



UBT

R2Z - Carbon Footprint Report

Draft Report - Date of providing final document: 25/12/2024

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I. INTRODUCTION

This Carbon Footprint Report for the University of Business and Technology (UBT) marks a critical step in the university's commitment to sustainability and its alignment with the Race to Zero campaign. UBT aims to contribute actively toward reducing greenhouse gas emissions and reaching net-zero carbon emissions by 2050. This report provides an in-depth analysis of UBT's carbon footprint, highlighting the primary sources of emissions and setting a baseline for future mitigation efforts.

By measuring and understanding the university's carbon footprint, this report identifies the key contributors to UBT's emissions, such as energy consumption, waste generation and transportation. Additionally, it outlines proposed interventions and best practices for carbon reduction.

This document serves as both a benchmark and a roadmap, establishing foundational data essential for tracking the university's progress toward zero emissions. Through this commitment, UBT not only upholds its role as a leader in education but also contributes to global climate goals, demonstrating the impact institutions can have in fostering sustainable, low-carbon communities.

II. CARBON FOOTPRINT SCOPES

Emissions Inventory for UBT:

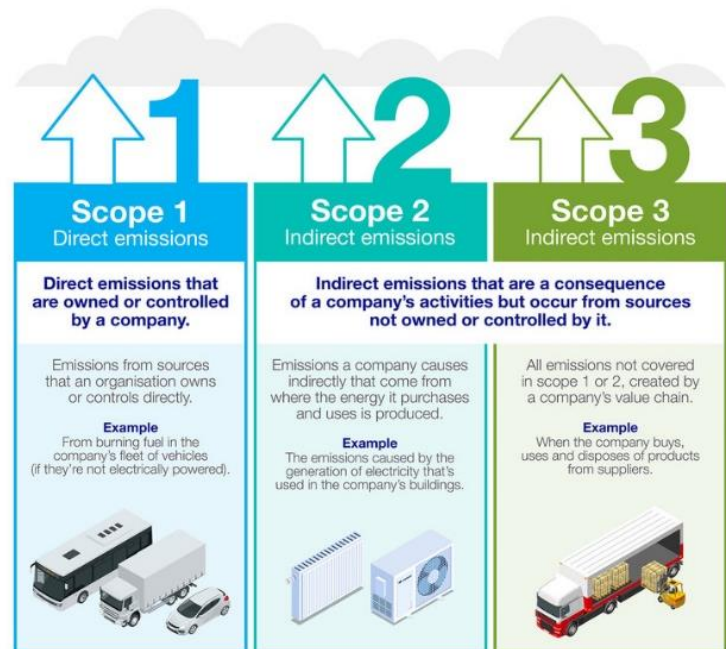
Carbon emissions specifically refer to **carbon dioxide (CO₂)** released into the atmosphere, primarily from burning fossil fuels, industrial processes, and land use changes such as deforestation. CO₂ is the most prevalent greenhouse gas and is often the primary focus in climate change discussions because it represents the largest share of GHG emissions by volume.

Carbon Emission Measurement: When people refer to "carbon emissions" or a "carbon footprint," they are usually talking about CO₂ or CO₂ equivalents (CO₂e), which is a way to express all GHGs in terms of the amount of CO₂ that would have the same warming effect.

Define the Scope of Emissions:

The United States Environmental Protection Agency (EPA) has defined GHG Emissions into three scopes: Scope 1 – direct, reporting company Scope 2 – indirect, upstream activities Scope 3 – indirect, upstream and downstream activities.

- **Scope 1: Direct Emissions** — Emissions from sources directly owned or controlled by UBT.
- **Scope 2: Indirect Emissions** — Emissions from purchased electricity, heat, or steam.
- **Scope 3: Other Indirect Emissions** — Emissions from activities that are not directly owned or controlled but are related to operation.



III. EMISSIONS INVENTORY

The data presented in this carbon footprint report reflects the emissions for the year 2024, alongside approximations derived from previous years' records. This comprehensive analysis aims to provide a clearer understanding of the university's carbon emissions trajectory over time, highlighting trends and areas for improvement. By examining both current data and historical estimates, we can better assess our environmental impact and implement effective strategies for sustainability moving forward.

Emissions scope 1 : Source 1

University Vehicles Fuel Consumption

- Scope: University vehicles and equipment fuel use.
- Consumption: 70,000 liters of fuel across 49 vehicles.

University Vehicles Fuel Calculations:

- Total Carbon Emissions: 161.7 metric tons of CO₂ (or 116,700 kg CO₂).

Proposed Interventions:

1. Transition to Electric or Hybrid Vehicles: Gradually replace conventional fuel vehicles with electric or hybrid alternatives to reduce emissions significantly.
2. Optimize Fleet Usage: Implement vehicle-sharing and route optimization to reduce the number of trips and fuel consumption.
3. Regular Maintenance: Ensure vehicles are regularly maintained to improve fuel efficiency and reduce emissions.

Emissions scope 2 : Source 1

Total electricity purchased and consumed by UBT at two locations.

- Corniche Campus: 4,930,666 kWh
- Dahaban Campus: 5,495,153.2 kWh

Total Carbon Emissions calculation :

- Corniche Campus: 2,958.4 metric tons of CO₂.
- Dahaban Campus: 3,187 metric tons of CO₂.
- Combined Emissions: 6,145.4 metric tons of CO₂.

Proposed Interventions:

1. Increase Renewable Energy Use: Install solar panels or other renewable energy sources on campus to reduce reliance on grid electricity.
2. Energy-Efficient Lighting and Appliances: Transition to LED lighting, energy-efficient HVAC systems, and low-energy appliances across campuses.
3. Implement Energy Monitoring: Use energy management systems to monitor and optimize electricity usage in real-time.
4. Awareness Programs: Promote energy-saving practices among students and staff to reduce unnecessary electricity use.

Emissions scope 3 : Source 1

Upstream: Commuting Emissions

Description:

Emissions generated by commuting of students and staff

Consumption:

Private cars for most Staff and students and Female Staff Bus available to Obhor. Distance from Obhor to Town center is around 40 KM and Corniche Campus is in Town center.

Calculation:

Total Carbon Emissions = 281,376 kg CO₂

Interventions:

1. Promote Carpooling and Ride-Sharing:
Encourage staff and students to share rides through organized carpooling initiatives, reducing the number of private vehicles on the road and thereby lowering commuting emissions.
2. Expand Public Transportation Options:
Collaborate with local transportation authorities to increase the frequency and availability of public transportation options to and from the campus, making it a more viable alternative to driving.

Emissions scope 3 : Source 2

Down Stream: Waste Generation

Description:

Total waste in both campuses annually approx.

Consumption:

192 tons of general waste only.

Calculation:

Total Carbon Emissions = 86,400 kg CO₂e.

Interventions:

1. Implement a Comprehensive Recycling Program:
Establish a robust recycling program to sort and recycle materials such as paper, plastics, and metals, which can significantly reduce the volume of waste sent to landfills and associated carbon emissions.
2. Conduct Waste Audits and Education Campaigns:
Perform regular waste audits to identify reduction opportunities and educate students and staff about waste minimization strategies, promoting a culture of sustainability on campus.

Emissions scope 3 : Source 3

Down Stream : Water Consumption

Description:

Total water consumed across campus operations. (e.g., irrigation, sanitation, cooling).

Consumption:

3000 Tons of water monthly for all uses including landscaping

Calculation:

Total Carbon Emissions = 10,800 kg CO₂e

Interventions:

1. Implement Water-Efficient Practices:

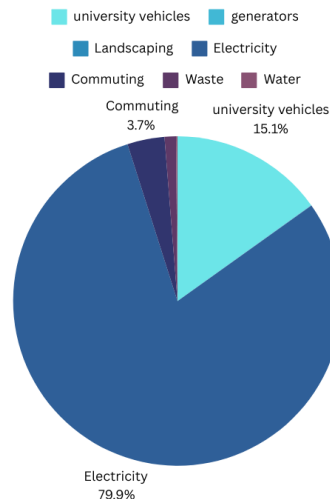
Introduce water-saving fixtures and irrigation techniques (such as drip irrigation) to minimize water usage across campus operations and landscaping, leading to reduced energy consumption associated with water heating and pumping.

IV. CONCLUSIONS

Total Carbon Footprint from all scopes is 7,689.6 metric tons CO₂e.

In conclusion, our analysis reveals that electricity consumption is the primary contributor to the university’s carbon footprint, accounting for approximately 79% of total emissions. Following this, university-owned vehicles represent another significant source of emissions. Given the high impact of these areas,

targeted interventions focused on energy efficiency and sustainable vehicle practices will be prioritized in our efforts to reduce emissions. By addressing these major contributors, the university can make meaningful strides toward achieving its sustainability goals and decreasing its overall environmental impact.



V. METHOD OF CALCULATION:

The calculation of carbon emissions in this report was conducted by gathering relevant data on activities across the university. We utilized the carbon emission factors sourced from the EPA's Greenhouse Gases Equivalencies Calculator, ensuring that the factors selected were appropriate for an educational institution operating within the specific context of our country and the fuel types utilized. By applying these tailored emission factors to the collected data, we were able to accurately quantify the university's carbon footprint for 2024, facilitating a more informed analysis of our environmental impact and guiding future sustainability initiatives.

VI. PLANNING TIMELINE



September 2024

Draft Phase

The initial phase focuses on developing a comprehensive climate strategy for the entire university, to achieve Carbon Neutrality by 2040 and Zero Carbon by 2060.



November 2024

Assessment Phase

This phase involves a detailed assessment of the university's carbon footprint, focusing on direct emissions.



March 2025

Planning Phase: Scope 1 Plan

The focus shifts to developing and implementing strategies to reduce direct emissions based on the audit results.



November 2026

Scope 2 & 3 Audit

The carbon footprint analysis expands to include indirect emissions, like purchased electricity and transportation.



March 2026

Climate Action Plan for Scope 2 & 3 Emissions*

- Initiate further strategies for reducing indirect greenhouse gas emissions, in alignment with the findings from Phase 4.



September 2026 Implementation Phase:

Begin implementing all planned initiatives to gradually reduce the overall carbon footprint of the university in a phased manner, ensuring close monitoring and adjustment of strategies for efficiency.

VII. LONG TERM OBJECTIVE

