

Carbon management and reducing carbon dioxide emissions

Revised December 2023
Mutah University
Maintenance and sustainable unit

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In 1993, the Maintenance and Sustainability Unit was established, comprising several specialized departments:

- Maintenance Department:

Responsible for daily and periodic maintenance of all university facilities, both internal and external dormitories.

- Mechanical Department:

Maintains and operates central heating systems and wastewater treatment facilities, focusing on recycling water for irrigation and supporting various devices and equipment.

- Electric Department:

Maintains, operates, and manages the electrical systems, including power generation stations and networks.

- Follow-up and Field Control Department:

Oversees and monitors the university's facilities, conducting inspections and reporting any issues within or outside buildings.

Tracks maintenance requests and ensures unit departments have necessary supplies, spare parts, and equipment.



- Communications Department:

Provides telecommunications services and maintains all university communication exchanges.

- Buildings Department:

Ensures the safety and efficiency of university buildings by monitoring various systems, such as heating, cooling, lighting, and public safety.

Initiates efforts to transition towards energy-efficient buildings by implementing insulation systems, installing energy-saving double-glazed windows, replacing traditional lighting with LED systems, and utilizing modern air circulation systems for more efficient heating and cooling.

The Maintenance and Sustainability Unit plays a crucial role in the maintenance and sustainability of the university's facilities and buildings, infrastructure development, and the operation of electrical, mechanical, health, and communications systems. Their responsibilities extend to providing maintenance services year-round, even on public holidays, and offering maintenance support to the local community in the Karak governorate.

The Maintenance and Sustainable Unit, through the Follow-up and field control department, continuously reviews all sources of waste emissions at the university campus to ensure that all university emission sources are within the international conditions and the Jordanian specifications and standards in cooperation with the Ministry of Environment. In addition to the continuous follow-up and taking readings, the university has adopted a plan to transform all emission sources from the university facilities to zero or low-emission sources. Examples of the action taken:

- ✓ *The actual need for electrical energy at Mutah University is secured through the university's photovoltaic system, with 5 megawatts installed inside the university campus.*
- ✓ *The university adopted a plan to convert all facilities that need energy to use natural gas and electricity, which is environmentally friendly and has low emissions.*



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- ✓ *All university vehicle moves are managed to lower gasoline consumption. The university's strategy is to convert University cars into either hybrid or electric vehicles.*
 - ✓ *The university adopted a plan to recycle and benefit from waste to reduce harmful emissions. The university also used the best international standards for waste separation and sorting.*
 - ✓ *The university has adopted an afforestation project and increased green spaces since 2018. This plan aims to plant the entire unused university lands at a rate of up to 100% by 2025.*
 - ✓ *Through the maintenance and sustainable unit, the university closely monitors all university facilities and takes periodic readings to achieve the most significant reduction in harmful emissions.*

Table 1 Diesel consumption and yearly reduction to lower CO₂ emission and implement eco-friendly practices.

	2022			2023			Reduction 2023(%)
	Diesel amount (L)	CO ₂ (Ton)	Energy content (GJ)	Diesel amount (L)	CO ₂ (Ton)	Energy content (GJ)	
Presidency Buildings	1297	3.5	52	1234	3.3	52	5
Engineering Faculty	19876	53.3	906	18965	50.8	906	5
Science Faculty	7342	19.7	295	6543	17.5	295	12
Nursing Faculty	4987	13.4	210	4329	11.6	210	15
Art Faculty	3987	10.7	176	3789	10.2	176	5
Business Faculty	3412	9.1	150	2387	6.4	150	43
Law Faculty	3764	10.1	176	3651	9.8	176	3
Social Faculty	2456	6.6	154	2564	6.9	154	-4
Sharia Faculty	2789	7.5	99	1598	4.3	99	75
Educational Science Faculty	3456	9.3	112	2012	5.4	112	72
Sports Science Faculty	25671	68.8	1386	21982	58.9	1386	17
Medicine Faculty	13459	36.1	690	14289	38.3	690	-6
Pharmacy Faculty	5671	15.2	280	5439	14.6	280	4
Information Technology Faculty	6231	16.7	245	5498	14.7	245	13
Agriculture Faculty	16543	44.3	647	15439	41.4	647	7
Teaching Halls Complex	53876	144.4	2150	49876	133.7	2150	8
service buildings	27890	74.7	1078	25678	68.8	1078	9

Mutah University has actively pursued a transition from being an energy-consuming institution to becoming an energy-producing and environmentally sustainable university. This ambitious journey to transform the university campus into an energy-efficient, eco-friendly space commenced in 2018 and continues to this day.