diesel	10
scope 1	Company owned cars Petrol	5
scope 2	Electricity	291
Total	306	

Table 1 : Power related emissions Emissions for the university

Travel related emissions

Air business Travel

Emissions from air business travel by Heliopolis University are classified under Scope 3. Air business travel resulted in **76** mtCO2e of indirect emissions in 2024.

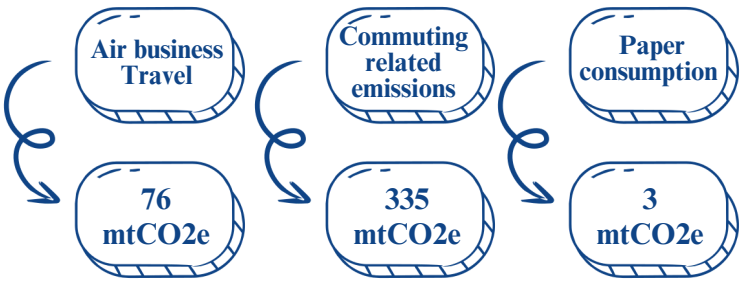
Commuting related emissions

The total Heliopolis University staff counted **500** employees. Emissions from employees commuting in vehicles that are not owned by the company are under Scope 3. In 2024 Heliopolis University employees travelled **1971329 km,** which resulted in **335 mtCO2e** in indirect emissions.

Emissions due to paper consumption

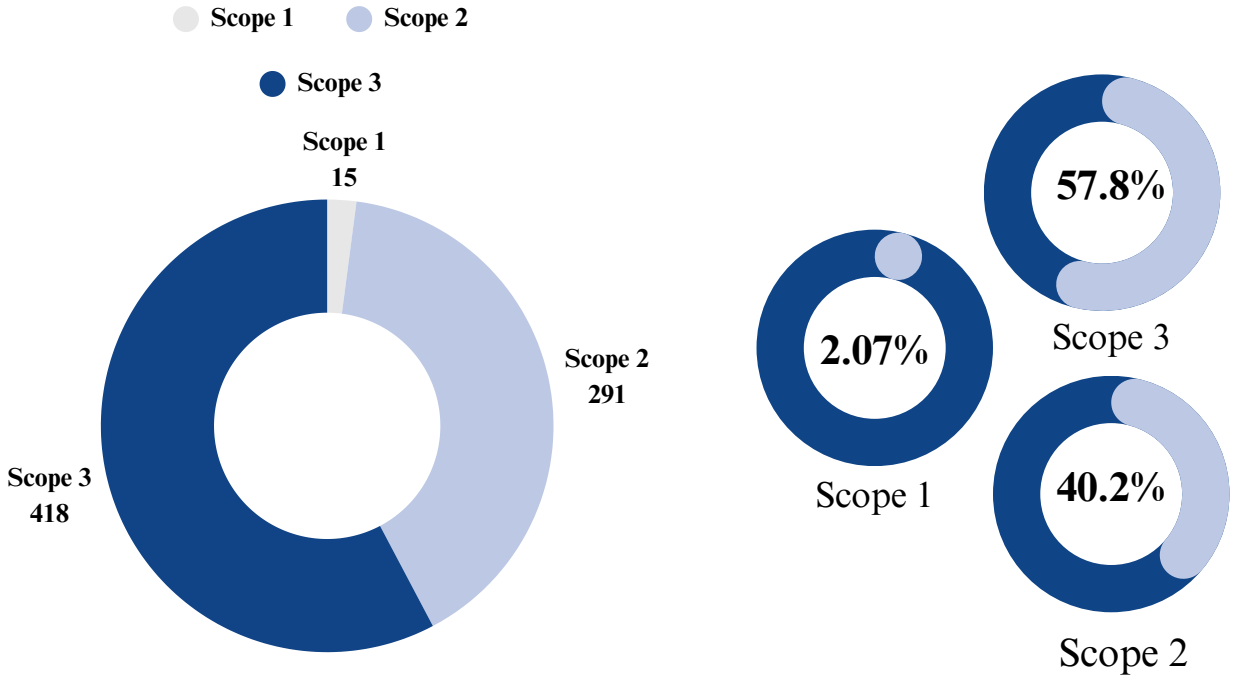
Paper consumption

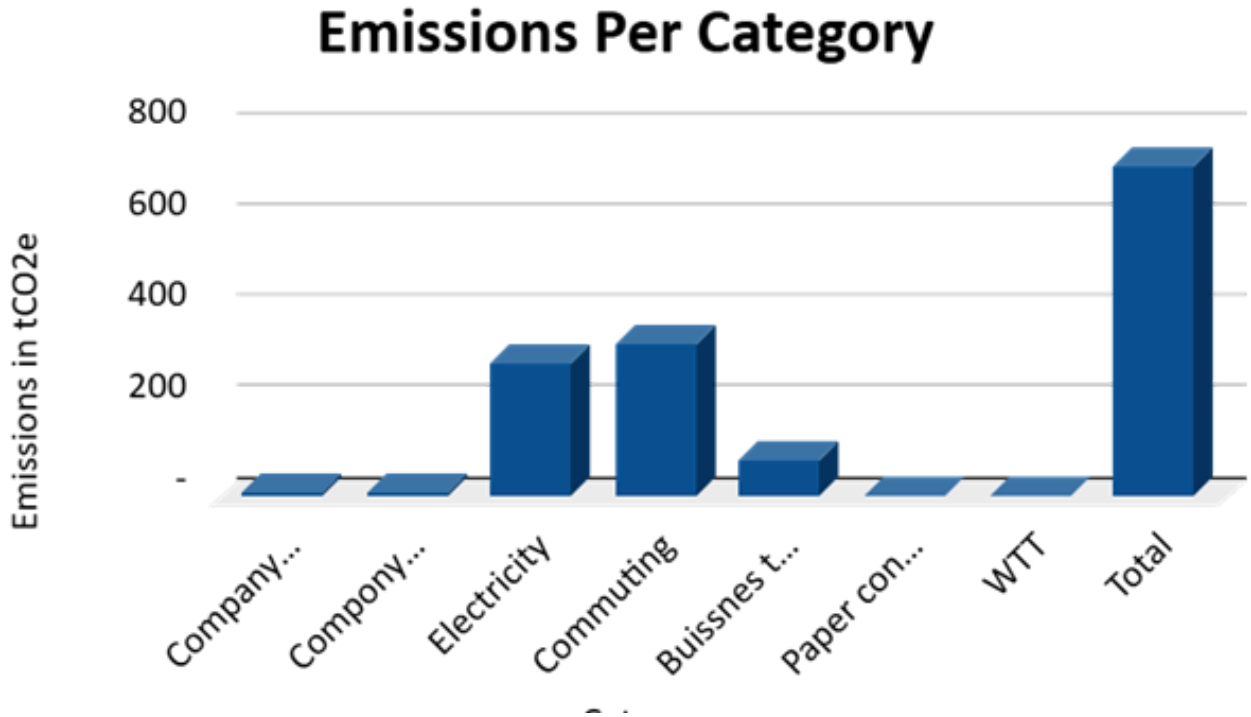
The Emissions due to paper consumption correspond with the SDG 12 (Responsible Consumption and Production) and SDG 15 (Life on Land). HU used **699,500 kg** of sheets, resulting in **3** mtCO2e. The paper emissions are classified as indirect emissions under Scope 3.



RESULTS OF HELIOPOLIS UNIVERSITY

In 2024 the Total Carbon Footprint per divisions for Heliopolis University is 723 mtCO2e





QUALITY CONTROL & ASSURANCE

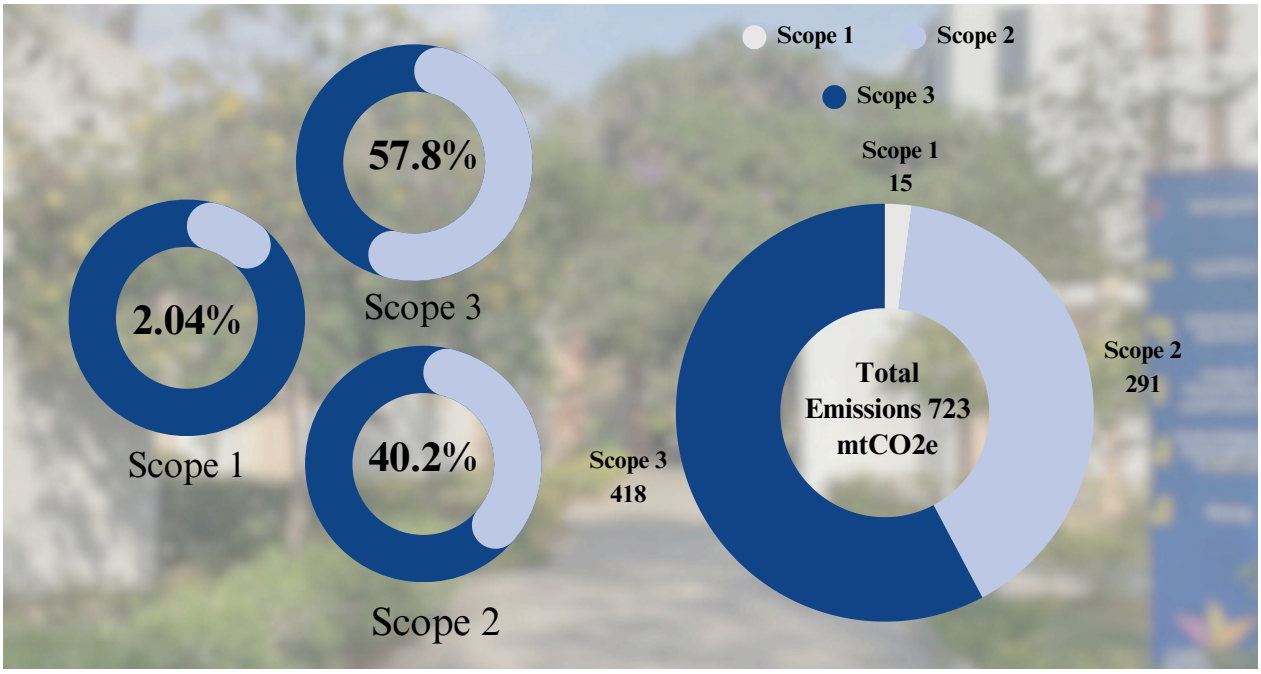
Carbon Footprint Center is an environmental research center belonging to Heliopolis University for sustainable development. The center was established in 2014, and in 2024 it was accredited with ISO.14064-1:2018 certified on specification with guidance at the organizational level for quantification, and reporting of greenhouse gas emissions reductions and removals standards and accredited with ISO 14064-2:2018 is certified on specification with guidance at the project level for quantification, monitoring, and reporting of greenhouse gas emissions reductions or removal enhancement standard.

CFC has conducted the Carbon footprint assessment for Heliopolis University for the period from 1st January to 31 December 2024. With confidence in the relevance, completeness, consistency, transparency, and accuracy of GHG estimates, CFC has established a formal approach for the collection and compilation of consumption data. collecting data, estimating and reporting GHG emissions is accredited according to ISO 14064-1:2018.

In 2024, The Total Carbon Footprint of Heliopolis University is 723 mtCO2e.

Certificate of carbon footprint assessment have been conducted according to ISO 14064-1:2018 specifications with guidance at the organizational level for quantification and reporting of greenhouse gas emissions reductions and removals standards for the period of January 1, 2024, to December 31, 2024.

The total carbon footprint for scopes 1, 2, and 3 is 723 mtCO2e. scope 1: 15 mtCO2e scope 2: 291 mtCO2e scope 3: 418 mtCO2e



CERTIFICATE OF CARBON FOOTPRINT ASSESSMENT

Have been conducted according to ISO 14064-1:2018 specifications with guidance at the organizational level for quantification and reporting of greenhouse gas emissions reductions and removals standards for the period of January 1, 2024, to December 31, 2024.

The total carbon footprint for scopes 1, 2, and 3 is 723 mtCO2e.

Certificate no.
CFC 08-180325

Certificate

Carbon Footprint Assessment

Awarded to

Heliopolis University

The Carbon Footprint Center

certifies that the quantity of Greenhouse Gas emissions of the above organization have been conducted according to ISO 14064-1:2018

Verification period: **January 1, 2024**, to **December 31, 2024.**
The total carbon footprint for Scopes 1, 2, and 3 is **723** mtCO2e.
Scope 1: **15** mtCO2e
Scope 2: **291** mtCO2e
Scope 3: **418** mtCO2e

Certified On Quantification, Monitoring & Reporting According to ISO14064-1, ISO14064-2
CFC CARBON FOOTPRINT CENTER

Thorya Seada
Director of Carbon Footprint Center