



**UNIVERSITI
MALAYA**

UNIVERSITI MALAYA SUSTAINABILITY & LIVING LABS SECRETARIAT CAMPUS SUSTAINABILITY REPORT

2019 - 2020

01
Landscape & Biodiversity Management



02
Waste Management



03
Water Management



04
Energy Management



05
Transportation Management



06
Green Procurement



07
Education Management
Environment & Climate Change



08
Change Management
Governance, Participation & Communication



UM CAMPUS SUSTAINABILITY REPORT 2019-2020

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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 which is currently rebranded their name as UM Sustainability & Living Labs Secretariat (UMSLLS) 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 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 UMSLLS 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 2020 with the conferment as the 32nd World's Most Sustainable University and the 1st Asia's Most Sustainable University in City-Centre Setup for four 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) 2019-2020; **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 milestone toward a sustainable and eco-campus university.

PROFESSOR DR. NOORSAADAH ABD. RAHMAN

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INTRODUCTORY NOTE

CHAIRPERSON, UM SUSTAINABILITY & LIVING LABS SECRETARIAT

PROFESSOR DR. SUMIANI YUSOFF



In the Name of Allah Most Beneficent Most Merciful.

Assalam 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 or currently rebranded as UM Sustainability & Living Labs Secretariat (UMSLLS) 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 2019/2020 (UMCSR 2019/2020) 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 UMSLLS, 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 UMSLLS, 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

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WHO WE ARE

UM SUSTAINABILITY & LIVING LABS SECRETARIAT

UMSLLS

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 campuses in Malaysia and in the world.

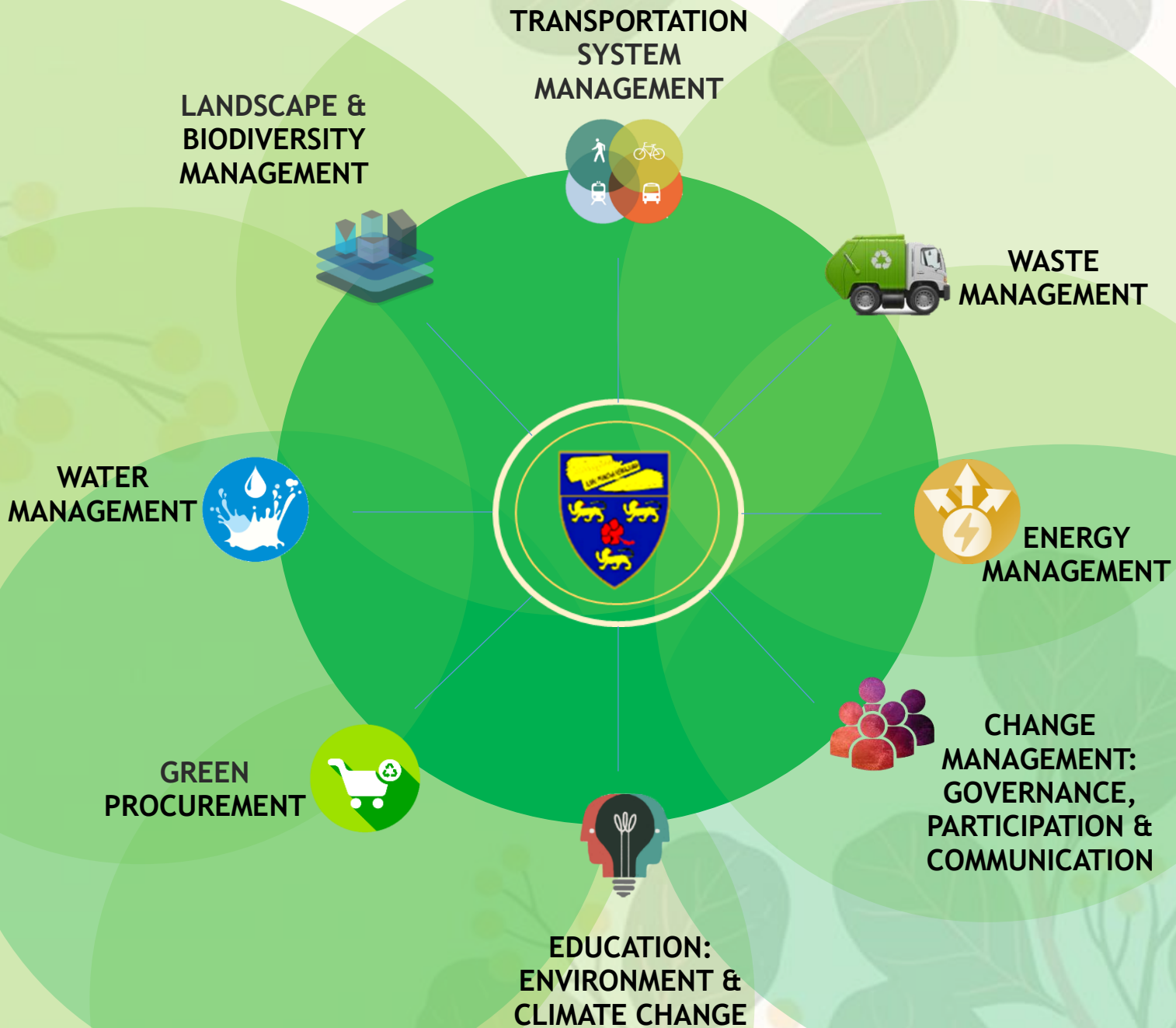
UM ECO-CAMPUS BLUEPRINT (UMECB)

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

INTRODUCTION

Universiti Malaya Living Labs Grant Programme (UMLLGP), which started in May 2015 is a strategic partnership between Deputy Vice-Chancellor (Research & Innovation) and Deputy Vice-Chancellor (Development) under the purview of Sustainability Science Research Cluster (SuSci). Effective October 2018, UMLLGP is put under the purview of UM Eco-Campus Secretariat Office & UM Living Labs (currently known as UM Sustainability & Living Labs Secretariat). The philosophy behind the Living Lab idea is to convert university campuses to Living Labs i.e a combined lab/household system, analysing existing product-service-systems as well as technical and socioeconomic influences focused on the social needs of people, aiming at the development of integrated technical and social innovations and simultaneously promoting the conditions of sustainable development (highest resource efficiency, highest user orientation, etc.). Practically, UMLLGP serves as a knowledge/action research-platform for the Department of Development and Estate Maintenance (JPPHB) as the process owner (in waste management, water management and greening & biodiversity) to gradually improve the sustainability of their operations. In this approach, UM researchers will join hands with JPPHB staff and other relevant stakeholders in UM to systematically improve UM's performance in these areas, according to specific targets or Key Performance Indicators (KPIs). This approach is more focused, systematic collaborative, and trans-disciplinary in nature.



UM SUSTAINABILITY & LIVING LABS SECRETARIAT (UMSLLS)



Different Sustainability Approach in UM

Research Focus

Our sustainability studies are reflected by numerous high-quality green researches which help us to understand and subsequently solve real world issues.

UMECB

We practice what we researched as part of our commitment towards translational research agenda. It transcends the traditional research mode whereby not only academicians and students involve in the Living Labs, but also our top management and other relevant stakeholders. These concerted efforts are all guided with the aspiration of UM Eco-Campus Blueprint (UMECB).

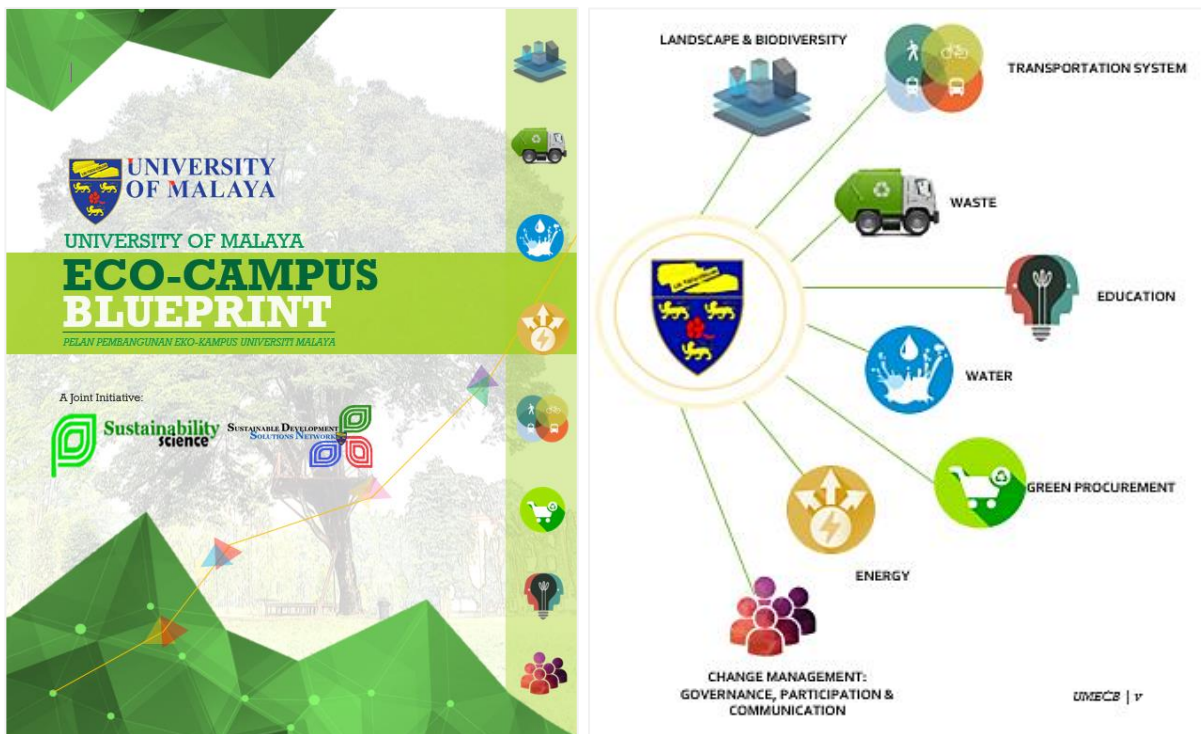
Courses Offered

We provide platform for our academicians to sharpen their pedagogy methods in delivering sustainability through accredited courses while simultaneously engage and enhance our students' experience through courses offered by faculties.

UM LIVING LABS GRANT PROGRAMME

OVERVIEW IN 2019 - 2020

By working with various faculties, departments, and personnel campus-wide, UM Sustainability & Living Labs Secretariat (UMSLLS) 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.



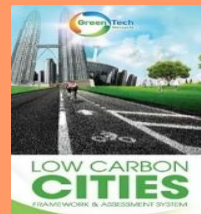
UM Living Labs Grant Programme (UMLLGP) has been actively participated and assisted in the development and maintenance of several UM's sustainability initiatives



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



UI GreenMetric World University Rankings (UIGM)

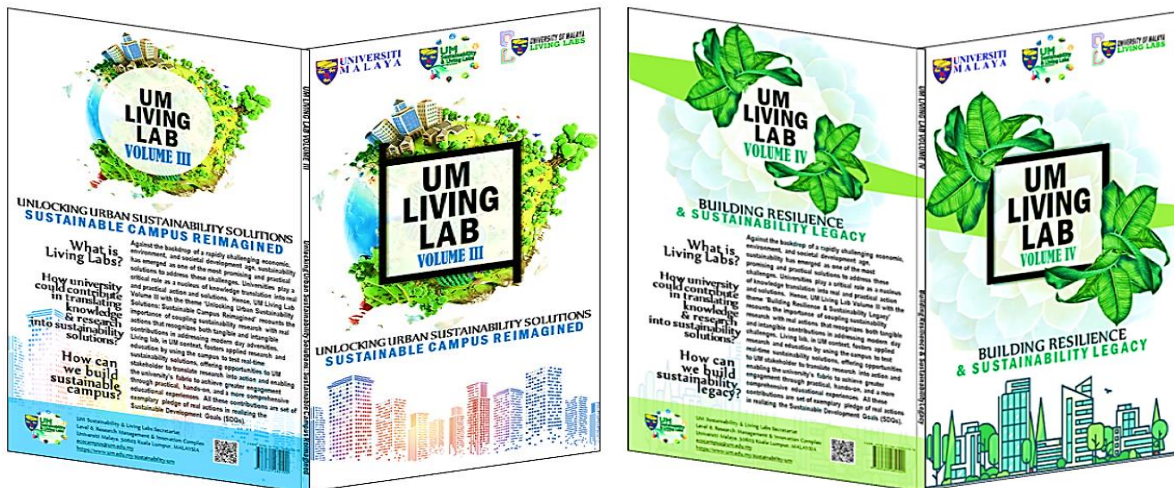


Low Carbon Cities Framework & Assessment System (LCCFAS)



Green Campus Audit by SWCorp Malaysia

UM LIVING LABS HIGHLIGHTED PUBLICATION (2020):



UM Living Lab volume III consist of 10 chapters while volume IV comprise of 9 chapters which cover all eight core areas of UM Living Labs as stipulated in the UMECB. This is part of the yearly collective co-joint publication between UMSLLS and all UM Living Labs researchers. Soft launched during the World Earth Day 2020 (24 April 2020), both volumes are available at RM50 each as part of the income generation effort by the secretariat to Universiti Malaysia.

OTHER UM LIVING LABS HIGHLIGHTED PUBLICATION (2020):



Previously, UMLLGP which was under the umbrella of SuSci would follows the basic guideline of the Universiti Malaysia Research Grant (UMRG) Manual Guideline. However, looking at some important issues in UM Living Labs and considering the speciality of UMLL itself in compared to other research grants in UM, the secretariat has come to an agreement to publish their own kind of UMLL Guideline. Prepared in dual languages (English & Bahasa Melayu), these guidelines serve as part of the strategic effort to list down all terms and conditions of UMLL in relevance to the objectives, mission and vision of UMSLLS to contribute to the university.

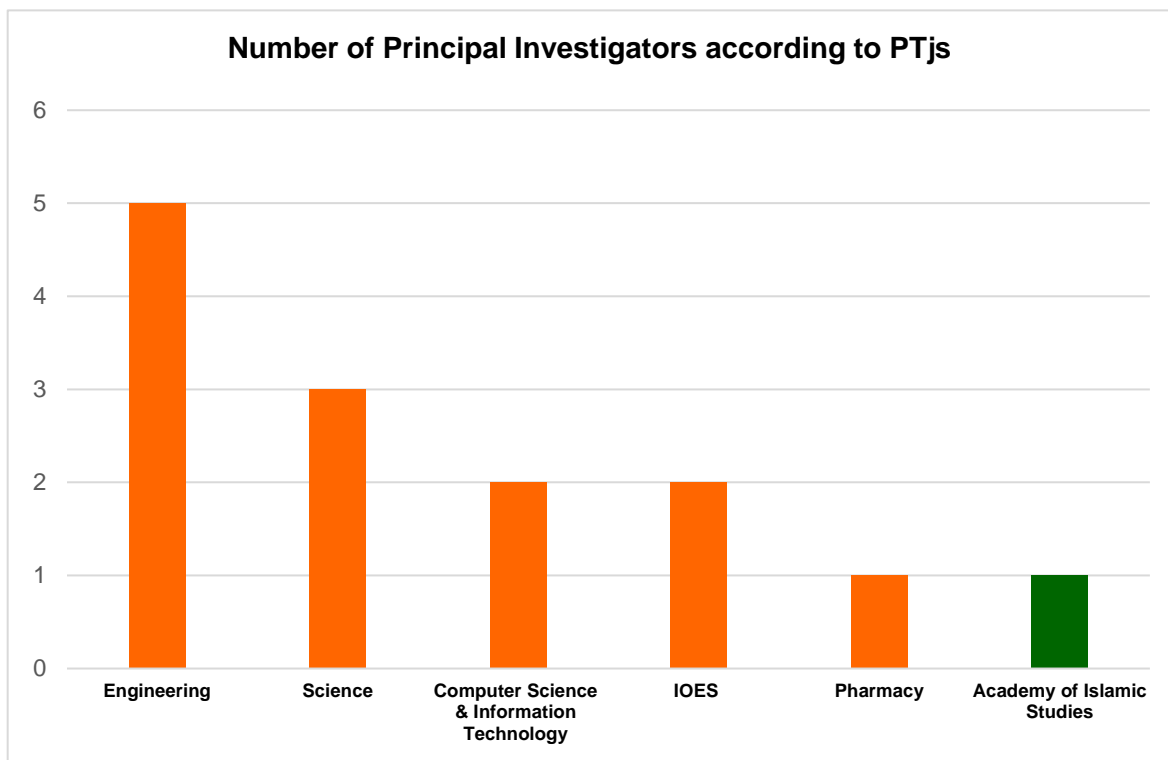
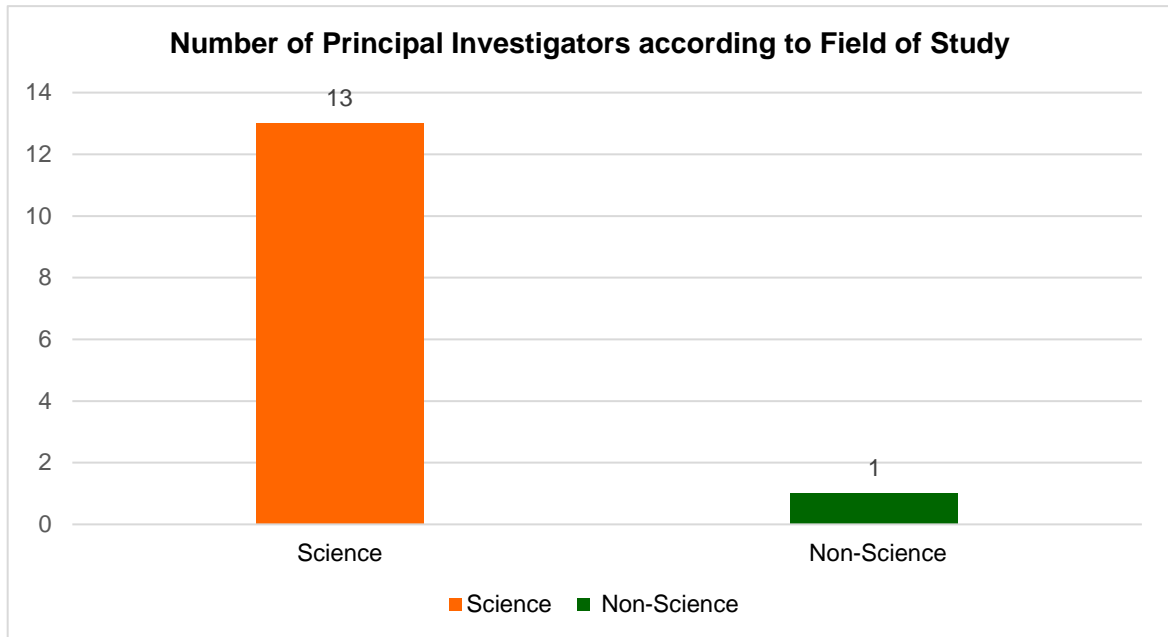
UM LIVING LABS GRANT PROGRAMME

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.

In 2019, a total of 14 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 Investigators	Faculty
1.	UM Living Lab Administration (LL001-15SUS)	Prof. Dr. Sumiani Yusoff	IOES
2.	UM Water Warriors: Integrated Water Management -Phase 4 (LL002-15SUS)	Dr. Nor Aishah Abdullah	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.	A System Approach to Environmental Data Achieving for Sustainability: University of Malaya Living Lab System - Enhancement & Continuation (LL023-16SUS)	Dr. Sorayya Malek	Science
7.	Safe Disposal of Unused Medications - The Adventure Outward (LL030-16SUS)	Dr. Lee Hong Gee	Pharmacy
8.	Transforming the Role of Surau APIUM for Campus Sustainability Through 'Imarah Green Project'(LL031-16SUS)	Dr. Asmawati Muhamad	Academy of Islamic Studies
9.	GreenStop: Carbon-Balanced Ecosystem Initiative in University of Malaya campus (LL037-18SUS)	Ir. Dr. Khairunnisa Hasikin	Engineering
10.	Enhancement of Properties of Recycled Plastic Aggregate in Cement-Free Geopolymer & Normal Concretes and Application (LL045-18SUS)	AP Dr. Ubagaram Johnson Alengaram	Engineering
11.	Development of Renewable Energy Harvesting System from Water Flow in University of Malaya (LL046-2019)	AP Ir. Dr. Hazlee Azil Illias	Engineering
12.	Study on Electrical Distribution System in UM for Power Loss Reduction and Potential Cost Savings (LL047-2019)	Dr. Nurulafiqah Nadzirah Mansor	Engineering
13.	IoT Monitoring and Management System on Campus Sustainable Transportation (LL048-2019)	AP Dr. Rafidah Md Noor	Computer Science
14.	UM Green Procurement for Food Premises (LL049-2019)	AP Dr. Nor Liyana Shuib	Computer Science

Out of 14 recipients of UM Living Lab grants, majority are from science fields in which projects lead by the principal investigators from Faculty of Engineering recorded the highest number of five (5) accepted projects. Meanwhile, the only non-science field was represented by a project lead by a principal investigator from Academy of Islamic Studies, UM.



UM LIVING LABS GRANT PROGRAMME

FINANCIAL STATUS

In cycle 2019/2020, a total of RM 300,000 research grant was entrusted to UM Sustainability & Living Labs Secretariat 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 300,000 was distributed to a total of 14 UM Living Lab projects which cater the multifaceted sustainability issues within campus.



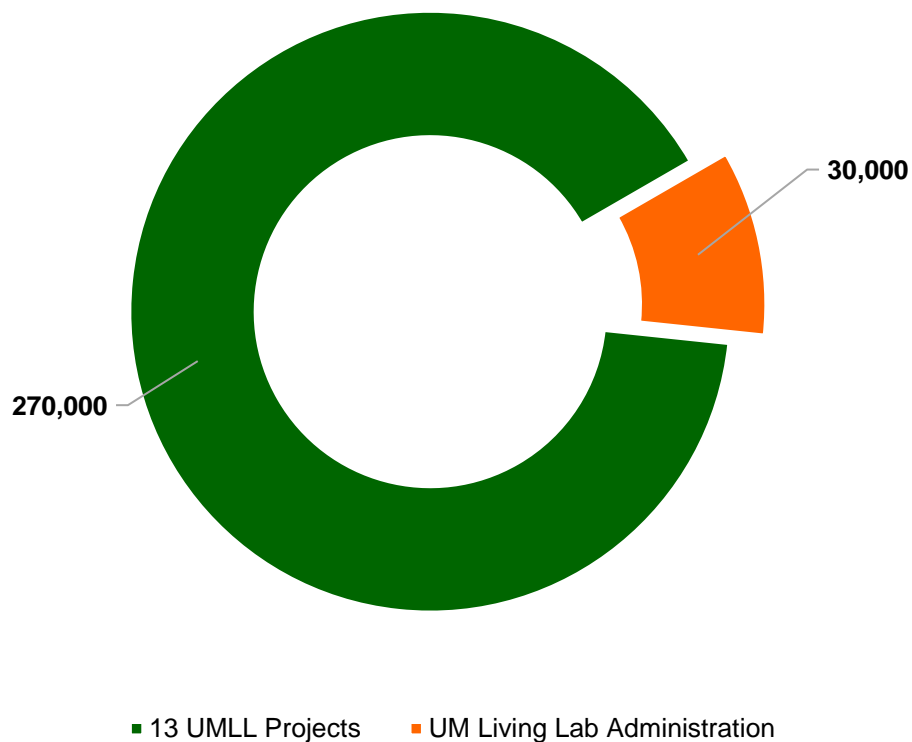
RM 270,000

Awarded to a total of **13 projects** in cycle 2019/2020

RM 30,000

Awarded to **UM Living Lab Administration (LL001-15SUS)** 2019/2020

UM Living Labs Grant Programme Fiscal Year 2019/2020 (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.

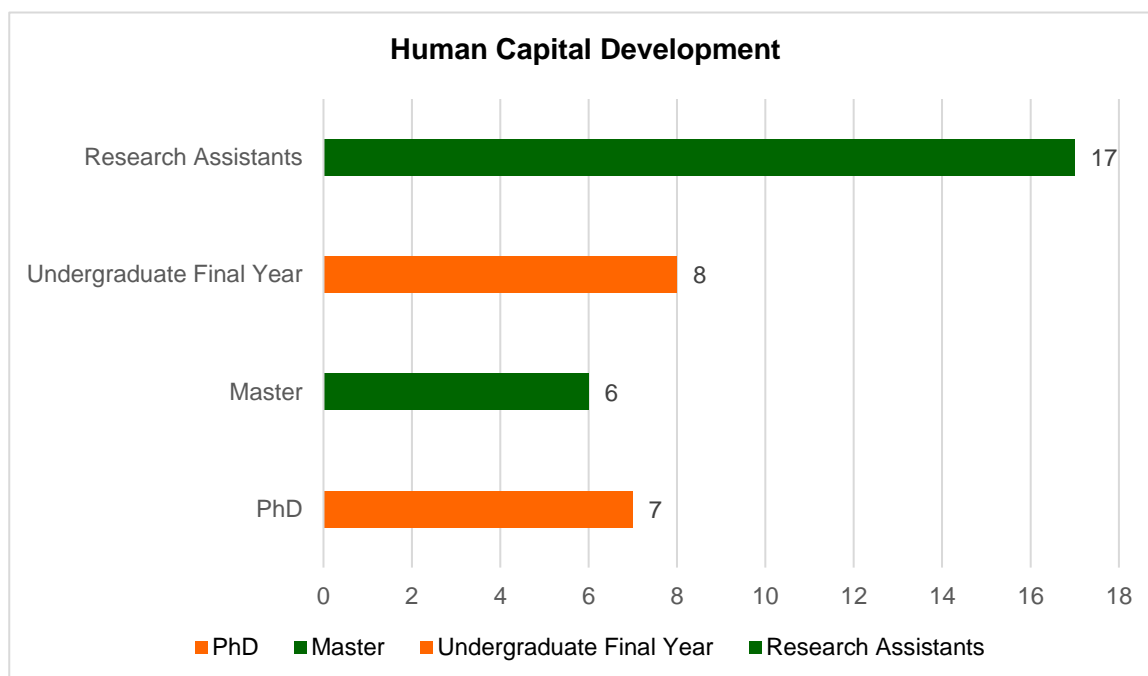
Summary of UM Living Labs Grant Programme Achievements in 2019-2020

Capacity Building	<ul style="list-style-type: none"> A) Human Capital Development 	PhD	7
		Master	6
		Undergraduate	8
		Final Year Research Assistants	17
		Total	38
<ul style="list-style-type: none"> B) Seminar / Workshop / Demonstration 		365	
	Total Capacity Building	403	
Publications	<ul style="list-style-type: none"> Journal papers 	ISI	4
		Non-ISI	8
	<ul style="list-style-type: none"> Book Chapters in Book Proceedings / Conference Paper Presentations Policy Paper / Guideline / Report 		4
			18
			11
			18
			15
			78
Total Publications	78		
Networking	<ul style="list-style-type: none"> Local International 		137
			12
	Total Networking	149	
Awards / Recognition			3
Media Appearances			45
GHG Assessment	<ul style="list-style-type: none"> (kg CO₂ -eq) 		2,000,000
Monetary Saving (RM)	<ul style="list-style-type: none"> Direct income saving 		RM 56,281
	<ul style="list-style-type: none"> Indirect income saving 		RM 120,036
	<ul style="list-style-type: none"> Monetary Gain calculated from GHG Assessment 		RM 180,010.79
TOTAL MONETARY GAIN (RM)			RM 356,327.79

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.	Asian Youth on Sustainable Palm Oil @ Bangkok on RSPO Summit 2019	2-6 November 2019
2.	National SDGs Forum 2019 @ KLCC	6-7 November 2019
3.	Follow-up Meeting on VOITH Group & JPPHB UM	7 November 2019
4.	JK Lab Safety Module Meeting @ DVC Research & Innovation UM	15 November 2019
5.	Taylor's University Exhibition & Keynote Speaker on the launch of Taylor's Solid Waste Recycling Awareness Campaign Program	18 November 2019
6.	Capacity Building Program: Campus Sustainability Module Training Series 1 with Human Resource Division @ The Cube APIUM	19 November 2019
7.	PPUM Recycling Day 2019 – Exhibition: UM Eco-Campus & UM Zero Waste Campaign	19-20 November 2019
8.	CITRA's Visit to UMLL (Water Warriors & UM Zero Waste Campaign)	22 November 2019
9.	Initial Discussion between APIUM, UM Eco-Campus, JPPHB, UMLL Imarah Green Project with TNB-X (Renewable Energy Collaboration) @ APIUM	25 November 2019
10.	Life Cycle Analysis Workshop with TNB @ Incubator UM	25-26 November 2019
11.	4 th UM – Alam Flora 3R on Wheels @ APIUM (APIUM Environmental Awareness Week 2019)	27 November 2019
12.	TENBY International Schools Conference on Climate Change Solutions: Keynote Speaker & Interactive Workshop 2019	30 November 2019

No	Program/Event/Seminar/Workshops/Activities	Date
13.	Sustainability in Occupational Safety & Health Meeting (MBKP) 2019 @ Taylor's University	3 December 2019
14.	Final UM Eco-Campus Monthly Meeting 2019	6 December 2019
15.	Initial Discussion with Human Resource Division (BSM) & IPPP UM on Research Officer (Temporary Appointment) 2019	9 December 2019
16.	Internal Review of Times Higher Education University Impact Rankings on SDGs 2019	10 December 2019
17.	Capacity Building Program: Campus Sustainability Module Training Series 2 with Human Resource Division @ The Cube APIUM	11 December 2019
18.	Little Urban Forest Open Day	14 December 2019
19.	5 th UM – Alam Flora 3R on Wheels @ KPS UM	17 December 2019
20.	Masjid Jamek al-Khadijjah 'Karnival Back to School' – Eco-Bazar Jariah coordinated by UMLL Imarah Green Project Surau APIUM	21 December 2019
21.	UM ZWC pre-training session with Trifacta Group (PASUM students)	23 December 2019
22.	Imarah Eco-Friends visit to UM ZWC site	27 December 2019
23.	Initial Meeting between UM, EPIC and UMCCed 2020 - Open Learning Services	6 January 2020
24.	Initial Meeting between UM & Eco-Waste Solutions	8 January 2020
25.	Initial Meeting between UM - DRB HICOM Environmental Services (Alam Flora Sdn Bhd) & Malakoff	8 January 2020
26.	Final Review of Times Higher Education University Impact Rankings on SDGs (THE UIR on SDGs) hosted by PPSG UM	9 January 2020
27.	1st SATREPS-OTEC Program Meeting and Joint Meeting for Social Implementation of Malaysia Model	10 January 2020
28.	1st Monthly Coordination Meeting of UM Sustainability & Living Labs Secretariat 2020	15 January 2020
29.	UM Living Labs 2019/2020 RAs Monthly Coordination Meeting	16 January 2020
30.	Conducted the UM Eco-Campus (Water Warriors & UM ZWC) & WWF-Malaysia WWF-Malaysia meeting	16 January 2020
31.	'Buluh in the City' by The RIMBA Project & Urban Biodiversity Initiative	18 January 2020
32.	Attach@UM Program 2020 hosted by DVC-Student Affairs	20 January 2020
33.	Involved in Focus Group Discussion by Universiti Malaysia Terengganu	20 January 2020
34.	Academy of Sciences Malaysia (ASM)'s Stakeholders Engagement Workshop on Local and Transboundary Pollution Act 2020	21 January 2020
35.	UM Coordination Meeting on Realizing the Aspiration of '1 Tree, 1 UM graduate' program hosted by DVC (Student Affairs)	28 January 2020
36.	The 6th 3R On Wheels 2020 Programme	4 February 2020
37.	MoA Signing Ceremony between UM & KL Forest Education Group & Chinese New Year Celebration @ Little Urban Forest Preschool Open House	6 February 2020
38.	UM Research & Innovation Strategic Planning Workshop 2020	7-9 February 2020
39.	RTM Interview & Shooting Session (Notes from Nature)	9 February 2020
40.	Dialogue on Open Science	14 February 2020
41.	Introduction Briefing Malaysia Plastic Pact	18 February 2020
42.	UM Eco-Campus Committee (JKEKOU) Triannual Meeting 1/2020	21 February 2020
43.	FEDTALK: 2050 Global Disaster without SDGs?	26 February 2020
44.	Initial discussion with L'Oréal Malaysia - Food Waste Management Initiative Collaboration	27 February 2020
45.	UM Sustainability & Living Labs Secretariat's TV Interview Session with Thai Public Broadcasting Service (Thai PBS)	28 February 2020
46.	Conducted UM Sustainability & Living Labs and UM Zero Waste Campaign & Initial Discussion on Food Waste Management Project Majlis Daerah Hulu Selangor	6 March 2020
47.	Water Warriors' Hands-on Training Water Monitoring for Sg Klang	8 March 2020
48.	Initial discussion on UM Sustainability & Living Labs Seminar in October 2020	10 March 2020

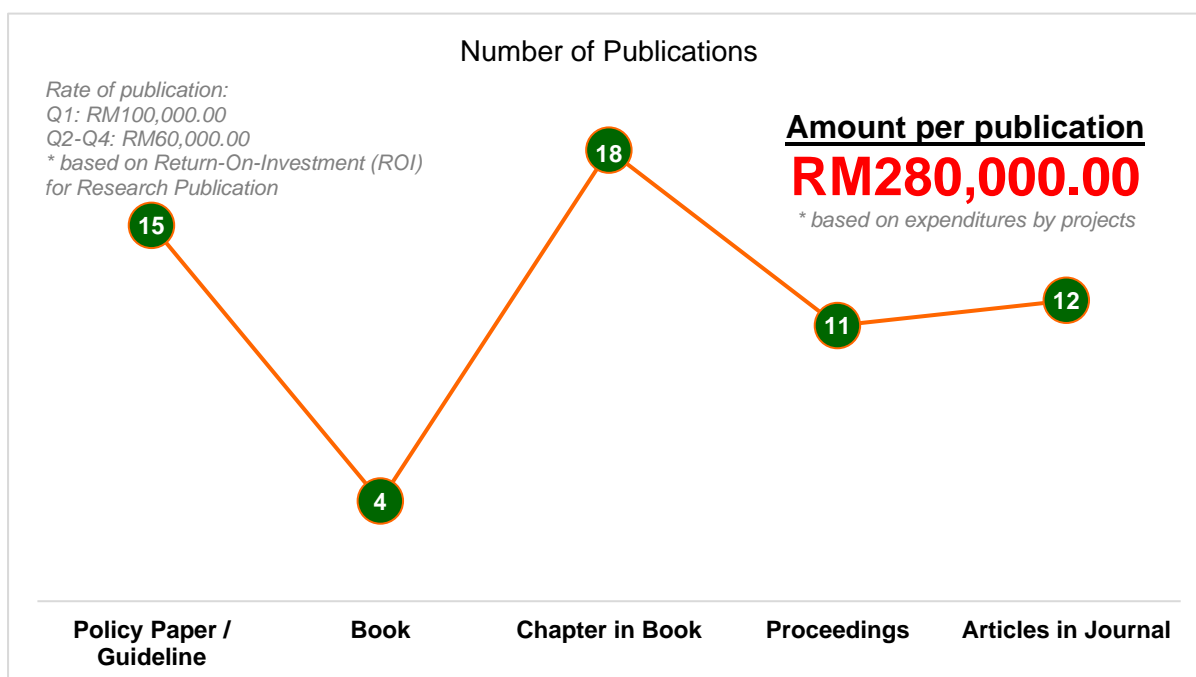
No	Program/Event/Seminar/Workshops/Activities	Date
49.	UMSLLS Special Meeting on Work from Home - COVID-19 Movement Control Order	17 March 2020
50.	Brief Discussion with UMCares	21 April 2020
51.	World Earth Day Celebration & Official Launch of UM Living Labs Volume III & IV	22 April 2020
52.	UM Eco-Challenge Virtual Assessment	3 June 2020
53.	UMSLLS Sustainability Webinar Series 1	5 June 2020
54.	Joined the virtual visit at Alam Flora's Recycling Innovation Facilities	9 June 2020
55.	AKEPT- IIUM Dove Webinar Series 3: The Role of HEIs Post-Pandemic COVID-19	22 June 2020
56.	UMCares Competition Award Ceremony	23 June 2020
57.	UM Living Labs 8-Months Virtual Monitoring Workshop 2019/2020	29 & 30 June 2020
58.	ITERA's International Webinar on Regional and Global Environmental Challenges, and Collaboration for Innovative Solutions Universiti Tun Hussein Onn (UTHM)	30 June 2020
59.	RIMBA Ilmu's Redevelopment Meeting	2 July 2020
60.	THE Impact Rankings Masterclass Malaysia Webinar	9 July 2020
61.	UM Living Lab Plastic Aggregates project site visit to UM ZWC	8 & 15 July 2020
62.	UMCares (UM Eco-Challenge) Award Post-Mortem Meeting	13 July 2020
63.	UM Living Labs 2020/2021 Virtual Clinic	16 July 2020
64.	Water Warriors' media interview by The STAR	16 July 2020
65.	Smart and Green IoT Vending Machine Initial Discussion with UVendTech (M) Sdn Bhd	22 July 2020
66.	UMSLLS Sustainability Webinar Series 2: 'University as a SDG Living Lab on Water Management: The Experience of Water Warriors UM'	23 July 2020
67.	The Institution of Engineers Malaysia (IEM) Webinar on Advancing Engineering and Sustainable Development: A Way Forward for Sustainable World	12 August 2020
68.	UM - Ecolknights Follow up Discussion on Project VOCAL - (Voice of Climate Action Leaders)	19 August 2020
69.	Follow up brainstorming session on Biodiversity & Landscape Management Project in UM with Dr Sarah & Dr Shakirin of Institute of Biological Sciences, Faculty of Science UM	19 August 2020
70.	Green Cafeteria Site Visit	14 September 2020
71.	UM Living Labs Grant Programme 2020/2021 Proposal Presentation & Evaluation	21 September 2020
72.	UMSLLS & UMLL Ijarah Green Project Initial Visit & Discussion on Green Mosque with JAWI and members of Masjid Al-Muttaqin	29 September 2020
73.	CITRa's Knowledge Sharing Session on Green Sustainability "University for Sustainability: Synergizing Sustainability Leadership in You"	21 October 2020
74.	Final Coordination Meeting of UI GreenMetric World University Rankings (UIGM) 2020	26 October 2020
75.	Discussion on UMLL Eco-Surau APIUM with CCO UM	28 October 2020
76.	Follow-up Discussion on Pyrolysis ClearWaste between UM (JPPHB & UM ZWC) with Millennium E&C (M) Sdn. Bhd.	28 October 2020
77.	UM's Pioneer Living Lab UM Zero Waste Campaign (UM ZWC) Bagged the Education for Sustainable Development (ESD) Okayama Award 2020	28 October 2020
78.	Involved in video interview with UMLL Ijarah Green Project at Lestari Shop APIUM by CCO UM	6 November 2020
79.	Follow-up Meeting on VOITH Group & JPPHB UM	7 November 2019
80.	UMLLGP 2019/2020 Final Monitoring	19 November 2020
81.	Webinar Kelestarian Siri ke-4 Surau Lestari kerjasama JAWI, Jamek FM & Kelab Ijarah Eco-Friends	25 November 2020
82.	Webinar #KitaJagaKita #KitaJagaAir by Water Warriors UM in collaboration with Air Selangor	26 November 2020
83.	Internal Discussion on UM Sustainability Wellness Input	26 November 2020
84.	UMSLLS Sustainability Webinar Special Series 2020	3 December 2020

No	Program/Event/Seminar/Workshops/Activities	Date
85.	Follow up Meeting UM - U EcoWorld Bhd: Vending Machine & Recycling	4 December 2020
86.	UMCares Competition 2021 Discussion	7 December 2020
87.	Discussion on potential collaboration UM ZWC & AIESEC UM - Clean Our Plate Proposal 2021	8 December 2020
88.	Initial Discussion UM ZWC & AJ Research & Pharma - Recycling Initiative	9 December 2020
89.	Launch of Malaysia SDG Indicators Report 2019 & Webinars on SDGs	10 December 2020
90.	Organized the Mini UMSLLS Appreciation Luncheon	11 December 2020
91.	Interview on UI GreenMetric 2020 achievements by CCO UM	11 December 2020
92.	Eco-Innovation Discussion with UMT Team	22 December 2020
93.	Internal Discussion (Hybrid Mode): JPPHB & UM ZWC on MEC Collaboration	22 December 2020
94.	Internal Discussion on Air Selangor Blueprint 2021: UMSLLS & Water Warriors UM	23 December 2020
95.	Post Mortem Data THE Impact Rankings on SDGs 2021 hosted by PPSG	24 December 2020
96.	Internal Discussion UM ZWC on EcoWorld Bhd. Proposal on Recycling initiative	29 December 2020
97.	Follow-up Discussion UM (UM ZWC) & Alam Flora Collaboration on MoA Preparation	29 December 2020
98.	Roundtable Discussion of Research Officers with Associate Vice Chancellor (Research & Innovation)	29 December 2020

In summary, UMSLLS have successfully contributed a total number of 98 activities in cycle 2019/2020 starting from November 2019 until December 2020. In addition, 13 UM Living Lab projects supporting 8 core areas of UM Eco-Campus Blueprint have collectively conducted various programmes throughout this 1 year period surmounted a total of 321 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

Articles in Journal	
	<p>ISI-indexed:</p> <ol style="list-style-type: none"> 1. Darvish, P., Alengaram, U. J., Poh, Y. S., Ibrahim, S., & Yusoff, S. (2020). Volume based design approach for sustainable palm oil clinker as whole replacement for conventional sand in mortar. <i>Journal of Building Engineering</i>, 32, 101660 2. Kasavan, S., Ali, N. I. B. M., Ali, S. S. B. S., Masarudin, N. A. B., & Yusoff, S. B. (2021). Quantification of food waste in school canteens: A mass flow analysis. <i>Resources, Conservation and Recycling</i>, 164, 105176. 3. Keng, Z. X., Chong, S., Ng, C. G., Ridzuan, N. I., Hanson, S., Pan, G. T., ... & Lam, H. L. (2020). Community-scale composting for food waste: A life-cycle assessment-supported case study. <i>Journal of Cleaner Production</i>, 261, 121220. 4. Muhamad, A., Syihab, A. H., & Ibrahim, A. H. (2020). Preserving Human–Nature’s Interaction for Sustainability: Quran and Sunnah Perspective. <i>Science and engineering ethics</i>, 1-14. 5. Ng, C. G., Yusoff, S., Zaman, N. S. B. K., & Siewhui, C (2020). Assessment on the Quality and Environmental Impacts of Composting at Institutional Community using Life Cycle Assessment Approach. <i>Polish Journal of Environmental Studies</i>. 6. Onn, C. C., Mo, K. H., Radwan, M. K., 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. 7. Radwan, M. K., Onn, C. C., Mo, K. H., Yap, S. P., Ng, C. G., & Yusoff, S. (2020, August). Eco-mechanical performance of binary and ternary cement blends containing fly ash and slag. In <i>Proceedings of the Institution of Civil Engineers-Engineering Sustainability</i> (pp. 1-14). Thomas Telford Ltd. <p>Non-ISI indexed:</p> <ol style="list-style-type: none"> 8. Illias, H. A., Ishak, N. S., & Alam, N. A. M. N. (2020). Awareness of Secondary School Students in Petaling Jaya Malaysia Towards Renewable Energy. <i>International Journal of Renewable Energy Research (IJRER)</i>, 10(4), 1645-1654. 9. Muhamad, A., Syihab, A. H., & Achour, M. (2019). Quranic messages on environmental sustainability: an expository study of its relevance. <i>Al-Bayan: Journal of Qur’an and Hadith Studies</i>, 17(1), 38-59.
<p>Book</p>	<ol style="list-style-type: none"> 1. Badari, K. A., Mahathar, M. A., & Shub, N. L. (2020). <i>Green Procurement Tool for Food Premises</i>. Infographics of Innovative Design at Higher Education. Retrieved from https://citedum.com/ebook20. 2. Norasid, M. A., Muhamad, A., Mansor, N. H., & Paad, N. S. (2020). <i>Konsep Imarah Menurut Al-Quran: Ke Arah Memperkasa Institusi Masjid Sebagai Hub Kelestarian Alam Sekitar (Eko-Masjid)</i>. Persatuan Ulama’ Malaysia. ISBN: 978-983-2306-42-9 (National) 3. Yusoff, S., Ahmad, A. Z., Rahmat Fakri, M. F., & Ariffin, N. F. R. (2019). <i>UM Living Lab Guidelines Volume I</i>. Kuala Lumpur, Malaysia: UMPress. (National)

	<ol style="list-style-type: none"> 4. Yusoff, S., Rahmat Fakri, M. F., Ahmad, A. Z., & Abu Bakar, A. (2020). <i>Unlocking Urban Sustainability Solutions –Sustainable Campus Reimagined. In UM Living Labs Volume III.</i> Kuala Lumpur, Malaysia: UM Press. ISBN: 978-967-18808-0-7 (National) 5. Yusoff, S., Rahmat Fakri, M. F., Ahmad, A. Z., & Abu Bakar, A. (2020). <i>Building Resilience & Sustainable Legacy. In UM Living Labs Volume IV.</i> Kuala Lumpur, Malaysia: UM Press. ISBN: 978-967-18808-1-4 (National)
<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. (2020). <i>Sustainable Management of Soil and Environment: Reducing Dependency on Fertilizer Consumption using Organic Materials.</i> In UM Living Labs Volume III: Unlocking Urban Sustainability Solutions –Sustainable Campus Reimagined. Kuala Lumpur, Malaysia: UM Press. (Published) 2. Darvish, P., Alengaram, U. J., & Yusoff, S. (2020). <i>Incorporation of Recycled Plastic Aggregates in Mortar.</i> In UM Living Labs Volume IV: Building Resilience & Sustainable Legacy. Kuala Lumpur, Malaysia: UM Press. (Published) 3. Harith, M. Z. Z., Idris, M. Y. I., Ahmedy, I., Wahab, A. W. A., Noor, N. M., Tey, K. S., Napih, M. N., Borhan, M. Z., & Hanafi, W. M. S. B. W. (2020). <i>Water Monitoring System in Universiti Malaya.</i> In UM Living Labs Volume IV: Building Resilience & Sustainable Legacy. Kuala Lumpur, Malaysia: UM Press. (Published) 4. Harith, M. Z. Z., Idris, M. Y. I., Ahmedy, I., Napih, M. N., Noor, R. M., & Tey, K. S. (2020). <i>Waste Management System in Universiti Malaya.</i> In UM Living Labs Volume IV: Building Resilience & Sustainable Legacy. Kuala Lumpur, Malaysia: UM Press. (Published) 5. Hasikin, K., Chan, N. H., Talib, M. I. A., Kadri, N. A., Azizan, M. M., Razak, S. A., Sabri, D. R., & Welfred, R. (2020). <i>Carbon Sequestration Analysis in University of Malaya in Achieving Carbon-Balanced Ecosystem.</i> In UM Living Labs Volume IV: Building Resilience & Sustainable Legacy. Kuala Lumpur, Malaysia: UM Press. (Published) 6. Hassan, N., Sanusi, J., Zainuddin, S. Z., Chow, U. T., Shuib, N. Y., & Noor, M. F. M. (2020). <i>Sustainability Reporting: The Faculty Sustainability Report Card.</i> In UM Living Labs Volume IV: Building Resilience & Sustainable Legacy. Kuala Lumpur, Malaysia: UM Press. (Published) 7. Illias, H. A., Ishak, N. S., Mokhlis, H., Mansor, N. N., & Hossain, M. Z. (2020). <i>Renewable Energy Harvesting System from Water Flow in Universiti Malaya.</i> In UM Living Labs Volume III: Unlocking Urban Sustainability Solutions – Sustainable Campus Reimagined. Kuala Lumpur, Malaysia: UM Press. (Published) 8. Lee H. G., Sim S. M., Tan K. M., Lai P. S. M., Wong Y. Y., & Sulaiman C. Z. (2020). <i>Safe Disposal of Unused Medications (The Way Forward) – Sustaining and Keeping It Going.</i> In UM Living Labs Volume III: Unlocking Urban Sustainability Solutions –Sustainable Campus Reimagined. Kuala Lumpur, Malaysia: UM Press. (Published) 9. Malek, S., Millow, P., & Hui, C. (2020). <i>A System Approach to Environmental Data Archiving for Sustainability: University Malaya Living Lab System.</i> In UM Living Labs Volume IV: Building Resilience & Sustainable Legacy. Kuala Lumpur, Malaysia: UM Press. (Published)

	<p>10. Mispan, M. S., Hanafiah, N. M., & Osman, N. (2020). <i>Managing Kitchen Waste Using Black Soldier Fly (Bsf): An Alternative Approach Towards Zero Waste in Campus</i>. In UM Living Labs Volume IV: Building Resilience & Sustainable Legacy. Kuala Lumpur, Malaysia: UM Press. (Published)</p> <p>11. 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. (2020). <i>Surau Akademi Pengajian Islam Universiti Malaya (APIUM) As an Eco-Mosque Model: The Green Milestone</i>. In UM Living Labs Volume III: Unlocking Urban Sustainability Solutions –Sustainable Campus Reimagined. Kuala Lumpur, Malaysia: UM Press. (Published)</p> <p>12. Nazneen, N., Zainol, R., Rosni, N. A., Yuen, C. W., Mokhtar, M. S., & Norman, A. A. (2020). <i>Walking in University of Malaya Campus! What Matters?</i> In UM Living Labs Volume IV: Building Resilience & Sustainable Legacy. Kuala Lumpur, Malaysia: UM Press. (Published)</p> <p>13. Osman, N., Hussein, H., Halim, A., & Masri, M. (2020). <i>Ecoslope: An Innovative Use of Ecological Concept in Slope Landscape Environment</i>. In UM Living Labs Volume III: Unlocking Urban Sustainability Solutions –Sustainable Campus Reimagined. Kuala Lumpur, Malaysia: UM Press. (Published)</p> <p>14. Ramakreshnan, L., Aghamohammadi, N., Chng, S. F., Abdullah, V. H. C. W., & Sulaiman, N. M. N. (2020). <i>Promoting Campus Walkability as a Sustainable Campus Initiative in a Tropical City</i>. In UM Living Labs Volume IV: Building Resilience & Sustainable Legacy. Kuala Lumpur, Malaysia: UM Press. (Published)</p> <p>15. Yuen, C. W., Onn, C. C., Koting, S., Zainol, R., & Hamdan, F. H. (2020). <i>Sustainable Transportation System in Universiti Malaya Campus Through Carpool Program Mode</i>. In UM Living Labs Volume III: Unlocking Urban Sustainability Solutions –Sustainable Campus Reimagined. Kuala Lumpur, Malaysia: UM Press. (Published)</p> <p>16. 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>. 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. (Published)</p> <p>17. Yusoff, S., Mohamed, Z., & Ahmad, A. Z. (2019). <i>Climate Change & Agriculture: Quantification of Environmental Impacts for the Malaysian Rubber Industry Using Life Cycle Assessment</i>. In Climate Change and Agriculture. London, UK: IntecOpen. (Published)</p> <p>18. Yusoff, S., Ng, C. G., Azlan, M. A. & Kamarul Zaman, N. S., Fakri, F. R., Che Harun, H. (2020). <i>Quantification of Potential Carbon Reduction from Integrated Solid Waste Management by UM Zero Waste Campaign using Carbon Footprint Assessment Method at Living Labs</i>. In UM Living Labs Volume III: Unlocking Urban Sustainability Solutions –Sustainable Campus Reimagined. Kuala Lumpur, Malaysia: UM Press. (Published)</p> <p>19. Yusoff, S., Ahmad, A. Z., Abu Bakar, A., & Fakri, M. F. R., (2020). <i>Transforming Universiti Malaya into a Sustainable Living Campus via UM Living Labs Initiative</i>. In UM Living Labs Volume III: Unlocking Urban Sustainability Solutions –Sustainable Campus Reimagined. Kuala Lumpur, Malaysia: UM Press. (Published)</p>
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	<p>20. Yusoff, S., Ng, C. G., Azlan, M. A., & Kamarul Zaman, N. S. (2021). <i>UM Zero Waste Campaign (UM ZWC) Waste-to-Wealth Initiative: Promoting Circular Economy at Higher Educational Institutions</i>. In Carvajal-Millan, E., Yaser, A., Z., Haghi, A. K. (Eds), <i>Natural Food Products and Waste Recovery: Healthy Foods, Nutrition Design, and Extraction of Valuable Compounds</i> (pp.-). Florida, FL: Apple Academic Press. (Published)</p> <p>21. Zakaria, Z., Zakaria, Z., Idris, D. M., Jacky, Y., & Ghazali, S. R. (2020). <i>Embedding Green into the Procurement Practice of University of Malaya</i>. In <i>UM Living Labs Volume III: Unlocking Urban Sustainability Solutions –Sustainable Campus Reimagined</i>. Kuala Lumpur, Malaysia: UM Press. (Published)</p> <p>22. Zubir, M. N. M., Mahmud, F., Shukor, M. H. A., Kiah, M. L. M., Ahmad, M. Y., & Muhamad, M. R. (2020). <i>Decentralization of Laboratory Exercise Via Remote Application</i>. In <i>UM Living Labs Volume IV: Building Resilience & Sustainable Legacy</i>. Kuala Lumpur, Malaysia: UM Press. (Published)</p>
<p>Proceedings</p>	<p>1. Hadi, A. H., Shah, N. M., Ahmad, M. Y., & Tengku, T. F. (2019). <i>Continuous Beam Steerable Parasitic Antenna Array</i>. Paper presented at 2019 IEEE Asia-Pacific Microwave Conference (APMC) (pp. 138-140), December 2019. Institute of Electrical and Electronics Engineers (IEEE), Malaysia. (International)</p> <p>2. Illias, H. A., Ishak, N. S., Mokhlis, H., & Hossain, M. Z. (2020). <i>IoT-based Hybrid Renewable Energy Harvesting System from Water Flow</i>. Paper presented at 2020 IEEE International Conference on Power and Energy (PECon) (pp. 204-208), December 2020. Institute of Electrical and Electronics Engineers (IEEE), Malaysia. (International)</p> <p>3. Ja'ffar, H. A., Ahmad, M. Y., Shah, N. M., & Izam, T. F. T. M. N. (2019). <i>Frequency Reconfigurable Shorting-Pin Loaded Rectenna for Smart Living</i>. Paper presented at 2019 IEEE Asia-Pacific Microwave Conference (APMC) (pp. 1452-1454), December 2019. Institute of Electrical and Electronics Engineers (IEEE), Malaysia. (International)</p> <p>4. Md Noor, R. & Munir, M. U. (2020). <i>Promoting Sustainable Transportation for University Campus: UM Share Ride</i>. Paper presented at The 2nd Indonesia Inventors Day (IID) 2020, November 2020. Indonesian Invention and Innovation Promotion Association (INNOPA), Indonesia. (International)</p> <p>5. Mohamad, Z. F. (2020). <i>Place-based Citizen Science</i>. Paper presented at AUN-EEC Conference on Cultivating Ecological Mindsets and Lifestyles, 12 November 2020. Malaysia. (International)</p> <p>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>. In <i>SEASN A Compendium of Selected Best Practices on Sustainable Development Goals</i>. Penang, Malaysia: South East Asia Sustainability Network (SEASN) & Centre for Global Sustainability Studies (CGSS), Universiti Sains Malaysia. ISBN :978-967-394-337-1. (International)</p> <p>7. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Ariffin, N. F. R. (2019). <i>The Roles and Contributions of Universities and Sustainability Engineering towards 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. (International)</p>

	<ol style="list-style-type: none"> 8. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Ariffin, N. F. R. (2019). <i>Eco-Campus: The Commitments, Impacts, and Contributions of Universities towards Sustainable Development Goals (SDGs)</i>. Paper presented at 2nd International Conference on Green University. University of Isfahan, Isfahan, Iran. (International) 9. 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. (International)
<p>Presentations</p>	<ol style="list-style-type: none"> 1. Mohamad, Z. F., Fakri, M. F. R., & Ahmad, A. Z. (2020). <i>Universiti Malaya Sustainability & Living Labs Initiative: Eco-Campus Transformation for University in City Centre</i>. Presented at Sustainable Campus Strategic Planning Working, 15 July 2020, Jabatan Alam Sekitar (JAS) Melaka, Malaysia. (National) 2. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Ariffin, N. F. R. (2019). <i>Sustainable Development in UM: Think Green, Act Green!</i> Presented at The Cube, Academy of Islamic Studies Universiti Malaya (APIUM), 19 November 2019, Universiti Malaya, Malaysia. (National) 3. Yusoff, S., Fakri, M. F. R., & Ariffin, N. F. R. (2019). <i>Climate Change: The Future is in Our Hands</i>. Presented at Tenby School Setia Eco-Park, 23 November 2019, Malaysia. (National) 4. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2019). <i>Integrating Safety into Occupational Safety & Health (OSH)</i>. Presented at Mesyuarat Majlis Bersama Keselamatan dan Kesihatan Pekerjaan (Mbkkp Ipt/Ipp) Bil 33 (2/2019), 3 December 2019, Taylor's Lakeside Campus, Malaysia. (National) 5. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2019). <i>Advancing Sustainable Development Agenda: Empowering Educators in Leading Sustainability</i>. Presented at Asia Europe Institute (AEI), 11 December 2019, Universiti Malaya, Malaysia. (National) 6. Yusoff, S., Ahmad, A. Z., Abu Bakar, A., & Fakri, M. F. R. (2020). <i>Universities & Sustainable Development Goals (SDGs): Paving the way for Innovations Post Covid-19</i>. Presented at UM Sustainability & Living Labs Secretariat (UMSLLS) Sustainability Webinar Series 1, 5 June 2020, Universiti Malaya, Malaysia. (National) 7. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2020). <i>UM Living Labs Sustainability Initiatives</i>. Presented in UM Living Labs First Monthly Coordination Meeting 2019, 16 January 2020, Universiti Malaya, Malaysia. (National) 8. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2020). <i>Local and Transboundary Pollution Act 2020</i>. Presented at the Academy of Sciences Malaysia (ASM)'s Stakeholders Engagement Workshop, 21 January 2020, Academy of Science Malaysia, Kuala Lumpur, Malaysia. (National)

	<ol style="list-style-type: none"> 9. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2020). <i>UM Sustainability & Living Labs Secretariat Initiatives</i>. Presented in UM Eco-Campus Committee (JKEKOUUM) Triannual Meeting 1/2020, 21 February 2020, Universiti Malaya, Malaysia. (National) 10. Yusoff, S., Ahmad, A. Z., Abu Bakar, A., & Fakri, M. F. R. (2020). <i>Universities & Sustainable Development Goals: Paving The Way for Innovations for Post Covid-19</i>. Presented during the UMSLLS Sustainability Webinar Series 1, 5 June 2020, Universiti Malaya, Malaysia. (National) 11. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Abu Bakar, A. (2020). <i>Leading Universities Towards Achieving Sustainable Development Goals (SDG) in Higher Education: Lesson from Covid-19</i>. Presented at AKEPT Talk: Dialogue on Values-based Education (DOVE) Series 3, 22 June 2020, International Islamic University Malaysia (IIUM), Malaysia. (International) 12. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Abu Bakar, A. (2020). <i>Driving Sustainable Excellence & Innovative Partnership in Addressing Global Environmental Challenges for a Sustainable Future</i>. Presented at ITERA's International Webinar on Regional and Global Environmental Challenges, and Collaboration for Innovative Solutions 2020, 30 June 2020, Universiti Tun Hussein Onn (UTHM), Malaysia. (International) 13. Yusoff, S., Fakri, M. F. R., & Ahmad, A. Z. (2020). <i>UM Living Labs: Discussion on RIMBA Ilmu Redevelopment</i>. Presented in UM Coordination Meeting on Realizing the Aspiration of '1 Tree, 1 UM graduate' program by DVC (Student Affairs), 2 July 2020, Universiti Malaya, Malaysia. (National) 14. Yusoff, S., Ahmad, A. Z., & Fakri, M. F. R. (2020). <i>UM Living Labs Clinic 2020/2021</i>. Presented at UM Living Labs Virtual Clinic 2020/2021, 16 July 2020, Universiti Malaya, Malaysia. (National) 15. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Abu Bakar, A. (2020). <i>Advancing Engineering and Sustainable Development: A Way Forward for Sustainable World</i>. Presented in the Institution of Engineers Malaysia (IEM) Webinar, 12 August 2020, Universiti Malaya (UM), Malaysia. (National) 16. Yusoff, S., Ahmad, & Fakri, M. F. R. (2020). <i>University for Sustainability: Synergizing Sustainability Leadership in You</i>. Presented at CITRa's Knowledge Sharing Session on Green Sustainability 2020, 21 October 2020, Universiti Malaya, Malaysia. (National) 17. Yusoff, S., Fakri, M. F. R., Ahmad, A. Z., & Abu Bakar, A. (2020). <i>CMCO – Sustainability Tips by UM Living Lab Experts</i>. Presented in UMSLLS Sustainability Webinar Special Series 2020, 3 December 2020, Universiti Malaya, Malaysia. (National)
Policy Paper / Guideline / Standard	<ol style="list-style-type: none"> 1. Ahmad, M. Y. (2020). Guidelines on how to install smart switch and configure for Cloud based monitoring. 2. Yusoff, S., Ahmad, A. Z., Fakri, M. F. R., & Ariffin, N. F. R. (2019). <i>UM Living Lab Guidelines Volume I</i>. Universiti Malaya Eco-Campus & UM Living Labs.

	<ol style="list-style-type: none"> 3. Yusoff, S., Ahmad, A. Z., Ariffin, N. F. R, Abu Bakar, A. & Fakri, M. F. R. (2020). <i>Garis Panduan Geran Penyelidikan UM Living Labs</i>. (submitted for ISSN number) 4. Yusoff, S., Ahmad, A. Z., Ariffin, N. F. R, Abu Bakar, A. & Fakri, M. F. R. (2020). <i>UM Living Labs Grant Programme Guideline</i>. (submitted for ISSN number) 5. Yusoff, S. Azlan, M. A., Kamarul Zaman, N. S., Rahmat Fakri, M. F., Che Harun, H., & Ng, C. G. (2020). <i>Simple Tips On How to Reduce Your Plastic Use</i>. UMinfo, Universiti Malaya, Malaysia. 6. Yusoff, S. Azlan, M. A., Kamarul Zaman, N. S., Rahmat Fakri, M. F., Che Harun, H., & Ng, C. G. (2020). <i>Home Composting Made-Easy Tips!</i> UMinfo, Universiti Malaya, Malaysia. 7. Yusoff, S. Azlan, M. A., Kamarul Zaman, N. S., Rahmat Fakri, M. F., Che Harun, H., & Ng, C. G. (2020). <i>Re-Grow Vegetables from Kitchen Scraps</i>. UMinfo, Universiti Malaya, Malaysia. 8. Yusoff, S. Azlan, M. A., Kamarul Zaman, N. S., Rahmat Fakri, M. F., Che Harun, H., & Ng, C. G. (2020). <i>Communal Composting Guide</i>. Universiti Malaya, Malaysia. 9. Yusoff, S. Azlan, M. A., Kamarul Zaman, N. S., Rahmat Fakri, M. F., Che Harun, H., & Ng, C. G. (2020). <i>7 Steps to Start an Easy Urban Garden</i>. Universiti Malaya, Malaysia. 10. Yusoff, S. Azlan, M. A., Kamarul Zaman, N. S., Rahmat Fakri, M. F., Che Harun, H., & Ng, C. G. (2020). <i>Kod Amalan: Pengasingan Sisa Makanan Di Punca – Taman Seri Sentosa</i>. Universiti Malaya, Malaysia. 11. Yusoff, S. Azlan, M. A., Kamarul Zaman, N. S., Rahmat Fakri, M. F., Che Harun, H., & Ng, C. G. (2020). <i>Guideline On Circular Economy</i>. Universiti Malaya, Malaysia. 12. Yusoff, S. Azlan, M. A., Kamarul Zaman, N. S., Rahmat Fakri, M. F., Che Harun, H., & Ng, C. G. (2020). <i>Food Waste Composting</i>. Universiti Malaya, Malaysia.
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D) NETWORKING & LINKAGES

INTERNATIONAL NETWORKINGS:

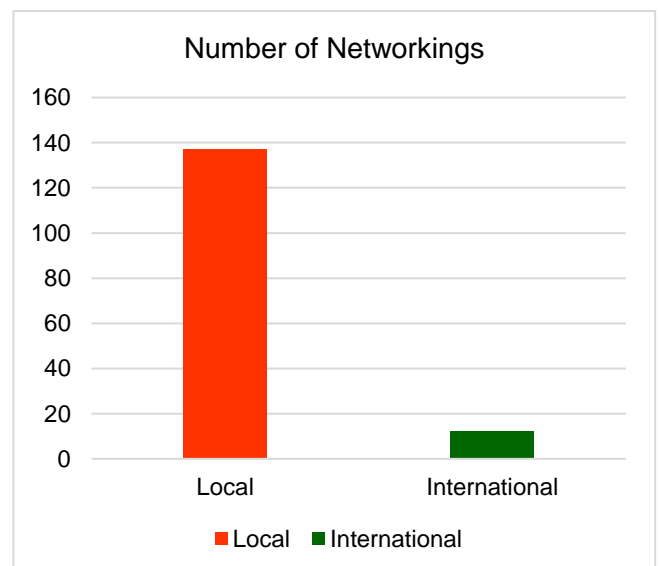
1. Asian Youth for Sustainable Palm Oil (AYSPO)
2. Thai Public Broadcasting Service (Thai PBS)
3. Okayama Award Steering Committee.
4. International Cardiff University, UK
5. Centre for Ecology and Hydrology,
6. United Nations Development Programme (UNDP) Malaysia,
7. WATERGOAT,
8. British Antarctic Survey
9. Thiagarajar College of Engineering, Anna University, India

SOME NOTABLE NATIONAL NETWORKINGS:

1. United Nations Environment Programme
2. Alam Flora Sdn. Bhd.
3. Member of Parliament Lembah Pantai
4. Majlis Bandaraya Petaling Jaya (MBPJ)
5. Local Agenda 21 (LA21)
6. Taman Seri Sentosa
7. Dewan Bandaraya Kuala Lumpur (DBKL)
8. Urban Forest Pre-School
9. Jabatan Sisa Pepejal Negara
10. Millenium E & C Sdn Bhd – Pyrolysis
11. Kementerian Alam Sekitar dan Air (KASA)
12. Westports Malaysia Sdn Bhd
13. Sime Darby Berhad
14. L'Oreal Malaysia
15. Malaysian Palm Oil Association (MPOA)
16. Taylor's University
17. Tenaga Nasional Berhad (TNB)
18. TENBY International School
19. Urban Biodiversity Initiative (UBI)
20. Universiti Malaysia Terengganu (UMT)
21. Akademi Sains Malaysia (ASM)
22. International Islamic University Malaysia (IIUM)
23. Radio Televisyen Malaysia (RTM)
24. Star Publications (Malaysia) Berhad
25. Alam Flora Sdn. Bhd.
26. Masjid Jamek Al-Khadijiah Pantai Dalam
27. WWF-Malaysia
28. KL Forest Education Group
29. L'Oréal Malaysia
30. Majlis Daerah Hulu Selangor (MDHS)
31. VOITH Group
32. Eco-Waste Solutions
33. Universiti Teknologi Malaysia (UTM)
34. SME Corp Malaysia
35. UVendTech (M) Sdn Bhd
36. Institution of Engineers Malaysia (IEM)
37. Eco-knights
38. Millennium E&C (M) Sdn. Bhd
39. Jabatan Agama Islam Wilayah Persekutuan (JAWI)
40. Air Selangor
41. Eco-World Bhd,
42. AJ Research & Pharma
43. Astro Awani
44. Malaysian Design Archive
45. The Tropicalist Ltd.
46. Majlis Perundingan Pertubuhan Malaysia
47. Centre for Malaysian Indigenous Studies
48. Projek Dapur Umar
49. Langur Project Penang
50. QASK Engineering
51. Make It Right Movement (MIRM)
52. Jabatan Agama Islam Wilayah Persekutuan (JAWI)



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 2020, three (3) UM Living Lab programmes were awarded for their innovativeness in research.

1. PROFESSOR DR. SUMIANI YUSOFF (PI)

Team Members: Dr. Ng Chee Guan, Mr. Mohd. Fadhli Rahmat Fakri, Mrs. Mairuz Asmarafariza Azlan, Mr. Hisyamuddin Che Harun, Ms. Nur Shakirah Kamarul Zaman

Affiliation: Institute of Ocean & Earth Sciences (IOES), UM

E-mail: sumiani@um.edu.my

Tel: +603-7967 4635

Project: UM Zero Waste Campaign (Integrated Solid Waste Management

Category: Empowering Communities for Food Waste Recycling and Sustainable Urban Farming

Award: International Education for Sustainable Development (ESD) Okayama Award 2020



UM Eco-Campus Secretariat & UM Living Labs would like to extend our heartiest congratulations to UM Zero Waste Campaign (LL004-15SUS) on their remarkable achievement in the International ASD Okayama Award 2020.



3. ASSOCIATE PROF. TS. DR. RAFIDAH MD NOOR (PI)

Team Members: Muhammad Umair, Dr. Ismail Ahmedy, AP Dr. Mohd Yamani Idna Idris

E-mail: rafidah@um.edu.my

Tel: +603-7967 6346

Project: Promoting Sustainable Transportation for University Campus: UM Share Ride

Category: World Invention and Technology Expo (WINTEX)

Award: Silver



Indonesia Inventors Day 2020	Category	Country	Event	Award
Phongasaya Jaspakdee, Chaynar Plamsornchayakul and Pinyada Uthairatmanan	Drug Coating Technology by Sugar Cooling Crystallization Method	Thailand	IVIA	SILVER
Pechars Rattanasri, Intouch Yungueni, Phada Mahagnakapong	Physicochemical and sensory properties of crude dietary fiber from papaya and carrot as food product ingredients	Thailand	IVIA	SILVER
Cholada Chayvada, Sanyaporn Sornth and Supichaya Japa	The testing of the efficacy of crude extract from basil leaves to the control Rice Blast Disease in rice field	Thailand	IVIA	SILVER
Punaiya Banjoangit	Insect prevention paper bag	Thailand	IVIA	SILVER
Atil Soyler, Sude Kahraman	Development of Nanoparticle based Colorimetric Method for Lead Detection	Turkey	IVIA	SILVER
Anastasiya Vechlovskya	Mathematical modeling of an environmentally-friendly cup	Ukraine	IVIA	SILVER
Ihor Shyba	The development of multiprocessor combined telemechanical system featuring communication channel which based on computer networks and internet protocols	Ukraine	IVIA	SILVER
Rafidah Md Noor, Muhammad Umair, Ismail Ahmedy, Mohd Yamani Idna Idris	Promoting Sustainable Transportation for University Campus: UM Share Ride	Malaysia	WINTEX	SILVER
Mr. S.M.Kahbowula, Mr. L.A.S.Lakshmi, Mrs. H.P.D.K.Wijewardana, Mrs. A.G.C.Lakshmi	AYU+ Symptoms Analyser Application	Sri Lanka	WINTEX	SILVER
Hassana Hydar	Intelligent Deployment of UAV's to Provide Cellular Coverage	Sri Lanka	WINTEX	SILVER
Ms. Sam Thi Kim Quy	Inox detergent liquid	Vietnam	WINTEX	SILVER

4. ASSOCIATE PROF. DR. NOR LIYANA SHUIB (PI)

Team Members: Khairatul Alyani Badari, Muhammad Ashraf Mahathar, Dr. Norizah Hassan, AP Dr. Junedah Sanusi, Dr. Siti Zaidah Zainuddin, Dr. Chow Ung T'chiang, Elli Yanti Khalid, Murni Azmi, Muhammad Izzat Azri Zainal Abidin and Rita Afriani Mohd Yusu

E-mail: liyanashuib@um.edu.my

Tel: +603-7967 6415

Project: Green Procurement for Food Premises

Category: International Summit on Innovation & Design Exposition 2020

Award: Silver



F) MEDIA APPEARANCES

1) UM Sustainability & Living Labs Secretariat & UM Zero Waste Campaign (UM ZWC)



Thailand Public Broadcasting Service (Thai PBS). Uploaded 2020, 29 June. Low Carbon Path in ASEAN: ASEAN Checkpoint, ASEAN Way, Southeast Asian. Retrieved from <https://www.youtube.com/watch?v=CIR1EghWDAE>



Agenda Awani 501. Kelestarian dan Cabaran Menguruskan Bekalan Air. On-aired on 6 December 2020. Retrieved from https://www.youtube.com/watch?v=zeY_nUiaUpo



Star Publications (Malaysia) Berhad. 'Old UM bus upcycled into chic living space'
 Uploaded 2020, 18 July

Tech-forward waste transformation

By SHEILA SRI PRIYA



METRO NEWS

Tuesday, 07 Jan 2020

Related News



METRO NEWS 15h ago
 Garden refuse, bulk waste collection to begin in April



Article by TheStar (7 Jan 2020) - <https://www.thestar.com.my/metro/metro-news/2020/01/07/tech-forward-waste-transformation>

Waste management starts with us

By SHEILA SRI PRIYA



METRO NEWS

Monday, 10 Feb 2020



Thy Wuey Ping (left) teaching her neighbour to weave baskets out of discarded food packaging. — Filepic

Article by TheStar (10 Feb 2020) - <https://www.thestar.com.my/metro/metro-news/2020/02/10/waste-management-starts-with-us>

2) Water Warriors UM

APPLYING TEACHING AND LEARNING ACTIVITIES TO SUPPORT LIVING LAB RESEARCH ON THE UM GREEN BELT




In the year 2015, Water Warriors (WW) embarked on the journey of being transformed from a grassroots movement to a campus sustainability living lab - an action-oriented necessary venue to provide innovative sustainability solutions to the campus or adjacent water management. One of our focused sites is Taik Yang, a human-made lake located at the foot of the University of Malaya (UM) campus. In the year 2018, the surrounding areas had undergone a small transformation whereby landscape plans had been made to convert part of the green space into the UM Main Library to include a wetland zone and green leading up to the lake. The project was completed in 2019, with the whole area now officially termed as the UM Green Belt. Throughout the whole project, WW played a critical role as the lead research partner by providing ideas and develop

solutions to the UM Department of Development and Estate Maintenance (JRE46) as the process owner. One of the unique strategy adopted by the team is the creative combination of research with teaching and learning activities by the WW researchers.

Taking the opportunity from the landscape concepts of the UM Green Belt project, a WW researcher from the Faculty of Built Environment, Associate Prof. Dr. Hazreen Hassan, had devised a creative design studio project for her courses on Landscape Fundamentals (for undergraduates) and Landscape Architecture (for postgraduates). Students were given the task to improve the landscape design of UM Green Belt based on their understanding of not only the aesthetic and design principles, but also engineering knowledge in planning, designing and

management of both natural and built environment. Another WW researcher, Dr. Farhan Mohamed Zaki who is an expert in Environmental Management from the Faculty of Engineering, had created pragmatic assignments for her students by conducting experiments at UM Green Belt that can provide insights on water quality of the area and ideas for risk assessment. She also conducted outdoor lectures for final year students under her Sustainability in Engineering course on how they can restore and improve UM Green Belt through sustainability engineering design principles. Additionally, Associate Prof. Dr. Zeeda Fatimah Mohamad, WW's principal investigator from the Faculty of Science had included water-related citizen science activities and a placemaking intergenerational master project as a part of her problem-based teaching and learning strategy. Insights gained from analyses and discussions conducted with the students during these activities have been invaluable in refining WW's interdisciplinary ideas in the management of water bodies in UM.

For more information, please contact:
Assoc. Prof. Dr. Zeeda Fatimah Mohamad
Department of Science and Technology Studies
Faculty of Science
zeeda2@um.edu.my

UMR Bulletin: "Applying teaching and learning activities to support Living Lab Research on the UM Green Belt".



UM LIVING LABS GRANT PROGRAMME

UM LIVING LAB PERFORMANCES AND OUTPUTS

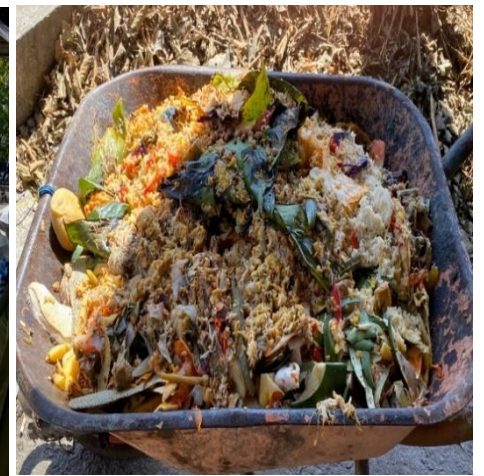
While UM Living Labs mode is slightly different from its counterpart [such as UM Research Programme (UMRP) or Grand Challenge (GC)], they still share common principle and goals in providing working solutions to the community. In UM Living Labs case, campus community become their main beneficiaries. UM 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</p> <p>TARGET: 147,000kg waste diverted from landfill (Target reduced to 95,500kg waste diverted from landfill due to Restriction Movement Control Order)</p> <ul style="list-style-type: none"> Total waste diverted into useful resources (2020): 135,548 kg <ul style="list-style-type: none"> Food waste: 40,680kg (>100% achieved) Green waste: 19,055kg (>100% achieved) Textile waste: 18,973kg (>100% achieved) Recyclable materials: 56,840kg (>100% achieved) Income generation (2020): RM17,960 (>100% achieved) Total cost saving on waste disposal since inception till 2020: RM 400,000.00 Total waste diverted since inception till 2020: > 1,242,000 kg Total income generation since inception till 2020: RM 102,797 Total carbon emission reduction since inception till 2020: > 5,341,000 KG CO2-eq <div data-bbox="432 1211 1406 2040"> <p style="text-align: center;">Percentage of Waste Diverted from Landfills by UM ZWC (in tonnage)</p> <table border="1"> <caption>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>Recyclable Materials</td> <td>42%</td> </tr> <tr> <td>Food Waste</td> <td>30%</td> </tr> <tr> <td>Green Waste</td> <td>14%</td> </tr> <tr> <td>Textile Waste Recycle/Reuse</td> <td>14%</td> </tr> </tbody> </table> </div>	Category	Percentage	Recyclable Materials	42%	Food Waste	30%	Green Waste	14%	Textile Waste Recycle/Reuse	14%
Category	Percentage										
Recyclable Materials	42%										
Food Waste	30%										
Green Waste	14%										
Textile Waste Recycle/Reuse	14%										



Monthly 3R on Wheel Programme





SMALL FAMILY HOME COMPOSTING KIT

3x 1kg UM ZWC Organic Compost



3L CONTAINER
3kg UM ZWC Compost



2x Charcoal Filter



Smell free indoor home composting

Rust proof container

BIG FAMILY HOME COMPOSTING KIT

10x 1kg UM ZWC Organic Compost



38L CONTAINER
10kg UM ZWC Compost





Residential college 1



PASUM



Dewan Tunku Canseleri



Library



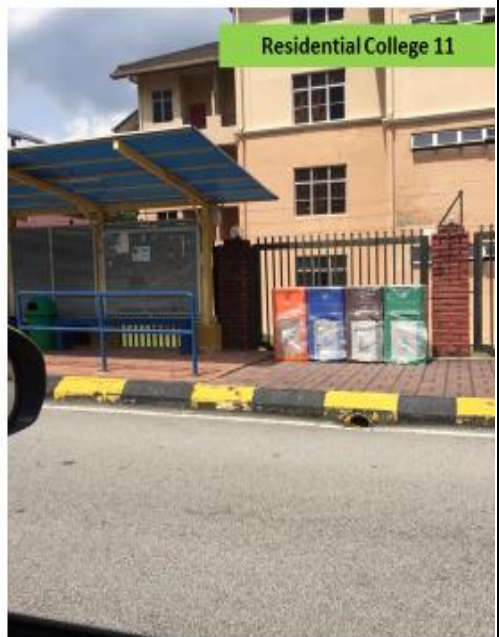
Residential College 12



UM Sentral



Faculty of Engineering



Residential College 11

2) Safe Disposal of Unused Medications: The Adventure Outward

- Total of unused medicines collected (2020): **1,316 kg**



3) Enhancement of Properties of Recycled Plastic Aggregate in Cement-Free Geopolymer & Normal Concretes and Application

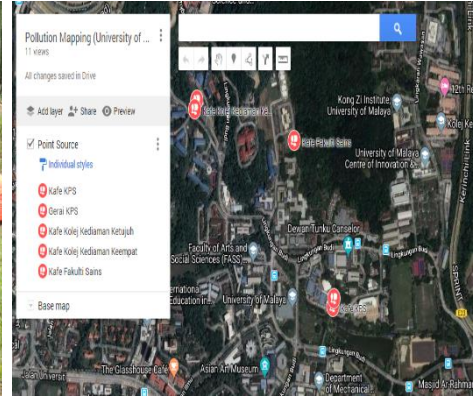
- Total Recyclable Materials: **64.48 kg**
- Plastic concrete pavement built at UM Zero Waste Campaign site



Water Management

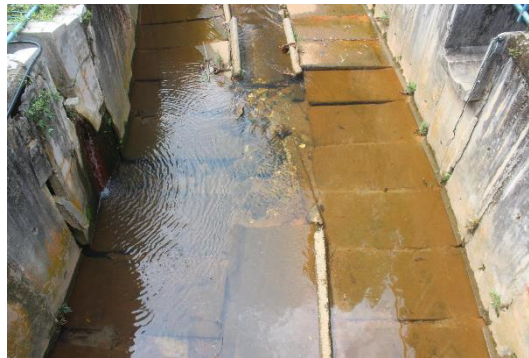
1) UM Water Warriors

- Total Piped Water Saved: **227,363 m³**
- Total Monetary Saving from the Operation of the Project: **RM 5,618**
- Total Revenue Generated from the project: **RM 30,646**



Enhancement of constructed wetland & stream project at Tasek Varsiti

Maintenance & enhancement of past projects (Flood mitigation projects and pollution mapping of campus watershed)



Monitoring during MCO



Urban Farm

Constructed Wetland project at ZWC to solve leachate problem (JPPHB & OSHE)

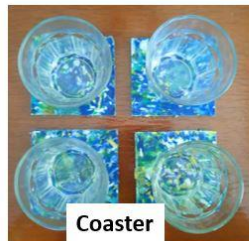



**RECYCLE
DROP
OFF**

RUMAH NO. 2
LORONG 16/10B,
SEKSYEN 16,
46350 PETALING JAYA

EVERYDAY, ANYTIME

Recyclables Drop-Off



Coaster



UM Keychain



Clock



Hanging Rack



Magnet



Pot Tiles



Plaque



Pot Saucer



Puzzle



Bottle Cap
Keychain



Spinning Toy



WW Keychain



Candle Holder

Production of valuable items using upcycling plastic machine



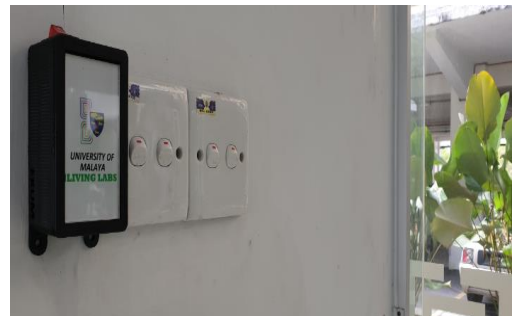
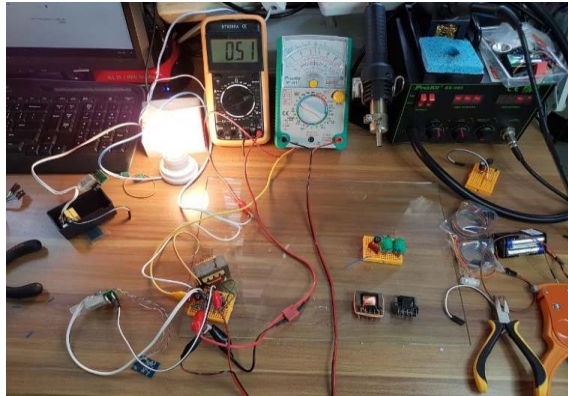
Installation of Cekap Air products in campus



Taman Clean Up

Energy Management

1) Robust Smart Modular Electrical Energy Monitoring and Management System for Energy Saving



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

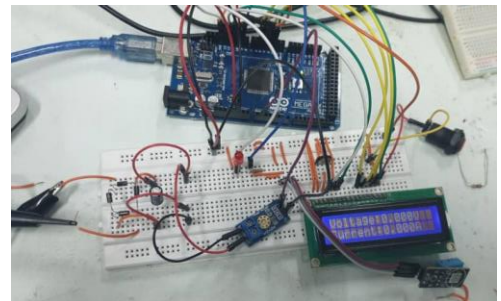
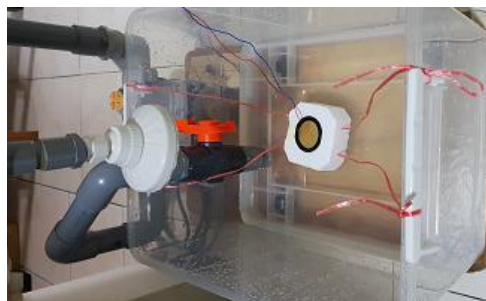
*Switch module at Block D,
Faculty of Engineering, UM*

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**

2) Development of Renewable Energy Harvesting System from Water Flow in University of Malaya

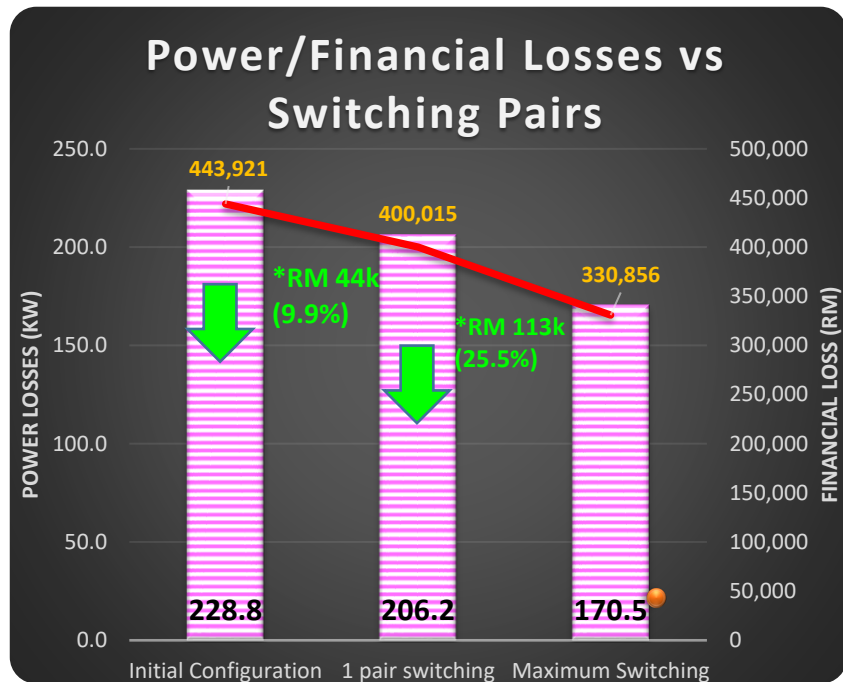
- Total energy saved: **540 kwh**
- Monetary Saving from The Operation of Project: **RM 59.72.00**



Prototype of renewable energy harvesting system

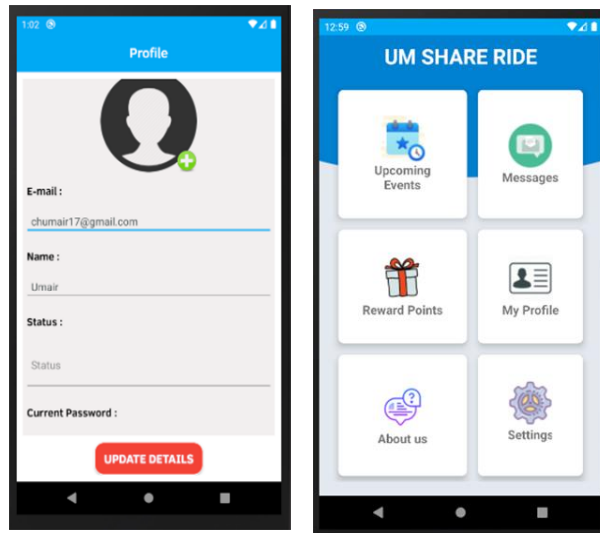
3) Study on electrical distribution system in UM for power loss reduction and potential cost savings

- Total Monetary Saving from The Operation of Project: **RM 75,900**



Transport Management

1) IoT Monitoring and Management System on Campus Sustainable Transportation



- Download and then launch the **UMShareRide** Apps from Google Play Store
Register and sign in

Development of UMShareRide Application

1) Transforming the Role of Surau APIUM for Campus Sustainability Through 'Imarah Green Project'

- Total Piped Water Saved: **13 m³** (Achieved 10%)
- Total of plants planted: **213**
- Total Textiles and Old Clothes Recycled: **569 kg**
- Total Recyclable Materials: **4042.5 kg**
- Total Revenue Generated from Project Implementation: **RM1,052.50**



Implementation of Rainwater Harvesting System (RWHS)



Hanging pots



Edible plants



Flowers @ planter box

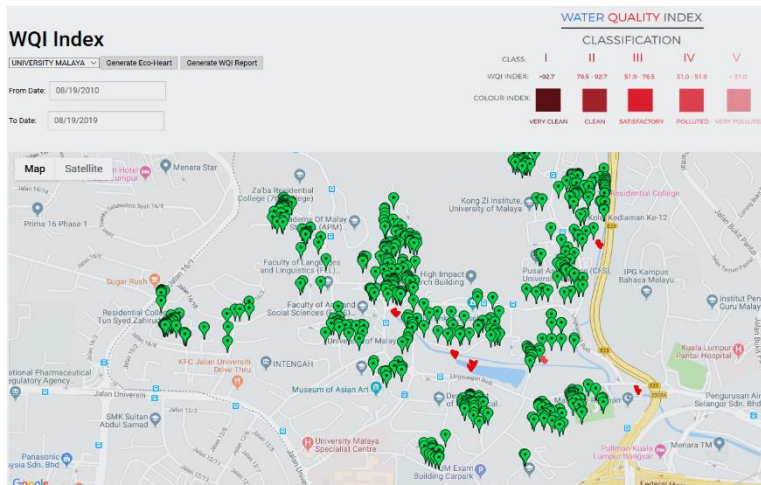
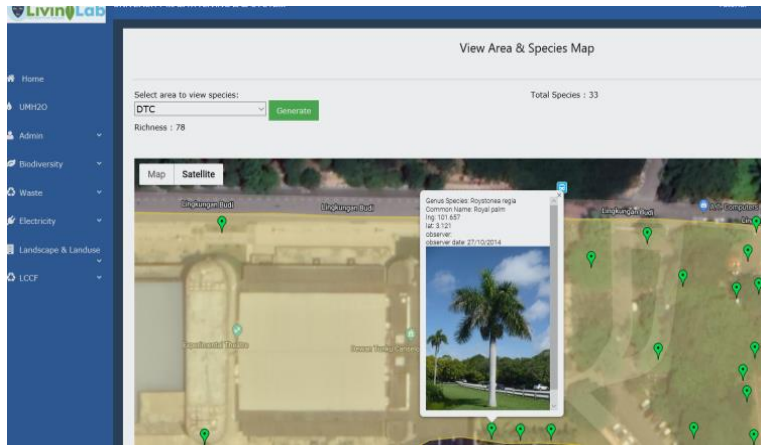


Vertical farming



Change Management

1) Universiti Malaya Living Lab System (UMLL System)



Providing database system that can store & analyse data collectively

Biodiversity

1) The RIMBA Project

- 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**



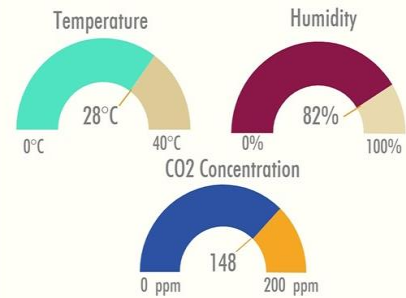
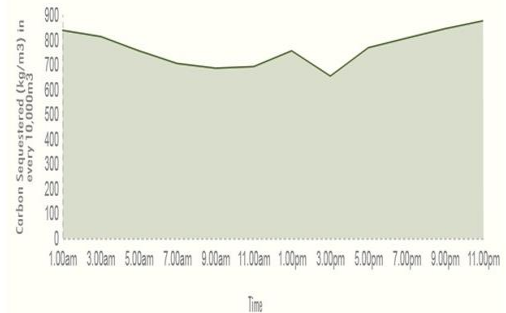
Buluh in the City Programme

- 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

- Average carbon sequestered in a year: **17,000 kg/m³ per tree**
- Average carbon storage in a year: **5,000 kg per tree**
- Total landscape recycled in a year: **25,042 kg**
- **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 RIMBA Ilmu

The sensor Design

ii) SOCIAL IMPACT

Theme	2020 Accomplishments
<p>Landscape & Biodiversity Management</p>	 <p><i>Biodiversity Forum for Business and Private Sector in Malaysia 2020</i></p>       <p><i>'Buluh in the City' by The RIMBA Project & Urban Biodiversity Initiative (UBI)</i></p>

JPT JABATAN PENDIDIKAN TINGGI
 MALAYSIA
 MALAYSIAN EDUCATION DEVELOPMENT CORPORATION
 DEPARTMENT OF Higher Education
 Education Development Corporation
 100, Jalan Raja Muda Abdul Aziz, Kuala Lumpur 50300
 Tel: 603-2033 1000 Fax: 603-2033 1001
 Email: info@jepet.gov.my

Ruj. Kami : JPT/S/G/2000/016/033/Ad. 2 (B)
 Tarikh : 24 Disember 2018

EDARAN SEPERTI DI LAMPIRAN

Dalam: (D) Hadiah Persembahan
 NABH CAHANG, Universiti

YBhg. Tan Sri Datuk/ Dato/ Datn Paduka/ Prof.,
 PROPOSE TO REQUIRE UNIVERSITY/ COLLEGE STUDENTS TO PLANT
 TREE BEFORE GRADUATION AS AN INITIATIVE TO CONTROL CLIMATE
 CHANGE AND DEFORESTATION

Dengan hormatnya saya ingin menarik perhatian YBhg. Tan Sri Datuk/ Dato/ Datn Paduka/ Prof. mengenai perkara di atas.

2. Untuk makluman pihak YBhg. Tan Sri Datuk/ Dato/ Datn Paduka/ Prof., Kementerian Pendidikan Malaysia (KPM) telah menerima cadangan daripada Pejabat Perdana Menteri berkaitan usul daripada sebuah pertubuhan bukan kerajaan (NGO) iaitu Atruistik Malaysia agar para pelajar di universiti/ kolej digalakkan untuk menanam pokok sebelum tamat pengajian sebagai inisiatif bagi mengawal perubahan iklim dan aktiviti pemuliharaan hutan.

3. Jabatan ini berpendapat bahawa usul yang dikemukakan adalah satu cadangan yang baik dan memohon agar pihak YBhg. Tan Sri Datuk/ Dato/ Datn Paduka/ Prof. Dapat mempertimbangkan inisiatif ini agar dapat dilaksanakan di semua universiti awam (UA).

Fez
 Masyaral dengan
 1) Zippa
 2) Hap
 3) P. A. 2/100
 4) B. C. 2/100
 5) mabit p. 2/100

NABH CAHANG
 24/12/2018

4. Segala kerjasama dan perhatian daripada YBhg. Tan Sri/ Dato/ Dato/ Datn Paduka/ Prof. amatlah dihargai dan didahului dengan ucapan terima kasih.

Sekian.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

(DATO) PROF. IR. DR. MOHD SALEH JAAFAR
 Timbalan Ketua Pengarah Pendidikan Tinggi (Akademik dan Pembangunan)
 Jabatan Pendidikan Tinggi

s.k.

SUSK YBM KPM

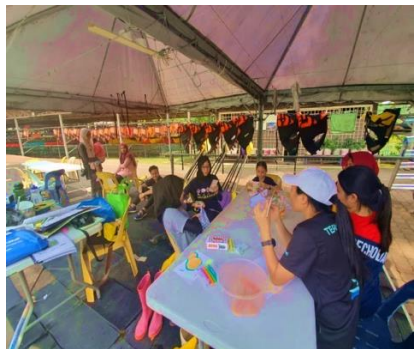
SUS YAB PM
 Pejabat Perdana Menteri
 Bangunan Perdana Menteri
 Pusat Pentadbiran Kerajaan Persekutuan
 62502 PUTRAJAYA
 [u.p. Puan Nadia Monira Binti Mohamed Taib]

SUSK YBM MESTECC
 Pejabat Menteri
 Blok C5, Aras 7, Kompleks C
 Pusat Pentadbiran Kerajaan Persekutuan
 62962 PUTRAJAYA
 [u.p. En. Mohd Najeeb Bin Abdulah]

Encik Logesh Kumar Sethuraman
 Praisian
 Atruistik Malaysia
 No. 48, Jalan Saga 26, Taman Saga
 68000 Ampang, SELANGOR



UM Coordination Meeting on Realizing the Aspiration of '1 Tree,1 UM graduate' program hosted by DVC (Student Affairs)



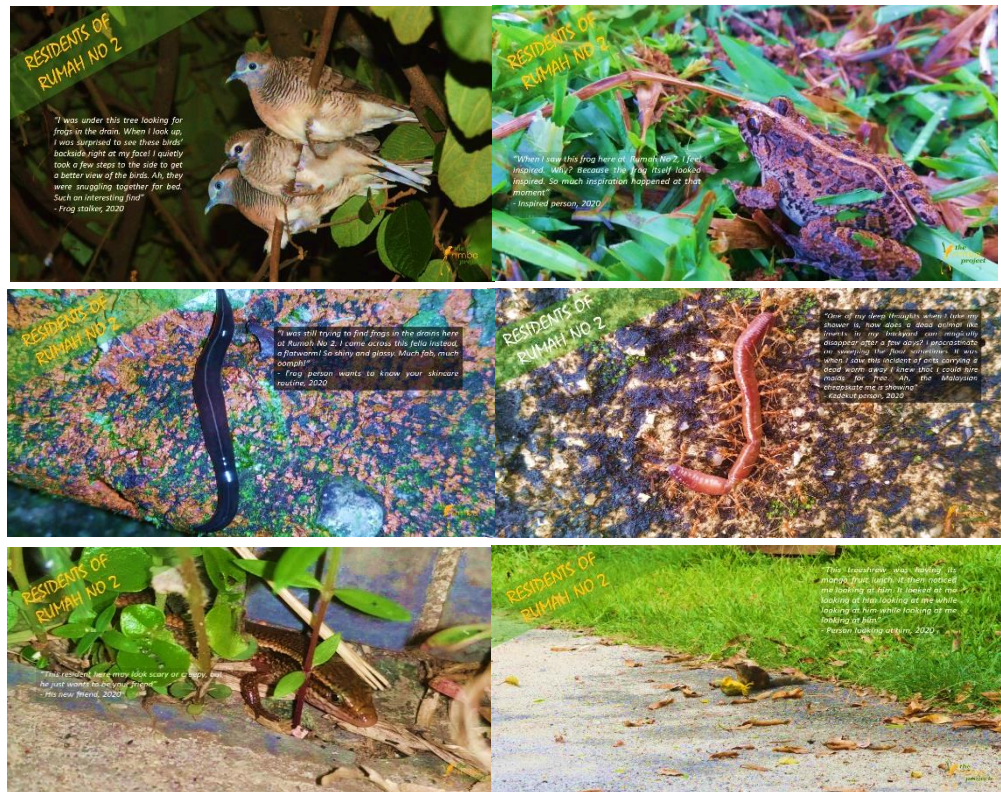
RTM Interview & Shooting Session (Notes from Nature)



UM Living Labs Site Visit 2020 (Group A)
LL037-18SUS: UM GreenStop



UM Living Labs Site Visit 2020 (Group A)
LL005-15SUS: The RIMBA Project



Meet the residents of Rumah No. 2 by The RIMBA Project

[REPORT] INSTALIVE INTERVIEW

URBAN GARDEN

GUEST: DIDI SHANG MING, URBAN BIODIVERSITY INITIATIVE (UBI)
MODERATOR: SYUHADA SAHNO

23 APRIL 2020, 2-3PM

UBI is an independent collective for urban ecology research, conservation and environmental education. In this interview session, we looked into one of the research project UBI is focusing on which is urban gardening. Project manager, Goh Shang Ming shared with us information on what urban gardening is and how to manage urban gardens. Shang Ming also touched on how those living in urban areas with limited space such as in condominiums or apartments could adapt to these restraints to make their own gardens.

A gardener must be well-informed and interested in various perspectives of gardening such as growth duration, potential insects that are attracted to the plants, and type of soil needed.

Shang Ming emphasized that to plant and manage any kind of plants, a gardener should know the type of garden they would like to create - for example ornamental, edible, cultural and so on - and the purpose of creating it. Other topics discussed were garden plants used by orang asli for handicrafts, fertilizers, managing pests, composting, and soil moisture. An interesting aspect highlighted was on looking at plant pests such as caterpillars as a way to increase biodiversity in our very own backyard.

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HOSTED & MODERATED BY THE URBAN BIODIVERSITY INITIATIVE (UBI) IN COLLABORATION WITH UMRIMBA

[REPORT] INSTALIVE INTERVIEW

FLUTTERING WITH LEPIDOPTERANS

GUEST: SOFWAN BADR, POSTGRADUATE OF IMPERIAL COLLEGE LONDON/UNITED KINGDOM
MODERATOR: SYUHADA SAHNO

25 APRIL 2020, 2-3PM

Sofwan is a postgraduate candidate from Imperial College London and a proud alumni of University of Malaya. In this interview session, Sofwan brought us into his world of butterflies and moths. The session began with some clearing of myths regarding the butterfly versus moth distinction as he talked about the difference in body structure, vibrancy of colors, time of day in which they are active and the resting posture of each respective insect. An interesting fact that was brought up is the incorrect usage of the local Malay name between rama-rama and kupu-kupu. The correct terms are rama-rama is meant for those whereas kupu-kupu for butterflies.

Sofwan showed a Rajah Brooke's birdwing (Inoprosobrains) specimen and introduced it as the national butterfly of Malaysia, which is also the butterfly biotope we can see on Malaysian identity cards. The audience inquired on where the species can be found and how we can attract them to our gardens.

Other points that were addressed are on the pupae stage of their life cycle, species that are endangered in Malaysia, and the effects of climate change towards these insects. Crickets are well known as a source of protein hence a question rose on the consumption of lepidoptera. Sofwan explained that these lepidoptera are a toxic to be consumed, it may not be fatal but it has an unpleasant taste. That is how some bird species avoid feeding on it.

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[REPORT] INSTALIVE INTERVIEW

MONKEY BUSINESS

GUEST: LEE KHAI XIAN, BACHELOR OF SCIENCE (ECOLOGICAL & BIODIVERSITY)
MODERATOR: SYUHADA SAHNO

8 MAY 2020, 2-3PM

Khai Xian is an ecology and biodiversity undergraduate from University of Malaya who is also an active volunteer for Langur Project Penang (LPP). His final year project is on the activity budget and diet composition of the long-tailed macaque (Macaca fascicularis) in University of Malaya, when he took interest in studying through his volunteering experience with LPP.

From his research, he managed to identify around 5 to 10 species of plants that the macaques feed on, with many more species still in the process of being identified. Some examples of these plants are sampan, starfruit, ketapang, jackfruit, sea apple, figs, and some palm trees (fig. Interestingly, the part of the plant long-tailed macaque choose to feed on differs from one plant to another so can be seen below:

- Simpan air (Alstonia sp.) - flower
- Starfruit (Averrhoa carambola) - fruit
- Sea almond/ketapang (Terminalia catappa) - fruit
- Sea apple (Capparis piperita) - fruit
- Figs (Ficus) - fruit

Khai Xian feedback involves him following the macaque group movements whenever they go. Khai Xian will then try to observe. He shared some of the challenges he went through during fieldwork, such as facing difficulty to follow the macaques when they climb high areas, lack rooftop and his movements being limited due to the buildings surrounding him. In cases like this, he overcomes it by going up the rooftops of other buildings which enables him to observe the macaques from a distance, though in this situation he would face challenges as well as there is limited access to meet building residents. He mentions that as all times throughout fieldwork, he is aware to keep a safe distance from the macaques as a sign of respect for them and also for his own safety.

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[REPORT] INSTALIVE INTERVIEW

BINOCULARS & GPS - CHASING THE DUSKIES

GUEST: JO LEEN YAP, LANGUR PROJECT PENANG (LPP)
MODERATOR: SYUHADA SAHNO

24 APRIL 2020, 2-3PM

LPP is a research project that studies the ecology and behaviour of the dusky leaf monkey/dusky langurs (Trachypithecus obscurus) in Penang. In this interview session, Jo Leen shared some insights on her experiences working with this incredible primate and on environmental education. In addressing a question by an audience on how she collaborates with members from different backgrounds, Jo Leen said that we must have an open mind and an open heart in working with each individual has to offer, and only then can everyone's skills be fully utilised for the team benefit. Jo Leen also shared her inspiring journey on studying dusky langurs and her personal growth.

Casualty rose in the live chat during the interview session on behaviours and sightings of the langurs and long-tailed macaques (Macaca fascicularis) in Klang Valley and mainland Penang. Jo Leen mentioned she has received feedbacks from the public on increased sightings of monkeys entering human settlements to search for food since the implementation of Movement Control Order (MCO) due to a decrease in feeding by humans.

It is noted that only a matter of time before the monkeys get accustomed to absence of human feeding presence and return back to the forest to feed on their natural food. She suggested several ways to mitigate the issue of monkey feeding in the public. Jo Leen shared an amazing video footage of how a dusky langur reacts when it encounters a snake.

The session ended with Jo Leen giving advice to viewers who are keen to start out as environmental educators.

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[REPORT] INSTALIVE INTERVIEW

MAKING NATURE'S BLUEPRINT

GUEST: BALQIS TALAJALI, DIKAKI SUNPRINT STUDIO
MODERATOR: SYUHADA SAHNO

26 APRIL 2020, 2-3PM

Balqis Tajali is an architecture graduate of Korea National University of Arts and manager of DiKaki Sunprint Studio, an art studio focusing on production of sunprints. Sunprints are photographic prints made with the help of sunlight. The subjects of these prints can range from in this interview session, Balqis started off with sharing how she set up an artist to adapt to MCO.

As she gave the audience a demonstration on the sunprinting process, she shared the history of cyanotype and briefly explained the chemicals used. The audience got to know the basics of the process like the solutions and materials used, the ratio of the mixed compounds, and the required duration of sunlight exposure. Balqis noted some tips and findings from her personal experience of doing cyanotype sharing that time and weather affects the richness of blue in the final outcome. Besides that, solutions should be disposed by flushing them down the toilet as to not harm the surrounding environment. Balqis also touched on cataract rose light-sensitive eyes as she introduced the audience to cyanotype, which is an eco-friendly option compared to cyanotype. However, cyanotype does not possess the same archival quality.

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[REPORT] INSTALIVE INTERVIEW

BILA LARUT MALAM

BY PRISCILLA MIAUD FROM NIGHT SPOTTING PROJECT (NSP)
MODERATED BY SYUHADA SAHNO

10 MAY 2020, 2-3PM

Priscilla Miaud is a French scientist who has been carrying out research in Southeast Asia for almost 10 years. Her research project is on small nocturnal mammals in Langkawi island, looking into various aspects of the animals like their ecology, distribution, and habitat. Her main research focus is on colugo (Sapropithecus). Her study site ranges from Penang Island to Langkawi, and even to the mainland where she has been to Merapoh (Pahang), Batu Caves (Selangor) and Ulu Mulu (Sarawak). Priscilla started a project known as Night Spotting Project (NSP) where she recruits interns and volunteers to help her in her research. 'Bila larut malam' directly translates to 'when it is late at night', depicting her research lifestyle of studying nocturnal mammals.

The session began with Priscilla sharing some backgrounds and facts on colugos. She stated that they are not related to squirrels, and that colugos are close to primates but are not primates themselves. Colugos are an old group of gliding mammals. They represent 1 of the 15 gliding animal species in Malaysia, though more species could exist in total as they are under-researched - including colugos. Priscilla mentioned that there is a huge opportunity in the research field regarding behaviours and ecology of nocturnal mammals in Malaysia as not much information can be found on it at the current moment. Addressing a question on predators, Priscilla states that colugos might have less predators on islands as compared to on lands. 90% of colugo diets are comprised of leaves, with the rest being flowers, lichens on trees and soil from old termite nests. They can glide up to a distance of 150m and are fast creatures. For many years, they were thought to be solitary animals but Priscilla has counted a total of 25 individuals in a stretch of 200m. This finding is considered that they live in a group. It was also recorded that the home range of male colugos overlaps with four females. In terms of interaction with other animals, she previously spotted a colugo and a red giant flying squirrel (Rhipidura) chasing each other on a golf course, though she does not know why they did so.

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Series of Instagram Live during MCO

RIMBA ILMU FACTS

- 80-hectare botanic garden established in 1974.
- Transformed from an abandon rubber estate to arguably one of the main ex-situ conservation site in Malaysia
- House to living collections of around 1700 species of plants
- Opening of a new building in 1997
- Adopts a rain forest theme
- Core collections in the garden include medicinal plants, palms, citruses (plants from the orange family), ferns and bamboos.
- Has a permanent exhibition called Rain Forests and Our Environment, a conservatory named as Rare Plants and Orchid Conservatory as well as a herbarium.
- Frequent collaborator: The Malaysian Nature Society



http://rimba.um.edu.my/virtual_tour.php

CONTRIBUTION TO UI GREENMETRIC:
Category 1: Setting & Infrastructure (S1)
 Related indicator: 1.9 Total area on campus covered in forest vegetation (%)
 1.10 Total area on campus covered in planted vegetation (%)

CONTRIBUTION TOWARDS TIMES HIGHER EDUCATION (THE) WORLD UNIVERSITY IMPACT RANKINGS – SDGS:

1) SDG15: Life on Land

- 15.2.2 Does your university as a body have policies to ensure that food on campus is sustainably farmed?
- 12.2.3 Does your university work directly to maintain and extend existing ecosystems and their biodiversity, of both plants and anima, especially ecosystems under threat?
- 15.2.4 Does your university as body offer educational programmes on ecosystems (looking at wild flora and fauna) for local or national communities?
- 15.3.1 Does your university as a body have a policy to ensure the conservation, restoration and sustainable use of terrestrial ecosystems associated with the university, in particular forests, mountains and drylands?
- 15.3.2 Does your university as a body have a policy to identify, monitor and protect any IUCN Red Listed species in areas affected by the operation of your university?
- 15.3.3 Does your university as a body include local biodiversity into any planning and development process (e.g. construction of new buildings)?
- 15.3.4 Does your university as a body have a policy to reduce the impact of alien species on campus?
- 15.3.5 Does your university as a body collaborate with the local community, e.g. through partnerships, in efforts to maintain shared land ecosystems?

2) SDG17: Partnership for the Goals

- 17.2.5 Does your university as a body collaborate with NGOs to tackle the SDGs through development of educational research

RIMBA Ilmu's Redevelopment Meeting



Follow up brainstorming session on Biodiversity & Landscape Management Project with Dr Sarah & Dr Shakirin of Institute of Biological Sciences, Faculty of Science UM

UMSLLS: Sustainability Webinar Series 3: The RIMBA Project: Biodiversity Conservation by Reconciling Cities & Nature

Waste Management



Initial Meeting between UM & Eco-Waste Solutions



3R On Wheels 2020 Monthly Programme



Food Waste Management: Persatuan Peladang Kuala Terengganu Site Visit to UM Zero Waste Campaign (UM ZWC)



UM Living Labs Site Visit 2020 (Group A)
LL004-15SUS: UM ZWC



UM Living Labs Site Visit 2020 (Group B)
LL045-18SUS: Recycled Plastic Aggregate



UM Living Labs Site Visit 2020 (Group B)
LL030-16SUS: Safe DUMP



MRUN-UM ZWC Site Visit by UTM Skudai



***L'Oréal Malaysia Initial Discussion -
Food Waste Management Initiative Collaboration***



***UM Sustainability & Living Labs Secretariat's TV Interview Session with
Thai Public Broadcasting Service (Thai PBS)***



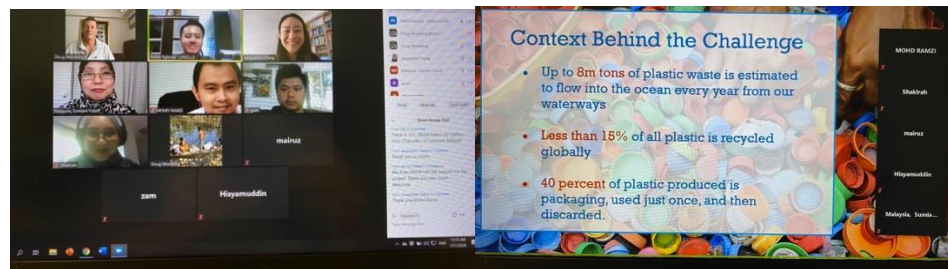
UM ZWC & MDHS Initial Discussion on Food Waste Management Project



PASUM'S Nature Club Visit to UM ZWC



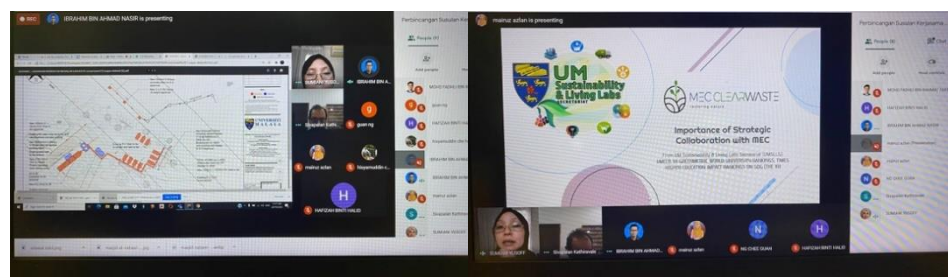
Plastic Aggregates Project (LL045-18SUS) site visit to UM ZWC



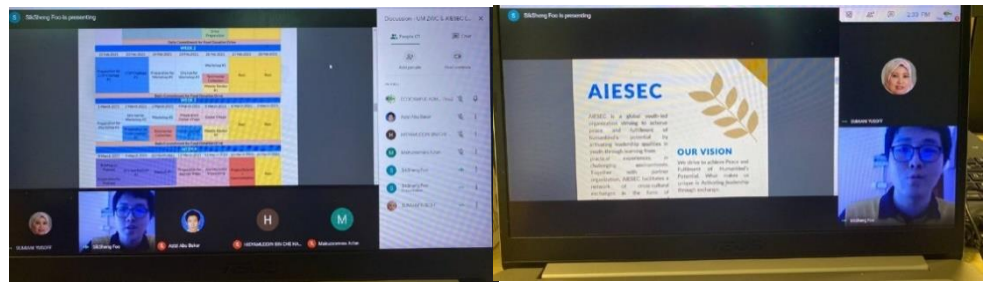
Context Behind the Challenge

- Up to 8m tons of plastic waste is estimated to flow into the ocean every year from our waterways
- Less than 18% of all plastic is recycled globally
- 40 percent of plastic produced is packaging, used just once, and then discarded.

Plastic Disclosure Project (PDP): 1-2-1 Consultation between United Nations Environment Programme (UNEP), PDP (Ocean Recovery Alliance) and UM (UM ZWC)



Follow-up Discussion on Pyrolysis ClearWaste between UM (JPPHB & UM ZWC) with Millennium E&C (M) Sdn. Bhd.



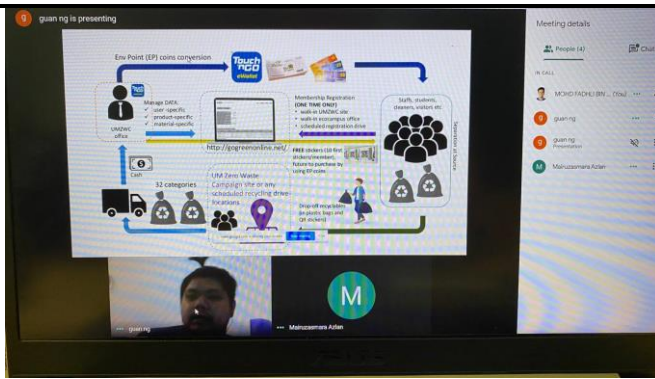
Discussion on potential collaboration UM ZWC & AIESEC UM: Clean Our Plate Proposal 2021



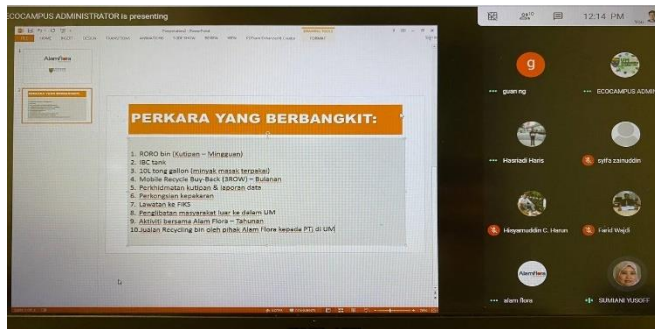
Initial Discussion UM ZWC & AJ Research & Pharma - Recycling Initiative



Internal Discussion (Hybrid Mode): JPPHB & UM ZWC on MEC Collaboration



Internal Discussion UM ZWC on EcoWorld Bhd Proposal on Recycling initiative

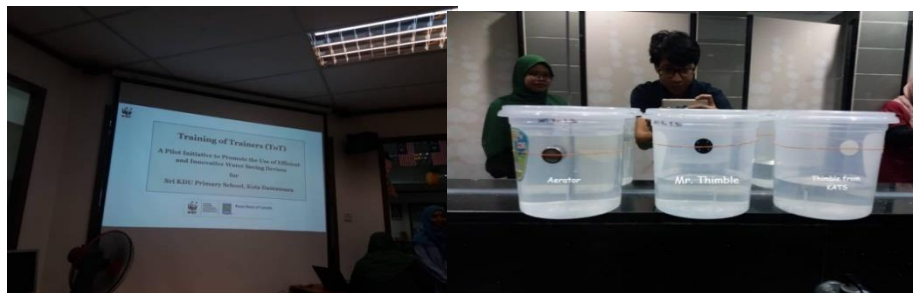


Follow-up Discussion UM (UM ZWC) & Alam Flora Collaboration on MoA Preparation



Follow up Meeting UM & EcoWorld Bhd: Vending Machine & Recycling

Water Management



UM Living Lab - Water Warriors UM on Water Saving Device Project: Educational Program Training of Trainers (ToT) with Sri KDU (Primary)



***Sustainable Development Goals (SDGs) Champions
'Baseline Data Formulation & Acquisition Workshop***



***UM Living Labs Site Visit 2020 (Group B)
LL002-15SUS: Water Warriors***



***UM Sustainability & Living Labs Secretariat's TV Interview Session with
Thai Public Broadcasting Service (Thai PBS)***



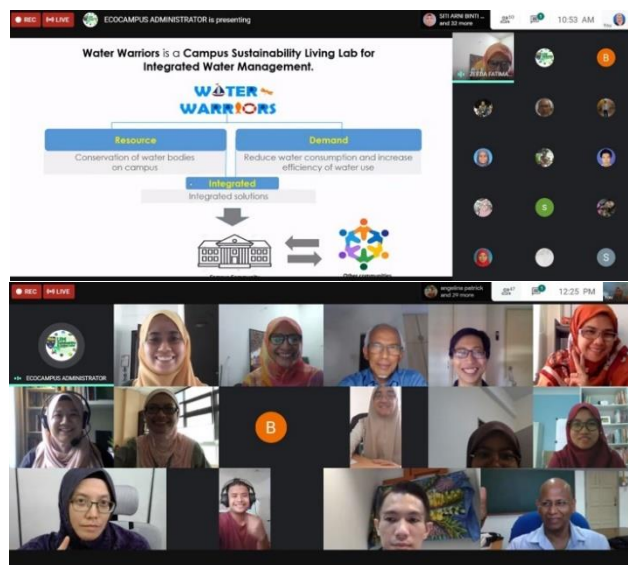
WW Hands-on Training Water Monitoring for Sg Klang



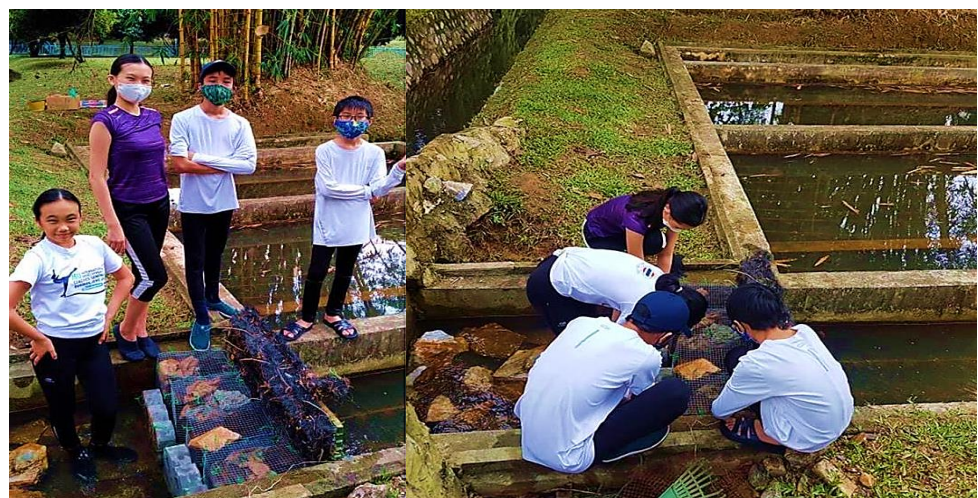
Virtual Visit at Alam Flora's Recycling Innovation Facilities



Water Warriors' media interview by The STAR



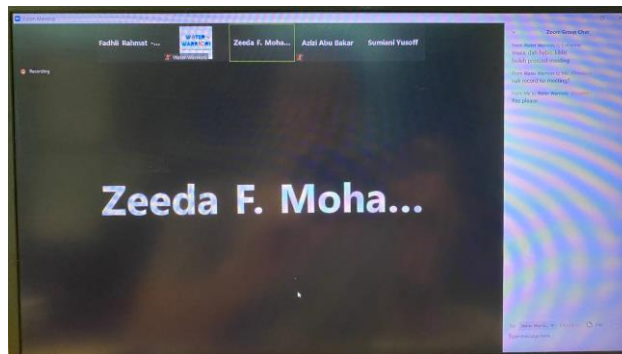
**UMSLLS Sustainability Webinar 2
UMSLLS Sustainability Webinar Series 2: 'University as a SDG Living Lab on Water Management: The Experience of Water Warriors UM'**



**Rainforest Kids Challenge by MushClean – Community Participation in Action
Research & Citizen Science of Water Warriors UM**



Webinar #KitaJagaKita #KitaJagaAir by Water Warriors UM in collaboration with Air Selangor



Internal Discussion on Air Selangor Blueprint 2021: UMSLLS & Water Warriors UM

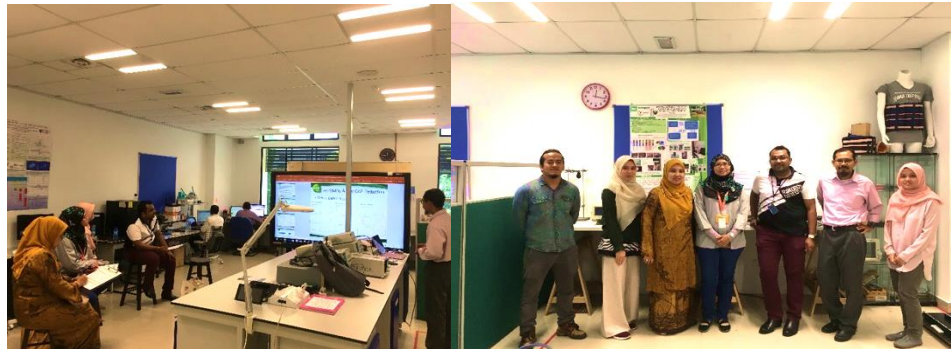
Energy Management



**UM Living Labs Site Visit 2020 (Group B)
LL046-2019: Renewable Energy Harvesting System**

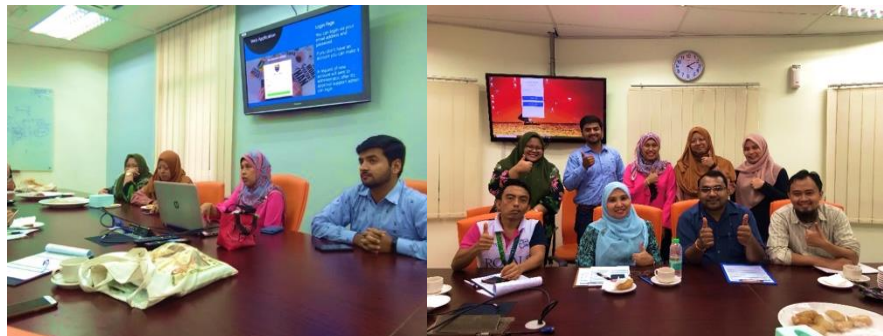


UM Living Labs Site Visit 2020 (Group B)
LL047-2019: Electrical Distribution System



UM Living Labs Site Visit 2020 (Group B)
LL014-16SUS: Smart Modular

**Transportation
Management**



UM Living Labs Site Visit 2020 (Group A)
LL048-2019: Transport (IoT)

Green Procurement



**UM Living Labs Site Visit 2020 (Group A)
LL049-2019: Green Procurement**



Smart and Green IoT Vending Machine Initial Discussion with UVendTech (M) Sdn Bhd

Education Management – Environment & Climate Change



Video Interview with UMLL Imarah Green Project at Lestari Shop APIUM by CCO UM



Initial Meeting between UM, EPIC and UMCCed 2020 - Open Learning Services



Focus Group Discussion by Universiti Malaysia Terengganu (UMT)



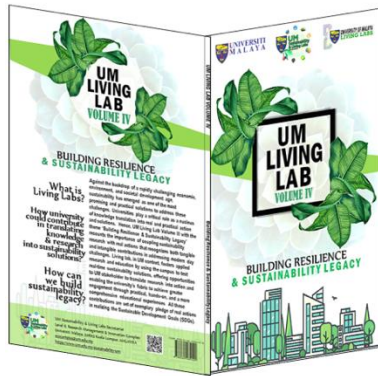
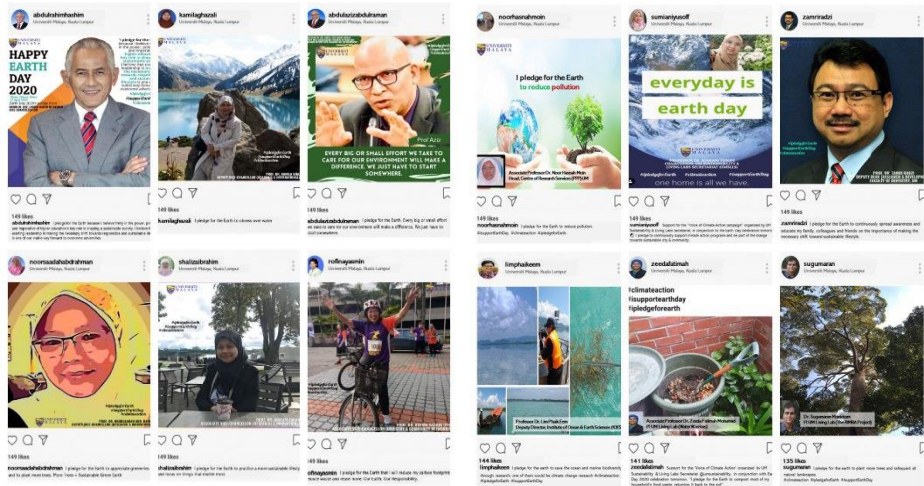
MoA Signing Ceremony between UM & KL Forest Education Group & Chinese New Year Celebration @ Little Urban Forest Open House



UM Living Labs Site Visit 2020 (Group A)
LL031-16SUS: Imarah Green Project



**FEDTALK 2020 on SDGs by KK5 UM:
Initial Discussion on Strategic Partnership & Green Event Consultation**



**FOREWORD
UM LIVING LAB VOLUME IV
BUILDING RESILIENCE & SUSTAINABILITY LEGACY**

In Honour of His Majesty Sultan Ibrahim Ismail Sultan Johor Darul Ta'lim 14th May 2020

Assalamualaikum dan Salam sejahtera,

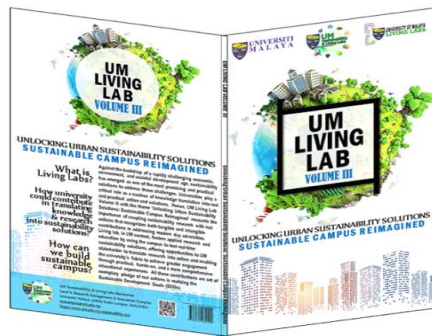
Agree that building a world of thriving, resilient, environment, and social development, requires the support of all of the stakeholders and all of the stakeholders to address the challenges. University as a complex system, is a key stakeholder in the development of a sustainable future. The Living Lab, as a platform for innovation and experimentation, is a key stakeholder in the development of a sustainable future. The Living Lab, as a platform for innovation and experimentation, is a key stakeholder in the development of a sustainable future.

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3	Managing Urban Wastes Using Smart Solution (P3S): An Alternative Approach Towards Zero Waste in Campus	23
4	Transportation Management: Promoting Green Mobility as a Sustainable Campus Initiative in a Tropical City	37
5	Watering in University of Malaya Campus: What Matters?	50
6	Decentralization of Laboratory Services via Remote Application	63
7	A System Approach to Environmental Data Archiving for Sustainability: University of Malaya Living Lab System	74
8	Sustainability Reporting: The Faculty Sustainability Report Card	86



**FOREWORD
UM LIVING LAB VOLUME III
UNLOCKING URBAN SUSTAINABILITY SOLUTIONS:
SUSTAINABLE CAMPUS REIMAGINED**

In Honour of His Majesty Sultan Ibrahim Ismail Sultan Johor Darul Ta'lim 14th May 2020

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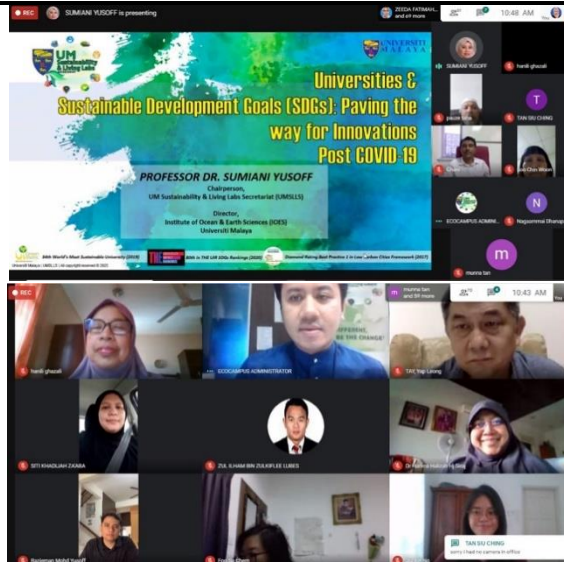
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World Earth Day Celebration & Official Launch of UM Living Labs Volume III & IV



UMSLLS Sustainability Webinar Series 1: Universities & Sustainable Development Goals (SDGs) Paving the Way for Innovations Post Covid-19



AKEPT- IIUM Dove Webinar Series 3: 'Leading Universities Towards Achieving Sustainable Development Goals (SDG) in Higher Education: Lessons from Covid-19'



Invited as a Keynote Speaker at ITERA's International Webinar on Regional and Global Environmental Challenges, and Collaboration for Innovative Solutions Universiti Tun Hussein Onn (UTHM)



*UM - Ecoknights Follow up Discussion on Project VOCAL
(Voice of Climate Action Leaders)*

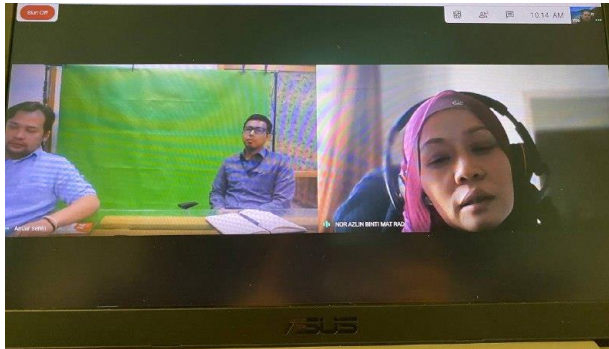
**Change
Management –
Governance,
Communication
& Participation**



Administrative Briefing by Deputy Registrar, Office of the DVC (Research & Innovation)



*Initial Meeting between UM - DRB HICOM Environmental Services (Alam Flora) &
Malakoff*



UMCares Competition 2021 Discussion



Final Review of Times Higher Education University Impact Rankings on SDGs (THE UIR on SDGs) hosted by PPSG UM



1st SATREPS-OTEC Programme Meeting and Joint Meeting for Social Implementation of Malaysia Model



UM Living Labs 2019/2020 RAs Monthly Coordination Meeting



Meeting: UM Eco-Campus (Water Warriors & UM ZWC) & WWF-Malaysia



UM Sustainability & Living Labs Secretariat's TV Interview Session with Thai Public Broadcasting Service (Thai PBS)



8 January 2020

Dear YBhg / Datuk / Dato' / Dr / Prof / Hjh / Ms,

Invitation to Local and Transboundary Pollution Act Feasibility Study
(L&T-PMAS) Stakeholder Engagement Workshop

Greetings from the Academy of Sciences Malaysia.

Transboundary pollution, especially in the form of haze, is no stranger to all Malaysians. In the past decade, several actions have been attempted through regional agreements and diplomatic dialogues in ASEAN. With the increasingly heated debate on the involvement of Malaysia companies in the haze episodes, it has come to a time to consider a legal approach to push forward the progress of solving transboundary pollution issues.

As the strategic partner of the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC), the Academy of Sciences Malaysia has formed a task force to evaluate the feasibility of drafting a Local & Transboundary Pollution Act, its implications and implementation directions.

As part of the development of this report, ASM will be organising a workshop to engage relevant stakeholders from the academia, industry, civil societies and policy makers to validate some of our views and to gather further insights for a comprehensive report. The workshop has been arranged as below:

Date : 23 January 2020
Time : 8.30 am - 1 pm
Venue : Function Hall, Academy of Sciences Malaysia, Level 20,
Street Wing, MASTADT Tower, Kuala Lumpur

On behalf of the taskforce Chairperson, Professor Dato' Dr A. Bakar Jaafar FACS, we would like to invite you or your colleague to participate in our workshop and share your insights on the Local & Transboundary Pollution Act. The outcome of the workshop will be included in the report and serve as reference for MESTECC in formulating the new Act.

Your time and contribution are valuable to us. We appreciate if you could kindly reply us on your availability 14 January 2019 (Tuesday).

Muziqah Mohd Yusoff
Manager, Public Relations
Academy of Sciences Malaysia
100, Jalan Sultan Ismail, Kuala Lumpur
50450 Kuala Lumpur
Tel: 603-2033 2228
Fax: 603-2033 2228
www.asmalab.com.my

Should you have any queries about this workshop, you may contact Mr. Teng Yu He (tengyuhe@asmlab.com.my) or Ms. Saesul Sahot (saesul@asmlab.com.my) at 03-9293 0623.

Thank you.

Yours faithfully,

Co. Professor Dato' Dr A. Bakar Jaafar FACS
Chairperson
ASM's Task Force on Local and Transboundary Pollution Act Feasibility Study



Academy of Sciences Malaysia (ASM)'s Stakeholders Engagement Workshop on Local and Transboundary Pollution Act 2020



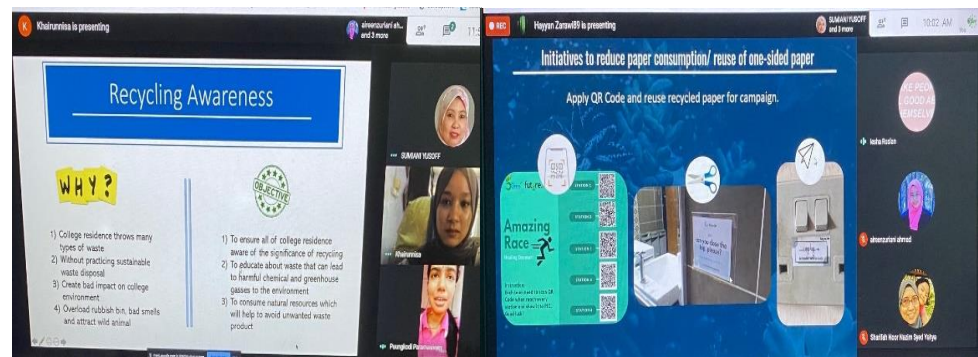
UM Living Labs Site Visit 2020 (Group A)
LL023-16SUS: UMLL System



UM Eco-Campus Committee (JKEKOU) Triannual Meeting 1/2020



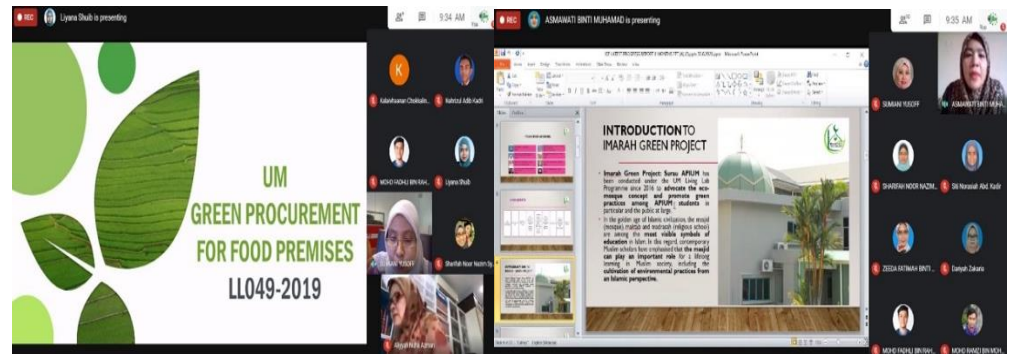
FEDTALK: 2050 Global Disaster without SDGs?



UM Eco-Challenge Virtual Assessment



UMCares Competition Award Ceremony



UMLL 8-Months Virtual Monitoring Workshop – Group A&B



THE Impact Rankings Masterclass Malaysia Webinar



UM Living Labs Clinic 2020/2021



The Institution of Engineers Malaysia (IEM) Webinar on Advancing Engineering and Sustainable Development: A Way Forward for Sustainable World



UMSLLS & UMLL Imarah Green Project Initial Visit & Discussion on Green Mosque with JAWI and members of Masjid Al-Muttaqin



KNOWLEDGE SHARING SESSION ON GREEN SUSTAINABILITY

UNIVERSITY FOR SUSTAINABILITY: SYNERGIZING SUSTAINABILITY LEADERSHIP IN YOU (ONLINE)

Date: 21st October 2020 (Wednesday)
Time: 10.30am - 11.30am

Speaker: Professor Dr. Sumiani Yusoff

Director, Institute of Ocean and Earth Sciences, Universiti Malaysia
Chairperson, UM Sustainability & Living Labs Secretariat (UMSLLS)
Principal Coordinator for UM Zero Waste Campaign



REGISTER HERE:



http://bit.ly/kelestarian_citra
Organised by CITRA in collaboration with UMSLLS



Learning outcomes:

Participants would be able to:

- Understand the fundamental environmental, social, and economic issues underlying sustainability.
- Enhance the campus community learning experience through the integration of sustainability principles into education, research, practices, and operations based on UM sustainability initiatives derived from UM Living Labs model.
- Develop an ethos of sustainability as an everyday part of campus community life.

Professor Dr. Sumiani Yusoff

Director, Institute of Ocean and Earth Sciences, Universiti Malaysia
Chairperson, UM Sustainability & Living Labs Secretariat (UMSLLS)
Principal Coordinator for UM Zero Waste Campaign

Area of Expertise

A Civil Engineer by training, her research interests and area of specialization include environmental management systems, life cycle management and assessment, environmental impact assessment, environmental planning and management using Geographical Information System (GIS), integrated solid waste management, eco-design and sustainable production, eco-labelling, and environmental reporting.

Her vast experience and expertise have allowed her to contribute at both national and international platform such as Technical Committee Member of Prime Minister's Sustainability Hibiscus Award, Panel of jury for L'Oréal-UNESCO for Women in Science Award, Chairman of Upcycling Committee of SIRIM (M) Sdn. Bhd., National Committee member for ISIRI Malaysian National Standard for Environmental Management Standards Formulation), Technical Committee Member of National Solid Waste Management Technology Assessment, Group Head for Malaysia LCA National Project on Life Cycle Impact Assessment, Advisory Committee Member (sole representative of Malaysia) in International Sustainable Campus Network (ISCN), and Board Member at the Centre of Research and Applied Studies on Climate Change and Sustainable Development C 3 5D NRC, National Research Centre, Egypt among others.

Abstract:

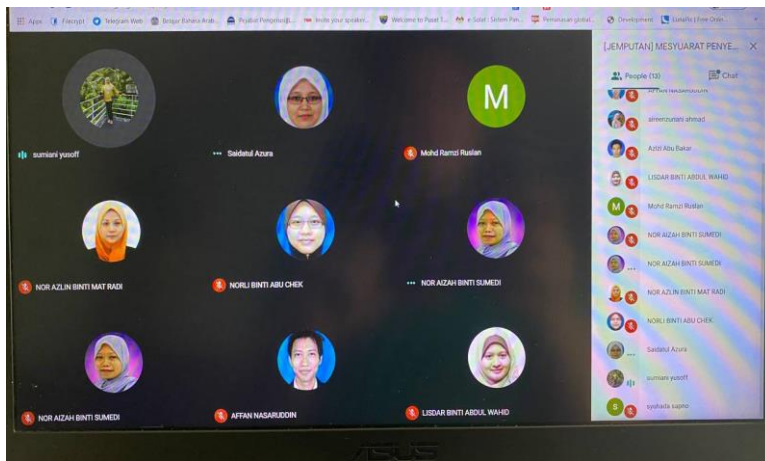
'University for Sustainability: Synergizing Sustainability Leadership in You'

How is Universiti Malaysia transforming its research, teaching and learning, procurement, governance and operations to ensure long-term campus sustainability continuous improvement and performance, and what is your role in championing this transformation at your PTJ?

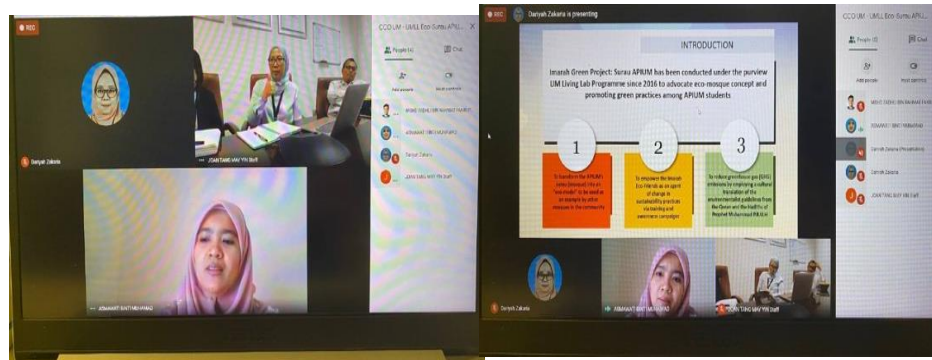
This session provides an introduction to global sustainability issues (including the cause, evidence, and impacts locally & worldwide), insight on the driving force behind sustainability, 8 Core Areas of UM Eco-Campus Blueprint (UMECB), and sustainability rankings. Participants will also learn how Universiti Malaysia is responding to this grand challenge by exploring best practices based on UM Living Labs Action Research's success stories, tools and strategies for enacting sustainable practices within their unit & day to day routine in realizing the overarching goal of sustainable behavior change.

This sharing session is appropriate for campus communities (staff and even students) who are looking for opportunities to start the process of learning about sustainability leadership at Universiti Malaysia and eventually making the necessary sustainable shift.

CITRa's Knowledge Sharing Session on Green Sustainability 'University for Sustainability: Synergizing Sustainability Leadership in You'



Final Coordination Meeting of UI GreenMetric World University Rankings (UIGM) 2020



Discussion on UMLL Eco-Surau APIUM with CCO UM



UM's Pioneer Living Lab UM Zero Waste Campaign (UM ZWC) Bagged the Education for Sustainable Development (ESD) Okayama Award 2020



UMLLGP 2019/2020 Final Monitoring



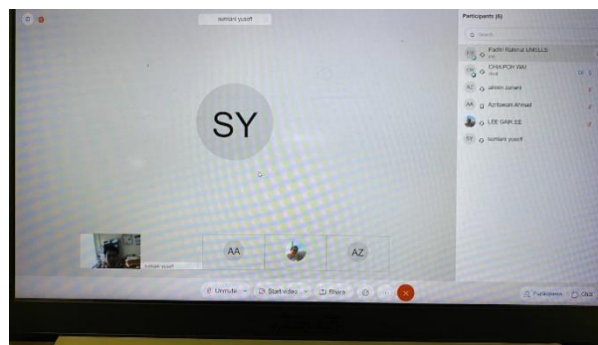
Webinar Kelestarian Siri ke-4 Surau Lestari kerjasama JAWI, Jamek FM & Kelab Imarah Eco-Friends



UMSLLS Sustainability Webinar Special Series 2020: CMCO – Sustainability Tips by UM Living Lab Experts



Interview on UI GreenMetric 2020 achievements by CCO UM & Mini Appreciation Luncheon




Eco-Innovation Discussion with UMT



Post Mortem Data THE Impact Rankings on SDGs 2021 hosted by PPSG

iii) ECONOMIC PERFORMANCE

Theme	Example of Notable Achievements
<p>Waste Management</p>	<p>1) UM Zero Waste Campaign</p> <ul style="list-style-type: none"> • Total tipping fee saved from sending waste to landfill (Since 2010 to 2020): RM400,000 • Setup of official Fund (<i>Tabung</i> of UM Zero Waste Campaign) in 2016 under UM Bursar for income generation initiative from the sales of UM ZWC Organic Compost @ RM5 per pack: RM45,000 & Self-Grown Organic Vegetables from UM ZWC Urban Garden: RM5,563 <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> <div style="display: flex; justify-content: space-around; margin-top: 20px;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;">    </div>

- **UM ZWC Organic Urban Garden** is the latest expansion of UM ZWC initiatives in showcasing circular economy practices by utilizing food waste and garden waste to be converted into organic compost and eventually enhance the growth of self-grown organic vegetables. Campus community are offered with an alternative and healthier choice of organic vegetables at considerable price as compared to market price.
- **Total additional income from award:** USD3000 (**RM11,967.60**) as a Winner of Education for Sustainable Development (ESD) Okayama Award 2020.
- Cumulatively raised an **in-kind charity / sponsor through recycling partnership since 2010: RM38,000.00**



Water Management

2) Water Warriors UM

Total estimated monetary saving from the operation of the project / initiatives on sustainable water consumption and conservation as reflected on UM's water utility bills: **RM496,303.00 (compared to 2019)**



- Product Variation**
1. Clock (Circle)
 2. Clock (Square)
 3. Puzzle
 4. Spinning toy
 5. Hanging rack
 6. Wall file
 7. Coaster
 8. Pot Saucer
 9. Pot Tiles
 10. Bowl
 11. Door knob
 12. Hexagon shape
 13. Magnet
 14. Wall art decoration
 15. Plaque
 16. Magnet
 17. Pressed bottle cap keychain
 18. Water Warriors keychain
 19. UM Coat of Arm keychain
 20. Candle Holder
 21. Tree Label

Total income generated in 2020: **RM 18,345.79**

- **Rumah No.2** room renting
- **Rumah No.2** space renting
- Environmental education programs
- **Kisah Plastik** product sale (keychain, clock etc.)
- Maps, books, posters
- Plants
- Donation
- ZWC compost



Water Warriors UM has expanded their income generation initiative by renting out a room and common space for any short-term visitors or interested parties at Rumah No. 2 (Resource Centre), Jalan 16/10B, Seksyen 16, Petaling Jaya as well as Old UM Bus Converted into Accommodation.

Total additional income from awards: RM12,300.00

- Special Award River of Life Public Outreach Program (RoLPOP 5) 2020: **RM2,000**
- SDG Champion: SDG14 Life Below Water 2020 by Petaling Jaya City Council: **RM10,000**
- Peer-to-Peer Sharing Session (RoLPOP5) – Best Presenter 2nd Place: **RM300**



Education Management

3) Transforming the Role of Surau APIUM for Campus Sustainability Through 'Imarah Green Project'



Kokedama Workshop at Eco-Surau APIUM organized by Imarah Eco-Friends Club c/o UMLL Imarah Green Project



Used Cooking Oils Collection Campaign by Imarah Eco-Friends Club c/o UMLL Imarah Green Project



Imarah Eco-Friends Club (Event Partner) at the Eco-Bazaar Jariah: Back to School Program hosted by Masjid Jamek Al-Khadijiah Pantai Dalam & Eco-Free Market c/o UMLL Imarah Green Project



Lestari Shop at APIUM is an expansion of UMLL Imarah Green Project initiative of Eco-Surau APIUM in promoting reuse and recycling activities: collection, donation and selling of pre-loved items. Donation for in-kind charity in a form of pre-loved clothing which include toys and books for the needy and B40 community has become beneficiaries of this initiative.

Total income generation of **RM2,634.80** from

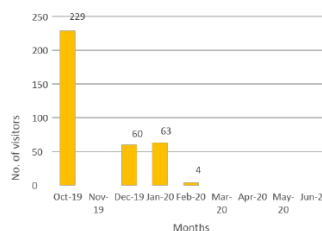
- Kokedama Workshop Participation Fee & Sales of Kokedama: **RM769.00**
- Sales of Reusable Metal Straw: **RM366.90**
- Resell of collected used cooking oils (income for donators): **RM74.40** (62kg collected at RM1.20 per kg to Alam Flora)
- Fundraising donation for Eco-Bazaar Jariah: **RM1,353.40**
- Lestari Shop – Sales of Preloved Clothing: **RM438.00** (Sold 88 pieces)

Landscape & Biodiversity Management

1) The RIMBA Project

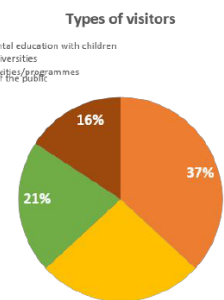
Total income generation for The Rimba Project and Rimba Ilmu from:

- **RM10 per Guided Walk to Rimba Ilmu: RM10 x 365 visitors (20 guided walk = **RM3,650.00**)**



from October 2019 – June 2020, there are a total of

- 20 guided walks (10)
- 356 visitors
- 0 guide walks from March-June due to pandemic



*Due to Movement Control Order (MCO) from March – June 2020: no guided walks are allowed.



NOTABLE EVENTS 2020

1) UM Climbs to 32nd World's Most Sustainable University in UI GreenMetric World University Rankings 2020 (UIGM2020)



Universiti Malaya (UM) climbed up to number 32nd World's Most Sustainable University in the recent announcement of UI GreenMetric World University Rankings (UIGM) 2020. The University has consistently improved its performance by moving up two (2) places from last year with an increment of overall score by 2% to 81%. Time and again, UM has consistently proven its campus sustainability credibility by being the 5th Most Sustainable University in Asian region and 1st Asia's Most Sustainable University in City Centre Setup (for 3 consecutive years: 2018-2020).

According to UIGM, UM is placed within the top 10.7% (98 universities) with GOLD recognition performance. UM has shown consistency and improvement on its rank in the following six (6) indicators, namely - Water Management (100%, consistent), Education and Research (Sustainability) (95.8%, consistent), Waste Management (87.5%, increment by 4.2%), Transportation Management (81.9%, consistent), Setting and Infrastructure (73.3%, consistent), and Energy and Climate Change (58.3%, increment by 5.9%). Among other notable achievements in 2020: UM is recognized among the Best Water Management in Malaysia and Best Waste Management in Malaysia.

UI GreenMetric World University Rankings provide an online assessment on annual campus sustainability performance participated by 912 universities (an increment by 132 as compared to 2019) from 84 countries. There are 6 indicators namely: Setting and Infrastructure (15%), Energy and Climate Change (21%), Waste Management (18%), Water Management (10%), Transportation Management (18%), and Education and Research (Sustainability) (18%).

Universiti Malaya would like to congratulate and thank all staff and students for their hard work, dedication and support in realizing the aspiration of 8 Core Areas of Universiti Malaya Eco-Campus Blueprint (UMECB) namely: Biodiversity and Landscape Management, Waste Management, Water Management, Energy Management, Transportation Management, Green Procurement, Education Management (Environment & Climate Change), and Change Management (Governance,

Communication and Participation) and 17 Sustainable Development Goals (SDGs) by embedding these elements and action plans in our research, education, operation, services, governance and leadership. Our appreciation also goes to all members of UIGM Coordination Committee and UM Living Labs team under the purview of UM Sustainability & Living Labs Secretariat (UMSLLS) for their undivided support.

Your strong and continuous support has contributed significantly to the University's achievement throughout these remarkable years. UM's main goal is to strive for excellence by benchmarking itself against outstanding universities such as the Top 3 World's Most Sustainable Universities (Wageningen University & Research of Netherlands, University of Oxford of UK, and Nottingham University of UK) with a mission to continuously transform the University as a truly sustainable and low-carbon campus for the benefits of UM community. Sustainability is not for the Institutes of Higher Education to compete among themselves in rankings, but sustainability is the good thing to do in order to prepare us in dealing with adversities of climate change and pandemic. Sustainability should be our new normal. Let's make UM the pride of the Nation's sustainable higher education on par with its excellent track records on the academic and research arena.

Once again, our heartiest congratulations and thank you to all!

More details on this UIGM: <http://greenmetric.ui.ac.id/overall-rankings-2020/>

2) Sustainable Development (ESD) Okayama Award 2020 – UM Zero Waste Campaign

One of the longest running and pioneer UM Living Lab - UM Zero Waste Campaign has successfully received an international award on Food Waste Recycling and Sustainable Urban Farming' bagged the coveted international Education for Sustainable Development (ESD) Okayama Award 2020. This annual prestigious sustainability award hosted Okayama City and Education for Sustainable Development (ESD) Okayama Award Steering Committee, Japan aims to showcase outstanding ESD practices in local communities around the world and as well as to support organizations carrying out programmes related to ESD; a key enabler in achieving Sustainable Development Goals (SDGs) by the year 2030. With this award conferment that entitled the winner a total of USD 3000 prize, UM Zero Waste Campaign led by Professor Dr. Sumiani Yusoff and her dedicated team will be on the highlight to share their award-winning project at the Virtual 'ESD Forum/ESD Okayama Award 2020' on 31st January 2021.



UNIVERSITI MALAYA
OUR HEARTIEST
Congratulations!

UM ZERO WASTE CAMPAIGN

UM Zero Waste Campaign (UM ZWC) with their entry
**'Empowering Communities for Food Waste
Recycling and Sustainable Urban Farming'**
bagged the coveted International
**Education for Sustainable Development (ESD)
Okayama Award 2020**

from:
UM SUSTAINABILITY & LIVING LABS SECRETARIAT (UMSLLS)

3) UM Joining the Pledge in Phasing-Out Single-use Plastics via Plastic Disclosure Project (PDP) in partnership with SEA Circular & coordinated by United Nations Environment Programme (UNEP)

In mid-2020, Universiti Malaya embarks on another campus sustainability journey, **UM (via UM Zero Waste Campaign with partnership of UM Sustainability & Living Labs Secretariat, Department of Development & Estate Maintenance/JPPHB UM, and UM Bursar - Procurement Division)** has been selected as the sole representative of Higher Education Institutions (HEIs) sector in Malaysia to take part in Plastic Disclosure Project (PDP) hosted by SEA Circular and coordinated by United Nations Environment Programme (UNEP) c/o Ministry of Environment & Water (KASA) Malaysia. More info is available on: <https://www.sea-circular.org/about-sea-circular/>



Do you know that:

- A study estimated that **Malaysia had produced 0.94 million tons of mismanaged plastic wastes**, of which 0.14 to 0.37 million tons may have been washed into the oceans. [source: *Malaysia Roadmap Towards Zero Single Use Plastics 2018-2030, MESTECC*]
- An analysis of Asia's worst ocean polluters shows **Malaysians are the biggest individual consumers of plastic packaging** [Green Group World Wildlife Fund-Malaysia, February 2020 reported in NST]
- **Malaysia ranked highest among the six countries** (China, Indonesia, Malaysia, the Philippines, Thailand and Vietnam: which contribute 60% of the estimated 8 million tonnes of plastic that enter the world's oceans each year) analysed in terms of **annual per-capita plastic packaging consumption, at about 16.8 kg per person a year.**
- **Plastic pollution causes harm to humans, animals and plants through toxic pollutants. It has a long-lasting detrimental impact - can take hundreds or even thousands of years for plastic to break down.**
- In order to support and combat this single-use plastics issue on campus, UM (Office of the Deputy Vice-Chancellor Development] has put forth **a policy on the banning of single-use plastics effective March 2019.** Following that, **UM Bursar - Procurement Division [with partnership of UM Sustainability & Living Labs Secretariat (UMSLLS)] has enclosed a section on the banning of single-use plastics and food waste separation at source imposed on all food operators and premises through official agreements** (referring to *Dokumen Sebut Harga, Surat Perjanjian, & Surat Tawaran*).

Plastic Disclosure Project (PDP) aims to:

- reduce plastic waste in the environment
- encourage sustainable 'business' practices vis-a-vis plastic
- inspire improved design and innovative solutions on plastic waste management

UM'S PROGRESS IN PLASTIC DISCLOSURE PROJECT (PDP)



UM – SEA Circular’s PDP partnership activities:

- Part One and Part Two of the Plastic Disclosure Project Training Webinar hosted by SEA Circular & UNEP on 23 March 2020 via ZOOM.
- Plastic Disclosure Project Post-Webinar Exercise (Feedback from Universiti Malaya: UM Zero Waste Campaign) on 30 April 2020 via Google Meet.
- 1-2-1 Consultation Session on Plastic Disclosure Project Reporting with SEA Circular & UNEP for UM on 17 July 2020 via ZOOM.
- Stocktaking Exercise with Stakeholders on PDP Survey for University (JPPHB UM & UM Bursar Procurement Division) from August to September 2020 via email and telephone discussion. Coordinated by UM ZWC & UMSLLS.
- Follow-up Discussion: UNEP - UM (Plastics Disclosure Project) with other members of PDP from business sectors at The Cube KPPI UM on 4 September 2020.
- Scheduled awareness campaign on single-use plastics to UM community (from June to December 2020) via UMInfo and social media platforms.
- Promotion of Massive Open Online Courses (MOOC) on Marine Litter 2020's Enrolment (Hosted by United Nations Environment Programme & Open Universiteit) in September – October 2020
- Submission of PDP Survey for University to SEA Circular & UNEP in October 2020



The Massive Open Online Course on Marine Litter has two tracks, i.e., a Leadership Track and an Expert Track.

Learning Objectives

After completion of the Leadership Track, you should be able to:

- Indicate the relevance of Marine Litter for society and understand marine litter problems;
- Apply the DPSIR (Driving Forces-Pressures-State-Impacts-Responses) framework to characterize Marine Litter issues and to illustrate how different strategies and technical solutions can be used to address these issues;
- Indicate how people with varying backgrounds can play a (leading) role in tackling Marine Litter;
- Propose a well-motivated strategy to address a specific or local Marine Litter issue taking into account the stakeholders involved, available knowledge and the governance, socio-economic, cultural and geographical context.

Open Universiteit
 Education Research About us Contact Q

Leadership track and expert track in English, Spanish and Russian

The Leadership Track is 10 hours of learning over a course of 2 weeks introducing the student to the basic characteristics and concepts of the marine litter issue and various strategies to prevent and reduce marine litter. This track consists of 2 blocks geared towards policymakers, managers and professionals who require an overview of the topic in order to integrate the concepts of the MOOC into their professions. Students are encouraged to complete this track whether or not they are an official leader.

Those students who wish to remain in the course will continue to the Expert Track (total of 6 weeks). The Expert Track: 30 additional hours consisting of 6 blocks of which the student will follow at least 4) and a final assignment for professionals and students who want to acquire more in-depth knowledge, insights and skills relating to prevention of marine litter. Students undertaking the Expert Track must also complete the Leadership Track for a total of 40 hours of instruction. This course is available in 3 languages: English, Spanish and Russian.

MOOC Marine Litter **MOOC basura marina** **MOOC Морской мусор**

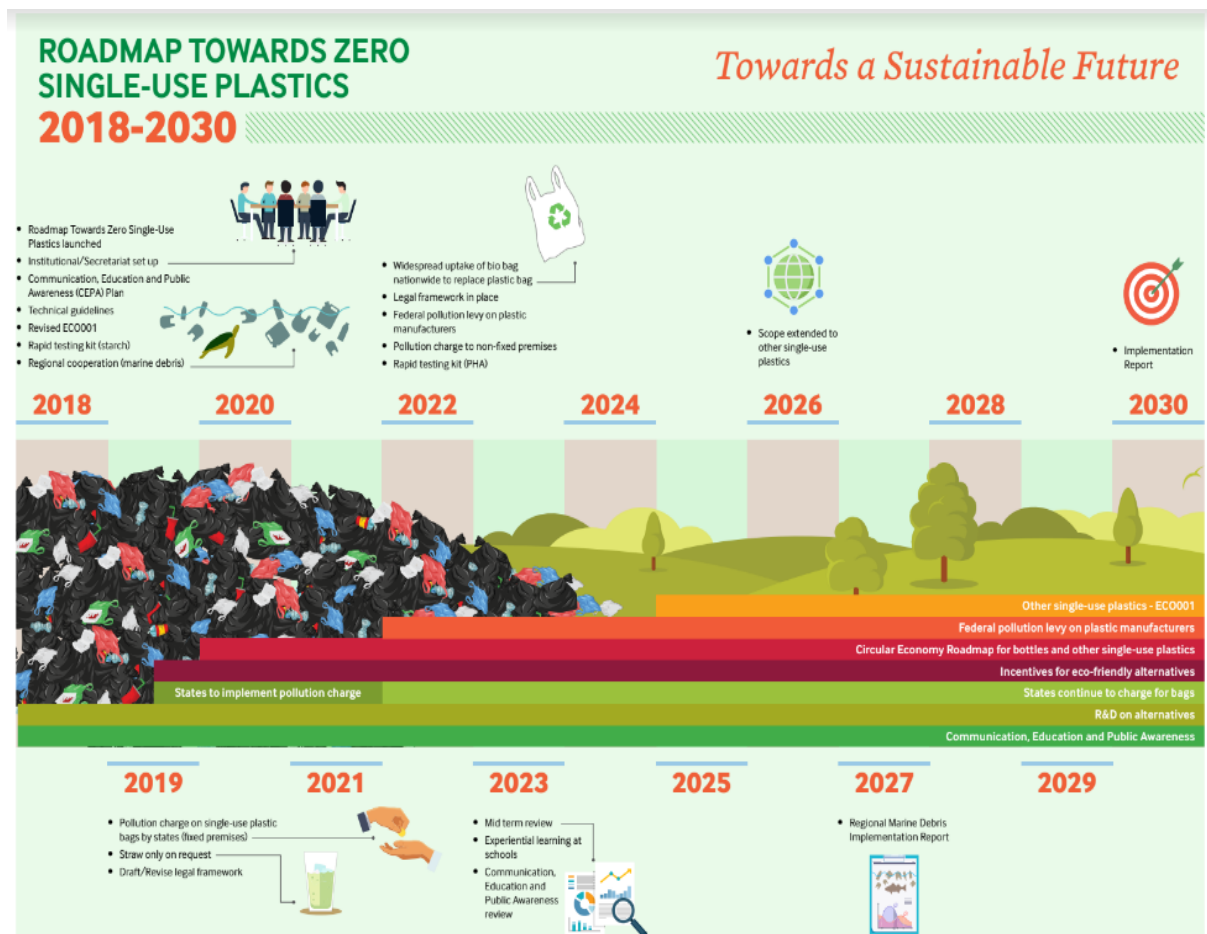
[Source: UNEP & Open Universiteit]

This PDP engagement is important in order to support the **Malaysia's Roadmap towards Zero Single-Use Plastics 2018-2030**:



THE PRINCIPLES

- Shared Responsibility**
 The responsibility to eliminate single-use plastics waste from the natural environment has to be shared by all the stakeholders including the government, industries, civil society and the consumers.
- Sustainable Development**
 This Roadmap will support the wider national agenda on sustainable development that includes the consideration of economic, technology, environment, development and social factors.
- Precautionary Principle**
 Plastics, as reported have an impact on biodiversity, environment and human health and some of these impacts are still being studied. When an activity raises threats or harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.
- Participatory**
 Planning and execution of the Roadmap will be carried out by engaging all the relevant stakeholders in an open and transparent manner.
- Good Governance**
 Good governance with appropriate mechanisms including accountability and transparency is crucial for the implementation of the Roadmap.
- Living Document**
 This Roadmap will be updated from time to time taking into account advances in technology and real-time circumstances in accordance with national priorities.



[Source: Malaysia Roadmap Towards Zero Single Use Plastics 2018-2030, MESTECC]

More importantly, this PDP would work hand-in-hand with the implementation of UM's Policy on the Banning of Single-Use Plastics and Food Waste Separation-at-Source (SAS) 2019:


UNIVERSITI MALAYA


26 Mac 2019

PROFESOR DR. FASAL RAFFIQ RAHMOOD ASKARI
Timbalan Naib-Canselor (Pembangunan)

Seperti di lampiran

Dato' / Prof. / Dr. / Tuan / Puan

PELAKSANAKAN DASAR LARANGAN PENGGUNAAN PLASTIK 'SINGLE USE' DAN PENGASINGAN SISA MAKANAN DI SEMUA KAFETERIA / PREMIS MAKANAN DI UNIVERSITI MALAYA.

Dengan hormatnya saya merujuk berkaitan perkara di atas.

2. Dimaklumkan, pihak JPPHB dan Pihak Sekretariat Eco-Campus komited dalam melaksanakan dasar Kerajaan ke arah 'Malaysia Roadmap Towards Zero Single-Use Plastics 2018-2030'. Oleh yang demikian, dilampirkan inisiatif yang dirangka untuk mendukung dasar tersebut.

NO.	INISIATIF	PIC	LAKSANA
1.	FASA 1 - Larangan penggunaan straw plastik di semua kafeteria dan premis makanan di Universiti Malaya.	PTJ Bertanggungjawab	1/4/2019
2.	FASA 1 - Saranan dan sokongan amalan penggunaan bekas makanan dan minuman yang dibawa sendiri untuk tujuan pembungkusan makanan (<i>Tapaw</i>) melalui Minggu Haluansiswa dan UMInfo.	PTJ Bertanggungjawab	1/4/2019
3.	FASA 1 - Mengeluarkan arahan / memasukkan dalam kontrak kantin kepada pengusaha kantin supaya menyediakan tong sisa makanan dan melaksanakan pengasingan sisa makanan.	PTJ Bertanggungjawab	1/4/2019
4.	FASA 1 - Galakkan penggunaan plastik pembungkus makanan mesra alam. (biodegradasi / beg kertas) melalui Minggu Haluansiswa dan UMInfo.	PTJ Bertanggungjawab	1/4/2019
5.	FASA 1 - Promosi penggunaan 'Zero Plastic' dan lain-lain promosi berkaitan kepada pelajar melalui Minggu Haluansiswa dan UMInfo.	PTJ Bertanggungjawab	Berterusan
6.	FASA 1 - Mengadakan program khas melibatkan pelajar bagi promosi 'Zero Plastic' di kantin-kantin.	PTJ Bertanggungjawab	Berterusan
7.	FASA 2 - Penguatkuasaan denda bagi pengusaha yang menggunakan pembungkus makanan plastik bukan dari jenis mesra alam.	PTJ Bertanggungjawab	1/1/2020
8.	FASA 2 - Penguatkuasaan denda bagi pengusaha yang tidak melaksanakan pengasingan sisa makanan.	PTJ Bertanggungjawab	1/1/2020

PEJABAT TIMBALAN NAIB CANCELOR (PEMBANGUNAN)
Ara: 1, Pusat Menengah Makanan
Universiti Malaya, 50603 Kuala Lumpur, MALAYSIA
Tel: (603) 7967 7700 / 7967 7730 • Fax: (603) 7967 7701 • E-mail: naib_canselor@um.edu.my • Laman Web: www.um.edu.my

[Source: Office of Deputy Vice-Chancellor Development UM, March 2019]



TO MEMBERS OF PLASTIC DISCLOSURE PROJECT (PDP)

UM - UNEP: PLASTIC DISCLOSURE PROJECT FOLLOW-UP DISCUSSION & SHARING SESSION
4 SEPTEMBER 2020 (FRIDAY)
3PM - 6PM
THE CUBE, LEVEL 4, RMIC UM

Thank You

[UM – UNEP Follow-up Discussion on Plastic Disclosure Project (PDP) and networking with participants from business sectors, September 2020]

WE ONLY HAVE ONE EARTH.
BE PART OF THE SOLUTIONS

INTERNATIONAL PLASTIC BAG FREE DAY
03.07.2020

- Approximately **500 billion plastic bags** are used on a global scale
- **31 species of marine mammals** are known to have ingested marine plastic whilst over **100 species of sea birds** have ingested plastic artefacts
- **Over 250 species** have become entangled in plastic, whilst entanglement rates of approximately **8%** have been discovered in some sea lion and seal species
- Plastic bags remain in the world for anywhere from **100-500 years** before finally decaying

BE PART OF THE CHANGE!
SAY NO TO SINGLE-USE PLASTICS AND SHIFT TO REUSABLE ALTERNATIVES

[Part of UM Awareness Campaign promotional materials by UM ZWC & UMSLLS in 2020]

4) UM Sustainability Webinar Series 2020

Six series of UMSLLS Sustainability Webinar Session 2020 have been conducted via google meet as part of the Secretariat's initiative in promoting sustainability practices especially during the Movement Control Order (MCO). These webinar sessions have successfully gained a total of 645 online attendees involving not only UM community but also local and international participants. All series have been promoted via UMSLLS Youtube channel and received almost 577 viewers which sum up a total of 1,222 audiences from both platforms.

UMSLLS Sustainability Webinar Series 2020

Past Series 2020 : 6 Webinars
 Total online participants : 645 online attendees (UM, local & international)
 Total Youtube viewers : 577 viewers
 Total engagement : 1,222 audience



SUSTAINABILITY WEBINAR SERIES 1
 Universities & Sustainable Development Goals (SDGs): Paving the Way for Innovations Post COVID-19
 SPEAKER: PROFESSOR DR. SUMIANI YUSOFF
 Friday, 5th June 2020, 10:30AM
 115 attendees
 111 youtube viewers
 226

SUSTAINABILITY WEBINAR SERIES 2
 University as a SDG Living Lab for Water Management: The Experience of UM Water Warriors
 SPEAKER: ASSOCIATE PROFESSOR DR. ZEENA FATMAH MOHAMMAD
 Thursday, 23rd July 2020, 10:30AM
 80 attendees
 178 youtube viewers
 258

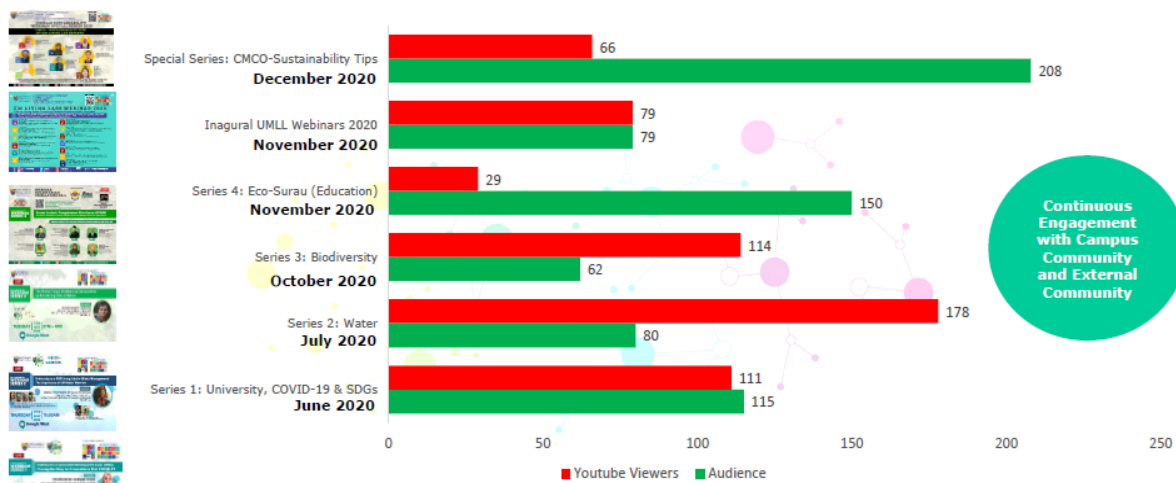
SUSTAINABILITY WEBINAR SERIES 3
 The Rimba Project: Biodiversity Conservation by Reconciling Cities & Nature
 SPEAKER: DR. SUGIMARANA L MANICKAM
 Tuesday, 13th Oct 2020, 2PM - 4PM
 62 attendees
 114 youtube viewers
 176

WEBINAR KELESTARIAN UMSLLS SIRI KE-4
 Surau Lestari: Pengalaman Eko-Surau APIUM
 Friday, 17th November 2020, 10:00 PM - 11:00 PM
 150 attendees
 29 youtube viewers
 179

UM LIVING LABS WEBINAR 2020
 UM as Living Lab: Tracking Campus Sustainability Progress
 Thursday, 17th November 2020, 10:00 AM - 12:00 PM
 79 attendees
 79 youtube viewers
 158

UMSLLS SUSTAINABILITY WEBINAR SPECIAL SERIES 2020
 CMCO SUSTAINABILITY TIPS BY UM LIVING LAB EXPERTS
 Thursday, 3rd December 2020, 10:30AM - 11:30AM
 208 attendees
 66 youtube viewers
 274

Summary of Engagement via UMSLLS Sustainability Webinar Series 2020



Total online participants : 645 online attendees (UM, local & international)
 Total Youtube viewers : 577 viewers (as of 7 January 2021)

5) World Earth Day 2020 (Soft-Launched of UM Living Labs Books Volume III and IV)

Annual celebration of World Earth Day 2020 was celebrated on 22 April of every year. During this year's celebration, UMSLLS has launched UM Living Labs Volume III & IV as part of the promotion of sustainability initiative within the campus community.

13 CLIMATE ACTION

2020's EARTH DAY Celebration

22 APRIL 2020

A day of reflection and to show the Earth that we truly care

Earth DAY

This year's theme: **'Climate Action'**

Let's pledge to do our part for our one planet Earth:

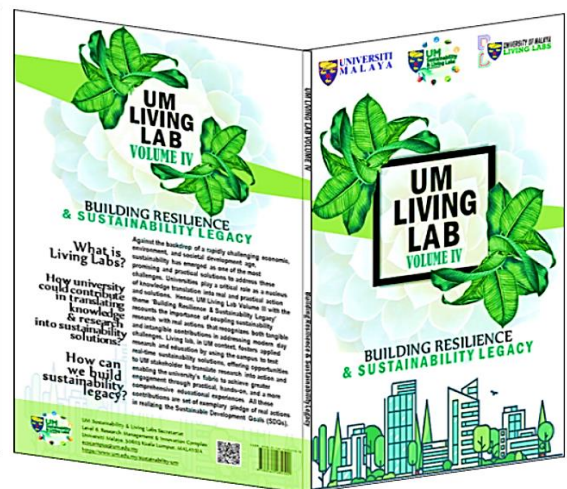
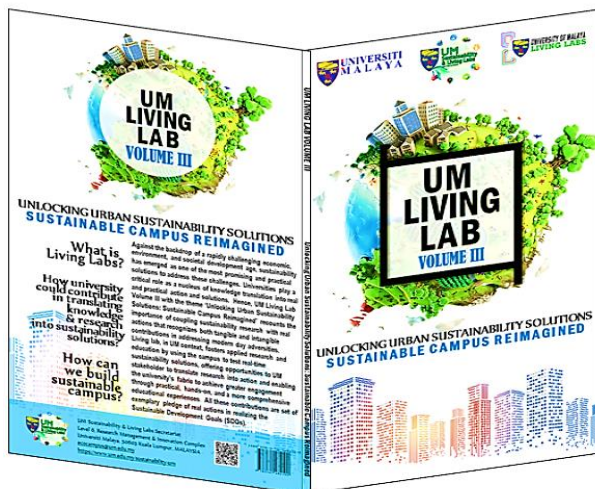
- 1 Shop & support LOCAL.** (Icon: Shopping basket with 'Shop Local')
- 2 Bring your own REUSABLE shopping bags.** (Icon: Reusable shopping bag)
- 3 REDUCE food waste.** (Icon: Food waste bin)
- 4 Obsess over every drop of WATER.** (Icon: Water drop)
- 5 Carpool & PUBLIC Transport.** (Icon: Car and train)
- 6 Plant a TREE.** (Icon: Tree growing from hands)
- 7 SWITCH OFF & UNPLUG electronic devices when they aren't in use.** (Icon: Unplugging a device)
- 8 EDUCATE yourself. Read books & support climate action programs.** (Icon: Books and people)

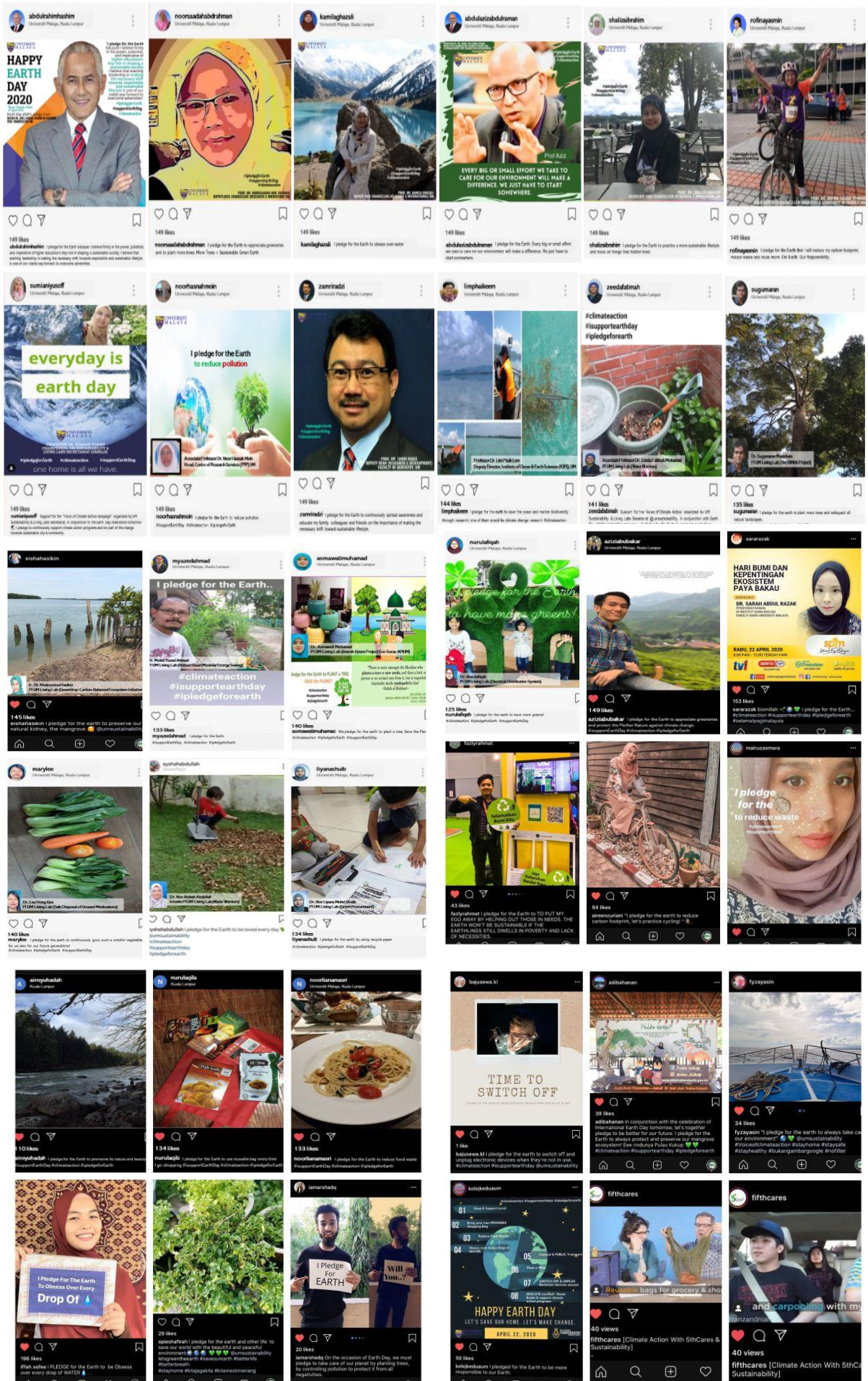
#climateaction #isupportearthday #ipledgeforearth

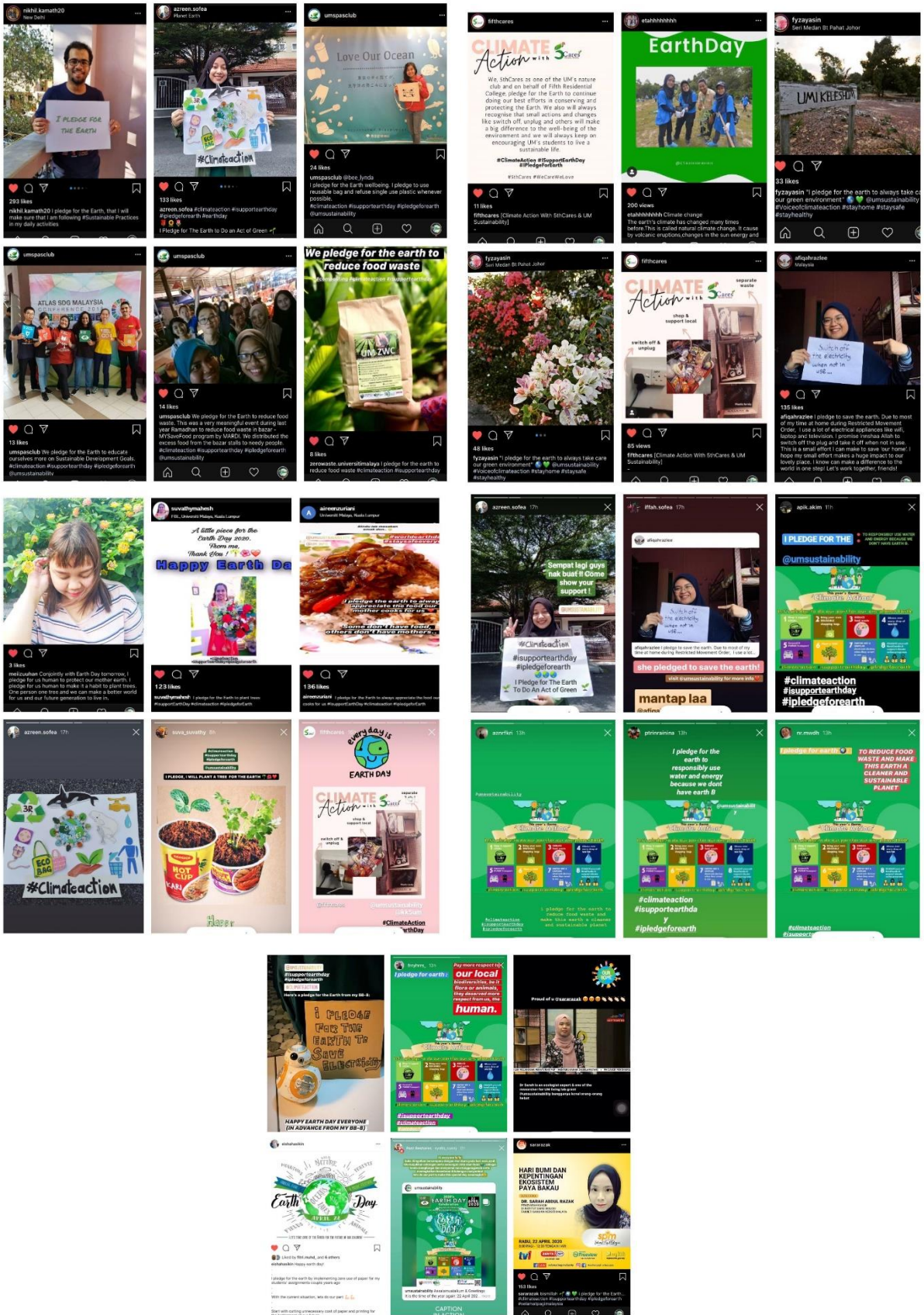
This message is prepared by Universiti Malaya Sustainability & Living Labs Secretariat (UMSLLS)

UNIVERSITI MALAYA | UM Living Labs

f i s @umsustainability







UM's top management, campus community, public and even our sustainability friends abroad shared their PLEDGE FOR THE EARTH as part of our dedicated activities on this special day: Voice of Climate Action 2020 (VOCAL IN SOLIDARITY).

6) Invited Panellist of AKEPT – IIUM Webinar Series 3: “Leading Universities Towards Achieving Sustainable Development Goals (SDGs) in Higher Education: Lessons from Covid-19”

Professor Dr. Sumiani Yusoff has been invited to be a panellist at the AKEPT -International Islamic University Malaysia (IIUM) Dialogue on Values-Based Education (DOVE) Series 3 to share the experience of campus sustainability initiatives of UM Living Labs in coping with COVID-19 to represent Higher Education Institutions (HEIs).




AKEPT HIGHER EDUCATION LEADERSHIP ACADEMY
KEMENTERIAN PENGAJIAN TINGGI

AKEPT TALK: DOVE SERIES 2020
DIALOGUE ON
VALUES-BASED EDUCATION
(DOVE)




Join us, Register Here:
<https://forms.gle/49Kw4m3YwRag20>
Webinar platform: Zoom
Live streaming: YouTube
- IIUM Streaming

Speakers




Series 1: "Mainstreaming Values-based Education in Universities: Leadership and Management Perspectives" | 10 June 2020 | 0900 - 1100 MYT (UTC+8)

		
Dr. James Campbell Head of Asia Aware Institute	Professor Emeritus Tan Sri Dato' Dzulkifli Abdul Razak Rector of International Islamic University Malaysia	Prof. Abdul Karim Alias Director, Centre for Development of Academic Excellence (CDAE) Universiti Sains Malaysia

Series 2: "Humanities and Higher Education Post Covid-19: Synergies Among Science, Technology, and Humanities" | 15 June 2020 | 1500 - 1700 MYT (UTC+8)

		
Rob Rieman Founder of Nexus Institute, Netherlands	Prof. Dato' Dr. Asma Ismail President, Academy of Sciences Malaysia	Prof. Dr. Basil Mustafa Senior Bursar and Nelson Mandela Fellow in Educational Studies, Daford Centre for Islamic Studies

Series 3: "Leading Universities Towards Achieving Sustainable Development Goals (SDGs) in Higher Education: Lessons from Covid-19" | 22 June 2020 | 0900 - 1100 MYT (UTC+8)

		
Prof. Charles Hopkins UNESCO Chair in Reorienting Education Towards Sustainability, York University	Professor Emeritus Geoff Scott Higher Education and Sustainability of Western Sydney University, Australia	Prof. Dr. Sumiani Yusoff Director of Institute of Ocean and Earth Sciences, University of Malaya



**UNIVERSITI
MALAYA**

**UNIVERSITI MALAYA
SUSTAINABILITY & LIVING LABS
SECRETARIAT**

**CAMPUS SUSTAINABILITY REPORT
2019-2020**

01 Landscape & Biodiversity Management	02 Waste Management	03 Water Management	04 Energy Management	05 Transportation Management	06 Green Procurement	07 Education Management Environment & Climate Change	08 Change Management Governance, Participation & Communication
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