

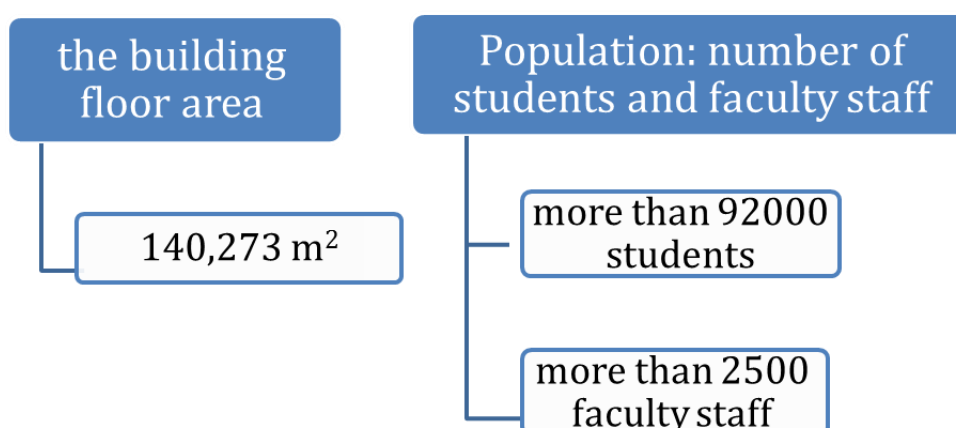
Beni-Suef University BSU's New Carbon Footprint Report



The reporting period is from 2022 – 2023. This is the second carbon footprint assessment of BSU and 2020-2021 was the base year to which all future years will be referenced. This report covers Scope 1, 2 and selected scope 3 activities.

I- INVENTORY BOUNDARIES

1. Institutional boundaries for BSU



Operational boundaries

The operational boundaries for BSU's new CFP report include the following:

Scope 1	Scope 2	Scope 3
<ul style="list-style-type: none">• The consumption of fuel used BSU's owned vehicles (Mobile combustion)	<ul style="list-style-type: none">• Purchased energy (Purchased Electricity)	<ul style="list-style-type: none">• University commutes by employee-owned vehicles

II- Estimating total carbon footprint

Calculation of Carbon Footprint per 2022-2023

The Carbon footprint calculation can be conducted based on the stage of calculation as stated in www.carbonfootprint.com , which is the sum of electricity usage per year and transportation per year.

a. Electricity usage per 2022-2023

The CO2 emission from electricity

$$= (\text{electricity usage per year in kWh}/1000) \times 0.84$$

$$= (1,019,489 / 1000) \times 0.84$$

$$= \mathbf{489.35 \text{ metric tons}}$$

Notes:

0.84 is the coefficient to convert kWh to metric tons (source: www.carbonfootprint.com)

b. Transportation per 2022-2023 (BSU's huttle)

$$= (\text{Number of the shuttle bus in your university} \times \text{total trips for shuttle bus service each day} \times \text{approximate travel distance of a vehicle each day inside campus only (in kilometers)} \times 240/100) \times 0.01$$

$$= (5 \times 7 \times 0.5 \times 240) / 100 \times 0.01$$

$$= \mathbf{0.42 \text{ metric tons}}$$

Notes:

240 is the number of working days per year

0.01 is the coefficient (source: www.carbonfootprint.com) to calculate the emission in metric tons per 100 km for bus.

c. Transportation per 2022-2023 (Cars)

$$= (\text{Number of cars entering your university} \times 2 \times \text{approximate travel distance of a vehicle each day inside campus only (in kilometers)} \times 240/100) \times 0.02$$

1. BSU's owned cars

$$= (34 \times 2 \times 0.5 \times 240/100) \times 0.02$$

$$= \mathbf{1.63 \text{ metric tons}}$$

2. University commutes by employee-owned cars

$$= (181 \times 2 \times 0.5 \times 240/100) \times 0.02$$

= 8.68 metric tons

Notes:

240 is the number of working days per year

0.02 is the coefficient (source: www.carbonfootprint.com) to calculate the emission in metric tons per 100 km car

d. Transportation per 2022-2023 (motorcycles)

= (Number of motorcycle entering your university x 2 x approximate travel distance of a vehicle each day inside campus only (in kilometers) x 240/100) x 0.01 = ((117*2*0.5*240)/100) *0.01

= 2.808 metric tons

Notes:

240 is the number of working days per year

0.01 is the coefficient (source: www.carbonfootprint.com) to calculate the emission in metric tons per 100 km for motorcycle

CO2 (total)

= 489.35 + 0.42 + 1.63 + 8.68 + 2.808

= 502.9 metric tons

Carbon footprint in 2022- 2023 = 502.9 metric tons CO₂e

Noteworthy, the highest percent of the total emissions were from electricity consumption; thus, Scope 2 is still contributed to the highest emissions (489.35 mtCO₂e) in 2022-2023. However, compared to the base year 2020-2021, BSU saw its carbon footprint decrease by approximately 14 percent in 2022-2023 depending on the data collected for energy use and transportation. During that time, there was a gradual decrease in emissions in the category of electricity. The energy consumption was increasing in 2020-2021 due to construction of new buildings in the university especially in the University hospital and hotels. The effort for the energy consumption reduction in university campuses is certainly needed by the following reason; first, contribution for the reduction request about green house gas emission. Second, energy cost reduction in university campus. So in 2021-2022, although the government increased the electricity cost to enforce the people to reduce the consumption, the energy consumption reduction in university campus was very clear with average 13.8%. The energy consumption in 2021 was 9,532,715KWh and in 2022 it was 8,250,490 KWh. In

2022-2023, there was a clear reduction in the energy consumption compared to the last three years. The energy consumption in this year was 1,019,489 KWh.

Mobile combustion (Scope 1) refers to the universityity-based vehicles utilized in commuting either inside or outside the vicinity of the university. Its overall emissions amounted to a total of 2.1 mtCO₂e. Emissions from university commutes (Scope 3) shows the carbon footprint due to daily university commutes of employees. The estimated distance traveled by them resulted in 11.48 mtCO₂e fuel burning emissions.