

THE KEY DRIVERS IN TRANSFORMING UNIVERSITI TEKNOLOGI MARA INTO A SUSTAINABLE GREEN CAMPUS

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ABSTRACT

The transformation of universities into sustainable green campuses has become a critical imperative in addressing environmental challenges and promoting sustainable practices. This abstract explores the key drivers that motivate UiTM to embark on this transformational journey. It highlights the role of students, faculty, and staff as change agents, the importance of institutional leadership and commitment, the influence of sustainability policies and regulations, the significance of financial considerations, and the impact of community engagement and partnerships. By understanding these key drivers, universities can effectively navigate the path toward becoming sustainable green campuses, fostering a culture of environmental responsibility and creating a positive impact on both campus life and the broader community. The objective of this paper is to highlight the key drivers in transforming Universiti Teknologi MARA into a sustainable green campus. Method involves compiling practices of green initiatives implemented on campus. Findings highlight implementation of sustainable practices is essential for successfully transforming a university into a sustainable green campus, which involves incorporating energy saving practices, promoting water conservation measures, encouraging waste reduction and recycling, prioritising green building designs, and engaging the campus community in environmental education and sustainable practices.

Keywords: Sustainability; Green Campus; Transformation; Key Drivers; Best Practices

1. INTRODUCTION

In July 2009, the Malaysian government released the Green Technology Policy in an effort to boost the economy and encourage sustainable growth. In the meanwhile, Malaysian institutions have used green technologies to qualify as "green campuses" for the UI Green Metric. The concept of a green campus in Malaysia aligns with the global understanding of creating sustainable and environmentally friendly educational institutions. In Malaysia, the green campus concept focuses on promoting sustainability practices and principles within the campus environment. Green Campus status is attained by making significant improvement in across campus community collaboration under one or several of the following themes: Settings and Infrastructure, Energy and Climate Change, Waste, Water, Transportation and Education (Mohd Isa et al., 2021). It goes beyond mere aesthetics and focuses on promoting sustainability, resource efficiency, and environmental stewardship.

Universiti Teknologi MARA

Universiti Teknologi MARA UiTM) is a prominent Malaysian public university known for its focus on technical and professional education. It is crucial for UiTM to demonstrate its environmental responsibility and commitment to sustainable practices, setting an example for students and the wider community while creating a healthier, more sustainable learning environment that fosters innovation, reduces operational costs, and enhances the overall campus experience. Therefore, this paper focuses on the main motivations behind Universiti Teknologi MARA's conversion to a sustainable, green campus. As the largest institutions of higher learning in Malaysia, with 34 campuses nationwide, 1 main campus located in Shah Alam. 12 state campuses, 21 satellite campuses, 165, 594 students and 18,725 staff. UiTM aims to become a Globally Renowned University (GRU) by 2025 by anchoring on three strategic thrusts namely Quality Education, Global Excellence and Value Driven Performance. The transformation of UiTM into a sustainable green campus is primarily driven by the strong commitment of UiTM's top management to campus sustainability. Furthermore, this transformation is facilitated by the establishment of dedicated entities that foster synergy and coordination among sustainability initiatives. The effectiveness of the sustainable green campus is measured, and stakeholder involvement plays a crucial role in ensuring the success of campus sustainability efforts.

The Office of Development (Infrastructure and Infostructure) consists of six departments: Infrastructure, Infostructure, UiTM Green Centre (UGC), Property Management and Investment and Occupational Safety and Health. UiTM Green Centre (UGC) intends to formulate UiTM's Sustainability Policy and blueprints in support of the original Greenation@UiTM vision and mission. Sustainability@UiTM has been a longstanding commitment for the university, evident since its inception. UiTM has consistently dedicated itself to the protection and preservation of the environment. The university's strategic planning for Sustainable Development Goals can be traced back to 2016. Building upon the foundation laid by the UiTM Sustainable Committee, the sustainability movement at UiTM has gained even greater momentum with the establishment of the UiTM Green Centre (UGC) and the Institute for Biodiversity and Sustainable Development (IBSD).

Pillar 5 of this concept is aligned with the Sustainable Development Goal 17 (SDG 17) that focuses on strengthening global partnerships for sustainable development. The goal recognizes the importance of collaboration and cooperation among different stakeholders, including governments, civil society, private sector, and international organisations, to achieve sustainable development. Industry and community involvement in green campus initiatives is crucial as it brings together diverse perspectives, expertise, and resources that strengthen the impact and success of sustainability efforts. Industry partners contribute specialised knowledge, technologies, and financial support, enabling the implementation of sustainable practices aligned with real-world standards. Collaboration with industry also creates opportunities for research, innovation, and the development of sustainable solutions. Community engagement fosters a sense of shared responsibility, builds a sustainable culture beyond the campus, and provides essential support for initiatives such as sustainable transportation and waste management. Involving industry and community stakeholders creates a collaborative network, promotes practical learning, enhances employability, and ensures that sustainability efforts have a broader societal impact, contributing to a more sustainable and resilient future.

The involvement of industry and the broader community plays a crucial role in supporting the transformation of UiTM as a green campus. UiTM is actively collaborating with Kloth Malaysia Sdn Bhd and Malaysia Building Society Berhad (MBSB) to develop sustainable programmes. Among successful initiatives is locating Kloth Cares bin at At-Tijarah, University Teknologi MARA, Puncak Alam Campus. This partnership has made room for a follow-up initiative where UiTM's Event

Management students of Puncak Alam Campus organised a recycling programme - Projek Kitar Kain. UiTM also actively promotes environmental sustainability through the UiTM Rakan Alam Sekitar (RAS) Student Chapter. This program serves a dual purpose: firstly, to encourage community engagement through hands-on activities, and secondly, to act as vigilant observers and collaborators with government agencies in combating environmentally harmful activities. Its main objective is to enhance community involvement while serving as a proactive force in protecting and preserving the environment. Other projects are My DiY Soap; a community project with Sekolah Kebangsaan Saujana Utama. The latest green project in the pipeline is with Central Sugars Refinery (CSR) for installation of solar powered bus stops in Shah Alam Campus.

It is important to highlight that UiTM strives in securing grant and consultation projects to transform the university into a sustainable green campus. This includes Projek Perintis Kampus Lestari, which UiTM Green Centre, PPII received an allocation of RM70,000 from Jabatan Alam Sekitar (JAS) under Rancangan Malaysia Kedua Belas (RMKE-12). Additionally, a study on satisfaction with solid waste management services and the impact of service delivery on solid waste management costs was conducted in collaboration with Kumpulan Darul Ehsan Berhad Waste Management (KDEBWM), with a total funding of RM100,010.31. The community and industry joined forces, engaging in a groundbreaking sustainability project aimed at fostering environmental stewardship and promoting responsible practices. The local community and industry have come together to actively participate in a groundbreaking sustainability project, forging a powerful alliance to drive positive change and ensure a greener, more environmentally conscious future for all.

2. METHOD

Strategic partnerships which are in line with SDGs 17 - the overall plan of building a centre (environmental and social research centre) and do well in the three aspects (theoretical research, publicity and education, and direct action). UiTM has promoted the construction of a sustainable green campus with the content of promoting green education, building a green campus, advocating green actions, and shaping green personality.

3. RESULTS AND DISCUSSION

Fabric Recycle Programme in Campus

The result of continuous efforts and collaboration with strategic partners can be seen through the receipt of 3 barrels of fabric placed at UiTM Selangor Branch Puncak Alam Campus (1 Bin) and UiTM Shah Alam (2 Bin). These fabric bins are donated by UiTM Green Centre's strategic partner, Kloth Malaysia Sdn. Bhd. and Malaysia Building Society Berhad (MBSB) Bank. This programme is a part of the Key performance index: P1 108: number of programs to reduce the use of paper and plastic on campus. Figure 2 shows the Fabric Recycle Bin in Puncak Alam campus, and Figure 3 and 4 in Shah Alam Campus.



Figure 2. Kloth Care Bin@UiTM Puncak Alam Campus



Figure 3 and 4. UiTM Shah Alam Campus

3.1. Participation in LCC2030C and Installation of Smart Meter

In addition to the UI GreenMetric World Rankings, UiTM Green Centre, Office of Infrastructure and Infrastructure, and other sustainability units on campus consistently demonstrate unwavering dedication towards the University's Sustainability Agenda and the pursuit of Sustainable Development Goals (SDGs). UiTM Green Centre, The Office of Development (Infrastructure and Infrastructure) has given its full commitment to the university's sustainability agenda and *Sustainable Development Goals* (SDG) continuously via participating in Low Carbon City 2030 Challenge (LCC2030C). Their active engagement in the LCC2030C exemplifies their commitment to fostering sustainability and driving positive change. LCC2030C is an initiative organised by Malaysian Green Technology and Climate Change Centre (MGTC), an organisation under the Ministry of Environment and Water, Malaysia. The aim of an initiative is to transform Malaysian cities to low carbon cities status by 2030.

The participation of UiTM in LCC2030C (as presented in Table 1) is a result of collaboration between UiTM and Majlis Bandaraya Shah Alam (MBSA). UiTM participation involving a Zon and 7 buildings: Section 1, UiTM Shah Alam; Chancellery Tuanku Syed Sirajuddin; Tuanku Abdul Halim Mu'adzam Shah College of Engineering Complex; College of Computing, Informatics and Media; College of Built Environment; Health Centre; The Academy of Language Studies; and The Office of Development Infrastructure and Infostructure complex.

On the other hand, Smart Meter installation program is an installation program on installing the use of electricity monitoring system devices at selected buildings at UiTM. The system has the ability to record the use of electricity in real time. The devices linked to the internet and the recorded utilisation data were stored in a database for several years. This program was contributed by MBSA as proof of appreciation to UiTM towards involvement in the LCC2030C program. This program was fully funded by MBSA. The installation, commissioning and training was conducted by Cahaya Dimaju Sdn. Bhd., contractor appointed by MBSA.

Table 1: UiTM participation and achievements in LCC2030C from 2019 to 2022

Zone and building	2019		2020		2021		2022	
	Diamond Award	Carbon reduction %	Diamond Award	Carbon reduction %	Diamond Award	Carbon reduction %	Diamond Award	Carbon reduction %
Seksyen 1, UiTM Shah Alam	*	*	4	38.77	4	27.31	5	45.27
Chancellery Tuanku Syed Sirajuddin	1	3.43	3	12.84	4	26.06	5	46.74
Tuanku Abdul Halim Mu'adzam Shah College of Engineering Complex	*	*	4	28.5	*	*	*	*
College of Built Environment	*	*	3	11.49	4	32.05	2	8.18
College of Computing, Informatics and Media	*	*	4	34.25	5	48.95	5	68.83
Health Centre	*	*	2	6.77	3	19.83	3	16.35
The Academy of Language Studies	*	*	*	*	*	*	4	37.86
The Office of Development Infrastructure and Infostructure complex	*	*	*	*	*	*	2	7.89

3.2. CAP SEA Project: Implementation of Single Use Plastic Free Community@UiTM

This is yet another of UGC's sustainable projects to green not only all UiTM campuses but also its vicinity. This project is an initiative undertaken with the fostering of strategic partnerships with GiZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) a worldwide service provider and partner in the field of international cooperation for sustainable development and international education work based in Germany, MGTC (Malaysian Green Technology and Climate Change Centre) the executive body for climate change and green technology for the Ministry of Environment and Water, Malaysia and MBSA (Majlis Bandaraya Shah Alam), the city council for Shah Alam, Selangor. Its foremost aim is in creating single-use plastic free cafeterias throughout UiTM campuses nationwide before venturing into other areas within the university campus and later expanding to the community outside of campus.

The project began with two sessions of the training of trainers (TOT) conducted by MGTC followed by the formation of a committee comprising of UGC and Ruang Niaga members to oversee the implementation of this project. A task force comprising of academics from various faculties and administrative staff was formed to implement and monitor the project on the ground. Various meetings involving all parties concerned including the cafeteria operators were held to create an awareness of the

urgent need to reduce single-use plastic waste in the environment. UiTM is also committed to carry out ongoing campaigns on the environmental threat posed by plastic, in the social media to create an awareness among university students, cafeteria operators and the entire university community to help realise the roles they play in ensuring environmental sustainability.

3.3 Festival Kelestarian Kampus Hijau UiTM 2022 and Anugerah Kelestarian Kampus Hijau 2022

With support from all UiTM campuses and advocated by the theme “Greener and Healthier Lifestyle”, the programme which was held for the second time took place from the 1st of November to the 31st of December 2022. The objectives of this festival were (1) to recognise contributions made by “Sustainability Warriors” who have been actively involved in sustainability movements locally and internationally, and (2) to acknowledge the campuses, faculties, responsibility centres or *Pusat Tanggungjawab (PTJ)*, and strategic partners that actively supported the University Sustainability Agenda in 2022. Among the attendees were UiTM strategic partners from several agencies: Kloth Malaysia Sdn Bhd, KDEB Waste Management, Landasan Lumayan Sdn. Bhd. (LLSB), the Department of Environment (DOE), Malaysian Green Technology and Climate Change Corporation (MGTC), Shah Alam City Council’s (MBSA) Department of Planning and Department of Solid Waste Management and Public Cleansing, Malaysia Sustainable University Campus Network (MySUN), Fathopes Energy, Central Sugar Refinery Sdn. Bhd. (CSR), Perbadanan Aset Air Berhad (PAAB), Avisena Specialist Hospital, and Sekolah Kebangsaan Saujana Utama.

4. CONCLUSION

The sustainability agenda is a crucial aspect for any university seeking to create a positive impact on the environment and society at large. By engaging with strategic partners, universities such as Universiti Teknologi MARA can leverage their resources, expertise, and networks to amplify the effectiveness of their sustainability initiatives. Through collaborations with like-minded organisations, universities can foster innovation, knowledge sharing, and collective action to address pressing sustainability challenges.

Strategic partnerships also offer universities access to broader networks and stakeholders. Collaborating with external organisations opens doors for engaging with government agencies, NGOs, industry leaders, and local communities. This facilitates knowledge exchange, policy advocacy, and community engagement, allowing universities to extend their influence and contribute to sustainable development at regional, national, and even global levels. In conclusion, strategic partnerships are vital for universities to advance their sustainability agendas. By collaborating with like-minded organisations, universities can combine their efforts, expertise, and resources to address complex sustainability challenges effectively. These partnerships foster innovation, interdisciplinary research, educational opportunities, and expanded networks, ultimately empowering universities to make a substantial and lasting impact on sustainability and create a better future for generations to come.

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