



**UPM**  
UNIVERSITI PUTRA MALAYSIA  
BERILMU BERBAKTI

**Universiti  
Putra  
Malaysia**

# UNIVERSITI PUTRA MALAYSIA SUSTAINABILITY REPORT 2022

# ABOUT UPM

UPM Sustainability's Transformative Journey Universiti Putra Malaysia (UPM) has recorded its legacy as the most sustainable campus in Malaysia since 2010 until now and has continued to maintain its status for 13 consecutive years through the UI GreenMetric University Rankings. To ensure that the SDG goals can be achieved, UPM adapts the SDG goals in every strategy, especially in management, learning and research. UPM's Strategic Plan 2021- 2025 also clearly states that UPM remains committed to this initiative. As a research university, UPM uses research as a medium to contribute to sustainability by conducting research that can increase the level of sustainability on and off campus. The main goal of UPM is to always ensure that the success obtained at the academic level, research, professional services, and internationalization can make a meaningful contribution to the formation of the prosperity and development of the country as well as the well-being of the people. UPM's field of expertise, which is agriculture, is one of the main contributors to the success of UPM being recognized as the most sustainable university in Malaysia due to the factors of area and land use, and the infrastructure and agricultural initiatives that are aggressively moved to support campus sustainability. This chapter will share UPM's best practices, lessons learned, and innovative approaches in sustainability within this institution.

[UNIVERSITI PUTRA MALAYSIA VIRTUAL TOUR](#)

# MAPPING UI GREENMETRIC WITH SUSTAINABLE DEVELOPMENT GOALS





# INDIKATOR UI GREENMETRIC 2022



## SETTINGS AND INFRASTRUCTURE (SI) (15%)

Basic information of the university policy towards green environment. Include space for greenery and in safeguarding environment, as well as developing sustainable energy.



## ENERGY AND CLIMATE CHANGE (EC) (21%)

The university's attention to the use of energy and climate change issues. Universities are expected to increase the effort in energy efficiency on their buildings, nature and resources.



## WASTE (WS) (18%)

Waste treatment and recycling programs are major factors in creating a sustainable environment. Universities must take note on its waste production as well as recycling efforts.



## WATER (WR) (10%)

Universities are expected to decrease water usage, increase conservation program, and protect the habitat. This may include water conservation program and piped water usage.



## TRANSPORTATION (TR) (18%)

Universities policies in limiting the number of motor vehicles in campus, the use of campus bus and bicycle to encourage a healthier environment and reduce universities carbon footprint.



## EDUCATION AND RESEARCH (ED) (18%)

University effort in creating and supporting the new generation concern with sustainability issues.



## **SETTINGS AND INFRASTRUCTURE (SI) (15%)**

Basic information of the university policy towards green environment. Include space for greenery and in safeguarding environment, as well as developing sustainable energy.

<b>1</b>	<b>Setting and Infrastructure (SI)</b>		<b>Process Owner</b>	<b>Data 2022</b>
1.1.		Type of higher education institution	PSPK	<b>[1] Comprehensive</b>
1.2.		Climate	PSPK	<b>[1] Tropical Wet</b>
1.3.		Number of campus sites	PPPA	<b>2</b>
1.4.		Campus setting	PPPA	<b>[3] Urban</b>
1.5.		Total campus area (m2)	PPPA	<b>30504951.28</b>
1.6.		Total campus ground floor area of buildings (m2)	PPPA	<b>688693</b>
1.7.		Total campus buildings area (m2)	PPPA	<b>1570719</b>
1.8.	SI1	The ratio of open space area to total area	PPPA	<b>[5] &gt; 95%</b>
1.9.	SI2	Total area on campus covered in forest vegetation	PPPA	<b>[5] &gt; 35%: 15169301 m<sup>2</sup></b>
1.10.	SI3	Total area on campus covered in planted vegetation	PPPA	<b>[5] &gt; 40%: 13096040.15 m<sup>2</sup></b>

<b>1</b>	<b>Setting and Infrastructure (SI)</b>		<b>Process Owner</b>	<b>Data 2022</b>
1.11.	SI4	Total area on campus for water absorption besides the forest and planted vegetation	PPPA	<b>[2] &gt; 2 - 10%: 1246878.00 m<sup>2</sup></b>
1.12.		Total number of regular students (part-time and full-time)	AKADEMIK, SGS	<b>24409</b>
1.13.		Total number of online students (part-time and full-time)	AKADEMIK, SGS	<b>24409</b>
1.14.		Total number of academic and administrative staff	PENDAFTAR	<b>5546</b>
1.15.	SI5	The total open space area divided by total campus population	PSPK	<b>29955</b>
1.16.		Total university budget (in US Dollars)	BURSAR	<b>[5] &gt; 70 m<sup>2</sup> / person</b>
1.17.		University budget for sustainability effort (in US Dollars)	BURSAR	<b>232537922</b>

1	Setting and Infrastructure (SI)		Process Owner	Data 2022
1.18	SI6	Percentage of university budget for sustainability efforts	PSPK	<b>45966698.43</b>
1.19	SI7	Percentage of operation and maintenance activities of building in one year period	PPPA	<b>[5] &gt; 15%</b>
1.20	SI8	Campus facilities for disable, special needs and/or maternity care	PPPA	<b>[4] &gt;75-99%</b>
1.21	SI9	Security and safety facilities	BKU, OSH	<b>[5] Facilities exist in all buildings and are fully operated</b>



1	Setting and Infrastructure (SI)		Process Owner	Data 2022
1.22	SI10	Health infrastructure facilities for students, academics and administrative staffs' well-being	PKU, HSAAS, ALL PTJ	<b>[5] Security infrastructure is available and fully functions and security responding time for accidents, crime, fire, and natural disasters is less than 10 minutes</b>
1.23	SI11	Conservation: plant (flora), animal (fauna), or wildlife, genetic resources for food and agriculture secured in either medium or long- term conservation facilities	PPP, FHAS, FP, FV, IBS, BIOTECH, UPMKB	<b>[5] Health infrastructure available (first aid, emergency room, clinic, hospital and certified personel), system and accessible for public</b>



**ENERGY AND CLIMATE  
CHANGE (EC)  
(21%)**

The university's attention to the use of energy and climate change issues. Universities are expected to increase the effort in energy efficiency on their buildings, nature and resources.

2	Energy and Climate Change (EC)		Process Owner	Data 2022
2.1.	EC1	Energy efficient appliances usage	PPPA	<b>[5] &gt; 75%</b>
2.2.		Total campus' smart building area (m2)	PPPA	<b>227097.04</b>

2	Energy and Climate Change (EC)		Process Owner	Data 2022
2.3.	EC2	Smart building implementation	PPPA & ALL PTJ	<b>[4] &gt; 50% - 75%</b>
2.4.	EC3	Number of renewable energy sources on campus	PPPA	<b>[5] &gt; 3 sources</b>
2.5.		Renewable energy sources and their amount of the energy produced	PPPA	<b>[2]Bio Diesel: 34352 kWh</b> <b>[3]Clean Biomass: 132414 kWh</b> <b>[4]Solar Power: 5922160 kWh</b> <b>[5]Wind Power: 4800 kWh</b>

2	Energy and Climate Change (EC)		Process Owner	Data 2022
2.6.		Electricity usage per year (in kilowatt hours)	PPPA	<b>31348466</b>
2.7.	EC4	Total electricity usage divided by total campus' population (kWh per person)	PSPK	<b>[3] &gt;633 - 1535 kWh</b>
2.8.	EC5	The ratio of renewable energy production divided by total energy usage per year	PPPA	<b>[4] &gt; 2 - 25%</b>
2.9.	EC6	Elements of green building implementation as reflected in all construction and renovation policies	PPPA	<b>[5] &gt; 3 elements</b>

2	Energy and Climate Change (EC)		Process Owner	Data 2022
2.10.	EC7	Greenhouse gas emission reduction program	PPPA & ALL PTJ	<b>[5] Program (S) aims to reduce all three scopes emissions (Scope 1,2 and 3)</b>
2.11.		Total carbon footprint (CO <sub>2</sub> emission in the last 12 months, in metric tons)	FHAS	<b>12393.81</b>
2.12.	EC8	Total carbon footprint divided by total campus' population (metric tons per person)	FHAS	<b>[3] &gt; 0.42 - 1.11 metric ton</b>



2	<b>Energy and Climate Change (EC)</b>		<b>Process Owner</b>	<b>Data 2022</b>
2.13	EC9	Number of innovative program(s) in energy and climate change	FHAS, FK	<b>[5] More than 3 programs</b>
2.14	EC10	Impactful university program(s) on climate change	HEPA, FAKULTI	<b>[5] Provide training and educational materials for surrounding communities, at national level, and at regional and international level</b>



**WASTE (WS)**  
**(18%)**

Waste treatment and recycling programs are major factors in creating a sustainable environment. Universities must take note on its waste production as well as recycling efforts.

3	Waste (WS)		Process Owner	Data 2022
3.1.	WS1	3R (Reduce, Reuse, Recycle) program for university's waste	ALL PTJ, PPPA, PPP	<b>[5] Extensive (&gt; 75% waste)</b>
3.2.	WS2	Program to reduce the use of paper and plastic on campus	ALL PTJ, PPPA, PPP	<b>[5] more than 3 programs</b>
3.3.		Total volume organic waste produced	PPP	<b>New</b>
3.4.		Total volume organic waste treated	PPP	<b>New</b>
3.5.	WS3	Organic waste treatment	PPP	<b>[5] Extensive (&gt; 75% treated)</b>
3.6.		Total volume inorganic waste produced	PPP/OSH	<b>New</b>

3	Waste (WS)		Process Owner	Data 2022
3.7.		Total volume inorganic waste treated	PPP/OSH	New
3.8.	WS4	Inorganic waste treatment	PPP/OSH	[5] <b>Extensive (&gt; 75% treated)</b>
3.9.		Total volume toxic waste produced	OSH	New
3.10.		Total volume toxic waste treated	OSH	New

3	Waste (WS)		Process Owner	Data 2022
3.11.	WS5	Toxic waste treatment	OSH	<b>[5] Extensive (&gt; 75% treated) or campus produces a minimum amount of toxic waste</b>
3.12.	WS6	Sewage disposal	PPPA	<b>[5] Treatment for up cycling</b>



**WATER (WR)**  
**(10%)**

Universities are expected to decrease water usage, increase conservation program, and protect the habitat. This may include water conservation program and piped water usage.



4	Water (WR)		Process Owner	Data 2022
4.1.	WR1	Water conservation program & implementations	PPPA & ALL PTJ	<b>[5] &gt; 50% water conserved</b>
4.2.	WR2	Water recycling program implementation	PPPA & ALL PTJ	<b>[5] &gt; 50% water recycled</b>
4.3.	WR3	Water efficient appliances usage	PPPA	<b>[4] &gt; 25 - 50% of water efficient appliances installed</b>

4	Water (WR)		Process Owner	Data 2022
4.4.	WR4	Consumption of treated water	PPPA	<b>[5] &gt; 75% treated water consumed</b>
4.5	WR5	Water pollution control in campus area	PPPA	<b>[3] Policy and programs for water pollution control are in the early implementation stage</b>



**TRANSPORTATION (TR)**  
**(18%)**

Universities policies in limiting the number of motor vehicles in campus, the use of campus bus and bicycle to encourage a healthier environment and reduce universities carbon footprint.

5	Transportation (TR)		Process Owner	Data 2022
5.1.		Number of cars actively used and managed by university	BKU	<b>31</b>
5.2.		Number of cars entering the university daily	BKU	<b>3445</b>
5.3.		Number of motorcycles entering the university daily	BKU	<b>1181</b>

5	Transportation (TR)		Process Owner	Data 2022
5.4.	TR1	The total number of vehicles (cars and motorcycles) divided by total campus' population	BKU PSPK	<b>[3] &gt; 0.125 - 0.5</b>
5.5.	TR2	Shuttle services	HEPA	<b>[4] Shuttle service is provided by university, regular, and free</b>
5.6.		Number of shuttles operated in the university	HEPA	<b>24</b>

5	Transportation (TR)		Process Owner	Data 2022
5.7.		Average number of passengers of each shuttle	HEPA	<b>42</b>
5.8.		Total trips of each shuttle services each day	HEPA	<b>480</b>
5.9.	TR3	Zero Emission Vehicles (ZEV) policy on campus	JKI	<b>[5] Zero Emission Vehicles are available, and provided by university for free</b>



5	Transportation (TR)		Process Owner	Data 2022
5.10.		Average number of Zero Emission Vehicles (e.g. bicycles, cano, snowboard, electric car, etc.) on campus per day	BHEP	<b>5266</b>
5.11.	TR4	The total number of Zero Emission Vehicles (ZEV) divided by total campus population	PSPK	<b>[5] &gt; 0.02</b>

5	Transportation (TR)		Process Owner	Data 2022
5.12.		Total ground parking area (m2)	PPPA	<b>29,133.71</b>
5.13.	TR5	Ratio of ground parking area to total campus area	PPPA	<b>[5] &lt; 1%</b>
5.14.	TR6	Program to limit or decrease the parking area on campus for the last 3 years (from 2020 to 2022)	PPPA/ALL PTJ	<b>[5] Program resulting in more than 30% decrease in parking area or parking area reduction has reaches its limit.</b>

5	Transportation (TR)		Process Owner	Data 2022
5.15.	TR7	Number of initiatives to decrease private vehicles on campus	BKU	<b>[5] &gt; 3 initiatives, or initiative no longer required</b>
5.16.	TR8	Pedestrian path on campus	PPPA	<b>[5] Pedestrian paths are available, designed for safety, convenience, and in some parts provided with disabled-friendly features</b>

<b>5</b>	<b>Transportation (TR)</b>		<b>Process Owner</b>	<b>Data 2022</b>
5.17.		Approximate daily travel distance of a vehicle inside your campus only (in Kilometers)	HEPA	<b>3</b>



**EDUCATION AND  
RESEARCH (ED)  
(18%)**

University effort in creating and supporting  
the new generation concern with  
sustainability issues.

<b>6</b>	<b>Education and Research (ED)</b>		<b>Process Owner</b>	<b>Data 2022</b>
6.1.		Number of courses/subjects related to sustainability offered	BAHAGIAN AKADEMIK/FAKULTI/ INSTITUT	<b>2491</b>
6.2.		Total number of courses/subjects offered	BAHAGIAN AKADEMIK/FAKULTI/ INSTITUT	<b>2491</b>
6.3.	ED1	The ratio of sustainability courses to total courses/subjects	BAHAGIAN AKADEMIK/FAKULTI/ INSTITUT	<b>[5] &gt; 20%</b>
6.4.		Total research funds dedicated to sustainability research (in US Dollars)	RMC	<b>12,916,889.24</b>
6.5.		Total research funds (in US Dollars)	RMC	<b>20,658,593.13</b>
6.6.	ED2	The ratio of sustainability research funding to total research funding	RMC	<b>[5] &gt; 40%</b>



6	Education and Research (ED)		Process Owner	Data 2022
6.7.	ED3	Number of scholarly publications on sustainability	RMC	<b>[5] &gt; 300</b>
6.8.	ED4	Number of events related to sustainability	BHEP/ALL PTJ	<b>[5] &gt; 47</b>

6	Education and Research (ED)		Process Owner	Data 2022
6.9.	ED5	Number of activities organized by student organizations related to sustainability per year	BHEP	<b>[5] &gt; 10</b>
6.10.	ED6	University-run sustainability website	IDEC, PSPK	<b>[5] Website is available, accessible, and updated regularly</b>
6.11.		Sustainability website address (URL) if available	IDEC, PSPK	<b><a href="https://pspk.upm.edu.my/sdg_kampus_hijau-3978">https://pspk.upm.edu.my/sdg_kampus_hijau-3978</a></b>

6	Education and Research (ED)		Process Owner	Data 2022
6.12.	ED7	Sustainability report	IDEC, PSPK	<b>[5] Sustainability report is published annually</b>
6.13		Sustainability report link address (URL) if available	IDEC, PSPK	<b>New</b>
6.14	ED8	Number of cultural activities on campus (e.g. Cultural Festival) including virtual activities (if any)	IDEC, PSPK	<b>[5] More than 3 Programs</b>

6	Education and Research (ED)		Process Owner	Data 2022
6.15	ED9	Number of university sustainability program(s) with international collaborations	iPUTRA	<b>[5] More than 3 events per year</b>
6.16	ED10	Number of sustainability community services project organized by and/or involving students	BHEP	<b>[5] More than 3 Projects</b>
6.17	ED11	Number of sustainability-related startups	BHEP	<b>[5] &gt; 15 startups</b>


# EVIDENCES

[SUSTAINABILITY REPORT 2022 EVIDENCES](#)



# Thank You

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