



UNIVERSITI
MALAYA

UNIVERSITI MALAYA ECO-CAMPUS & UM LIVING LABS

CAMPUS SUSTAINABILITY REPORT 2018-2019

UM PLEDGES SUPPORT & COMMITMENT
IN THE REALIZATION OF:

SUSTAINABLE DEVELOPMENT GOALS



UM CAMPUS SUSTAINABILITY REPORT 2018-2019

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WELCOMING NOTE

DEPUTY VICE-CHANCELLOR
RESEARCH & INNOVATION, UNIVERSITI MALAYA
PROFESSOR DR. NOORSAADAH ABD. RAHMAN



*In the Name of Allah Most Beneficent Most Merciful.
Assalamualaikum warahmatullahi wabarakatuh & Greetings,*

In the initial phase of the introduction of the concept of sustainable development, it seems to bring a new mindset in the field of environment and development of the country. In the context of sustainable development, 'development' must keep pace with environmental concern on the background so that the process does not leave a negative impact on people and the environment in particular. For campus sustainability initiatives in Universiti Malaya, it can be traced back in several phases since the 1990s, for example through the establishment of the Malaysia University Consortium for Environment and Development (MUCED), environmental-based courses offered based at faculty level, and also the recognition of the Universiti Malaya Environmental Secretariat (known as UMCares) in 2009.

In 2014, initially the University introduced the UM Living Labs flagship projects for the first time to the campus under the banner of UMCares at that time; a new form of experimental and exploratory in promoting campus sustainability initiatives focus on three key areas: water management (Water Warriors), waste management (UM Zero Waste Campaign), and landscape & biodiversity management (The RIMBA Project). It is notable that these efforts have shown potential as a referral model of best practices encouraging all parties (UM management team, staff and students) to work together to achieve a common goal; a sustainable campus. Basically, campus sustainability initiatives in Universiti Malaya are still in development phase (work-in-progress), and once again I emphasize that it is a process that requires a level of deep understanding and long-term strong commitment from everyone at the Universiti Malaya.

In 2018, a newly established coordinating entity, UM Eco-Campus Secretariat was setup under the advisory of my office (Deputy Vice-Chancellor of Research & Innovation) with full support from the office of Deputy Vice-Chancellor (Development) and well-received by UM top management. This unit is entrusted under the leadership of Professor Dr. Sumiani Yusoff with a motto of 'Be Different, Be the Change'. The Secretariat is responsible in coordinating all campus sustainability initiatives and programs for the whole campus with the aims to transform Universiti Malaya as one of the eco-friendly campuses in Malaysia and in the World. I would like to congratulate UM Eco-Campus Secretariat for their dedicated time, energy and tenacity to keep the campus sustainability progress on the right track over these challenging years. **This is reflected in UM's achievement in UI GreenMetric World University Rankings 2019 with the conferment as the 34th World's Most Sustainable University and the 1st Asia's Most Sustainable University in City-Centre Setup for three consecutive years.**

With a new sustainability mindset, I am pleased to share a document entitled Universiti Malaya Eco-Campus & UM Living Labs – Campus Sustainability Report (UMCSR) 2018-2019; **a collation document in a form of both formal and informal reports of achievements and challenges that we faced over the course of 1 year.** This report entails closely with the aspirations of 8 Core Areas of UM Eco-Campus Blueprint (UMECB). The entire campus community, especially the stakeholders should take proactive measures to ensure the sustainability of such commitment and achievements will progress hand-in-hand with our outstanding academic performance and research achievements. All in all, we are glad to share with you that UM pledges full support on the realization of Sustainable Development Goals (SDGs) by the year 2030 with our second-year participation in Times Higher Education University Impact Rankings on SDGs. Thanks to everyone for their willingness and efforts to work together to propel our Universiti Malaya with another green milestones toward a sustainable and eco-campus university.

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INTRODUCTORY NOTE

CHAIRPERSON,
UNIVERSITI MALAYA ECO-CAMPUS SECRETARIAT &
UM LIVING LABS
PROFESSOR DR. SUMIANI YUSOFF



In the Name of Allah Most Beneficent Most Merciful.

As Salam and Greetings,

Today, the issue of environment and sustainability poses a challenge faced by all communities from all walks of life on this planet Earth. **On the other hand**, ‘Sustainability Science’ has its origins in the concept of sustainable development as proposed by the World Commission on Environment and Development (WCED) in 1987 aims to achieve the status of sustainable and balanced society and well-being between physical development and environmental protection. In tandem with such progress and demands, efforts to enhance sustainability science discipline is also increased in the academic field in a form of course offerings, academic publications, and research in multi-disciplinary studies related to sustainability science fora.

Chronologically, UM Eco-Campus Secretariat is formally incepted in 2018 under the advisory of Deputy Vice-Chancellor (Research & Innovation) with full support from the Deputy Vice-Chancellor (Development). The Secretariat plays a vital role as a catalyst and central entity to encourage sustainability research, academic programs and multi-prong initiatives in a holistic and comprehensive manners to solve problems by offering perspectives relevant toward a sustainable world, social, and human life ecosystem.

This campus sustainability report (UMCSR) is prepared as part and parcel of UM’s continuous commitment and pledge in the realization of Universiti Malaya Eco-Campus Blueprint (UMECB) a first official referral document in Universiti Malaya’s ‘journey’ towards sustainable campus or familiarly known as eco-campus. This journey requires attention, support, cooperation and commitment of all stakeholders and any individual or party willing to support sustainability initiatives in a holistic and inclusive manner. This is aligned with the implementation of 17 Sustainable Development Goals (SDGs) at both global and local platform especially in promoting partnership and collaboration with various stakeholders and interested parties: internal and external.

The campus community should be given opportunity and platform it deserves either at the planning phase, implementation, and continuous development of Universiti Malaya’s sustainability initiatives. At UM Eco-Campus Secretariat, we believe that the campus community should be informed on performance and progress of the Universiti Malaya annually. It is important to allow each one of them to be given an equal opportunity to contribute input, ideas, views energy, or efforts in campus sustainability initiatives.

We hope this document will serve its main purpose in providing a basic guide and reflection over the course of 1-year achievement and challenges. Lastly, on behalf of UM Eco-Campus & UM Living Labs, we would like to extend our utmost appreciation to all members of UM Living Labs; primarily funded by the Deputy Vice-Chancellor (Research and Innovation) with continuous support and funding from the Deputy Vice-Chancellor (Development) and the Department of Development and Estate Maintenance UM (JPPHB). Our sincerest appreciation also goes to UM campus community and public for their relentless support over the years. We believe that campus sustainability can be transpired holistically through the spirit of shared responsibility.

Let’s work together and be part of the change!

‘Be Different, Be the Change’

PROFESSOR DR. SUMIANI YUSOFF

Chairperson, UM Eco-Campus Secretariat & UM Living Labs
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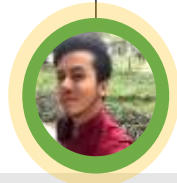
*Level 6, Research Management & Innovation Complex (RMIC)
Universiti Malaya, 50603 Kuala Lumpur, MALAYSIA*

MEET THE TEAM

UNIVERSITI MALAYA ECO-CAMPUS SECRETARIAT & UM LIVING LABS



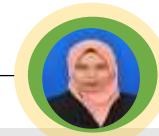
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MODUS OPERANDI:

UNIVERSITI MALAYA ECO-CAMPUS SECRETARIAT & UM LIVING LABS

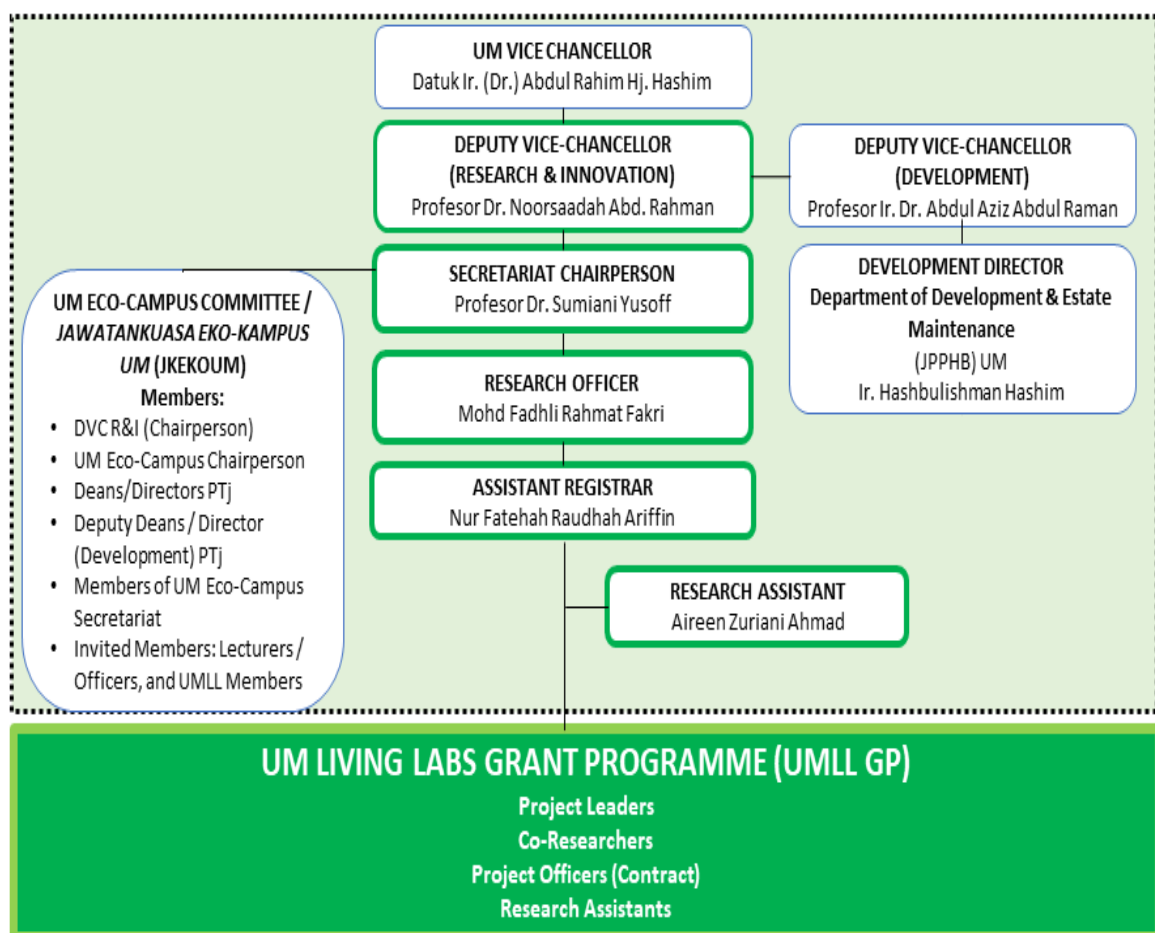


Figure 1: Organization Chart and Modus Operandi of UM Eco-Campus Secretariat & UM Living Labs

WHO WE ARE

UM ECO-CAMPUS INITIATIVES

UM ECO-CAMPUS

Initially, UM Eco-Campus initiatives was spearheaded by Sustainability Science Research Cluster with the support from Department of Development and Estate Maintenance (JPPHB), Universiti Malaya Living Labs (UMLL) and Universiti Malaya Sustainable Development Solutions Network (UM SDSN), started officially in 2016. Universiti Malaya Eco-Campus Standing Committee (UMECS) was formed to answer for call-on-actions in mainstreaming and strategizing efforts for the UM Eco-Campus initiatives by the then Vice-Chancellor of Universiti Malaya, YBhg. Tan Sri Professor Dr. Mohd Amin Jalaludin. In October 2018, these initiatives have been tasked to UM Eco-Campus Secretariat Office under the care of Office of Deputy Vice-Chancellor (Research & Innovation) UM.

UM Eco-Campus initiatives covers mainly, but not limited to the grounds of Universiti **Malaya's main** campus of 803.63 acres. The initiative has **transformed UM's 800.63-acre** campus, along with Universiti Malaya Medical Center (PPUM) 42.7-acre land, into a 'living lab' for translational-and-action research projects in wide-spectrum of green initiatives. Hence, UM Eco-Campus via UM Living Labs is the first project of its kind in UM and in Malaysia that enables the integration of Research & Development, demonstration and deployment of sustainability solutions on the grounds, promoting multi-inter-and-transdisciplinary research, and befits the need of community for a better campus environment.

UM Eco-Campus initiative aims to develop a novel campus-wide sustainability framework with direct support from the Universiti Malaya Living Labs' outputs, which contributes toward minimizing harmful environmental impact in campus especially by decreasing the amount of carbon emission, to bring UM with another leapfrogging record to be as one of the leading eco-friendly

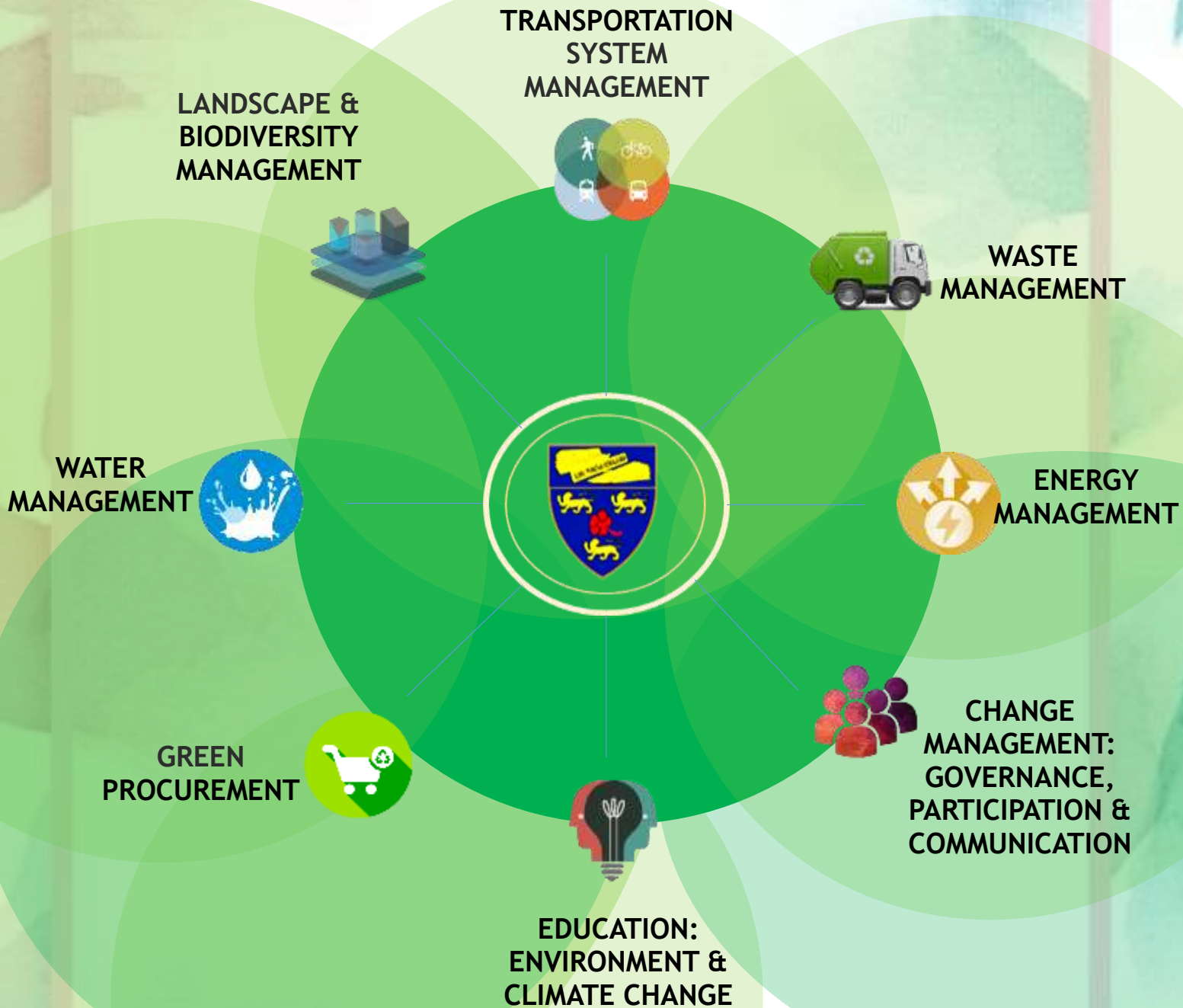
UM ECO-CAMPUS BLUEPRINT (UMECB)

Universiti Malaya Eco-Campus Blueprint (UMECB) is a guideline that gives emphasis to eight (8) Core Areas of Universiti Malaya (CAUM), namely (1) Landscape and Biodiversity Management, (2) Waste Management, (3) Water Management, (4) Energy Management, (5) Transportation System Management, (6) Green Procurement, (7) Education Management - Environment and Climate Change, and (8) Change Management in Governance, Participation, and Communication. All eight core areas are identified as a field that requires commitment and holistic approach cutting across disciplinary, expertise and responsibility center (RC) which involves top management of UM, academic and non-academic staff as well as students. UMECB sought to be an aspiration in a form of Universiti Malaya commitment as one community working synergically toward a more sustainable campus in the future.

All action plans are displayed in the form of short-term and long-term plans to give room of opportunity to campus community to take proactive measures, by stages, as a show of support towards promoting Universiti Malaya as one of the prominent Eco-Campus model at the local, regional, and international level in tandem with UM status as a premier and world leading university.

8 CORE AREAS

UM ECO-CAMPUS BLUEPRINT (UMECB)



STRATEGY FOR CAMPUS SUSTAINABILITY

8 CORE AREAS OF UNIVERSITI MALAYA ECO-CAMPUS

Universiti Malaya (UM), the oldest world-renowned public research university in Malaysia was founded in 1905 houses more than 25,000 students and 1,800 academic staff (20 over faculties, institutes, academies and research centres). We recognize our eco-campus and sustainability initiatives in UM are driven by passionate people who work tirelessly and continuously to transform UM as one of the eco-campus for Public Higher Education Institutions (HEIs) in Malaysia. Therefore, the fundamental of our strategy has always revolved around people and their environment.

In UM, we harness our own **academic staffs and students'**

capabilities to solve sustainability and social responsibility issues related to eight (8) core areas stipulated in the UM Eco-Campus Blueprint namely: (1) Landscape and Biodiversity Management, (2) Waste Management, (3) Water Management, (4) Energy Management, (5) Transportation System Management, (6) Green Procurement, (7) Education Management - Environment and Climate Change, and (8) Change Management in Governance, Participation, and Communication. This strategy is an important foundation in order for us to determine how we can best contribute towards greater sustainable future.

UM Eco-Campus Core Areas:



UM LIVING LABS GRANT PROGRAMME

By working with various faculties, departments, and personnel from around campus, we foster holistic integration throughout the university fabric, while simultaneously engage with the students to improve their learning experience in mitigating the university's environmental impact. This is in line with the university's aspiration to be a world class research university which not only strong in theoretical research, but also excellent in translating and applying it into the real world.

UM LIVING LABS GRANT PROGRAMME

OVERVIEW IN 2018 - 2019

By working with various faculties, departments, and personnel campus-wide, UM Eco-Campus Secretariat and UM Living Labs is actively fostering holistic integration throughout the university fabric, while simultaneously engage with the students to improve their learning experience in mitigating the university's environmental impact. This is in line with the university's aspiration to be a world class research university which is not only renowned in theoretical research, but also excellent in translating and applying it into the real world. In UM, we harness our own academic staffs and students' capabilities to solve sustainability and social responsibility issues related to eight (8) thrust areas stipulated in the UM Eco-Campus Blueprint namely: 1) Landscape and biodiversity management, 2) Waste management, 3) Water governance, 4) Energy management, 5) Sustainable transportation system, 6) Green procurement, 7) Educational management, and 8) Change management: governance, participation and communication.



UM Living Labs Grant Programme (UMLLGP) has been actively participated and assisted in the development and maintenance of several UM's sustainability initiatives



Times Higher Education University Impact Rankings (THE UIR) on Sustainable Development Goals



UI GreenMetric World University Rankings (UIGM)

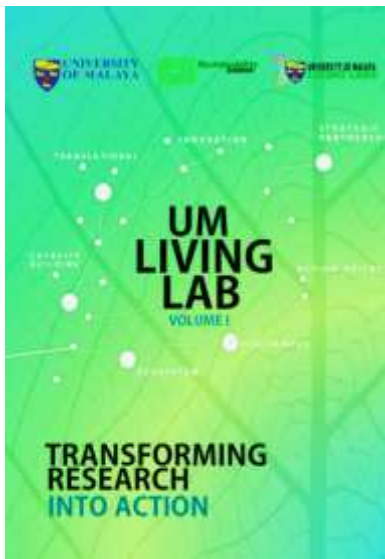


Low Carbon Cities Framework & Assessment System (LCCFAS)



Green Campus Audit by SWCorp Malaysia

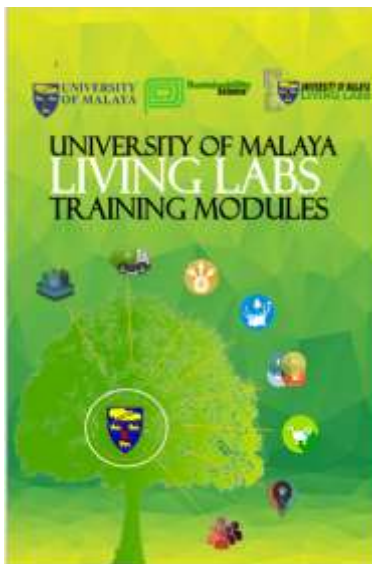
UM LIVING LABS HIGHLIGHTED PUBLICATION (2018):



Tasek Varsity Pocket Map is one of our publication under UM Living Lab Water Warriors. The pocket map is an initiative of promoting UM Varsity Lake especially to students and outside stakeholder. Meanwhile, 'The Backyard Before You' is written by Mr. Benjamin Ong, members of UM Living Lab The RIMBA Project. These are parts and parcels of their project initiatives to generate income which cost RM3 and RM15 respectively.

UM Living Lab volume 1 consist of 11 papers while volume 2 consist of 10 papers collectively authored by all UM Living Lab Researchers. These books are example of UMLL's collective output published in April 2018. The books are part of the income generation mechanism to support UM Living Lab projects which are available at the price of RM50 each.

UM LIVING LABS HIGHLIGHTED PUBLICATION (2019):



UM Living Labs Training Modules is another compilation of 10 ongoing UM Living Labs projects focusing on sustainability-based capacity building and trainings. The Training Modules have been launched by YB Dato' Seri Hamzah Zainuddin, the Minister of Domestic Trade, Co-operatives & Consumerism (KPDNKK) at the Seminar on 'Sustainable Consumption, Our Responsibility' (SCORE2018) in conjunction with the annual commemoration of World Earth Day.

Meanwhile, **UM Living Lab Guidelines (Volume 1)** is a compilation of UMLL projects contribution under the coordination of UM Eco-Campus Secretariat in promoting sustainable practices among campus community especially related to sustainable campus development. The book provides thematic guidance based on the foundation of 8 Core Areas of UM Eco-Campus. The Guideline has been launched by Datuk Seri Saifuddin Nasution Ismail, the Minister of Domestic Trade and Consumer Affairs (KPDNHEP) at Seminar on 'Energizing Sustainable Development Goals 2019' (SESDG2019), in tandem with the annual World Earth Day celebration.

UM LIVING LABS GRANT PROGRAMME

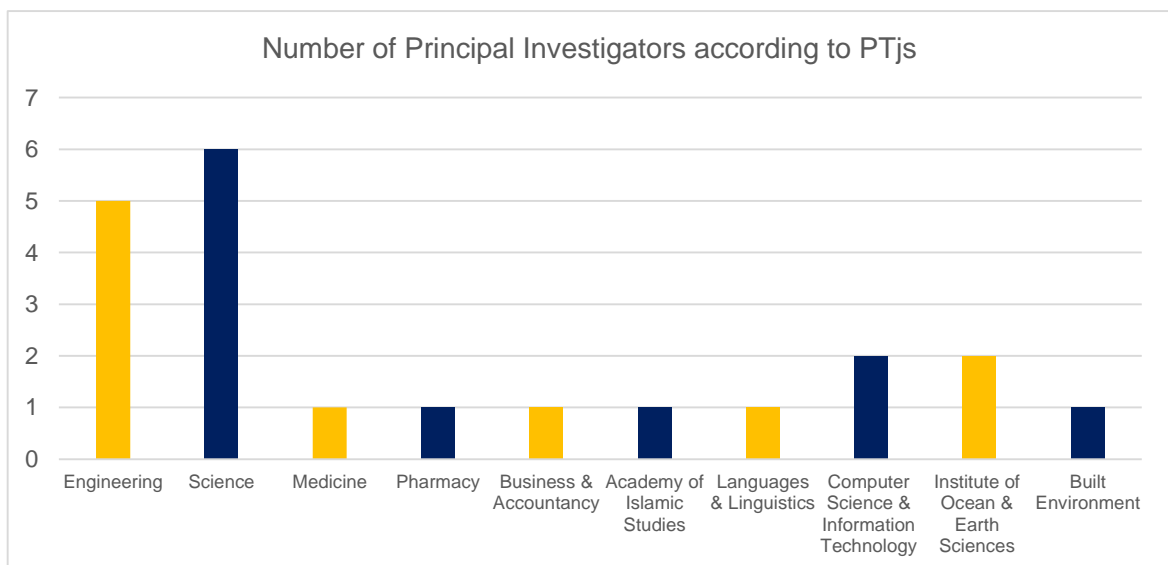
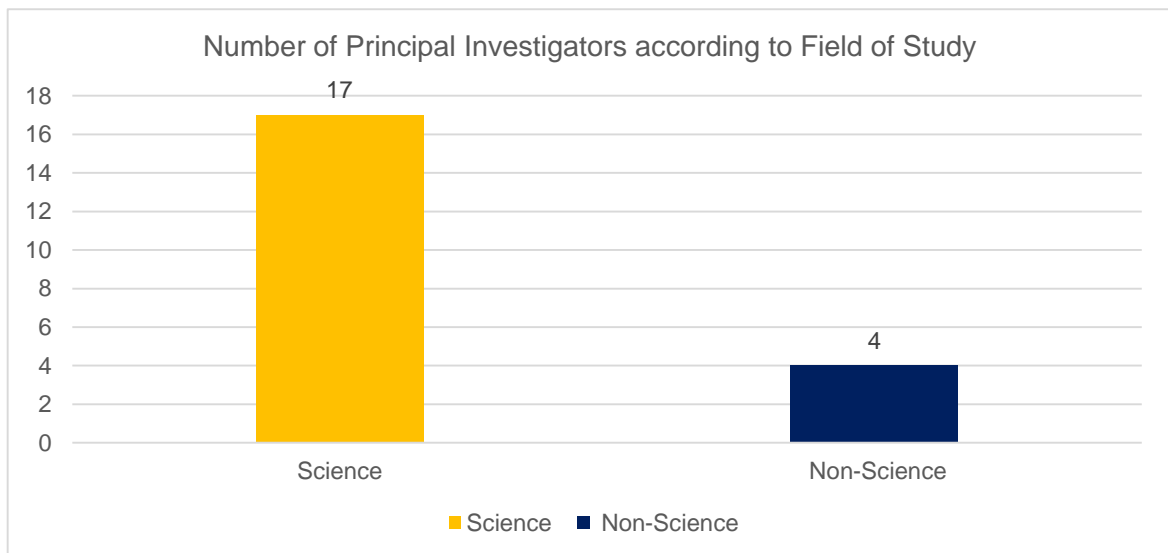
By working with various faculties, departments, and personnel from around campus, we foster holistic integration throughout the university fabric, while simultaneously engage with the students to improve their learning experience in mitigating the university's environmental impact. This is in line with the university's aspiration to be a world class research university which not only strong in theoretical research, but also excellent in translating and applying it into the real world.

Throughout this year, a total of 21 projects reflects the number of awarded grants under the UM Living Labs Grant Programme (UMLLGP). The list of all active UM Living Lab projects are shown in the following table:

No.	Project Title	Principal Investigator	Faculty
1.	UM Living Lab Administration (LL001-15SUS)	Prof. Dr. Sumiani Yusoff	IOES
2.	UM Water Warriors: Integrated Water Management -Phase 4 (LL002-15SUS)	AP Dr. Zeeda Fatimah Mohamad	Science
3.	UM Zero Waste Campaign: Integrated and Sustainable Management Model Development in Universiti Malaya Campus (LL004-15SUS)	Prof. Dr. Sumiani Yusoff	IOES
4.	The RIMBA Project: Biodiversity Conservation by Reconciling Cities and Nature (LL005-15SUS)	Dr. Sugumaran Manickam	Science
5.	Robust Smart Modular Electrical Energy Monitoring and Management System for Energy Saving (LL014-16SUS)	Dr. Mohd Yazed Ahmad	Engineering
6.	UM Living Lab System (UMLB) Second Phase (LL023-16SUS)	Dr. Sorayya Malek	Science
7.	Develop a Sustainable Transport System in Universiti Malaya Campus (LL024-16SUS)	Ir. Ts. Dr. Yuen Choon Wah	Engineering
8.	Safe Disposal of Unused Medications - The Way Forward (LL030-16SUS)	Dr. Lee Hong Gee	Pharmacy
9.	Transforming the Role of Surau APIUM for Campus Sustainability Through 'Imarah Green Project' (LL031-16SUS)	Dr. Asmawati Muhamad	Academy of Islamic Studies
10.	Smart Waste Management System Using Internet-of-Things (LL034-18SUS)	Dr. Ismail Ahmedy	Computer Science & Information Technology
11.	Managing Kitchen Waste Using Black Soldier Fly (BSF): An Alternative Approach Towards Zero Waste in Campus (LL035-18SUS)	Dr. Muhamad Shakirin Mispan	Science
12.	Healthy Soil for a Healthy Environment; Reducing Dependency on Chemical Fertilizer Consumption in University Malaya Using Organic Materials (LL036-18SUS)	Dr. Rosazlin Abdullah	Science
13.	Carbon Storage Mapping Initiative Through Real Time GPS Tracking and IOT Monitoring (LL037-18SUS)	Ir. Dr. Khairunnisa Hasikin	Engineering
14.	Evaluating Walkability Index of Campus Communities to Promote Sustainable Transportation in Universiti Malaya (LL038-18SUS)	AP. Dr. Nasrin Agha Mohammadi	Medicine
15.	Walking as a Green Transportation Mode in Universiti Malaya Campus (LL039-18SUS)	AP. Gs. Dr. Rosilawati Zainol	Built Environment
16.	Decentralization of Laboratory Exercise Via Remote Application: A State-of-the-Art Approach Toward Efficient Educational Facility Resource and Energy Management in Academic Institutions (LL040-18SUS)	Dr. Mohd Nashrul Mohd Zubir	Engineering

No.	Project Title	Principal Investigator	Faculty
17.	The Faculty Sustainability Report Card: Documenting Faculty Sustainability Initiatives Towards UM Eco-Campus (LL041-18SUS)	Dr. Norizah Hassan	Languages & Linguistics
18.	Embedding Shades of Green in UM's Reporting Practices (LL042-18SUS)	AP. Dr. Zarina Zakaria	Business & Accountancy
19.	Water Monitoring via Internet of Things (LL043-18SUS)	AP. Dr. Mohd Yamani Idna Idris	Computer Science & Information Technology
20.	EcoSlope: Slope Eco-engineering Technique Towards Sustainable and Green Landscape (LL044-18SUS)	Prof. Dr. Normaniza Osman	Science
21.	Recycled Plastic Aggregate as Replacement for Conventional Aggregates in Concrete (LL045-18SUS)	AP Dr. Ubagaram Johnson Alengaram	Engineering

Out of 21 recipients of UM Living Labs grant, majority are from science fields in which researchers from the Faculty of Science leading the numbers with six (6) accepted projects followed closely by Faculty of Engineering with five (5) projects represented.



UM LIVING LABS GRANT PROGRAMME

FINANCIAL STATUS

In cycle 2018/2019, a total of RM 500,000 research grant was entrusted to UM Eco-Campus Secretariat & UM Living Labs by the Deputy Vice-Chancellor of Research & Innovation's office as a form of annual appropriation to fund and support UM Living Labs Grant Programme.

RM 500,000 was distributed to a total of 20 UM Living Lab projects which cater the multifaceted sustainability issues within campus. Meanwhile, UM Living Lab Administration (LL001-15SUS) received RM73,053.31 from the remaining balance of 12 completed projects of year 2016.



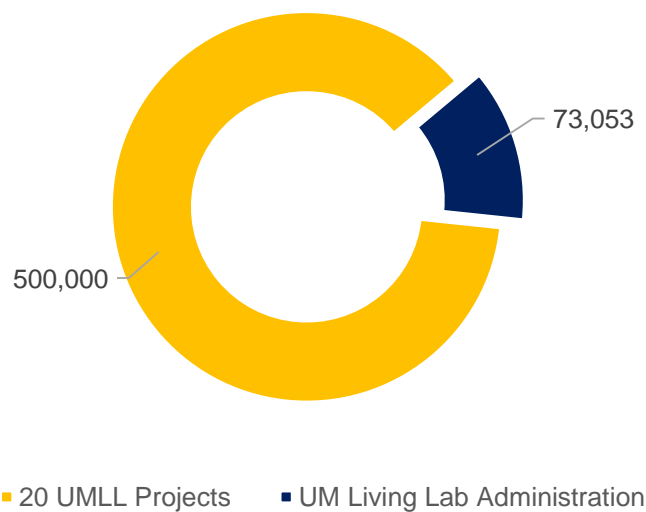
RM 500,000

*Awarded to a total of 20 projects
in cycle 2018/2019*

RM 73,053.31

*Remaining balance of
12 Completed Projects (2016) was
channeled to UM Living Lab Administration
(LL001-15SUS)*

UM Living Labs Grant Programme Fiscal Year 2018/2019 (in RM)



UM LIVING LABS GRANT PROGRAMME

SUMMARY OF ACHIEVEMENTS

Research and innovation promotes inclusivity and opportunities that can be shared by all levels of society, promotes integration and increases productivity and wealth, and ultimately societal well-being. These are the gist principles embedded in Sustainable Development Goals (SDGs) launched in 2015 at the United Nations level with 17 multidimensional goals. Along the same line, UM Living Labs, through its translational and transformative approach, sought all stakeholders' commitment to work as one holistic community towards a more sustainable campus in the future.

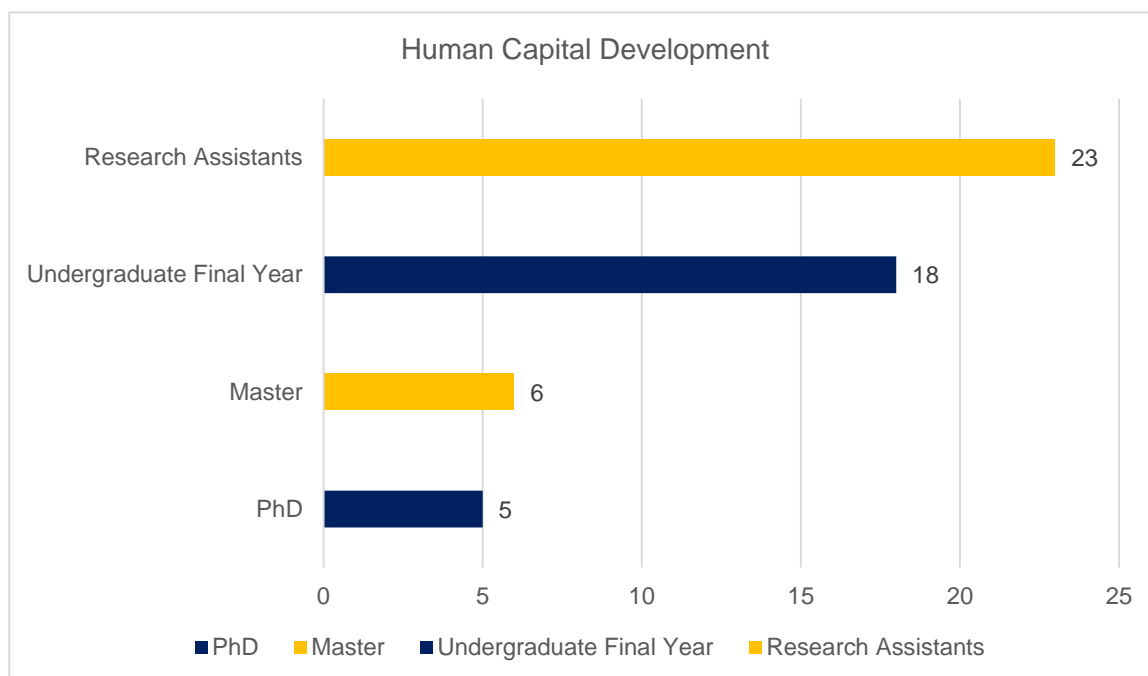
Summary of UM Living Labs Grant Programme Achievements in 2018-2019

Capacity Building	<ul style="list-style-type: none"> A) Human Capital Development B) Seminar / Workshop / Demonstration 	PhD	5
		Master	6
		Undergraduate	18
		Final Year	23
		Research Assistants	23
		Total	52
Total Capacity Building			425
Publications	<ul style="list-style-type: none"> Journal papers 	ISI	5
		Non-ISI	2
	<ul style="list-style-type: none"> Book Chapters in Book Proceedings / Conference Paper Presentations Policy Paper / Guideline / Report 		3
			21
			8
			42
			14
			14
Total Publications			95
Networking	<ul style="list-style-type: none"> Local International 		184
			14
		Total Networking	198
Awards / Recognition			12
Media Appearances			34
Income Generated (RM)	<ul style="list-style-type: none"> Direct income <i>(Revenue generated from project implementation)</i> 		RM 40,363
		<ul style="list-style-type: none"> Indirect income <i>(Monetary saving from the operation of project)</i> 	RM 170,600
Grand GHG Reduction Achieved	<ul style="list-style-type: none"> (kg CO₂ -eq) 		4,290,000 <i>(RM 79,193.77)</i>
Total Monetary Gain	<ul style="list-style-type: none"> <i>Total monetary gain is the sum up of direct income, indirect income and monetary saving from GHG reduction calculated</i> 		RM 290,156.77

UM LIVING LABS GRANT PROGRAMME

A) HUMAN CAPITAL DEVELOPMENT

Human Capital Development is undeniably essential in every research programmes. Although manpower development is not listed as one the KPI for UM Living Labs, this programme boasts a number of human capital developed and trained by UM researchers.



B) SEMINAR/WORKSHOPS

In addition, to encourage innovation, technology, and/or knowledge (ITK) transfers, a series of seminars, workshops, exhibitions, competitions, and demonstrations have been held or attended by UM Living Lab researchers or their team members/ research assistants. Listed below are some of the highlighted activities conducted or participated by UM Living Lab teams.

No	Program/Event/Seminar/Workshops/Activities	Date
1	UI GreenMetric Initiative Sharing at UITM Sustainability Initiatives Planning Workshop	11 January 2019
2	Raising Public Awareness on Sustainability Initiatives Programme	12 January 2019
3	Water Warriors River Clean-Up & Water Monitoring Program 2019	26 January 2019
4	UMLL Site Visit (UM Living Lab Programme)	15-30 January 2019
5	Malaysia Urban Forum 2019 (MUF 2019)	18 & 19 February 2019
6	Focus Group Discussion: International Reviewer for LCCF Assessment System	20 February 2019
7	PUSAN National University of Korea Educational Visit to Universiti Malaya	22 February 2019
8	The Winged-Fruit Trees Community Park: Tree Upkeep	23 February 2019
9	Training the Trainers on Green Technology Application for the Development of Low Carbon Cities (GTALCC) by SEDA Malaysia	25 February 2019
10	UM Vice-Chancellor received The Appreciation Award on UM Sustainable Development Solutions Network (UM SDSN) initiatives in promoting SDGs	26 February 2019
11	Bengkel Semakan Semula Dasar Pengurusan Sisa Pepejal Negara 2019	28 February 2019
12	UM Living Lab - Water Warriors: Public Lecture on Place-Based Method (PBM) as an Approach in Sustainability Science Research	28 February 2019
13	UMCIC Open Day (Business Spin-Off Clinic)	5 March 2019
14	UM Eco Free Market with PPR Kerinchi Community	6 March 2019
15	Strategic Discussion with HEPA UM - UM Eco-Surau Capacity Building	9 March 2019

16	Malaysia Global Environment Facility Dialogue	11&12 March 2019
17	Initial Discussion with Bukit Kiara Sunrise Rotary Club: UM Eco-Campus Initiatives	11 March 2019
18	Strategic Discussion with DHES Alam Flora: 3R on Wheels Project	15 March 2019
19	Universiti Malaysia Pahang (UMP) Educational Visit to UM Zero Waste Campaign: Projek Semaian Budi	15 March 2019
20	Official Meeting of Green Technology Data Collection	18 March 2019
21	1st ATRIUM@20 by Associate Vice-Chancellor (Research & Innovation)	19 March 2019
22	Mesyuarat Jawatankuasa Penilaian Teknologi Pengurusan Sisa Pepejal Kebangsaan	20 March 2019
23	Workshop with International Reviewer for the Low Carbon City Framework (LCCF) and LCCF Assessment System	21&22 March 2019
24	Focus Group Discussion (FGD) on UM Faculty Sustainability Report Card 2019	21& 22 March 2019
25	Strategic Discussion with Corporate Communications Office (CCO) UM in promoting Sustainable Development Goals (SDGs) Mapping for UM	22 March 2019
26	Discussion with Students Council Representative of Faculty of Science UM: Faculty of Science to adopt Eco-Campus Initiatives	27 March 2019
27	Fertilizers and Organic Materials Management Workshop: Healthy Soils for Healthy Plants and Environment	27 March 2019
28	Official Visit by Professor Dr. Holzhacken (University of Groningen, Netherlands) to UM Eco Campus Office	28 March 2019
29	R5 Eco-Camp Programme with Leo Clubs	30 March 2019
30	UMCares Competition 2019: Video Evaluation Session and Site Audit by Judges	2 & 30 April 2019
31	Special Visit by Delegation from University of Utara Malaysia (UUM)	5 April 2019
32	Regain Experience Asli's Life 2019: Introducing Sustainability Initiatives	5-8 April 2019
33	Keynote Address via Video-Conferencing for ICRA2019 India	8 April 2019
34	Strategic Meeting with YB Fahmi Fadzil & UM Vice-Chancellor	12 April 2019
35	Taman Sri Sentosa Site Visit with YB Tuan Ahmad Fahmi Mohamed Fadzil (Member of Parliament for Lembah Pantai)	15 April 2019
36	Preparation Meeting for SESDG2019 with Press Secretary of KPDNHEP	15 April 2019
37	Persidangan Meja Bulat 'Pengurangan Sisa Makanan ke Arah Kesepaduan Usaha Bersama'	15 April 2019
38	Prime Minister Hibiscus Award Official Launching	16 April 2019
39	SK Sri Pantai Official Visit to UM Living Labs (The RIMBA Project & UM Zero Waste Campaign)	17 April 2019
40	Strategic Discussion with CITra UM: Sustainability Curriculum & Elective Courses	18 April 2019
41	Strategic Meeting on the Implementation: Banning of Single Use Plastics Policy in Campus	22 April 2019
42	INTEC Education College: Launch Ceremony of INTEC Sustainability & Eco-Campus Chapter (Invited as Speaker & Booth Exhibitor)	25 April 2019
43	Seminar on 'Energizing Sustainable Development Goals (SESDG 2019)	24 April 2019
44	Geoscience Industrial Week 2019	24-26 April 2019
45	UM Eco-Surau Capacity Building Program 2019 Phase 1: Residential Colleges	27 April 2019
46	Exhibition at Marhaban Ya Ramadhan 2019: Food Waste Minimization Program (MAIWP & IKIM)	29 April 2019
47	Bengkel Sky Pathway Scenario Malaysia	30 April 2019
48	UM Cares Competition 2019 Closing Ceremony	2 May 2019
49	Educational Visit of students from Green Industries Course to UM ZWC	9 May 2019
50	INTEC Educational Visit to UM ZWC	9 May 2019
51	Initial Meeting Renewable Energy & Energy Efficiency Project (JPPHB – CENERGI SEA & UM Eco-Campus)	8-10 May 2019
52	UMCares Competition Coordination Meeting with UM Eco-Campus	14 June 2019
53	INPUMA Slot on Women & SDGs @ Royale Chulan Hotel	18 June 2019
54	Sustainability University Barometer @ IIUM, Gombak	18-19 June 2019
55	National Standard Meeting (Environment) @ Menara Axis Cyberjaya	19 June 2019
56	UM Sustainable Transport Pitching Session: BEAM & Tryke chaired by DVC Development	19 June 2019
57	PPSG Roadshow (provide insights and feedback on UM Eco-Campus)	19 June 2019

58	Discussion on UM Sustainability Report Card: Finalization	21 June 2019
59	UMLL SAFE Dump Awareness Campaign @ KPS UM	24-25 June 2019
60	Initial Discussion on Sustainable Eco-Product with Ice-Cube Gift Sdn. Bhd.	27 June 2019
61	Initial Meeting MESTECC – UM – CENERGI SEA	1 July 2019
62	UMLL Imarah Green Project Internal Meeting @ APIUM	1 July 2019
63	I-KPKT Training at Bukit Tinggi on Sustainable Solid Waste Management	2-4 July 2019
64	Follow-up Discussion on UMCares Competition collaboration with UM Eco-Campus 2019/2020	2 July 2019
65	UM Plantation Meeting with Associate Vice-Chancellor (Industry & Community Networks) @ DVC Research & Innovation Office	5 July 2019
66	Meeting with DVC Development, Water Warriors, JPPHB & Suruhanjaya Pengurusan Air Negara (SPAN)	11 July 2019
67	Follow-up Meeting: MESTECC – UM – CENERGI SEA on RE & EE with DVC Development @ KPPI UM	15 July 2019
68	Global Sustainability Summit 2019 @ KPPI UM	15 July 2019
69	Initial Discussion with CIMB Foundation – UM Eco-Campus & UM ZWC on potential collaborative program	16 July 2019
70	Follow-up Meeting with Ustaz Mizra (Student Affairs Division) on Minggu Haluan Siswa (Orientation Week) & UM Eco-Surau Competition among Residential Colleges	18 July 2019
71	National Forum on Sustainability, CSR, & SDGs 2019 @ Parlimen Malaysia	19 July 2019
72	Special Public Lecture: Biodiversity & Ecology from Islamic Perspective: UMLL The RIMBA Project, Water Warriors, UM Eco-Campus, Faculty of Science UM & IKIM)	19 July 2019
73	INPUMA Executive Programme @ UM Zero Waste Campaign	22 July 2019
74	UMLL Imarah Green Project Meeting with Federal Territory Islamic Religious Department (JAWI) on Eco-Mosque Project	23 July 2019
75	Selangor Regional Powerhouse Gateway in ASEAN @ Hilton KL	23 July 2019
76	UMLL Imarah Green Project: Coordination Meeting with DVC Research & Innovation, Director of APIUM & UM Eco-Campus	24 July 2019
77	Green Procurement Practices Workshop (in collaboration with Department of Bursar UM) @ KPS UM	25 July 2019
78	Future Cities Research Institute Stakeholders Seminar with Sunway University & Lancaster University @ Sunway University	25 July 2019
79	BoomGrow – UM Collaboration Meeting @ DVC Research & Innovation	26 July 2019
80	Internal Discussion on UMLL System 2019	26 July 2019
81	South East Asia Sustainability Network (SEASN) General Assembly @ Penang (Olive Tree Hotel)	29 July 2019
82	Paper presentation & Benchmarking visit: International Conference on Sustainable Development Goals (ICSDG2019) by USM Centre for Global Sustainability Studies (CGSS) & SEASN @ Olive Tree Hotel	30-31 July 2019
83	Follow-up Discussion: UM Eco-Campus & UM ZWC in Collaboration with CIMB Foundation on CIMB Scholarship Program	6 August 2019
84	1 st Coordination Meeting of UM Eco-Campus Committee (JKEKOU) 2019 chaired by DVC Research & Innovation	7 August 2019
85	1st UM – Alam Flora 3R on Wheels @ KPS UM	8 August 2019
86	Panel Forum on National STEM Forum 2019 @ PASUM	15 August 2019
87	Meeting on JWG Malaysia – Qatar @ Ministry of Education (Proposal Pitching)	19 August 2019
88	Environmental Audit Meeting by OSHE UM @ JPPHB UM	19 August 2019
89	UMLL Final Monitoring Workshop 2019 Session 1 @ KPPI UM	20 August 2019
90	UM Eco-Campus & UMLL (The RIMBA Project, Water Warriors) collaboration with MAYBANK CSR Group: Maybank CSR Program @ Varsity Lake & UM GreenBelt	24 August 2019
91	UM Living Labs Clinic Workshop 2019/2020	28 August 2019
92	UM Eco-Campus & UM ZWC in Collaboration with CIMB Foundation on CIMB Scholarship Program 2019	29 August 2019
93	UMLL Final Monitoring Workshop 2019 Session 1 @ KPPI UM	30 August 2019

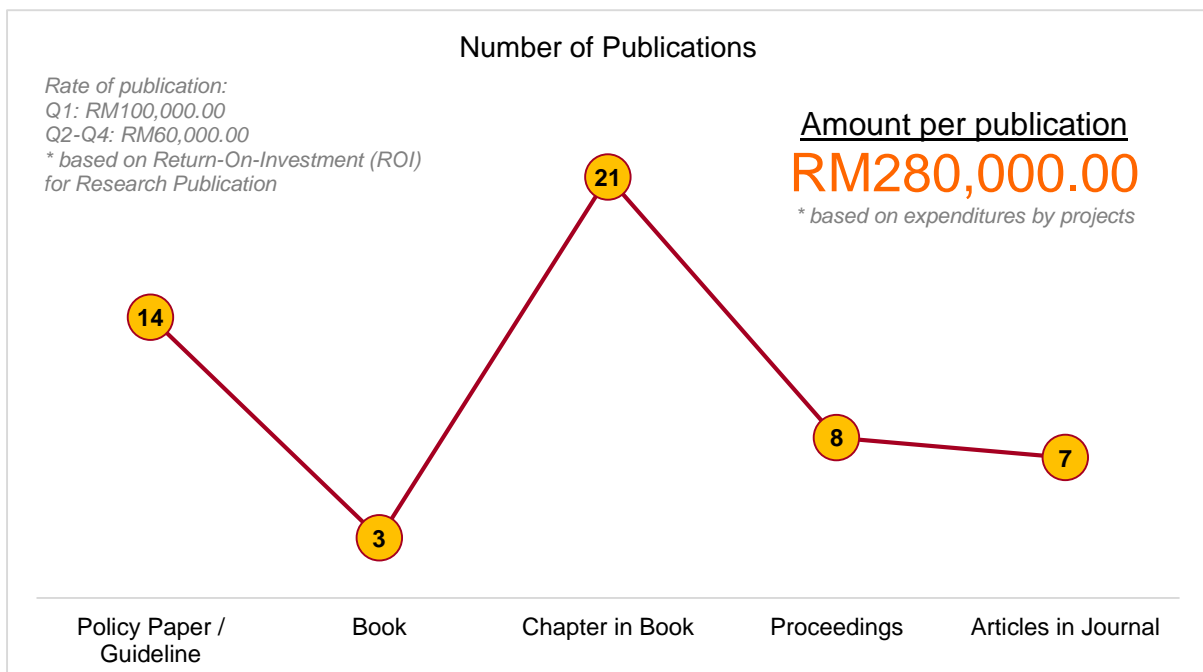
94	UM Eco-Campus Slot @ UM Week of Welcome / MHS of Faculty of Languages & Linguistics UM	4 September 2019
95	Environmental Sustainability Engagement @ Faculty of Engineering UM 2019	11 September 2019
96	UM Living Lab Safe DUMP signed an MoU with Make It Right Movement (MIRM)	19 September 2019
97	Meeting between UM Eco-Campus & Faculty of Science to partner-up with Little Urban Forest: Urban Forest Preschool Project 2020'	19 September 2019
98	Tabung Eko-Kampus UM' First Meeting 2019	20 September 2019
99	3 UM Living Labs aced the PECIPTA2019 @ UTHM with Gold Medal Awards	21-24 September 2019
100	2nd UM - Alam Flora 3R on Wheels @ KPS UM	26 September 2019
101	UM Living Lab Grant Phase 2019/2020 Proposal Presentation	27 September 2019
102	2nd UM Living Labs & UM Plantation Meeting Chaired by Associate Vice-Chancellor (Industry & Community Networks)	27 September 2019
103	UMCares Competition 2019/2020 Briefing with Residential Colleges	2 October 2019
104	3 rd Expert Workshop on Sustainable Consumption & Production (SCP) @ LESTARI, UKM	2 October 2019
105	INPUMA Waste Management Policy Lab 2019 @ Royale Chulan Damansara	3 October 2019
106	IGEM 2019 Internal Meeting with PPP UM	4 October 2019
107	Shibata High School Visit to UM Living Labs (The RIMBA Project & Water Warriors)	7 October 2019
108	SDG Forum @ Taiwan 2019 (DVC Research & Innovation and Chairperson UM Eco-Campus)	8-11 October 2019
109	IGEM 2019 @ KLCC	9-11 October 2019
110	Opening Ceremony of Geopolymer Concrete House (UMLL Recycling of Plastic Aggregates by AP Dr. Ubagaram Johnson)	21 October 2019
111	Initial Meeting between VOITH Group, UM Eco-Campus & JPPHB UM) – Sustainable Transport & Renewable Energy Potential Collaboration	22 October 2019
112	3 rd UM – Alam Flora 3R on Wheels @ Faculty of Engineering UM	23 October 2019
113	Seminar on Peace and Sustainable Development Goals (SDGs) by CITRA UM & Soka Gakkai Malaysia	24 October 2019
114	UTAR Conference on Youth Empowerment in Achieving SDGs 2019: Panel Forum & Roundtable Session	25-26 October 2019
115	UMLL Water Warriors: Launch of SPAN Initiative in Collaboration with UM (JPPHB, Water Warriors, Imarah Green Project & PTjs Surau)	29 October 2019
116	SDGs Talk @ ISIS Malaysia	31 October 2019
117	National SDGs Forum 2019 @ KLCC	6-7 November 2019
118	Asian Youth on Sustainable Palm Oil @ Bangkok on RSPO Summit 2019	2-6 November 2019
119	Follow-up Meeting on VOITH Group & JPPHB UM	7 November 2019
120	JK Lab Safety Module Meeting @ DVC Research & Innovation UM	15 November 2019
121	Taylor's University Exhibition & Keynote Speaker on the launch of Taylor's Solid Waste Recycling Awareness Campaign Program	18 November 2019
122	Capacity Building Program: Campus Sustainability Module Training Series 1 with Human Resource Division @ The Cube APIUM	19 November 2019
123	PPUM Recycling Day 2019 – Exhibition: UM Eco-Campus & UM Zero Waste Campaign	19-20 Nov 2019
124	CITRA's Visit to UMLL (Water Warriors & UM Zero Waste Campaign)	22 November 2019
125	Life Cycle Analysis Workshop with TNB @ Incubator UM	25-26 Nov 2019
126	Initial Discussion between APIUM, UM Eco-Campus, JPPHB, UMLL Imarah Green Project with TNB-X (Renewable Energy Collaboration) @ APIUM	25 November 2019
127	4 th UM – Alam Flora 3R on Wheels @ APIUM (APIUM Environmental Awareness Week 2019)	27 November 2019
128	TENBY International Schools Conference on Climate Change Solutions: Keynote Speaker & Interactive Workshop 2019	30 November 2019
129	Sustainability in Occupational Safety & Health Meeting (MBKP) 2019 @ Taylor's University	3 December 2019

130	MBPJ Waste Summit 2019 @ MBPJ Banquet Hall	3 December 2019
131	Final UM Eco-Campus Monthly Meeting 2019	6 December 2019
132	Initial Discussion with Human Resource Division (BSM) & IPPP UM on Research Officer (Temporary Appointment) 2019	9 December 2019
133	Internal Review of Times Higher Education University Impact Rankings on SDGs 2019	10 December 2019
134	Capacity Building Program: Campus Sustainability Module Training Series 2 with Human Resource Division @ The Cube APIUM	11 December 2019
135	Little Urban Forest Open Day	14 December 2019
136	5 th UM – Alam Flora 3R on Wheels @ KPS UM	17 December 2019
137	Masjid Jamek al-Khadijjah 'Karnival Back to School' – Eco-Bazar Jariah coordinated by UMLL Imarah Green Project Surau APIUM	21 December 2019
138	UM ZWC pre-training session with Trifacta Group (PASUM students)	23 December 2019
139	Imarah Eco-Friends visit to UM ZWC site	27 December 2019

In summary, UM Eco-Campus has successfully contributed a total number of **139 activities** in 2018 to 2019. In addition, 21 UM Living Lab projects supporting 8 core areas of UM Eco-Campus have collectively conducted various programmes throughout this 1 year period surmounted a total of **373 activities** including seminars, workshops, focus group discussion, exhibition and other relevant sustainability events.

C) PUBLICATIONS

UM Living Labs Grant Programme have contributed more than half of the publications in the form of book chapters followed by policy paper/guideline. This number is still growing considering that some of these projects are still on-going while output monitoring for completed programmes / projects are conducted for another 24 months after the programmes / projects concluded.



List of Publications

<p>Articles in Journal</p>	<p>ISI-indexed:</p> <ol style="list-style-type: none"> 1. Sim, S. M., Lai, P. S. M., Tan, K. M., Lee, H. G., & Sulaiman, C. Z. (2018). Development and Validation of the Return and Disposal of Unused Medications Questionnaire (ReDiUM) in Malaysia. <i>Asia Pacific Journal of Public Health</i>, 30(8), 737–749. doi: 10.1177/1010539518811161. [Q3 - Public, Environmental & Occupational Health] 2. Fong, C. S., Aghamohammadi, N., Ramakreshnan, L., Sulaiman, N. M. N., & Mohammadi, P. (2019). Holistic recommendations for future outdoor thermal comfort assessment in tropical Southeast Asia: A critical appraisal. <i>Sustainable Cities and Society</i>, 46, 101428. doi: 10.1016/j.scs.2019.101428. [Q2- Green & Sustainable Science & Technology] 3. Nayaka, R. R., Alengaram, U. J., Jumaat, M. Z., Yusoff, S., & Ganasan, R. (2019). Performance evaluation of masonry grout containing high volume of palm oil industry by-products. <i>Journal of Cleaner Production</i>, 220, 1202–1214. doi: 10.1016/j.jclepro.2019.02.134 [Q1 - Engineering, Environmental] 4. Onn, C. C., Mo, K. H., Radwan, M. K. H., Liew, W. H., Ng, C. G., & Yusoff, S. (2019). Strength, Carbon Footprint and Cost Considerations of Mortar Blends with High Volume Ground Granulated Blast Furnace Slag. <i>Sustainability</i>, 11(24), 7194. doi: 10.3390/su11247194. [Q2 - Environmental Sciences] 5. Tukimin, S. N., Karman, S. B., Ahmad, M. Y., & Zaman, W. S. W. K (2019). Polarized Light-Based Cancer Cell Detection Techniques: A Review. Page 9010-9025. [Q2 - Engineering, Electrical & Electronic] <p>Non-ISI indexed:</p> <ol style="list-style-type: none"> 6. Muhamad, A., Syihab, A. H., & Achour, M. (2019). Quranic Messages on Environmental Sustainability: An Expository Study of Its Relevance. <i>Al-Bayan: Journal of Quran and Hadith Studies</i>, 17(1), 38–59. doi: 10.1163/22321969-12340069. 7. Yusoff, S., Guan, N. C., Zaman, N. S. K., & Ahmadi, S. P. (2019). Assessment on the quality and environmental impacts of composting at higher educational institution community using LCA approach. <i>Polish Journal of Environmental Studies</i>. - <i>Under Review</i>
<p>Book</p>	<ol style="list-style-type: none"> 1. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2018). <i>UM Living Labs Training Module</i>. Kuala Lumpur, Malaysia: UMPress. 2. Tan, K. R., & Manickam, S. (2019). <i>A Selection of Special Plants in Rimba Ilmu Botanic Garden, Universiti Malaya</i>. Kuala Lumpur, Malaysia: UMPress 3. Yusoff, S., Ahmad, A. Z., Fakri, M. F. R., & Ariffin, N. F. R. (2019). <i>UM Living Lab Guidelines Volume I</i>. Kuala Lumpur, Malaysia: UMPress.
<p>Chapter in Book</p>	<ol style="list-style-type: none"> 1. Abdullah, R., Abdul Halim, N. S., Osman, N., Yusoff, S., Jalil, M., Hashim, N., & Masri, M. (2019). <i>Sustainable Management of Soil and Environment: Reducing Dependency on Fertilizer Consumption using Organic Materials</i>. In <i>UM Living Labs Volume III & IV</i>. Kuala Lumpur, Malaysia: UM Press. -submitted 2. Darvish, P., Alengaram, U. J., & Yusoff, S. (2019). <i>Incorporation of Recycled Plastic Aggregates in Mortar</i>. In <i>UM Living Labs Volume III & IV</i>. Kuala Lumpur, Malaysia: UM Press. -submitted 3. Harith, M. Z. Z., Idris, M. Y. I., Ahmady, I., Napih, M. N., Noor, R. M., & Tey, K. S. (2019). <i>Waste Management System in Universiti Malaya</i>. In <i>UM Living Labs Volume III & IV</i>. Kuala Lumpur, Malaysia: UM Press. -submitted 4. Harith, M. Z. Z., Idris, M. Y. I., Ahmady, I., Wahab, A. W. A., Noor, N. M., Tey, K. S., Napih, M. N., Borhan, M. Z., & Hanafi, W. M. S. B. W. (2019). <i>Water Monitoring System in Universiti Malaya</i>. In <i>UM Living Labs Volume III & IV</i>. Kuala Lumpur, Malaysia: UM Press. -submitted

5. Hasikin, K., Chan, N. H., Talib, M. I. A., Kadri, N. A., Azizan, M. M., Razak, S. A., Sabri, D. R., & Welfred, R. (2019). *Carbon Sequestration Analysis in University of Malaya in Achieving Carbon-Balanced Ecosystem*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
6. Hassan, N., Sanusi, J., Zainuddin, S. Z., Chow, U. T., Shuib, N. Y., & Noor, M. F. M. (2019). *Sustainability Reporting: The Faculty Sustainability Report Card*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
7. Lee H. G., Sim S. M., Tan K. M., Lai P. S. M., Wong Y. Y., & Sulaiman C. Z. (2019). *Safe disposal of unused medications (the way forward) – Sustaining and keeping it going*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
8. Malek, S., Millow, P., & Hui, C. (2019). *A System Approach to Environmental Data Archiving for Sustainability: University Malaya Living Lab System*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
9. Mispan, M. S., Hanafiah, N. M., & Osman, N. (2019). *Managing Kitchen Waste Using Black Soldier Fly (Bsf): An Alternative Approach Towards Zero Waste in Campus*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
10. Muhamad, A., Yusoff, Z. M., Yusoff, S., Noor, M. R. M., Mohamad, Z. F., Norasid, M. A., Mansor, N. H., Paad, N. S., & Hassan, N. A. A. (2019). *Surau Akademi Pengajian Islam Universiti Malaya (APIUM) As an Eco-Mosque Model: The Green Milestone*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
11. Nazneen, N., Zainol, R., Rosni, N. A., Yuen, C. W., Mokhtar, M. S., & Norman, A. A. (2019). *Walking in University of Malaya Campus! What Matters?* In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
12. Ong, B. J. M. & Manickam, S. (2019). *The RIMBA Project: Translational Research Through Student Volunteer Engagement*. In Botanic Gardens Conservation International, Volume 16 (1), (pp. 3-8).
13. Osman, N., Hussein, H., Halim, A., & Masri, M. (2019). *Ecoslope: An Innovative Use of Ecological Concept in Slope Landscape Environment*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
14. Ramakreshnan, L., Aghamohammadi, N., Chng, S. F., Abdullah, V. H. C. W., & Sulaiman, N. M. N. (2019). *Promoting Campus Walkability as a Sustainable Campus Initiative in a Tropical City*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
15. Yuen, C. W., Onn, C. C., Koting, S., Zainol, R., & Hamdan, F. H. (2019). *Sustainable Transportation System in Universiti Malaya Campus Through Carpool Program Mode*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
16. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Ariffin, N. F. R. (2019). *Living Labs as Enablers for Campus Sustainability Adoption*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted
17. Yusoff, S. Fakri, M. F. R., Ariffin, N. F. R., & Ahmad, A. Z. (2019). *University of Malaya Living Lab Programme and UM Eco-Campus Blueprint as University Best Practices in Promoting Sustainable Development Agenda*. In SEASN A Compendium of Selected Best Practices on Sustainable Development Goals. Penang, Malaysia: South East Asia Sustainability Network (SEASN) & Centre for Global Sustainability Studies (CGSS), Universiti Sains Malaysia. ISBN :978-967-394-337-1.
18. Yusoff, S., Mohamed, Z., & Ahmad, A. Z. (2019). *Climate Change & Agriculture: Quantification of Environmental Impacts for the Malaysian Rubber Industry Using Life Cycle Assessment*. In Climate Change and Agriculture. London, UK: IntecOpen.
19. Yusoff, S., Zaman, N. S. K., & Azlan, M. A. (2019). *Quantification of Potential Economical Saving from Integrated Organic Waste Management via Co-Digestion Method*. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted

	<p>20. Zakaria, Z., Zakaria, Z., Idris, D. M., Jacky, Y., & Ghazali, S. R. (2019). <i>Embedding Green into the Procurement Practice of University of Malaya</i>. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted</p> <p>21. Zubir, M. N. M., Mahmud, F., Shukor, M. H. A., Kiah, M. L. M., Ahmad, M. Y., & Muhamad, M. R. (2019). <i>Decentralization of Laboratory Exercise Via Remote Application</i>. In UM Living Labs Volume III & IV. Kuala Lumpur, Malaysia: UM Press. -submitted</p>
Proceedings	<ol style="list-style-type: none"> 1. Lee, H. G., Tan, K. M., Sulaiman, C. Z., Wong, Y. Y., & Lai, P. S. M. (2018). <i>Unused Medications Returned to The Hospital Pharmacy</i>. Paper presented at The Malaysian Congress of Geriatric Medicine 2018, Hospital Sultanah Bahiyah, Alor Setar, Kedah. 2. Yusoff, S., & Zaman, N. S. K. (2018). <i>Environmental Evaluation on Biological Treatment of Organic Fraction Municipal Solid Waste Using a Life Cycle Assessment Approach at University of Malaya</i>. Paper presented at Towards Livable, Resilient and Competitive Cities International Conference 2018 (TLRCCIC2018), Universiti Malaya, Kuala Lumpur, Malaysia. 3. Mahmud, F., Zubir, M. N. M., Ahmad, M. Y., Abdullah, Z., Kadri, N. A., Obaidallah, U. H., Faisal, T. M. A. (2019). <i>Development Of Web Based Real Time Remote Laboratory For Teaching And Learning</i>. Paper presented at Sustainable & Integrated Engineering International Conference 2019 (SIE2019), Universiti Teknologi Malaysia (UTM), Skudai, Johor, Malaysia. 4. Yusoff, S. Fakri, M. F. R., Ariffin, N. F. R., & Ahmad, A. Z. (2019). <i>Eco-Campus: The Commitments, Impacts, and Contributions of Universities toward Sustainable Development Goals (SDGs)</i>. Paper presented at 2nd International Conference on Green University, University of Isfahan, Isfahan, Iran. 29 April 2019. 5. Yusoff, S., Fakri, M. F. R., Ariffin, N. F. R., & Ahmad, A. Z. (2019). <i>The Roles and Contributions of Universities and Sustainability Engineering toward Sustainable Development Goals (SDGs) and Low Carbon Society (LCS) by 2030</i>. Paper presented at International Conference on Recent Advances in Civil Engineering (ICRACE 2019), Karunya Institute of Technology and Sciences, India. 6 Mac 2019. 6. Yusoff, S. Fakri, M. F. R., Ariffin, N. F. R., & Ahmad, A. Z. (2019). <i>University of Malaya Living Lab Programme and UM Eco-Campus Blueprint as University Best Practices in Promoting Sustainable Development Agenda</i>. Paper presented at 2nd International Conference on Sustainable Development Goals (ICSDG 2019), 30-31 July 2019, Universiti Sains Malaysia, Penang, Malaysia. 7. Yusoff, S., Zaman, N. S. K., & Azlan, M. A. (2019). <i>Environmental Performance Evaluation of Potential Biological Treatment on Food Waste</i>. Paper presented at 2nd International Conference on Sustainable Development Goals (ICSDG 2019), 30-31 July 2019, Universiti Sains Malaysia, Penang, Malaysia. 8. Zainol, R. (2019). <i>Walkability, Safe City! The Medical Journal of Malaysia</i>. Vol. 74, Supplement 2. Paper presented at 6th Asia-Pacific Conference on Public Health Urbanisation Challenges for Health, 22-25 July 2019, Penang, Malaysia.
Presentations	<ol style="list-style-type: none"> 1. Lee, H. G. (2018). <i>Managing Return and Reuse of Medications</i> at 4th Joint Insights Via Express (JIVE) 2018, Weil Hotel, Ipoh. 12 August 2018. 2. Lee, H. G., Tan, K. M., Sulaiman, C. Z., Wong, Y. Y., & Lai, P. S. M. (2018). <i>Unused Medications Returned to The Hospital Pharmacy</i> at The Malaysian Congress of Geriatric Medicine 2018, Hospital Sultanah Bahiyah, Ipoh. August 2018. 3. Keng, J. (2018). <i>Integrated Waste Management and UM Zero Waste Campaign</i> at UM Zero Waste Campaign site. 14 September 2018. 4. Ng, C. G. (2018). <i>Integrated Waste Management and Recycling Activities by UM Zero Waste Campaign</i> at UM Zero Waste Campaign site. 4 October 2018.

	<ol style="list-style-type: none"> 5. Yusoff, S., Keng, J., Azlan, M. A. F., & Zaman, N. S. K. (2018). <i>Integrated Food Waste Management and UM Zero Waste Campaign</i> at Block P20, Kuala Lumpur. 6 October 2018. 6. Yusoff, S., Keng, J., Azlan, M. A. F., & Zaman, N. S. K. (2018). <i>UM Eco Campus and UM Zero Waste Campaign in Malaysia's RCE Symposium</i> at UCSI University Kuala Lumpur Campus. 8 October 2018. 7. Keng, J. (2018). <i>Solid Waste Management and Composting</i> at SK Bario, Sarawak. 10-13 October 2018. 8. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Ariffin, N. F. R. (2018). <i>University of Malaya Living Labs and UM Eco-Campus. Forum on Malaysia's Roadmap Towards Zero Single-Use Plastics</i> at KL Convention Centre. 17 October 2018. 9. Yusoff, S., Keng, J., Azlan, M. A. F., & Zaman, N. S. K. (2018). <i>Initiatives of UM Zero Waste Campaign</i> at UM Zero Waste Campaign site. 26 October 2018. 10. Yusoff, S., Keng, J., Azlan, M. A. F., & Zaman, N. S. K. (2018). <i>Community Composting Project</i> at Research Management and Innovation Complex building. 30 October 2018. 11. Keng, J. (2018). <i>Integrated Solid Waste Management and Food Waste Treatment</i> at UM Zero Waste Campaign site. 31 October 2018. 12. Yusoff, S., Azlan, M. A. F., & Zaman, N. S. K. (2018). <i>UM Zero Waste Campaign Initiatives in UM Campus</i> at Research Management and Innovation Complex building. 21 November 2018. 13. Yusoff, S., Azlan, M. A. F., & Zaman, N. S. K. (2018). <i>University of Malaya Zero Waste Campaign and Green Campus Initiatives</i> at Public Lecture on Awareness Campaign and Integrated Solid Waste Management, Faculty of Art and Social Sciences. 23 November 2018. 14. Osman, N. (2018). <i>EcoSlope: Slope Eco-Engineering Technique Towards Sustainable & Green Landscape</i> at 23rd Biological Science Graduate Congress. 19 December 2018. 15. Yusoff, S., & Fakri, M. F. R. (2019). <i>Initiatif UI GreenMetric dan UM Zero Waste Campaign</i> at Bengkel Perancangan Iniatif Kelestarian UiTM. 13 January 2019. 16. Azlan, M. A. (2019). <i>UM Zero Waste Campaign as One of Living Labs in UM</i> at UM Zero Waste Campaign site. 17 January 2019. 17. Yusoff, S., Azlan, M. A. F., & Zaman, N. S. K. (2019). <i>Introduction to Food Waste Treatment as a Potential of Circular Economy at Universiti Malaya</i>. 8 March 2019. 18. Yusoff, S., Azlan, M. A. F., & Zaman, N. S. K. (2019). <i>Potential of Food Waste as Organic Compost in a Soil Conservation Programme at Universiti Malaya</i>. 27 March 2019. 19. Yusoff, S., & Fakri, M. F. R. (2019). <i>UM towards Zero Single-Use Plastics & Integrated Waste Management on Food Waste</i> at Universiti Malaya. March 2019. 20. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z. (2019). <i>UM Living Labs & UM Eco-Campus Initiatives: Co-Creation and Smart Partnership for the Goals</i> at Chancellery Building, Universiti Malaya. 15 April 2019. 21. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z. (2019). <i>UM towards Zero Single-Use Plastics & Integrated Waste Management on Food Waste</i> at Occupational Safety & Health (OSH) Unit, Universiti Malaya. 18 April 2019. 22. Yusoff, S., Ahmad, A. Z., & Fakri, M. F. R. (2019). <i>Reinventing The Campus: Bridging Collective Pathway Towards Eco-Campus and Sustainability</i> ay INTEC Education College. 22 April 2019. 23. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2019). <i>UM Eco-Campus: Forging Sustainable Pathway Towards Climate Action & Partnership for The Goals</i> at Seminar on Energizing Sustainable Development Goals (SESDG2019), Universiti Malaya. 24 April 2019. 24. Yusoff, S., & Fakri, M. F. R. (2019). <i>Implementation of Food Bank in Universiti Malaya Campus</i> at Universiti Malaya. 25 April 2019.
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25. Yusoff, S., Azlan, M. A. F., & Zaman, N. S. K (2019). *Implementation of Integrated Solid Waste Management System at Universiti Malaya*. 27 April 2019.
26. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2019). *Gender Equality and Sustainable Development Goals (Sdgs): Empowering Women Leadership for Sustainable Future at International Institute of Public Policy and Management (INPUMA), Universiti Malaya*. 22 June 2019.
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36. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Ariffin, N. F. R. (2019). *Towards A Sustainable & Eco-Friendly Campus: Critical Role of Eco-Friendly Campus in Addressing Sustainable Development Agenda at Universiti Tunku Abdul Rahman (UTAR)*. 26 October 2019.
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	<p>41. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2019). <i>Integrating Safety into Occupational Safety & Health (OSH)</i> at Taylor's University. 3 December 2019.</p> <p>42. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2019). <i>Advancing Sustainable Development Agenda: Empowering Educators in Leading Sustainability</i> at Asia Europe Institute, Universiti Malaya. 11 December 2019.</p>
<p>Policy Paper / Guideline / Standard</p>	<ol style="list-style-type: none"> 1. Hassan, N., Sanusi, J., Zainuddin, S. Z., Chow, U. T., Shuib, N. Y., & Noor, M. F. M. (2019). <i>Sustainability Reporting: The Faculty Sustainability Report Card</i>. Faculty of Languages & Linguistics, Universiti Malaya. 2. Manickam, S., Ong, B. J. M., Marican, N. F. M. A., Tan, K. R., Mohamad, Z. F., & Singh, S. K. K. (2019). <i>Botanical Art Programme</i>. The RIMBA Project, Faculty of Science, Universiti Malaya. 3. Manickam, S., Ong, B. J. M., Marican, N. F. M. A., Tan, K. R., Mohamad, Z. F., & Singh, S. K. K. (2019). <i>Explorace</i>. The RIMBA Project. 4. Muhamad, A., Yusoff, Z. M., Yusoff, S., Noor, M. R. M., Mohamad, Z. F., Norasid, M. A., Mansor, N. H., Paad, N. S., Zainol, N., & Hassan, N. A. A. (2019). <i>Garis Panduan Masjid Hijau Lestari</i>. Imarah Green Project, Faculty of Science, Universiti Malaya. 5. Osman, N., Hussein, H., & Halim, A. (2019). <i>Garis Panduan Pengurusan Teknik Eko-Kejuruteraan Cerun Berisiko Rendah & Sederhana</i>. Faculty of Science, Universiti Malaya. 6. Yuen, C. W., Onn, C. C., Koting, S., Zainol, R., & Hamdan, F. H. (2019). <i>UM Campus Transport Guidelines</i>. Centre for Transportation (CTR), Universiti Malaya. 7. Yusoff, S., Azlan, M. A., Zaman, N. S. K., & Ng, C. G. (2019). <i>Food Waste Treatment Guideline: Takakura Home Composting</i>. UM Zero Waste Campaign, Institute of Ocean & Earth Sciences (IOES), Universiti Malaya. 8. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Ariffin, N. F. R. (2019). <i>UM Living Lab Guidelines Volume I</i>. Universiti Malaya Eco-Campus & UM Living Labs, Universiti Malaya. 9. Yusoff, S., Lai, S. H., Onn, C. C., Zaman, N. S. K., & Azlan, M. A. (2019). <i>Bario's Food Waste-to-Compost Transformation Research</i>. UM Zero Waste Campaign, Institute of Ocean & Earth Sciences (IOES), Universiti Malaya. 10. Zainol, R., Nazneen, N., Rosni, N. A., Yuen, C. W., Mokhtar, M. S., & Norman, A. A. (2019). <i>Identification of Hotspots (Issues at Walkaways)</i>. Faculty of Built Environment, Universiti Malaya. 11. Zainol, R., Nazneen, N., Rosni, N. A., Yuen, C. W., Mokhtar, M. S., & Norman, A. A. (2019). <i>Walkability Appraisal for University of Malaya Campus: Moving Towards a Walking Campus Community</i>. Faculty of Built Environment, Universiti Malaya. 12. Zainol, R., Nazneen, N., Rosni, N. A., Yuen, C. W., Mokhtar, M. S., & Norman, A. A. (2019). <i>Walkability index (PEQI)</i>. Faculty of Built Environment, Universiti Malaya. 13. Zakaria, Z., Zakaria, Z., Idris, D. M., Jacky, Y., & Ghazali, S. R. (2019). <i>Universiti Malaya Sustainability Report</i>. Faculty of Business & Accountancy, Universiti Malaya. 14. Zubir, M. N. M., Mahmud, F., Shukor, M. H. A., Kiah, M. L. M., Ahmad, M. Y., & Muhamad, M. R. (2019). <i>Remote Experiment Operating Manual</i>. Faculty of Engineering, Universiti Malaya.

D) NETWORKING & LINKAGES

INTERNATIONAL NETWORKINGS:

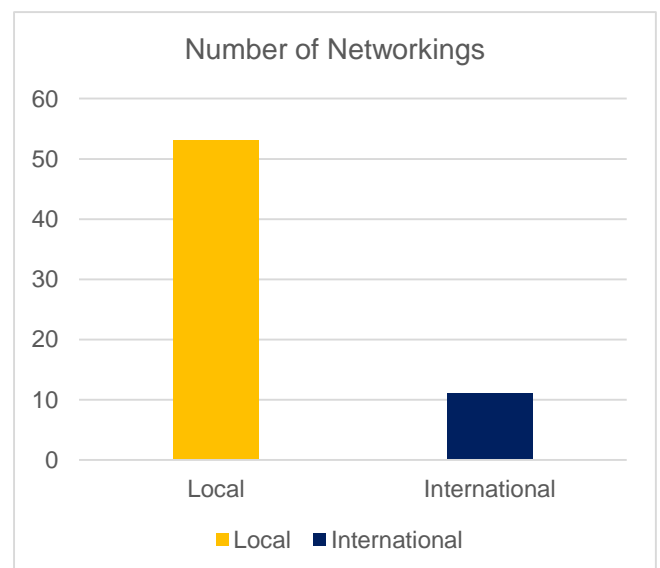
1. International Lake Environment Committee (ILEC)
2. Korea Institute of Sustainable Design and Educational Environment (KISEE)
3. Pusan University, Korea
4. Shibata Highschool
5. Soka Gakkai Malaysia
6. Thiagarajar College of Engineering, Anna University, India
7. Kyoto University Japan
8. Sustainable Places Research Institute (PLACE), Cardiff University
9. Centre for Ecology & Hydrology Thames21
10. Keep Wales Tidy
11. VOITH Group

SOME NOTABLE NATIONAL NETWORKINGS:

1. Kementerian Perdagangan Dalam Negeri Koperasi dan Kepenggunaan (KPDNKK)
2. YB. Fahmi, the Member of Parliament (Lembah Pantai)
3. Alam Flora Sdn Bhd
4. Food Aid Organisation (FOA)
5. Cenergi SEA Sdn Bhd
6. Pelabuhan Tanjung Pelepas (PTP), Johor
7. International Islamic University Malaysia (IIUM)
8. CIMB Foundation
9. Rotary Club Bukit Kiara
10. Universiti Malaysia Terengganu (UMT)
11. Leo Clubs
12. SWCorp
13. SMK Sri Pantai
14. INTEC Education College
15. Lembaga Urus Air Selangor (LUAS)
16. Akademi Sains Malaysia (AMS)
17. Suruhanjaya Perkhidmatan Air Negara (SPAN)
18. Air Selangor & Hartalega
19. Ministry of Education
20. Applied Agricultural Resources Sdn. Bhd.
21. Bank Negara
22. Ecoknights
23. QASK Engineering
24. Make It Right Movement Sdn. Bhd. (MIRM)
25. PPR Kerinchi, Lembah Pantai
26. My Conceptual Robotics Sdn. Bhd.
27. Deras Abadi Sdn.Bhd.
28. Global Top Technologies
29. PLUS Malaysia Bhd.
30. Universiti Tunku Abdul Rahman (UTAR)
31. Taylor's University
32. Universiti Sains Malaysia (USM)
33. UCSI University
34. Karunya Institute of Technology and Sciences, India
35. Tenby International School
36. Little Urban Forest
37. SMK Sri Damansara
38. Idrissi International School
39. Institut Kefahaman Islam Malaysia (IKIM)
40. Maybank CSR Group
41. Sunway University
42. International Institute of Advanced Islamic Studies (IAIS)
43. Mestec
44. Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC)
45. Universiti Tun Hussein Onn (UTHM)
46. Cenergy SEA Sdn. Bhd.
47. Tenaga Nasional Berhad (TNB)
48. BEAM Malaysia
49. Oride Malaysia Sdn. Bhd
50. TRYKE Malaysia
51. VOITH Group
52. Majlis Bandaraya Petaling Jaya (MBPJ)
53. Majlis Bersama Keselamatan & Kesihatan Pekerjaan (MBKKP)
54. Masjid Jamek al-Khadijah Pantai Dalam



Whether through solemn academic meetings or a much more laidback social events, extending networks are essential while doing research. Networking, linkages, partnerships, or collaboration often stimulate transfer of knowledge and exchange of ideas beyond university boundaries, allowing researchers to break their silos and gain insights from different perspectives.



E) AWARDS & RECOGNITIONS

Research, alongside education, can have a decisive impact on a university's contribution to society. Beyond its duty to impart knowledge, it is a university's commitment to research that allows it to conceive solutions to global challenges. In 2019, three (3) UM Living Lab programmes were awarded for their innovativeness in research.

Heartiest Congratulations

to 3 UM Living Lab Members on their remarkable conferment of **GOLD MEDAL AWARDS** at PECIPTA'19 @ UTHM, Johor (22-23 September 2019)

DR. ROSAZLIN ABDULLAH (FACULTY OF SCIENCE, UM)
PROFESSOR DR. SUMIANI YUSOFF (IOES & UM ECO-CAMPUS, UM)
ASSOCIATE PROFESSOR DR. UBAGARAM JOHNSON ALENGARAM (FACULTY OF ENGINEERING, UM)

UM IS A MEMBER OF: GreenMetric, ISCN, SEA, UNIVERSITY IMPACT RANKINGS

SUPPORTING UM PARTICIPATION IN: UNIVERSITY IMPACT RANKINGS

PLEDGE COMMITMENT & SUPPORT IN REALIZING ASPIRATION OF: UM Eco-Campus Care Areas

UM Eco-Campus Secretariat & UM Living Labs would like to extend our heartiest congratulations to our three (3) respective UM Living Lab Members on their remarkable achievement (all conferred with Gold Medal Awards) at PECIPTA'19.

With the theme: **'Innovation Beyond Imagination'**, PECIPTA'19 was held at Universiti Tun Hussein Onn Malaysia (UTHM), Johor from 22-23 September 2019; a biannual program organised by the Ministry of Higher Education, Malaysia together with its partner institutions since 2001. **PECIPTA aims to showcase innovative products and services from institutions of higher learning (IHL).**

It is our sincerest hope that these achievements would inspire others to be more creative and innovative in delivering research outputs beyond annual research KPIs and contributes to co-create a more holistic eco-campus.



1. PROFESSOR DR. SUMIANI YUSOFF (PI)

Team Member: Dr. Ng Chee Guan, Nur Shakirah Kamarul Zaman & Mairuz Asmarafariza Azlan
PTj: Institute of Ocean and Earth Sciences (IOES), UM

Email : sumiani@um.edu.my

Tel : +603-7967 5285

Project : UM Zero Waste Campaign (UM ZWC)
Waste to Wealth Initiative - Promoting Circular Economy

Category: Environment & Renewable Energy (ERE)

Award : Gold Medal



2. ASSOCIATE PROFESSOR DR. UBAGARAM JOHNSON ALENGARAM (PI)

Team Member: Prof. Ir. Dr. Mohd Zamin Jumaat, Dr. Yap Soon Poh, Dr. Mo Kim Hung, Iftekhaair Ibnul Bashar, M. Karthick Srinivas, Ahmed M.E. Alnahhal, K. Sudhakar Reddy

PTj : Centre for Innovative Construction Technology (CICT), UM

Email : johnson@um.edu.my

Tel : +603-7967 7632

Project : Innovative Bricks, Lightweight Zero-Cement Pavement Blocks and Blast Resistant Lightweight Concrete using Industrial Wastes

Category: Industrial Design, Building Engineering & Architecture (IDBEE)

Award : Gold Medal



3. DR. ROSAZLIN ABDULLAH (PI)

Team Members: Nur Sa'adah Abdul Halim, Hud Sulaiman, Jaafar Yunus, & Noor Sharina Mohd Rosli

PTj : Institute of Biological Sciences, Faculty of Science, UM

E-mail : rosazlin@um.edu.my

Tel : +603-7967 4360

Project : Biorenewable Resource Biochar Kiln

Category: Agriculture & Aquaculture (AA)

Award : Gold Medal

Project Title : UM Living Lab LL004-15SUS UM Zero Waste Campaign: Integrated and Sustainable Management Model Development in Universiti Malaya Campus

Principal Investigator : Professor Dr. Sumiani Yusoff
(Institute of Ocean & Earth Sciences (IOES), UM)

Award (s) :

- 1) **Gold Medal Award at PECIPTA2019 hosted by UTHM, Johor**
- 2) **Best Poster Presentation Award at UMCares' International Conference of Universiti Malaya Academia - Community Engagement (UMACE) 2019**
- 3) **Recognition as invited speaker at Official Launch of Taylor's University Lakeside Campus Recycling Programme**
- 4) **Received Action Research Grant by UMCares**
- 5) **Received Malaysia Research University Network (MRUN) Grant by UMCares**
- 6) **Received Fundamental Research Grant Scheme (FRGS) by Ministry of Education**
- 7) **Received Impact Oriented Interdisciplinary Research Grant (IIRG) by Universiti Malaya**
- 8) **Appointed as invited speaker for Capacity Development Programme at Institut Latihan Perumahan dan Kerajaan Tempatan(I-KPKT), Ministry of Housing & Local Government**
- 9) **Appointed as panel assessors of Long Research Grant Scheme (LRGS) and Transdisciplinary Research Grant Scheme (TRGS) coordinated by Research Grant Management Centre, Universiti Malaya**
- 10) **Invited to Malaysia's Global Environment Facility (GEF) National Dialogue by Global Environment Faculty Operational Focal Point GEF OFF**



In 2019, UM Zero Waste Campaign (UM ZWC) as one of the pioneer UM Living Labs project spearheads by Professor Dr. Sumiani (Director of Institute of Ocean & Earth Sciences and Chairperson of UM Eco-Campus Secretariat) has received three outstanding recognitions and a total of four research grant conferment at various platforms as follows:

- 1) Professor Dr. Sumiani and UM Zero Waste Campaign's initiative conferred with the **Gold Medal Award at the International Conference and Exposition on Inventions by Institutions of Higher Learning (PECIPTA'19)** with this year's theme: 'Innovation Beyond Imagination'. Her project entitled 'UM Zero Waste Campaign (UM ZWC) Waste to Wealth Initiative - Promoting Circular Economy' received the due recognition in Universiti Tun Hussein Onn Malaysia (UTHM). This platform aims to showcase and recognize the innovative products and services from IHLs.



Professor Dr. Sumiani and Ms. Mairuzasmara of UM Zero Waste Campaign (UM ZWC) received the Gold Medal Award at PECIPTA'19 hosted by UTHM, Johor.

- 2) Professor Dr. Sumiani and her UM Zero Waste Campaign team received the Best Poster Presentation Award at the International Conference of Universiti Malaya Academia-Community Engagement (UMACE) 2019 hosted by UMCares - The Community and Sustainability Centre. 'Earth Rescue Program: Systematic Food Waste Management' / Program Menyelamatkan Bumi: Pengurusan Sisa Makanan secara Bersistematik was the title of the awarded poster.



- 3) Professor Dr. Sumiani received a recognition of appreciation by Taylor's University Lakeside Campus. She was invited as keynote speaker and officiate the launch of Taylor's University Lakeside Campus Recycling Campaign.



- 4) As part of the expansion of Zero Waste Campaign initiative, Prof. Dr. Sumiani and her team were awarded with Action Research Grant by UMCares. The project consists of RM15,000 research grant (20 months period from 2018 to 2019) aims to give exposure by creating awareness programs for the targeted community at P20 (People's Housing Project) of Pantai Dalam in order to create systematic food waste management system plan and conversion of food waste into organic fertilizer. This project is part of the sustainable community initiative with support of YB Fahmi Fadzil, Member of Parliament of Lembah Pantai.



Professor Dr. Sumiani (Project Leader of the P20 Community Project) with YB Fahmi Fadzil (official launch ceremony at P20 Community Food Waste Management site)

- 5) In the new cycle of Malaysia Research University Network (MRUN) Grant, Professor Dr. Sumiani and her team are awarded with the conferment of MRUN Grant of RM64,900 (year 2019 to 2020) by UMCares for project entitled **'Urban Zero Waste Movement in Taman Seri Sentosa Community'**. This multidisciplinary community project engages researchers from Institute of Ocean and Earth Sciences (IOES) UM, 1 expert from Universiti Malaysia Kelantan as well as 2 internal experts from Faculty of Engineering and Faculty of Arts and Social Sciences respectively. Three respective platforms are supporting the implementation of this project namely Parliament of Lembah Pantai, Kuala Lumpur City Hall (DBKL) and Local Agenda 21 (LA21) Kuala Lumpur (mainly focus on urban community garden project). This community project engages researchers, staff as well as student volunteers from Centre for Foundation Studies in Science (PASUM) to work with the targeted community which aims to create awareness among the urban community about the importance of managing solid waste systematically while also expected to reduce carbon footprint by leveraging on circular economy practices. This is another sustainable community project with support of YB Fahmi Fadzil, Member of Parliament of Lembah Pantai.



Professor Dr. Sumiani and team members accompanying YB Fahmi Fadzil to discuss about future activities with Taman Seri Sentosa Community

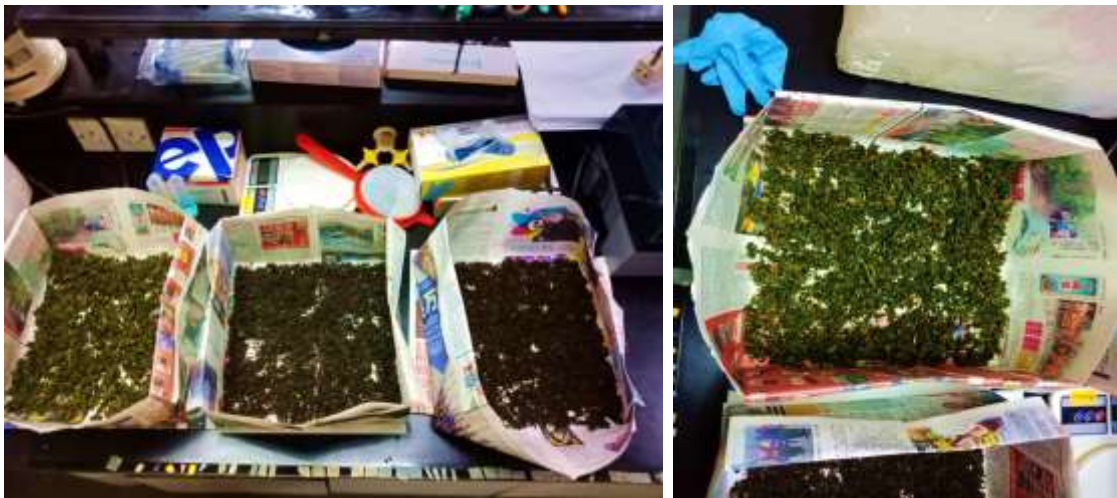


Soft Launch of Kebun-Kebun Sentosa Programme



PASUM (TRIFECTA) Volunteers Knowledge Transfer Workshop

- 6) On top of that, Professor Dr. Sumiani as the Director of Institute of Ocean & Earth Sciences has worked collectively in Fundamental Research Grant Scheme (FRGS) awarded by Ministry of Education (KPM) on Nanobiocomposite of Untreated Seaweeds and Oil Palm Empty Fruit Branches Cellulose for Bioplastics. This project received a total of RM 129,000.00 aims to produce bioplastics from seaweed and empty fruit brunch. Samples are collected at Pantai Pord Dickson, Negeri Sembilan.



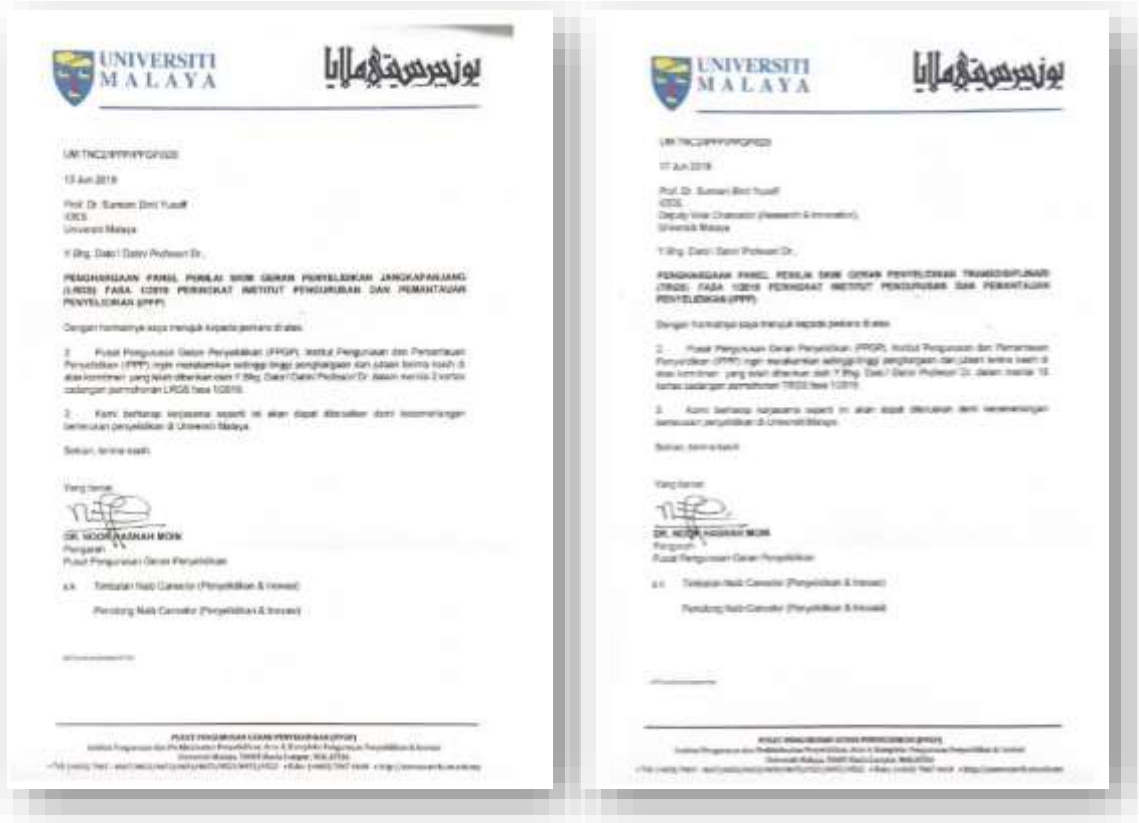
- 7) Professor Dr. Sumiani and her team at Institute of Ocean & Earth Sciences conducted a research on Vulnerability and Adaptation of Coastal Communities toward Climate Change. The project was awarded with a total of RM500,000 (24 months period from 2019 to 2020) by Universiti Malaya aims to study the climate change adaptation at targeted community in Bachok, Kelantan.



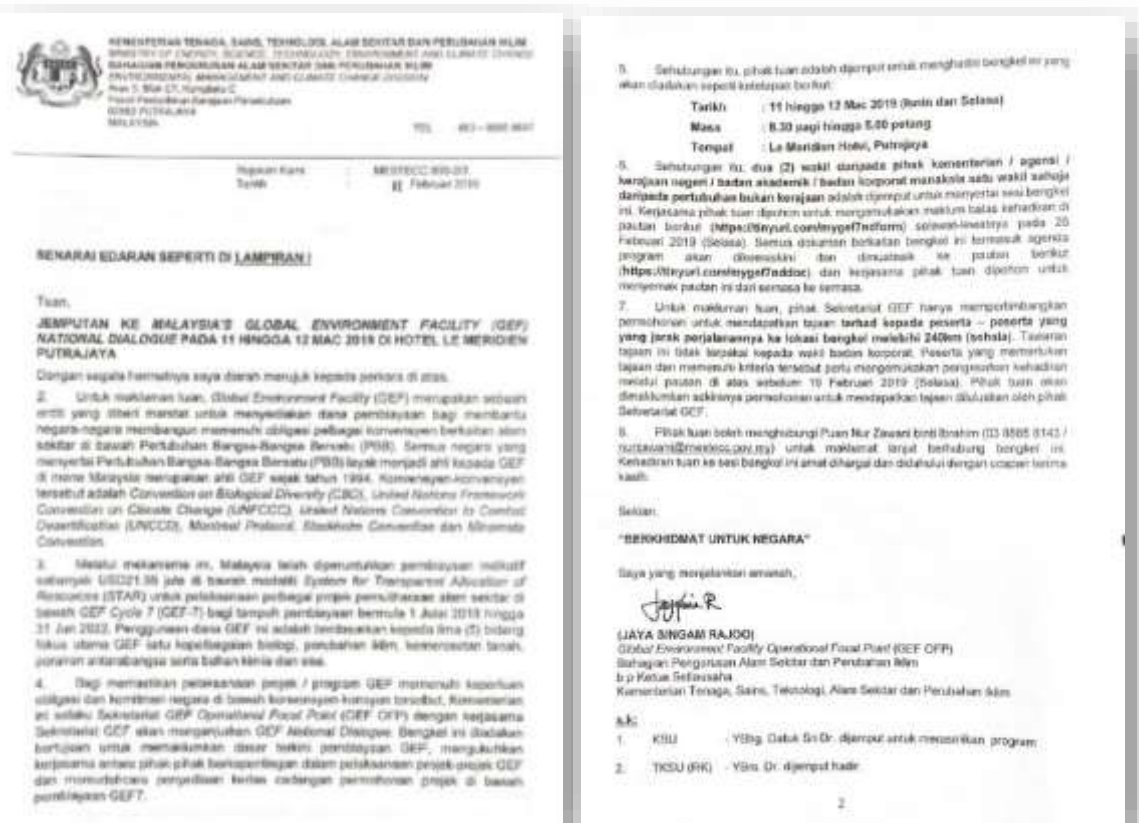
- 8) Professor Dr. Sumiani was appointed as invited speaker of Capacity Development Programme at *Institut Latihan Perumahan dan Kerajaan Tempatan(I-KPKT)*, Ministry of Housing and Local Government (Malaysia).



- 9) Professor Dr. Sumiani was appointed as panel assessor for two research grant schemes namely Long Research Grant Scheme (LRGS) and Transdisciplinary Research Grant Scheme (TRGS) under the coordination of Research Grant Management Centre (PPSG).



- 10) Professor Dr. Sumiani was invited as representative of Universiti Malaya to Malaysia's Global Environment Facility (GEF) National Dialogue by Global Environment Faculty Operational Focal Point (GEF OFP), Department of Environmental Management and Climate Change, Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC).



Project Title : LL002-15SUS UM Water Warriors – Integrated Water Management (Phase 5)

Principal Investigator : Associate Professor Dr. Zeeda Fatimah Mohamad
(Department of Science & Technology Studies, Faculty of Science,
Universiti Malaya)

Award (s) :



1) Newton-Ungku Omar Fund (NUOF) under the purview of Academy of Sciences Malaysia (ASM)

Project Title: The Application of Systems and Place-Based Methods for Enhancing Citizen Science as a Participatory Approach for Watershed Conservation (RM364,214.68 for the year 2018-2020).

- 2) 2019 (UM Water Warriors the SDG 14: Life Below Water Champion**
- 3) River of Life Public Outreach Programme (ROLPOP) Special Award 2019**
- 4) Community Engagement Certificate: Program Pendekatan Awam Sungai Nadi Kehidupan Fasa 5 (ROLPOP 5)**

Associate Professor Dr. Zeeda Fatimah Mohamad received the Advanced Fellowship (Social Sciences & Humanities) of the British Academy for the Newton-Ungku Omar Fund (NUOF) in 2018. Associate Professor Dr. Zeeda, Mr. Affan Nasaruddin and Ms. Siti Norasiah Abd. Kadir of Water Warriors attended the meeting and workshop at the partner-university; Sustainable Places Research Institute (PLACE) of Cardiff University.

Citizen Science with Thames21

Water Warriors had a meeting with A.J McConville from a charity group called Thames21; the voice for London's waterways, working with communities to improve rivers and canals for people and wildlife. Thames21 conduct their citizen science program via clean up, categorizing and trash survey.



Meeting and Workshop at PLACE, Cardiff University

Assoc. Prof. Dr. Zeeda and her team at the Sustainable Places Research Institute of Cardiff University; partner-university for the Newton-Ungku Omar Fund (NUOF) and Academy of Sciences Malaysia project.



Certificate of Recognition for Petaling Jaya Sustainable Community Award 2019 (UM Water Warriors the SDG 14: Life Below Water Champion)



River of Life Public Outreach Programme (ROLPOP) Special Award 2019



Community Engagement Certificate: Program Pendekatan Awam Sungai Nadi Kehidupan Fasa 5 (ROLPOP 5)

Project Title : UM Living Lab LL037-18SUS
Carbon Storage Mapping Initiative Through Real Time GPS Tracking and IOT Monitoring

Principal Investigator : Ir. Dr. Khairunnisa Hasikin
(Department of Biomedical Engineering, Faculty of Engineering UM)



(1) Malaysia Research University Network (MRUN) Young Research Grant 2020

Project Title: Climate Change Mitigation: Artificial Intelligence-Based Integrated Environmental System for Mangrove Forest Conservation (RM250,000.00 for the year 2020 – 2021 with research members from Universiti Malaya and Universiti Malaysia Perlis).

(2) Best Booth Award at the Seminar on Energizing Sustainable Development Goals (SESDG) 2019 in April 2019 at Academy of Islamic Studies, UM (APIUM).



- (1) **27 November 2019 (Wednesday)**: Ir. Dr. Khairunnisa Hasikin and her team from both UM and other universities received the honor of becoming the recipients of the coveted **Malaysia Research University Network (MRUN) Young Research Grant 2020** awarded by Datuk Professor Dr. Asma Ismail (President of the Academy of Sciences Malaysia – ASM) in the presence of Professor Dr. Shaliza Ibrahim (Universiti Malaya Associate Vice-Chancellor of Research & Innovation).

The proposal pitch was inspired by her previous project on UM Living Lab Carbon Storage Mapping at Universiti Malaya and this award would be an expansion on upscaling the initiative of her carbon-balanced project in UM. Heartiest congratulations to Ir. Dr. Khairunnisa Hasikin and her team on this remarkable achievement.



- (2) **25 April 2019 (Thursday)**: Heartiest congratulations to UM Living Lab - Carbon Storage Mapping team led by Ir. Dr. Khairunnisa Hasikin (Department of Biomedical Engineering, Faculty of Engineering, Universiti Malaya) for winning the Best Booth Exhibition Award at the Seminar on Energizing Sustainable Development Goals (SESDG2019). Ms. Fyra (research assistant) of the project received the award from Professor Dr. Sumiani Yusoff (Chairperson, UM Eco-Campus Secretariat & UM Living Labs).



Project Title UM Living Lab LL030-16SUS
Safe Disposal of Unused Medicines
(Safe DUMP) - The Way Forward

Principal Investigator Dr. Mary Lee Hong Gee
(Faculty of Pharmacy, UM)

Award Certificate of Appreciation in
Collaboration with Department of
Pharmacy, Universiti Malaya Medical
Centre (UMMC) during World Pharmacist
Day 2018.



Project Title UM Living Lab LL043-18SUS
Water Monitoring Via Internet of Things

Principal Investigator Associate Professor Dr.
Mohd. Yamani Idna Idris
(Faculty of Computer Science &
Information Technology)

Award PETRONAS Focused Recognition:
Demonstrating 'Internet of Everything' at
DISR Knowledge Talk Series of changing
business landscape in Industrial
Revolution (IR 4.0)



Project Title UM Living Lab LL034-18SUS
Smart Waste Management System
Using Internet of things

Principal Investigator Dr. Ismail Ahmedy
(Faculty of Computer Science &
Information Technology)

Award Certificate of Participation in 2019
Advantech Malaysia IoT Co-Creation
Partner Conference



F) MEDIA APPEARANCES

1) UM Eco-Campus & UM Zero Waste Campaign (UM ZWC)



Kempen Sifar Sisa Universiti Malaya, News Straits Times Press (NSTP), 16 September 2018



'Hari Habitat Sedunia: Halatuju Pengurusan Sisa Pepejal Perbandaran di Malaysia', Selamat Pagi Malaysia, 22 September 2018



Media Interview on 'Sampah Mahal Tarikan Industri RM30b', Berita Harian Metro, 21 January 2019



'Ramadan: 20,000 tan makanan dibazir', Berita Harian, 26 April 2019

Syabas UM! Universiti di pusat bandar paling lestari di Asia

MCH-DEKHE/RAHAMAT FAKRI, UM Selasa | 22 Januari 2019



KUALA LUMPUR – Universiti Malaya (UM) dengan keluasan kampus utamanya 2,997,385.14 meter persegi dan dihuni 33,041 warga kampus, berjaya menduduki tangga ke-36 Universiti Paling Lestari di Dunia dalam Universitas Indonesia GreenMetric World University Rankings 2018 yang diumumkan secara rasmi di Jakarta, Indonesia pada Disember 2018.

Lebih membanggakan lagi, di bawah kategori 'universiti di pusat bandar', UM berada di tangga teratas Asia untuk tahun kedua berturut-turut. Pencapaian UM pada 2018 merekodkan jumlah skor keseluruhan terbaik sepanjang rekod penyertaannya sejak 2011 sebanyak 75 peratus (peningkatan sebanyak 12.2 peratus berbanding 2017) menyaksikan pertambahan jumlah penyertaan kepada 719 institusi pengajian tinggi dunia. UM turut cemerlang dalam pengurusan air, pendidikan dan penyelidikan kelestarian, dan pengurusan sisa.

UI GreenMetric World University Rankings (UIGM) merupakan satu-satunya sistem penarafan pencapaian universiti yang dilancarkan pada 2010 oleh Universitas Indonesia (UI) dengan memberi penekanan kepada prestasi kelestarian kampus. Sistem penarafan prestasi ini menilai, menganalisis, dan memberi penarafan kepada pencapaian universiti dalam enam kategori: (1) Lanskap dan Infrastruktur (15%), (2) Tenaga dan Perubahan Iklim (21%), (3) Pengurusan Sisa (18%), (4) Pengurusan Air (10%), (5) Pengurusan Pengangkutan (18%), dan (6) Pendidikan dan Penyelidikan (18%).



Mahasiswa UM menjaga tanaman ekologi identifikasi dan pemeliharaan pokok sekitar kampus UM. (FOTO UM Living Lab The BBI&S Project)

Pengerusi Sekretariat Eko-Kampus UM, Profesor Dr. Sumiani Yusoff pula berkata segala inisiatif kelestarian kampus ini memerlukan penglibatan serta kerjasama aktif daripada semua pihak di UM termasuk kumpulan pengurusan, staf, mahasiswa-mahasiswa serta komuniti sekitarnya dalam sama-sama mendukung dan merealisasikan aspirasi Pelan Pembangunan Eko-Kampus UM yang dilancarkan pada 2016; pelan tindakan bersepadu dalam membangunkan kampus UM secara lestari demi manfaat warga kampus secara holistik.



PROF. DR. SUMIANI YUSOFF
Beliau bersama kumpulan Eko-Kampus UM berhasrat untuk mempergiat dan memperkasa inisiatif kelestarian UM melalui penyelidikan bersifat transnasional dan action research yang dipopularkan dengan penjenamaan University of Malaya Living Labs (UMLLL).

"Hasrat ini selari dengan inisiatif transformasi kampus sebagai 'makmal hidup' melalui penjenamaan hasil penyelidikan yang memberikan manfaat kepada warga kampus melalui segenap aspek pengurusan, pembangunan, pengurusan sumber dan operasi harian yang berorientasi lestari, bertanggungjawab, dan optimum."

Kampus UOLS, KOSMO Online, 22 January 2019

New Straits Times | 30 JANUARY 2019 | 29

HIGHER ED

THE ANTHEM 'NEGARAKU': NATIONAL SYMBOL AND ICON
SEEKING DIGITAL TALENT

Greening the campus

Greening the campus
Universiti Malaya (UM) has been ranked as the 36th most sustainable university in the world according to the GreenMetric World University Rankings 2018. The university is also ranked as the most sustainable university in Asia in the 'university in city centre' category.

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New Straits Times | 30 JANUARY 2019 | 31

cover story | HIGHER ED

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'Greening the campus', News Straits Times, 30 January 2019



IN PRACTICE: UNIVERSITY OF MALAYA

In 2015 University of Malaya (UM, Malaysia) launched the UM Eco-Campus Blueprint (UMECB) as part of an institution-wide drive toward creating a sustainable campus. UMECB is a long-term sustainability commitment which involves university leaders, staff, and students to work as one community in concerted manner and combines the critical elements of research, education, operations & university leadership.

In UM, green campus coordination is mandated to UM Eco-Campus Secretariat with direct support from UM Living Labs (UMLL) Grant Programme.

UM LIVING LABS

UMLL contribute towards minimizing harmful environmental impact on campus by reducing the amount of carbon emission to drive UM to be one of the prominent eco-campus in Malaysia and the world. UMLL enables the integration of Research and Development, deployment of real-time sustainability solutions on the grounds, promoting transdisciplinary research, and most importantly betis the need of community to achieve greater engagement with a more holistic experience for a better campus environment, as one of the first of its kind in Malaysia. In 2018 UMLL was in its fourth cycle, where solutions were applied on a larger scale. It has shown that the direct and indirect monetary gains from the collective initiatives to cut 6,590,000 kg CO₂ Green House Gases (GHG) emissions surmount to more than RM1 million (about 245,000 USD) within a one-year period.

- ▶ Water Management
- ▶ Energy Management
- ▶ Transportation System Management
- ▶ Green Procurement
- ▶ Education Management: Environment & Climate Change
- ▶ Change Management in Governance, Participation, & Communication

As of 2018, a total of 45 projects have been funded to tailor UM Eco-Campus Core Areas to the needs of Sustainable Development Goals (SDGs), including three pioneer initiatives that have shown remarkable contributions:

- ▶ UM Zero Waste Campaign (UM ZWC): campus integrated waste management
- ▶ Water Warriors: water conservation & revitalization
- ▶ The RIMBA Project: biodiversity & landscape management

by the Eco-Campus Secretariat
University of Malaya, Malaysia

UM ECO-CAMPUS BLUEPRINT

The UMECB is a guideline that puts emphasis on green campus policy, reflected in eight core areas:

- ▶ Landscape & Biodiversity Management
- ▶ Waste Management

- ▶ www.um.edu.my/about-us/unique/sustainability@um
- ▶ <http://www.waterwarriors.wslife.com/taek>
- ▶ <http://umrimba.wslife.com/umrimba/>

'Indicators for a green university', Asia Uninet Bulletin, 1 February 2019



Saifuddin Nasution di Universiti Malaya, BERNAMA, 25 April 2019



Institut Kefahaman Islam Malaysia (IKIM) Radio Interview on ‘Makanan Suatu Nikmat: Dihargai Bukan Dibaziri’, 27 May 2019

2) Recycled Plastic Aggregate as Replacement For Conventional Aggregates in Concrete Recycle of Aggregates Plastics



Opening Ceremony of Geopolymer Concrete House, The Star, 26 October 2019

3) The RIMBA Project



Universiti Tunku Abdul Rahman (UTAR) in collaboration with The RIMBA Project Universiti Malaysia in planting programme, Chinese News, October 2018



Metro News, 28 December 2018



Sinar Harian, 30 December 2018



News Straits Times (NST), 30 December 2018



BFM Radio Interview, 22 April 2019

4) Imarsh Green Project



UM Eco Freemarket Santuni Kominiti PPR Kerinchi, Kosmo Online (Kampui UOLS), 24 April 2019





**'UM Eco-Freemarket Terap Kepentingan Kitar Semula',
Akhbar Kosmo (1 June 2019)**

Taman mini surau APIUM jadi medan bicara ilmu memperkukuh amalan lestari

NAHRIZUL ADIB KADRI, UM Rahman | 27 Jun 2019



Mahasiswa diperkasa kesedaran alam sekitar

28 Jun 2019 3:00 AM



Kosmo Online (27 & 28 June 2019)

'Tadabur' alam di taman mini

Peristiwa



DALAM usaha meningkatkan kesedaran warga kampus, Universiti Malaysia UM berhadapan dengan program alam sekitar. Akademi Program Islam (APIUM) baru-baru ini mengadakan program bicara bertajuk Tadabur Alam (Tadabur Alam) bertempat di Taman Mini Surau APIUM. Program diadakan di dalam mini surau APIUM yang baru siap dibina bersempadan dengan landasan persembakan kesedaran alam sekitar oleh mahasiswa APIUM. Dr. Anwarul Mubtadin dan Pengarah Kanan Surau Al-Quran dan Hadith, Dr. Mohamad Akbarul Hameed, yang telah hadir Pengarah APIUM, Prof. Dr. Saiful Anwar dan Dr. Anwarul Mubtadin. Program ini bertujuan untuk meningkatkan kesedaran alam sekitar di kalangan mahasiswa APIUM. Dr. Anwarul Mubtadin berkata, program ini bertujuan untuk meningkatkan kesedaran alam sekitar di kalangan mahasiswa APIUM. Dr. Anwarul Mubtadin berkata, program ini bertujuan untuk meningkatkan kesedaran alam sekitar di kalangan mahasiswa APIUM.

Program ini bertujuan untuk meningkatkan kesedaran alam sekitar di kalangan mahasiswa APIUM. Dr. Anwarul Mubtadin berkata, program ini bertujuan untuk meningkatkan kesedaran alam sekitar di kalangan mahasiswa APIUM. Dr. Anwarul Mubtadin berkata, program ini bertujuan untuk meningkatkan kesedaran alam sekitar di kalangan mahasiswa APIUM.



**'Tadabur Alam di Taman Mini',
Utusan Malaysia (15 August 2019)**

5) Safe Disposal of Unused Medications (Safe DUMP)



BFM Radio Interview, 22 January 2019



Oriental News Daily, 23 June 2019

6) Carbon Storage Mapping Initiative Through Real Time GPS Tracking & IoT Monitoring



Peranti Pemantau Alam Sekitar, KOSMO Online, 20 February 2019



Peranti mudah alih ukur karbon dioksida, Berita Harian, 14 March 2019

'Mengekalkan keunikan hutan', Berita Harian, 2 May 2019

7) Healthy Soil for a Healthy Environment; Reducing Dependency on Chemical Fertilizer Consumption in Universiti Malaya Using Organic Materials



'Belajar Cara Pengurusan Baja', Utusan Malaysia, 7 October 2019

8) Other related news to UM Living Labs Initiatives



Seni 'Bebola Lumut' bina inspirasi pelatih Rumah Puteri Arafiah, Kampus Uols, 27 May 2019



Centre aims to destigmatise cancer via walk

By JAMBU LIM
jambulim@comstar.com.my

WALK is just a step diagnosed with cancer at the age of 68, she was gripped with fear.

But with help and support from family and friends, Wang found the strength to bear the disease.

"I was scared when I was first diagnosed with breast cancer. Thinking the news in my family was the last thing and I was crying while on the phone with my children."

"It was a painful experience because I had to undergo several operations to remove the cancer," she said.

A cancer scare, Wang received this insurance and started her own agency at 62.

However, she had to stop working after being diagnosed with the illness.

"Lack of job support from my family, church members and friends - a supportive community is important to help me get through the journey."

"It is also very important to lead a healthy lifestyle and I would like to encourage cancer patients to support each other. They must have faith to make it through the rough times," said the volunteer at Resplend Cancer Community Centre (RACC).

The centre's founder, Assoc. Prof Dr Lai See The said there are several myths, taboos and stigmas surrounding cancer.

"This goes across all ethnicities, gender and educational backgrounds. Some say it is caused by bad karma while others believe in viruses causing cancer or cancer-causing food."

"Most cancers are related to environmental, lifestyle, or behavioural exposure while only about 10% are hereditary or due to inherited genetic mutations."

Dr Lai added that cancer survivors have a constant fear the illness will recur, as such a supportive community can facilitate a mindset that they are safe and successful.

"We aim to build a supportive, therapeutic community where survivors and their carers join in to help use ourselves on inevitable factors such as engaging in community physical activity, reducing sedentary behaviour, eating well, by having a stress-free mind, sleep, weight and obesity management, as well as maintaining good mental health," she said.

Dr Lai, who is a fellow of the National Institute of Health, Social Issues, and Services of the Health, Behaviour, Society and Health Department, Faculty of Medicine, Universiti Malaya (UM), hopes to see the public and cancer survivors joining in the 2019 Resplend Cancer Walk to create a large 'People Walk' on June 22.

"The charity walk aims to raise awareness of cancer, destigmatise the disease and encourage cancer survivors and the public to lead a healthy lifestyle," added.

Jointly organised by the Medical Society of UM and RACC and supported by UMCare, participants will be guided off from RACC for the 5km route around the UM campus by PwDales Jaye MY Music Club members.

They will return to RACC where various activities have been arranged including a mental health talk, chair-based exercise, cancer survivor sharing session, cancer colour screening, breast reconstruction module class as well as educational videos.

2019 Resplend Cancer Walk organising committee president, Lim Pei Theng, 31, and vice-presi-

dent Chen Chia (31, 21, who are both 21st students, said according to RACC, activities had benefited them.

"We learn about patient, gene-therapy and dermatology while helping to recognise the effect in between our genetic identities, while contributing to the community," Lim said.

"It helps grow, bearing while supporting cancer patients so that they do not feel alone."

"Some of the activities involve going to the Community Medical Centre to talk to the patients. Seeing them smile gives me great satisfaction," said Chen.

The walk will start from RACC, No. 13, Jalan 16/4, PwDales Jaya and the closing time for registration is June 9. For details, call 261 088 0091 (ext) or 267 722 0888 (toll-free) or visit www.facebook.com/page/6616666666666666.

Centre aims to destigmatise cancer via walk, The Star, 31 May 2019

UM LIVING LABS GRANT PROGRAMME

UM LIVING LAB PERFORMANCES AND OUTPUTS

While UM Living Labs mode is slightly different from its counterpart [such as UM Research Programme (UMRP) or Grand Challenge (GC)], they still share common principle and goals in providing working solutions to the community. In UM Living Labs case, campus community become their main beneficiaries. UM Living Lab programmes are geared towards providing and eventually implementing sustainable solutions on the ground for the betterment of campus performance. Researchers strive to gain excellence in their environmental, social and economic performances respectively.

i) ENVIRONMENTAL PERFORMANCE

Theme	Example of Notable Achievements												
Waste Management	<p>1) UM Zero Waste Campaign (PI: Prof. Dr. Sumiani Yusoff, IOES UM)</p> <ul style="list-style-type: none"> Total waste diverted into useful resources (2019): 174,827.3 kg <ul style="list-style-type: none"> Total Food Waste Compost (open air piles): 47,471.5 kg Total Waste Digested (Anaerobic Digestion): 2,136.7 kg Total Green Waste Compost (Open air piles): 19,913 kg Total Textile Waste Recycle/Reuse: 22,354.8 kg Total Waste/Material Collected: 82, 951.3 kg Total tipping fee saved from sending waste to landfill (2019): RM 45,000.00 Total waste diverted since inception till 2019: > 900 ton Total carbon emission reduction since inception till 2019: > 4,917,493 KG CO2-eq <p style="text-align: center;">Percentage of Waste Diverted from Landfills by UM ZWC (in tonnage)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Data for Percentage of Waste Diverted from Landfills by UM ZWC (in tonnage)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Waste/Materials Collected</td> <td>48%</td> </tr> <tr> <td>Food waste</td> <td>27%</td> </tr> <tr> <td>Textile Waste Recycle/Reuse</td> <td>13%</td> </tr> <tr> <td>Green Waste Compost</td> <td>11%</td> </tr> <tr> <td>Waste Digested</td> <td>1%</td> </tr> </tbody> </table>	Category	Percentage	Waste/Materials Collected	48%	Food waste	27%	Textile Waste Recycle/Reuse	13%	Green Waste Compost	11%	Waste Digested	1%
Category	Percentage												
Waste/Materials Collected	48%												
Food waste	27%												
Textile Waste Recycle/Reuse	13%												
Green Waste Compost	11%												
Waste Digested	1%												



- Average Textile Waste Collected (monthly): **1,900 kg**
- Total Recyclable Textile Waste (yearly): **22,354.8 kg**

Total solid waste collected and sent to landfills: **1,816,858 kg**

- Total Wet Waste (Mixed): **987,138 kg**
- Total Dry Waste (Landscape): **829,720 kg**

2) Safe Disposal of Unused Medications: Working towards Green Pharmacy in Universiti Malaya Medical Centre (PI: Dr. Lee Hong Gee, Faculty of Pharmacy)

- Total of unused medicines collected (2019): **986.15 kg**
- Total amount of medicines safely discarded (2019): **824.55 kg**
- Total amount of medicines that are reusable (2019): **168.8 kg**
- **83%** of the unused medicines returned to UMMC Pharmacy was safely disposed.



3) Recycled Plastic Aggregate as Replacement for Conventional Aggregates in Concrete (PI: AP Dr. Ubagaram Johnson Alengaram, Faculty of Engineering)

- Total Green Area Constructed/ Preserved: **43.11 m²**
- Total Hazardous Waste Recycled: **389.4 kg**
- Total Recyclable Material (Plastics): **389.4 kg**
- Monetary savings from project implementation: **RM 56.30**

Examples of plastics aggregates used as replacement for conventional aggregates in concrete:



Black: 560.18 kg/m³



Blue: 582kg/m³



Green: 727.45kg/m³



Constructed pavement using plastic aggregates at Geo-polymer House near to UM Bus Station



Project implementation has been officiated by The Deputy Vice-Chancellor (Development), Prof. Dr. Abd Aziz Abd Raman on 21 October 2019, 3:00 pm.

4) Smart Waste Management System using Internet-of-Things (IOT)
(PI: Dr. Ismail Ahmedy, Faculty of Computer Science & Information Technology)



Waste detection sensor is an initiative of UM Living Labs to manage waste systematically via Internet-of-Things (IoT) - Implementation of IR 4.0. This project will be continued through MRUN-LRGS research grant in collaboration with UM Zero Waste Campaign (UM ZWC) to route optimization for efficient waste collection.

5) Managing kitchen waste using Black Soldier Fly (BSF): An Alternative Approach Towards Zero Waste in Campus
(PI: Dr. Muhamad Shakirin Mispan, Faculty of Science)

This initiative brings the idea to reduce environmental problem (kitchen waste).



Meanwhile, BSF and fly larvae can be commercialized for income generation.



Water Management

1) UM Water Warriors (PI: AP Dr. Zeeda Fatimah Mohamad, Faculty of Science)

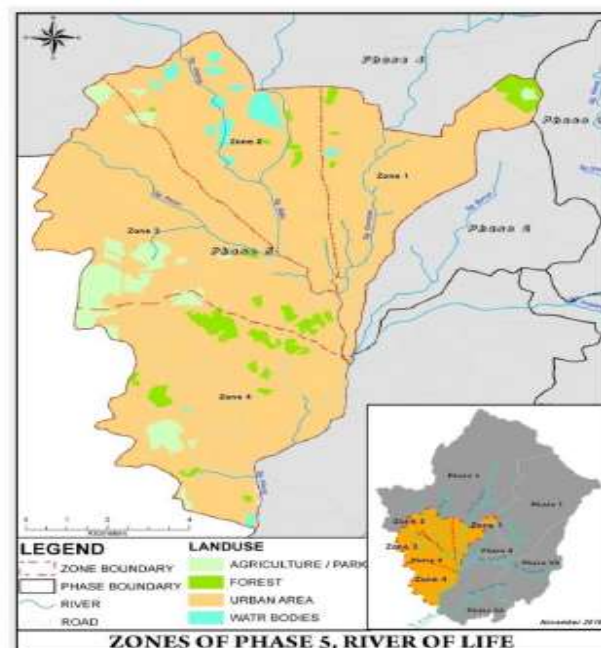
- Total Piped Water Saved: **76,269 m³**
- Total New Products Avoided Due to Recycling Effort (Plastics): **15,0051 kg**
- Total Green Area Constructed/ Preserved: **56227 m²**



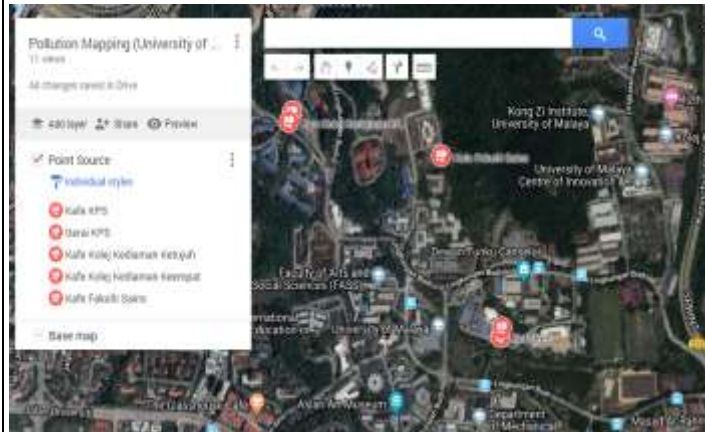
A constructed wetland and stream project at Tasek Varsiti



Projek Tebatan Banjir under DBKL: 16,000 metre cube (m3) concealed flood detention pond underground



Construction and development of UM Water Educational and Information Centre (Phase 2) to support to the National Level River of Life (ROL) programme



Pollution Mapping of Campus Watershed



Enhancing the performance of Mr Thimble (low flow device installed from previous phase) at selected musollahs in UM



Water Saving Initiative (Collaboration with SPAN)

RAINWATER HARVESTING TANKS IN CAMPUS - MAKE FULL USE OF THEM!

Rainwater is one of the most abundant resources nature has to offer, so why waste it? It's easy to collect, and it's free! Using rainwater harvesting can reduce your reliance on tap water and reduce water bills. :)



58 Rainwater Tanks
21 Locations
34,264 gallons Capacity

Click on each 'cloud' to find out the location of the tank in the map below:





DOWNLOAD our rainwater harvesting awareness slider here:
[HTTP://TINYURL.COM/UMRAINWATER](http://tinyurl.com/umrainwater)

Enhancing the use of rainwater harvesting systems (installed from previous phases) at selected PTJs in UM

2) **Water Monitoring via Internet of Things** (PI: AP Dr. Mohd. Yamani Idna Idris, Faculty of Computer Science & Information Technology)



UM Living Lab's new initiative to control water consumption efficiently

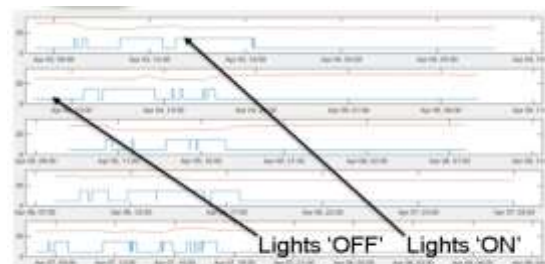
Energy Management

1) **Robust Smart Modular Electrical Energy Monitoring and Management System for Energy Saving** (PI: Dr. Mohd. Yazed Ahmad, Faculty of Engineering)

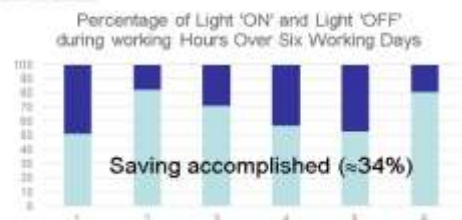


Under well controlled environment, the system has achieved:

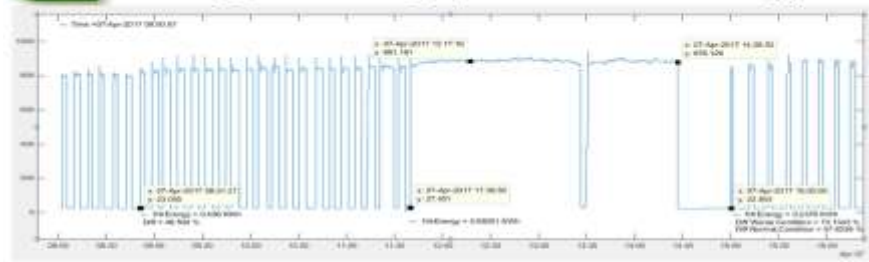
- **34%** reduction of energy usage for lightings
- **47.8%** reduction of energy usage for air-conditioning
- Total energy saved: **5,503 kwh**
- Monetary Saving from The Operation of Project: **RM 2,751.00**



Energy saving (Lighting)



ECO Energy Saving (Air-conditioning)



Consumption over one hours		
Temp Setting Below 23Deg	Temp Setting 25Deg	Temp 26Deg
0.886KWh	0.456KWh Saving: 48.5% w.r.t 24Deg	0.238KWh Saving: 73.1% w.r.t 24Deg :47.8% w.r.t 25Deg



**Switch module at Embedded System Lab
Block C, Faculty of Engineering, UM**



**Switch module at Block D,
Faculty of Engineering, UM**

Transport Management

1) Develop a Sustainable Transport System in Universiti Malaya Campus (PI: Ir. Ts. Dr. Yuen Choon Wah, Faculty of Engineering)

- Total Petrol Saved: **74kg/ 74 litre**
- Total Mileage of Passenger Car Avoided: **694 km**



Implementation of bike-in-lane signage, sharrow markings and informative sign poles

Education Management

1) Transforming the Role of Surau APIUM for Campus Sustainability Through 'Imarah Green Project' (PI: Dr. Asmawati Muhamad, APIUM)

- Total Piped Water Saved: **137 m³**
- Total New Products Avoided Due to Recycling Effort: **33 kg**
- Total Green Area Constructed/ Preserved: **21 m²**
- Total of plants planted: **151**
- Total Textiles and Old Clothes Recycled: **2,504.9 kg**
- Total Recyclable Materials: **750.17 kg**



Implementation of Rainwater Harvesting System (RWHS)



Hanging pots



Edible plants



Flowers @ planter box

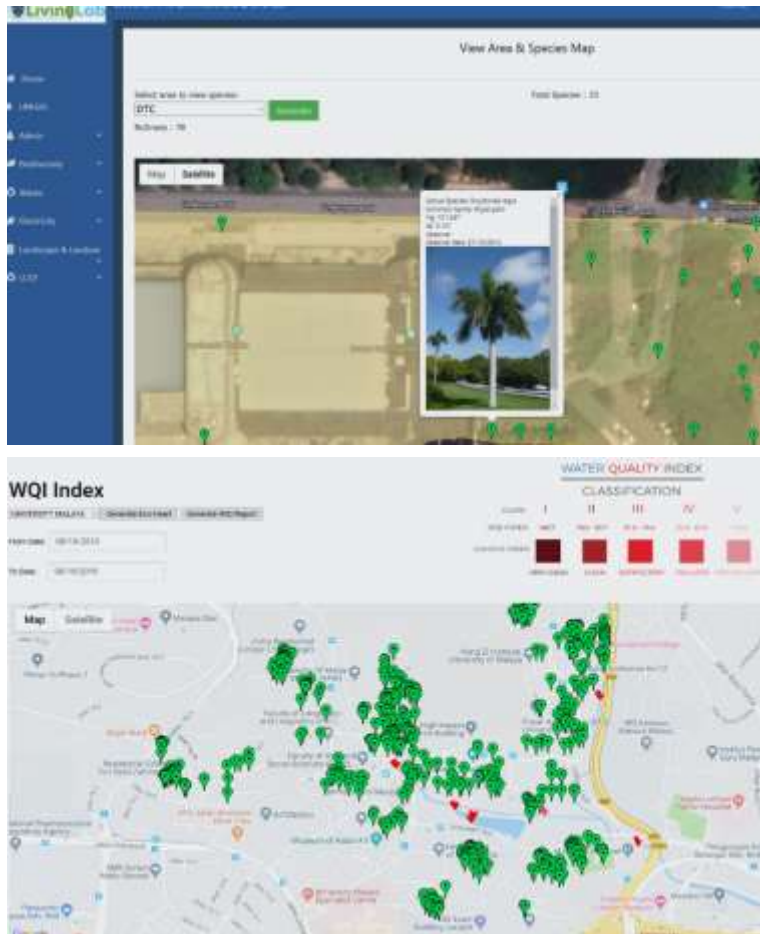


Vertical farming



Change Management

1) Universiti Malaya Living Lab System (UMLL System)
(PI: Dr. Sorayya Malek, Faculty of Science)

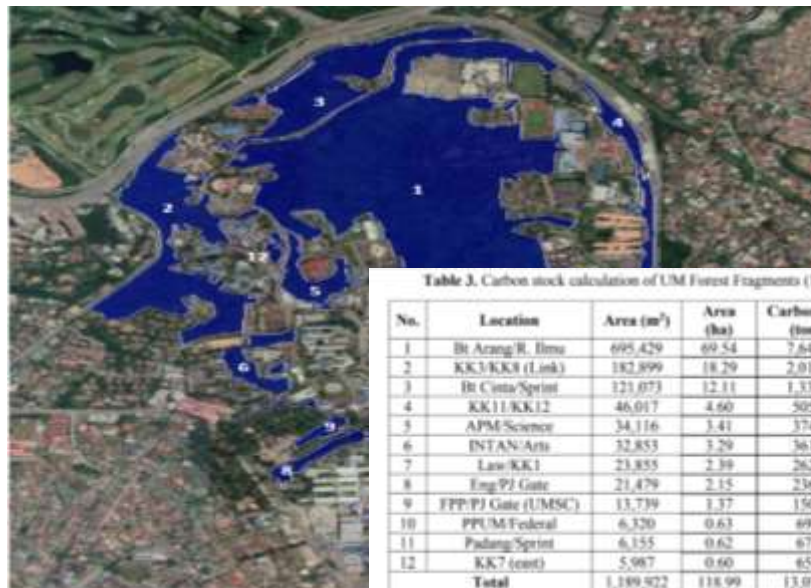


Providing database system that can store & analyse data collectively

Biodiversity

1) The RIMBA Project (PI: Dr. Sugumaran Manickam, Faculty of Science)

- Total Green Area Constructed/ Preserved: **1,189,922 m²**
- Total Carbon Stock: **13,077,240 kg CO₂ -eq**
- Total UM Forest Fragments Valuation: **RM636,399.30**



- UM's forest cover stands at approximately **32%**, and **increase of 2%** from the initial FRIM report in 2013.
- The forest edges along the SPRINT Highway **remain threatened** by encroachment, especially due to construction of billboards.

2) Carbon Storage Mapping Initiative Through Real Time GPS Tracking & IoT Monitoring (PI: Ir. Dr. Khairunnisa Hasikin, Faculty of Engineering)

- Average carbon sequestered in a year: **17,000 kg/m³ per tree**
- Average carbon storage in a year: **5,000 kg per tree**
- **42%** trees achieved optimum growth (> 30 years)

Hydnocarpus humei (salicaceae) - Setumpul



- GPS: 3°7'45"N 101°39'20"E
 - Diameter: 0.82m
 - Height: 10.5m
 - ~ 30 years
 - Average Carbon Sequestered: 4679.5 kg/m³ yearly
- Setumpul tree is the highest carbon sequester found in RMBA Itmu

3) Eco-Slope: Slope eco-engineering technique towards sustainable and green landscape (PI: Prof. Dr. Normaniza Osman, Faculty of Science)



Increasing 50% of green surface cover on slope landscape



*Total area preserved: 100 m²
Total number of transplanted shrubs: 170*

4) Healthy Soil for a Healthy Environment: Reducing Dependency on Chemical Fertilizer Consumption in Universiti Malaya Using Organic Materials (PI: Dr. Rosazlin Abdullah, Faculty of Science)



Providing solutions on landscape management specifically on soil treatment, organic compost and Biochar. Combining chemical and organic materials could optimise the use of every type of fertilizer and achieve balanced nutrient management for crop growth.

ii) SOCIAL IMPACT

Theme	Example of Notable Achievements	
Waste Management		
	<p><i>Korean Institute of Sustainable Design & Educational Environment (KISEE) Visit to UM Zero Waste Campaign (UM ZWC) Site</i></p>	<p><i>Strategic Discussion between UM Living Lab (UM Zero Waste Campaign) with CIMB-Bank Foundation</i></p>
		
	<p><i>Universiti Malaysia Pahang (UMP)'s Visit to UM Zero Waste Campaign (UM ZWC) Site</i></p>	<p><i>Official Visit and Training Session with Leo Clubs at UM Zero Waste Campaign (UM ZWC) Site</i></p>
		
	<p><i>Community Composting Project with Community of P20, Pantai Dalam</i></p>	



Community Composting Project at Bario, Sarawak



Community Composting Project at Taman Sri Sentosa, Petaling Jaya



**Strategic Meeting between
UM Living Lab (UM Zero-Waste Campaign)
with YB Fahmi Fadzil &
UM Vice-Chancellor**



**SK Sri Pantai Official Visit to UM Living
Lab (UM Zero Waste Campaign) Site**



**Exhibition at Marhaban Ya Ramadhan 2019:
Food Waste Minimization Programme
(MAIWP & IKIM)**



**Students of Faculty of Engineering
UM's visit to UM ZWC**



**INTEC Eco-Campus Visit to
UM Zero Waste Campaign (UM ZWC) Site**



**Monthly Programme
UM - Alam Flora 3R on Wheels**



**SW Corp Visit to
UM Zero Waste Campaign (UM ZWC) Site**



**Delegates from Pelabuhan Tanjung
Pelepas Visit to
UM Zero Waste Campaign (UM ZWC) Site**



Kyoto University, Japan Visit to UM Zero Waste Campaign (UM ZWC) Site



Mascorn & Satay Putera Visit to UM Zero Waste Campaign (UM ZWC) Site



Invited Speaker and booth exhibition at Taylor's University



Invited speaker at Tenby Eco-Schools Conference



Poster presentation at PECEPTA, Universiti Tun Hussein Onn, Johor



UM ZWC booth exhibition at INTEC Education College



Solid Waste Management Talk and booth exhibition at Universiti Malaya Medical Centre (UMMC)



Strategic Discussion with CIMB Foundation



UM ZWC & UM Eco-Campus Booth exhibition at UM Bursary



World Pharmacy Day



Health Promotion Campaign



UM Living Lab Safe DUMP Campaign @ KPS UM



UM Living Lab Safe DUMP signed an MoU with Make It Right Movement (MIRM)

Water Management



Strategic Meeting with Water Conservation Unit, Air Selangor On Water Conservation Initiatives



Water Warriors: River Cleanup & Water Monitoring Program 2019 At Sungai Pantai, UM (River Of Life Public Outreach Program) Phase 5



**UM Water Conservation Meeting 2019:
UM Living Lab (Water Warriors) &
Department of Development & Estate
Maintenance (JPPHB) UM**



**UM Living Lab - Water Warriors:
Public Lecture on Place-Based
Method (PBM) as an Approach in
Sustainability Science Research**



**Water Quality Monitoring &
Introduction to Eco-Heart Index
at Perkampungan Orang Asli Perak**



**UM Living Lab Water Warriors:
Let's Talk about our Urban Rivers
- Sungai Pantai & Sungai Anak Air Batu
(Place-Based Methods and Citizen
Science Approach)**



**UM Living Lab - Water Warriors Lake
Story-Telling and Group Activity**



**ASHRAE Run 2020's Strategic
Engagement with UM Eco-Campus**



***Hari Memancing: Dapat Tak Ikan? 2019
(Have you Caught a Fish? Day 2019)
Initiative by DVC Development Office, JPPHB & Water Warriors***



Citizen science programs with the campus community and general public



***Launching of Friends of Sungai Klang;
WW led Friends of Sungai Pantai***



***Booth exhibition during Minggu
Haluaniswa 2018/2019***



**World Water Monitoring Day
at Tasek Varsiti**



Eco-campus tour: visitation from IIUM



**Sayangi Sungai Selangor in conjunction of
World River Day 2018 at Kuala Selangor**



**Booth exhibition during Towards
Livable, Resilient & Competitive Cities
International Conference 2018**



**Nature Art Program with
MAZ International School**



**Booth exhibition during International
Greentech & Eco Products Exhibition &
Conference Malaysia (IGEM)**



**Nature Quest with UM Tropical Camp
at Tasek Varsiti**



**Booth exhibition during Karnival
Pendidikan Selangor at Shah Alam
Convention Centre; part of STEM Malaysia**



**Invited speaker for Konvensyen
Memperkasakan Pihak Berkuasa
Tempatan at PICC by Majlis
Bandaraya Petaling Jaya (MBPJ)**



**Invited as a 'stream guide' at Bukit
Persekutuan**



**Involvement in Projek Pembangunan
Telaga Tiub Air Tanah untuk Kajian
Sumber Air Negara di bawah Projek
'National Water Balance Studies' under
Jabatan Mineral & Galian Selangor**



**Penyediaan Kertas Strategi Transformasi
Sektor Air Negara Rancangan Malaysia
Kedua Belas – Kementerian Hal Ehwal
Ekonomi (MEA)**



**UMLL Water Warriors & SPAN:
Launch of Water Conservation Initiative - Program Rakan SPAN**

Energy Management



**Initial Meeting on Renewable Energy (RE) and Energy Efficiency (EE):
UM Eco-Campus, JPPHB & CENERGI-SEA**



**Evaluation on UM Living Labs Mock-Website Development
at Faculty of Science, UM**



Discussion between UM Living Lab (Robust Smart Modular Energy Team) with Orthobiz Sdn. Bhd.



Discussion between UM Living Lab (Robust Smart Modular Energy Team) with QASK Engineering

Transport Management



Initial Discussion on Sustainable Transportation System with ORide Micro Mobility Solution



Sustainable Transport: Initial Meeting with Voith Group 2019



UM Sustainable Transport Project Evaluation 2019 with BEAM



UM Sustainable Transport Project Evaluation 2019 with TRYKE



Carpool Roadshow at Faculty of Engineering, UM



Carpool Roadshow at Faculty of Built Environment, UM



**Carpool Roadshow at
Main Library, UM**



**Carpool Roadshow at
Faculty of Science, UM**



**Bicycle Workshop at Faculty of
Engineering, UM**



Carpool Programme Discussion

**Green
Procurement**



**Discussion on Eco-Products with
Ice-Cube Gift & Premium Sdn. Bhd.**



**Exchange Session on Green Procurement
Projects with UiTM Researchers**



Sustainability Talk on Green Procurement in collaboration with UM Bursary Office

Education Management



PUSAN National University of Korea visit to Engine@UM Industrial Innovation Centre, Faculty of Engineering UM



Visit from Kolej Vokasional Sg. Buloh



Visit from from Kolej Tingkatan Enam Shah Alam (KTESA)



Brainstorming session with UMS counterpart on program with schoolchildren



Sustainability Roadshow with Global Planning & Strategy Centre (PPSG)



UM Eco-Free Market by UMLL Imarah Green Project



Imarah Green Project in collaboration with Surau at 10th Residential College, UM



UM Eco-Surau Capacity Building Program 2019 Phase 1: Residential Colleges



Official visit from students of International Islamic University Malaysia (IIUM)



Bicara Santai Tadabbur Alam during Opening Week of Academy of Islamic Studies UM (APIUM)



MUO signing with Jabatan Agama Islam Wilayah (JAWI)



Gotong-Royong activities among Ijarah Eco-Friends members



Sustainable Surau Workshop



Exhibition at Universiti Malaya Research Carnival (UMRC)



Awareness Programme on Sustainable Surau Management with students from residential college



Visit from UM students to Surau of Academy of Islamic Studies UM (APIUM)

Change Management



An initial discussion between UM Eco-Campus & Belalang Inovasi about green initiatives and exploring potential areas on green roof project for collaboration



Sustainability Initiative Discussion with Kumpulan Asnaf in providing expertise and advice to ASNAF Group: knowledge transfer, capacity building and training, and projects monitoring to uplift their welfare and economic status



WWF-Malaysia Project Consultation on Sustainable Retailers Scorecard



Initial Discussion on Sustainability & Religion Project Collaboration: UM x Institute of Islamic Understanding Malaysia (IKIM)



UM Eco-Campus at Malaysia Urban Forum 2019 (MUF2019)



UMCares with collaboration of UM Eco-Campus to organize UMCares Competition 2019



UM x ENSEARCH Initial Meeting to Co-host Environmental Sustainability Talk



Follow-Up Strategic Meeting with Prof. Ir. Dr. Abdul Aziz Abdul Raman (Deputy Vice-Chancellor Student Affairs & Alumni) UM



UM Food Bank Program, UM Eco-Surau Campus-Wide Expansion & Single-Use Plastic Bans



Initial Discussion with Bukit Kiara Sunrise Rotary Club: UM Eco-Campus Initiatives



Focus Group Discussion (FGD) with representatives from all faculties and PTJs on UM Faculty Sustainability Report Card 2019



Workshop with International Reviewer for the Low Carbon City Framework (LCCF) and LCCF Assessment System



Official Visit by Professor Dr. Holzhacken (University of Groningen, Netherlands) to UM Eco-Campus Office



Seminar on Energizing Sustainable Development Goals (SESDG2019), with the theme 'For People, Ecosystem and Planet' was co-hosted by Universiti Malaya Eco-Campus Secretariat and Institute of Ocean and Earth Sciences (IOES) supported by Academy of Islamic Studies (APIUM), Office of Deputy Vice-Chancellor (Student Affairs), Food Aid Foundation (FAO), Institute of Strategic and International Studies Malaysia (ISIS Malaysia), Alam Flora Sdn. Bhd., Malaysian Society of Marine Sciences (MSMS)



Special Visit by Delegation from University of Utara Malaysia (UUM)



Regain Experience Asli's Life 2019: Stepped-Up with Introduction of Sustainability Initiatives



**Strategic Discussion with CITRa UM:
Sustainability Curriculum & Elective Courses**



**INPUMA Slot on Gender Equality & SDGs:
Empowering Women Leadership for a
Sustainable Future**



**INTEC Education College:
Launch Ceremony of INTEC Sustainability & Eco-Campus Chapter**



**IIUM's Sustainability University
Barometer Workshop & Seminar 2019**



**CITRa's Basic Entrepreneurship Culture
(APK) Course:
Project Evaluation on Eco-Cafeteria**



'Rumah Terbuka Hari Raya Aidilfitri Parlimen Lembah Pantai 2019'



**Environmental Sustainability
Engagement @ Faculty of Engineering
UM 2019**

**UM Eco-Campus Slot @ UM Week of
Welcome / MHS of Faculty of
Languages & Linguistics UM**



UM Eco-Campus at IGEM @ KLCC 2019



Prof. Dr. Sumiani Yusoff as oral presenter at International Conference on Sustainable Development Goals (ICSDG) at Universiti Sains Malaysia (USM), Penang



Prof. Dr. Sumiani Yusoff as invited speaker at Seminar on 21st Century Youth on SGDs and Peace

UM Eco-Campus at SDG Forum at Taiwan



Prof. Dr. Sumiani Yusoff as invited speaker at UTAR Conference on Youth Empowerment in Achieving SDGs

Keynote Address via Video-Conferencing for ICRAACE2019 India



Benchmark Visit to Penang Green Council



Sustainability Talk by Prof. Dr. Fachruddin from Universitas Indonesia at ISB, Faculty of Science, UM



UM Attended the Training the Trainers on Green Technology Application for the Development of Low Carbon Cities (GTALCC) by SEDA Malaysia



Participated in Archidex Malaysia 2019 at KLCC



BSM Training Course on Sustainable Campus Development (Siri 1, 2 and 3)

Landscape & Biodiversity Management



The RIMBA Project: Winged Trees Upkeeping & Maintenance Project at Winged-Fruit Trees Community Park, UM



Forest Preschool team visited UM Eco-Campus office to collaborate in the idea of setting up a Forest Preschool within the vicinity of UM main campus



Korean Institute of Sustainable Design & Educational Environment (KISEE) visit to UM Eco-Campus



Fertilizers and Organic Materials Management Workshop: Healthy Soils for Healthy Plants and Environment



Awareness On Importance Of Organic Amendment In Environment (Representative Of Faculty Of Science) Universiti Malaya Research Carnival (UMRC)



World Scout Environment Programme (WSEP) and Transfer Knowledge Programme with Pertubuhan Peladang Port Dickson



**Official Visit and Training Session
with Leo Clubs at RIMBA Ilmu**



**Tree Tagging with QR Code for Cocoa
Trees (*Theobroma cacao* sp.) &
Mulching Technique**



**SK Sri Pantai Official Visit to Um
Living Labs (The Rimba Project)**



**UM Eco-Campus & Faculty of Science
partner-up with Little Urban Forest**



Klang Valley City Nature Challenge 2019



SL2 community park programme organised by UTAR that brings several organisations as a community engagement programme



Weekly volunteer programme at Rimba Ilmu Botanic Garden



Maybank CSR Programme with The RIMBA Project & Water Warriors



Nature Education Module Programme



Demonstration on plants transplanting with ISB staffs & students



Student Involvement during practical class



Replanting process of Eco-Slopes



Consultation of Eco-Slope Project between UM and PLUS Malaysia Berhad




Keynote speaker: The 23rd Biological Science Graduate Congress



Ir. Dr. Khairunnisa Hasikin was invited as Pocket Talk speaker at IGEN2019, KLCC

iii) ECONOMIC PERFORMANCE

Theme	Example of Notable Achievements
Waste Management	<p>1) UM Zero Waste Campaign (PI: Prof. Dr. Sumiani Yusoff, IOES UM)</p> <ul style="list-style-type: none"> Total money savings from operation of project: RM 194,064 Total tipping fee saved from sending waste to landfill (2019): RM 45,000.00 Officially set up a fund (<i>tabung</i>) in year 2016 with UM Bursary as a procedure to record sales of UM ZWC organic compost @ RM5 /pack (Current total sale: RM35,000) <p>UM Living Lab : UM Zero Waste Campaign (UM ZWC)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>UM's Food Waste</p>  </div> <div style="text-align: center;"> <p>UM Zero Waste Campaign (UM ZWC) initiative in turning waste into useful resources in particular : Organic Compost (Current total sale: RM35,000)</p> <p>As an income generation to the university and strategically minimizing harmful environmental impact on campus</p>  <p>UM ZWC Composting Site (Takakura Composting)</p> </div> <div style="text-align: center;"> <p>UM ZWC Organic Compost</p>  <p>RM5 per kg</p> </div> </div> <p>→</p> <ul style="list-style-type: none"> Planting fruits and vegetables using UM ZWC organic compost at UM ZWC mini garden as source of income generation for the project. <div style="display: grid; grid-template-columns: repeat(3, 1fr); gap: 5px;">       </div>

3R On Wheels Programme (Data was collected from June 2019 till December 2019)



dhes Alamflora Aspirasi Alam Flora **3R ON WHEELS AlamFlora**

Jom kitar semula!

Nikmati insentif tunai dan mata ganjaran PETRONAS Mesra dengan menjual barangan kitar semula

UM – ALAM FLORA 3R ON WHEELS PROGRAM

JENIS BARANGAN & HARGA*

- Suratkhabar - RM0.25/Kg
- Majalah - RM0.25/Kg
- Kertas hitam putih - RM0.30/Kg
- Kotak - RM0.25/Kg
- Kertas campur - RM0.20/Kg
- Aluminium - RM2.30/Kg
- Tin - RM0.30/Kg
- Plastik - RM0.35/Kg
- Tetrapak - RM0.30/Kg
- Minyak masak terpakai - RM1.10/Kg

SISA ELEKTRONIK*

- CPU - RM5.00/UNIT
- Monitor - RM4.50/UNIT
- Laptop - RM3.50/UNIT
- Server - RM15.00/UNIT
- Pencetak - RM3.00/UNIT
- Televisyen - RM4.00/UNIT
- Scanner - RM1.00/UNIT
- Fax - RM1.00/UNIT
- TV - RM4.00/UNIT
- Peti Sejuk - RM4.50/UNIT
- Microsave - RM3.00/UNIT
- Bateri Kereta - RM1.00/Kg

KATEGORI	SALANGAN	MATA GANJARAN
A	Tin aluminium & minyak masak	3
B	Surat khabar, kertas, majalah, plastik	1

*Harga barangan kitar semula mengikut pasaran semasa dan tidak tetap.
*Harga barangan insentif bermula 22 Julai 2019

Sebarang pertanyaan, sila hubungi Mohd Farid Wajdi (013-4642619) Pn. Azinda (018-3933759) Syed Maziah (012-2642743)

Total amount recyclables collected:

8,332 kg

RM3,076.20

(total amount of incentive rewarded to all donators)

A COLLABORATIVE INITIATIVE OF:

UNIVERSITI MALAYA, Alamflora, dhes

To support:

SUSTAINABLE DEVELOPMENT GOALS

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Initiative for UM Eco-Campus Blueprint Core Area:

UM ECO-CAMPUS Waste Management 02

BE PART OF THE CHANGE! JOIN US!

Total amount of Carbon Dioxide Emission Avoided:

18,254

Kilogram CO₂-eq
(Total Disposal Cost Saving: **RM2,541.42**)

Total amount of diverted Greenhouse Gas (GHG) emissions equivalent to

71,823 kilometre

Driven by an average passenger vehicle

Carbon sequestered by

302 tree seedlings

Grown for 10 years

Equivalent to Greenhouse gas emissions avoided by

6.27 tonnes (6,270 kg) of waste recycled

Instead of landfilled

Equivalent to Greenhouse gas emissions avoided by

0.91 garbage trucks of waste recycled

Instead of landfilled

Equivalent to Greenhouse gas emissions avoided by

796 trash bags of waste recycled

Instead of landfilled

2) **UM Water Warriors** (PI: AP Dr. Zeeda Fatimah Mohamad, Faculty of Science)

- Monetary Saving from The Operation of Project since inception: **RM 122,793.09**

UM Living Lab : UM Water Warriors

Plastic Bottles

'Precious Plastics Project': Made from HDPE plastics (bottle caps, detergents, etc.)

Water Warriors is doing a series of fundraising sale to support in campus sustainability initiatives while strategically minimizing harmful environmental impact on campus.

key chains **mouse pad** **Traditional 'gasing'**

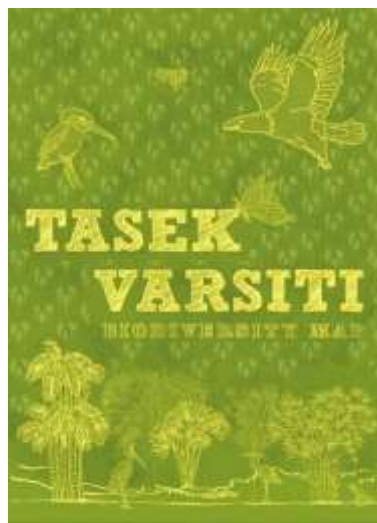
Wall clock **Potted Plant Pads**

Water Warriors and The RIMBA Project now renting out one of the room at Rumah No.2, Jalan 16/10B, Seksyen 16, Petaling Jaya to accommodate any interested visitors or guests. It has two single-beds, a private bathroom, air-conditioned and water heater. Guests are also welcome to share other spaces in the house such as kitchen, indoor and outdoor dining area.

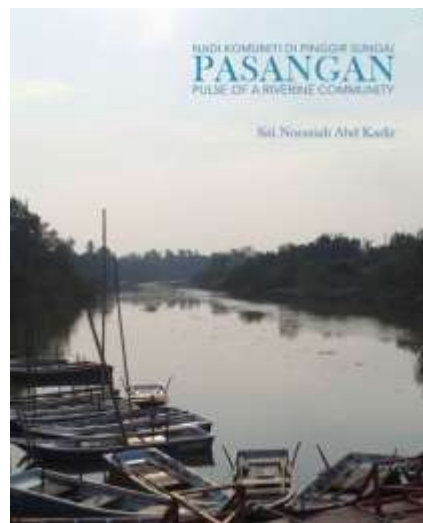




Water Warriors & The RIMBA Project in collaboration with JPPHB has renovated old UM Bus to be used as Airbnb accommodation services (income generation initiative)



Tasek Varsiti Biodiversity Map (RM3)



Coffee Table Book: PASANGAN: Pulse of a Riverine Community (RM50)

Education Management

1) Transforming the Role of Surau APIUM for Campus Sustainability Through 'Imarah Green Project' (PI: Dr. Asmawati Muhamad, APIUM)

- Has saved **RM 220.57** from Mr. Thimble and Rain Water Harvesting System (RWHS) installation with a total of water piped reduction (**137 m³**).



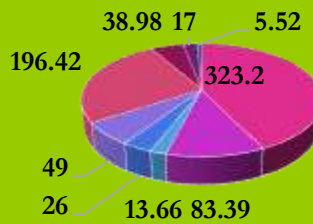
- Has collected **RM 1,578.00** revenue generated from green sale.



- Has recycled **750.17kg** of recyclables materials surmount **RM 243.95**.



WEIGHT OF RECYCABLES COLLECTED



- PAPER / BOOK
- PLASTIC BOTTLE
- ALUMINIUM CAN
- CAN (Eg:sardines, dairy milk)
- WHITE / A4 PAPER
- BOX/ TETRAPACK / CARDBOARD
- CAMPUR (MIXED PAPER/ BESI)
- ELECTRONIC / E WASTE
- OTHER

Landscape & Biodiversity Management

1) The RIMBA Project (PI: Dr. Sugumaran Manickam, Faculty of Science)

- Has collected **RM 3,645** revenue generated from the project for 2019.

Summary of The Rimba Project Cash Flow

e-Statement

Transaction Details

No	Description	Cheque/Ref No	Debit RM	Credit RM	
1	Backyard Wildflower (BE G3S1)		160		
2	Eco Art Programme		3240		
3	Donation to Rimba Project RM50		50		
4	Backyard Wildflowers		10		
5	Backyard Wildflowers		10		
6	Backyard Before You		100		
7	Carrot T-shirt		25		
8	Backyard Wildflower (BE G3S1)		50		
		TOTAL	3645		

NOTABLE EVENTS 2019

Seminar on Energizing Sustainable Development Goals (SESDBG2019)

Date: 25 April 2019 (Thursday)

Venue: The Cube, Academy of Islamic Studies UM (APIUM)

Special Guests: YB. Dato' Saifuddin Ahmad Nasution (Minister of Domestic Trades and Consumer Affairs), YBhg. Datuk Ir. (Dr.) Abdul Rahim Hashim (Vice-Chancellor of Universiti Malaya), Professor Dr. Phang Siew Moi (Honorary Advisor of Institute of Ocean & Earth Sciences – IOES)

Launch: Eco-Surau @ UM 2019, UM Living Lab System, UM Living Lab Guidelines, and 3R on Wheels

Organized by: UNIVERSITY OF MALAYA

Seminar on Energizing SUSTAINABLE DEVELOPMENT GOALS (SDGs) 2019

25 April 2019 (Thursday) 8AM - 1PM
The Cube, Academy of Islamic Studies (APIUM)
UNIVERSITY OF MALAYA

Supported by: food aid, AlamViva, MERS

UM initiative in support of: SUSTAINABLE DEVELOPMENT GOALS

SESDBG2019 HIGHLIGHTS

OPENING ADDRESS:
YB DATUK SERI SAIFUDDIN NASUTION ISMAIL
 MINISTER,
 MINISTRY OF DOMESTIC TRADE & CONSUMER AFFAIRS
 (KPDANKP)

WELCOMING ADDRESS:
YBHG. DATUK IR. (DR.) ABDUL RAHIM HASHIM
 VICE-CHANCELLOR,
 UNIVERSITY OF MALAYA

KEYNOTE ADDRESS:
PROFESSOR DR. PHANG SIEW MOI
 HONORARY ADVISOR, INSTITUTE OF OCEAN & EARTH SCIENCES (IOES),
 UNIVERSITY OF MALAYA

SESDBG2019 FORUM
 PROFESSOR DR. SUGANTO UTOMO (UM Eco-Campus Secretariat & IOES)
 SRI ALIYAN MUBLELI (UM Malaysia)
 MADANI MOHAMMAD SUKAI (Food Ed. Practitioner)
 MADANI HANI ALYIA DUTERA KURNI (Islam Farm)
 DR. MUTIYAHENI ISMET (Malaysian Society of Marine Sciences)

OFFICIAL LAUNCH OF
UM ECO-CAMPUS COLLECTIVE INITIATIVES:

1. ECO-RIWAYAT @ UM APIUM
2. THE LIVING LAB SYSTEM
3. UM LIVING LAB GUIDELINES
4. 3R ON WHEELS

World Earth Day was first celebrated in 1970 on 22 April. A day which transcends all national borders, not just across all geographical integration, brings people all over the world into one commoning accord, devoted to the preservation of this planet in which we – and our future generations – all depend upon. The knowledge of technology, the advancement of time, and instantaneous communication through space.

#SESDBG2019 **IN CONJUNCTION WITH:**
Celebration of World Earth Day
Theme: 'Protecting Our Species'

'For People, Ecosystem and Planet!'



UM - Alam Flora 3R on Wheels 2019

Date(s): 8 August (Thursday), 26 September (Thursday), 23 October (Wednesday), 27 November (Wednesday)
 Venue: KPS Carpark, Faculty of Engineering, and Academy of Islamic Studies UM

Jom kitar semula!
 Nikmati insentif tunai dan mata ganjaran
PETRONAS Mesra dengan menjual barangan kitar semula

27.11.2019
 Ruang Parkir, Blok D
 Akademik Pengajian
 Islam Universiti
 Malaya (APIUM)
 9 Pagi - 3 Petang

JENIS BARANGAN & HARGA*

Buretkhobar	- RM0.25/Kg
Majalah	- RM0.25/Kg
Kertas hitam putih	- RM0.30/Kg
Kotak	- RM0.25/Kg
Kertas komputer	- RM0.25/Kg
Aluminium	- RM0.30/Kg
Tin	- RM0.30/Kg
Plastik	- RM0.30/Kg
Tetrapak	- RM0.30/Kg
Minyak masak terpakai	- RM1.10/Kg

SISA ELEKTRONIK*

CPU	RM5.00/UNIT
Monitor	RM1.00/UNIT
Laptop	RM3.50/UNIT
Server	RM15.50/UNIT
Powerbank	RM0.50/UNIT
Telentangan	RM1.00/UNIT
Pengimbas	RM1.00/UNIT
Faks	RM1.00/UNIT
Perisai sepak	RM0.50/UNIT
Microprosesor	RM0.50/UNIT
Vakum	RM1.00/UNIT
Dasteri kanvas	RM1.00/Kg

Maka berapakah 5000 senang yang dapat diwujudkan dengan 10000 senang?
 *Harga berapakah 5000 senang yang dapat diwujudkan dengan 10000 senang?
 *Masa berapakah 5000 senang yang dapat diwujudkan dengan 10000 senang?
 *Masa berapakah 5000 senang yang dapat diwujudkan dengan 10000 senang?

Total amount recyclables collected:
1500 kg
 RM730 (total amount of incentive rewarded to all donators)

Incentive Rewards Gained (RM)

Paper	180
E-Waste	200
Plastic	100
Used Cooking Oil	250

Total Recyclables Collected (kg)

Paper	300
E-Waste	150
Plastic	100
Used Cooking Oil	150

Total amount of diverted Greenhouse Gas (GHG) emissions equivalent to
5,900 kilometre
 Driven by an average passenger vehicle

Carbon sequestered by
24.8 tree seedlings
 Grown for 10 years

Greenhouse gas emissions avoided by

0.523 tonnes of waste recycled instead of landfilled
0.075 garbage trucks of waste recycled instead of landfilled
65.4 trash bags of waste recycled instead of landfilled

Total amount recyclables collected:
1358 kg
 RM511 (total amount of incentive rewarded to all donators)

Incentive Rewards Gained (RM)

Paper	184.1
E-Waste	45.1
Plastic	10.5
Used Cooking Oil	17
Aluminium	11.8
Tin	9.3

Total Recyclables Collected (kg)

Paper	31
E-Waste	12
Plastic	11
Used Cooking Oil	11
Aluminium	11
Tin	11

Total amount of diverted Greenhouse Gas (GHG) emissions equivalent to
5,343 kilometre
 Driven by an average passenger vehicle

Carbon sequestered by
22.5 tree seedlings
 Grown for 10 years

Greenhouse gas emissions avoided by

0.474 tonnes of waste recycled instead of landfilled
0.068 garbage trucks of waste recycled instead of landfilled
59.3 trash bags of waste recycled instead of landfilled

Total amount recyclables collected:
909 kg
 RM396.80 (total amount of incentive rewarded to all donators)

Incentive Rewards Gained (RM)

Paper	184.1
E-Waste	40.1
Plastic	11.5
Used Cooking Oil	17
Aluminium	11.8
Tin	9.3

Total Recyclables Collected (kg)

Paper	31
E-Waste	12
Plastic	11
Used Cooking Oil	11
Aluminium	11
Tin	11

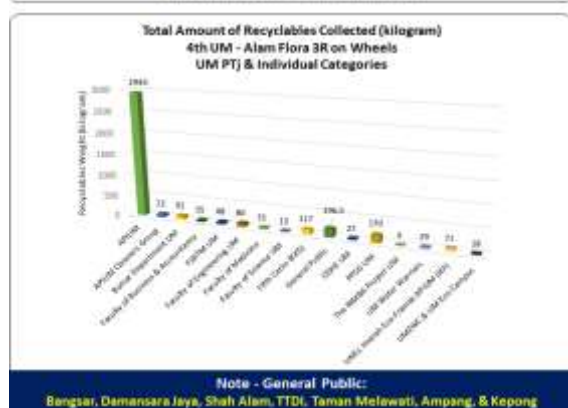
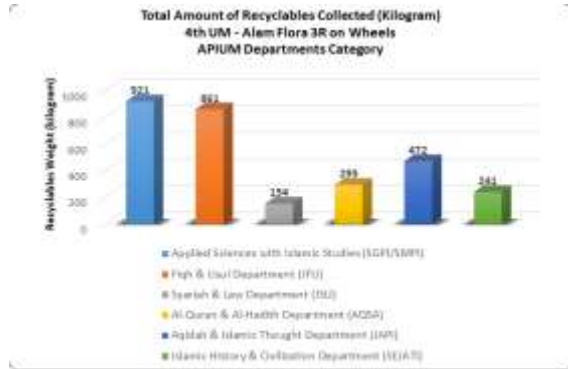
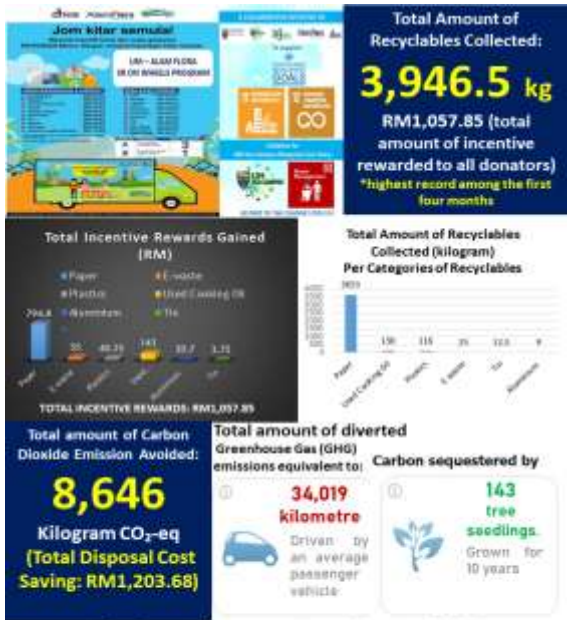
Total amount of Carbon Dioxide Emission Avoided:
1,991 Kilogram CO₂-eq
 (Total Disposal Cost Saving: RM277.25)

Total amount of diverted Greenhouse Gas (GHG) emissions equivalent to
7,834 kilometre
 Driven by an average passenger vehicle

Carbon sequestered by
32.9 tree seedlings
 Grown for 10 years

Equivalent to GreenHouse Gas emissions avoided by

0.694 tonnes of waste recycled instead of landfilled
0.099 garbage trucks of waste recycled instead of landfilled
86.9 trash bags of waste recycled instead of landfilled



**UM Human Resource Division (Bahagian Sumber Manusia) Engagement:
Campus Sustainability Development Training Course (Academic Staff,
Non-Academic Staff & Students) 2019**

Date: Non-Academic Staff - Series 1 (19 November), Academic Staff - Series 2 (11 December), & Students – Series 3 (13 December)

Venue: The Cube, Academy of Islamic Studies UM (APIUM), Auditorium Asia-Europe Institute UM, and 4th Residential College (BESTARI) UM

Speaker: Professor Dr. Sumiani Yusoff

Assisted by: Mr. Mohd Fadhli Rahmat Fakri, Ms. Nur Fatehah Raudhah Ariffin, Ms. Aireen Zuriani Ahmad



Series 1: Campus Sustainability Development Training Course for Non-Academic Staff in UM



Series 2: Campus Sustainability Development Training Course for Academic Staff in UM



**Series 3: Campus Sustainability Development Training Course for Students in UM
(4th Residential College – BESTARI - UM)**

UM Living Lab Water Warriors: Launch of Water Conservation & Savings Initiative (Program Rakan SPAN) strategic partnership with National Water Services Commission (SPAN)

Date: 29 October 2019 (Tuesday)

Venue: Eco-Surau, Academy of Islamic Studies Universiti Malaya (APIUM)

Special Guests: YBhg. Dato' Ahmad Faizal Abdul Rahman (Chief Executive Officer of SPAN), Professor Dr. Sumiani Yusoff (Officiation on behalf of Deputy Vice-Chancellor of Development, , Ir. Hashbulishman Hashim (Development Director, JPPHB UM), Datin Professor Dr. Raihanah Hj Abdullah (Director of Academy of Islamic Studies), Associate Professor Dr. Zeeda Fatimah Mohamad (Project Leader, UMLL Water Warriors), and Dr. Asmawati Muhamad (Project Leader, UMLL Eco-Surau APIUM).

Selected Surau/Musolla in UM: Academy of Islamic Studies UM (APIUM), UM Chancellery Building, 12th Residential College, 11th Residential College, PerdanaSiswa Complex (KPS), UM Medical Centre (PPUM).





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