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Malaysia Sustainable University Campus Network

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GOOD PRACTICES

in Campus Sustainability from EU and Malaysian universities

D1.3.2 Good Practices in HEI Campus Sustainability

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UNIVERSITY OF ALICANTE (SPAIN)

UNIVERSITA DEGLI STUDI DI GENOVA (ITALY)

FH JOANNEUM (AUSTRIA)

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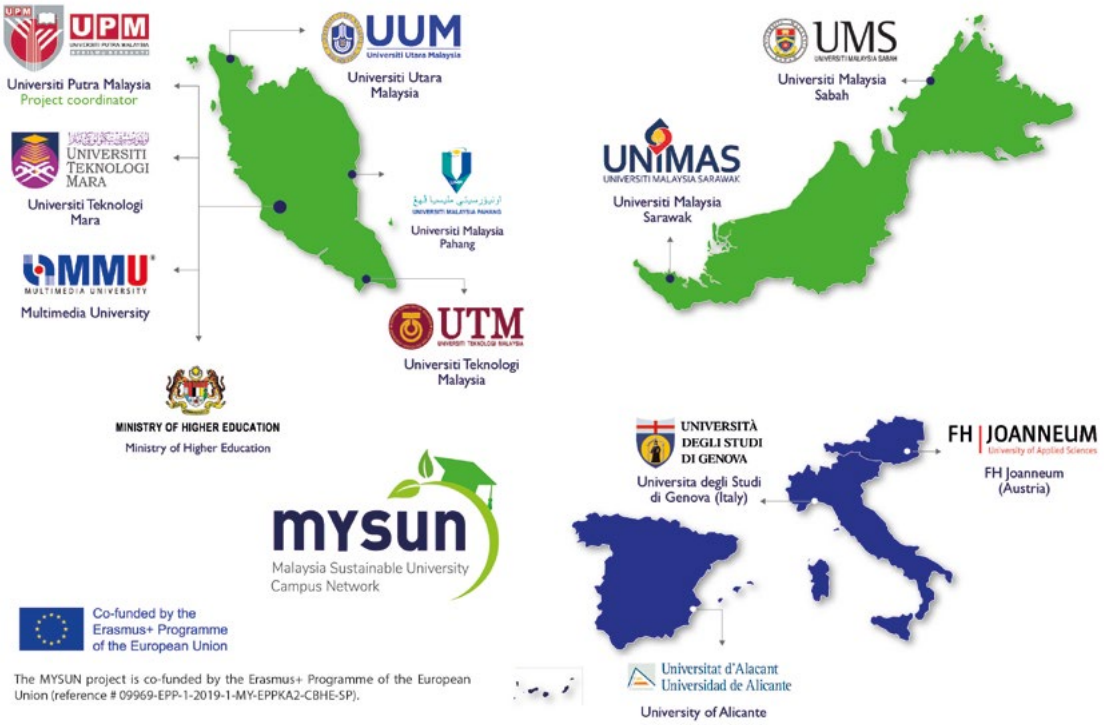
DOCUMENT AUTHORS
Dr. Dianah Mazlan, Universiti Teknologi Malaysia
Dr. Shazwin Mat Taib, Universiti Teknologi Malaysia
Prof. Ts. Ir. Dr. Mohd Fadhil Md Din, Universiti Tenologi Malaysia

MYSUN CONTACT INFORMATION
Universiti Putra Malaysia
e-mail: mysun@utm.my
MYSUN: www.mysuncampus.eu



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Introduction

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Sustainability, energy access and efficiency, climate change. All of these have been priority issues at a global level since 178 Governments (including Malaysia) signed the Agenda 21 action plan in the 1992 UN Conference on Environment and Development in Rio. Since then there has been an increased awareness of sustainability issues at all levels of society, and an increase in governments' measures to lead their countries towards a more energy efficient, sustainable future.However, according to the Ministry of Education (direct consultation) there is a clear lack of coordination and awareness in Higher Education Institution (HEI) campuses regarding sustainability and energy efficiency. Additionally, activities related to sustainability or energy efficiency in university campuses are currently scattered and isolated, based on individual university interest.

Malaysian HEIs have developed their own programs and policies addressing sustainability issues such as energy, waste, transportation etc. Without a common framework to work in, these programs and policies can vary greatly from one HEI to another, from those who have campuses that are a reference for sustainability, to those who have just basic guidelines to monitor energy usage in their buildings. Additionally, their implementation and monitoring are often the responsibility of several different units or departments within the institution, at different hierarchical levels, with insufficient staff that is lacking in up-to-date and relevant training. It is pressing therefore to support the development of sustainability in HEI campuses in Malaysia, and even more so to do it through a national platform, in order to ensure that more concerted activities will have a better impact at both local and national levels.

This benchmarking report of Good Practices in Higher Education Institutions (HEIs) Campus Sustainability was produced by gathered all information on the Study Visits to EU partners universities (T1.1) and the collection of data regarding Partner Country (PC) campus' sustainability policies and processes (T1.2). The information from both series of reports was compiled and summarized in this report. Hence, the in-depth knowledge on the strengths and weaknesses of Malaysian university campuses in terms of sustainability; good practices in campus sustainability can be identified.

Aims and Objectives of the Good Practices in HEIs Campus Sustainability Report

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The **main objective** of the Good Practices in HEIs Campus Sustainability Report is **to summarize the study visits and the collection of data from secondary sources and surveys/interviews of primary sources regarding sustainability at HEIs campuses, data will be analyzed and synthesized in the reports "Sustainability at Malaysian HEI campuses" and "Good Practices in HEI Campus Sustainability".**

Both reports will be available in English and Malay and will be published and disseminated to all project target groups at the Local, National and International levels via the project website, newsletter and partners' available communication channels. As an electronic publication, the "Good Practices in HEI Campus Sustainability" will be easily updated by the MYSUN Network in the future with good practices from new Network members, to maintain its relevance going forward.

The Good Practices in HEIs Campus Sustainability Report is to supports the other MYSUN project Work Packages in increased awareness regarding the sustainability policies and practices at EU HEIs and also Malaysia HEIs. This awareness will help improve what needs to be considered to improve the policies and practices to improve campus sustainability level in Malaysia HEIs.

Description of Methodology

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This report is prepared based on the interview session with the green officers from each universities in Malaysia. The interview was conducted with UTM, MMU, UNIMAS, UPM, UUM, UMS, UiTM and UMP. This report consists of five main sections which as follows:

Section A: The Implementation of Policies follow by Malaysia universities

Section B: Motivation to Sustain Green Initiative

Section C: Campus Sustainability Design

Section D: Initiative Made to Increase Awareness Regarding Green Initiatives in Campus

Section E: Financial Limitation As a Biggest Challenge

The interview questions consist of 11 questions in total (shown in **Appendix**). The question is divided into five sections which are governance, motivation, design, awareness and budget. The questions were come out based on the analysis made in the reflection report study (T1.1) and Sustainability at Malaysia HEIs report (T1.2). The percentage of coverage were analyzed based on the summarization of the interview and questionaire obtained from NVivo 12 Plus software.

The method done for the interview is through a virtual platform via Webex for a live session with the interviewee. The offline platform was also available for an interviewee who not available for a live session.

As far the survey was made, each participant's institutions background was identified from different dominance in terms of institutions' specializations and achievements. So, elaboration on each HEIs backgrounds are as follows:

I. Universiti Teknologi Malaysia (UTM)

UTM is a public engineering, science and technology research university in Malaysia, serving as the largest postgraduate research university in technology, creating a reputation for advanced education and research with the advancement of technical innovation. UTM's achievement is that they ranked in the University Impact Rankings between 201-300 overall in 2020 and become the Top 5 Sustainable Development Groups (SDGs) with the highest SDG percentage achieved, SDG 9 (Industry Innovation and Infrastructure), followed by SDG 4 (Quality Education) and SDG 11 (Sustainable Cities and Communities). They were also 30th in Asia and 94th in the world in the UI Greenmetric World University Rankings worldwide in 2020.

II. Multimedia University (MMU)

The only private institution that has joined the MYSUN programme is MMU. This is the first private university approved by the government of Malaysia, and one of the top five universities that is favoured for graduate jobs by major ICT players, which shows a strong reputation for industry excellence. This private university's goal is to empower society through creativity with success in achieving the Premier Digital Tech University Status 2017 and The Top 200 in QS University Ranking in 2018.

III. Universiti Malaysia Sarawak (UNIMAS)

UNIMAS is a university launched by two universities. In 1993, the Faculty of Social Science and Faculty of Resource Science and Technology were initially founded as pioneering faculties. UNIMAS has already been accredited as an ISO-certified university in 2020 for excellence in key management processes. UNIMAS is also strong in biodiversity studies, e.g. in the protection of the state's natural resources through the implementation of IT and computer science, biotechnology knowledge that involves local and international relations in research studies.

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IV. Universiti Putra Malaysia (UPM)

UPM is officially referred to as one of Malaysia's Leading universities of study with an emphasis on agricultural sciences and related fields. In 2018, UPM won several awards and recognition, such as the Science and Innovation Excellence Award chosen by the Ministry of Education of Malaysia and also ranked 28th in the world, 3rd in Asia, in the UI Greenmetric World University Ranking 2020.

V. Universiti Utara Malaysia (UUM)

UUM is situated in northern Malaysia In order to promote management education in the country, UUM was created, mainly in the fields of business, management, accounting, economics, information technology and many more. UUM ranked in 77th in the world and 23rd in Asia in the UI Green Metric World University Ranking 2020.

VI. Universiti Malaysia Sabah (UMS)

UMS is a university focused on teaching and learning excellence, science and creativity, environmental sustainability engagement, and others. In the QS World Ranking by Topic in Agriculture and Forestry, UMS was recently ranked among the top 200. UMS also ranked in 18th in the Asia region and 67th in the world in the UI Green Metric World University Ranking 2020.

VII. Universiti Teknologi MARA (UiTM)

With 34 branch campuses in Malaysia, UiTM is a public university, being Malaysia's largest higher education institution through physical infrastructure, staff organisation and student enrolment. In the UI Greenmetrics World University Rankings 2020, UiTM was also ranked 73th in Asia and 184th in the world, specifically in infrastructure, waste management, water management, energy use, education and transport systems.

VIII. Universiti Malaysia Pahang (UMP)

UMP is a technical public university based in Pahang, Malaysia. UMP main focuses on engineering and the area of technology. This university are also ranked as one of the best in Malaysia Technical University Network (MTUN) and Non-Research University Classification (Non RU) in the Research and Innovation. In addition, UMP cooperates with other local companies in industry-related applications to strengthen its teaching and learning modules at this university. For their first entry in this list, UMP placed between 751-800 in the QS World University Rankings 2020. UMP also ranked at 28th in Asia and 90th in the UI Greenmetric World University Ranking 2020.

To gather more information regarding the sustainability approach in each HEIs campus in Malaysia. All 8 Malaysia universities have been interviewed to share their initiatives, policies, impacts, and challenges to create a sustainable campus. Table 2.1 shows the list of person in charge for each universities that in charge in sustainability campus.

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Table 3.1
The list of Person In Charge for Partner Country universities in sustainability in campus.

No.	Partner Country University Name	Person In Charge	Date of Interview
1.	Universiti Teknologi Malaysia (UTM)	**Assoc. Prof. Ir. Dr. Shamsul Bin Sarip** *UTM Campus Sustainability Office*	30 November 2020
2.	Multimedia University (MMU)	**Mr. Mohamad Azlan Abd Aziz** *Energy Manager*	17 November 2020
3.	Universiti Putra Malaysia (UPM)	**Prof. Dr. Daud Ahmad Israf Ali** *Corporate Strategy and Communication Office*	16 November 2020
4.	Universiti Utara Malaysia (UUM)	**Madam Nor Idayu Mahat** *Centre for Testing, Measurement and Appraisal*	9 November 2020
5.	Universiti Malaysia Sarawak (UNIMAS)	**Madam Noraziah Binti Abdul Wahab** *UNIMAS Community Sustainability Centre*	19 November 2020
6.	Universiti Malaysia Sabah (UMS)	**Assoc. Prof. Dr. Berhaman bin Ahmad** *EcoCampus Management Centre*	Offline
7.	Universiti Teknologi MARA (UiTM)	**Dr. Nur Kamaliah Mustaffa** *Faculty of Civil Engineering*	Offline
8.	Universiti Malaysia Pahang (UMP)	**Ts. Mohd Nurulakla Bin Mohd Azlan** *Development Center And Property Management*	Offline

Section A

The Implementation of Policies follow by Malaysia universities

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All Malaysia universities have sustainable policies that they follow. Each policy is based on their 10-year target plan for their university. Therefore, the policies can help them to achieve what they have been targeted for that 10 years plan, for example reducing energy usage, no single plastic used, etc. Some of the respondents' best practises are that the new campus sustainability strategy, such as Renewable Energy Management Policy, has succeeded in covering campus sustainability measures. There is also a Lembaga Pengarah Universiti (LPU) endorsement that concerns sustainability policies with a 5.11 % coverage rate, including low-carbon campus policies, reused and recycled paper and water policies, and energy saving policy.

They still have some university-governing regulations, but the policies do not specifically apply to SDGs with 7.21 % coverage. Both general policies are on campus, including the quality management system, environmental management system, information management system, safety and occupational health, business continuity management, and the green policies that have been around for 9 years are more important.

The list of policies for each Malaysia university follow is shown in Table 4.1

Table 4.1
Policies follows by each Malaysia universities

N°	University	Policies	Years Implemented
1.	Universiti Teknologi Malaysia (UTM)	Policies on Campus Sustainability were introduced on16 August 2020 which cover a total of 16 policies. This to achieve the vision of 2030 in UTM Vision Aspiration In line with Malaysian Education Blueprint in Higher Education 2025.	2020
2.	Multimedia University (MMU)	Energy-saving policies	2013

4

Section A

The Implementation of Policies follow by Malaysia universities

N°	University	Policies	Years Implemented
3.	Universiti Putra Malaysia (UPM)	General policies are all on campus, including quality management system, environmental management system, information management system, safety and occupational health, business continuity management and more relevant is the green policies.	2011
4.	Universiti Utara Malaysia (UUM)	No policies on sustainability campus yet. The plans were drafted in 2019 for a "Living Campus" approach.	2019
5.	Universiti Malaysia Sarawak (UNIMAS)	Low Carbon Campus Policy, Reuse Recycle Paper Policy, Water And Energy Savings Policy and Energy Policy.	2017
6.	Universiti Malaysia Sabah (UMS)	Sustainable Energy Management Policy. No Single-Use Plastic Policies.	-
7.	Universiti Teknologi MARA (UiTM)	National Green Technology Policies, National Climate Change Policy, National Urbanization Policy 2, National Low Carbon Cities Master Plan.	2009
8.	Universiti Malaysia Pahang (UMP)	National Green Policy	-

All campus sustainability policies listed down in Table 4.1 are varied for each university. Most of the universities have just started to implement campus sustainability policies within these 10 years. Now, there already been created all new policies to achieve the Green Technology Master Plan 2030. Most of the people in charge of each Malaysia university did mention that all policies implemented in the past 10 years were quite a success. Therefore, they plan to continue the old policies and restructure the old policies with some added value on green impact.

Since all Malaysia universities have their green policies to follow. However, not all universities have their Office of Campus Sustainability who in charge of green initiatives and their impact on the campus. In order to improve sustainability-

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related programmes in an institution, the availability of a sustainability office is considered compulsory to allow the inclusion of both industries and stakeholders in a community with a 3.99 % coverage percentage of sustainable development other than innovative products and services. Initiatives have been implemented and good support has already been gained from them, to ensure that sustainability at management level has been developed, cascaded down and implemented at faculty level. Another function of the Sustainability Office is also responsible for reviewing and enhancing green policies clearly to meet current needs and also acts as an agent through social media, websites and others to promote the sustainability agenda, such as raising awareness and so on. Most of the university has an established Sustainability Offices (SO) in their campus as listed below:

1. UNIMAS | University Sustainability Centre(USC)
2. UMS | Ecocampus Management Centre (EMC)
3. UTM | UTM Campus of Sustainability (UTM CS)
4. UPM | SDG units
5. MMU | None
6. UUM | None
7. UiTM | UiTM Green Center
8. UMP | None

Out of 8 Malaysian universities, only 3 universities that still does not establish the SO. This due to few reasons:

1) Not enough trained staff or officers who can manage the sustainability offices
2) No clear vision of the purpose of having Campus Sustainability Offices
3) All departments/faculty, do their green initiatives. So the idea of having the Campus Sustainability Offices is not a priority.

Despite all the reasons for not having the SO on the campus, another 5 universities think that the existence of SO make the green initiatives in the campus was well

managed and strategic. Sustainability is being integrated into higher education institutions' mission and planning, curricula, research, student life, operations and purchasing, and community partnerships. Therefore, it is important to have a center which can monitor all the initiative to make sure it goes by the mission and planning of the university.

Furthermore, the establishment of SO, help to bring together the industries and stakeholders related to sustainable development other than innovating products and services to the community. SO also an organization that supports grassroots efforts across campus and helps define and implement university-wide strategies for integrating sustainability on campus through programs, projects, and initiatives. Initiatives have been carried out by the SO and good support from the stakeholders, to make sure sustainability has been developed at the management level, been cascade down, and implemented at the faculty level.SO in the Malaysian universities such as in UPM itself, which under the SDG unit is responsible to review and improve green policies obviously to suit current needs and also acts as an agent in promoting sustainability agenda such as increasing awareness and so on through social media, websites, and others.

In September 2015, while addressing the United Nations Sustainable Development Summit, Malaysia's Prime Minister Dato' Sri Mohd Najib bin Tun Haji Abdul Razak, reaffirmed Malaysia's commitment to support and implement the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs). Therefore, introducing SDGs in the green campus initiatives for each university is important. However, not all Malaysian universities aware and going towards the importance of SDGs in their initiatives. This due to a few reasons and obstacles such as:

1) Financial limitation, not many initiatives can be made to fulfilled SDGs
2) Lack of awareness regarding SDGs
3) Change in state government

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In order to promote SDGs to be implemented in the green initiatives made by the Malaysian universities, they put an allocation for the budget for any research or activities that include SDGs in their project plan. For example, UNIMAS they have collaborated with UiTM and UMS by launched the SDGs grant and look specifically for the sustainability for the university. The same goes for the UTM where they have few grants such as the Flagship grant and Transdisciplinary Research grant which focused on SDGs. By incorporating SDGs in the green initiative on the campus, it will make sure the initiative covers a wide aspect and not only to research and development. Therefore, success in creating a balance in sustainable initiatives on campus can be achieved. As suggested by UMS where they believe that SDGs could be used as a guide for a Green Campus Initiative. As for UiTM, to reflect on the role of universities, and in particular how the UiTM might contribute to foster SDGs agenda in the campus. The initiatives on sustainability have been started a few years back in UiTM however the efforts are not well driven until the establishment of the UiTM Sustainability Committee in 2018. The official launching of Greenation@UiTM is the mark of the new era for the sustainability agenda in UiTM.

The involvement of stakeholders to make sure the sustainability of the green initiative is important to take into account as suggested in the SDGs 17 which is Partnership for the Goals. Most of the Malaysian universities have their own stakeholder engagement to make sure the continuity of the green initiative outside the campus. For example, UNIMAS, UTM, UiTM and UMS have a good engagement with the stakeholders from government and non-government organizations (NGO). Table 4.2 shows the list of stakeholders involved with the universities with green initiatives.

4

Section A

The Implementation of Policies follow by Malaysia universities

Table 4.2
List of stakeholders engagement with the Malaysian university

N°	Universities	Stakeholders
1.	Universiti Teknologi Malaysia (UTM)	• Faculties • Department of Environment (DOE), • LIFELINE CLOTHING, • CLOTHS CARE • XUSED • TEAPOT
2.	Multimedia University (MMU)	• Faculties • Tenaga Nasional Berhad
3.	Universiti Putra Malaysia (UPM)	• Faculties • Kyushu Institute of Technology
4.	Universiti Utara Malaysia (UUM)	• Faculties • SWCorp, • Idaman, • Drainage and Irrigation Department • Langkawi community
5.	Universiti Malaysia Sarawak (UNIMAS)	• Faculties • Trineikens Sdn Bhd (waste management company) • Majlis Perbandaran Kota Samarahan. • Pejabat Pembangunan and Pejabat HEPA • Department of Environment (DOE)
6.	Universiti Malaysia Sabah (UMS)	• UMS Development and Maintenance Department • Faculties
7.	Universiti Teknologi MARA (UiTM)	• Shah Alam City Council (MBSA) • ASEAN SDGs Frontrunner Cities Program • Urbanice Malaysia • Malaysia Institute Planner
8.	Universiti Malaysia Pahang (UMP)	• Chief Financial Officer

As per illustrated in Table 4.2, MMU and UMP, for example, they do not have involvement from the stakeholder outside the campus. This due to the all departments have their autonomy on their department. So there is no main general power to enforce all of the departments in the same direction, but only individually done by each faculty.

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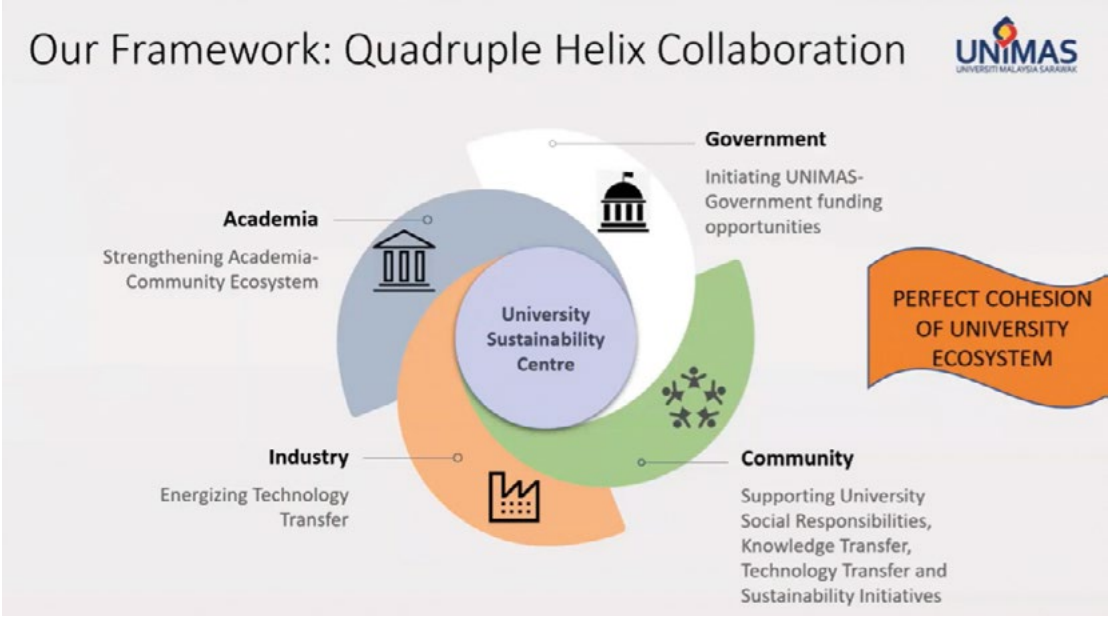
So it is difficult to gather info on who and which stakeholders have an engagement with the department.

The best performance of almost all HEIs is their engagement with stakeholders, whether from NGO companies or government companies with a coverage percentage of approximately 5.61 %. The presumption that faculty are the main stakeholders involved in any sustainability-related programmes may be true in achieving sustainable campus goals. The best practices that can be concluded for the participation of stakeholders, however, are the existence of a fixed partnership in the first place, such as Quadruple Helix Collaboration implemented at UNIMAS which involving industries, government, employees, communities and students as a target in the implementation of campus sustainability plans.

Figure 1
Quadruple Helix at UNIMAS



Section B

Motivation to Sustain Green Initiative

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Rewards can be monetary, non-monetary, and psychological. Monetary-based, nonmonetary based and recognition-based rewards can be used for the green achievements of employees. Monetary-based rewards for contributions in environmental management can be allocated in the form of salary increases, cash incentives, and bonuses while non-monetary rewards may include sabbaticals, special leave, and gifts to employees and their family members. Recognition-based awards can highlight green contributions of employees through wide publicity and public praise and appreciation of green efforts by CEO or top management executives. (Prasad, 2013). Green rewards and compensation for eco-initiatives have a significant impact on employee satisfaction (Renwick et al, 2013). The use of rewards and recognition on the basis of environmental sustainability has a positive effect on employee motivation to experiment with green initiatives (Ramus, 2001).

Rewards strengthen motivation and encourage workers to be environmentally responsible (Daily and Huang, 2001). He claims that it is possible to use a reward system systematically to motivate employees to perform desired behavior so that the program can benefit both the company and its employees. Compensation and reward management should recognize green management contributions. Compensation packages should be tailored to reward the acquisition of green skills and employee achievements.

Many studies mentioned that a reward system can be a good motivation however few reward systems in Malaysian universities show no positive results. For example, MMU mentioned that the reward system that has been done to motivate students and staff at MMU not quite a success. It only lasts for six months and no continuity between the staff and students. Different perspectives made by UNIMAS which no reward system made at the university. But, UNIMAS focused on self-awareness from the green initiatives done is more important after the implementation. The focus is more on cascade down the sustainability practices from student practices on campus, and bring along the attitude and behavior to their family outside the campus. However, on 2020-2025, UNIMAS plan on implementing the reward system

in Key Performance Index (KPI), and whatever decision is made for that particular community, the decision made must be in compliance with respect to the KPI. The same goes for UPM which implements the reward systems in the KPI system when the involvement and contribution of the project highlighted the SDGs aspect.

As for UTM, many reward systems have been implemented to encourage and give awareness to the student and staff on the green initiatives. For example, the Tapau Box event to reduce the use of single-use plastic. Where, students are rewarded with food containers, utensils, and drinking bottles to reduce the usage of single used plastic. For students who bring their own food container at the cafe for taking out, they will receive a sticker and at the end of the semester, they can claim a better prize. Table 5.1 shows the summary of the reward system implemented at each Malaysian universities to motivate the students and staff.

Table 5.1
Reward system implemented in Malaysian universities

N°	Universities	Reward systems
1.	Universiti Teknologi Malaysia (UTM)	• *Tapau* box reward for no single-use plastic event. The event provides food containers, utensils, and drinking bottles to encourage the student to bring their own container for food take-out. They will receive a coupon for every take out with their own food container and can claim a bigger reward at the end of the semester. • Special funding for any project related to green initiatives such as Flagship grant and Transdisciplinary Research grant.
2.	Multimedia University (MMU)	• In a program involving the recycling of wastes, the program only lasts for six months because not all of the people clear about the implementation even the reward system has been implemented. • No reward system for the programs or activities done for the staff. But, emails are distributed for each department on how much the usage of electricity for each department.

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N°	Universities	Reward systems
3.	Universiti Putra Malaysia (UPM)	• The sustainable aspect has been put as a component in the staff assessment to make sure their involvement and contribution to certain projects. This to motivate staff to involved or conducted a project with the relationship with SDGs aspect and so on. • The big event that they have is Industry Community Appreciation Networking (ICAN), where they give SDGs award to UPM staff and also the industry on the projects related to SDGs.
4.	Universiti Utara Malaysia (UUM)	• No reward system yet. The plan of reward system is still an on-going plan.
5.	Universiti Malaysia Sarawak (UNIMAS)	• No reward system was introduced to motivate people to be more sustainable. • Self-awareness from the green initiatives done is important after the implementation. Focus is more on cascade down the sustainability practices from student practices on campus, and bring along the attitude and behavior to their family outside the campus. • Reward in terms of KPI is a plan in 2016-2020. They do not have specific sustainability rewards, but for 2020-2025, whatever decision is made for that particular community, the decision made must be in compliance with respect to the KPI.
6.	Universiti Malaysia Sabah (UMS)	• Anugerah Kreativiti EcoCampus UMS to present the award to those who conducted a project on sustainable campus.
7.	Universiti Teknologi MARA (UiTM)	• Sustainability competition among campus which aims to recognize campus-led sustainability initiative that creates a positive environment, social and economic impacts. • Research approach towards sustainability as criteria for a research grant opportunity. This to encourage and promote SDGs as a topic of research.
8.	Universiti Malaysia Pahang (UMP)	• New plan for 2020-2025. This reward is given to the faculty/building/office/hostels/units that contribute to any sustainable initiative.

Section C

Campus Sustainability Design

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All Malaysian universities have their own green campus initiatives. The list shown in Table 6.1 categorized the green initiatives and activities conducted by the universities to their staffs, students, and stakeholders.

Table 6.1
List of green initiatives implemented by Malaysian universities

N°	Universities	Green Initiative
1.	Universiti Teknologi Malaysia (UTM)	1) Low carbon campus with car-free day event, build more bike parking slot in the campus to encourage staff and student to cycle. Provide more public transport shuttle on the campus. 2) All faculty/department/center have Green Managers and/or Energy Managers. 3) Creating GreenLeaf Award since 2019 for green audit, compilation data, self-improvement in green initiatives. 4) Creating Sustainability Endowment Fund 5) One-stop Centre for UTM Living Laboratory engagement. 6) Creating Localizing SDGs in UTM towards the agenda of envision 2025.
2.	Multimedia University (MMU)	1) Cleaning program 2) Paperless program 3) Retrofitting energy use
3.	Universiti Putra Malaysia (UPM)	1) Beach cleaning program 2) Tree planting program 3) Green recycling trash campaign 4) Unused clothes brought into the university and redistribute them. 5) Reducing motorized vehicles, encourage students to cycle to classes. Only final year students are allowed to bring their own vehicles to colleges. 6) Covered the pedestrian wall path with lighting on nights, in order to encourage people to walk more, rather than use vehicles for transportation. 7) Convention and seminars on sustainability in all departments. 8) Biomass technology center. The research was done on biomass utilization, specifically in the production of renewable energy and bio-green products. They also work in bio-fertilizers, bio-plastics products from oil palm wastes.

N°	Universities	Green Initiative
4.	Universiti Utara Malaysia (UUM)	1) Food waste composting program 2) Solar rooftop program 3) Forestation and river programs
5.	Universiti Malaysia Sarawak (UNIMAS)	**Program with community** 1) Program on agricultural waste involving Penan community. 2) Program on treated water supply for communities in Ulu Bangian. 3) Medical faculty doing on the medical check-up. 24/7 4) Projects conducted with a tagline of 'no people will be left behind'. 5) Training session for women in a certain area in the production of foods. 6) Working with NGOs on digital learning for communities. 7) Digital marketing for backyard gardening of the communities. 8) Building community resilience, coping with challenges during the pandemic and they found out residences is important. 9) Help rural area people do cultural work, together with the production of creative products. 10) STEM education for the community. **Programs in campus** 1) Installation of solar power building. The main is at the Pavilion building that acts as a student center for student activities, where all cafés and halls, central building for educators and academicians were located in the same building. 2) In the Pavilion building, they also have one water catchment where the water is reused to water the plants on campus. 3) Recently, bicycle tracks were built to promote cycling and a healthy lifestyle, and all E-bike were distributed to all PTJ on campus.
6.	Universiti Malaysia Sabah (UMS)	1) Towards green building (utility management)

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N°	Universities	Green Initiative
7.	Universiti Teknologi MARA (UiTM)	**Infrastructure and Facilities** 1) Conduct tree tagging program activity to gazette all existing trees within the UiTM campus. 2) Gazette all existing forest area, establish mini forest and create a policy regarding tree elimination within the UiTM campus. 3) Conduct tree replanting program to replace all tree elimination within UiTM campus. 4) Encourage internal planting among UiTM staff. **Waste management** 1) Recycling programs for campus waste 2) Programs to reduce the use of paper and single-use plastic on campus. 3) Organic waste in the UiTM campus focuses on food waste and green waste. 4) Inorganic waste in UiTM campuses contribute from construction, building maintenance, students' workshop, and research activities. 5) Toxic waste treatment including the chemical waste from laboratories and clinical waste from the clinics, operating theatres, and laboratories from the hospital and clinics are collected into biological waste, biohazard waste, and clinical waste plastic bags and sharp bins. 6) Sewerage disposal on the UiTM campus is treated conventionally using the aeration method and activated sludge method. **Water Management** 1) Water Conservation Program Implementation 2) Rainwater Harvesting Project 3) Water Recycling Program Implementation 4) Water Efficient Appliances Usage 5) Treated water usage **Energy and Climate Change** 1) Reduce energy consumption 2) Encourage the use of Energy Efficient Appliances 3) Perform Energy Audit 4) Building Metering System 5) Building Energy Index 6) Implement ASEAN Energy Management Scheme

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Section C

Campus Sustainability Design

N°	Universities	Green Initiative
7.	Universiti Teknologi MARA (UiTM)	**Education and Research** 1) To promote the element of sustainability in curriculum and research. 2) To nurture, educate best practices and strategies of sustainability in education and research among the campus community. 3) To collaborate with government and non-governmental agencies in empowering the agenda of sustainability development. 4) To strengthen university-community engagement in adapting sustainability agenda. **Transportation** 1) Daily Shuttle Bus Service in UiTM Shah Alam 2) Proposal for electric buses for staff and student's usage in UiTM Shah Alam. 3) Road Safety Audit for highlighting any possible solutions to achieve a sustainable campus (e.g. traffic congestion, safety, road infrastructure). 4) Improve public transport sharing mode 5) Encourage active mode of transportation (Examples: cycling and walking). 6) Reduce the number of vehicles on campus by encouraging "Open-Distance Learning" and/or "Blended-Learning" learning. 7) Increase the efficiency and frequency of the Public Transport System (Example: Bus). 8) Efficient and efficient shuttle bus management 9) Shuttle bus routes should be provided for all parking spaces. 10) Prepare a pedestrian route management planning plan on campus. 11) Improve the effective pedestrian walkways provided by the university from time to time. Introduce e-scooters that connect the main campus to the business district area. 12) Regular traffic flow management 13) Change the gazetted parking status (i.e. less used parking area) to another facility.

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N°	Universities	Green Initiative
8.	Universiti Malaysia Pahang (UMP)	Energy-saving measures 1) Replacement of Energy-Saving Light bulbs for main road street lighting and compound lighting at Faculty of Electric & Electronics & Faculty of Mechanical Engineering, UMP Pekan. 2) LED compound lighting for jogging track in UMP Pekan 3) Replacement of T8 to T5 fluorescent tubes for corridors and walkways at Faculty of Electric & Electronics, UMP Pekan. 4) Replacement of T8 to T5 tubes for corridors and walkways at Faculty of Mechanical Engineering, UMP Pekan. 5) Replacement of T8 to T5 tubes (Hostel 648) for building, corridors, and walkways at UMP Hostel Pekan. 6) Replacement of T8 to T5 tubes (Hostel 1400) for building, corridors, and walkways at UMP Hostel Pekan. 7) Installation of internal digital electricity meter for each block in every department in UMP Pekan. 8) Replacement of electric light bulbs for main road street lighting and compound lighting at Hostel UMP Pekan. 9) Replacement of T8 to T5 tubes at Administration Block of Faculty of Mechanical Engineering and Faculty of Electric & Electronics, UMP Pekan. 10) Replacement of T8 to LED tubes at UMP Students Hostel, UMP Pekan. 11) Installation of 20-kW roof-top solar panels (Monocrystalline & Polycrystalline) at Administration Block, Faculty of Mechanical Engineering, UMP Pekan. 12) Replacement of conventional to LED bulbs at Faculty of Manufacturing, UMP. 13) Upgrading of street and compound lightings for Pekan Library Area. 14) Installation of light motion sensors at toilets in UMP Pekan. 15) Upgrading from conventional lights to energy-efficient lights in CTAR, UMP Pekan. 16) Upgrading from conventional to energy-savings bulbs (1400 nos) in Blocks H and I, UMP Pekan. 17) Green Awareness Campaign 18) Installation of PV panels in all gazebo units

N°	Universities	Green Initiative
8.	Universiti Malaysia Pahang (UMP)	19) Acknowledgment of GreenTech Malaysia and Sustainable Energy Development Agency (SEDA) of UMP's initiatives towards integrated energy-savings and CO2 emissions reduction initiatives, with SEDA allocating an RM55,000 grant for the conduct of an energy audit in UMP Pekan Library. 20) Installation of solar-powered LED lights with motion sensors. **Solar system** 1) Install in walkaway to supply electricity to the faculty and administration blocks. **Wind Power** 1) The wind turbine was installed due to its campus strategic place near the coastal area which provides the windy condition.

Green campus initiatives are divided into approximately nine sections, such as the programme to reduce carbon emissions, cleaning programmes, energy efficiency, recycling, single-use plastics programme, utility management, and also waste and water management programmes, which need to take into account the participation of all participants, including employees and students with a coverage percentage of 10.66 %.The initiative of having low carbon emission campus day with 7.62 percent coverage with strong vision of less amount of car on campus for 5 years is the best practise concluded for reducing carbon emissions. They expect to use public transport provided on campus together with reserving parking spaces for bicycles. With the exception of final year students who are allowed to bring their own vehicles to colleges, reducing motorized vehicles will encourage students to cycle to classes. In order to encourage people to walk more rather than use vehicles for transport, the walking paths are covered with lighting at nights, a good effort is made to reduce harmful chemical substances escaping to the air.

In order to have a successful campus sustainability initiative, it Is important to have a staff or officers who experts in sustainable development to promote the initiative. Therefore, all Malaysian universities that managed to establish their

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own SO have a few trained officers with different fields of expertise in sustainable campus development. For example, MMU has their own energy officer to manage and monitor the energy saving of the university. The energy officer will work closely with the Tenaga Nasional Berhad (TNB) which help to supervised the green officer. As for UNIMAS, they have expertise in sustainable and renewable energy from the faculty of engineering as particular members. They also have a group of certified energy members about 20 members in total. In UPM, at least 400 staff in academic and non-academics have been trained regarding the green initiatives works from various faculties. They also have Industry Agriculture Park which looks after the grass area green land in UPM.

The same goes for UTM, where each faculty have their own green manager and this green manager will be linked with the SO in the university. Even most of the universities have their own green manager who has been trained and expertise in their own sustainability aspects, there are still Malaysian universities that still do not have a green manager or staff who have been trained for green initiatives such as UMS and UUM. Most of the training given is more towards awareness, on how to support. As for UMP, every cluster of their department has its own Person In Charge. But in Energy & Climate change cluster, UMP has a Competent Energy Manager leading the cluster. This Energy Manager will play their role to make sure the campus archive sustainable by promoting or done the initiative to reduce energy consumption and reduce carbon production through electric energy production.

The action plans for each Malaysia universities was listed in Table 6.2. This action plan was drafted to make sure the vision and mission of sustainability can be achieved within 10 years times.

Table 6.2
Action plans by each Malaysian universities

N°	Universities	Action Plans
1.	Universiti Teknologi Malaysia (UTM)	• Create more impact-full activities on sustainability. • Every month at least one green initiative needs to be organized. • Initiatives that can be sustained for a long period • The framework of Campus Sustainability Governance 2030 • SDGs Indicators in UTM • Establishment of sustainability guidelines/procedures at an operational and academic level. • Car-Free Campus for UTM Kuala Lumpur Plan • UniShare dashboard information on Sustainability Program and Initiatives.
2.	Multimedia University (MMU)	• Solar energy power action plan • Processing water in campus reused water from the pond for landscaping.
3.	Universiti Putra Malaysia (UPM)	• 5 years strategic plan starting next year that tackles various SDGs issues.
4.	Universiti Utara Malaysia (UUM)	• A budget for talent development among the young and graduates, preparing them for green talents and sustainable future leaders, and the second one is for development and ecosystem related to sustainability. • The program should be more sustainable. Ideas come to integrate community services with SDGs aligned. For student developments, we suggest the students relate the ideas of SDGs in their activities and program, instead of just allow themselves to do activities without guidelines and nothing to sustain.
5.	Universiti Malaysia Sarawak (UNIMAS)	• Launched strategic plan for 2021- 2025. In that plan, they put sustainability as local branding because UNIMAS has a strategic focus on research, academic, talent development, sustainable financial and global visibility. • Plan 2021-2025 mainly on two aspects. One is to carry out sustainability initiatives both on campus and stakeholders to the community. • In 2016-2020, sustainability initiatives are put only under research academic as they concern on staff and social activities. • Action plan on global prominence, hoping for more visibility at the international platform for this sustainability campus.
6.	Universiti Malaysia Sabah (UMS)	• Sustainable campus focusing on utilities (water and electricity). • Say no to single-use plastic, no bottle plastic, and no styrofoam (polystyrene) packaging use on campus.

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N°	Universities	Action Plans
7.	Universiti Teknologi MARA (UiTM)	• UiTM Strategic Planning 2020-2025 under Strategic Theme 8 (Key Initiatives for Strategy 1:enforcing infrastructure to provide a smart, green, safe, and sustainable campus that would lead to the optimization of assets, resources, and energy consumption with renewable capability for long-term cost-efficiency.
8.	Universiti Malaysia Pahang (UMP)	• UMP Strategic Plan 2020-2025. UMP want to reduce electric consumption minimum 10% reduction from the electricity bills.

With all action plans and green initiatives that been done at the Malaysian universities, the impact of the initiative has been observed and record. Not all initiatives done give a positive impact on the campus and its stakeholders. This may be due to the real mentality on sustainability does not works. However, the positive impact shows a more significant impact on creating a sustainable campus such as:

i. On energy-saving initiatives, saves lots of dollars and cents for electricity usage. Data collected by the university's Development Office and presented the documentation annually. The saving amount on electricity is collected and it shows quite tremendous savings on the spending.
ii. Increase the university ranking in UI Green metric as sustainable universities.
iii. Significant impact is the behavior changes that are not tangent able, but the green initiatives that have been done on the campus leave a more sustainable impact on the environment.
iv. Less plastic waste
v. Less water wastage
vi. No more use of styrofoam packaging
vii. Reduce electricity bill
viii. Knowledge transfer to the community about the green initiatives
ix. Low carbon footprint

Hence, to create successful sustainability on campus it is important to understand the design of sustainability on campus. This to make sure the design is suitable and to achieve the action plans and involvement of the stakeholders, therefore, proper green initiatives can be the plan and conducted successfully.

Section D

Initiative Made to Increase Awareness Regarding Green Initiatives in Campus

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The knowledge of sustainability should be introduced through awareness. The awareness can be a channel through events that can help to educate people through activities. Therefore, the green event should become an input to the student about green initiative and sustainability on campus. After the event to increase awareness has been done, the level of acceptance or participation of the students, staff, and stakeholders should be observed. This to make sure, a better improvement can be done on future events. Table 7.1 shows the level of acceptance of the green initiative made by each university.

Table 7.1
Level of acceptance on the green initiatives on campus

N°	Universities	Level of acceptance	Number of activities
1.	Universiti Teknologi Malaysia (UTM)	Low	Minimum once a month
2.	Multimedia University (MMU)	Low	No activity. Only blast email on electrical usage every month
3.	Universiti Putra Malaysia (UPM)	Moderate	No exact numbers
4.	Universiti Utara Malaysia (UUM)	Low	Every month campaign on awareness and sustainability
5.	Universiti Malaysia Sarawak (UNIMAS)	Good	Every quarter a year, one activity on sustainability is done
6.	Universiti Malaysia Sabah (UMS)	Good	Two times a month
7.	Universiti Teknologi MARA (UiTM)	High	A series of webinar and roadshow every month
8.	Universiti Malaysia Pahang (UMP)	High	-

Figure 2
Sustainability innitiative conducted by UNIMAS

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Section D

Initiative Made to Increase Awareness Regarding Green Initiatives in Campus

As far as the campus sustainability programme has been launched, the level of student acceptance is not really promising, specifically on campus sustainability practises carried out from the upper level of the HEIs. However, as if the system was already implemented, the systems that were introduced are not really appreciated by individuals. The awareness level is quite low for the acceptance of the car-free day programme on campus, with a coverage percentage of 8.09 % from the data analysis. The solution that could help is the commitment to expose the main purpose of the activity between the student association and the academician, because engagement is important to determine the level of acceptance. When the programme is an awareness campaign, the turnout is quite high. However, for serious implementation, the number of participants is considered to be quite small. The likelihood of success is not as high as expected for the participation of experts in any successful programme.

Every effort and initiative will have its own challenge and success stories behind it. All Malaysian universities are faced with a variety of challenges to which they each answer with a variety of solutions and initiatives. The list of challenges of each Malaysia universities had faced are listed down below:

1. Financially limited
2. There is no central sustainability concern, for collecting data such as SO in the university. Propose that each faculty has their own Strategy Coordinator to do the reporting on the strategic plan to overcome the challenges.
3. Privatization of the university/ campus is not on one hand. Implementation would be difficult because the building does not fully belong to the university, which contradicts with other government universities. For example, a budget is easily allocated by the government for any activities to be held in government universities, but not for private universities like MMU.
4. Initiatives do not work because of triggered by certain policies by the university.
5. No Integrated Sustainability Information System, because they believe that all faculties have their own initiatives on sustainability, but sometimes the data

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collection and reporting is quite challenging to have the data on feedback, etc.

6. The university does not have a specific account or allocation, specifically for all SDGs fund and green initiative or something related to that. Under operational expenditure and management of the university, the allocation is limited generally.
7. Engagement with the participants (students and staff) to sustain in sustainability programs for the long run. Need to include student organization and other organization to increase participation from the students and staffs.
8. Dominant involvement of local authorities and government
9. Difficulty to sustain the projects and having continue efforts on the green initiative to increase awareness and educate people on campus sustainability.
10. Criticism from staff and students on the green initiatives made it hard to cope such as car-free zone events on campus, where all staff and students need to participate.
11. Different departments and stakeholders have a different level of acceptance based on the activity.

Not all initiative have their own challenges and failure. There is also initiative have their own success stories. For instance, UNIMAS's success has a bigger success on energy savings part with the installation of the solar system on campus, and also in the community nearby. Achievement of UNIMAS in The University Impact Rankings 2020 (201st in the world, 5th in Malaysia) as top 100 in 5 SDGs.is another biggest success that the university has achieved with the green initiative. As for MMU, the initiative on energy-saving shows a positive result which they manage to reduce the emission and wastage for electricity usage including water bill. The biggest success for UPM is their university successfully achieved a ranking in UI Green Metrics this year which shows the university is internationally recognized in a sustainability index. It calculates a university's green credentials based on performance in six categories, spanning setting and infrastructure; energy and climate change; waste; water use; transportation; and education.

Section E

Financial Limitation As a Biggest Challenge

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Numerous studies show on the bigger barrier on how to have successful green initiatives is a limitation on a budget or financial limitation. Since all activities would eventually require funding with a coverage of 6.28 %, best practices for sustainability budget allocation is that the presence of funding specifically for the purpose of sustainability funding started with a certain amount, which is not only for academic purposes but also for all sustainability projects, in order to encourage them to be part of the initiatives. Another way to carry out good practices is to have a lot of campaigns to get employees or even outsiders to put in cash, such as a tree planting programme, and they are recognized and advertised as a reward. The most satisfactory outcome of the way to maintain budget allocation is that the allocation for only planned research and campus development programmes, the management of the university included the primary focus on the programmes together, because the alternative ways to deal with them are by using the resources available that contribute to more cost-saving programmes.

To conduct a green initiative through campaign, activities, seminar, etc the allocation of the budget should prioritize. Therefore, it will be easier to conduct the initiative for sustainability on campus regularly. Universities in Malaysia, most likely have the same issues with the budget limitation such as MMU which their campus prioritize other activities and not the green initiatives. As for other universities such as UNIMAS, UPM, UTM, UUM, and UMS, these universities received a lot of funding for sustainable projects. UNIMAS itself has a special grant known as Dana Lestari, which provides RM100,000 as a start-up project related to sustainability. This to encourage the staff to be part of the initiatives planned by the university.UUM also received an RM100,000 budget allocation for research and campus development that focuses on the sustainable project by utilizing the available resources, which contribute to more cost-saving programs. UMP budget funding is normally from the insource fund, but there is one outsource fund received from Sustainable Development Authority (SEDA) to support their sustainability initiative on the campus.

UPM received a lot of fund from stakeholders through the event they have conducted, such as tree planting program, which gets acknowledge by the community and have its own publicity. After the program become well known, many stakeholders outside the campus will take place in the event, and even donate to increase the fund. Same goes to UTM and UMS which they conducted an event which involved community and stakeholder, and they received a donation through the event conducted.

Sustainability Practices of European Universities

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This chapter explains the sustainability practices implement in the three (3) European (EU) partner universities which focus on the University of Alicante in Spain, FH Joanneum in Austria, and University of Genova (UniGE) in Italy.

Through research and education in a wide range of disciplines, universities contribute to the goals that can contribute to a better future. In a complex and developed context like Europe, the achievement of the Sustainable Development Goals must be based on knowledge, new research, innovation, and the empowerment of critical thinking by citizens. The Sustainable Development Goals (SDGs) clearly need strong societal actors to work together to ensure their success, such as universities. Based on the European University Association (EUA), they recognize the importance of the Sustainable Development Goals in its Strategic Plan. The Association actively promotes the Sustainable Development Goals in its work with its members as well as in its advocacy activities. The EUA focus on seven (7) main goals which are:

i. GOAL 4: Quality Education
ii. GOAL 5: Gender Equality
iii. GOAL 7: Affordable and Clean Energy
iv. GOAL 9: Industry, Innovation, and Infrastructure
v. GOAL 11: Sustainable Cities and Communities
vi. GOAL 16: Peace and Justice Strong Institutions
vii. GOAL 17: Partnerships to Achieve the Goal

Even though the EUA encourages the EU universities to focus on the seven goals, but most of the universities already serve more than 7 goals in SDGs. The list of SDGs covered by each of the EU partner universities is listed below in Table 9.1.

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Section D

Sustainability Practices of European Universities

Table 9.1
Sustainability focus area and SDGs covered by the EU partner universities

N°	Universities	Sustainability Focus	SDGs Covered
1.	University of Alicante (UA)	1. Renewable energy 2. Waste management 3. Sustainable mobility 4. Reuse and recycle 5. Zero plastic 6. Health program 7. Accessibility, and welfare for disabilities students. 8. Energy efficiency/ reduction of electricity consumption	11 Goals Covered (Goal 3, 4, 5, 7, 8, 10, 11, 13, 15, 16 and 17)
2.	FH Joanneum (FHJ)	1. Resource management 2. Environment protection 3. Climate protection 4. Organizational culture 5. Health promotion 6. Networking within the region 7. Gender equity and empowerment.	13 Goals Covered (Goal 1, 3, 4, 5, 8, 9, 10, 11, 12, 13, 15, 16 and 17)
3.	University of Genova (UniGE)	1. Equal opportunities in research and education. 2. Reduction of electricity consumption. 3. Remote control 4. Green energy supply 5. Working lifestyle 6. Education, research, accessibility, and welfare for disabilities students. 7. Living lab and sustainability mobility, 8. Circular economy 9. Plastic-free 10. Carbon footprint and climate emergency. 11. Health and sport activities	10 Goals Covered (Goal 3, 4, 5, 7, 8, 10, 11, 12, 13, and 17)

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In terms of sustainable development, the EU has a strong starting position and is also fully committed to being a leading player in the implementation of the UN 2030 Agenda, together with its member countries. The SDGs are included in all of the 10 priorities of the European Commission.

The European Commission outlined its strategic approach to the implementation of the 2030 Agenda in November 2016, including the Sustainable Development Goals. Include the SDGs in EU policies and initiatives across the board, with sustainable development as an essential guiding principle for all European Commission policies is one of the key actions for the implementation of the 2030 Agenda. Therefore most of the EU partner universities for example UA have few policies implement on sustainability to fulfill the SDGs such as Social Responsibility Plan, Equality plans, Code of ethics, Transparency portal, Protocol for prevention and action against situations of sexual harassment, Inclusion of social and environmental clauses in public procurement processes, Energy efficiency policy, Waste management system, Sustainable Mobility Plan and A Plastic-Free Campus.

A lot of initiatives have been done in the EU partners universities to support SDGs implementation in the universities and at the same time to create a sustainable campus with a living lab concept. Their initiatives are designed to follow the basic rules of sustainability which are economic, social, and environment. The list of initiatives for all three EU partner universities is tabulated in Table 9.2.

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Section D

Sustainability Practices of European Universities

Table 9.2
Green initiatives done at the EU partners universities

N°	Universities	Initiatives
1.	University of Alicante (UA)	1. Photovoltaic solar energy. 2. Desalination plant: Osmosis plant for desalination from undrinkable water aquifer, for irrigation of green areas. 3. Recycling and reuse program 4. Accessibility for disable staff and students 5. Mobility Plan Actions: Electric bikes. Bikes, Golf car, Car Sharing "Autocolega (Carmate)", Free charging for the electric car, Public transport promotion, Disabled adapted to transport, Challenge "Go around UA". 6. Pedestrian campus with 50% of the campus is pedestrian/ parkland. 7. 79% of the surface of the campus is a car-free area 8. Reuse of equipment is promoted computer, furniture and other equipment, which still has a useful life and can be reused for the same purpose for which it was designed. It is donated to institutions and NGOs. 9. Install new water fonts to encourage students and staff to bring their own drinking bottle. 10. Use of utensils (plates, glasses ...) reusable or biodegradable. 11. Discount on vending machines for using their own cup 12. Non-Use plastic bottles for institutional events 13. Use biodegradable alternatives 14. Reduce their plastic containers or give priority to those that offer lighter or biodegradable packaging. 15. Healthy eating by providing healty menu at the cafeteria 16. Air quality in the UA 17. Carbon footprint 18. Cardio protected campus which encourage students and staff to walk and cycle within the campus. 19. Food and Nutrition Cabinet or known as "Food Bank" 20. Healthy orchards 21. Blood donation 22. Healthy routes for pedestrian and bicycle

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N°	Universities	Initiatives
2.	FH Joanneum (FHJ)	1. Marketing Support for Regional Product Shop 2. Re-Selling Second-Hand Goods to support socially Disadvantaged. 3. Innovative Photovoltaic Power plant 4. Crowd Funding and Management Investment 5. Promoting "Future-compatible Energy" 6. Changing Mind-Set of the local population 7. MOOCs on Sustainable Businesses 8. Sustainable Quality Management for SMS businesses 9. Campus Certification "EcoProfit" 10. Subsidies for Public Transport Seasonal Ticket 11. New Bike Parking Spots 12. Corporate Bikes for local drives and 2 Corporate E-Bikes 13. Subsidies for Bike Services 14. Free Health Check 15. Subsidies for Health Promoting Courses and Excursions 16. Psychological Support
3.	University of Genova (UniGE)	1. 42% teaching courses in sustainability-related topics. 2. Sustainable living (bike parking, green areas, charging port EV, pedestrian path (35% of the area). 3. Water-saving: rain water harvesting and smart irrigation system. 4. Three sustainable mobility facilities such as electric mobility, green and pedestrian areas, bicycle facilities, mobility solutions for the smart city. 5. Charging point connected to micro-grid. A big research group in electric engineers for electric services to connect with the micro-grid. 6. Activities on electric mobility such as provide courses to train students/staff/researcher. 7. Reduce area allowed for cars, improve the pedestrian and bicycle area. 8. Four big projects on energy efficiency such as smart poly-generation micro-grid, smart energy building, energy efficiency measures, smart city demo campus. 9. Sport activities and well-being - provide smart and technological gym and sport facilities in the campus such as U-Gym, U-Trail and U-Field and water and sailing sport center. 10. Recycling program 11. Renewable energy production and energy storage

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Section D

Sustainability Practices of European Universities

N°	Universities	Initiatives
3.	University of Genova (UniGE)	12. Participation to national and international networks on sustainability with local authorities, universities and industries.Such as in ALPGRIDS project, MYSUN project and ENVISION project.

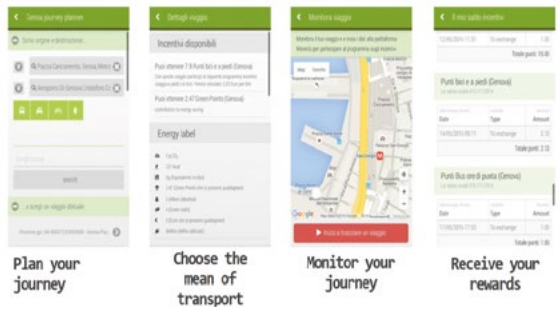
Figure 3
Sustainability innitiative conducted by UNIMAS

Mobility Plan Action

Photovoltaic solar energy

The adoption of sustainable and green principles is not simply a trend. Organizations are able to become more effective, competitive, and profitable by cultivating sustainable and green practices. It's more than just "a nice thing to do."With all the initiatives done by the universities, in a long run, the universities will start to gain the profit back based on the investment or known as the return of investment (ROI). The ROI, not only focusing on the profit (money) but also the behavioral change in the society living on the campus. Table 9.3 shows the positive impact that the EU partners gain from the green initiative done on their campus.

Figure 4
Example of green Initiatives at University of Genova (UniGE)



UniGE ICT solution to support sustainable mobility

Smart Energy Building in UniGE

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Table 9.3
Positive impact by the green initiatives implemented in the campus

N°	Universities	Positive Impacts
1.	University of Alicante (UA)	1. Reduce electricity consumption by 15.75%
2.	FH Joanneum (FHJ)	1. 30% Energy reduction 2. Discovering of wrong gas charging
3.	University of Genova (UniGE)	1. 77.6% already used sustainable transport such as bus, train, bicycle, walk, etc. 2. Recycling program (25% unsorted waste, 75 % recycling such as paper & cardboard, plastic, glass& can, organic waste, used electrical batteries, toner & cartridge, vegetable oil). 3. On the campus the reduction in primary energy consumption (-10%), reduction in energy bills (-15%), reduction in CO2 emission(-12%).

One of the main challenges to the establishment of a better common future is the principles of sustainable development. At the university level, they remain a challenge, too. Some universities around the world are very active in implementing their performance and structure with sustainability. The same goes with the EU partner universities. With a lot of effort, initiatives, and ideas to make their campus a sustainable one. A lot of challenges they need to overcome such as the management system of the campus which has not shown any active support to the initiatives and the negative human behavior towards green initiatives which easily irritated when it comes to the green initiatives. As we know that, Rome was not built in a day. Therefore, the continuous efforts in sustainable initiatives will slowly show their positiveness and will provide a better future for the next generation.

Summary and Conclusions

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This report sought to recommend the perspective of underrepresented, but important, university stakeholders (staffs and students) regarding the challenges and incentive to universities becoming a sustainable campus. After the interview with the Malaysian universities and the result from the survey conducted in the T1.2 (Analysis of Malaysian Sustainability Practices), as for the key conclusion, it is concluded that Malaysian higher education institutions are still in an uncoordinated system for campus sustainability as not all institutions are regulated by the same policies for campus sustainability as all HEIs in Malaysia have reported. There were uncorrelated green initiatives by the HEIs themselves, demonstrating sustainability efforts, but without the existence of an integrated system for campus sustainability, especially with policies aligned with SDGs. A few challenges and obstacles have been recognized and highlighted. Numbers of barriers and positive factors that affect campus sustainability efforts. To benchmark the EU sustainability practices and Malaysian universities sustainability practices, we can summarize as table below:

Table 10.1
A notable benchmark between EU and Malaysian universities based on MYSUN work packages output.

EU sustainability practices	Malaysian universities sustainability practices	Benchmark
Well established policies	Sustainable policies in HEIs campus are not well established and not ready to be followed by the universities.	Established policies to followed by all Malaysian universities **(output of WP5).**
Sources of financial come from in-source and out-source of the universities	Lack of out source funding from stakeholders/NGOs/ industries in sustainable projects.	Seminar/Workshop and campaign to attract more stakeholders/NGOs/ industries in understanding the universities efforts/activities in sustainability **(output of WP2, WP5 and WP4).**
Expertise in sustainability and well established SO with well versed sustainability officers	Only 4 out 8 universities in Malaysian universities have established SO and none of the SO have their own sustainability officers that well versed in sustainability issues.	Need a well versed sustainability officers in each SO **(output of WP2 and WP4).**

EU sustainability practices	Malaysian universities sustainability practices	Benchmark
Awareness and acceptance level of the staff and students on sustainability initiatives in campus is high.	Lack of awareness and acceptance level of staff and students. Make it difficult for the universities conduct a green initiatives.	Campaign on awareness of sustainability in campus. Share more information regarding the green initiatives made by the university to the staff and students **(output WP4).**
SO in EU universities incharge in collecting the data for all the green initiatives and analyse the positive impact of the initiative to the universities.	No central data to collect and analyse the positive impact of the green initiatives. Staff and students hardly see the changes after the initiatives been done.	A central unit such as SO in charge in collecting data, documentation, analysed the impact to the universities. Share the positive results in a universities newsletter, website, social media, etc. To show the results of the initiatives done. **(output of WP2, WP4 and WP7).**

Moreover, if we look deeper the sustainability approach between HEIs in Malaysia and Europe might have almost similar SDGs goals implemented in their universities. However, all three (3) EU partner universities have one additional focus on Goal 5 which is Gender Equality. This goal is not the major focus for the HEIs in Malaysia. The Gender Equality goal has become important in HEIs in Europe which cause the implementation of the Gender budget in the UniGE. This Gender budget was a research fund that requires the researcher to comply with gender equality in their research team for them to receive the fund. Other than that, the efforts in creating the sustainability campus in Malaysia and Europe have the same focus and agenda which to fulfill and promote the SDGs in their strategic plan and policies. This to ensure the sustainability in universities can be achieved and give an impact on the social, economic, and environment.

The best practises that can be recommended for the effective implementation of campus sustainability in HEIs in Malaysia are from policies that cover sustainability issues and can at least be linked to SDGs for 2030. Then, as a basic requirement for each HEI, it is important to create a sustainability office so that any information collected about sustainability issues can be prioritized along with accurate data

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stored. In addition, exposure to SDGs must be valid in every aspect such that information acquired by each university level has succeeded in achieving long-term goals of becoming a 'sustainable campus.'Furthermore, the best practise that can help the current implementation of sustainability is to include stakeholders in any initiatives and activities that may open up financial support opportunities, particularly for campus sustainability activities. As for retaining incentive for campus staff and students, universities are encouraged to include reward programmes so that greater exposure to good habits will assist in approaches to campus sustainability.

The establishment of green initiatives on campus such as carbon pollution reduction programme, sanitation initiatives, energy conservation, recycling, single-use plastics programme, utility management, and even waste and water management programmes are another excellent activity for sustainable campus. Such HEIs must also have appropriate campus sustainability action plans in order to be able to reach all levels in the long term.

Hence, sustainability education and research may need a major shift not only in changing curricula and programs but also in institutionalizing this concept in these institutions. By educating and generating human resources that must take care of sustainability, the HEIs have a profound impact on all other institutions. One of the assessments made since 2010 by the University of Indonesia (UI) Green Metric to measure and rank universities worldwide is one of the International commitments to encourage HEIs to take sustainability into account as a substantial key concept. Sustainable universities should play an important role in sustainable innovation and technology research and development; enhance the knowledge and social capacity of staff and students in the field of sustainability; transform the campus environment into an environmentally friendly and sustainable environment; and enhance the social and human capacity of communities and public and private institutions.

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APPENDIX 1

Interview questions on "Good Practices in Malaysia Higher Education Institutions"

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The interview questions are divided into five sections which are governance, motivation, design, awareness and budget. The list of interview questions is as follows:

GOVERNANCE

1) What policies that your university has followed on the sustainability approach?
2) Did your university have its own sustainability office?
3) What are your thoughts about the SDGs (Sustainable Development Goals)? How do you think the Green Campus Initiative can give a positive contribution in that sense?
4) Who are your closest allies/stakeholders on/in campus in doing this work?

MOTIVATION

1) Any reward system implement in your university to motivate people to be more sustainable?

DESIGN

1) What green initiative(s) that your campus implement?
2) How many people have been trained to teach/apply for the green initiative works?
3) Did your university have its own action plan about sustainability on campus?
4) What kind of impact do you have at your university?
5) Did your activities always involve stakeholders? or only staff and students?

AWARENESS

1) What do you think the level of acceptance/participation on the campaign/ initiative to
2) engage more people in your university?
3) How many activities in a month had your university done to promote sustainability on campus?
4) Do you have special tasks/engagement with stakeholders at your University?
5) What do you think are your biggest challenges and successes have you done to improve sustainability on campus?

BUDGET

1) How did you provide campus lifestyle using available resources?

   Did you receive any outsource or in-source f

APPENDIX 2

Interview session with Sustainability Office

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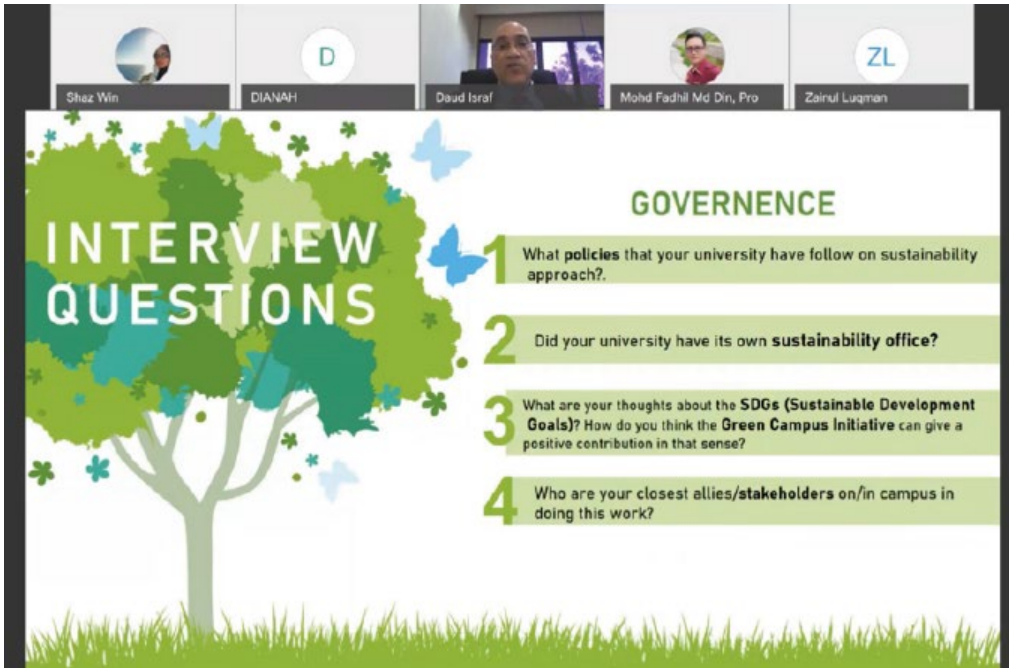
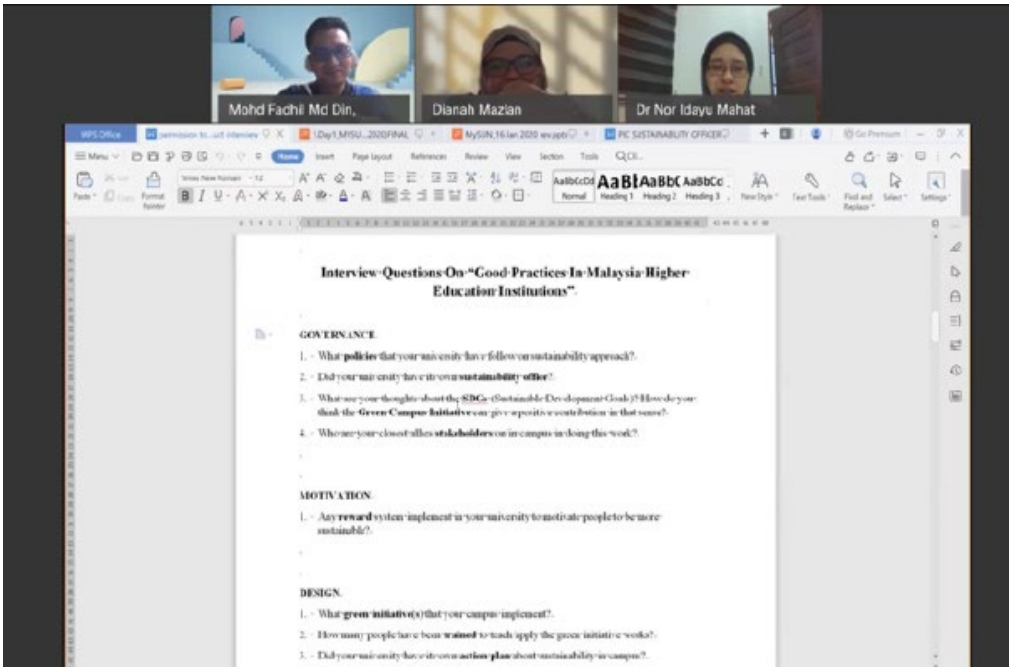
Interview session with Mr. Mohamad Azlan Abd Aziz from Multimedia University (MMU)

Interview session with Madam Noraziah Binti Abdul Wahab from Universiti Malaysia Sarawak (UNIMAS)



Interview session with Prof. Dr. Daud Ahmad Israf Ali from Universiti Putra Malaysia (UPM)



Interview session with Dr. Nor Idayu Mahat from Universiti Utara Malaysia (UUM)

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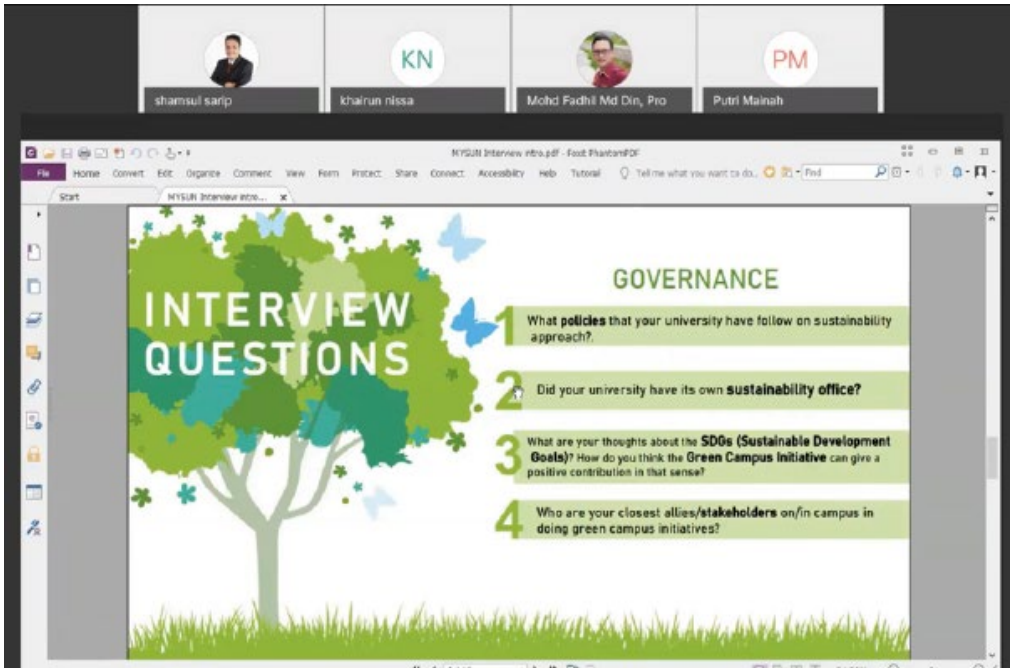

Interview session with Assoc. Prof. Ir. Dr. Shamsul Bin Sarip
from Universiti Teknologi Malaysia (UTM)

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GOOD PRACTICES in Campus Sustainability from EU and Malaysian universities

D1.3.2 Good Practices in HEI Campus Sustainability