



THE Impact Ranking 2023

University: Al-Mustaqbal University College

Country: Iraq

Web Address: <https://uomus.edu.iq/en/default.aspx>

SDG 7.2: University measures towards affordable and clean energy

7.2.3 Does your university as a body have a process for carbon management and reducing carbon dioxide emissions?

Process of carbon management and reducing carbon dioxide emissions

1- Carbon Management Process

The context in which the Carbon Management has been developed is outlined in the following sections.

Al -Mustaqbal university college has adopted a series of core values for carbon management. These include a statement of concern for sustainability and the relationship with the environment. On that basis a University Environmental Policy has been developed that is reviewed regularly by the Environmental Strategy Committee. The Policy states that:

In achieving excellence in teaching and research, MUC aims to manage its activities, buildings and estates to promote environmental sustainability, to conserve and enhance natural resources and to prevent environmental pollution, to bring about a continual improvement in its environmental performance.

The University will comply fully with environmental legislation and officially approved codes of practice, and will make continued efforts:

- to promote sound environmental management policies and practices in the work of all, Departments, and other units ;
- to increase awareness of environmental responsibilities amongst staff and students;
- to work with other agencies locally, nationally, and internationally to promote appropriate environmental policies;
- to implement policies and procedures that contribute to a reduction in the University's carbon footprint;
- to minimise waste and pollution, and to operate effective waste management procedures;
- to reduce the consumption of fossil fuels;
- to reduce water consumption;
- to promote a purchasing policy which will give preference, as far as practicable, to those products and services which cause the least harm to the environment;
- to avoid use, wherever possible, of environmentally damaging substances, materials, and processes;
- to maintain the grounds and buildings of the University Estate in an environmentally sensitive way;

- To have regard to environmental factors as far as practicable in respect of the growth of the University and the integration of new developments into the local environment.
- To encourage modes of transport by staff and students which minimise the environmental impact.
- To communicate with interested parties on issues relating to the Environmental Policy including contacts in the immediate neighbourhood, and the regional, national, and global community.

2- Reducing carbon dioxide emissions


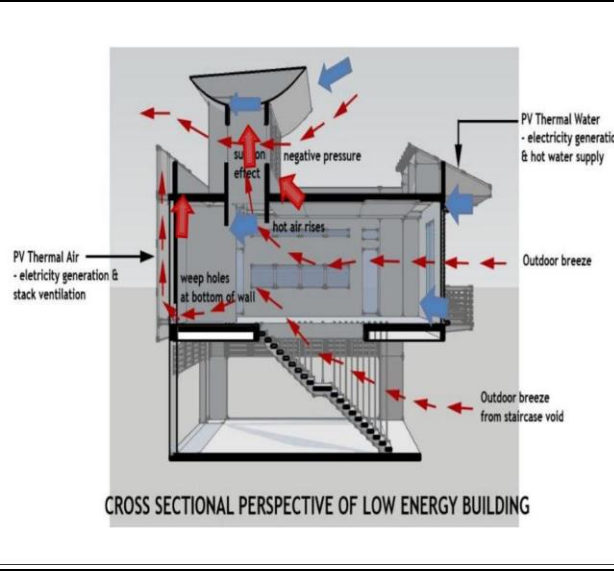

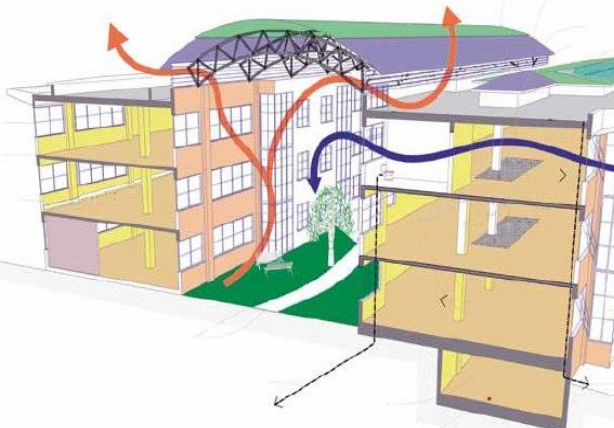
Al-Mustaqbal university college contributes to climate change directly, through emissions from university facilities, and indirectly, through both emissions associated with its demand for goods and services and through the disposal of wastes. These emissions are categorized as

1. Encouragement on utilizing low emission fuel.
2. Encouragement loans by the ministry of electricity to construct solar panels which in turn reduce the carbon
3. Giving the poverty society by the cookstoves and boiling water which consume less fossil fuel
4. Helping the society in reforestation as our college did in Babylon city.
5. Methane capturing
6. Run-of-river hydropower
7. Geothermal energy projects
8. Sustainable transportation
9. Produce, reuse and recycle of the material [material conservation]
10. Planning of sustainable urban planning
11. Implementation of Zero carbon system , house and so on
12. Design and Sizing of Small – Scale Photovoltaic (PV) Cells powered a mobile cleaning and disinfection chamber system for coronavirus in Remote Locations.
13. Individual Small Solar Project.
14. Design and Sizing of Small – Scale Photovoltaic (PV) Cells powered Reverse Osmosis (RO) for Water Supply in Remote Locations([\(17\) \(PDF\) DESIGN AND SIZING OF SMALL – SCALE PHOTOVOLTAIC \(PV\) CELLS POWERED REVERSE OSMOSIS \(RO\) DESALINATION SYSTEM FOR WATER SUPPLY IN REMOTE LOCATIONS \(researchgate.net\).](#))
15. Evaluation of solar Assisted Absorption Cooling System for High Ambient Temperature Conditions. (see the attachments)
16. Producing electricity from wind energy plant
17. Protect the plants from illegal logging
18. Direct emissions that occur from sources that are owned or controlled by the organisation, for example emissions from combustion in owned or controlled boilers, furnaces, vehicles
19. Emissions from the generation of purchased electricity consumed by the organisation
20. All other indirect emissions which are a consequence of the activities of the organisation, but occur from sources not owned or controlled by the organisation, for example, water, waste, business travel, commuting and procurement.

Carbon emissions due to our activities are one of our most significant environmental impacts and we have ambitious targets to reduce these emissions and limit our impact on the environment.

Our campus plan for carbon dioxide reduction

1. Green roof leads to reduce the carbon dioxide emission and generation of oxygen leading to enhance air quality. Additionally, the quality of life and give the human beings within the campus an open space. Thus, green roof reduces the heat-island effect, reduce carbon footprint, reduce the global warming and climate change
2. Roof-mounted solar panels; reducing the dependence on non-renewable energy source reduces the buildings carbon foot-print.
3. Zero Emission Vehicles (ZEV) Policy on Campus

	 <p>CROSS SECTIONAL PERSPECTIVE OF LOW ENERGY BUILDING</p>
<p>Green Building Implementation - Overview Green Technologies implemented at the Environmental Campus Birkenfeld (Al-Mustaqbal University College, Iraq)</p>	<p>Cross section of the Green Building Implementation - Overview Green Technologies implemented at the Environmental Campus Birkenfeld (Al-Mustaqbal University College, Iraq)</p>
	
<p>The simple design makes it possible for the building to function as a chimney, where warm air is drawn from the ground floor and through the engineering building areas, and then escapes under the sides of the vaulted roof, ensuring comfortable temperatures in the classroom and air circulation throughout the building.</p>	

Throughout this Plan, carbon is expressed in terms of Carbon Dioxide Equivalent (CO₂(e)). The Total Carbon Footprint (CO₂ emission in the last 12 months, in metric tons) can be found from the following :

CO₂ (electricity)

$$= \frac{\text{electricity usage per year (kWh)}}{1000} \times 0,84$$

$$= \frac{331120 \text{ kWh}}{1000} \times 0,84$$

$$= 278.14 \text{ metric tons in (2018/2019)}$$

$$= \frac{123134 \text{ kWh}}{1000} \times 0,84$$

$$= 103.43 \text{ metric tons in (2019/ 2020)}$$

$$= \frac{205350 \text{ kWh}}{1000} \times 0,84$$

$$= 172.5 \text{ metric tons in (2020/ 2021)}$$

$$= \frac{277,916 \text{ kWh}}{1000} \times 0,84$$

$$= 233.45 \text{ metric tons in (2021/ 2022)}$$

CO₂ (bus)

$$= \frac{\text{number of shuttle bus in your university} \times \text{total trips for shuttle bus service each day} \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0,01$$

$$= \frac{7 \times 6 \times 12 \times 240}{100} \times 0,01$$

$$= 12.096 \text{ metric tons in (2018/2019)}$$

$$= \frac{7 \times 4 \times 12 \times 240}{100} \times 0,01$$

$$= 8.06 \text{ metric tons in (2019/ 2020)}$$

$$= \frac{15 \times 6 \times 5 \times 240}{100} \times 0,01$$

$$= 10.8 \text{ metric tons in (2020/ 2021)}$$

$$= \frac{22 \times 10 \times 7 \times 240}{100} \times 0,01$$

$$= 36.96 \text{ metric tons in (2021/ 2022)}$$

CO₂ (cars)

$$= \frac{\text{number of cars entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0,02$$

$$= \frac{495 \times 2 \times 2 \times 240}{100} \times 0,02$$

$$= 95.04 \text{ metric tons in (2018/ 2019)}$$

$$= \frac{200 \times 2 \times 2 \times 240}{100} \times 0,02$$

$$= 38.4 \text{ metric tons in (2019/ 2020)}$$

$$\frac{150 \times 2 \times 1.5 \times 240}{100} \times 0,02$$

= 21.6 metric tons in (2020/ 2021)

$$\frac{175 \times 2 \times 1 \times 240}{100} \times 0,02$$

= 16.8 metric tons in (2021/ 2022)

CO₂ (motorcycle)

$$= \frac{\text{number of motorcycle entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0,01$$

$$= \frac{495 \times 2 \times 2 \times 240}{100} \times 0,01$$

= 47.52 metric tons in (2019)

$$= \frac{50 \times 2 \times 2 \times 240}{100} \times 0,01$$

= 4.8 metric tons in (2019/ 2020)

$$= \frac{100 \times 2 \times 1 \times 240}{100} \times 0,01$$

= 4.8 metric tons in (2020/ 2021)

$$= \frac{200 \times 2 \times 1 \times 240}{100} \times 0,01$$

= 9.6 metric tons in (2021/ 2022)

CO₂ (total) in (2018/ 2019)

= 278.14+12.096+95.04+51.84

= 437.116 metric tons

Carbon footprint in 2018/2019 = 437.116 metric tons

CO₂ (total) in (2019/ 2020)

= 103.34 + 2 +38.4 + 4.8 = 148.54 metric tons

Carbon footprint in 2019/2020 = 148.54 metric tons

CO₂ (total) in (2020/ 2021)

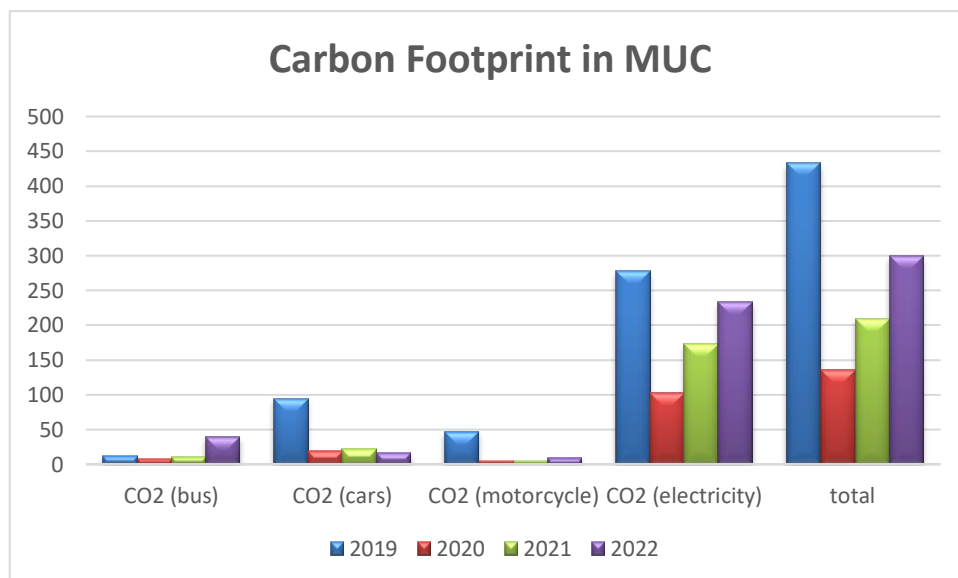
= 172.8 + 10.8+21.6+ 4.8 = 210 metric tons

Carbon footprint in 2020/2021 = 210 metric tons

CO₂ (total) in (2021/ 2022)

= 233.45+ 36.96+16.8+ 9.6 = 296.81 metric tons

Carbon footprint in 2021/2022 = 296.81 metric tons



Description

It can be seen that from Figure 1 which shows the carbon dioxide due to four different sources (buses, cars, motorcycle, and electricity) during the time periods 2019 – 2021. Firstly, w.r.t. bus, it may be noted that COVID-19 had ignorance influence on the CO₂ because buses are not common in Babylon province in a comparison with Baghdad bases upon the data. Secondly, w.r.t. CO₂ due to cars, it can be seen that there was an obvious reduction of its concentration due to COVID-19 where the plan of government "stay home" had been applied which restrict the movement of the cars. Thirdly, the movement of motorcycle had a little impact on CO₂ concentration in the atmosphere.

Finally, the CO₂ emission ratio due to electricity had the highest rate and it can be seen that the spread of COVID-19 and plan of "Stay Home" was highly influences on the rate of CO₂. This is due to most of schools, universities, industrial factory had been closed. It can be seen that the total concentration rate in 2019 was the highest rate where the life is normal during the entire year. While in 2020, the concentrations rate was reduces about (30 %) and then in 2021 there is a slight increment in the CO₂ emission ratio as there is an increasing in the public transportations and the life is partly back normally and the universities, factories and schools open again.

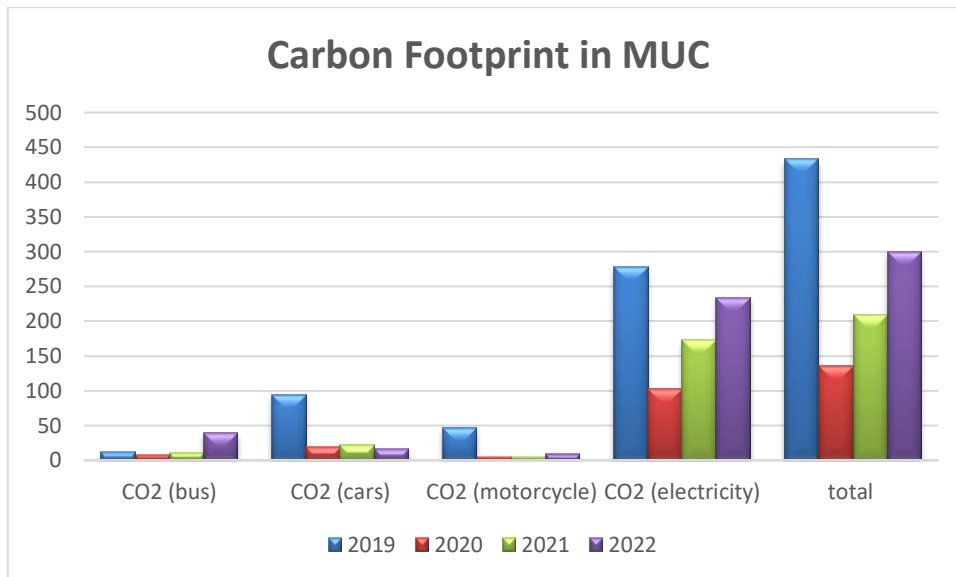


Figure 1 the CO2 Emissions

Additional evidence link:

<https://www.uomus.edu.iq/assetsv2/img/Sustensibility/Goals/Report.pdf>