



Strategic Approach towards Eco-Campus University & Sustainable Development Goals (SDGs): Intervention of Living Lab's Innovative Solutions-Driven Translational Research

Professor Dr. Noorsaadah Abd. Rahman
*Deputy Vice-Chancellor (Research & Innovation),
Universiti Malaya*



PRESENTATION OUTLINE

**Introduction to
Universiti Malaya**



**Global
Sustainability &
Environmental
Issues 2019**



**Organization Details
& Initiatives**

**UM Eco-
Campus
Secretariat**



**Way Forward &
Recommendations**

Conclusion



**Introduction to
Sustainable
Development
Goals (SDGs)**

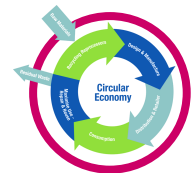


**Roles of
Higher
Institutions &
Contributions
to SDGs**



**UM Living
Labs Grant
Programme
(UMLL)**

**Initiatives &
Contributions to SDGs**



**Introduction to
Sustainable
Development
Goals (SDGs)**

ABOUT UNIVERSITI MALAYA

VISION

To be an internationally renowned Institution of Higher Learning in research, innovation, publication & teaching



UNIVERSITI
MALAYA



MISSION:



To advance knowledge and learning through quality research and education for the nation and for humanity

Campus Population

2,344

Academic Staff

3,526

Non-Academic Staff

24,463

Students Enrolment
(international & local)

*as of June 2019

Land Area
890.77

acres (excluding Universiti
Malaya Medical Centre)



HISTORICAL FACTS

University of Malaya was established on 1st January 1962.

On June 16th 1962, University of Malaya celebrated the installation of its first Chancellor, Tunku Abdul Rahman Putra Al-Haj, who was also the country's first prime minister. The first Vice-Chancellor was Professor Oppenheim, a world-renowned Mathematician.

Currently, His Royal Highness The Sultan of Perak Darul Ridzuan, Sultan Nazrin Muizzuddin Shah is the Chancellor of the University of Malaya.

YBhg. Datuk Ir. (Dr.) Abdul Rahim Hj. Hashim was appointed as the twelfth Vice-Chancellor of the University of Malaya on 1 November 2017.



KING EDWARD VII COLLEGE OF MEDICINE



RAFFLES COLLEGE



UNIVERSITY OF MALAYA



UMIQUE: ENVIRONMENT & NATURE



BOTANICAL GARDENS / RIMBA ILMU

Rimba Ilmu is an 80-hectare botanic garden located within the Universiti Malaya, campus. The words Rimba and Ilmu are of the Malaysian language that literally means Forest of Knowledge.



MUSEUM OF ZOOLOGY, FACULTY OF SCIENCE

The Museum of Zoology is home to a precious collection of insects (50,000 insects), 150 mammals (144 species), 600 birds (261 species), 445 reptile specimens (186 species), and 2,000 specimens (mostly freshwater species)



ULU GOMBAK FIELD STUDIES BIODIVERSITY CENTRE

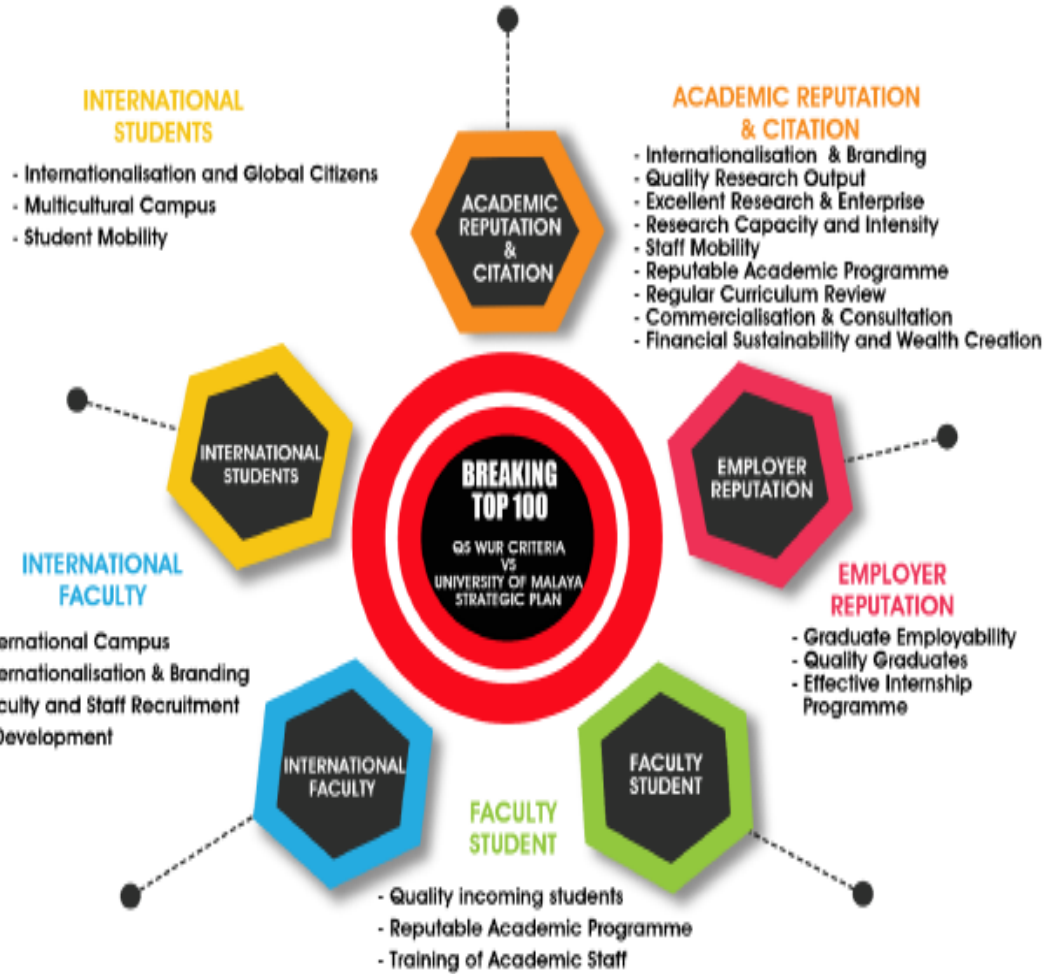
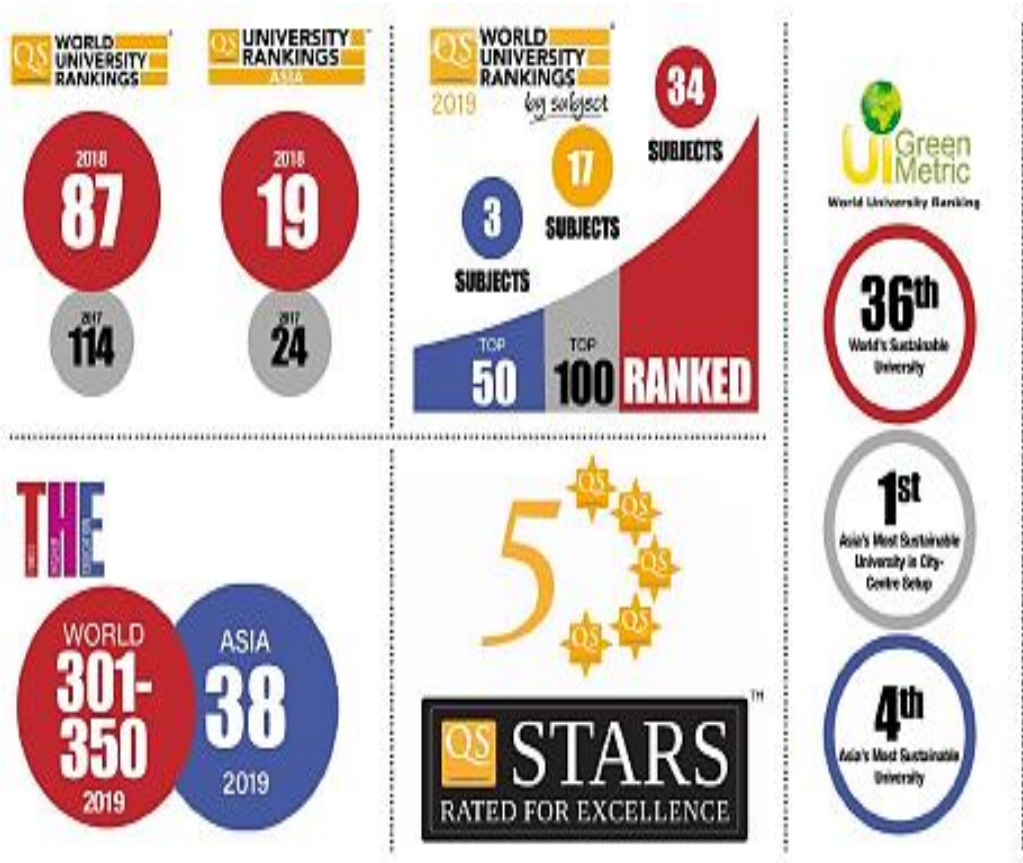
The Universiti Malaya Field Studies Centre of the Ulu Gombak Biodiversity Centre, sited on 120-hectares of secondary and primary forest is a veritable fount of biological & ecological knowledge, with the area's fauna and flora extensively studied and documented throughout the site's 40-year history.



GLAMI LEMI BIOTECHNOLOGY RESEARCH CENTRE

The Universiti Malaya Biotechnology Research Centre located in Glami Lemi, Jelebu Negeri Sembilan is established in 2013; a host to variety of research activities on biotechnology, agricultural and agrofood sectors.

UNIVERSITI MALAYA: RANKINGS AND RATINGS





Introduction to Sustainable Development Goals (SDGs) & Roles of Institutions

SUSTAINABILITY TODAY:

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (SDGs)



On **September 25th 2015**, countries adopted a set of goals to **end poverty, protect the planet and ensure prosperity for all**.

Each goal has specific targets to be achieved over the next **15 years (by 2030)**

For the goals to be reached, **everyone needs to do their part**: governments, the private sector, civil society and people like you.



GLOBAL SUSTAINABILITY & ENVIRONMENTAL ISSUES 2019



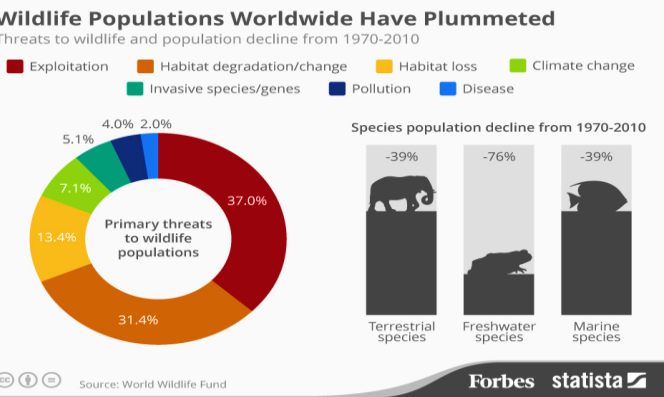
GLOBAL SUSTAINABILITY ISSUES 2019

CLIMATE CHANGE



Human activity is now the prime driver of change in the Earth System e.g. greenhouse gas levels, ocean acidification, deforestation and biodiversity deterioration.

HABITAT & BIODIVERSITY LOSS



AIR POLLUTION

Haze a dilemma for Asean chair, say analysts



The Prime Minister's Office shrouded in haze. The APT reading in Putrajaya yesterday reached 110. — Picture by Ahmad Zamanhuri

KUALA LUMPUR — As sitting chair of Asean this year, the perception is that Malaysia should be able to flex its muscle and pressure Indonesia to resolve the growing issue of haze burning that is choking its neighbors.

But regional analysts contacted by Malay Mail Online said the reality is different, citing the Asean practice of non-interference. They believe the most Malaysia can do would be to push for regular meetings with other Southeast Asian countries on the haze problem, and look towards other organizations like the European Union (EU) and how they address matters involving trans-boundary pollution.

"Actually, there is not much Malaysia can do as their Indonesia has just recently consented to delay the signing of a Memorandum of Understanding between Malaysia and Indonesia to cooperate over haze matters," To Huiyan Yarkley, senior lecturer at Universiti Malaya's Department of International and Strategic Studies, said.

"This shows that Malaysia in the chair does not actually change any of the relationship dynamics of the two countries over the haze. It is unlikely that more pressure can be placed on Indonesia during the meetings."

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WATER POLLUTION



Keeping poisons out of our rivers

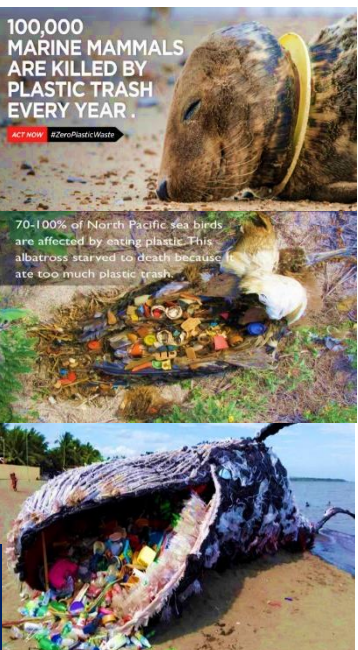
Leachate from landfills getting into our raw water supply is a serious issue that must be tackled at multiple levels. While the Government wants all parties involved to work on a holistic solution, experts caution that ammonia and heavy metals will pose an increasing danger as the amount of solid waste generated grows exponentially. > See Page 4 for reports by HEMANTHANI SIVANANDAM and VIKCENT TAN

It has been estimated that **2.1 billion** people have **lack access to safely managed drinking water services** and even over **4.5 billion** people **lack safely managed sanitation services**.

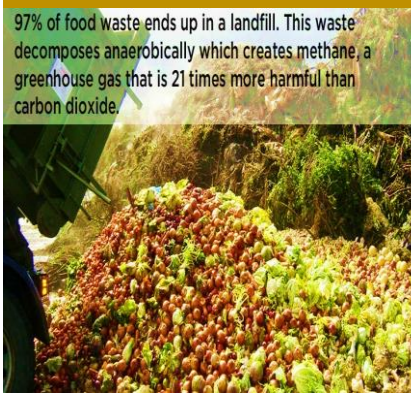
PLASTIC POLLUTION



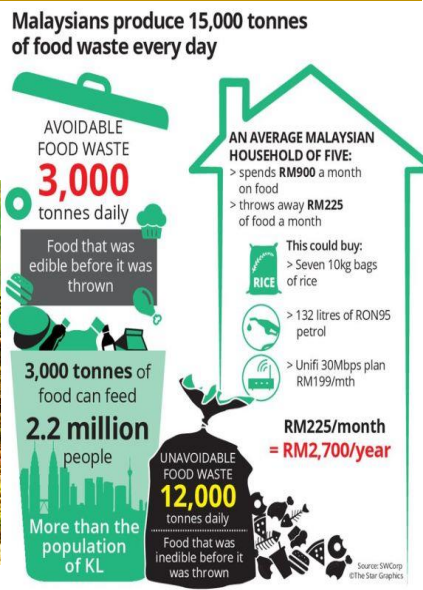
800 species worldwide are affected by marine debris, 80% of that litter is PLASTIC!!!!



Currently, about **2.01 billion metric tons** of municipal solid waste (MSW) are produced annually worldwide. The World Bank estimates overall waste generation will **increase to 3.40 billion metric tons by 2050**.



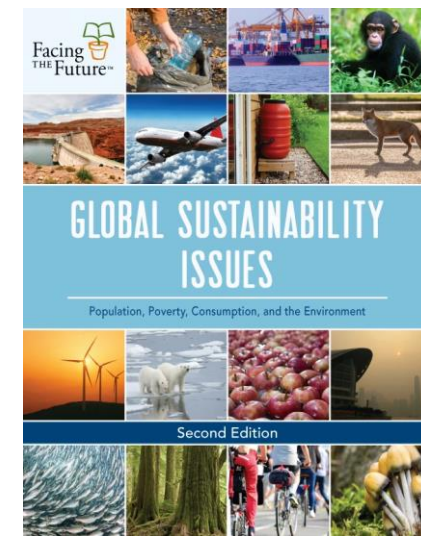
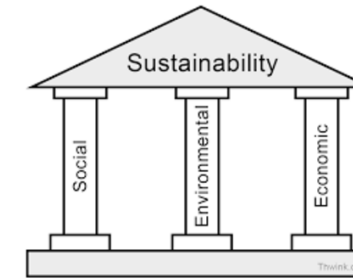
WASTE POLLUTION



Global Sustainability Challenges & The Role of Universities

- **sustainable development** not only deals with environmental issues, but economic, social and cultural issues as well.
- Given the **increased demands placed on societies and the environment** due to, among other factors, increased human migration, increased urbanization and industrialization as well as the ongoing depletion of non-renewable resources, it is clear **that global action is needed to create a more sustainable future.**
- Given its primary role as knowledge producer, **higher education can serve as a powerful means to help create a more sustainable future.** Thus, the concept of 'education for sustainable development' has become, in recent years, one of the core educational initiatives to help address many of the problems associated with human development.
- Indeed, **higher education's role in creating a sustainable future will presumably take on a greater precedence** as the world continues to become increasingly globalized and interdependent.

Education becomes paramount in achieving all the SDGs



HOW SDGs & UNIVERSITIES WORK IN SYMBIOSIS?



How do the SDGs help universities?

- Create increased demand for SDG related education
- Provide a comprehensive and globally accepted definition of a responsible university
- Offer a framework for demonstrating impact
- Create new funding streams
- Support collaboration with new external and internal partners

How do universities help the SDGs?

- Provide knowledge, innovations and solutions to the SDGs
- Create current and future SDG implementers
- Demonstrate how to support, adopt and implement SDGs in governance, operations and culture
- Develop cross-sectoral leadership to guide the SDG response



Knowledge

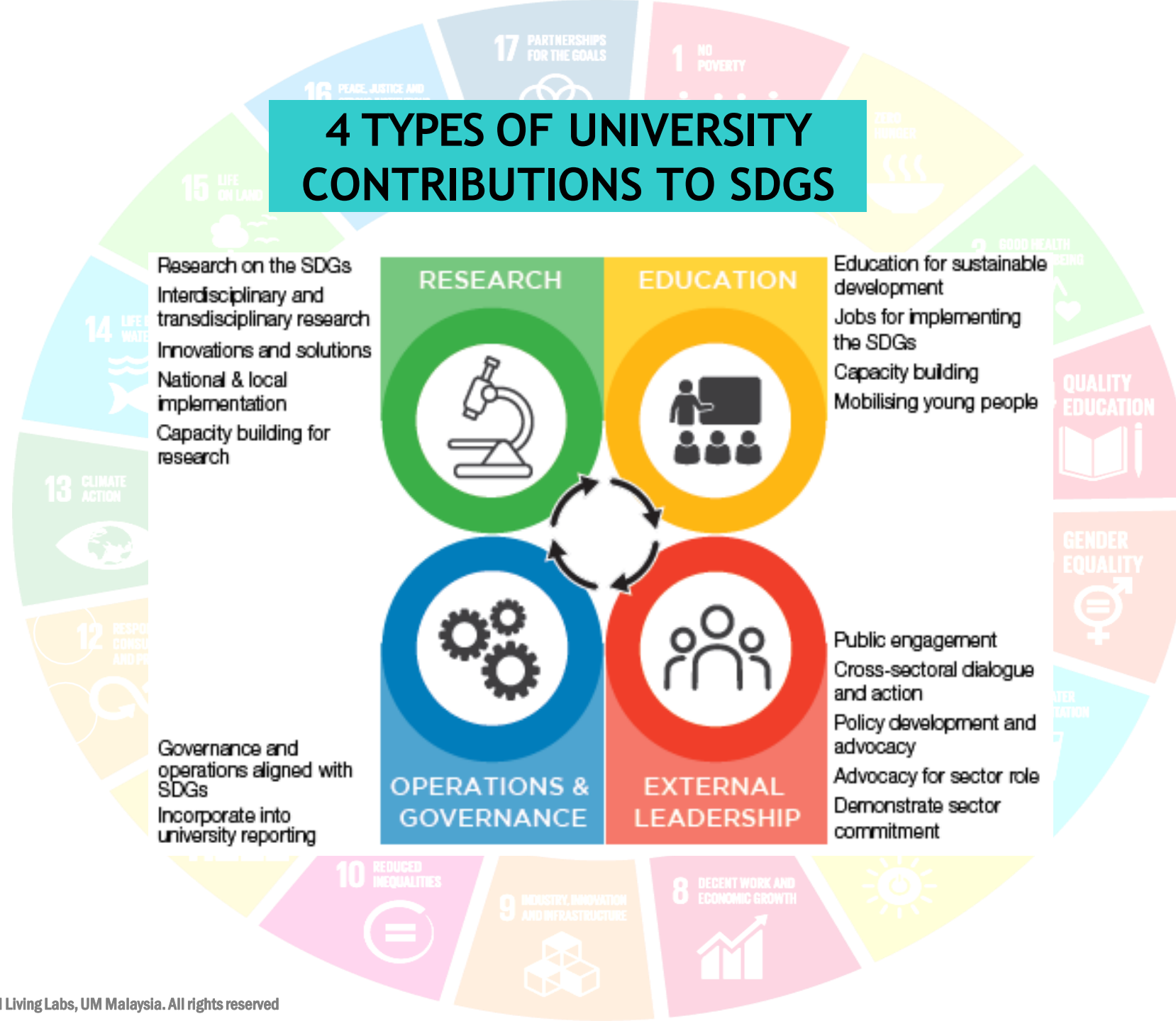
Learning

Demonstration

Impact

Collaboration





ECO-CAMPUS / SUSTAINABLE CAMPUS PRINCIPLES:

- 1** Integrated Approach to Generate Global Environmental Benefits
- 2** Multi-Scale Partnerships at Global to National to Municipal Levels for Scaled-Up Results
- 3** Cross-Sector Engagement to Ensure Results at All Levels and for All Stakeholders

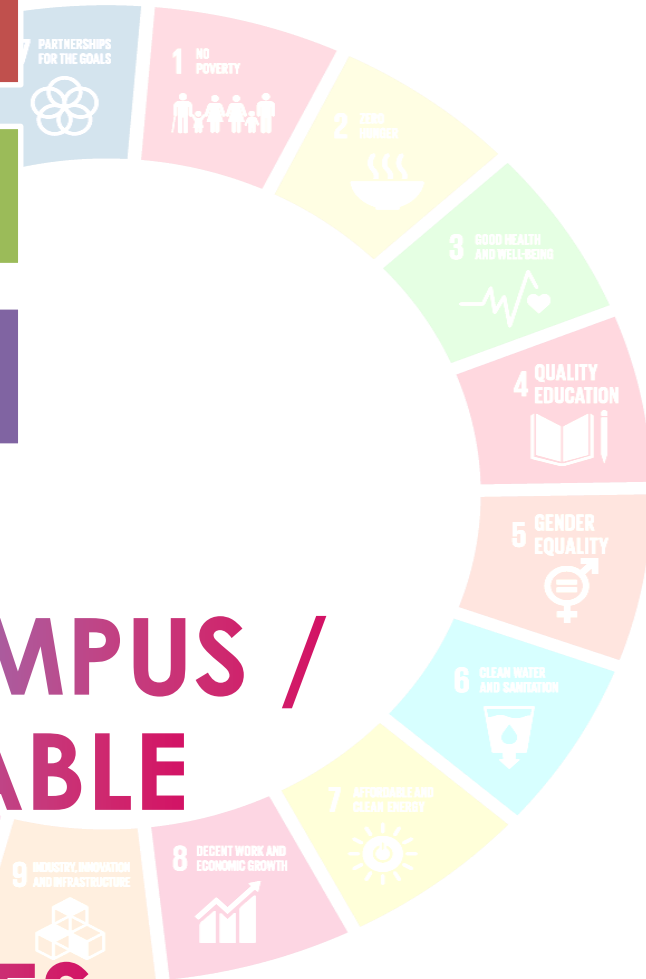
ENVIRONMENTAL BENEFITS:

- 1** Climate Change Mitigation: Decarbonization of Carbon Through Low Carbon Solutions
- 2** Biodiversity & Land Degradation: Integrated Land Use Planning to Prevent Habitat Loss / Degradation in Campus
- 3** Food System: Surplus Food can be Rechannelled to Support Students in Need (Food Bank Program), food waste can be converted to organic compost (CIRCULAR ECONOMY MODEL)
- 4** Plastic Pollution: Employing a Circular Economy Approach that Address Material and Design Engineering: Consumer Use, Recovery and Recycling
- 5** Resilience: Urban Development Design that is able to absorb potential shocks / disasters

ELEMENTS NEEDED:

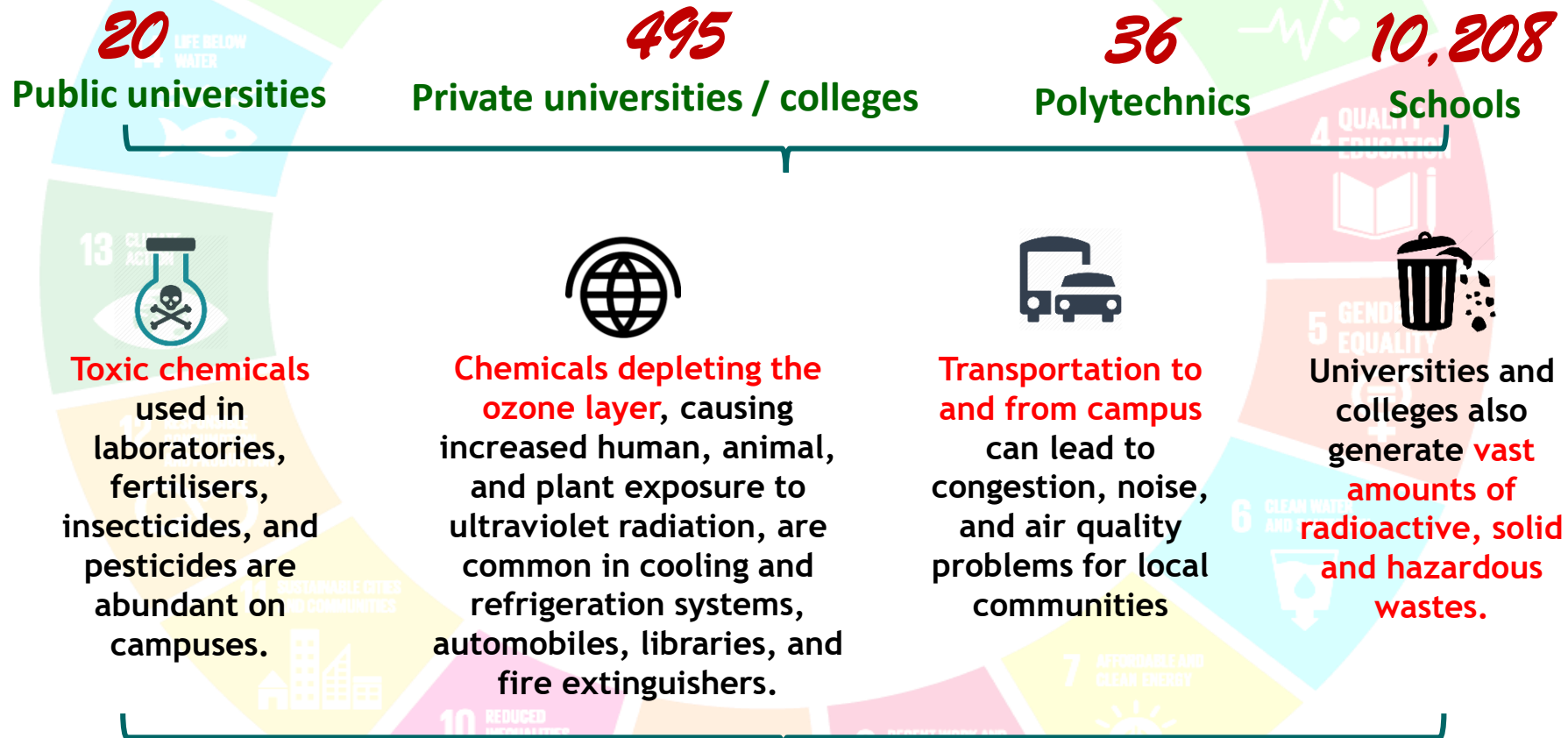
- 1** Transformational Impact
- 2** Leveraged Resources
- 3** Political Will & Leadership

ECO-CAMPUS / SUSTAINABLE CAMPUS PRINCIPLES

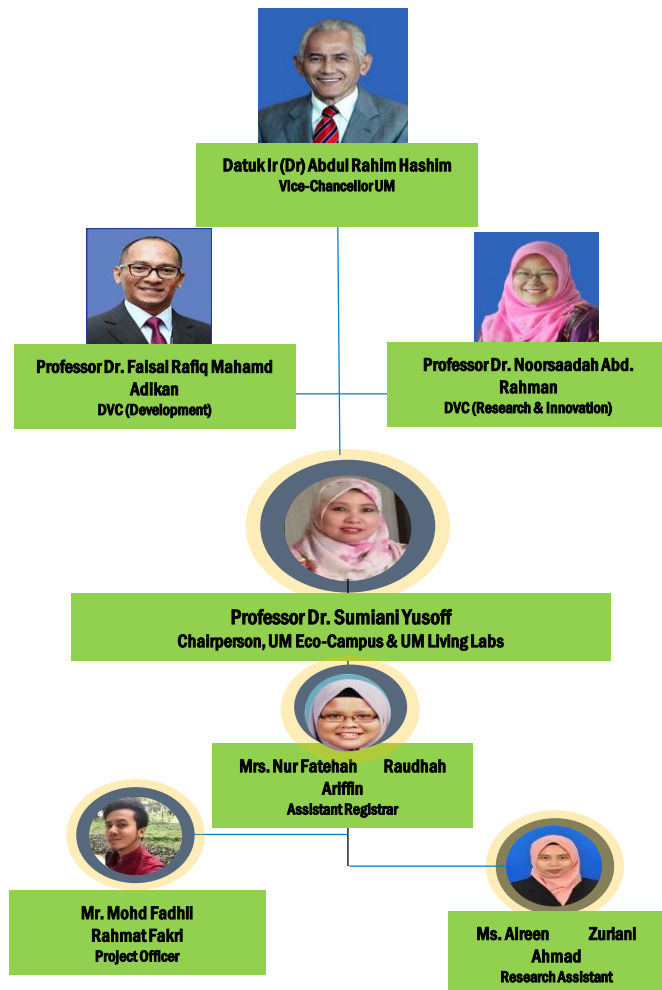


MALAYSIAN INSTITUTES OF HIGHER LEARNING & SCHOOL'S IMPACT TO THE ENVIRONMENT

Greening of Campus. Why is it Important?



GREENHOUSE GASES (GHG) EMISSION



Tagline:
'Be Different, Be the Change'

Vision

To be a leader in greening initiatives in University of Malaya

Official launch of the University of Malaya Eco-Campus Blueprint (UMECEB) – 22 April 2016

UMECEB: an important referral document in coordinating and facilitating all necessary action plans for campus sustainability initiatives in UM



Mission

To support UM staffs and students to ensure that as a University we work together to build, sustain, and improve our capability in sustainable development agendas



UM Eco-Campus Core Areas:



UM ECO-CAMPUS ACHIEVEMENTS

**UM RANKED 36TH WORLD'S MOST SUSTAINABLE UNIVERSITY
IN UI GREENMETRIC WORLD UNIVERSITY RANKINGS 2018**

Improved by 12.2% as compared to 2017 achievements.
Maintained the status as the **1st Most Sustainable City-Centre
University in Asia**, Malaysia's Best Water, Waste, Education &
Research, and Energy & Climate Change Management. **UM Eco-
Campus Standing Committee (UMECS)** is established in 2016



**UM RECEIVED
THE GREEN ERA AWARD 2015**

UM (UM Zero Waste Campaign) received The **Green Era Award** at in Berlin, Germany – 2015: recognize true global sustainable exemplars that have been innovative & creative in pursuing the sustainable imperative



**UM ACKNOWLEDGED AS
1 OF THE 5 NATIONAL
ECO-CAMPUS UNIVERSITY**

UM, 1 of the 5 universities in Malaysia awarded with the Special Award for **'Kelestarian Kampus Hijau'**:
25 May 2017 by SWCorp



**UM APPOINTED AS OFFICIAL TRAINER FOR
KL2017 SEA GAMES & ASEAN PARA
GAMES
GREEN VOLUNTEERS**

Training on environmental issues, sustainable waste management, recycling and Separation-at-Source (SAS) for KL2017 Green volunteers consist of 1000 university and college students



**UM AWARDED WITH DIAMOND RATING
FOR LCCF**

UM was awarded **'Diamond Rating: Best Practice 1'** by KeTTHA at IGEM 2017 (13 Oct 2017): LCCFAS aims to support the government policy in reducing 45% of carbon emission per GDP per capita by the year 2030



**ESTABLISHMENT OF UM
SUSTAINABLE
DEVELOPMENT
SOLUTIONS NETWORK
(UM SDSN)**

UM is a member of **SDSN Malaysia Chapter** since 2014
Currently hosted by
Sunway University's
Jeffrey
Sachs Centre for
Sustainable Development

Congratulations

UM RANKED **#36** WORLD'S MOST SUSTAINABLE UNIVERSITY IN
UI GREEN METRIC WORLD UNIVERSITY RANKINGS 2018
*out of 719 institutions worldwide

UM listed among 431 universities that show sustainability leadership by providing evidence

ACHIEVEMENTS:



University of Malaya



unimalaya



um.edu.my

Other notable achievements:

11th World's Best Water Management

28th World's Best Education & Research (Sustainability)



UM Living Labs Grant Programme



UM Living Lab

Grant programme

ACTION-ORIENTED & TRANSLATIONAL RESEARCH

to provide **sustainable solutions** to the campus



Environmental Impact



Optimization of resources and reduces the University's carbon footprint

Academics



Provides a real and relevant examples or case studies to enhance learning or teaching experience

Students Experience



Provides opportunity for students to take part in improving UM's sustainability initiatives

Culture Change



Embeds sustainability into the fabric of the University by allowing new research approach to be tested while improving a cross-border cooperation within and outside UM

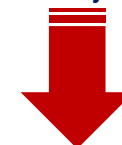
University Operations



Enhance links between research / academics to estate management or JPPHB



From laboratory research



To real life solutions



From laboratory research



To real life solutions

Categorization of research projects according to

8 Core Areas of UM Eco-Campus Blueprint



UM AS A LIVING LABORATORY

AIMS TO GENERATE OUTPUTS FOR THE BENEFITS OF CAMPUS COMMUNITY

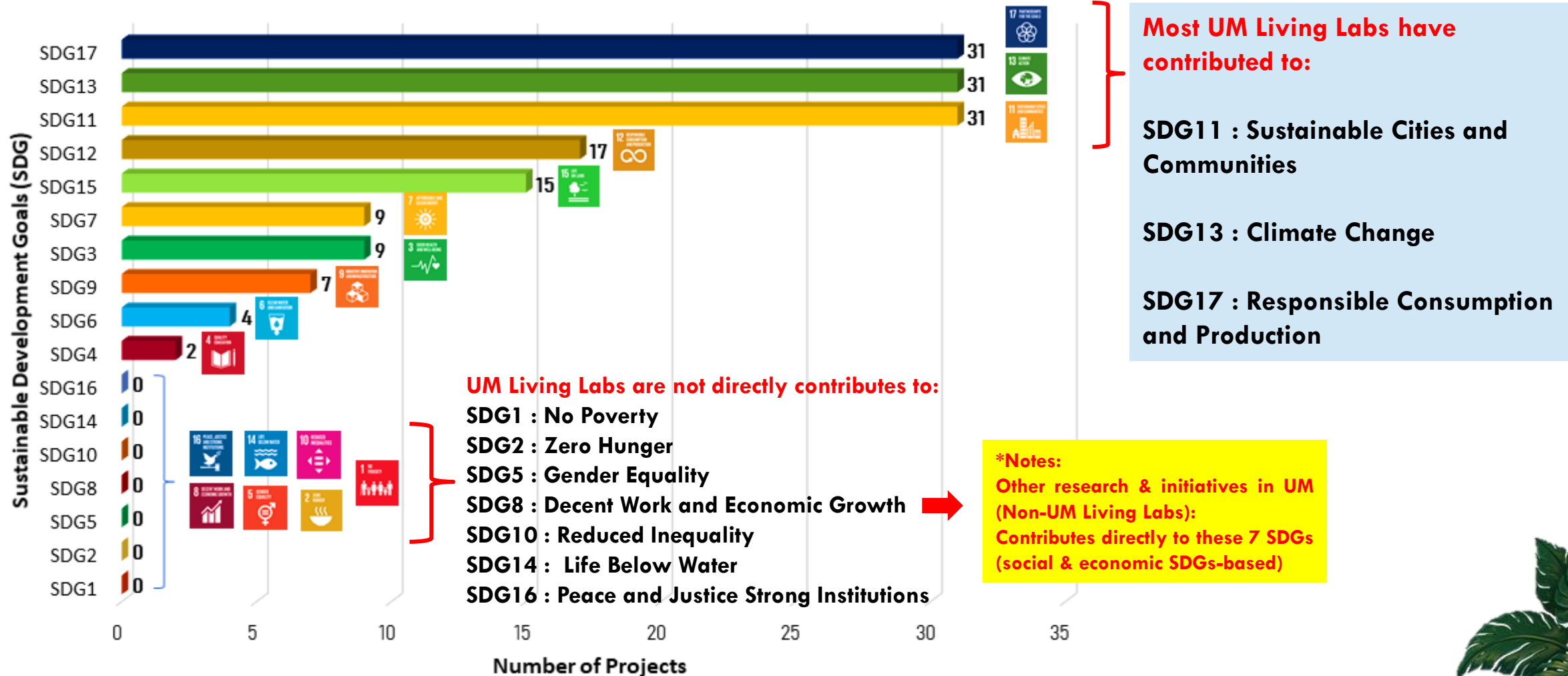


THE GLOBAL GOALS For Sustainable Development



#GLOBALGOALS

UM LIVING LAB PROJECT CONTRIBUTIONS TO SDGS (2015- PRESENT)

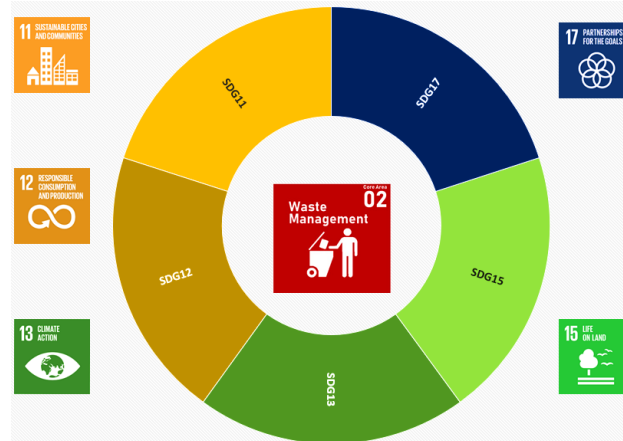


UM LIVING LAB PROJECT CONTRIBUTIONS TO SDGs (2015- PRESENT)

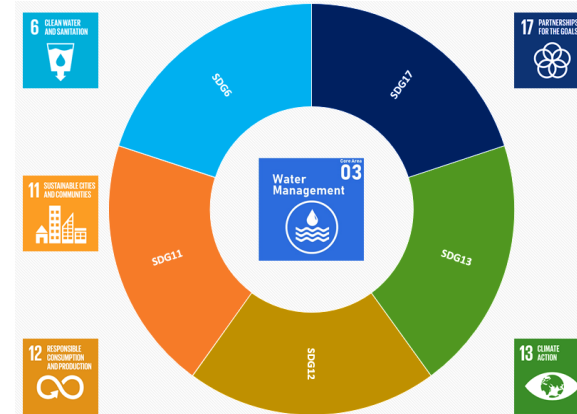
CORE AREA 01: LANDSCAPE & BIODIVERSITY MANAGEMENT



CORE AREA 02: WASTE MANAGEMENT



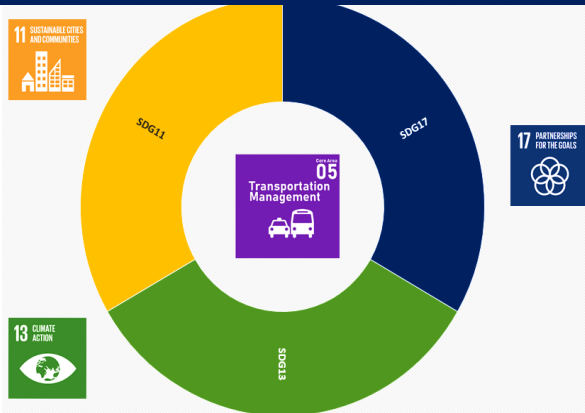
CORE AREA 03: WATER MANAGEMENT



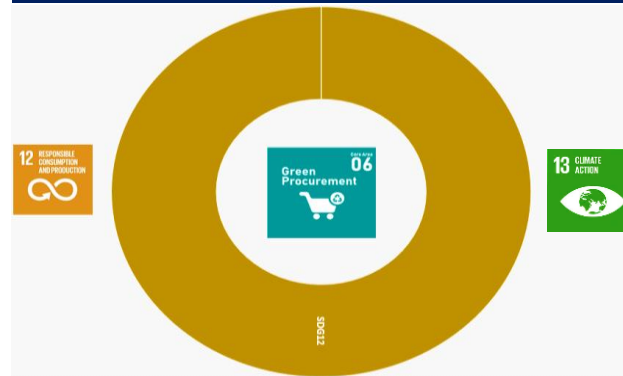
CORE AREA 04: ENERGY MANAGEMENT



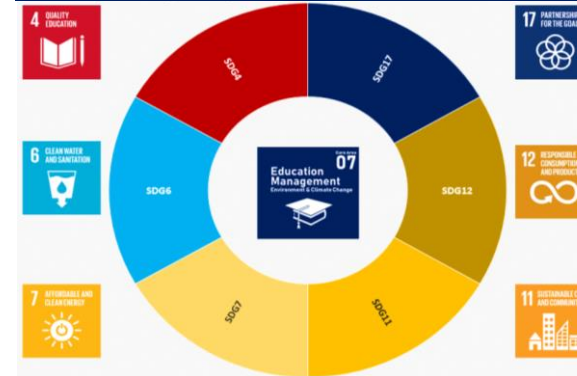
CORE AREA 05: TRANSPORTATION MANAGEMENT



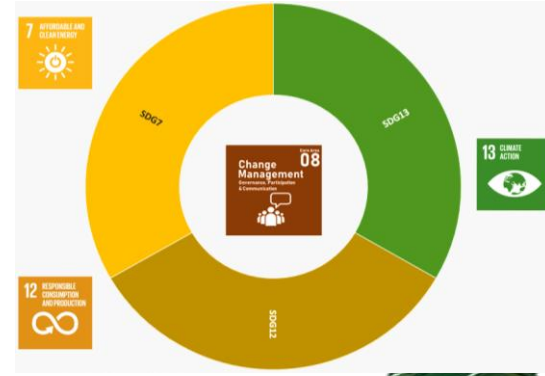
CORE AREA 06: GREEN PROCUREMENT



CORE AREA 07: EDUCATION MANAGEMENT

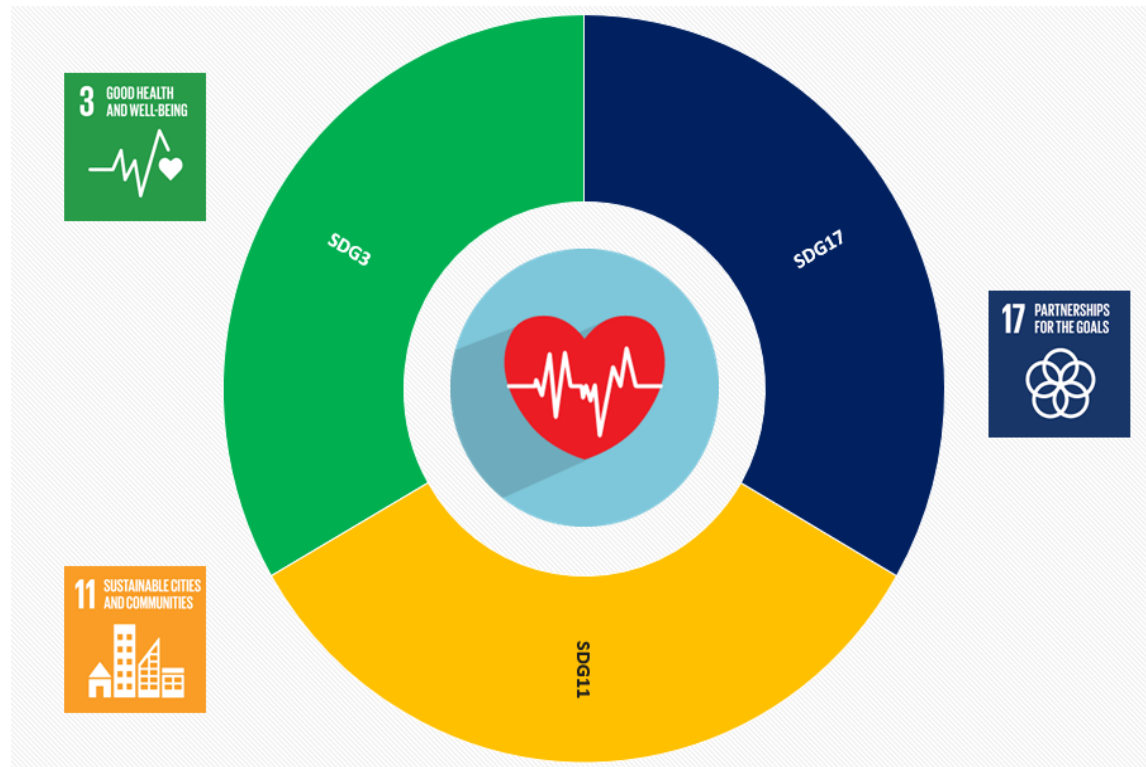


CORE AREA 08: CHANGE MANAGEMENT

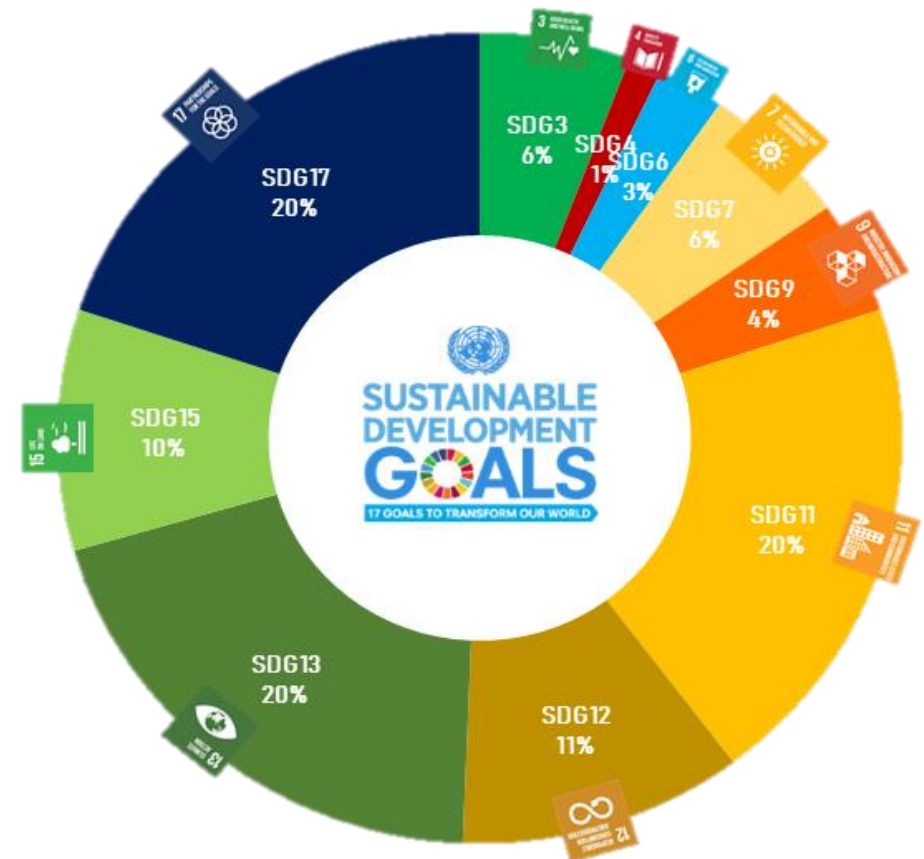


UM LIVING LAB PROJECT CONTRIBUTIONS TO SDGS (2015- PRESENT)

ADDITIONAL AREA : GOOD HEALTH & WELL-BEING



SUMMARY OF UMLL CONTRIBUTIONS TO SDGS



Core Area
01
Landscape
& Biodiversity
Management



3 GOOD HEALTH
AND WELL-BEING



11 SUSTAINABLE CITIES
AND COMMUNITIES



13 CLIMATE
ACTION



15 LIFE
ON LAND



17 PARTNERSHIPS
FOR THE GOALS



Guided walks



City nature challenges



Rimba Ilmu Visits



MOU Signing with DBKL



Providing solutions on sustainability issues for
biodiversity & landscape management

2

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



Kursus Pengurusan Pembajaan dan Penggunaan Bahan Organik untuk Tanaman bersama UM ZWC



UM Living Labs Site Visits



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



Awareness on importance of organic amendment in environment during UNIVERSITY OF MALAYA RESEARCH CARNIVAL (UMRC)



Providing solutions on landscape management : Soil treatment, organic compost, Biochar

3 EcoSlope: Slope eco-engineering technique towards sustainable and green landscape



Demonstration on plants transplanting with ISB staffs & students



Students involvement: Transplanting exercise during practical class



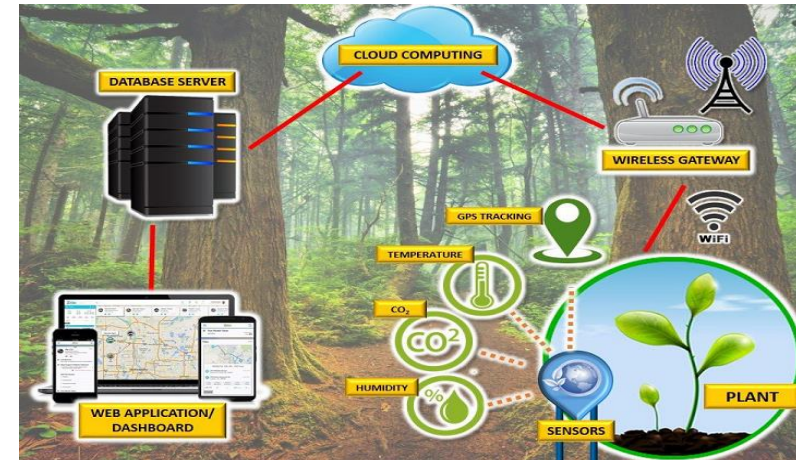
Keynote speaker: The 23rd Biological Science Graduate Congress



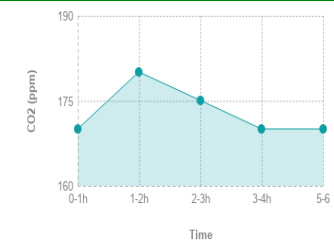
National Consultation Project UM-Plus

Reducing soil erosion and increasing soil carbon storage and green surface

4 Carbon Storage Mapping Initiatives through Real Time GPS Tracking and IOT Monitoring



The Sensor Design



Reducing global energy use while absorbing and fixing CO2 from the source or atmosphere



1 UM Zero Waste Campaign

Waste Management

02



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



15 LIFE ON LAND



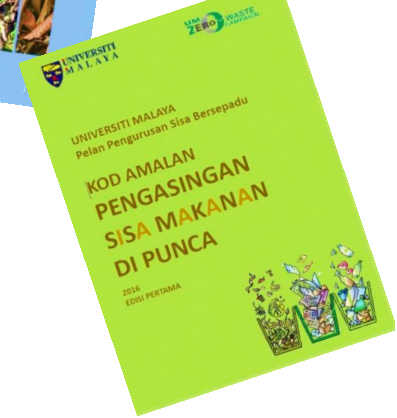
17 PARTNERSHIPS FOR THE GOALS




As an income generation to the university



ZWC's Guidelines on Food, Green & Wood Waste Separation and Collection



ACHIEVEMENTS OF UM ZWC SINCE INCEPTION (2009 - now)

<p>Environment</p> <p>Total waste diverted: > 900 ton</p> <p>Total carbon emission reduction: > 4,917,493 KG CO₂-eq</p>	<p>Economy</p> <p>Total waste disposal cost saved : >RM365,220</p> <p>Income generation from training and compost sale: >RM29,000</p>	<p>Social</p> <ul style="list-style-type: none"> • Total revenue / charity sponsor: >RM35,000 • Total visitors: >11,000
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2

Managing kitchen waste using Black Soldier Fly (BSF): An Alternative Approach Towards Zero Waste in Campus



The system

Feed with kitchen waste



After 1 week

Feed with fish



After 24 hour



40 larvae = 4.19g



Total BSF
collected: ~5kg



Whole Dried Black Soldier Fly Larvae (1Kg) - PET and ANIMAL FEED

RM 75.00 from Lazada Malaysia

Whole Dried Black Soldier Fly Larvae (1Kg) - PET and ANIMAL FEED



Protein Powder Black Soldier Fly Larvae (200g) - PET and ANIMAL FEED

RM 23.00 from Lazada Malaysia

Protein Powder Black Soldier Fly Larvae (200g) - PET and ANIMAL FEED

Reduce environmental problem (kitchen waste) while
BSF and fly larvae can be commercialized for income
generation


3

Safe Disposal of Unused Medications - Working towards a Green Pharmacy in the University of Malaya Medical Centre



World Pharmacy Day
(Exhibition)



Health Promotion Campaign



Total amount of medicine
donated back to UMMC
(706kg)

Reduce environmental
problem by disposing
medications properly while
reducing medicine wastage



UM Living Lab Site Visit at University of Malaya Medical
Centre (UMMC)

4

Recycled Plastic Aggregate as Replacement for Conventional Aggregates in Concrete



80% of green plastic replacement



80% of blue plastic replacement



Control

Sustainable design for low-cost house from plastic aggregates

80% of black plastic replacement



UM Living Lab Site Visit



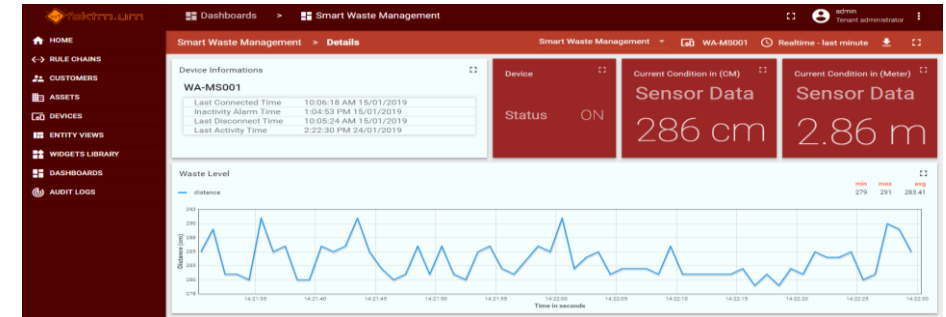
Dissemination of Plastic Aggregates Utilization Workshop



Reduce environmental pollution due to the release of poisonous chemicals from plastics

5

Smart Waste Management System using Internet-of-Things (IoT)



Waste detection sensor is an initiative of UM Living Labs to manage waste systematically



UM Living Lab Site Visit



Optimization of waste collection efficiency



1 Energy Conservation Culture in University of Malaya Campus



Workshops, brochures, button badges and etc to educate people and increase awareness

Energy management for sustainable resource

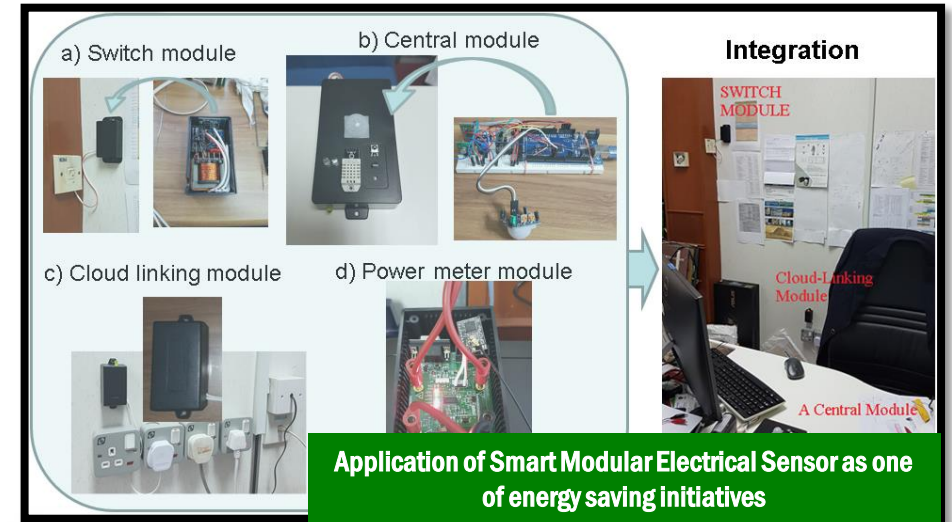
2 Optimising Energy Cost With Evolution Computing Based Building Energy Management System



Solar panel at rooftop of WISMA R&D parking areas

Generating renewable energy through solar panel

3 Smart Modular Electrical Energy Monitoring and Management System



Customized Energy Meter



Switch & Central Modules



Brief demonstration during UMLL Site Visit

UM Living Lab's initiative to control energy consumption from lights and air conditioners as well as to increase its efficiency



Integrating Green Into The University of Malaya's Procurement Process: A Move Forward



Bike-in-lane signage



Sharrows markings



Handbook for bus drivers



Bus tracking apps



Informative sign poles



Bicycle maintenance workshop



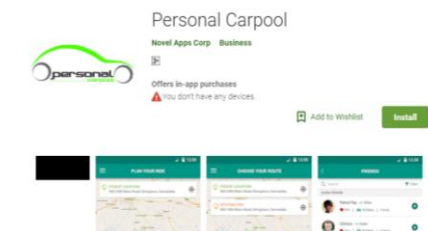
Bicycle workshops and maintenance



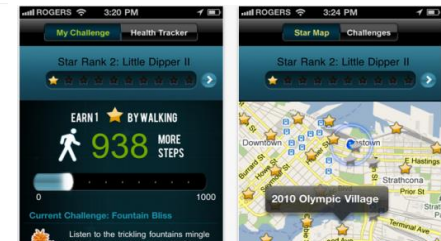
Shuttle buses as main public transport in UM campus



Exhibitions to raise awareness



UMCarPool Program



UMWalker Initiative Challenge





Integrating Green Into The University of Malaya's Procurement Process: A Move Forward



Reduce environmental impacts through buying green products

1

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



Cleanup Activities



Lestari Shop



Installation of Rainwater Harvesting System



Providing solutions on sustainability issues for Surau & Muslim Community in UM :
Efficient use of Energy and Water,
Sustainable Waste Management,
Enhance green landscape, education (green usrah)



Recycling Bins at Recycling Centre



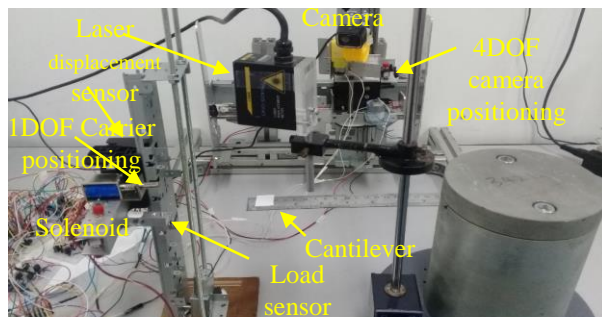
Urban Garden



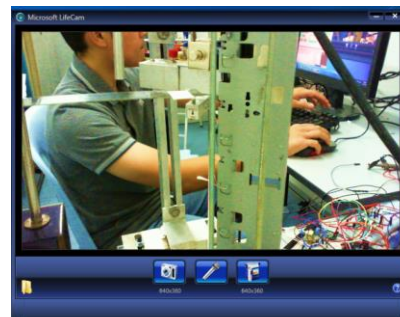
Recycled Tires Garden

2

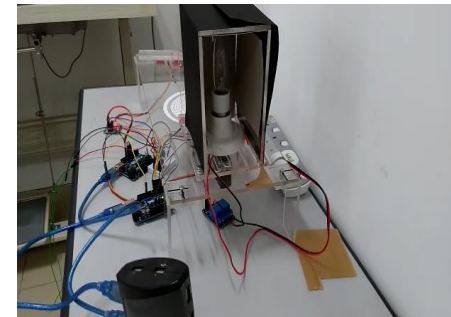
Decentralization of Laboratory Exercise via Remote Application: A-State-of-the- Art Approach towards Efficient Educational Facilities Resource and Energy Management in Academic Institutions



Modified set-up research prototype



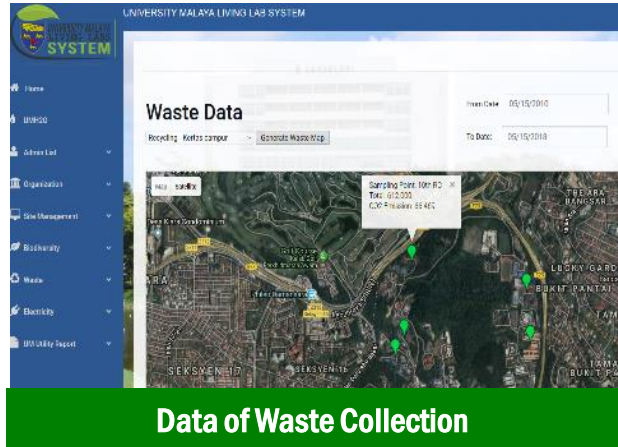
Rainbow spectrum experimental set-up



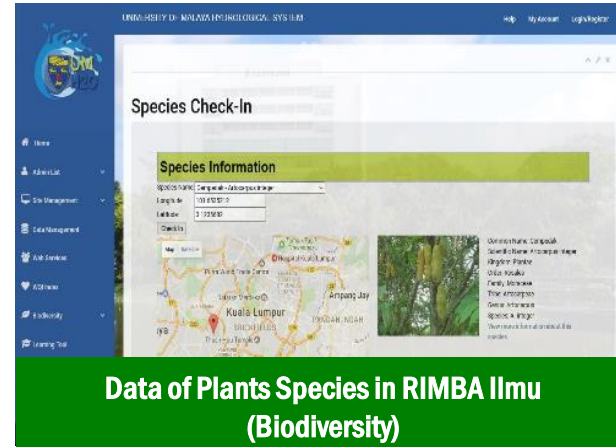
Increase learning efficiency by developing remote experimental facility

1

University of Malaya Ecological and Hydrological Data Warehouse Prototype System



Data of Waste Collection



Data of Plants Species in RIMBA Ilmu (Biodiversity)



UM Living Labs System



Providing database system that can store & analyse data collectively

2

The Faculty Sustainability Report Card: Documenting Faculty Sustainability Initiatives Towards UM Eco-Campus



Focus Group Discussion to share and brief ideas on implementation of sustainability report cards around campus PTJs



An initiative that implemented sustainability reporting & documentation

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



7 AFFORDABLE AND CLEAN ENERGY



Living Labs in UM

Additional Theme: Health and Well-being

11 SUSTAINABLE CITIES
AND COMMUNITIES



3 GOOD HEALTH
AND WELL-BEING



17 PARTNERSHIPS
FOR THE GOALS



1. Homes for Active Ageing
2. The UM Cancer Farm: A Lifestyle Lab



**Providing safe &
comfortable
environment for a
good health & well
being**

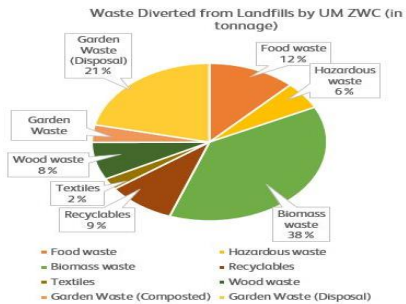


CONTRIBUTIONS OF UM LIVING LABS

ENVIRONMENTAL PERFORMANCE OF UM LIVING LABS

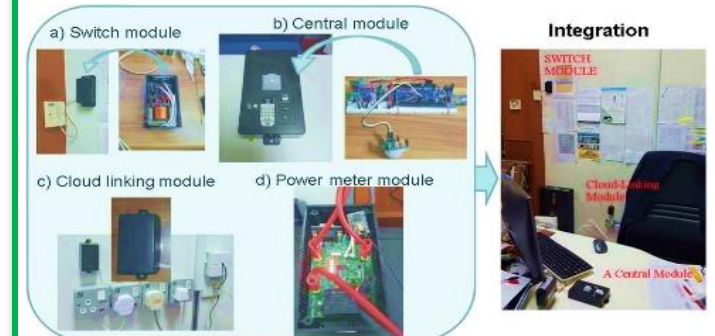


Wood Waste Collection: **5-12 ton/month**
Total Recyclable Textile Waste: **15,564kg**



**Total CO₂ emission reduction :
> 4,917,493
KG CO₂-eq**

Total Solid Waste Diverted from Landfills
in a year: **>900 tonnes**



- **34% reduction** of energy usage for lightings
- **47.8% reduction** of energy usage for air-conditioning

978kg of returned unused medicines
28% safely disposed



100 trees have been planted at Samali Tree Area
to **increase Campus' biodiversity area**



Increment of Surau green area **by 10%**





SOCIAL IMPACT OF UM LIVING LABS



UM ZWC:
Community
Composting at
Block P20 Pantai
Dalam,
Bario Sarawak
and Sunway SPK
community
Damansara



Imarah
Eco-Surau
Programme with
Residential
Colleges and
outside
stakeholders

(e.g : JAWI,
IKIM, JAKIM)



River & Tasik
Varsity
volunteering
clean up
programmes
Fishing
programme



UM Living Labs Site Visits,
Demo & Trainings

**UM ZWC received
>11,000 visitors**



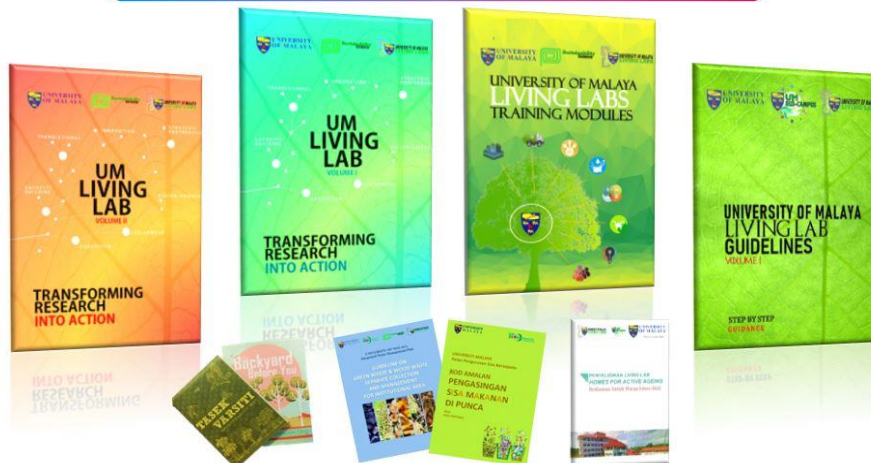
RIMBA Ilmu
Guided Walks,
Trainings and City
Nature Challenge





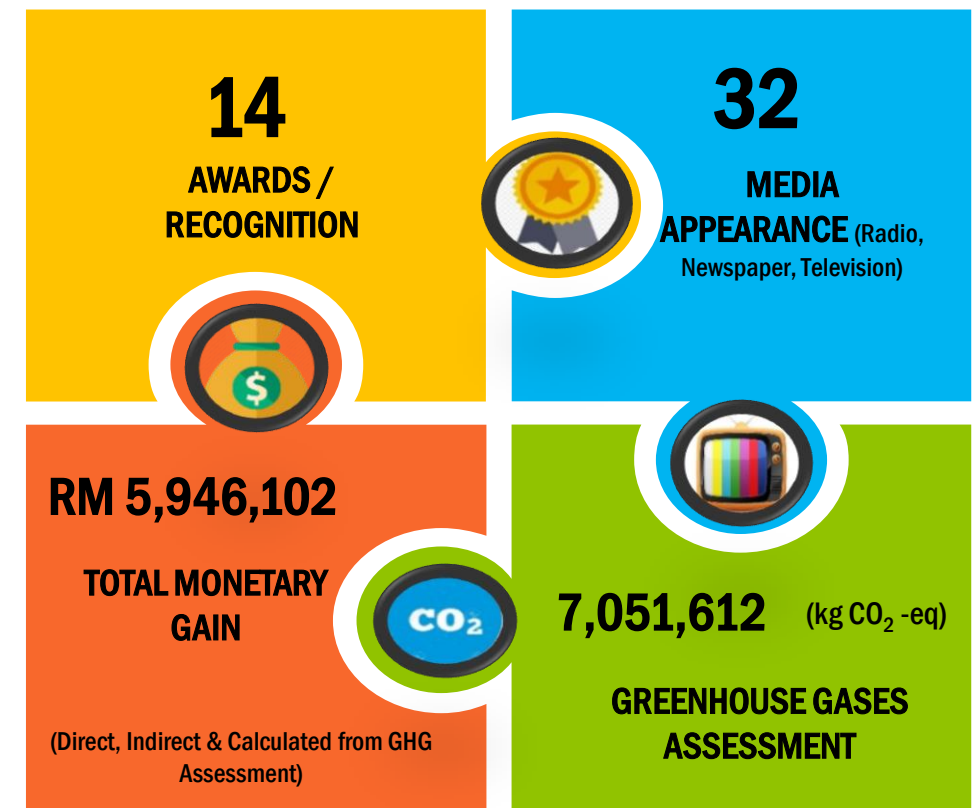


UM LIVING LABS PUBLICATION



Besides article journals, UM Living Labs also emphasize on other type of publications such as books, guidelines, training modules, brochures, interactive maps and coffee table book.

UM LIVING LABS SUMMARY ACHIEVEMENTS (2016-2018)



UM LIVING LABS MEDIA APPEARANCES



Tasek Varsity as the Heart of UM

Water Warriors

Water Warriors, a group of students and staff, are dedicated to protecting the water resources of the University of Malaya. They have been successful in cleaning up the waterways around the campus, ensuring that the water is safe for drinking and recreation.

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MISI SI PENCINTA SUNGAI

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SCHOOL TIMES

NATURE IN OUR MIDST

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ANALISIS

"Makanan Sains Nikmat : Dihargai Bukan Dibakar"

Prof. Dr. Sumiani Yusoff

Pengarah Institut Rumi & Sains Sains dan Pengarah Selawatari UM Ekowatch dan Living Lab

Prof. Dr. Sumiani Yusoff is a leading expert in the field of food science and nutrition. She has been instrumental in the development of the 'Makanan Sains Nikmat' program, which aims to promote healthy eating habits and the use of local ingredients.

Ecowatch

Help protect our urban biodiversity

Prof. Dr. Sumiani Yusoff

Prof. Dr. Sumiani Yusoff is a leading expert in the field of urban biodiversity. She has been instrumental in the development of the 'Ecowatch' program, which aims to protect and enhance the biodiversity of urban areas.

Whither nature conservation in rapid development?

Prof. Dr. Sumiani Yusoff

Prof. Dr. Sumiani Yusoff is a leading expert in the field of nature conservation. She has been instrumental in the development of the 'Whither nature conservation in rapid development?' program, which aims to explore the challenges of nature conservation in the face of rapid development.

Peranti mudah alih ukur karbon dioksida

Prof. Dr. Sumiani Yusoff

Prof. Dr. Sumiani Yusoff is a leading expert in the field of carbon dioxide measurement. She has been instrumental in the development of the 'Peranti mudah alih ukur karbon dioksida' program, which aims to provide a simple and easy-to-use device for measuring carbon dioxide levels.

Ramadan: 20,000 tan makanan dibazir

Prof. Dr. Sumiani Yusoff

Prof. Dr. Sumiani Yusoff is a leading expert in the field of food waste management. She has been instrumental in the development of the 'Ramadan: 20,000 tan makanan dibazir' program, which aims to reduce food waste during the Ramadan period.

SALAMAT PAGI MALAYSIA

22 SEPTEMBER 2018 | 9 AM

"HARI HABITAT SEDUNIA: HALATUJU PENGURUSAN SISA PEPEJAL PERBANDARAN DI MALAYSIA"

Tuan Haji Ismail Mokhtar, YB Fahmi Fadzil, Prof. Madya Dr. Sumiani binti Yusoff

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'Tarikan' industri RM30b

Prof. Dr. Sumiani Yusoff

Prof. Dr. Sumiani Yusoff is a leading expert in the field of industrial development. She has been instrumental in the development of the 'Tarikan' program, which aims to attract investment and create jobs in the industrial sector.

Peranti Pemantau Alam Sekitar

Prof. Dr. Sumiani Yusoff

Prof. Dr. Sumiani Yusoff is a leading expert in the field of environmental monitoring. She has been instrumental in the development of the 'Peranti Pemantau Alam Sekitar' program, which aims to provide a simple and easy-to-use device for monitoring the environment.

Peranti Pemantau Alam Sekitar

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KEMPA SIFAR SISA UNIVERSITI MALAYSIA

Prof. Dr. Sumiani Yusoff

Prof. Dr. Sumiani Yusoff is a leading expert in the field of waste management. She has been instrumental in the development of the 'KEMPA SIFAR SISA UNIVERSITI MALAYSIA' program, which aims to reduce waste and promote recycling on the University of Malaya campus.

UM Eco Freemarket santuni komuniti PPR Kerinchi

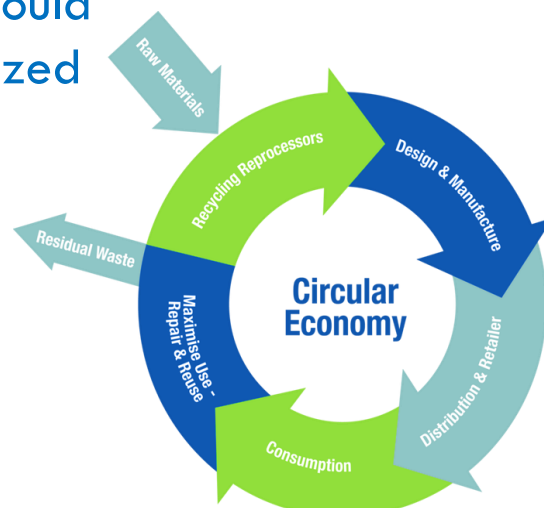
Prof. Dr. Sumiani Yusoff

Prof. Dr. Sumiani Yusoff is a leading expert in the field of community development. She has been instrumental in the development of the 'UM Eco Freemarket santuni komuniti PPR Kerinchi' program, which aims to support and improve the lives of the community in the PPR Kerinchi area.

CONCLUSION

Way Forward

- Sustainability is **everyone's responsibility**.
- Campus sustainability **should not be an option**.
- All activities must **be translatable and impactful** for campus environment performance, economic growth, and societal well-being.
- Sustainability initiatives **should be rewarded and recognized with proper reward mechanism**.



Recommendation

For a successful implementation of projects, a campus living lab should consider:

- 1) **Specific contexts and target** which works differently depending on the geographical context.
- 2) **Level of openness and flexibility** of the project to adapt, co-create and evolve over times to foster more innovation.
- 3) **Community participation** to test, evaluate and co-create the innovation outcome of the living lab project.
- 4) **Monitoring of tangible and intangible outputs** which goes beyond ordinary research outputs. Living Lab is an action and transdisciplinary research designed to address specific issues and challenges for the benefits of community and stakeholders.
- 5) **Mixed set of living lab tools and approach** to explore and discover new opportunities.

Thank You for Your Generous Attention

PROFESSOR DR. NOORSAADAH ABD. RAHMAN

Deputy Vice-Chancellor (Research & Innovation)

Office of Deputy Vice-Chancellor (Research & Innovation)

Level 8, Chancellery Building

Universiti Malaya

50603 Kuala Lumpur

noorsaadah@um.edu.my / ecocampus@um.edu.my



**UM PLEDGED TO SUPPORT AND COMMITTED TO
SUSTAINABLE DEVELOPMENT GOALS (SDGs)**