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UNIVERSITI MALAYSIA SABAH
SUSTAINABILITY REPORT
2023

UNIVERSITI MALAYSIA SABAH SUSTAINABILITY REPORT 2023

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TABLE OF CONTENT

Preface by the Assistant Vice-Chancellor (Strategic) for Universiti Malaysia Sabah's Sustainability Report 2023

It is my honour to present this Sustainability Report 2023 of Universiti Malaysia Sabah (UMS), which reflects our continuous journey towards embedding sustainability across all facets of our institution. This report is more than a record of our initiatives; it is a testament to the collective determination of our university community to align our growth with the principles of environmental responsibility, social equity, and institutional resilience.

As the Assistant Vice-Chancellor (Strategic), I am particularly mindful of the importance of long-term vision and planning in shaping a sustainable future for UMS. In 2023, we strengthened our commitment to the Sustainable Development Goals (SDGs) through strategic initiatives that integrate sustainability into teaching, research, campus operations, and community partnerships. These efforts not only reinforce our identity as an EcoCampus, but also contribute to Malaysia's broader sustainability agenda and global aspirations.

The year brought forth challenges that tested our adaptability and resilience. Yet, these challenges also inspired innovation—encouraging our staff, students, and stakeholders to develop solutions that are practical, impactful, and forward-looking. From enhancing energy efficiency and waste management systems, to expanding research in biodiversity and sustainable livelihoods, UMS continues to demonstrate that universities are catalysts of change.

I would like to extend my sincere appreciation to every member of the UMS community and our external partners for their commitment and collaboration. Your efforts are the foundation of the progress we share in this report. Moving forward, we will continue to strengthen our strategies, build meaningful partnerships, and cultivate a culture of sustainability that empowers future generations.

Together, let us advance towards a future where knowledge and responsibility go hand in hand, ensuring that UMS stands as a beacon of sustainable excellence in Malaysia and beyond.

Professor Dr. Mohammad Saffree Jeffree
Assistant Vice-Chancellor (Strategic)
Universiti Malaysia Sabah

Preface by the Director of EcoCampus Management Centre for Universiti Malaysia Sabah's Sustainability Report 2023

It is with great pleasure that we present the Universiti Malaysia Sabah (UMS) Sustainability Report 2023. This report reflects our unwavering commitment to fostering sustainable development in line with the United Nations Sustainable Development Goals (SDGs) and Malaysia's national aspirations.

As an institution of higher learning, UMS recognises its responsibility not only to provide quality education and research, but also to lead by example in promoting environmental stewardship, social inclusivity, and good governance. The initiatives and progress outlined in this report highlight our efforts to integrate sustainability into all aspects of our operations—ranging from campus management and community engagement, to research innovation and student development.

The year 2023 was marked by both challenges and opportunities. Guided by our vision to become an EcoCampus of international distinction, UMS has continued to strengthen policies, practices, and collaborations that advance sustainability across our academic, operational, and social landscapes. This report provides a transparent account of our performance, achievements, and areas for improvement as we work towards a more resilient and responsible future.

We extend our deepest appreciation to the dedicated staff, students, partners, and stakeholders who have contributed to these collective efforts. Sustainability is a shared journey, and together we can ensure that UMS not only nurtures knowledge, but also safeguards the planet and society for generations to come.

Professor Dr. Awangku Hassanal Bahar Pengiran Bagul
Director
EcoCampus Management Centre

1.0 SETTING AND INFRASTRUCTURE

1.1 Setting and Infrastructure

This section presents the achievements of UMS in the **Setting and Infrastructure** category. It highlights the university's efforts in creating a sustainable campus environment through responsible land use, green building practices, open space preservation, and infrastructure development that aligns with relevant SDGs and demonstrates the university's commitment to sustainability.

The university demonstrates a strong commitment to sustainability through its infrastructure and campus setting, which contributes to SDGs 9 (Industry, Innovation and Infrastructure), 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and Production), 14 (Life Below Water), 15 (Life on Land), and 17 (Partnerships for the Goals). This commitment is further reflected in the core elements of the the university's EcoCampus Centre, specifically focusing on Sustainable Development and Environmental Compatibility.

The university's dedication to sustainable development is evident in its strategic planning and infrastructure development. The university has multiple campus sites, including the main campus in Kota Kinabalu, branch campuses in Labuan and Sandakan, and a Rural Medical Education Centre in Kudat as shown in Figures 1.1 to 1.3 below.

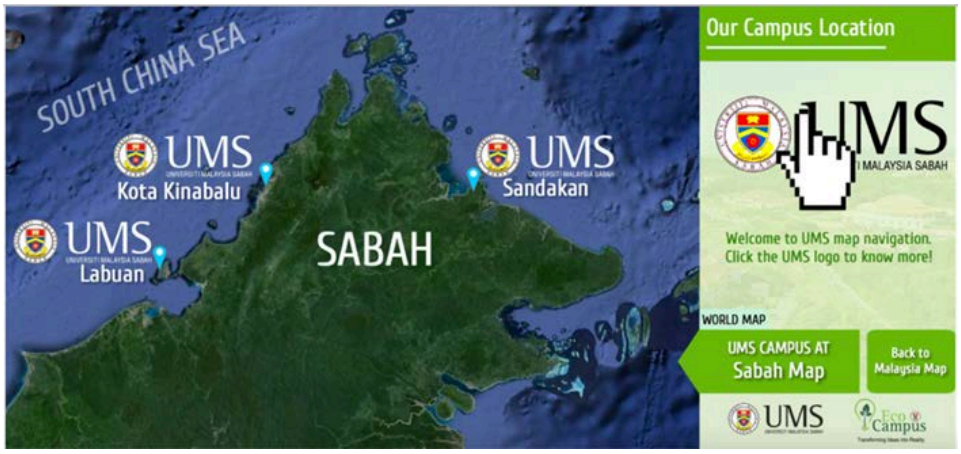


Figure 1.1: A map of Sabah with indications to all UMS' campuses

(i) (ii) (iii)

Figure 1.2: (i) An illustration of UMS Labuan Branch Campus, (ii) an illustration of UMS Main Campus in Kota Kinabalu, and (iii) an illustration of UMS Sandakan Branch Campus

Figure 1.3: An ariel photography of UMS' Rural Medical Education Centre Kudat (RMEC)

This decentralized structure allows the university to cater to diverse educational needs across Sabah, promoting inclusivity and access to education, a key aspect of sustainable development. The main campus offers various programs, including those related to marine and terrestrial conservation, aligning with the aspirations of the Sabah State government. Furthermore, the location of specialized programs in different campuses, such as agriculture-based programs in Sandakan and international finance-based programs in Labuan, promotes regional economic development and specialization, contributing to SDG 9.

The university prioritizes environmental compatibility through its campus planning and resource management. The university's main campus (as shown in Figure 1.4 and 1.5 below) is located approximately 10 kilometers from Kota Kinabalu City, integrating it within an urban setting while maintaining a distinct natural environment.

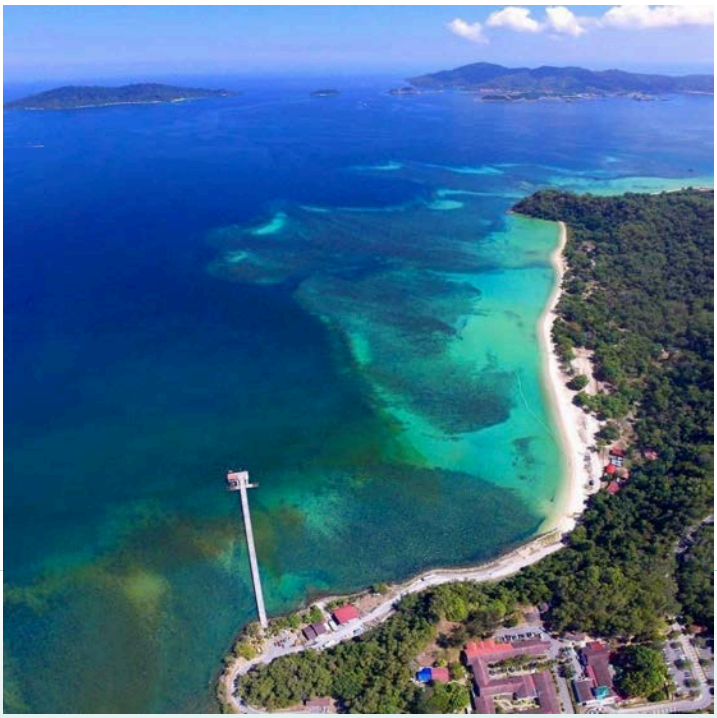


Figure 1.4: UMS main campus surrounded by nature both marine and terresterial

Figure 1.5: UMS' Main Campus, Kota Kinabalu

A significant portion of the total campus area is designated as open space, with a remarkable 96% comprising forested areas, planted vegetation, and water-absorbing areas. Specifically, 34% of the campus area is covered in forest vegetation, dedicated to conservation and protection. This commitment to preserving green spaces enhances biodiversity, contributes to carbon sequestration and provides valuable ecosystem services.

Figure 1.6: Google map showing the total area on UMS Main Campus covered in planted vegetation for the calculation of campus area covered in forest

Figure 1.7: Google map showing the total area on UMS Labuan Branch campus covered in forest vegetation

The university's strategic approach to campus planning and infrastructure development underscores its dedication to sustainable development and environmental compatibility. By prioritizing responsible land use, green spaces, and specialized educational hubs, the university ensures that its growth aligns with the principles of sustainability. The preservation of forested areas, coupled with infrastructure initiatives that minimize environmental impact, reflects the university's commitment to balancing development with ecological stewardship.

These efforts directly contribute to key SDGs, including SDG 9 (Industry, Innovation, and Infrastructure) by fostering specialized knowledge hubs, SDG 11 (Sustainable Cities and Communities) through responsible urban integration, and SDGs 12, 14, and 15 by promoting resource conservation and biodiversity protection. Additionally, the university's decentralized structure supports SDG 17 (Partnerships for the Goals) by strengthening collaboration across regions to enhance educational accessibility and regional development.

Through its integration of sustainability in infrastructure and campus operations, the university effectively supports its EcoCampus core values of sustainable development and environmental compatibility. These efforts contribute to responsible growth, ecological preservation, and a sustainable campus environment, further reinforcing the university's commitment to fostering long-term environmental stewardship.

2.0 RESOURCE MANAGEMENT

2.1 Energy and Climate Change

This section presents the achievements of UMS in the **Energy and Climate Change** category. It highlights the university's efforts in energy efficiency, renewable energy adoption, and climate action, aligning them with relevant SDGs and demonstrating the university's commitment to sustainability.

The university is committed to using energy-efficient appliances to minimize energy consumption and reduce its overall environmental impact. This commitment is guided by both federal government standards, as well as its own sustainable energy plan and practices since 2013 and Sustainable Energy Management Policy since 2018. The university prioritizes the replacement of damaged or outdated appliances (over five years old, subject to funding availability) with energy-efficient alternatives that consume less electricity and offer improved performance.

The university has made significant strides in equipping its facilities with high energy-efficiency electrical appliances. Notably, 50% of centralized air-conditioning systems in certain buildings have been replaced with energy-efficient split air-conditioning units boasting a three-star energy rating or higher, reducing energy consumption. Furthermore, 75% of desktop computers have been replaced with laptops through the university's Bring Your Own Device (BYOD) Program, promoting energy-conscious computing practices. The university is also transitioning to more efficient lighting, with 100% of lighting fixtures being replaced with LED and fluorescent light tubes known for their energy-saving properties. All of the old overhead projectors have been replaced with LCD projectors.

Figure 2.1: Installed 3-Star rating Split Unit air-conditioner

Figure 2.2: The preference of laptops over desktops based on energy efficiency feature

Figure 2.3: The use of energy efficient florescent and LED lights

These initiatives underscore the university commitment to SDG 7 by reducing energy consumption and promoting clean energy technologies. By prioritizing energy-efficient appliances, the university supports SDG 12 by fostering responsible consumption and production patterns and minimizing its ecological footprint.

The university implements smart building technologies to optimize building performance, enhance safety, and promote sustainability. As mandated by Malaysian regulations, all buildings are equipped with centralized fire alarm, fire extinguishing, emergency telephone, and internal ventilation systems. These centralized systems ensure the safety and well-being of building occupants. In addition to these mandatory systems, the university has taken proactive steps to enhance building security and access control by implementing secured entry door systems and CCTV security camera systems. These additional systems contribute to a safer and more secure campus environment.

The following table shows that approximately 81% of the university's major buildings are equipped with smart building technologies. This comprehensive approach to smart building implementation aligns with SDG 9 by promoting resilient infrastructure that is safe, efficient, and sustainable. By incorporating smart building elements, the university contributes to SDG 11 by creating sustainable and efficient campuses that prioritize the well-being of its community.

No	Appliance	Percentage	Remarks
1	Air-Conditioner	50%	Replacing energy inefficient centralized air-conditioning in certain buildings with energy efficient split air-conditioning units with the energy rating of three-star and above.
2	Computer	75%	Replacement of desktop computers with laptops through the university's BYOD Program.
3	Florescent / LED Light tubes	100%	Replacing of lighting fixture with LED and florescent light tubes in building.
4	Projector	100%	Replacement of overhead projectors with LCD projectors.
	Average	81%	

The university is committed to increasing its reliance on renewable energy sources to reduce its carbon footprint and promote environmental sustainability. While the production of renewable energy in Malaysia is regulated by the Renewable Energy Act 2011, the university actively sources its energy from Sabah Electricity Sdn. Bhd. (SESB), the sole public energy provider in Sabah.

Approximately 10% of the energy generated by SESB comes from renewable energy sources, including biomass (39,500 kW), solar (7,880 kW), hydro (6,500 kW), and biogas (9,400 kW). As a result, 10% of the university's total energy consumption is derived from renewable energy sources, contributing to a cleaner and more sustainable energy mix. The university also utilizes a wind turbine system at its Peak Meteorological Data logger Station to supply electricity.

While the university is currently not permitted to produce renewable energy on a large scale, its reliance on SESB for renewable energy sources demonstrates its commitment to SDG 7 by increasing the share of renewable energy in its energy supply. By reducing its reliance on fossil fuels, the university contributes to SDG 13 by mitigating greenhouse gas emissions and combating climate change.

Figure 2.4: Sabah's biomass energy generation plant located in the district of Sandakan

Figure 2.5: Sabah's largest solar energy generation plant located in the district of Kudat

Figure 2.6: University's bus stops and traffic indicator, and standalone solar energy system

Figure 2.7: Sabah hydro power plant in the district of Tenom

Figure 2.8: Sabah's biogas energy generation plant located in the district of Sandakan

Figure 2.9: Wind turbine system on UMS Peak to supply electricity to meteorological data logger

The university closely monitors and manages its electricity usage to identify opportunities for energy conservation and reduce its environmental impact. By tracking electricity consumption patterns, the university gains valuable insights into its energy performance and can implement targeted strategies to improve energy efficiency.

Analysis of the university's electricity consumption between September 2022 and August 2023 reveals a total usage of 44,386,597 kWh. Months with lower usage, such as April 2022, July 2022, January 2023, and February 2023, can be attributed to the limited use of study facilities during those periods.

Notably, the average monthly electricity usage in 2023 was higher than in 2022. The higher average monthly electricity usage in 2023 compared to 2022 in the campus can be attributed to the full resumption of in-person academic activities after the pandemic. While 2022 still saw hybrid learning and limited on-campus presence, 2023 marked the return of students, faculty, and staff, leading to increased electricity consumption in lecture halls, laboratories, offices, and student accommodations. The reopening of research facilities, libraries, and campus services such as cafeterias and sports complexes further contributed to the rise in energy demand. Additionally, the increased use of digital tools for teaching and research, along with climate factors requiring more air conditioning or heating, played a role in the higher electricity usage.

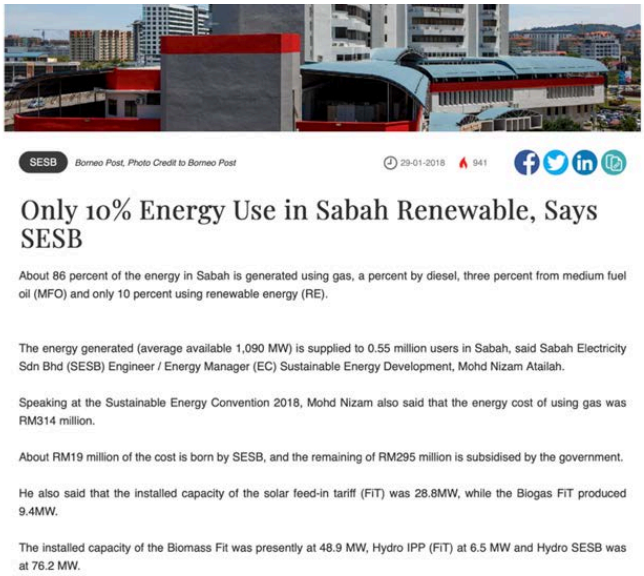
Table 2.1: The university's monthly electricity usage trends and percentage change between 2022 and 2023

Month	Percentage Change in Usage (%)
Jan	▲ 82.9
Feb	▲ 255.1
Mac	▲ 18.4
Apr	▼ -5.6
May	▼ -0.6
Jun	▲ 17.6
Jul	▼ -0.7
Aug	▼ -0.9
Sep	▼ -7.9
Oct	▲ 31.3
Nov	▲ 6.1
Dec	▼ -0.6
Total	▲ 16.5

Source: UMS Maintenance and Development Department

By actively monitoring and managing its electricity usage, the university demonstrates its commitment to SDG 7 by promoting energy efficiency and responsible consumption. Reducing electricity consumption also contributes to SDG 13 by mitigating greenhouse gas emissions and combating climate change.

The university recognizes the importance of increasing the ratio of renewable energy production to total energy usage as a key strategy for achieving its sustainability goals. By prioritizing renewable energy sources, the university aims to reduce its reliance on fossil fuels and minimize its carbon footprint. Currently, the university relies on SESB for its renewable energy supply, which constitutes 10% of SESB's total production. As a result, the university's renewable energy supply and demand ratio is 10%. While this represents a significant step towards sustainability, the university is committed to exploring opportunities to increase this ratio further.



SESB *Borneo Post, Photo Credit to Borneo Post* 29-01-2018 941

Only 10% Energy Use in Sabah Renewable, Says SESB

About 86 percent of the energy in Sabah is generated using gas, a percent by diesel, three percent from medium fuel oil (MFO) and only 10 percent using renewable energy (RE).

The energy generated (average available 1,090 MW) is supplied to 0.55 million users in Sabah, said Sabah Electricity Sdn Bhd (SESB) Engineer / Energy Manager (EC) Sustainable Energy Development, Mohd Nizam Atailah.

Speaking at the Sustainable Energy Convention 2018, Mohd Nizam also said that the energy cost of using gas was RM314 million.

About RM19 million of the cost is born by SESB, and the remaining of RM295 million is subsidised by the government.

He also said that the installed capacity of the solar feed-in tariff (FiT) was 28.8MW, while the Biogas FiT produced 9.4MW.

The installed capacity of the Biomass Fit was presently at 48.9 MW, Hydro IPP (FiT) at 6.5 MW and Hydro SESB was at 76.2 MW.

Figure 2.10: Borneo Post news about renewable energy production in Sabah

By actively pursuing renewable energy options, the university contributes to SDG 7 by increasing the share of renewable energy in its energy mix and promoting access to clean and affordable energy. Furthermore, reducing its reliance on fossil fuels supports SDG 13 by mitigating greenhouse gas emissions and combating climate change.

The university, as a public entity, adheres to the construction and renovation policies of the Public Works Department (JKR/PWD) of the Malaysian Ministry of Works. In line with the government's commitment to sustainability, JKR/PWD unveiled a strategic plan in 2015 to improve the green rating of public buildings, leading to the establishment of the Polisi Pembangunan Lestari JKR Malaysia 2016-2020.

At the university, the Development and Maintenance Department executes this policy with the support of the university's Chancellery Office and accredited contractors. The university is progressing towards the Green Building Index (GBI) Rating System for rating purposes, which focuses on six environmentally friendly features, namely (1) sustainable site planning and management, (2) indoor environmental quality, (3) energy efficiency, (4) materials and resources, (5) water efficiency, and (6) innovation. The university's elements of green building implementation according to the features are as shown in the following table and figures.

Green Building Index (GBI) Environmentally Friendly Feature	Building Implementation Element
Sustainable Site Planning and Management	The university's building blocks are constructed having large open airy spaces. This element would allow heat to be dispersed naturally.
Indoor Environmental Quality	The university's buildings are constructed with natural ventilation outlets to disperse trapped naturally.
Energy Efficiency	The university's buildings are constructed having large indoor atrium. This element would allow heat to be disperse naturally.
	The university's buildings have large windows and light passages.

Figure 2.11: Faculty of Science and Natural Resources building complex with large central atriums

Figure 2.12: Chancellery building with natural ventilation outlets

Figure 2.13: Faculty of Tropical Forestry main building with large indoor atrium

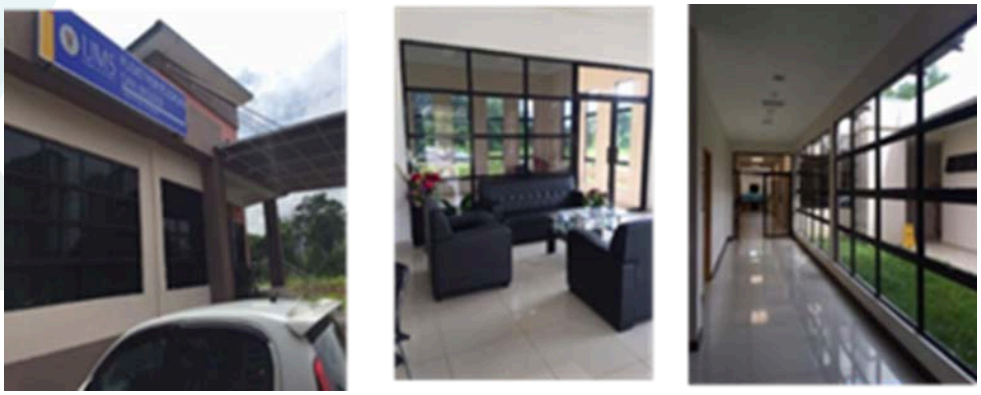


Figure 2.14: Building with large windows, and glassed office corridor next to a central building atrium

The university's commitment to sustainability is evident through its comprehensive energy efficiency, smart building implementation, renewable energy integration, electricity usage monitoring, and green building initiatives. By adopting energy-efficient appliances, transitioning to renewable energy sources, and implementing green building practices, the university actively reduces its environmental footprint while fostering a culture of sustainability within its campus operations.

These initiatives strongly align with multiple Sustainable Development Goals (SDGs). The university advances SDG 7 (Affordable and Clean Energy) by promoting energy efficiency and incorporating renewable energy sources into its supply mix. Through smart building technologies and efficient infrastructure, the university contributes to SDG 9 (Industry, Innovation, and Infrastructure) by enhancing resilience and sustainability in campus facilities. The focus on responsible consumption and green building practices supports SDG 11 (Sustainable Cities and Communities) and SDG 12 (Responsible Consumption and Production) by minimizing waste, optimizing resource use, and adopting environmentally friendly technologies. Additionally, by reducing greenhouse gas emissions through energy conservation and renewable energy reliance, the university plays a crucial role in addressing SDG 13 (Climate Action).

Beyond SDGs, these efforts uphold the university's EcoCampus core values of resource conservation and ecological protection. The shift to energy-efficient appliances and smart building technologies significantly reduces electricity consumption, ensuring responsible use of natural resources. Renewable energy adoption decreases dependence on fossil fuels, mitigating environmental degradation and supporting cleaner air quality. Furthermore, the green building elements incorporated into the university's infrastructure promote ecological protection by reducing heat retention, optimizing natural ventilation, and maximizing natural lighting.

In conclusion, the university's sustainability initiatives reflect its ongoing commitment to energy efficiency, green infrastructure, and responsible resource management. By continuously improving its practices and integrating sustainability into its development policies, the university contributes to global efforts in environmental conservation while fostering a more sustainable campus environment. These efforts not only align with the SDGs but also support long-term ecological protection and resource conservation, reinforcing the university's role in promoting sustainability within the higher education sector.

2.2 Waste

This section presents the achievements of UMS in the **Waste** category. It highlights the university's efforts in waste reduction, reuse, recycling, and responsible disposal, aligning them with relevant SDGs and demonstrating the university's commitment to sustainability. It incorporates data and initiatives related to organic and inorganic waste management, as well as programs aimed at reducing paper and plastic consumption on campus.

The university subscribes to the 3R concept (Reduce, Reuse, and Recycle) as a core approach to waste management. The university actively reduces paper and plastic consumption through dedicated programs. The Paper Use Reduction Program, which was initiated in 2015, promotes digital documents via the Sistem Automasi Pejabat (online office automation system), complemented by a Double-sided Printing Campaign. The e-Pembelajaran Program (iTEL@UMS) further encourages digital sharing of lecture notes and assignments between lecturers and students. Additionally, the Library eBook Program reduces the demand for physical paper copies by providing access to digital books. For plastic reduction, the Ban-on-Single-Use-Plastic Program, which began in 2011 with a ban on polystyrene containers, has expanded to promoting the use of refillable bottles and reusable bags. Reducing paper and plastic consumption aligns with SDG 12 by promoting sustainable consumption patterns and minimizes waste generation.

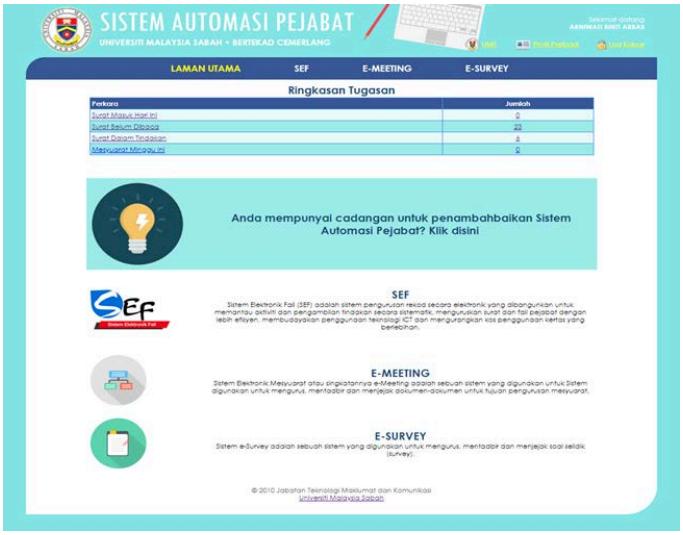


Figure 2.15: The university's online office administration automation system

Figure 2.16: Plastic use reduction campaign by increasing the use of refillable bottles and reusable bags

Figure 2.17: World Environment Day 2023 campaign poster by the university's Student Representative Council

The university tracks the total volume of organic waste produced on campus, primarily from food waste and leaf and plant materials. These wastes are largely produced by all eatery outlets on campus. Much of the waste are transported to the city's designated landfill as per required. In 2022, the university produced 520 tons of food waste and 104.2 tons of leaf and plant materials as shown in the following Table 2.2.

Table 2.2: Total organic waste produced by type

No	Type of Organic Waste	Total Produced (Ton)
1	Food Waste	520
2	Leaf & plant materials	104.2

The university manages organic waste through landfill disposal and recycling. In 2022, 520 tons of food waste were sent to landfills, while 84.2 tons of leaf and plant materials were sent to landfills, and 20 tons were recycled.

Table 2.3: Toxic waste management and treatment by type

No	Type of Toxic Waste	Amount (Ton)						
		Total	Landfill	Reduced	Reused	Recycled	Downcycled	Upcycled
1	Food waste	520	520	N/A	N/A	Cooking oil	N/A	N/A
2	Leaf & plant materials	104.2	84.2	N/A	N/A	20	N/A	N/A

The university treats organic waste through various processes, including oil/grease traps, recycling used cooking oil, and composting as shown below.

Table 2.4: Sources of organic waste and corresponding treatment methods

No	**Source of Waste**	**Treatment**
1	Eating outlets	Licensed food & beverage businesses operating a kitchen shall install organic oil/grease traps to prevent being part of sewage. Used cooking oil are sold to recyclers. Other organic waste are collected and disposed in designated garbage bins, which would then be collected by the respective town hall or district councils to be disposed by the City Hall at designated landfill sites.
2	Landscaping Sites	Appointed landscaping contractors shall separate large trunks and branches from other leaves/organic waste. The leaves/organic landscape debris shall be reused at other planted location as natural compositing materials.
3	Study Plots	Leaves/organic waste shall be recycled through composting processes and reuse as fertilizer in on-going academic activities at the Sandakan branch campus.

Figure 2.18: Organic oil/grease trap at eating outlets with kitchens

Figure 2.19: Segregated/recycle bins at various departments and facilities within the university

Figure 2.20: Used cooking oil from eateries were purchased by off-campus recyclers

Figure 2.21 leaves (eg. grass)/organic waste at landscaping sites and study plots

Figure 2.22: Composting station at UMS Sandakan Branch Campus

The university tracks the total volume of inorganic waste produced, including paper, wood, metal, and plastic. Papers are generally managed by the respective faculties and institutes. Wood and metal furniture are managed by the Bursar Department, while both soft and hard plastic are managed by the university's appointed cleaning contractors. The waste produced totals 26.42 ton for 2022, as noted in the table below.

Table 2.5: Total inorganic waste produced by type

No	Type of Inorganic Waste	Total Produced (Ton)
1	Paper	6
2	Wood (Furniture)	7.23
3	Metal (Furniture, etc)	1.19
4	Soft Plastic	12
5	Hard Plastic	0

In 2022, 6 tons of paper were recycled, 3.62 tons of wood were reused, and 3.61 tons were recycled. 0.6 tons of metal were reused, and 0.59 tons were recycled. 12 tons of soft plastic was recycled.

Table 2.6: Toxic waste management and recycling by material type

No	Type of Toxic Waste	Amount (Ton)						
		Total	Landfill	Reduced	Reused	Recycled	Downcycled	Upcycled
1	Paper	6	N/A	N/A	N/A	6	N/A	N/A
2	Wood (Furniture)	7.23	N/A	N/A	3.62	3.61	N/A	N/A
3	Metal (Furniture, etc)	1.19	N/A	N/A	0.6	0.59	N/A	N/A
4	Soft Plastic	12	N/A	N/A	N/A	12	N/A	N/A
5	Hard Plastic	N/A	N/A	N/A	N/A	N/A	N/A	N/A

At the university, inorganic wastes are generated from landscape and renovation activities. In addition to the university's sustainable waste plan and practices since 2013 and its Sustainable Waste Management Policy (Dasar Pengurusan Sisa Lestari), two relevant government regulations govern the management of inorganic waste: (i) the Environmental Quality (Scheduled Wastes) Regulation 2005 and (ii) the Solid Waste and Public Cleansing Management Act 2007. These regulations mandate that inorganic waste be handled and treated properly at designated sites, following the procedures outlined in the Table 2.7 below.

Table 2.7: Sources of inorganic waste and corresponding treatment methods

No	Source of Waste	Treatment
1	Landscape Works	Landscaping works produce soil-based waste and wood-base waste. The university implements waste disposal as its non-recyclable inorganic waste treatment though its contractors and respective permit holders. As stipulated in the respective contracts, the contractors are to transport the landscape waste out of the campuses and be disposed at Kota Kinabalu City Hall (DBKK) approved disposal sites. The university extensively treats its inorganic waste that have been produced through landscaping works.
2	Renovations Works	Renovation works produce wastes that are disposed by the licensed renovation contractors according to guidelines established by both Federal and State governments. The university extensively treats its inorganic waste that have been produced by renovation works through its contractors and respective permit holders.

The university demonstrates a strong commitment to sustainable waste management through its structured 3R (Reduce, Reuse, and Recycle) Program, alongside the careful monitoring and treatment of both organic and inorganic waste. Targeted initiatives such as digitalization efforts to reduce paper consumption, the ban on single-use plastics, composting organic waste, and proper waste disposal through licensed contractors help minimize environmental impact. These efforts are further reinforced by compliance with national environmental regulations and internal policies, ensuring responsible waste handling across the university.

These initiatives contribute significantly to SDG 12 (Responsible Consumption and Production) by actively reducing waste generation through paperless systems, recycling programs, and sustainable consumption practices. They also support SDG 13 (Climate Action) by minimizing landfill waste, promoting recycling, and utilizing composting techniques to lower greenhouse gas emissions. Furthermore, by reducing plastic waste and ensuring responsible disposal of inorganic materials, the university contributes to SDG 14 (Life Below Water) and SDG 15 (Life on Land), helping to prevent land and marine pollution while safeguarding ecosystems.

These sustainable practices uphold the university's EcoCampus core values of resource conservation by extending the lifecycle of materials, reducing raw material consumption, and promoting a circular economy. At the same time, they support ecological protection by preventing pollution, preserving biodiversity, and maintaining environmental integrity. Through these efforts, the university continues to strengthen its commitment to sustainability, fostering greater environmental awareness and responsibility among students, staff, and the wider community.

2.3 Water

This section presents the achievements of UMS in the **Water** category. It highlights the university's efforts in water conservation, efficient resource management, and pollution prevention, aligning them with relevant SDGs and demonstrating the university's commitment to sustainability. It incorporates data and initiatives related to water recycling, rainwater harvesting, treated water optimization, and awareness programs aimed at promoting responsible water consumption across campus.

The university actively promotes water conservation through the Tagal System, an indigenous Dusun practice implemented near the student center to enhance water quality and resource sustainability (Figure 2.23). A key strategy involves utilizing natural water sources for non-potable purposes, such as irrigation and aquaculture. By leveraging on-campus lakes, the university significantly reduces dependence on treated water, conserving it for essential needs while supporting ecological protection (Figure 2.24).

To instill a culture of water conservation, the university implements administrative programs such as 5S and EKSA, which enhance awareness and efficiency in water usage among staff. Awareness campaigns, including the university's Utility Savings Campaign, further educate staff and students on sustainable water consumption, contributing to SDG 12.8 by promoting responsible resource usage. Additionally, the university has introduced online expenditure savings guidelines, encouraging all departments to adopt water-saving practices (Figure 2.25). Outreach efforts through various media channels, including YouTube, further engage the wider community in sustainable initiatives, supporting SDG 17 (Partnerships for the Goals) (Figure 2.26). Through these comprehensive efforts, the university demonstrates its strong commitment to sustainability and responsible resource management.

Figure 2.23: A signboard denoting the implementation of the Tagal system next to one of the many lakes on UMS main campus located next to the Students' Affair Department

Figure 2.24: A natural lake next to the Faculty of Science and Technology on UMS main campus that is used to water planted flora in the university by appointed contractors

Figure 2.25: Water saving tips

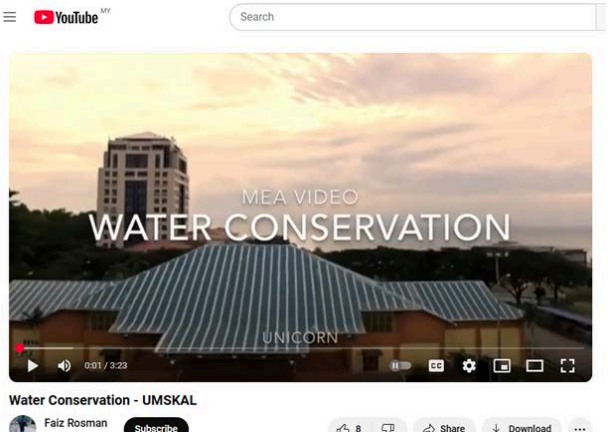


Figure 2.26: Youtube Video on Water Conservation

The university prioritizes water recycling as a key component of its sustainability strategy, directly contributing to SDG 6 (Clean Water and Sanitation), SDG 14 (Life Below Water), and SDG 15 (Life on Land). By minimizing reliance on treated water and promoting ecological conservation, these initiatives reinforce the university's commitment to resource efficiency and environmental sustainability.

One of the university's key programs is rainwater harvesting, implemented at the Faculty of Science and Natural Resources and the Institute for Tropical Biology and Conservation. This initiative repurposes rainwater for plant-watering and equipment cleaning, reducing piped water usage by up to 60% (Figure 2.27). Another innovative initiative is the aquaponic system at the Marine Biology Research Institute, which integrates aquaculture and hydroponics to recycle at least 10m^3 of water daily, supporting sustainable fish cultivation and plant growth while protecting aquatic ecosystems (Figure 2.28). Additionally, some laboratories at the Faculty of Science and Natural Resources recycle air conditioner condensate into distilled water, reducing water extraction from natural sources.

The university is also exploring gray water recycling in student residential areas, such as the Kingfisher accommodation. This system repurposes wastewater from sinks and showers for non-potable uses like toilet flushing and landscape irrigation, aiming to cut treated water consumption by 10%. Furthermore, the university promotes the use of water-efficient appliances, such as sensor faucets and dual-flush toilets, which help conserve up to 50% of water.

Through these initiatives, the university demonstrates strong leadership in sustainable water management. By aligning with SDGs, the university not only reduces its environmental footprint but also fosters a culture of sustainability among students and staff, serving as a model for responsible resource conservation.

Figure 2.27: Rainwater harvest at the Faculty of Science and Natural Resources and Institute for Tropical Biology and Conservation (in a wood sculpture)

Figure 2.28: Aquaponic system developed at for Marine Biology Research Institute

The university has implemented various water-efficient appliances to enhance sustainability and reduce water consumption, aligning with SDG 6 (Clean Water and Sanitation) and UI Green Metrics. These include sensor-embedded faucets, push-button faucets, ceramic cartridge faucets, and dual-flushing systems, which collectively improve water efficiency across campus.

Sensor-embedded faucets, primarily installed in new laboratories, automatically regulate water flow and shut off when not in use, minimizing wastage while improving hygiene and convenience (Figure 2.29). Older buildings are equipped with push-button and ceramic cartridge faucets, which provide cost-effective water-saving solutions. Ceramic cartridge faucets reduce water consumption by approximately 6%, while push-button faucets, installed in laboratories, kitchens, and pantries, limit excess usage (Figure 2.30). The university has also installed dual-flushing systems in restrooms, allowing users to select a lower or higher water flow based on their needs. This system reduces water consumption by up to 50% per flush, significantly cutting overall treated water usage on campus (Figure 2.31).

Currently, 75% of the university's water fixtures are water-efficient, with plans to upgrade the remaining 25% to further enhance sustainability. These proactive measures not only lower operational costs but also strengthen the university's standing in the sustainability ranking by demonstrating a commitment to responsible water management. By reducing the demand for treated water, the university also contributes to the preservation of local water ecosystems, reinforcing its leadership in environmental sustainability.

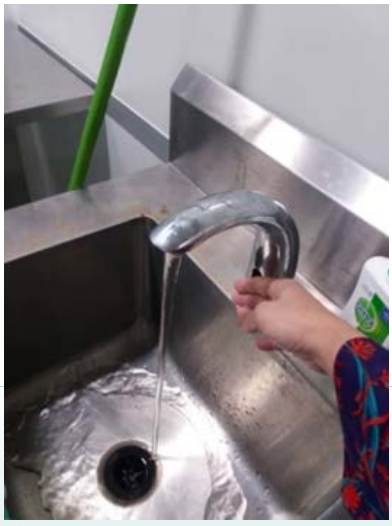


Figure 2.29: Sensor-embedded faucets

Figure 2.30: Push button type faucets and low-flow ceramic cartridge type faucets

Figure 2.31: A treated water tower located on UMS Labuan Branch Campus.

The university ensures strict compliance with national and local regulations, such as the Solid Waste and Public Cleansing Management Act 2007, to prevent water pollution. Key measures include installing oil/grease traps in all campus kitchens and food outlets to capture contaminants before they enter drainage systems, reducing water pollution and protecting aquatic ecosystems. Laboratories follow stringent safety protocols under the university's Integrated Laboratory Safety Guidelines to properly manage chemical waste, safeguarding terrestrial ecosystems.

Figure 2.32: Organic oil/grease trap at eating outlets with kitchens

The Water Research Unit, established in 2010, conducts regular monitoring and research on water quality to identify pollution sources and implement corrective measures. By maintaining ecological balance in campus water bodies, the university strengthens its commitment to SDGs 14 and 15 while enhancing sustainability efforts under global standards. These proactive strategies ensure responsible resource management and long-term environmental protection.

The university also fosters a culture of sustainability through awareness campaigns and educational programs on water conservation and pollution prevention. By actively engaging students and staff, the university promotes collective action toward environmental responsibility, aligning with SDG 17. This holistic approach, integrating policy, technology, research, and community participation, highlights the university's commitment in sustainable water management.

The university's holistic approach to water conservation and management reflects its strong commitment to sustainability, aligning with key Sustainable Development Goals (SDGs) such as SDG 6 (Clean Water and Sanitation), SDG 12 (Responsible Consumption and Production), SDG 14 (Life Below Water), SDG 15 (Life on Land), and SDG 17 (Partnerships for the Goals). By implementing initiatives such as rainwater harvesting, aquaponic systems, treated water optimization, and water-efficient appliances, the university effectively reduces its dependence on treated water while enhancing overall resource efficiency. These efforts not only minimize water waste but also strengthen ecological resilience, ensuring long-term sustainability in water management.

These initiatives strongly support the university's core elements of resource conservation by optimizing water usage and extending the lifespan of natural water sources, while also contributing to ecological protection by preventing water pollution and preserving aquatic and terrestrial ecosystems. The university's commitment extends beyond infrastructure improvements, as it actively fosters a culture of sustainability through awareness campaigns, administrative programs, and collaborative efforts with the broader community. By integrating sustainable water management into its operations and academic environment, the university continues to make meaningful contributions toward environmental responsibility and long-term resource stewardship.

2.4 Transport

This section presents the achievements of UMS in the **Transport** category. It highlights the university's efforts in promoting sustainable transportation, reducing carbon emissions, and minimizing traffic congestion, aligning them with relevant SDGs and demonstrating the university's commitment to environmental sustainability. It incorporates data and initiatives related to vehicle management, alternative transportation options, pedestrian-friendly infrastructure, and policies aimed at reducing private vehicle dependency on campus.

The university adheres to Malaysian development laws by allocating exactly 30% (148,641 m^2) of its 491,671 m^2 built-up area for parking, ensuring compliance with responsible land management. Given that the total main campus area is 3,754,000 m2 and total parking area is 148,641 m2, the ratio between the campus area and the parking area is calculated at 0.0396 (4.0% of the university's total main campus area is allocated as parking spaces). The ratio lies within the recommended range of 1% to 4%, thus ensuring that the campus is not dominated by parking facilities, leaving ample space for green areas, academic buildings, and recreational spaces.

The university's approach to parking management reflects a broader commitment to sustainable urban planning. By limiting the amount of land dedicated to parking, the university reduces the environmental impact associated with large parking lots, such as increased heat retention and reduced green cover. By limiting the size of parking areas, the university creates a more pedestrian-friendly environment, reducing traffic congestion and improving air quality. This contributes to SDG 11 (Sustainable Cities and Communities), which aims to create inclusive, safe, resilient, and sustainable urban spaces.

Additionally, restricting parking areas helps preserve natural habitats and biodiversity, ensuring more land remains for green spaces and wildlife. This commitment to ecological conservation aligns with SDG 15 (Life on Land), demonstrating how responsible urban development can coexist with environmental sustainability.

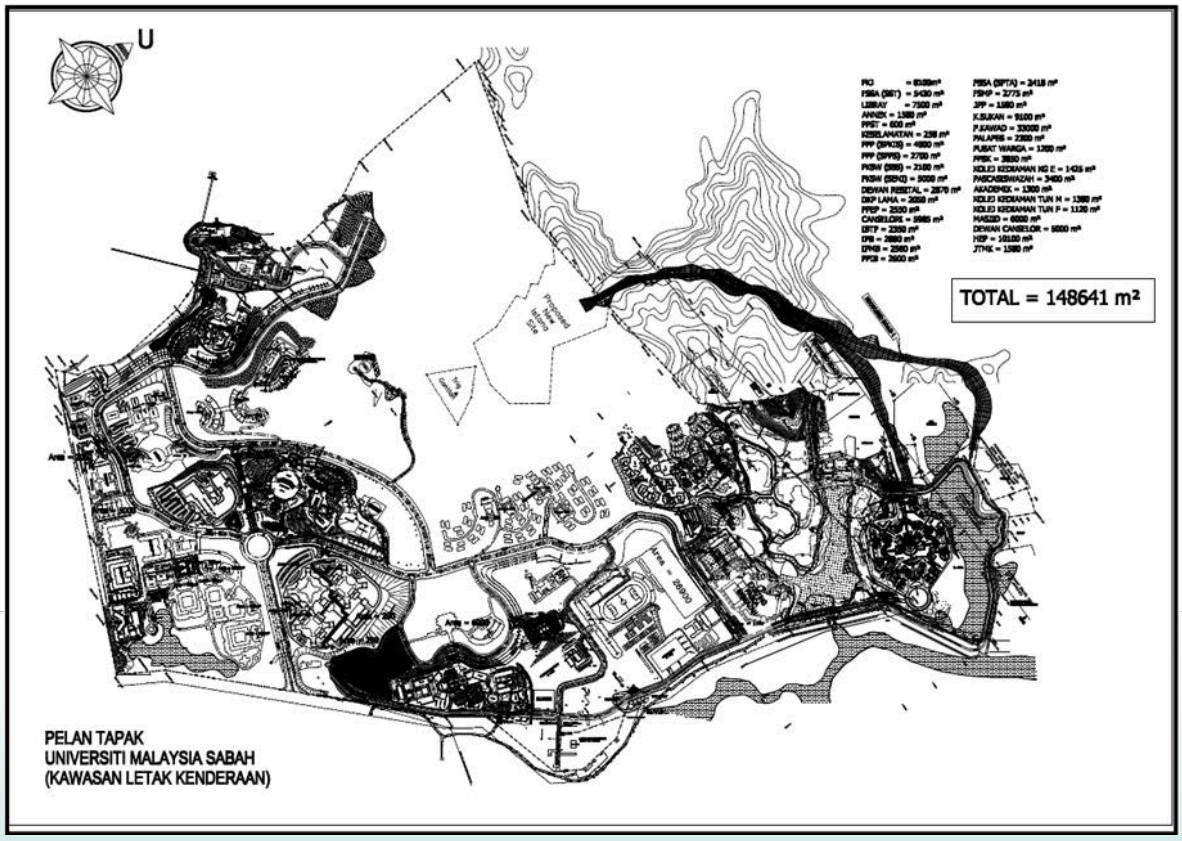


Figure 2.33: A map of the university' main campus parking areas

The university maintains a sustainable vehicle-to-population ratio of 0.077, with 1,575 vehicles for 20,415 people, ensuring efficient transportation management. This ratio falls within the recommended range (0.045–0.125), balancing mobility needs while minimizing environmental impact. By carefully regulating vehicle numbers, the university prevents excessive traffic congestion and unnecessary fuel consumption, contributing to a more sustainable campus environment.

By limiting vehicles on campus, the university significantly reduces greenhouse gas emissions, air pollution, and congestion, aligning with SDG 13 (Climate Action). The lower vehicle density also enhances pedestrian and cyclist accessibility, making the campus safer and more sustainable. This supports SDG 11 (Sustainable Cities and Communities) by promoting a cleaner, more efficient urban environment that prioritizes the well-being of students and staff. Additionally, the university encourages alternative transportation methods, such as walking, cycling, and carpooling, to further reduce its carbon footprint.

Regular monitoring and reporting on vehicle usage ensure that the university's policies remain effective and adaptable to future sustainability challenges. By integrating environmental considerations into transportation planning, the university optimizes resource use while reinforcing its commitment to responsible urban development and ecological preservation.

Table 2.8: Total number of vehicle (cars and motorcycles) divided by total campus' population

No. of UMS fleet of vehicles	155
No. registered private cars for daily entrance	1349
No. private motorcycles registered by UMS Security Services	71

Total people at UMS = number of UMS students + number of UMS staffs
= 17,227 + 3,188
= 20,415 people

Total persons per vehicle = 1,575/20,415
= 0.077

The university operates a free shuttle service to support campus mobility while reducing environmental impact. Managed by the Maintenance and Development Department, these buses run on bio-diesel mixed fuel, offering a greener alternative to traditional diesel. The service ensures efficient transportation across the main campus, minimizing the reliance on private vehicles. By providing accessible and convenient transport, the shuttle service enhances campus connectivity and supports SDG 11 (Sustainable Cities and Communities). Operating on fixed routes and schedules, it caters to both on-campus and off-campus students, reducing traffic congestion and promoting sustainable travel options.

The use of bio-diesel mixed fuel aligns with SDG 13 (Climate Action), lowering greenhouse gas emissions and advancing the university's sustainability goals. This initiative reinforces the university's commitment to eco-friendly transportation while meeting the mobility needs of its students and staff.

Figure 2.34: UMS own shuttle bus services for students between key locations in Kota Kinabalu

Figure 2.35: General route of a shuttle bus at Kota Kinabalu campus

The university has implemented a Zero Emission Vehicle (ZEV) policy to promote sustainable transportation across its campuses. The initiative includes electric bicycles, electric buggies, and regular bicycles at branch campuses, available at discounted rates and free on special occasions. These options provide students, staff, and visitors with an eco-friendly alternative to motorized transport, reducing reliance on fossil fuel-powered vehicles.

By encouraging the use of electric and pedal-assisted vehicles, the university significantly lowers greenhouse gas emissions and air pollution, aligning with SDG 13 (Climate Action). Additionally, the policy enhances mobility and accessibility within campus grounds, contributing to SDG 11 (Sustainable Cities and Communities). The availability of ZEVs ensures that transportation remains convenient, cost-effective, and environmentally responsible.

Figure 2.36: Electric pedal assisted bicycles

Figure 2.37: The use of electric-power buggies for visitors around UMS main campus

Figure 2.38: Students' bicycles at UMS Sandakan branch campus

Figure 2.39: ZEV designated lanes

The university has introduced innovative programs to reduce parking demand and promote sustainable land use. Initiatives such as reverse parking campaigns, enhanced road reserve utility programs, and temporary repurposing of parking areas have led to a 10-30% decrease in parking demand, especially during semester breaks. These strategies optimize existing parking spaces, minimizing the need for new infrastructure.

The reverse parking campaign improves space efficiency, while road reserve utility programs allow temporary parking during peak periods without permanent expansion. Additionally, repurposing parking areas for repair garages, workshops, and mobile labs maximizes land use. These initiatives align with SDG 11 (Sustainable Cities and Communities) by promoting efficient urban planning and SDG 15 (Life on Land) by preserving natural spaces. The university's approach demonstrates how sustainable campus management can balance infrastructure needs with environmental conservation.

Figure 2.40: Cars being reverse-parked


Figure 2.41: Temporary car park near faculties and lecture complex during peak periods

Figure 2.42: The conversion of existing carparks into workstations (Repair garage at UMS Maintenance Department, Institute for Tropical Biology and Conservation's satellite laboratory, Faculty Of Science And Natural Resources' Satellite Office).

The university has implemented five key initiatives to reduce private vehicle use on campus, promoting sustainable transportation and minimizing environmental impact. To further support sustainable commuting, the university provides off-campus student transport services, ensuring that students living outside the university have access to reliable and affordable transportation. Additionally, special event transport services are arranged during major university events, such as student orientations and convocations, to reduce the reliance on private vehicles and ease traffic congestion.

The university also regulates vehicle numbers through a vehicle registration system, limiting unnecessary car usage on campus and encouraging alternative transport modes. To promote the use of public transport, the university offers public transportation allowances, incentivizing students and staff to choose eco-friendly commuting options. Together, these initiatives align with SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action), supporting a greener, more sustainable campus environment.

Figure 2.43: The restriction of cars not registered or without a UMS sticker on campus

The university has established a well-connected network of pedestrian pathways to ensure safe and convenient access across its campuses. These pathways are concreted, regularly upgraded, and designed to be disabled-friendly, reflecting the university's commitment to inclusivity. Additionally, pedestrian crossings have been relocated away from stopped vehicles to enhance safety and accessibility. This aligns with SDG 11 (Sustainable Cities and Communities), promoting inclusive and sustainable urban spaces.

Beyond improving walkability, these pathways help protect natural habitats by reducing the need for additional road infrastructure. By preserving green spaces and biodiversity, the university supports SDG 15 (Life on Land), demonstrating how urban development can integrate with environmental conservation.

Figure 2.45: Pedestrian pathways and stairways between faculties and lecture halls

Figure 2.46: Pedestrian crossing at key locations, and the enhancement of safety through traffic signaling

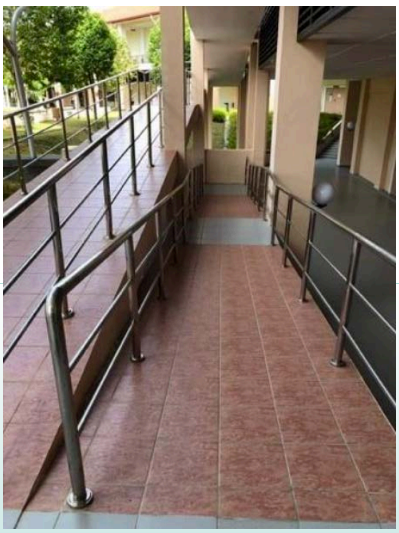


Figure 2.47: Pathways for people with disabilities

The university's comprehensive approach to sustainable transportation and parking management reflects its strong commitment to resource conservation and ecological protection. By optimizing parking spaces, promoting shared mobility, and integrating environmentally friendly transport alternatives, the university successfully balances infrastructure needs with sustainability goals. The implementation of vehicle restrictions, shuttle services using bio-diesel mixed fuel, and Zero Emission Vehicles (ZEVs) not only reduces carbon emissions but also enhances campus mobility. Additionally, the integration of pedestrian-friendly pathways and the preservation of natural spaces demonstrate the university's efforts to create a harmonious and eco-conscious campus environment.

These initiatives align with multiple SDGs, particularly SDG 11 (Sustainable Cities and Communities by fostering a safe, inclusive, and efficient urban space, and SDG 13 (Climate Action) by reducing greenhouse gas emissions and promoting alternative transportation methods. Furthermore, by preserving green areas and biodiversity, the university contributes to SDG 15 (Life on Land), ensuring a balance between infrastructure expansion and environmental conservation. Through strategic planning and innovative sustainability programs, the university continues to set an example of responsible land use, demonstrating how higher education institutions can drive positive environmental change while supporting the well-being of students and staff.

3.0 EDUCATION AND RESEARCH

3.1 Education and Research

This section presents the achievements of UMS in the **Education and Research** category. It highlights the university's efforts in integrating sustainability into its academic curriculum, research initiatives, and interdisciplinary programs, aligning them with relevant SDGs and demonstrating the university's commitment to sustainability. It incorporates data on sustainability-related courses, research funding, scholarly publications, and collaborative projects that address global environmental challenges. Additionally, it showcases the university's role in fostering sustainability literacy, promoting research-driven solutions, and engaging in knowledge-sharing initiatives that contribute to a greener future.

The university integrates sustainability into its academic curriculum, with 492 out of 2,441 courses (over 20%) focused on environmental conservation, sustainable development, and climate change. Faculties such as Food Science and Nutrition, Sustainable Agriculture, Science and Natural Resources, Tropical Forestry, Social Sciences and Humanities, and Business, Economics, and Accountancy incorporate sustainability principles into their programs. This aligns with SDG 4 (Quality Education), equipping graduates with the knowledge and skills for green industries and environmental challenges.

Beyond faculty-specific courses, the university offers interdisciplinary courses like UK02602 Environment and Human Being and UK02902 Environmental Education and Sustainability to ensure all students gain sustainability literacy. These courses promote responsible citizenship and sustainable practices, aligning with SDG 13 (Climate Action) and SDG 15 (Life on Land).

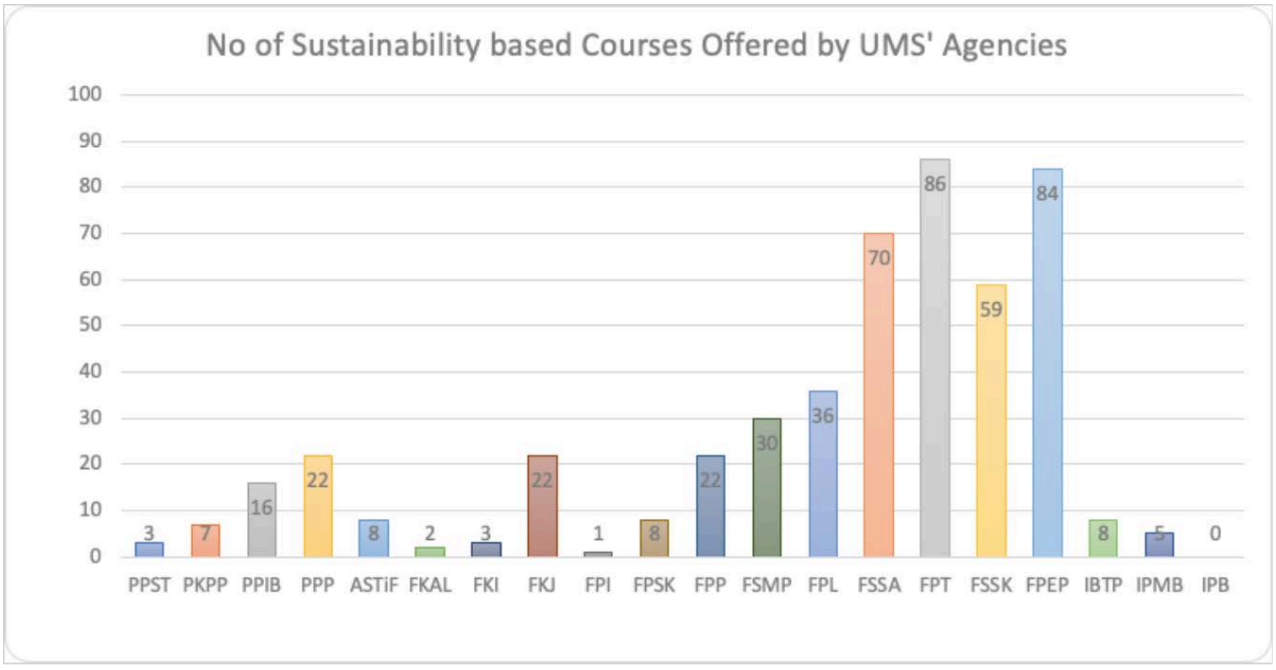


Figure 3.1: Bar chart of the number of sustainability related courses as offered by the faculties, centers, and institutes

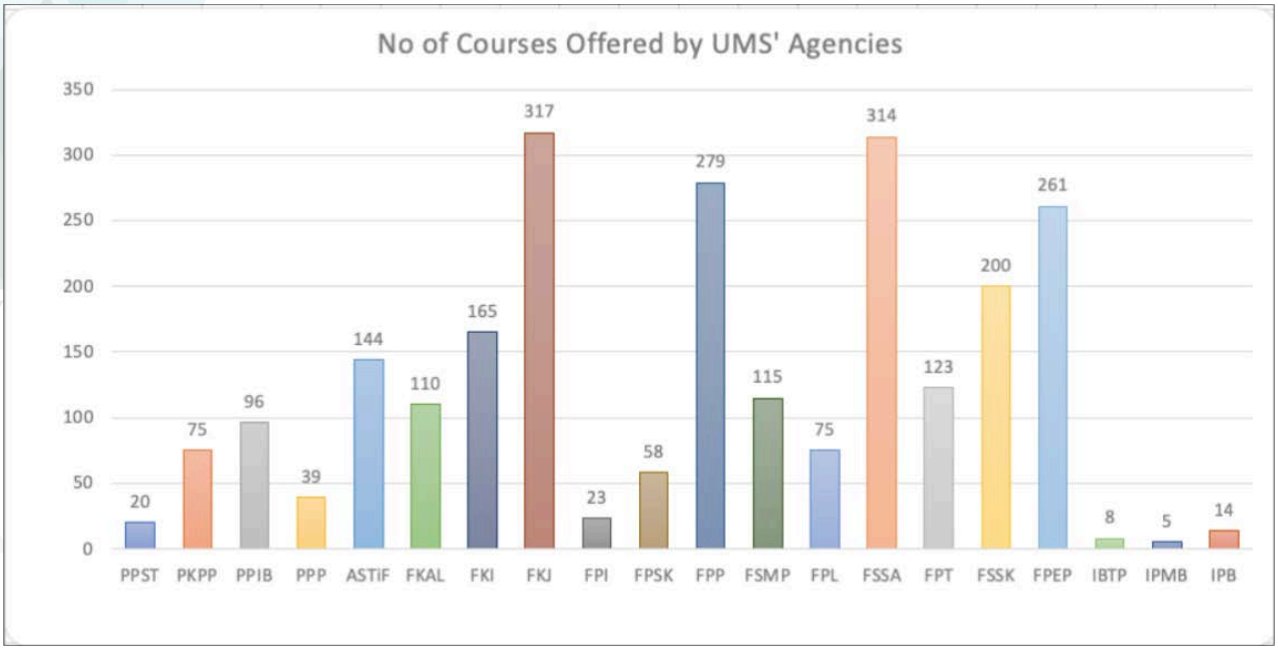


Figure 3.2: Number of courses offered by the university

Between 2020 and 2022, the university allocated an annual average of USD 1.77 million – 43% of its research budget – to sustainability-focused projects in renewable energy, marine conservation, biodiversity, and climate resilience. Key contributors include the Institute for Tropical Biology and Conservation, Marine Biology Research Institute, Faculty of Science and Natural Resources, and Faculty of Engineering. These efforts align with SDG 9 (Industry, Innovation, and Infrastructure), SDG 14 (Life Below Water), and SDG 15 (Life on Land), reinforcing the university's commitment to sustainable solutions.

The university also secures external grants from government agencies, private organizations, and international partners to enhance research in clean energy, ecological restoration, and sustainable agriculture. In 2022, the university received USD 3.19 million in research funding from sources such as the Federal Government, Sabah State Government, and NGOs. These investments ensure financial support for sustainability research, strengthening the university's alignment with the global standards.

Table 3.1: Total research funds dedicated by the university to sustainability research

Year	Research Funds (MYR)	Research Funds (USD)	Average Research Fund over 3 Years (USD)
2020	10,765,367	2,503,574 – a	Average = (a + b + c) / 3 = 5,318,315 / 3 = 1,772,771
2021	6,473,011	1,416,414 – b	
2022	6,390,353	1,398,327 – c	

Table 3.2: Total research funds from other sources

Year	Research Funds (MYR)	Research Funds (USD)	Average Research Fund over 3 Years (USD)
2020	26,492,164	6,160,968 – a	Average = (a + b + c) / 3 = 11,846,700 / 3 = 3,948,900
2021	11,401,337	2,494,822 – b	
2022	14,582,459	3,190,910 – c	

Between 2020 and 2022, the university produced an average of 93 publications annually focusing on sustainability, renewable energy, environmental issues, and climate change, with yearly outputs ranging from 84 to 300 articles. In comparison, the university's overall publication numbers were 703 in 2019, 813 in 2020, and 1,143 in 2021, reflecting a consistent research output alongside a dedicated focus on sustainability-related topics. These publications contribute to global scientific knowledge and align with SDG 9 (Industry, Innovation, and Infrastructure), SDG 14 (Life Below Water), and SDG 15 (Life on Land) by fostering research-driven sustainability solutions and promoting ecological resilience.

To maximize the impact of its research, the university actively collaborates with global academic institutions, sustainability organizations, and policymakers. Many of its studies are indexed in reputable international databases, increasing visibility and facilitating knowledge exchange. Additionally, the university's researchers frequently present their findings at international conferences, ensuring that their work contributes to real-world environmental policies and sustainable development initiatives.

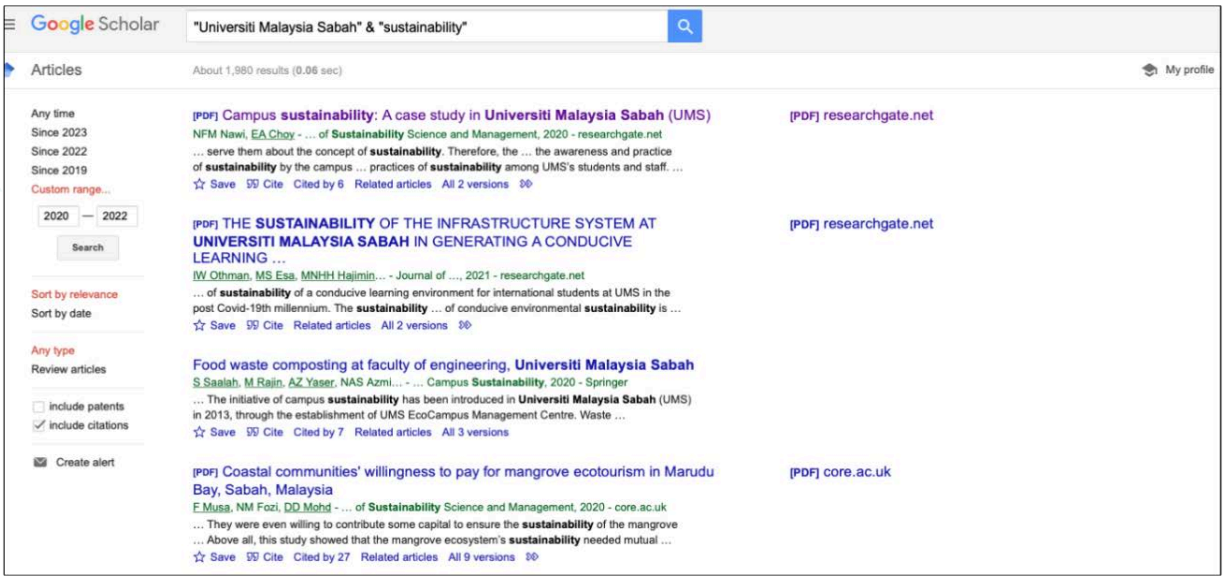


Figure 3.3:Examples of scholarly publications on sustainability

The university fosters a culture of sustainability through events, training sessions, and student-led activities that promote environmental awareness and responsible practices. In 2022, the university organized 37 sustainability-related events, including international conferences, workshops, and campaigns. Notable initiatives include the ASEAN Green Summer Volunteer Campaign, where students participated in regional sustainability efforts, and the Reduce the Use of Plastic Campaign, aimed at minimizing single-use plastics. These efforts align with SDG 11 (Sustainable Cities and Communities) and SDG 12 (Responsible Consumption and Production), reinforcing the university's commitment to sustainability.

Student organizations, such as Majlis Perwakilan Pelajar UMS and Kelab Sukarelawan Siswa UMS, play a key role in grassroots sustainability initiatives. Activities like Coastal Clean-up efforts directly support SDG 14 (Life Below Water) by reducing marine pollution, while cultural programs strengthen national unity and identity. These student-led initiatives promote environmental stewardship, leadership, and civic responsibility, further embedding sustainability into campus life.

2022						
BIL	TAJUK	TARIKH	LINK	TYPE	PENGANJUR	REMARK
1	UMS Continous Management Education Series 1/2022	13-Jan-22	https://www.ums.edu.my/v5/ms/announcement-link-3/11900-jemputan-menghadiri-ums-continuous-management-education-siri-1-2022-kali-ke-6			
2	Karnival Kokurrikulum PKPP bertema ' Perpaduan Asas Keharmonian Negara'	22-Jan-22	https://www.ums.edu.my/v5/ms/announcement-link-3/11909-karnival-kokurikulum-pusat-kokurikulum-dan-pemajuan-pelajar-universiti-malaysia-sabah-semester-1-sesi-2021-2022			
3	Kursus Pengurusan Keselamatan Bangunan	27-Jan-22	https://www.ums.edu.my/v5/ms/announcement-link-3/11959-jemputan-menghadiri-kursus-pengurusan-keselamatan-bangunan-anjuran-jawatankuasa-keselamatan-dan-kesihatan-pekerjaan-bahagian-sumber-manusia-jabatan-pendaftar-ums			
4	Cervical Cancer Screening	31-Jan-22	https://www.ums.edu.my/v5/en/announcement-link-3/11923-hums-cervical-cancer-screening-program			
5	Webinar Kecemerlangan Akademik - Preparing Course Syllabus	8-Feb-22	https://www.ums.edu.my/v5/ms/announcement-link-3/11992-webinar-kecemerlangan-akademik-siri-1-preparing-course-syllabus			
6	Program Sesi Perkongsian Bersama MAKNA Anjuran Biro Pendidikan dan Pelajaran KESUMBA	17-Feb-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12046-program-sesi-perkongsian-bersama-makna-anjuran-biro-pendidikan-dan-pelajaran-kesumba			
7	Ekspedisi Saintifik Lembangan Sungai Darau:Dun17, Darau, Kota Kinabalu - Kerjasama Dewan Bandaraya Kota Kinabalu (DBKK) Dan Institut Biologi Tropika Dan Pemuliharaan (IBTP), UMS	19-Feb-22	https://www.ums.edu.my/v5/ms/announcement-link-3/11891-ekspedisi-saintifik-lembangan-sungai-darau-dun17-darau-kota-kinabalu-kerjasama-dewan-bandaraya-kota-kinabalu-dbkk-dan-institut-biologi-tropika-dan-pemuliharaan-ibtp-ums			
8	International Conference on Marine Science and Aquaculture 2022	08 Mac 2022	https://www.ums.edu.my/v5/en/announcement-link-3/11954-final-announcement-virtual-international-conference-on-marine-science-aquaculture-vicomsa-2022			
9	Program Kesedaran SPK CQA 05/2022 - Rangka Sistem Pengurusan Kualiti		https://www.ums.edu.my/v5/ms/announcement-link-3/12015-program-kesedaran-spk-cqa-2022-005			
10	Pertandingan Bercerita STEM untuk Murid Prasekolah dan Sekolah Rendah	1-May-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12093-pertandingan-bercerita-stem-untuk-murid-prasekolah-sekolah-rendah			
11	3S 'STEM Speaker Series' [ENT Foreign Body]	3 Mac 2022	https://www.ums.edu.my/v5/ms/announcement-link-3/12125-3s-stem-speaker-series-ent-foreign-body			
12	Global Career Design Talk - Program Kerjasama antara UMS dan Hokkaido University	15 Mac 2022	https://www.ums.edu.my/v5/ms/announcement-link-3/12159-global-career-design-talk-program-kerjasama-antara-institut-biologi-tropika-dan-pemuliharaan-ibtp-ums-dan-hokkaido-university			
13	Tamu Mingguan: Tamu Uptown @ MyRakyat	17 Mac 2022	https://www.ums.edu.my/v5/ms/announcement-link-3/12157-tamu-mingguan-tamu-uptown-myrakyat			
14	Kupi-Kupi AKIPP 2022 (Siri 1): Inovasi dalam Pengajaran dan Pembelajaran: ASK 4CV	18 Mac 2022	https://www.ums.edu.my/v5/ms/announcement-link-3/12181-kupi-kupi-akipp-2022-siri-1-inovasi-dalam-pengajaran-dan-pembelajaran-ask-4cv			
15	Purple Day Virtual Run 2022	24 Mac 2022	https://www.ums.edu.my/v5/en/announcement-link-3/12141-purple-day-virtual-run-2022			
16	Program Jom Baca Bersama 10 Minit Tahun 2022	21-Apr-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12337-1-hari-lagi-program-jom-baca-bersama-10-minit-tahun-2022			
17	Lifestyle Psychiatry and Wellness: Living Well for Mental Wellbeing Special Lecture	8-Aug-22	https://ums.edu.my/v5/ms/announcement-link-3/12631-syarahan-khas-lifestyle-psychiatry-and-wellness-living-well-for-mental-wellbeing			
18	Healthy Ageing in Malaysia Forum	11-Aug-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12646-healthy-ageing-in-malaysia-forum			
19	Sukaneka Tahun 2022 Pusat Minda Lestari	24-Aug-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12681-sukaneka-tahunan-2022-pusat-minda-lestari-universiti-malaysia-sabah			
20	Childhood Cancer Awareness Walkathon	24-Sep-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12744-change-in-starting-point-for-childhood-cancer-awareness-walkhaton-padang-kawad-ums			
21	Borneo Ultra Ocean Clean-Up	27-Aug-22	https://ums.edu.my/v5/ms/announcement-link-3/12689-borneo-ultra-ocean-clean-up			
22	1st Borneo Symposium on Sports and the Mind	1-Sep-22	https://ums.edu.my/v5/ms/announcement-link-3/12632-first-borneo-symposium-on-sports-and-the-mind			
23	Borneo Ocean Talks ' Into the heart of Coastal People'	6-Sep-22	https://ums.edu.my/v5/ms/announcement-link-3/12726-borneo-ocean-talks-september-2022			
24	Childhood Cancer Awareness Walkathon	24-Sep-22	https://ums.edu.my/v5/ms/announcement-link-3/12567-childhood-cancer-awareness-walkathon			
25	Fun@Laboratory	27-Sep-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12779-program-fun-laboratory			
26	Program ' Kita Demi Negara' Zon Sabah	1-Oct-22	https://ums.edu.my/v5/ms/announcement-link-3/12796-program-kita-demi-negara-zon-sabah			
27	Program Kayuhan Santai Berbasikal Sempena Konvokesye	15-Oct-22	https://ums.edu.my/v5/ms/announcement-link-3/12798-program-kayuhan-santai-berbasikal-sempena-konvokesyen-ums-kali-ke-24-tahun-2022			
28	Program Derma Darah	18-Oct-22	https://ums.edu.my/v5/ms/announcement-link-3/12856-program-derma-darah			
29	Program Fit Dance - Let's Dance with Library	19-Oct-22	https://ums.edu.my/v5/ms/announcement-link-3/12852-program-fit-dance-let-s-dance-with-library			
30	2nd Regional Conference on Civilisation and Ethnic Diversity (PERSEP II 2022)	20-Oct-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12457-2nd-regional-conference-on-civilisation-and-ethnic-diversity-persep-ii-2022			
31	Pamera Borneo ARTS NEWCOMERS (BANCO Vol. 3)	1-Nov-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12916-pameran-borneo-art-newcomers-banco-vol-3-university-college-sabah-foundation-ucsf			
32	4th International Conference in Agroforesrty 2022	15-Nov-22	https://ums.edu.my/v5/ms/announcement-link-3/12665-4th-international-conference-in-agroforestry-2022-icaf2022			
33	Kidney Run 2022	1-Dec-22	https://ums.edu.my/v5/ms/announcement-link-3/12986-kidney-run-2022-race-pack-collection			
34	Kempen Derma Buku	5-Dec-22	https://ums.edu.my/v5/ms/announcement-link-3/13013-kempen-derma-buku			
35	Free Market dan Majlis Serahan bakul Makanan Bersama Pelajar B40 UMS	18-Dec-22	https://ums.edu.my/v5/ms/announcement-link-3/13042-free-market-dan-majlis-serahan-bakul-makanan-bersama-pelajar-b40-ums			
36	1st International Conference on River Conservation	20-Dec-22	https://www.ums.edu.my/v5/ms/announcement-link-3/12876-1st-international-conference-on-river-conservation-icon-rc2022-clean-river-for-sustainable-life			
37	Pertandingan Penanaman Pokok Terbanyak 2022	31-Dec-22	https://ums.edu.my/v5/ms/announcement-link-3/12661-pertandingan-penanaman-pokok-terbanyak-2022			

Figure 3.4: Listing of environment and sustainability related events at the university for 2022

Particular	Year			Average
	2020	2021	2022	
Events	12	21	37	23

Figure 3.5: Average estimation of environment and sustainability related events at the university from 2021 to 2023

Figure 3.6: 'Reduce the Use of Plastic' Campaign

Figure 3.7: Community Bonding Program

The university actively promotes multicultural understanding and social cohesion through a variety of cultural activities celebrated annually on campus. These events, which include Chinese New Year, the indigenous Harvest Festival, Hari Raya, Hari Raya Haji, Deepavali, Easter, and Christmas, are organized either by students or the university administration under the supervision of the Bahagian Kebudayaan dan Kesenian, Jabatan Hal Ehwal Pelajar. By embracing Malaysia's multi-ethnic heritage and adhering to the objectives of the National Culture Policy – strengthening national unity, preserving cultural identity, and enriching quality of life – the university fosters an inclusive environment that celebrates diversity. These initiatives align closely with SDG 4 (Quality Education) and SDG 11 (Sustainable Cities and Communities) by promoting intercultural learning, inclusivity, and respect for cultural heritage.

Through these celebrations, the university not only strengthens bonds among its multicultural student body but also contributes to the preservation of traditions that define Malaysia's national identity. Events such as the Moon Cake Festival and Majlis Rumah Terbuka provide opportunities for cross-cultural exchange, enhancing mutual understanding and respect among different communities. This commitment to cultural inclusivity supports SDG 16 (Peace, Justice, and Strong Institutions) by encouraging peaceful coexistence and unity, while also enriching campus life and contributing to the holistic development of students as culturally aware and socially responsible citizens.

Figure 3.8: Japanese Cultural Club Open Day

Figure 3.9: UMS Multi-cultural Celebration

Figure 3.10: Moon Cake Festival (Chinese) at the university in 2022

Figure 3.11: Majlis Rumah Terbuka – Malay at the university in 2022

The university has consistently published annual sustainability reports since 2019, documenting its environmental conservation efforts, energy efficiency measures, and community sustainability projects. These reports align with global standards in sustainability reporting, integrating UN SDGs and ESG compliance principles to provide a transparent overview of the university's progress. The Sustainability Report 2022 highlights the impact of the university's initiatives in areas such as carbon footprint reduction, biodiversity conservation, and social responsibility, ensuring accountability in its sustainability commitments. By systematically tracking its sustainability performance, the university fosters continuous improvement and strategic planning in line with UIGM metrics. The publication of these reports serves as a benchmark for other institutions while reinforcing the university's dedication to advancing sustainability at a global level.

Figure 3.12: Front cover of UMS' Sustainability Report 2019

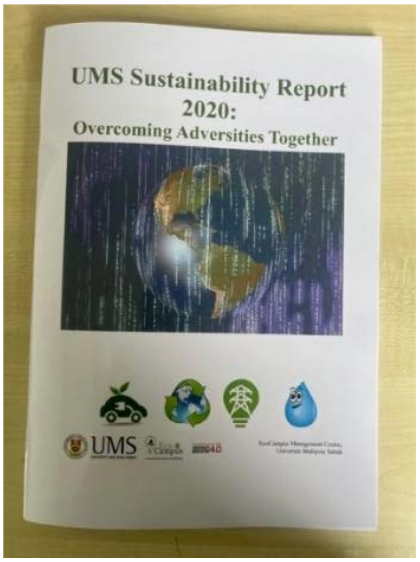


Figure 3.13: Front cover of UMS' Sustainability Report 2020

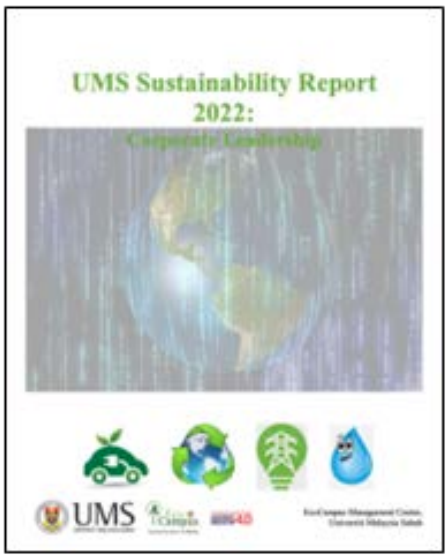


Figure 3.14: Front cover of UMS' Sustainability Report 2022

The university actively engages in community-driven sustainability initiatives, fostering social responsibility and environmental stewardship among students. Notable projects include Misi 'Tangki Air Kita', which addresses water scarcity in rural areas by providing large water tanks, supporting SDG 6 (Clean Water and Sanitation). Similarly, the Gusi Village Solar Project promotes renewable energy by installing solar systems in off-grid communities, aligning with SDG 7 (Affordable and Clean Energy).

Additionally, the university plays a key role in disaster relief efforts, such as the Post-Flood Assistance Mission, where students provide aid, restore infrastructure, and support flood-affected communities. These initiatives contribute to SDG 11 (Sustainable Cities and Communities) and SDG 16 (Peace, Justice, and Strong Institutions), strengthening resilience and climate preparedness. Through these hands-on projects, students develop leadership and problem-solving skills while making a tangible impact on sustainability.

Table 3.3: List of community-based sustainability projects with students involvement

No	Project	Student Participant	Duration	Remark
1	Misi 'Tangki Air Kita'	15 UMS students	Oct 2022	This project involves sending big water tanks to rural/remote areas where treated water is not available.
2	Sukarelawan Siswa YSS – ASEAN Green Summer Volunteer Campaign (GSVC), Vietnam 2022	4 UMS students	Jul – Aug 2022	A total of 18 universiti students nationwide volunteered to be placed in Tam Ton Hiep Ward, Can Gio District, Vietnam for Green Summer Volunteer Campaign.

3	Program CSR di Sekolah Kebangsaan Tambulaong	14 UMS students	Jul 1, 2022	This project involves UMS' students taking part in Primary / Year Two school students in a few school activities. The purpose of this project to was motivate young students into education, specifically sciences and arts.
4	YSS – AEON CSR Activity Coastal Clean Up with COmmunity	15 students	Jul 2022	This project is part of a larger project involving communities and private sector to clean up public beaches of plastic bottles and rubbish.
5	Gusi Village Solar Project	12 students	Jun 2022	This is a 3-day project where students work together to clean and make ready the village for solar power generation and consumption. This project is jointly organized with the KR 4x4 club, and the national school of Gusi Sugut-Ranau.
6	Post Flood Assistance Mission	30 students	Jan 2022	This project was carried in Kota Marudu that was hit by district level flood. Among the work done by the students include the distribution of food air and Panaitan public primary school ground cleaning.

Figure 3.15: Sukarelawan Siswa YSS – ASEAN Green Summer Volunteer Campaign (GSVC), Vietnam 2022


Borneo Post (KK), Malaysia

JAKMAS and UMS-PNRF having a group photo with SK Tambulaong pupil.

UMS committee holds CSR programme at school

KOTA KINABALU: Universiti Malaysia Sabah (UMS) Non-Resident Student Welfare Committee (JAKMAS) recently held a corporate social responsibility (CSR) programme at Sekolah Kebangsaan (SK) Tambulaong.

The programme, a collaboration with UMS Non-Resident Management Center and Student Housing Facilities (PNRF), was led by NR JAKMAS President, Muazam Muanam @ Shafie.

Muazam said the one-day programme is to increase the knowledge and experience of UMS students while interacting with the local community.

"In addition, this programme also emphasizes the importance of knowledge and education through various mediums in life.

"It is in line with UMS' first Key Achievement Area (KRA) which is to provide quality experience for students," he said in a statement yesterday.

The programme was also a collaboration with the Parents and Teachers Association (PIBG) and SK Tambulaong school.

Muazam added that the programme was also implemented to foster the spirit of volunteering among students.

"It is also a cornerstone for students to be concerned, responsible, and help each other regardless of race and religion.

"We are also grateful for the warm and cheerful reception from students, teachers and the school's PIBG," he said.

Also present during the programme were SK Tambulaong headmaster Norsida Hj. Lamuri, UMS PNRF Director Hasmi Hashim, and PIBG chairman Edwin Lumbating.

Figure 3.16: UMS' students Corporate Social Responsibility (CSR) at SK Tambulaong in local newspapers

The university actively fosters international collaborations to advance sustainability research, education, and knowledge sharing. A key initiative is the MySUN (Malaysia Sustainable University Campus Network), which partners with eight Malaysian universities and three European institutions. This network supports sustainability efforts through MOOCs, roundtable discussions, and conferences, aligning with SDG 4 (Quality Education), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 17 (Partnerships for the Goals).

Additionally, the university collaborates with Kindai University, Japan, on marine biology and aquaculture research, focusing on fisheries management and sustainable aquaculture. This partnership contributes to SDG 14 (Life Below Water) and SDG 15 (Life on Land) through joint research, student exchanges, and capacity-building initiatives. These international engagements enhance the university's research capacity and reinforce its role in global sustainability efforts.

Figure 3.17: MySUN

Figure 3.18: ICOMSA 2022 Poster

The university actively promotes sustainability-focused entrepreneurship through dedicated agencies such as the Entrepreneur Research and Development Centre (ERDEC), the Student Career and Entrepreneurship Development Centre (PKPKP), the Centre for Investment, Endowment and Wakaf (CIEW), and the Digital Maker Hub (DMGSabah). These platforms nurture student and staff-led ventures that address environmental challenges while fostering economic growth. Among the 13 sustainability-related startups supported are Zue Corner, which aligns with the university's no-single-use-plastic campaign; Kundasang Aquafarm, operated by the university alumnus using hydroponic techniques to produce vegetables efficiently; and the Water Research Unit (WRU), a licensed facility under FSSA that conducts water quality testing – directly contributing to SDG 6 (Clean Water and Sanitation), SDG 8 (Decent Work and Economic Growth), and SDG 9 (Industry, Innovation, and Infrastructure).

Other notable initiatives include KESUMBA, which produces eco-friendly handicrafts, ULINK Agro-Based Sdn Bhd, commercializing plant-based research products such as Tongkat Ali and seaweed-based salt, and Villaco Sdn Bhd alongside Denim Care Sdn Bhd, both focusing on environmentally friendly product commercialization. Startups such as Hafiz Farm Sdn Bhd and Vivify apply research-driven innovation in agriculture and plant-based product development, contributing to sustainable industry practices. By supporting these enterprises, the university not only generates employment and business opportunities but also embeds sustainability into its entrepreneurial ecosystem, reinforcing its role as a driver of green innovation in line with the UN SDGs.

Figure 3.19 Zue Corner

Figure 3.20: Vivify

Figure 3.21 Hafiz Farm Sdn Bhd

The university' commitment to sustainability is demonstrated through its comprehensive academic programs, dedicated research initiatives, and active student engagement in environmental conservation. By integrating sustainability across disciplines, the university equips students with essential knowledge and skills to address global environmental challenges. Its significant investment in research, particularly in areas such as renewable energy, marine conservation, and sustainable agriculture, reinforces its role as a leader in sustainability-focused innovation. Additionally, the university fosters strong international collaborations, ensuring that its research and educational efforts contribute meaningfully to global sustainability goals. These initiatives align with multiple Sustainable Development Goals (SDGs), including SDG 4 (Quality Education), SDG 9 (Industry, Innovation, and Infrastructure), SDG 11 (Sustainable Cities and Communities), and SDG 12 (Responsible Consumption and Production).

CONCLUDING REMARK

Universiti Malaysia Sabah (UMS) has demonstrated outstanding achievements across all categories of sustainability, solidifying its role as a leader among higher education institutions in environmental stewardship. Through responsible campus planning and infrastructure that prioritizes open green spaces, smart building designs, and specialized hubs across Sabah, the university has balanced development with ecological preservation. Its resource management strategies, particularly in energy, water, waste, and transport, highlight a strong shift towards renewable energy use, waste minimization, water recycling, and eco-friendly mobility solutions such as bio-diesel shuttles and zero-emission vehicles. These integrated efforts not only reduce the university's carbon footprint but also cultivate a sustainable living-learning environment aligned with multiple SDGs.

Equally significant, the university has embedded sustainability into its education, research, and entrepreneurship ecosystem. Over 20% of its courses integrate sustainability principles, while nearly half of its research funding is dedicated to environmental and climate-focused projects. The university's vibrant culture of sustainability is further enriched by student-led initiatives, international collaborations, and green startups nurtured under its entrepreneurial platforms. Collectively, these initiatives reflect the university commitment to advancing quality education, fostering innovation, strengthening community resilience, and driving green economic opportunities. By uniting infrastructure, operations, research, and community engagement, the university continues to serve as a model of holistic sustainability, contributing meaningfully to global goals while empowering local communities in Sabah and beyond.