mysun 2022

1st Malaysia Sustainable University Network National Conference 2022

Co-funded by the Erasmus+ Programme of the European Union

Proceedings of the 1st Malaysia Sustainable University Network National Conference (MYSUN) 2022

15-16 MARCH 2022

UNIVERSITI MALAYSIA SABAH

Organisers:

UMS UNIVERSITI MALAYSIA SABAH

UTM UNIVERSITI TEKNOLOGI MALAYSIA

Co-Organisers:

UPM Universiti Putra Malaysia

UUM Universiti Utara Malaysia

Universiti Teknologi MARA

MMU Multimedia University

UNIMAS Universiti Malaysia Sarawak

Universiti Malaysia Pahang

Universitat d'Alacant

Università degli Studi di Genova

FH JOANNEUM University of Applied Sciences

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1st Malaysia Sustainable University Network National Conference 2022 (MySUN 2022)

15-16 March 2022

Abstract Conference Proceedings of MYSUN 2022

Sustainability and Energy Efficiency at HEIs

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WELCOMING SPEECH

Professor Datuk ChM. Ts. Dr.
Taufiq Yap Yun Hin
Vice-Chancellor
Universiti Malaysia Sabah

It is my pleasure to welcome all the participants of this 1st Malaysia Sustainable University Network National Conference (or MYSUN2022).

I am glad to see so much of cooperation and collaboration among the universities in Malaysia, namely, Universiti Malaysia Sabah, Universiti Teknologi Malaysia, Universiti Putra Malaysia, Universiti Teknologi MARA, Universiti Malaysia Pahang and Multimedia University Malaysia, together with our international counterparts, namely, Universitat de'Alicante, Universita Degli Studi Di Genova and FH Joanneum University of Applied Sciences.

I must thank the Ministry of Higher Education of Malaysia for supporting this remarkable partnership.

I find merits in this sort of a network approach to sustainability topics because the knowledge base of universities is always expanding and interdisciplinary expertise is widely dispersed, and organizational synergies can be a catalyst for forging R & D alliances for achieving the shared goals.

With so many institutions in the country and abroad involved in this conference, it is appropriate to organize it in a hybrid mode. I am sure, it has increased the attendance while saving time, and reducing travel and environmental costs. A conference related to sustainability should obviously consider environmental footprint of our activities.

I have no doubt the institutions of higher education should leverage their resources for a sustainable future. They can and should play a much stronger role in this endeavor. A conference such as this one provides a highly interactive platform to discuss new possibilities and to explore avenues for expanding the role of universities in sustainability. If many universities in the country and abroad are committed to strengthening the sustainability-related topics in their educational systems and inculcating the sustainability practices, one can be optimistic about the positive outcomes.

Looking at the various themes identified for deliberations in this conference, ranging from energy, climate change, natural resources, food security, engineering, green technology, and information & communications Technology, and social sciences, it will be possible to identify ways in which sustainable development can be further embedded in the ethos of higher education. This will resonate with the shared values of global institutions striving for the wellbeing of the society in a changing climate.

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Universities are carrying out research in all these and other areas, and are aware of international treaties, conventions, and declarations such as UN Sustainable Development Goals, that require us to go beyond teaching and research, to influence policies and implement their evidence-based findings to actively drive sustainable development. I think it will be very inspiring to all sections of the society if the sustainability policies demonstrate the benefits accruing to the communities.

In this context, we should continue to emphasize on making full use of emerging technologies of the Fourth Industrial Revolution that have the potential of facilitating a rapid transition towards sustainable development. The rate at which the climate is changing requires us to enforce protection of natural capital, conserve biodiversity and reduce environmental impacts using these technologies.

I am glad to see university campuses are humming up with activities related to sustainability. It goes to the credit of MYSUN and the European Union's ERASMUS+ program for infusing momentum into several on-going and growing sustainable university campus initiatives.

I would like to thank all the organizing committees, keynote and plenary speakers, and oral and poster presenters for their efforts for contributing towards the success of this conference.

I must thank all the partner universities in Malaysia and Europe for their remarkable enthusiasm and cooperation in promoting the sustainability agenda in various forms.

I welcome all the participants, whether they are attending physically or virtually to this conference. I hope all the participants will gain new knowledge through insightful presentations and inspiring discussions, and they will emerge more committed to the cause of sustainability.

With these remarks, I am pleased to OPEN this conference.

Thank you.

FOREWORD

Associate Prof. Dr. Mohd Rahimie Abd Karim
Chairman
1st Malaysia Sustainable University Network National Conference (MySUN) 2022

Assalaammu'alaikum wr. wb. and very warm greeting from Universiti Malaysia Sabah (UMS),

It gives me great pleasure to welcome all the respected participants of the "1st Malaysia Sustainable Network National Conference 2022 (MYSUN 2022)" to UMS main campus here in Kota Kinabalu, on the 15th to 16th of March 2022.

Indeed, as a university committed to sustainability initiatives, UMS feels honoured to be selected as the host of the first MYSUN national conference. Our support to sustainability is reflected from the establishment of the Ecocampus Management Centre and the introduction of sustainability-related subjects in our undergraduate academic programmes. In addition, promoting sustainability is also one of the main strategic initiatives in the UMS Strategic Plan.

Despite the COVID-19 pandemic, this conference has attracted a total of 179 participants, thus reflecting an overwhelming response to the conference and the great interest on the conference theme. Due to the COVID-19 pandemic however, the participants are offered either to present virtually or to attend the conference physically subject to the strict compliance to the standard operating procedure to contain the spread of COVID-19.

MYSUN 2022 conference is particularly significant not only because it is the first conference under the MYSUN project but also because the conference provides a platform for academics, sustainability experts and industry players to gather and exchange information that are vital in promoting sustainability efforts particularly in Malaysia. Therefore, I hope the success of this conference will pave the way for more interesting and impactful MYSUN conferences in the future.

We would like to extent our sincere appreciation especially to our Co-Organiser, Universiti Teknologi Malaysia (UTM), as well as to all MYSUN university partners in Malaysia. Our utmost gratitude also goes to ERASMUS+ Programme of the European Union as the main sponsor of the MYSUN initiatives in Malaysia.

I wish all of you a pleasant stay at Kota Kinabalu and a fruitful conference.

Best regards,

Assoc. Prof. Dr. Mohd Rahimie Abd Karim
Chairman

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FOREWORD

Professor Ir. Dr. Sharul Kamal Abdul Rahim
Co-Chairman
1st Malaysia Sustainable University Network National Conference (MySUN) 2022

The honorable Vice Chancellor of Universiti Malaysia Sabah, dear distinguished guests, Keynote speakers, Plenary speakers, participants, ladies, and gentlemen, on behalf of the organizing committee, I would like to welcome you all to the 1st Malaysia Sustainable University Campus Network National Conference 2022 (MYSUN 2022).

The 1st National Conference & Workshop is hosted by Universiti Malaysia Sabah and Universiti Teknologi Malaysia. Due to the ongoing global Covid-19 pandemic, the conference is being organised in a hybrid format, with possibility for in-person and online participation. The conference consists of eight topics of interest, namely Engineering and Application, Social Sciences and Humanities, Business & Finance, Energy & Climate, Project Management, Sustainable Green Technologies, Climate Change and Meteorology and Information and Communications Technology. In addition the conference invited four renowned speakers - Prof. Emer. Helga Kromp-Kolb, Prof. Dr. Johan Lilliestam, Prof. Dr. Nor Kamariah Noordin and Prof. Ir. Ts. Dr. Zainuddin Abd Manan.

The 1st MYSUN 2022 could not become a reality without the support and assistance of many parties. On this occasion, I would like to sincerely thank the Erasmus+ Programme of the European Union for co-financing the program, Universiti Putra Malaysia as the coordinator, Universiti Malaysia Sabah (UMS), together with co-organiser Universiti Teknologi Malaysia (UTM) and other MYSUN Partners in Malaysia and EU, keynote speakers, plenary speakers and all members of the Organizing Committee. I would also like to thank the authors, reviewers, all speakers, and session chairs for their support to MYSUN 2022.

In addition to the outstanding scientific program, we hope that you will find time to explore Kota Kinabalu and the surrounding areas. Kota Kinabalu is a city with numerous cultural heritage, natural beauty, and coupled with the friendliness of its people. Lastly, I would like to welcome you to the 1st MYSUN 2022 and wish you all an enjoyable stay in Kota Kinabalu, Sabah.

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PLENARY SPEAKER 1

Prof. Ir. Ts. Dr. Nor Kamariah Noordin

Faculty of Engineering
Universiti Putra Malaysia, Malaysia

Nor Kamariah Noordin received her B.Sc degree in Electrical Engineering with a major in Telecommunication from University of Alabama, Tuscaloosa USA in 1987, a Master's degree from Universiti Teknologi Malaysia and a PhD from Universiti Putra Malaysia (UPM). She has been with UPM since 1988 and was appointed associate professor in 2006 and professor in 2012. During her tenure she has been the head of department, deputy dean of academics, Director of Corporate Strategy and Communication of the university and now the Dean of Faculty of Engineering. During her more than 25 years with the university she has published more that 300 journals and conference papers. She has secured more than 30 research and consultancy projects worth USD 5mil in the area of Wireless and Communication Engineering and also Engineering Education.

For the past 5 years she has started to collaborate with European partners in Erasmus and Erasmus+ and had secured 4 capacity building projects totalling to USD 2 mil.

She is the referral person in Outcome based education both at the university and national levels. She is currently the Associate Director of Electrical Engineering branch at the Engineering Accreditation Department. She is also the Vice President of Malaysia Society of Engineering and Technology (MySET).

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PLENARY SPEAKER 2

Prof. Ir. Ts. Dr. Zainuddin Abd Manan

Faculty of Engineering
Universiti Teknologi Malaysia, Malaysia

Prof Ir Ts Dr Zainuddin A Manan is a professor of chemical process and energy engineering. He was a UTM Vice President (2017-2021), the Founding Dean of the UTM Faculty of Chemical and Energy Engineering, the Founding Director of UTM Process Systems Engineering Centre (PROSPECT) and the founder of Optimal Systems Engineering Sdn Bhd (UTM Spinoff company). He began his career as a process engineer at PETRONAS and Hume Industries and has been academic leader, educator, entrepreneur, researcher/inventor, consultant and professional coach for over 25 years. He completed over R&D and industrial 100 projects, owned/filed 25 patents/copyrights and has over 500 publications that include 20 books/chapters, 230 refereed journals and 270 conference proceedings on sustainable planning and engineering of resources (focusing on energy, water and emission reductions).

Contributed as plenary/keynote/invited speaker for over 400 conferences/seminars/professional workshops globally; including his 2014 Imperial College Chemical Engineering Distinguished Lecture. Coached professionals from more than 500 organisations. A certified trainer for Malaysia and ASEAN energy managers accreditation. Winner of 2008 Prince Sultan Abdul Aziz International Prize for Water. Awarded a Fellow of Academy of Sciences Malaysia (ASM), Fellow IChemE (UK) and a Top Research Scientist Malaysia. First in UTM to be simultaneously awarded both the UTM Outstanding Researcher and UTM Outstanding Academician (2014).

A UK/EU chartered engineer, a professional engineer, a professional technologist, a certified energy manager, a registered electrical energy manager and a certified professional coach. Appointed the vice-chairman of Board of Judges for ASEAN Energy Awards program. Chairs the ASM Energy Committee and the KeTSA Energy Efficiency and Conservation Act (Thermal Energy) Drafting Committee. Served as the technical advisor for the Malaysia Economic Planning Unit Sustainable Consumption and Production Project. Founded and led the UTM sustainable energy management transformation program to achieve Certified 3 Star energy-efficient organisation, USD 7 million energy savings between 2011 and 2020, and to win the ASEAN Energy Award.

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KEYNOTE SPEAKER 1

Professor Emeritus Dr Helga Kromp-Kolb

Centre for Global Change and Sustainability
University of Natural Resources and Life Sciences Vienna, Austria

Prof. Helga Kromp-Kolb was the Head of the Institute of Meteorology and of the Center for Global Change and Sustainability at the University of Natural Resources and Life Sciences, Vienna (BOKU), where she has also been a full professor since 1995.

Her expertise in environmental meteorology, air pollution, and climate change has seen her play key advisory roles in government, academia and civil society. These positions include for the Austrian government: A member of the scientific advisory board of the Austrian Federal Ministry of Defense and Sports since 2009; and an Advisor to the Experts Panel of the Climate and Energy Fund of the Austrian Government where she worked closely with IIASA Deputy Director General Professor Nakicenovic on the Austrian Panel on Climate Change. In academia, Prof Kromp-Kolb has been a scientific advisor to the Potsdam Institute forClimate Impact Research from 2008-2015 and is a founding member of the Alliance of Sustainable Universities in Austria among many other appointments in academia. While for civil society, most notably she has been a scientific advisor to the World Wide Fund for Nature.

Having gained her doctoral degree from the University of Vienna in 1971 along with a Habilitation in Meteorology eleven years later, Prof Kromp-Kolb has gone on to achieve an award-winning career. Awards include being named Austria's scientist of the year in 2005, winning the WWF Panda Award in 2006, and being awarded the Un Bosco per Kyoto award for her service toward the defense of the environment and the quality of the air in Austria.

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KEYNOTE SPEAKER 2

Prof. Dr. Johan Lilliestam

Institute for Advanced Sustainability Studies
Energy Transitions and Public Policy, Germany

Prof. Dr. Johan Lilliestam leads the Energy Transitions and Public Policy group at Institute for Advanced Sustainability Studies (IASS). He holds the professorship for Energy Policy at the University of Potsdam. His research focus is policies, strategies and instruments for a transition to a completely climate-neutral, renewable energy system, including the effects of interactions between different energy policies. He currently holds a grant from the European Research Council (ERC).

Before joining IASS, he was Assistant Professor and head of the Renewable Energy Policy Group at the Institute for Environmental Decisions at ETH Zürich, Switzerland, and Senior Scientist in the Climate Policy Group, also at ETH Zürich. He obtained his PhD in Environmental Science and Policy from at the Central European University in Budapest, Hungary, in 2013. From 2007-2013, he was a researcher at the Potsdam Institute for Climate Impact Research (PIK) and from 2009-2013 at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria.

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CONFERENCE AGENDA

DAY 1 (15 March 2022, TUESDAY)

Time (GMT +8)	Agenda			Venue (On-site Attendees)	Link Zoom (Online Attendees)
8.00 am -8.30 am	Conference Registration			Galeri Majlis	Zoom Link: https://zoom.us/j/98459007626?pwd=eVdldGVnYVNxNG45UjRneEdYSGVCQT09 Passcode : 1234
8.30 am - 9.30 am	Opening Ceremony by UMS Vice Chancellor				
9.30 am - 10.00 am	Breakfast				
10.00 am – 12.00 pm	Parallel session 1			Room 1 : Galeri Majlis Room 2 : Bilik Mesyuarat Pusat Pembangunan dan Kecemerlangan Akademik (BM PPKA) Room 3 : Bilik Mesyuarat Cemerlang (BMC)	Zoom Link Room 1: https://zoom.us/j/93222425322?pwd=M0llcUNOQ1BoZ0lZWW45Q3lUTHo0dz09 Passcode :1234 Room 2: https://zoom.us/j/94107112926?pwd=RFlweG1UdGlobTkvaGRRbkN0MzIvUT09 Passcode : 1234 Room 3: https://zoom.us/j/99119912652?pwd=WEV3RjUrUnlPSFloKy9pOUhDajdsQT09 Passcode : 1234
	Room 1 Theme: Energy and Climate	**Room 2** Theme : Business and Finance	**Room 3** Theme: Information and Communications Technology		
12.00 pm -12.30 pm	**Parallel session Q & A**	**Parallel session Q & A**	**Parallel session Q & A**		
12.30 pm - 2.00 pm	Lunch Break				
2.00 pm - 2.05 pm	**MYSUN Project Introduction** By Prof. Ir. Dr. Nor Kamariah (UPM) - MYSUN Project Coordinator			Galeri Majlis	Zoom Link:

Time (GMT +8)	Agenda		Venue (On-site Attendees)	Link Zoom (Online Attendees)
2.05 pm - 2.15 pm	**Introductory Remark** By Project Officer of MYSUN - Ms Karolina Garbaliauskaite			https://zoom.us/j/93197097074?pwd=ZUVSVjVVZ3dFc2Y1NnVLTXNaNVhWZz09 **Passcode : 1234**
2.15 pm - 2.45 pm	**Plenary Speaker 1 :** **Prof. Ir. Dr. Nor Kamariah (UPM)** Title: UPM Campus Sustainability through Development, Research and Teaching Implementation			
2.45 pm - 3.15 pm	**Keynote Speaker 1 :** **Prof. Emer. Helga Kromp-Kolb (EU)** Title: Living up to our own expectations. How the Alliance of Sustainable Universities in Austria tries to achieve what it knows it must			
3.15 pm – 5.05 pm	**Parallel session 2**		**Room 1 : Galeri Majlis** **Room 2 : Bilik Mesyuarat Pusat Pembangunan dan Kecemerlangan Akademik (BM PPKA)**	**Zoom Link** **Room 1:** https://zoom.us/j/93703447826?pwd=Qml6akNUandhMEtEZ2JyZmo5ajduQT09 **Passcode : 1234** **Room 2:** https://zoom.us/j/99882968667?pwd=UlduZnFoR0Z1Z3E0Z2FjdFVzeFgzUT09 **Passcode : 1234**
	Room 1 Theme : Sustainable Green Technology 1	**Room 2** Theme: Engineering and application & Project Management		
5.05 pm – 5.15 pm	**Parallel session** **Q & A**	**Parallel session** **Q & A**		
5.15 pm – 5.45 pm	**Tea Break and End**			

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CONFERENCE AGENDA

DAY 2 (16 March 2022, WEDNESDAY)

Time (GMT +8)	Agenda	Venue (On-site Attendees)	Link Zoom (Online Attendees)
8:00 am – 8:15 am	**Participant Registration**	**D'Sireh, Bangunan Canselori UMS**	**WEBEX Link:** **https://ums-edu-my.webex.com/ums-edu-my/j.php?MTID=m3ca56cf31d7acb4c9e4fe14aeb85dafe**
8:15 am – 8:20 am	**Briefing:** **House rules and operationalising the workshop's focus on the sustainability of the energy sector by Workshop Host** by Dr Robert F. Peters, UMS		
8:20 am – 8:25 am	**Welcoming Remark:** by Prof. Madya. Dr Azali Saudi, EcoCampus Management Centre Director, UMS		
8:25 am – 8:35 am	**Introduction:** **The MYSUN Initiative and the Promotion of Campus Sustainability in Malaysia** by Prof. Ir. Ts. Dr. Nor Kamariah Noordin, MYSUN Project Leader, UPM		
8:35 am – 10:05 am	**Module #01: Collaborative Development** ● **Institutional Support for the Sustainability of Campuses** by Prof Dr Mohd. Hasnain Bin Md Hussain, UNIMAS ● **The Energy Consumption – Conservation Nexus: a Look at Human Resources SDGs at the University – Concepts, Behaviour, Research and Education** by Prof. Madya Ts. Dr. Hamzah Ahmad, UMP		
10:05 am – 10:30 am	**Session Break and Refreshment**		
10:30 am – 12:00 pm	**Module #02: Tapping of Institutional Strength** ● **GEIs SDGs – Concept, Research and Education, and Behaviour Moulding** by Dr Robert Peters, UMS ● **Efficient Energy Consumption through the Sharing of Information** by Dr Sharifah Rafidah Bt. Wan Alwi, UTM		

Time (GMT +8)	Agenda		Venue (On-site Attendees)	Link Zoom (Online Attendees)
12:00 pm – 12:30 pm	**Workshop adjournment**			
12.30 pm - 2.00 pm	**Lunch Break**			
2.00 pm - 2.15 pm	**MYSUN Network's Introduction and Launching**		**Galeri Majlis**	**Zoom Link:** **https://zoom.us/j/92465146514?pwd=L09IU0MwdjVuMUFaZnN5Sy9sNndHQT09** **Passcode : 1234**
2.15 pm - 2.45 pm	**Plenary Speaker 2 : Prof. Ir. Dr. Zainuddin Manan (UTM)** Title: ASM Energy Consortium (EC) Road-to-Zero			
2.45 pm - 3.15 pm	**Keynote Speaker 2 : Prof. Dr. Johan Lilliestam (EU)** Title: Policies for complete decarbonisation of the energy system: lessons from Europe and past transitions			
3.15 pm - 5.05 pm	**Parallel session 3**		**Room 1 : Galeri Majlis** **Room 2 : Bilik Mesyuarat Pusat Pembangunan dan Kecemerlangan Akademik (BM PPKA)**	**Zoom Link:** **Room 1:** **https://zoom.us/j/92274202562?pwd=MGZCTjB6T3U2eDdJWHpkTUljbndyQT09** **Passcode :1234** **Room 2:** **https://zoom.us/j/99899386734?pwd=YlFCTjlDQVlVOUhQVysrL1JzTnlEZz09** **Passcode : 1234**
	Room 1 Theme: Social sciences and Humanities	**Room 2** Theme: Sustainable Green Technology 2		
5.05 pm - 5.15 pm	**Parallel session** **Q & A**	**Parallel session** **Q & A**		
5.15 pm - 5.45 pm	**Closing ceremony** by Co-Chair MYSUN2022 Conference, Prof. Ir. Dr. Sharul Kamal Bin Abdul Rahim (UTM)		**Galeri Majlis**	**Zoom Link:** **https://zoom.us/j/99670643030?pwd=YmRPWk5TdHkydFdSYVFaay9HRjRaZz09** **Passcode : 1234**
5.45 pm	**Teatime and End**			

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CONFERENCE AGENDA

DAY 3 (17 March 2022, THURSDAY)

****Open only for MYSUN Members**

Time (GMT +8)	Agenda	Venue (On-site Attendees)	Link Zoom (Online Attendees)
8.30 am - 9.00 am	Registration and Breakfast	TBA	[redacted]
9.00 am - 9.30 am	Study Visit Briefing		[redacted]
9.30 am - 11.00 am	Study Visit Part 1		[redacted]
11.00 am - 11.30 am	Tea Break		[redacted]
11.30 am - 1.30 pm	Study Visit Part 2		[redacted]
1.30 pm - 2.30 pm	Lunch Break		[redacted]

Time (GMT +8)	Agenda	Venue (On-site Attendees)	Link Zoom (Online Attendees)
2.30 pm - 4.30 pm	**MYSUN PMP 6 Meeting** 2.30 pm – 2.40 pm WP2: 2.3 Seminars at Institution Level 2.40 pm – 3.15 pm WP3: 3.2 Pilot MOOC Development and Recognition 3.15 pm – 3.30 pm WP4: 4.4 Campus Sustainability Plans 3.30 pm– 4.00 pm WP5: 5.3 National workshops on Campus Sustainability 5.4 National Conferences on Sustainability and Energy Efficiency at HEIs 4.00 pm – 4.10 pm WP6: 6.4 Final National Dissemination Event 6.5 MYSUN Sustainability Plan 4.10 pm – 4.20 pm WP7: 7.2 Regular Internal Quality Monitoring 4.20 pm – 4.30 pm WP8: 8.3 Ongoing Project Management 8.4 Reporting		**Zoom Link:** https://zoom.us/j/93435628790?pwd=TEh3SFpROXpteHVqcDQyQkRlYzRQZz09 **Passcode : 1234**
4.30 pm	**End**		

PRESENTERS PARALLEL SESSION SCHEDULE AND DETAILS

Room		Room 1: Galeri Majlis	Room 2: Bilik Mesyuarat Pusat Pembangunan dan Kecemerlangan Akademik (BM PPKA)	Room 3: Bilik Mesyuarat Cemerlang (BMC)
Theme		**Energy and Climate**	**Business and Finance**	**Information and Communications Technology**
Parallel Session 1 15 March 2022 (10.00 am -12.00 pm)	10.00am -10.10am	MySUN_ID34	MySUN_ID37	MySUN_ID06
	10.10am -10.20am	MySUN_ID59	MySUN_ID66	MySUN_ID11
	10.20am -10.30am	MySUN_ID62	MySUN_ID02	MySUN_ID15
	10.30am -10.40am	MySUN_ID36	MySUN_ID03	MySUN_ID22
	10.40am -10.50am	MySUN_ID51	MySUN_ID16	MySUN_ID23
	10.50am -11.00am	MySUN_ID58	MySUN_ID18	MySUN_ID25
	11.00am -11.10am	MySUN_ID10	MySUN_ID21	MySUN_ID19
	11.10am -11.20am	MySUN_ID28	MySUN_ID52	MySUN_ID57
	11.20am -11.30am	MySUN_ID30		
	11.30am -11.40am	MySUN_ID63		
	11.40am -11.50am	MySUN_ID49		
	11.50am -12.00pm	MySUN_ID65		

Room		Room 1: Galeri Majlis	Room 2: Bilik Mesyuarat Pusat Pembangunan dan Kecemerlangan Akademik (BM PPKA)
Theme		Sustainable Green Technology 1	Engineering and application & Project Management
Parallel Session 2 15 March 2022 (3.15pm - 5.05 pm)	3.15pm -3.25pm	MySUN_ID43	MySUN_ID08
	3.25pm -3.35pm	MySUN_ID47	MySUN_ID44
	3.35pm -3.45pm	MySUN_ID64	MySUN_ID50
	3.45pm -3.55pm	MySUN_ID24	MySUN_ID54
	3.55pm -4.05pm	MySUN_ID26	MySUN_ID41
	4.05pm -4.15pm	MySUN_ID31	MySUN_ID39
	4.15pm -4.25pm	MySUN_ID32	MySUN_ID09
	4.25pm -4.35pm	MySUN_ID48	MySUN_ID27
	4.35pm -4.45pm	MySUN_ID56	MySUN_ID29
	4.45pm -4.55pm	MySUN_ID61	
	4.55pm- 5.05pm	MySUN_ID68	

Room		Room 1: Galeri Majlis	Room 2: Bilik Mesyuarat Pusat Pembangunan dan Kecemerlangan Akademik (BM PPKA)
Theme		Social sciences and Humanities	Sustainable Green Technology 2
Parallel Session 3 16 March 2022 (3.15pm - 5.05 pm)	3.15pm -3.25pm	MySUN_ID38	MySUN_ID60
	3.25pm -3.35pm	MySUN_ID40	MySUN_ID53
	3.35pm -3.45pm	MySUN_ID35	MySUN_ID01
	3.45pm -3.55pm	MySUN_ID42	MySUN_ID07
	3.55pm -4.05pm	MySUN_ID55	MySUN_ID12
	4.05pm -4.15pm	MySUN_ID04	MySUN_ID13
	4.15pm -4.25pm	MySUN_ID05	MySUN_ID14
	4.25pm -4.35pm	MySUN_ID17	MySUN_ID20
	4.35pm -4.45pm	MySUN_ID45	MySUN_ID67
	4.45pm -4.55pm	MySUN_ID46	

VENUE DETAILS (FOR ON-SITE ATTENDEES)

Room 1:

Room Name	:	Galeri Majlis
Address	:	Aras 3, Bangunan Canselori, Universiti Malaysia Sabah.
Coordinate	:	6.036576197196219, 116.11554917095903

Room 2:

Room Name	:	Bilik Mesyuarat Pusat Pembangunan dan Kecemerlangan Akademik (BM PPKA)
Address	:	Aras 6, Blok Utara, Bangunan Canselori, Universiti Malaysia Sabah.
Coordinate	:	6.03656430270801, 116.11585365309081

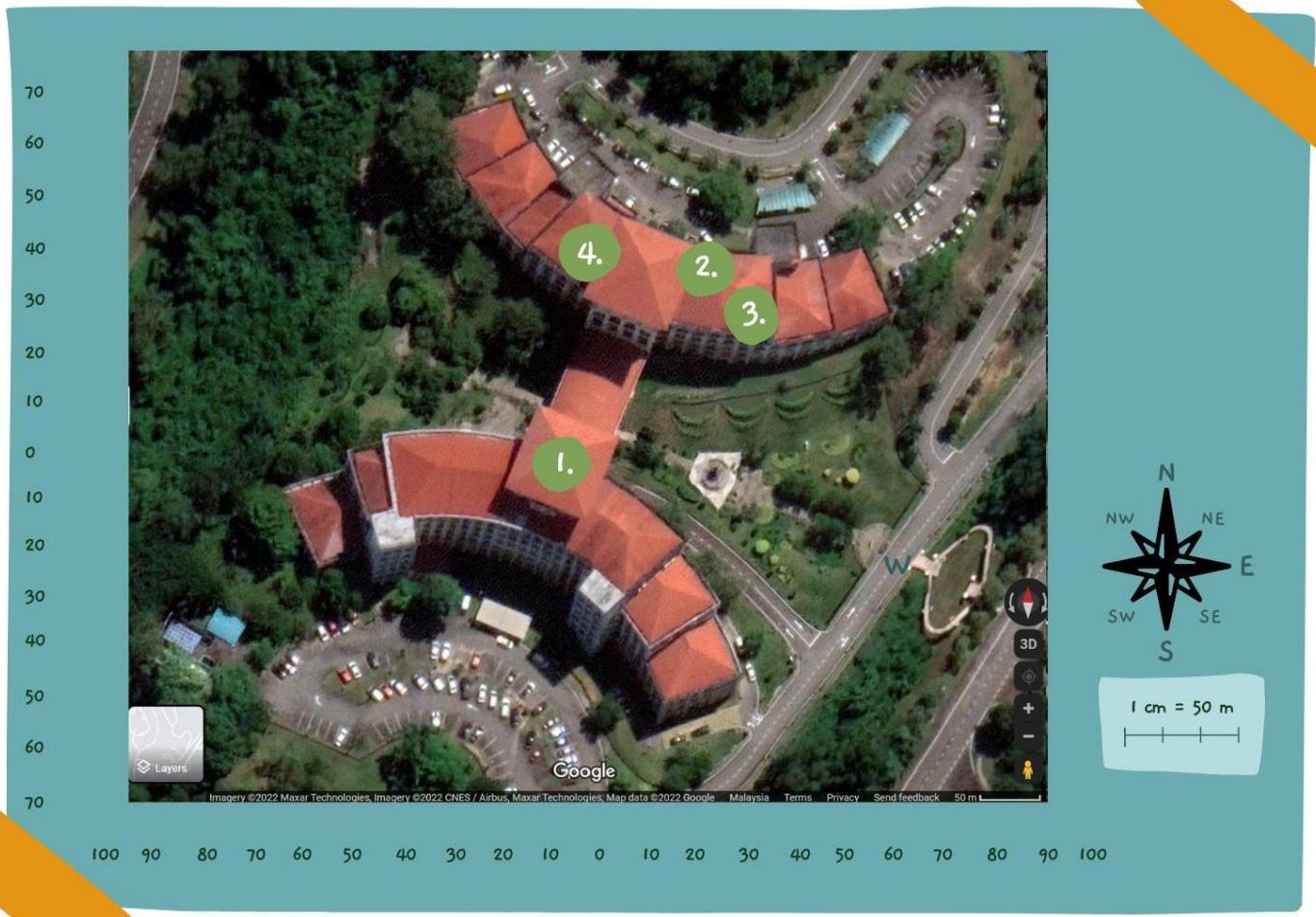
Room 3:

Room Name	:	Bilik Mesyuarat Cemerlang (BMC)
Address	:	Jabatan Bendahari, Aras 3, Blok Utara, Bangunan Canselori, Universiti Malaysia Sabah
Coordinate	:	6.03656430270801, 116.11585365309081

Workshop Room:

Room Name	:	D'Sireh
Address	:	Aras 4, Bangunan Canselori, Blok Utara, Bangunan Canselori, Universiti Malaysia Sabah
Coordinate	:	6.033958, 116.11472

Venue Map
(For On-Site Presenters)



1. GALERI MAJLIS
2. BILIK MESYUARAT PUSAT PEMBANGUNAN DAN KECEMERLANGAN AKADEMIK (BM PPKA)
3. BILIK MESYUARAT CEMERLANG (BMC)
4. D'SIREH

Co-funded by the Erasmus+ Programme of the European Union

Presentation
Plenary Speaker 1

Prof. Ir. Ts. Dr. Nor Kamariah Noordin
Universiti Putra Malaysia

UPM Campus Sustainability through Development, Research and Teaching Implementation

Synopsis: United Nation's Sustainable development goals (SDG) have been part of campus core businesses, namely teaching and learning, research and campus development. Universiti Putra Malaysia has embraced SDG in these aspects to ensure that mo one inncampus community is left behind. Elements of SDGs are embedded in our curriculum design and delivery approach. The university also encourage that SDGs are addressed in our research development and execution. UPM has recently embarked on massive solar panel installation on rooftops as part of its initiative towards green energy usage.

Co-funded by the Erasmus+ Programme of the European Union

Presentation
Plenary Speaker 2

Prof. Ir. Ts. Dr. Zainuddin Abd Manan

Chairman, the Energy Committee of Academy of Sciences Malaysia
Universiti Teknologi Malaysia

ASM Energy Consortium (EC) Road-to-Zero

Synopsis: On September 27, 2021, The Honorable PM of Malaysia tabled the 12th Malaysia Plan with a pledge that Malaysia will become a carbon neutral country by 2050 at the earliest. At a time when Malaysia and the world are learning to live with COVID19, such an announcement is a call to action for Malaysia to do its part to avoid a looming global crisis that has been predicted to sink 9 Malaysian cities underwater by 2050, making COVID19 crisis pale by comparison. The current back to back flood disasters of epic proportions and a frequency not seen before by most Malaysians signal that the worst is yet to come sooner than expected. Malaysians need to wake up to the reality that business as usual is a catastrophe in the making; and that the time to act is now.

This lecture highlights the ASM's mission to shape the nation's Net Zero aspiration through ASM-EC Road-2-Zero (R2Z) initiatives aimed at building a resilient society.

Co-funded by the Erasmus+ Programme of the European Union

Presentation
Keynote Speaker 1

Professor Emeritus Dr Helga Kromp-Kolb
Centre for Global Change and Sustainability
University of Natural Resources and Life Sciences Vienna, Austria

Living up to our own expectations. How the Alliance of Sustainable Universities in Austria tries to achieve what it knows it must

Synopsis: University researchers have played a major role in analyzing the grand global challenges, including the transgression of planetary boundaries and the deepening of societal challenges of global dimension. We feel that the time of the ivory tower, when it sufficed for scientists to point out problems and solutions and leave implementation to others, is over. The problems the world is facing are of a complexity that has no simple solution. Continuous interaction of researchers and society is required, as well as a different kind of teaching. The Alliance of Sustainable Universities in Austria is trying to find its way to the necessary transformation: The example we give our students, the way we teach, how we do research and how we can support society in its transformation towards the sustainable development goals. The keynote will reflect on successful and less convincing activities in the hope of triggering fruitful discussions.

Co-funded by the Erasmus+ Programme of the European Union

Presentation
Keynote Speaker 2

Prof. Dr. Johan Lilliestam
Institute for Advanced Sustainability Studies
Energy Transitions and Public Policy, Germany

Policies for complete decarbonisation of the energy system: lessons from Europe and past transitions

Synopsis: I will talk about how transitions can work, drawing on historical cases (e.g. horses to cars), showing that a transition takes more than fixing price incentives and requires policies to support technology development and deployment, infrastructure adaptation and/or expansion, and institutional reform. Only when the three align can a policy-driven transition be successful. I will also draw on experiences and insights regarding ongoing processes in Europe, to draw some general conclusions on policy instrumentation, including what that might mean for non-European regions, such as Malaysia.

LIST OF ABSTRACTS

Topics of interest for submission include, but are not limited to:

1. **Engineering and Application**
2. **Social Sciences and Humanities**
3. **Business & Finance**
4. **Energy & Climate**
5. **Project Management**
6. **Sustainable Green Technologies**
7. **Climate Change and Meteorology**
8. **Information and Communications Technology**

ID No.	Title	Corresponding Author	Organization	Theme
MySUN_ID01	The Potential of Mealworm (*Tenebrio Molitor*) And Field Cricket (*Gryllus Assimilis*) As Protein and Nutrient Sources in Ruminant Feed Production	Husna Yusoff	Universiti Sains Malaysia	Sustainable Green Technology
MySUN_ID02	Sustainability Of the Industry Sector Entrepreneurship. Case Study of European Mountain Area	Brindusa Covaci	Centre For Mountain Economy & Zealandina Agency	Business & Finance
MySUN_ID03	The Trends of Covid 19 On E-Entrepreneurship in The Food Sector: A Case Study of Egypt	Afef Khalil	University Of Tunis Carthage	Business & Finance
MySUN_ID04	Sustainable Development in Higher Education Institutions ‚Äì Academic Advising as A Moderator	Julie Nguyen Thuy Van	Universiti Teknologi Malaysia	Social Sciences and Humanities
MySUN_ID05	Housing Policy and Immigrants	Sarimah Awang	Universiti Tun Abdul Razak Kuala Lumpur Malaysia	Social Sciences and Huminities
MySUN_ID06	Software Based Configuration of A DC Standalone Microgrid for Energy-Deficient Sub-Saharan Institutions of Higher Learning	Ahmed Tijjani Dahiru	Universiti Teknologi Malaysia	Information and Communications Technology
MySUN_ID07	Green Office In UTM, The Way It Works	Norazlina Binti Md. Zaid	Universiti Teknologi Malaysia	Sustainable Green Technologies
MySUN_ID08	Gasifier Development from R & D Initiatives to Prototype and Commercialization Phase	Norazila Othman	Aeronautics Laboratory, School of Mechanical Engineering, Faculty Of Eng. UTM	Engineering and application
MySUN_ID09	Assessing The Readiness of Lecturers to Incorporate Sustainability Practice into Undergraduate Quantity Surveying (Qs) Curriculum	Nasir Rashida Maiturare	Ahmadu Bello University, Zaria Nigeria	Project management
MySUN_ID10	Knowledge Acquisition of Energy Sustainability and Energy Conservation Measures Implementation Using Constructivism Learning Theory	Norzanah Binti Rosmin	Universiti Teknologi Malaysia	Energy & Climate
MySUN_ID11	Integrating Stationary Behavioral Activities with Space Syntax Analysis for Sustainable Design of Ampang Great Street	Sharifah Salwa Syed Mahdzar	Universiti Teknologi Malaysia	Information and Communication Technology
MySUN_ID12	Imperatives And Opportunities in Seafood Security Through Experimental Aquaculture Research	Saleem Mustafa	Universiti Malaysia Sabah	Sustainable Green Technologies
MySUN_ID13	Supporting The Sustainable Growth of Aquaculture Industry Through Nutrition and Feeding	Rossita Shapawi	Universiti Malaysia Sabah	Sustainable Green Technologies
MySUN_ID14	Mapping Of Green Infrastructure and Green Trail Using Multispectral Satellite Data for Sustainable Urban Environment	Syarifuddin Bin Misbari	Universiti Malaysia Pahang	Sustainable Green Technologies

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MySUN_ID15	A Mobile-Based Approach for Climate Change Education	Maslinda Mohd Nadzir	Universiti Utara Malaysia	Information and Communication Technology
MySUN_ID16	The Relationship Between Environment Uncertainty and Firm Performance in Chinese Listed Manufacturing Companies: The Mediating Role of Competitive Strategy	Zhaopu	Faculty Of Business, Economics and Accountancy Of UMS	Business & Finance
MySUN_ID17	The Impact of Selected Subsidy Program on Household Poverty in Rural Area in Sabah	Lina Anak Encharang	Universiti Malaysia Sabah	Social Sciences and Humanities
MySUN_ID18	Innovative Research on Corporate Financial Management in The Era of Big Data	Zhang Jinghua	Universiti Malaysia Sabah	Business and Finance
MySUN_ID19	Factors Affecting Student's Selections on Public University Accommodation in Malaysia	Mohamad Fadhli Bin Rashid	Kolej Tuanku Canselor, Universiti Teknologi Malaysia	Social science
MySUN_ID20	In-Vessel Food Waste Composting: A Preliminary Study on Temperature Distribution	Mohd Al Mussa Bin Ugak	Fakulti Kejuruteraan, Universiti Malaysia Sabah	Sustainable Green Technologies
MySUN_ID21	Factors Affecting the Acceptance Of E-Payment Adoption During the Covid 19 Pandemic: A Conceptual Framework	Waleed Abdulmaged Hammood	Bayan University	Business & Finance
MySUN_ID22	Sustainable Aquatic Resource Management in Mangrove Ecosystem Via Internet of Things Application (MEITA)	Aduwati Sali	Universiti Putra Malaysia	Information and Communications Technology
MySUN_ID23	The Use of Whatsapp as A Learning Tool in Vocabulary Learning	Kasturi Sivabalan	Widad University College	Information and Communications Technology
MySUN_ID24	Adoption Of Green Initiative Among Logistics Service Provider (LSP) In Johor	Siti Zaleha Omain	Universiti Teknologi Malaysia	Sustainable Green Technology
MySUN_ID25	Social Media as An Alternative to Share Sustainability Information	Norhidayah Binti Md.Yunus	Universiti Teknologi Malaysia	Information and Communications Technology
MySUN_ID26	Enhancing Knowledge in Recycling Electronic Waste	Thoo Ai Chin	Universiti Teknologi Malaysia	Sustainable Green Technologies
MySUN_ID27	Sustainable Food Waste Management at Household: Focus on National Cleanliness Policy 2020 And National Strategic Plan for Food Waste Management in Malaysia 2015	Norul Hajar Binti Nordin	Universiti Teknologi Malaysia	Project Management
MySUN_ID28	Transcriptomic Analysis of WRKY Transcription Factor Under Salt Stress in Carica Papaya	Sarannia Thanganathan	Quest International University	Energy and Climate
MySUN_ID29	Morphological Analysis of Malay Town in Adapting Towards Low Carbon City for Sustainability Urban Transition	Syahidah Amni Binti Mohamed	Department Of Landscape Architecture, Universiti Malaysia Kelantan	Project Management
MySUN_ID30	(Micro)Plastics in Wild and Cultivated Shellfish from Pasir Putih Estuary in Johor, Malaysia	Mazni Binti Mat Zin	Universiti Teknologi Malaysia	Energy and Climate
MySUN_ID31	Review The Application of Biomimicry in Architecture as Sustainable Design	Nurul Izzati Bt Othmani	Univeísiti Malaysia Kelantan	Sustainable Gíeen l'echnologies
MySUN_ID32	Membrane Technology for Desalination: Challenges and Future Projections	Wan Syarizawani Binti Wan Chik	Universiti Teknologi Mara (UiTM)	Sustainable Gíeen l'echnologies
MySUN_ID34	Vegetable Waste Composting: Effect of Rice Husk and Chicken Manure Addition	Noorafizah Murshid	Universiti Malaysia Sabah	Energy and Climate
MySUN_ID35	Understanding Sustainable Journalism Practices in Malaysia: Lessons Learned from Tokyo 2020 Olympic Games Sustainability Plan and News Reporting	Awan Binti Ismail	Universiti Utara Malaysia	Social sciences and Humanities
MySUN_ID36	Turbine Concept Development and Compactional Analysis of Floating River and Tidal Turbine	Mohammed Baqer Zaki Yahya Al-Quraishi	Universiti Teknologi Malaysia	Energy and Climate

ID No.	Title	Corresponding Author	Organization	Theme
MySUN_ID37	Sustaining Financial Wellbeing Through Education	Norlida Jaafar	Universiti Teknologi Mara (UiTM)	Business and Finance
MySUN_ID38	University Students' Attitudes & Perspectives on Sustainability in Sarawak	Chelsea Anak Michcal	UNIMAS	Social Sciences and Humanities
MySUN_ID39	The Governance of Shared Values for Organizational Sustainability: The Case Of Universiti Malaysia Pahang	Wan Nazrul Helmy Wan Mohd Zain	Universiti Malaysia Pahang	Project Management
MySUN_ID40	Companies' Motivations and Sustainable Survival in Malaysia	Siti Sarah Binti Alyasa Gan	Universiti Teknologi Mara (UiTM)	Social Sciences and Humanities
MySUN_ID41	Nature-Inspired Learning Space: Embedding Biophilic Design into Physical Learning Environment	Alyani Binti Ismail	Universiti Putra Malaysia	Information and Communications Technology
MySUN_ID42	Cultivating Environmental Awareness to Children of Single Mothers and B40 Communities	Noorzana Binti Khamis	Univeísiti l'eknologi Malaysia	Scoial Sciences & Humanities
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MySUN_ID44	Modeling of flexible piezoelectric generator on sea wave applications: Feasibility study	Ahmad Syafiq Bin Deraman	Universiti Malaysia Pahang	Engineering and Application
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MySUN_ID48	Energy Audit of the Universiti Malaysia Pahang Library as an Approaching the Concept of Green Building	Mohd Nurulakla Mohd Azlan	Universiti Malaysia Pahang	Sustainable Green Technologies
MySUN_ID49	Energy Saving Potential and Measures Through Energy Conservation of Electrical Equipment in Universiti Malaysia Pahang Library	Mohd Nurulakla Mohd Azlan	Universiti Malaysia Pahang	Energy & Climate
MySUN_ID50	A study on determining suitable polymer content of different polymer modified binders via theoretical approach	Nadia Zalikha Saifullizam	Universiti Teknologi Mara (UiTM)	Engineering and application
MySUN_ID51	Recognizing edaphic environment factors exacerbating the establishment growth of urban tree in built environment	Mohd Suhaizan Bin Shamsuddin	Universiti Teknologi Malaysia	Energy and Climate
MySUN_ID52	Logistics service quality (lSQ) impacts on customer satisfaction in e – commerce logistics firms in Malaysia	Muhammad Danish Aiman Mohd Kamal	Universiti Teknologi Malaysia	Business & Finance
MySUN_ID53	Bamboo Avenue: A Living Laboratory approach for sustainable campus community engagement	Sapura Mohamad	Universiti Teknologi Malaysia	Sustainable Green Technologies
MySUN_ID54	Modelling and simulation of fuel cell based multi level inverter	A.S. Veerendra	Universiti Malaysia Pahang	Engineering and Application
MySUN_ID55	The Awareness and Practices of Reduce, Reuse & Recycle (3R) among Students and Staff at Universiti Teknologi Malaysia	Zanariah Jasmani	Universiti Teknologi Malaysia	Social Sciences and Humanities
MySUN_ID56	Development of Advanced Hybrid Ocean Thermal Energy Conversion (OTEC) Intake Piping Filtrations System: First Experimental OTEC Plant of Malaysia	Shamsul Sarip	Universiti Teknologi Malaysia	Sustainable Green Technologies

ID No.	Title	Corresponding Author	Organization	Theme
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MySUN_ID58	Designing an Energy Management System (EMS) in the university's context. A case study from Universiti Utara Malaysia	Md. Abdul Kafi	Universiti Utara Malaysia	Energy & Climate
MySUN_ID59	Preliminary Analysis of Energy Usage at UPM Serdang During Pandemic Covid-19	Nur Luqman Saleh	Universiti Putra Malaysia	Energy and Climate
MySUN_ID60	Production of Natural Food Through Treated Sewage Effluent Aquaponics System	Ngien Su Kong	Universiti Malaya	Sustainable Green Technology
MySUN_ID61	Pray and Protect: Building Pro-Ecological Behaviors Through Eco-Theology: Case Studies Eco-Deen Indonesia and Muhammadiyah Green Cadre	Mansurni Abadi	Universiti Kebangsaan Malaysia	Sustainable Green Technology
MySUN_ID62	Marine debris on the beaches of Sabah	Abentin Estim	Universiti Malaysia Sabah	Energy and Climate
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MySUN_ID64	Characterization of Food Waste and Animal Manure-based Biocompost and its Application on Capsicum Frutescens Cultivation	Norahim Bin Ibrahim	Universiti Teknologi Malaysia	Sustainable Green Technology
MySUN_ID65	MPPT of PV system under diverse partial shading conditions through hybrid crow search artificial bee colony	Dokala J Krishna Kishore	Universiti Malaysia Pahang	Energy & Climate
MySUN_ID66	The Study of Key Determinants and The Mediation Effect of E-Commerce Advantage on Brand Performance	Masran Bin Tamin	Universiti Malaysia Sabah	Business & Finance
MySUN_ID67	Monitoring Campus Sustainability Plan: Integrating Hoshin Kanri X Matrix into Actions	Dr Idayu Mahat	Universiti Utara Malaysia	Sustainable Green Technology
MySUN_ID68	Increasing Community Awareness on Sustainable Living Through Utilization of Service Learning: Lesson from UUM@Community STEM Sustainability Program	Masnita Misiran	Universiti Utara Malaysia	Sustainable Green Technology

Co-funded by the Erasmus+ Programme of the European Union

ABSTRACTS

MYSUN_ID01

The Potential of Mealworm (*Tenebrio Molitor*) and Field Cricket (*Gryllus Assimilis*) as Protein and Nutrient Sources in Ruminant Feed Production

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Abstract: The study was carried out to evaluate the potential of Mealworm (Tenebrio Molitor) and Field Cricket (Gryllus Assimilis) as a rich source of protein content and nutritional value for the production of high-quality ruminant feed in Malaysia. The protein content and nutritional value of two types of insect stages (larvae and pupae of mealworm, nymphs and adults of cricket) were evaluated using standard procedure of proximate analysis. Rearing processes were carried out using two different types of media as insects feed. The results of the study showed that pupae which consumed conventional basic diet (CBD) and alternative feed (AF) recorded the lowest crude protein content at 35.89% and 37.03% respectively. On the other hand, the crude protein content in larvae for both types of media were recorded at 42.66 and 42.9%. A high percentage of protein content was recorded in both processed nymphs and adult crickets, ranging between 51.8% to 56.96%, based on two types of media provided. All cricket groups and pupae recorded a high percentage of crude fibre content, ranging between 10.8-20.8%. Contrarily, both larvae groups recorded the very least crude fibre content at 2.57% (CBD) and 4.14% (AF). In addition, all cricket groups recorded a very high level of ADF content, ranging between 27.47-30.88%. This exhibits a greater benefit as compared to mealworm groups, which contain only 13.3-19.54% of fibre and is found unfit for animal digestibility. Meanwhile, the mealworm groups recorded a high level of ether extract content, ranging between 28.21-39.19%. The cricket groups recorded a relatively lower level of ether extract, ranging between 5.8 to 10.32%. In addition, nutrient content analysis showed that all groups recorded a range of 15.85-15.88MJ/Kg of Metabolizable Energy with 99.05-99.26% of organic matter digestibility (OMD). Likewise, the total digestible nutrient content was calculated. Larvae (CBD) recorded the highest level at 81.06%, followed by Pupae (CBD) at 79.2%, Larvae (AF) at 75.28%, and Pupae (AF) at 22.1%. All cricket groups recorded a range of 60.84-64.75%. The findings of this study suggested that mealworm contains a promising level of crude protein content and is low in crude fibre and ADF, indicating low chitin content. These highly demonstrate that mealworm has the potential to be formulated into high quality animal feed.

Keywords: Insects, cricket, mealworm, ruminant, feed

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MYSUN_ID02

Sustainability of the Industry Sector Entrepreneurship. Case study of European Mountain Area

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Abstract: In the current pandemic context, the industry sector entrepreneurship performs as an important way of the European mountain area sustainability. Creative industries, developed by the Industry 4.0, represent a necessity and not an option. The paper analyse the situation of industry sector – except construction, in European mountain area, proposing some sustainable solutions for this zone. The studied indicator is Population of active enterprises in industry sector. Analysed countries are Austria, Bulgaria, Italy, Portugal, Romania, Slovakia. Data has been taken from Eurostat and simulated in Excel and SPSS, according to ANOVA and forecasting techniques. According to the analysis, the central tendency of the European industry sector in mountain area show a considerably improvement in the last ten years. In order to maintain this trend development and to improve the sustainability of the European mountain area, the public and private governance must invest in economic concentration forms, especially in clusters.

Keywords: European mountain area, entrepreneurship, industry sector, sustainability

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MYSUN_ID03

The Trends of Covid 19 on E-entrepreneurship in the Food Sector: A case study of Egypt

Mohammed El-Amine Abdelli [1], Afef Khalil [2,*], Asma Sghaier [3] and Naima Bentouir [4]

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Abstract: The Sustainable Development Goals are plans for an affluent and sustainable future for everyone. However, the problems of achieving these objectives through entrepreneurship are increasing with the COVID-19 pandemic. In response to pandemic challenges, new technical developments have become the foundation of a new type of E-entrepreneurship. Although a small part of the emerging literature about this subject has been devoted recently to studying E- entrepreneurship, it only provides a partial understanding of these concepts, particularly community involvement during the pandemic in the food industry. This paper aims at E-businesses in the food industry and their entrepreneurial opportunity in Egypt's face epidemics COVID-19. This study identifies and explores the critical aspects of E-entrepreneurship with a case study approach of Egyptian firms. Our paper combines empirical research with a full literature review to define different entrepreneurship types in the digital age, focusing on COVID-19's impact on E-entrepreneurship. Furthermore, this study demonstrates enterprise processes that are focused on community commitment to sustainable business behavior.

Keywords: COVID-19, E-entrepreneurship, Egypt, food sector, sustainable development

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MYSUN_ID04

Sustainable Development in Higher Education Institutions – Academic Advising as a Moderator

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Abstract: The last decade has witnessed a growing public awareness of sustainable development (SD). Reacting to this call, many higher education institutions (HEIs) have embedded sustainable development agenda into their systems including education, research, campus operations, community outreach, assessment, and report. Previous studies revealed that most of HEIs demonstrated their commitment to SD in organizational mission, vision and values by providing financial supports to improve campus environment and staff engagement. However, there was limited effort to implement SD within the internal procedures to ensure its impact on student learning and development outcomes. Additionally, there was limited effort to employ academic advising to enhance students' awareness and actions toward global issues for improving SD competence. This study fulfills this gap by exploring general themes on students and academic advisor's perceptions toward global issues for improving SD competence through academic advising programs. A self-developed interview protocol was used for semi-structured interviews with a total of 20 students and 10 academic advisors purposively selected from two public universities. A qualitative data generated from the interviews were thematically analyzed using NVivo12. The findings from the qualitative study later were used to develop a questionnaire to measure the perceptions of students and academic advisors toward global issues for improving SD competence. A questionnaire was piloted on 30 participants and then was used to survey 400 students randomly selected from four public universities. Rasch model analysis was used to analyze the instrument while Smart PLS 3.0 were used to describe the statistics and test the structural model. Eventually, a structural model for promoting SD competence among students will be evaluated and reported for student learning and development outcomes.

Keywords: Sustainable development, academic advising, higher education

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MYSUN_ID05

Housing Policy and Immigrants

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Abstract: Housing is one of the most basic needs of human other than food, employment and education both by the natives and the immigrants. The generations of immigrants have assimilated custom, norms and culture of the host countries. In most immigrants countries, anti-immigrants still hold to belief the immigrants are outsiders and taking up most of the natives' rights and benefits. In some countries, the immigrants are treated unequally to ensure interest of the locals is protected. The immigrants' long-generation residing in Brunei have issues of accessibility in terms of homeownership. The issues faced by the immigrants might derive either from the society in the host country or the institutional framework or both. This group of community has limited empirical study and received less scholarly attention in Asian region in particular. Within this context, this study focusses on immigrants' homeownership in the host country. This study aims to fill the research gap. The objective of the study is to determine the relationship between housing policy and homeownership of the immigrants. Primary method using survey questionnaires was explored for data collection in the study. Findings suggest that there is a significant relationship between housing policy and homeownership of the immigrants.

Keywords: Brunei, homeownership, housing policy, immigrants, generations

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MYSUN_ID06

Software Based Configuration of a DC Standalone Microgrid for Energy-deficient Sub-Saharan African Institutions of Higher Learning

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Abstract: Global energy transition to renewable resources increases fossil fuel price volatility that deepen energy crisis. Development of renewable energy based distributed systems such as the microgrids were embarked as emerging technology solutions. Objectives of the new energy technologies include energy cost, supply reliability and emission control. Several methods were used in the design of microgrids operating in both standalone and grid-interactive modes. Methods such as the gradient-decent and the nature-inspired metaheuristics require expertise in microgrid optimizations and design. Such expertise may not be common to sub-Saharan Africa, where deficient energy supply system amidst free and inexhaustible renewable resource persists. This paper proposed a microgrid configuration for sub-Saharan African climates using HOMER. The proposed method as a computer software method is used for simplicity, accuracy and versatility. A load profile derived using load estimation method based on surveyed 6 kW demands and used by the software for optimal planning of a DC microgrid for institutional academic offices. The proposed photovoltaic/battery microgrid's 10 kW optimal capacity was feasible with the net present cost of $16,500 and 0.415 $/kWh levelized cost of energy in a 30-year long analysis. The 99.95% availability indicates the microgrid's greenhouse gas emission reduced to 2500 tons/year. The HOMER optimization tool requires little expertise for future modifications of the DC system into either AC or hybrid system, which can extensively be put to laboratories and workshop applications.

Keywords: Renewable energy, microgrid, optimizations, institutions of higher learning, Sub-Saharan Africa, cost of energy

Co-funded by the Erasmus+ Programme of the European Union

MYSUN_ID07

Green Office in UTM, The Way It Works

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Abstract: The term Green Office refers to an environmental management system that leads to reducing carbon footprints at our workplace, and increasing the usage of natural resources sustainably. The goal is to create a healthier working environment, reduce pollution and reduce energy consumption. In UTM, Green Office are organised by a group of people known as Green Managers and Coordinators, appointed by the University across different and all departments. They constitute a Green Office Committee led by the Registrar Department aiming at carrying out green initiatives in a synergic manner and ensuring that the University's community experience a sustainable campus life. This is in line with the University's strategic plan as construed in the UTM's Envision 2025. By and large, almost all of our moves are inclined towards a greener workplace and surrounding, in our effort to encourage green practices and to educate the people of UTM the importance of conserving the natural resources in order to preserve the earth that we live in for our future generations. Our Green initiatives are also supported by a think tank group who work out a strategic plan to coordinate or initiate programmes on Health, Well Being and Safety.

Keywords: Green Office, Health, Well Being, Envision; Educate

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MYSUN_ID08

Gasifier Development from R & D Initiatives to Prototype and Commercialization Phase

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Abstract: The gasification process of agricultural waste is an alternative technology based on the highly increased demand for energy usage in rapid social development. In addition, the process also called carbonization refers to the de-volatilization of organic feedstock to yield gas and char. The process supplied low oxygen than is needed in completing the combustion of the fuel. Gasification occurs at temperatures between 600-degree Celcius to 1500-degree Celcius and yet produces a low to medium energy gas depending upon the process type and operating conditions. It is a valuable gas called synthesis gas (or syngas) in terms of energy content, which can be used for various applications such as for cooking gas and transportation industry especially aviation industry that suggest exploring for the sustainable aviation fuel (SAF). Syngas can be burned directly, used as a fuel for gas engines and gas turbines, converted to clean diesel fuel through the Fischer-Tropsch process or potentially used in the production of methanol and hydrogen. Syngas is also described to be alternative energy due to its environmentally friendly and clean fuel characteristics. The aim of this article to show from the gasification process to the experiment in laboratory, one of the novel technologies is introduced called swirl fixed bed gasifier (SiFBEG) is innovation product technology purposely used to generate syngas. This is a type of gasification system which are consists with cylindrical reactor as fuel feeding unit, a gas cooling and cleaning system included an ash removal unit and gas outlet to ignited. To sustain the even flow, the air entering from tangential pipe into reactor must be turn around and uniformity in term of interaction between fuel particle and oxidising agents. In first phase development, the fixed bed gasifier is designed with axial flow only, which is air entering the reactor directly from a single inlet. Additionally, the operating with high carbon conversion, long solid residence time, low ash carries over and low gas velocity. This product capable to combust the multi-biomass waste with higher heating value (HHV) of feedstock ranging from 17.3 MJ/kg to 22.3 MJ/kg. The gas velocity can be increased to high values with little elutriation and vertical mixing many times faster than lateral mixing. In second phase, novel swirl fixed bed gasifier was introduced by integrating the device of swirl to enhance the flow inside the chamber to evenly the flame and increase the temperature effectively. As a results, the syngas production by using palm biomass as feedstock consists of about 40% carbon monoxide (CO) and 25% to 30% of hydrogen (H2) and up to 5% methane (CH4) as a combustible gas with provide more energy burning of the biomass itself. This technology diverse by using variety of the feedstock such as wood waste, coconut shell and empty fruit bunch. It gives significant results for the gas emissions and syngas production. Therefore, the significant contribution is to enhance the energy efficiency and reducing the gas emissions from Carbon Monoxide, Carbon dioxide and sulphur for three key sectors industrial, commercial, and domestic. This paper also highlights the R & D initiatives and prototyping product for commercialization in response to protecting and restoring nature is essential to reduce emissions and adapt to a warmer world.

Keywords: Agricultural waste, biomass, gasification, gas emissions, swirl fixed bed gasifier

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MYSUN_ID09

Assessing the Readiness of Lecturers to Incorporate Sustainability Practice into Undergraduate Quantity Surveying (QS) Curriculum

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Abstract: The importance of Sustainability Practice (SP) cannot be overemphasized if the world is aware of it. It is paramount to ensure that our environment is a safe place for us and for the upcoming generation. One way to ensure that is by the construction of environmentally friendly infrastructure. For that, the construction industry needs professionals that are environmentally sensitive to sustain the built environment. The continuous rise in environmental degradation as a result of various construction activities makes this necessary. One way to achieve this is by early awareness of the concept by construction professionals which can be created at their early carrier stage (A level). This study assessed the readiness of lecturers of the Quantity Surveying (QS) discipline to the incorporation of Sustainability Practice into the undergraduate Quantity Surveying curriculum. The study adopted the Quantitative research approach and questionnaires were administered to the respondents through convenience sampling. The targeted population were QS lecturers at tertiary institutions i.e., universities and polytechnics within Kaduna and Kano that offer Quantity Surveying program. A well-structured close-ended questionnaire was issued out to 151 lecturers of QS. A total of 83 usable responses were analyzed using the descriptive analysis of percentages, mean and standard deviations. The study revealed that lecturers and departments of Quantity Surveying in Nigeria are ready for the incorporation of Sustainability Practice into the undergraduate curriculum as this will aid in producing Quantity Surveyors with profound knowledge in tackling environmental challenges.

Keywords: Sustainability Practice (SP), Quantity Surveying (QS), built environment, construction professionals

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MYSUN_ID10

Knowledge Acquisition of Energy Sustainability and Energy Conservation Measures Implementation using Constructivism Learning Theory

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Abstract: This paper presents a specific methodology for the knowledge acquisition of energy sustainability and energy conservation measures (ECM) implementation using Constructivism learning theory. To help students aware on the significant of energy sustainability and exposing them to the implementation of energy conservation measures in residential, commercial and industrial sectors, Five "E" Constructivism Model learning theory was considered. This effort has been imposed for a subject named SKEE4663 Electricity for Sustainable Energy, in School of Electrical Engineering, Universiti Teknologi Malaysia (UTM). During the learning process, it has been observed that the knowledge acquisition can be gained dynamically constant using this method, whereby the subject contents and the implementation proposal of ECMs implementation on the selected industrial businesses can be demonstrated in phases using project-based learning concept. Using the Five "E" Constructivism Model implementation, students have been found able to propose adequate ECM implementation proposal for industrial sectors in 4-week time.

Keywords: Knowledge acquisition, energy sustainability, energy conservation measure, constructivism learning theory HOME R Software, Five E model

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MYSUN_ID11

Integrating Stationary Behavioral Activities with Space Syntax Analysis for Sustainable Design of Ampang Great Street

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Abstract: This study aims to provide a sustainable design framework for the provision of use of streets towards making Jalan Ampang as a Great Street of Kuala Lumpur to becoming as a National Street of Malaysia. The study posed interviews and questionnaires to experts and stakeholders discussing the issue emphasizing and strengthening on the connectivity of Jalan Ampang with the surrounding structure of the community in the vicinity. The disappearance of 'linkage' between Jalan Ampang and Kampong Bharu that is separated by the strong edge of AKLEH and the existence issues created by the authority as they have been trying to widen the roads and streets has become the trigger to this year's theme. The ambitious decisions began to split the Kampong Bharu with new proposed infrastructure, which rather than creating urban connectivity, segregation between districts took place. However, with the appearance of Saloma Link, the game has changed. The process in making Ampang Great Street looks to extend the discourse on the extent to which the connectivity can be further acknowledged and be enhanced for the sustainability of the city fabric as a whole. The connectivity should take account of the social, physical and spatial network characteristic of Jalan Ampang and its vicinity, especially the area of the one and only urban village of Kuala Lumpur. Integration of static activities and space syntax network analysis realizes the potential approaches that can be imposed in creating and enhancing community link between districts focusing on Jalan Ampang and Kampong Bharu. It is hoping the study would be able to provide a basic guideline towards a more community engaging future urban development of Kuala Lumpur.

Keywords: Space syntax, sustainability, community, great street, stationary activities

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MYSUN_ID12

Imperatives and Opportunities in Seafood Security through Experimental Aquaculture Research

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Abstract: University campuses are among the most relevant institutions for aligning sustainability perspectives with global concerns. Their leverage as education provider and resources to generate knowledge are ideal conditions for bringing about transition in the society towards sustainability in all its dimensions. In pursuance of this goal, efforts are being made towards navigating through generalities to focus on particularities for meaningful outcomes. Seafood security is among the topics receiving priority, and an aspect that is being given attention is decarbonizing production systems for climate change mitigation as well as adaptation. Food systems are known to be one of the main drivers for global greenhouse gas, accounting for about 27% of the total anthropogenic emissions. Aquaculture shares <0.5 of this value and offers scope for further reduction. Because the contribution of seafood to global food security is increasing, it is necessary to focus on further reducing its carbon footprint. This requires consideration of two aspects: 1) Production and 2) Product life cycle. The former can be achieved in multiple ways including aquaponics, species selection, sustainable aquaculture feed, system efficiency, use of renewal energy and automation using IR4.0 technologies. The latter comprises production, processing, distribution, and waste management. Currently, our research initiatives are focused on production systems. A synthesis of scientific data published by several authors reveals that less than 48 million km^2 of the ocean provides suitable conditions for farming of seaweeds and a fraction (0.001%) of this area can offset carbon emissions of the entire aquaculture sector. Some of the technologies developed on land-based aquaculture systems can be adapted to marine farming. Extension of aquaponics into sea-based integrated multi-trophic aquaculture system is a green technology showcase of this effort and can significantly contribute to efforts that are being made for increasing edible food supply from sea by almost 75% by 2050.

Keyword: Food security, sustainable aquaculture, carbon footprint, green technology, transformations, climate change

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MYSUN_ID13

Supporting the Sustainable Growth of Aquaculture Industry through Nutrition and Feeding

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Abstract: Fish nutrition and feeding play significant roles in the sustainable development of aquaculture industry. Aquaculture sector especially the marine fish farming is still heavily relying on fish-based feeds which is not a sustainable practice especially in a long run. Fortunately, increasing awareness on the needs to reduce the dependency on fish-based feeds is observed in the recent years among the industry players. Apart from this, aquaculture farm operators should also understand the basic principles of fish nutrition and feeding, which includes the understanding of the nutrient requirements of cultured species, their feeding habits and behavior, and the ability of fish to digest and utilize essential nutrients. Formulated aquafeeds are normally based on fish meal and fish oil as dietary source of protein and lipid, respectively. It was projected that in 2040, the demand for fishmeal and fish oil will exceed supply. This requires serious attention from the industry to find the suitable alternative ingredients. Alternative feed ingredients need to meet a number of criteria before they can be commercially utilized. These criteria include (i) nutritionally adequate ii) digestible iii) does not significantly impair fish growth performance or health status, (iv) palatable to the target aquaculture species, (v) scalable to commercial levels, (vi) have lower environmental impacts vii) competitive price. Several alternative ingredients have been evaluated with promising findings, but further studies are still warranted to understand their full potential. There should be a continuous investigation on methods to improve the quality of raw materials, reduce feed cost, and improve feeding management in the farm to support the sustainable growth of the industry. The findings from studies related to sustainable aquafeed development conducted at the Borneo Marine Research Institute, Universiti Malaysia Sabah will also be highlighted in this presentation.

Keywords: Sustainable aquaculture, green aquaculture, fish nutrition, sustainable aquafeeds

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MYSUN_ID14

Mapping of Green Infrastructure and Green Trail Using Multispectral Satellite Data for Sustainable Urban Environment

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Abstract: Nowadays, most people gravitate toward urban areas. The population has increased at an alarming rate, placing a demand on metropolitan regions. Fragmentation of green spaces due to rapid urbanisation led to critical demand for a good quality of liveability in high populated areas. The lack of public green infrastructure and located in non-suitable areas causes prolonged stress of good living quality between demands of population healthiness and sustainable city development. Multi-spectral satellite images are essentially used to (i) generate green corridor (GC) mapping of Kuantan, Pahang; (ii) geo-analyse the green infrastructure (GI) demand with the existing land cover data and; (iii) delineate green trail (GT) network in high populated city. Site suitability analysis has been carried out on a series of optical multispectral satellites images with 30m and 10m spatial resolution of Landsat and Sentinel-2 images, respectively which integrated with GIS tools to propose development of green infrastructure at the most critical area, along with delineation of green trail network in Kuantan city. A total of eight new proposed areas for GI development have been identified within the Kuantan area. As the continuous initiative to support sustainable cities, a mapping of 5 GT (3 long GTs, 2 short GTs) has successfully remarked that Kuantan is one of the best cities in Malaysia to emulate Putrajaya and Iskandar city in Johor towards smart and sustainable city planning. This study supports the agenda of SDG15: 'Life on Land'; where green corridors serve to reinforce the biological connectivity of green spaces and to prevent patch fragmentation in urban environments. Using the satellite-based approach, there is a high opportunity to expand and establish a green trail and green infrastructure initiatives in Kuantan to attain a sustainable city.

Keywords: Green corridor, green trail, satellite, sustainable city

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MYSUN_ID15

A Mobile-Based Approach for Climate Change Education

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Abstract: Global warming varies according to specific continents and regions, and climate change is not a small matter that can be ignored. Climate change impacts the environment and influences social life and the economy. If no mitigation actions are applied, the Earth's natural ecosystems will not adapt to the effects of climate change. Furthermore, there is a lack of climate change awareness among Malaysians. There is a need to educate Malaysians to enhance climate change awareness. Even though there are many digital resources on climate change education, few mobile applications are on climate change awareness. Therefore, this study proposes a mobile application prototype for climate change education. A rapid application development (RAD) methodology is used to develop the prototype. Thirty higher education students participate in the testing. As a result, most participants were satisfied with the prototype because of its ease of use. The prototype also provides relevant information and activities appropriate for climate change education.

Keywords: Climate change, mobile application, education, mobile learning

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MYSUN_ID16

The Relationship between Environment Uncertainty and Firm Performance in Chinese Listed Manufacturing Companies: The Mediating Role of Competitive Strategy

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Abstract: The purpose of this research is to investigate the mediating effect of competitive strategy on the relationship between environmental uncertainty and firm performance in Chinese listed manufacturing companies. The data of this research are all derived from the public financial statement of listed companies. The panel data is used to calculate the environmental uncertainty index to detect the environmental uncertainty of the listed company. In addition, the type of employed competitive strategy is evaluated by text analysis from the financial statement of listed companies. Since the data sources of the two variables of competitive strategy and environmental uncertainty are objective data, the dependent variable of this research, the firm performance, also mainly comes from the financial performance shown in the public financial statement. After clarifying the mediating effect of competitive strategy, this research divides the stages of the corporate life cycle of listed companies in Chinese manufacturing companies based on the cash flow pattern. Chosen growth period companies and maturity companies to further investigate the moderation effect of corporate life cycle on the relationship between environment uncertainty and competitive strategy.

Keywords: Environmental, employed competitive strategy, life cycle

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MYSUN_ID17

The Impact of Selected Subsidy Program on Household Poverty in Rural Area in Sabah

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Abstract: This study examined the impact of three different categories of subsidy on poverty in eight rural districts in Sabah in 2009 until 2016. The three categories of subsidy are selected consumer items (sugar, wheat flour, cooking oil, and rice), petrol and diesel, and liquefied petroleum gas (LPG) subsidy. Poverty is a dependent variable, meanwhile selected consumer items, petrol and diesel, and liquefied petroleum gas (LPG) subsidies are used as independent variables. Random effect is chosen to examine the stationary of the data. From the test it was found that dependent variable has a positive relationship with independent variables, which the increase of subsidies will increase the number of poverties in households. There are many other factors that contribute to the positive relationship between poverty and subsidy. The delivery system of subsidies in rural areas is the main issue in this subsidy program. Leakages and middlemen are the main issue in the delivery system.

Keywords: Poverty, subsidy, rural area

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MYSUN_ID18

Innovative Research on Corporate Financial Management in the Era of Big Data

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Abstract: The advent of the era of big data has not only changed the way people live, but also optimized the way businesses work. Based on this, this paper analyzes the development opportunities and challenges facing enterprise financial management in the era of big data, discusses the problems existing in enterprise financial management, and proposes innovative approaches to enterprise financial management from multiple perspectives such as model innovation, technological innovation, and accounting innovation, to provide reference for people who pay attention to this topic. In the management of enterprises, financial management is the top priority, which is directly related to whether enterprises can achieve stable development. In the era of big data, data assets have become important assets of enterprises, which puts forward higher requirements for financial management, and it is necessary to promote the construction of financial informatization while realizing efficient data management and promoting the comprehensive competitiveness of enterprises. Therefore, we should also grasp the development trend of the times to promote the innovation of enterprise.

Keywords: Corporate Financial Management, Big Data, innovation

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MYSUN_ID19

Factors Affecting Student's Selections on Public University Accommodation in Malaysia

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Abstract: Student accommodation is the basic facilities provided by higher education institutions (HEIs) to help students expand their intellectual abilities that provide students with a comfortable and practical atmosphere conducive to learning and academic success. In Malaysia, student accommodation in HEIs has been a persistent concern as enrolment exceeds available student housing capacity. Many on-campus housing strategic plans include facilities that satisfy the needs of today's students but not those of tomorrow. Hence, it can be inferred that there is an increasing demand for HEIs to update and expand their existing residential colleges in order to provide students with decent campus living experiences. With this in mind, UTM plans to transform their residential colleges towards more comfortable, conducive, high quality, safe, and harmonious through the implementation in UTM enVision 2025. Therefore, this paper aims to identify factors of student preferences on their accommodation selection in public university especially in Universiti Teknologi Malaysia (UTM). The methodology undertaken in this study was based on a quantitative approach to discover the variation of factors affecting student's accommodation selections. Two residential colleges in UTM were selected for this study based on their location and different types of student's accommodation. Based on cluster sampling, 30 respondents were selected from these residential colleges to participate in the survey. The factors used in this research comprised three attributes namely economic, social, and physical. The findings highlighted that factor affecting student's accommodation selections were residential college location's proximity and accessibility towards faculty, food arcade, local shop, and sport facility; rental fee; privacy and safety; type of room; and physical amenities provisions such as vehicle parking space, pedestrian walkway, and sport facility. Therefore, in order to understand how students, perceive a good accommodation setting, HEIs especially UTM must first comprehend their student's accommodation selections in order to provide decent campus living experiences.

Keywords: Student selection, accommodation, Higher Education Institutions (HEIs), residential college, campus living

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MYSUN_ID20

In-vessel Food Waste Composting: A Preliminary Study on Temperature Distribution

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Abstract: Composting is a controlled biological process that depends on the temperature developed inside the compost mixture. Having a thermophilic phase (>45 ° C) could enhance the food waste compost mixture degradation. The aim of this study is to investigate the temperature distribution during food waste and dry leaves composting with the addition of Sabah ragi. The composting process was conducted in two trials using an in-vessel passive aerated bioreactor with turning every 3 days for 40 days. During the composting process, the temperature distributions from three different depths (top, middle, and bottom) were evaluated. The result showed that a higher temperature was achieved in the middle, followed by the bottom and top during the active composting time. Overall, the highest average compost temperatures of 54.2 °C and 46.7 °C were recorded on days 7 and 10 of Trials 1 and 2, respectively. In addition, in both trials, the thermophilic phase was continuously achieved for a period of 4 days.

Keywords: Composting, ragi, passive aeration, soil conditioner, in-vessel

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MYSUN_ID21

Factors Affecting the Acceptance of E-payment Adoption during the Covid 19 Pandemic: A Conceptual Framework

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Abstract: Electronic payments (e-payments) have been in high demand and development in recent years, particularly during the COVID-19 epidemic. E-payments assist to inhibit the transmission of the COVID-19 virus by facilitating social distance. Various studies have looked at the goals and intentions of users. The goal of this research is to create a conceptual model that combines the Technology Acceptance Model (TAM) with the Health Belief Model (HBM). The purpose is to find out what factors impact people's intention to accept e-payments. The TAM and HBM models are used in this research. This research adds to the body of knowledge on the influence of perceived usefulness and perceived ease of use on e-payment adoption. This study presents a proposed framework that has yet to be empirically tested. As a result, empirical investigations are required to determine the fitness of the suggested model. Bankers, Managers, and practitioners can use this framework to investigate their clients' intention to accept e-payment services.

Keywords: Streamflow, MNLCP, RRI, Bago Region

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MYSUN_ID22

Sustainable Aquatic Resource Management in Mangrove Ecosystem via Internet of Things Application (MEITA)

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Abstract: Mangrove forest provides a sustainable fishery resource as it serves as a habitat for various aquatic species. It also offers ecosystem services such as carbon storage, coastal protection, water quality protection and economic resource for local communities. Unfortunately, 35% loss of mangroves globally has been recorded for the past 20 years, threatened by unsustainable activities, specifically aquaculture, urban development, illegal waste disposal and indirect threats such as climate change, sea level rise, and others. Following such situation, vast technologies have been developed to monitor an ecosystem and enforce sustainability. Accordingly, Internet of Things (IoT) system has been deployed on selected site, Mangrove Recreational Park Sijangkang Village, Selangor to monitor the mangrove forest growth and its environment. Some of the IoT sensors deployed include environmental sensors, temperature and humidity sensors, and water level sensors. These sensors enable remote environmental data collection which reduce the time for field sampling and logistic costs, and also minimize the risk of physical accidents. Real-time data from the sensors are projected on the dashboard which can be accessed through any user interface. The real-time data enable the remote monitoring of mangrove forest and facilitate decision makers to counteract any danger or threat such as flash flood, storm surges, or even pollutions. Sustainable use of mangrove forest resources can amplify the contribution of its biodiversity and the habitat itself to the economic development of developing countries.

Keywords: Sustainable mangrove, internet of things, environmental monitoring, sustainable aquatic resource

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MYSUN_ID23

The Use of WhatsApp as a Learning Tool in Vocabulary Learning

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Abstract: Smartphone use has become an essential tool in learning English. In fact, smartphones are popular among students too. This is because they spend a significant amount of their free time browsing through the social network applications. Social network applications help instructors to embrace digital teaching methods, thus, enhance the process of teaching English language. An extensive review of previous studies showed that Malaysian students' English proficiency levels are decreasing due to limited vocabulary knowledge. Hence, the present study examines the use of WhatsApp, via smartphone as a learning tool to assist university students improve their vocabulary knowledge. A quasi-experimental research design was employed to collect data through pre and post vocabulary tests. The paired sample t-test results recorded a significant difference) in the total mean score of the post-test. Therefore, it has been indicated that WhatsApp is an effective learning tool to assist university students to improve their vocabulary knowledge. Based on the findings, WhatsApp is a useful platform for students as it eases the learning and discussion both inside and outside of the classroom. In view of this, the versatility of WhatsApp should be explored further to help English instructors and students to acquire the language conveniently and effectively.

Keywords: Smartphone, whatsapp, social network, learning tool, vocabulary

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MYSUN_ID24

Adoption of Green Initiative Among Logistics Service Provider (LSP) in Johor

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Abstract: Green initiative logistics and supply chain has been recognized as one of the organization strategies used to achieve the competitive environment by reducing waste resources and improving ecological efficiency. This study aims to determine the level of adoption of green initiatives and resources among the logistics service provider (LSP) organizations in Johor. This study used a structured questionnaire derived from the literature review and the sample size is based on 35 respondents in the logistic service provider (LSP) organizations in Johor. The results showed that green initiative may help the supply chain and logistics manager or executive to build the better strategies to implement the green initiative for their organization in order to reduce the barriers that organization faced as well as to maintain environmental sustainability.

Keywords: Green initiatives, green supply chain, logistics, logistics service provider

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MYSUN_ID25

Social Media as An Alternative to Share Sustainability Information

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Abstract: The fourth industrial revolution (4.0) offers an exciting offer to the world of education in the accessibility of diversity and rapid information sharing. Social media is one of the important elements in 21st century learning. Social media is also used as a medium for information sharing, exchanging opinions and an interactive learning reference source for students. Social media has also opened up the world of communication more widely without borders and this method can save time. Social media is able to give information quickly. This has led to a major phenomenon of information dissemination that is plaguing the world today. Therefore, the use of social media is very suitable to be used as an alternative to share information related to sustainability. Discussions and sharing on sustainability focused on the importance of planting the trees were conducted online via Facebook Live on the KRP Riverdale Project Facebook page. The purpose of this sharing is to raise awareness on environmental sustainability among the community. The webinar also encourages the community to have healthy lifestyle. In addition, webinar participants also need to fill out a questionnaire provided after they participate in the webinar conducted. This questionnaire was conducted in line with the Malaysian Greening Program through the 100 Million Tree Planting Campaign which has just started on 2021 to 2025. Feedback on the webinar program is that all participants (100%) have answered yes and they are very interested to participate in this program again in the future. In conclusion, the program received a very good response. In addition, a total of 60 participants among the public participated in the physical tree planting program after the Program.

Keywords: Fourth industrial revolution, social media, sustainability information

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MYSUN_ID26

Enhancing Knowledge in Recycling Electronic Waste

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Abstract: E-waste is electrical and electronic appliances that are broken, non-working or old/obsolete. Electronic waste or e-waste includes television, personal/ desktop computer, air conditioner, washing machine and refrigerator. Technology advancement is one of the main factors that contributes to e-waste. Improper disposal of e-wastes will pose serious environmental risks to the soil, water and air quality. This study aims to educate consumers on e-waste, its negative effects and benefits to environment, and guides to recycle e-waste using a pre-and-post survey. A total of 150 respondents participated in the survey. Most of them were female, student, aged between 25 and 30 years old and obtained a bachelor's degree. From the findings, the consumers had increased more than 10% knowledge about e-waste. The social media platforms have helped to raise the consumers' awareness and knowledge of e-waste. Clearly, creating a e-waste action plan is crucial for consumers to join to combat unsustainable consumption practices and develop solutions to create greener communities.

Keywords: Electronic waste, recycling, sustainability

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MYSUN_ID27

Sustainable Food Waste Management at Household: Focus on National Cleanliness Policy 2020 and National Strategic Plan for Food Waste Management in Malaysia

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Abstract: One third of food produced for human consumption is lost or wasted globally. Food is lost or wasted throughout the supply chain, from initial production down to final household consumption. In Malaysia, the increasing number of municipal solid waste management has become the biggest environmental problem. National Strategic Plan for Food Waste Management in Malaysia 2020, Malaysia has implemented new policy including all sectors namely National Cleanliness Policy 2020. Therefore, this paper tends to use this plan for household as one of indicator to overcome food waste management problem that happen at household in Malaysia. Sustainable food waste management is tangible when the generation of food waste and harmful substances is minimized, recycled by using avoidable food or leftover to make new meal and disposal waste is minimized in order to preserve resources for the future. Finally, the results potentially provide with better understanding of the enforcement and highlight the important point in term of household food waste management as guideline for food waste generator.

Keywords: Household food waste, sustainable food waste management

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MYSUN_ID28

Transcriptomic Analysis of WRKY Transcription Factor under Salt Stress in Carica papaya

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Abstract: Carica papaya from the family caricaceae is a significantly important fruit due to its high nutritive and medicinal properties. Being as a tropical plant, papaya is highly susceptible to abiotic stresses. Many studies have been done to develop salt-tolerant plants in rice, maize, tobacco and so on. However, limited studies have been done on the function of WRKY protein under salt stress in papaya. WRKT TF is one of the vital TFs expressed in plants during salt stress. Several transcriptomic study on papaya have focused on the analysis of fruit ripening, cold induces sex reversal, drought stress, and expression analysis in PRSV resistant 'SunUp' papaya. However, the expression analysis of papaya under salt stress remains scare. Therefore, this study aims to study the expression changes of WRKY genes in Hong Kong papaya variety. The preliminary Illumina RNA-seq analysis identified about 8458 differentially expressed genes (DEGs) in response to salt stress. About 26 and 4 WRKY were simultaneously up-regulated or down-regulated, respectively. Go enrichment analysis revealed that most of the process related to molecular functions are up-regulated whereas cellular component related process were down-regulated under salt stress. Further analysis needed on the RNA-seq data to study on how the DEGs response in the physiological and molecular mechanism. The finding of this study may provide an insight on the expression pattern of WRKYs under salt stress and could possibly contribute to the development of salt-tolerant papaya plant.

Keywords: Carica papaya, WRKY, salt stress, transcriptomic

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MYSUN_ID29

Morphological Analysis of Malay Town in Adapting Towards Low Carbon City for Sustainability Urban Transition

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Abstract: As our immediate knowledge on the morphological process of Malay town is basically in 'visual-form', it is perhaps explicable that the destruction of traditional urban form centered its debates on the vital need on the identification of the organizational structure and patterns of urban form throughout its evolutionary process. However, analyzing the particular kind of processes requires a comprehensive understanding in each hierarchical level of urban form; which therefore posed a greater challenge in order to excerpt and comprehend the organic growth pattern-development of Malay town. Such challenges become more perplexing in facing the challenges towards sustainability urban transitions for Low Carbon Cities initiatives. Such transition urgently requires a shift thinking in terms of reshaping the layout, function as well as the management of the towns and cities. This paper proposes a qualitative review to investigate the morphological process of Malay town in an attempt to understand how the morphological structure of the town were configured in a hierarchical system to provide an integral reflection on the spatial response of the Malay towns and cities in adapting to low carbon cities. Aided with geographical evolution of mapping analysis on the spatial structure and patterns of Malay towns, the findings unveiled the inherent intrinsic of morphological processes central around the spatial structure of Kota. These processes were clearly noticeable in the formation and transformation of Kota that formed as a territorial base in each hierarchical level of morphological structure of the town. The delineation of Kota into Dalam Kota and Luar Kota also able to depict the boundary matrix of Malay town which indeed vital to be preserved. The understanding and delineation of the systematic morphological analysis process aid in providing a clear and responsive strategy in managing the changing process of Malay town which indeed requires a better integration of urban design with climate and energy policies to ensure a sustainability transition for resilient communities and territories in response to global phenomenon of climate change.

Keywords: Urban morphology, Malay town, morphogenesis process, low carbon cities, sustainability

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MYSUN_ID30

(Micro)Plastics in Wild and Cultivated Shellfish from Pasir Putih Estuary in Johor, Malaysia

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Abstract: The mismanaged plastic waste entering the aquatic environment in all forms and sizes progressively fragmented into tiny plastic known as microplastics (MPs) with a diameter of less than 5mm. The tiny size of MPs enables to be easily ingested by aquatic organisms and accumulate inside their tissues. The prevalence of MPs in mussels and their habitat is still being debated as whether it is the primary contributor from anthropogenic activities in the surrounding environment. In this study, the presence of microplastics (MPs) in wild and culture mussels was investigated, which include physical features to compare microplastics ingestion depending on mood of living from Pasir Putih estuary in Johor Malaysia. Mussels were selected as indicator organisms because of their ability to consume environment pollutant and towards a better understanding of their safety and security as a food source. A number of specimens were collected from 2 sampling stations at the Pasir Putih estuary. The extracted soft tissues were digested with 10% KOH solution and the density was separated using NaCl solution. The observation of microplastics by using Stereo microscope with my-solution premium (IMT Cam3) software with 40x-45x magnification. Attenuated Total Reflection (ATR) spectroscopy was used to verify microplastics. Microplastics in *Perna Veridis* samples obtained from wild and culture sites were 1.94 and 2.33 items/individual, respectively. Meanwhile, for the abundance of microplastics by weight was 0.44 items/g (wild) and 0.40 items/g (cultured). ATR spectroscopy revealed a positive contamination of microplastics at both sites, with 5 different kinds of plastics identified. The prominence of MPs revealed in mussels not only affects health and ecological services supplied by bivalves, but also presents a pathway for human exposure via a dietary intake, resulting in health issues.

Keywords: *Perna viridis,* aquaculture, seafood, human health, microplastic uptake

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MYSUN_ID31

Review The Application of Biomimicry in Architecture as Sustainable Design

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Abstract: In the search of sustainable building design and technology Biomimicry is an alternative solution. The inspiration from nature is driving force in architecture, resulting in majestic works of architecture. Biomimicry is about solution refined and developed by nature. For any sustainable building design, need to consider structural efficiency, water efficiency, zero-waste systems, thermal environment, and energy supply. Biomimicry is about solutions. Biological organisms refined and developed by natural selection over a billion-year research and development period can be seen as embodying technologies, functions, and systems that are solutions to the problem of surviving in nature. These problems are often equivalent to those encountered by humans as we seek new ways to design and live sustainably, and in many cases have solved the same problems with a far greater economy of means. This paper aims at revealing how Biomimicry architecture can become one the method to achieve sustainability. Exploring the application of Biomimicry in current architectural design, resulting in a set of design approaches, levels and principles. This research investigates the application of biomimicry level in architecture design by previous research and five case study were selected for analytical study to understand and analyses the different techniques and strategies applied in building design and how they have responded successfully to achieve efficiency in building design for sustainable. The findings of this research suggest that the designers need to explore and learn from the nature how can biomimicry can be applying on design to produce more sustainable buildings. In addition, biomimicry is a still new in this field so there is need more knowledge and information from the nature that can provide us a solution for environmental problems.

Keywords: sustainable building design, technology biomimicry, structural efficiency

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MYSUN_ID32

Membrane Technology for Desalination: Challenges and Future Projections

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Abstract: The establishment of Sustainable Development Goals ensures the availability and long-term management of water and sanitation for all, as well as aids in balancing competing water demands across society and the economy. SDGs targets that are oriented include Safe and affordable drinking water, access to sanitation and hygiene, improved water quality, wastewater treatment, and safe reuse, increased water-use efficiency, and freshwater supplies. For many countries around the world, the desalination process is critical to water sustainability. Desalination plants are concentrated along the world's coastlines. There are currently approximately 15,906 operational desalination units, with a total desalination capacity of approximately 95.37 Mm^3/day (34.81 billion m^3/year). These desalination plants can be found in approximately 177 countries and territories spread across all major world regions. Desalination is a process that removes excess salts from seawater or brackish water from estuaries to convert it into drinkable or usable water. There are two major types of desalination technologies used around the world: (a) membrane processes and (b) thermal distillation technology. This review discusses the membrane technology used in desalination process also the challenges and future projections.

Keywords: Membrane Technology, Desalination, membrane processes, thermal distillation technology

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MYSUN_ID34

Vegetable Waste Composting: Effect of Rice Husk and Chicken Manure Addition

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Abstract: Composting is an agronomically, environmentally, and practically viable method of producing an organic fertiliser or soil conditioner that improves soil nutrients. The study was a proposal to the Kundasang community in Sabah to use aerobic composting to solve the problem of vegetable waste. The effects of rice husk and chicken manure added into vegetable compost will be evaluated. The composting process was studied for 20 days in a 20-L laboratory composter reactor box with passive aeration. Vegetable waste (VW) was combined with rice husk (RH) and chicken manure (CM) in four different mixtures. The performance of the composting process shows that Mix-3 is ideal compared to other mixtures with highest 34.02% OM loss. The OM loss value results show that Mix-3(34.02%)>Mix-2(27.44%)>Mix-4(23.89%)>Mix-1(9.97%). The highest temperature achieved was 47 0C by Mix 4(47.30C)>Mix-3(41.10C)>Mix-2(41.00C)>Mix-1(290C) and decreasing near to ambient. In conclusion, adding RH and CM to the composting of VW has a significant effect.

Keywords: Vegetable Waste, Rice Husk, Chicken Manure

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MYSUN_ID35

Understanding Sustainable Journalism Practices in Malaysia: Lessons Learned from Tokyo 2020 Olympic Games Sustainability Plan and News Reporting

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Abstract: Sustainable journalism is a new concept that adapted in journalism practice. The concept will challenge journalist ability to fortify media function as well as promoting SDGs. Sustainable journalism will be expected to equip future generation needs in order to remain sustainable. As a new concept, how many journalists in Malaysia know about sustainable journalism? Hence, this research was conducted to measure their understanding about the concept. It involves five informants from different news organization and academic institution. Using convergence theory to identify the findings and thematic analysis plus textual analysis to analyze data, the research found that most of the journalists in Malaysia understand concept of sustainable journalism. However, their knowledge about the concept is shallowed and not covered all related aspects. This is because most of the news organization in Malaysia not fully practiced the concept. Their level of practices is still in planning phase. Nonetheless, research found that most of the journalists are moving forward to apply concept of sustainable journalism as their news organization committed to maintain integrity and present the truth to overcome journalism crisis, especially trust deficit. Besides, the findings show that they are opened to accept the concept and level of their acceptance towards sustainable journalism practices is positive compared to their understanding and practice.

Keywords: Journalism practice, sustainable journalism, SDG's

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MYSUN_ID36

Turbine Concept Development and Compactional Analysis of Floating River and Tidal turbine

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Abstract: Scientists and engineers in Malaysia and the world are attempting to improve and develop the renewable energy sector due to the increase in carbon emissions, fossil fuel depletion, and the need for electricity in remote areas. River and tidal turbines are well-known to have a high potential for producing electricity. This paper is to develop a new concept of floating turbines and analyse it by utilizing computational fluid dynamic methods. The method of creating the concept started with infaring the market needs in Malaysia and transforming them into design requirements by using the requirement table and the objective tree tools. Then, the requirements were transformed to a function box to consolidate the general function of the turbine. A task specification table was established to assign the specifications, followed by creating several turbine concepts. One of the four turbines were selected by implementing the evaluation chart to undergo computational fluid dynamic analysis. The selected concept was proved by the dynamic mesh technique built-in Ansys. Many measures were taken to ensure accuracy, like a grid independence study, module validation study and boundary sensitivity study. The performance was found by the sliding mesh technique to conclude that the turbine demonstrated higher performance than typical Savonius turbines to reach 40% performance at a 1.3 tip speed ratio.

Keywords: Concept Design, Water Turbine, Floating turbine, Small-scale turbine, CFD

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MYSUN_ID37

Sustaining Financial Wellbeing Through Education

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Abstract: Financial education is a long-term process that ensures financial freedom for the layman. Knowledge and understanding of the complex financial marketplace and behaviours lead to prudent financial decisions. This financial literacy is recognised as essential by educators at all levels. It can potentially create a financially sustainable society that can withstand any catastrophe that impacts the financial standing and wellbeing of the society. The massive withdrawals of retirement savings by individuals during the Covid pandemic highlights the public's and certain politicians' deficient financial literacy. Possession of suitable financial literacy educational approaches for all age levels constitute an issue that policy makers need to address to achieve the goal creating financial prudent citizen.

Keywords: Financial wellbeing, financially literate, financial education

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MYSUN_ID38

University Students' Attitudes & Perspectives on Sustainability in Sarawak

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Abstract: Within the recent decades, there is an emerging trend in higher education as curriculum and administration seek to incorporate the goals of sustainability and development. In Malaysia, a lot of campus-based initiatives that seek to forward the goals of sustainable development also took off. The purpose of this paper is to explore the extent of a public or private university student's knowledge on sustainable development and the United Nation (UN) Sustainable Development Goals (SDGs). The objective of the study is to analyze the outcome of the perceived knowledge on student behavior. It also tries to examine the manners in which students can contribute towards sustainable development efforts given the challenges and obstacles they currently face. In this research, a qualitative method was employed to evaluate students' attitudes and perspectives on sustainability in a public and private university in Kuching. An in-depth interview was held with students from both universities. The selected interviewees consist of students who possessed the authority to speak on the issue and on behalf of their peers. Students' knowledge and the ability to transform the knowledge into practice are the focal concern of the in-depth interview. The result of the interview shown that students are generally aware of the concept of sustainable development and the contemporary issues related to it. They were also able to articulate the inclusion of the UN SDGs in their campus life such as in their curricular or extracurricular activities. However, there were a few differing opinions on the adequacy of sustainable behaviors and the ongoing efforts done to address sustainability issues.

Keywords: Sustainable aquaculture, Green Aquaculture, Fish Nutrition, Sustainable Aquafeeds

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MYSUN_ID39

The Governance of Shared Values for Organizational Sustainability: The Case of Universiti Malaysia Pahang

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Abstract: The Sustainable Development Goals call for global transformation towards universal well-being in seventeen dimensions, two of which are related to higher education sector namely Quality Education and Peace, Justice and Strong Institutions. With globalization and the COVID-19 pandemic, higher education institutions are challenged to remain relevant and competitive both structurally and commercially. In addition to the existing legal framework under the Universities and University Colleges Act 1970 [Act 30] that governs its stature as Malaysia's sixteenth public university, a set of shared values maintains internal cohesion amongst the citizenry of Universiti Malaysia Pahang (UMP) thus ensuring its institutional sustainability. This paper examines the origin of that set of shared values, namely the Core Values of UMP and its significance in maintaining UMP's organizational sustainability through the strategic phases of the university's growth over the past two decades.

Keywords: Governance, Shared Values, Institutional Autonomy, Value Management, Organizational Sustainability

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MYSUN_ID40

Companies' Motivations and Sustainable Survival in Malaysia

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Abstract: The desire to maintain a sustainable survival once publicly listed in the stock market remains as companies' primary goal. This study suggests that the companies' motivations of becoming public listed companies can influence how they survive in the future. Companies' information disclosure of their motivations, such as growing, paying debt, or having sufficient working capital, are ex-ante strategic information that can act as early warning signals for sustainable survival of Malaysian companies. This study adopts the survival analysis, specifically the Cox Proportional Hazard (CPH) and Accelerated Failure Time (AFT), to assess companies' long-term survival, offering a clear indication of whether the companies have performed ultimately in the capital market. This study expects to benefit the companies and the investors to foresee companies' viability and sustainability in achieving their capital motivations.

Keywords: Sustainable Survival, Motivations, IPOs, Malaysia, Survival Analysis

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MYSUN_ID41

Nature-Inspired Learning Space: Embedding Biophilic Design into Physical Learning Environment

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Abstract: In this age of "anywhere, anytime" learning, the desire for more collaborative learning experiences is creating the need for open areas where students feel safe, supported, inspired and motivated. Learning environments should be nurturing, inspiring and motivating, while also providing an appropriate backdrop for learning; however, this may not always be the case as some learning activities may be stressful for students. In addition, learning spaces are not always designed to make students feel comfortable. Biophilic design leverages this need to connect with nature by creating buildings inspired by nature. Many studies support the benefits of biophilic design can bring informal learning spaces to life by connecting buildings to nature. Studies have shown that human beings have a preference for environments that have a connection with nature can help decrease stress levels and increase attentiveness. This paper presents the demand for biophilic elements in our classrooms from the point of view of students as well as the categories of biophilic design embedded in the design of our learning space.

Keywords: Learning environments, learning spaces, biophilic design

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MYSUN_ID42

Cultivating environmental awareness to children of single mothers and B40 communities

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Abstract: Waste cooking oil is hugely used by everyone, including single mothers and B40 communities. This paper introduces environmental awareness among single mothers and B40 communities to enhance sustainability knowledge about managing waste cooking oil. The focus is given to their children to practice managing the waste cooking oil and earn money from good management and reuse and recycling. 30 children were involved in this project and came from certain places in Johor and under serveilance of Yayasan Pembangunan Keluarga Darul Ta'zim (YPKDT). The project was started in August 2021 until February 2022. The programmes were conducted online and face to face. The first program was conducted through an online webinar to expose the consequences of waste cooking oil to the environment, especially rivers and the sea. The second program was a hands-on activity to transform waste cooking oil into a useful candle. During the few months, the children and families are encouraged to collect waste cooking oil and recycling items. After collection, they exchange the items for money. Data were collected during all programmes to get the indication of improvement among the children and families on sustainable practices before and after the programmes. The results show that the increment of environmental awareness is high, and the children can practice the suggestion idea given via the programme. The project's impact is to give the children an understanding of the cause of cooking oil's effect on the environment and how recycling can help them earn money.

Keywords: waste cooking oil; children of single mothers; B40 communities; environmental

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MYSUN_ID43

Empowering Community Low Carbon Initiatives Through Aquaponic Projects

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Abstract: The low carbon community empowerment project is part of the initiative to support the Sustainable Development Goals (SDG) presented by the United Nations. Communities, especially in urban areas, are in need of sustainability initiatives to ensure the sustainability of families, especially in facing the challenges of the high cost of living and the need for fresh food resources. In connection with that, this aquaponic -based low carbon community empowerment project was implemented using the quadruple helix approach which involves not only the community but also involve the individual agencies and the academia. This synergy is used to ensure the success of this project into the continuation of future generations. In this project, the university implements the process of transfer of technology and knowledge to the interested community. The transfer of technology and knowledge about aquaponics is shared with the local community. Several webinar series regarding the process of tree planting, fish farming and entrepreneurial opportunities are also provided to the community.

Keywords: Low carbon initiatives, sustainability, aquaponics, urban farming

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MYSUN_ID44

Modeling Of Flexible Piezoelectric Generator on Sea Wave Applications: Feasibility Study

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Abstract: This paper presents the feasibility study of modeling flexible piezoelectric generator on sea wave applications. The characteristic and structure of transverse wave motion could generate energy by convert kinetic to electrical energy. The flexible piezoelectric generator is difficult to generate output power and maintain the efficiency since the variant of sea wave motion. Furthermore, impact of design characteristic and parameters are also effect the varying of energy. Since that, the feasibility studies by using airy linear wave theory were used to simulate the model. The impedance between the management circuit and the output piezo generator is achieved using frequency conversion management circuits. Thus, the modeling of flexible piezoelectric generator shows the conversions and obtained the output power.

Keywords: Flexible piezoelectric, sea wave; piezo generator, airy linear wave theory, frequency conversion management circuit, Matlab/Simulink.

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MYSUN_ID45

Mapping of Media and Society course [UL031022] in the sustainability's definition by United Nations Brundtland Commission

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Abstract: The United Nations' Brundtland Commission defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." (United Nations, 1987). The objective of this study is to systematically mapping the course of Media and Society that is offered from the Liberal Arts Cluster, Centre for the Promotion of Knowledge and Language Learning, Universiti Malaysia Sabah with the definition of sustainability's coined by the United Nations Brundtland Commission. The method employed in this study was a content analysis by gathering, processing, and analysing the data. The result of this study produced a key philosophical stance on sustainability and its relationship with tenets of media and society as enshrined in the course content. In conclusion, this study has accomplished its objective as proposed.

Keywords: Media, society, sustainability, philosophy, liberal arts

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MYSUN_ID46

Mapping of UL03202 Marine and Community Development Course with the inclusion of Sustainable Development Goals: SDG 13 (Climate Action), SDG 14 (Life Below Water) and SDG 15 (Life on Land)

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Abstract: In United Nations Brundtland Commission, Sustainable Development Goals (SDG) is defined as "form the framework for improving the lives of populations around the world and mitigating the hazardous man-made effects of climate change. SDG 13: Climate action, SDG 14: Life Below Water and SDG 15: Life on Land." (United Nations, 1987). The objective of present study is to systematically map the course UL03202 Marine and Community Development that is offered every semester by Liberal Elective Cluster, Centre for the Promotion of Knowledge and Language Learning, Universiti Malaysia Sabah with the definition of Sustainable Development Goals (SDG) by the United Nations Brundtland Commission. The method used in this study involves content analysis by gathering, processing, and analysing the data. The result of this study indicated the importance to include SDG 13, SDG 14 & SDG 15 within the marine and coastal community development syllabus as enshrined in the course content. In conclusion, this study has accomplished its objective as proposed.

Keywords: Marine and Coastal Community Development, Sustainable Development Goals, Climate action, liberal elective cluster

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MYSUN_ID47

Low Carbon City LCC2030 Challenge: UiTM-MBSA Experience

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Abstract: Universiti Teknologi MARA (UiTM) is Malaysia's largest institution of higher learning with more than 185,000 current students' enrolment in 13 state campuses and 21 satellite campuses throughout the nation. UiTM which is committed to implement the low carbon cities framework program focusing on five GHG reduction elements in 5 sectors: energy, mobility, waste, water; and greenery and water bodies, in line with the National's target of reducing carbon of 45% by 2030 compared to 2005 levels. This study reveals the carbon operational assessment in UiTM campus located in section 1 Shah Alam, Selangor using city-based approach within the Low Carbon City Framework (LCCF) which are; urban environment, urban infrastructure, building criteria. Together with the strategic partner, Shah Alam City Council (MBSA), UiTM participate in the Low Carbon City (LCC) Challenge 2030 organized by the Malaysian Green Technology and Climate Change Centre, MGTC in 2019 and 2020 in both Zones and Buildings Categories, with the long-term target to inculcate low carbon culture and activities to its the population at large.

Keywords: Low Carbon City, LCC2030 Challenge

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MYSUN_ID48

Energy Audit of the Universiti Malaysia Pahang Library as an Approaching the Concept of Green Building

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Abstract: According to the Malaysian Green Building Index, green buildings have been classified based on its designation and operation in decreasing the built environment's overall impact on its surroundings. As a result, an energy audit was done for the library at Universiti Malaysia Pahang as a method to apply the concept of green building to an existing structure. The windows, walls, and roof's heating and cooling loads were computed. The wall insulation of the building has been implemented. Aside from that, the glass windows utilised are double pane with low emissivity (low-E) and a glazing level of around 20%. The roof has also been insulated with asbestos insulating board, and the library's plaster ceiling has been replaced with a gypsum ceiling rather than a flat ceiling. It has been discovered that when all sides of the library are covered with glass windows, the amount of electricity needed is reduced because natural lighting is employed. Furthermore, using a double-glazing type reduced heating costs. The required investment has been made to achieve the energy savings.

Keywords: Green Building Index, Energy Audit, Energy Savings, Low Emissivity, Library

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MYSUN_ID49

Energy Saving Potential and Measures Through Energy Conservation of Electrical Equipment in Universiti Malaysia Pahang Library

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Abstract: This paper study the energy saving potential and measures that can be taken to be implemented in Universiti Malaysia Pahang's (UMP) Library in Pekan Campus. The energy audit has study closely on the building operations, observation on the energy waste, building maintenance status and carry out the necessary field measurement by using specific equipment. This study analyse the energy consumption and analysis of the air conditioning system, lighting system and the general equipment (Computer, Printer, Photostat, Projector, Speaker) and plug loads of the UMP Pekan Library. From the energy audit, the energy saving potential will estimated through the implementation of energy conservation measures. The energy saving measures suggested includes using energy efficient appliances, monitor the effectiveness of air conditioning system, LED Lighting retrofitting, install solar photovoltaic, developing a sustainable energy management system and install energy monitoring system. Overall, it is found that the energy saving potential up to 26.7% can be achieved when the energy conservation proposed are implemented.

Keywords: Energy Saving, Energy Audit, Energy Conservation, Energy Management, Library

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MYSUN_ID50

A study Of Determining Suitable Polymer Modified Bindersvia Theoretical Approach

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Abstract: Polymer modified binders offer improvement in terms of performance and durability, also as an option for distresses mitigation depending on the types of polymers used. Significantly, it reduces life cycle cost when compared to unmodified binders. The use of bitumen emulsion as binders in this study is beneficial for preventive maintenance like Cold In-Place Recycling (CIPR) and extend pavement life when applied to mildly distressed pavements. Bitumen emulsion is liquid bitumen emulsified in water that regularly provide a lower cost, efficient, and sustainable alternative due to its low energy consumption. In this study, it describes the comparison of bitumen properties between unmodified and polymer modified bitumen emulsion after several tests was conducted. The study also focused on three types of polymers modified bitumen: namely Styrene-Butadiene Rubber (SBR) latex, Natural Rubber Latex (NRL), and Polyacrylate Resin (PR). These polymers were added to the bitumen emulsions by 3%, 5%, 7%, 9% and 12% and the properties of the modified bitumen was ascertained using penetration test, softening point test and ductility test before being compared to Road Engineering Association of Malaysia (REAM) specification. It was found that adding 3% SBR and NRL improved the bitumen's stiffness, reduce temperature susceptibility, and increase its viscosity while a suitable amount of 9% PR should be added to the bitumen as its plastic characteristic will resist crack propagation. This indicates that the usage of polymer modified bitumen can be adopted in a hope to prolong the pavement's lifetime, hence reducing the maintenance cost.

Keywords: Polymer, Modified binder, Bitumen emulsion, Bitumen properties

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MYSUN_ID51

Recognizing Edaphic Environment Factors Exacerbating The Establishment Growth of Urban Tree in Built Environment

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Abstract: Healthy urban trees struggled to survive in urban anthropogenic pressures with many physiological growth damages or sooner to death. The quantifications on environment exacerbate the urban tree planting in an urban environment receive much less attention. Trees are planted in urban areas to mitigate and alleviate the urban environmental problems and ignore establishment factors to benefit the environment and function as ecosystem services continuously. This paper aims to explain the environmental factors in urban areas, reducing trees' growth performance to achieve substantial impacts as trees benefit the environment. Reviewing articles on establishing tree growth in an urban environment was categorized into three: atmosphere environment, paved soil surface environment, and rhizosphere environment. The atmosphere environment exacerbated the urban perimeter created an urban heat island. This condition affected the physiological growth of trees.

Keywords: Environmental problems, tree growth performance, edaphic environment

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MYSUN_ID52

Logistics Service Quality (Lsq) Impacts on Customer Satisfaction In E – Commerce Logistics Firms In Malaysia

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Abstract: E – commerce logistics has become the choices of many customers. Online shopping already popular among Malaysian pre – pandemic. The pandemic hit the demand of logistics service providers (LSP) become overwhelmed due to the COVID – 19 become a catalyst to many retailers in quick adoption to e – commerce. A Logistics Service Quality (LSQ) model is adopted in the research such as timeliness (T), reverse logistics (RL) on the easement of return damaged good, the delivery service quality (DSQ) on the quantity and condition and the information reliability (IR) on the reliability of tracking shipment are the problems faced by the e – commerce logistics. Customer satisfaction or Voice of Customer (VoC) has become a benchmark in developing quality attributes. This study determines the relationship between LSQ and the customer satisfaction in the e – commerce logistics firms. The findings show the timeliness has the highest correlation (R = 0.774) with customer satisfaction followed by DSQ, IR and RL where the relationship at the moderate level. The customers perceived the level of importance is the DSQ which has the highest mean score among 4 LSQ followed by IR, T and RL. The e – commerce logistics should pay attention on the RL which has the moderate mean score of 3.62, as customer do not have good grasp about RL even they faced discrepancy or damaged item and this will lead to frustration and hamper the financial performance of both the e commerce and LSP.

Keywords: E – commerce, E – commerce logistics, Logistisc Service Quality (LSQ), Logistics Service Providers (LSP), Consumer Satisfaction

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MYSUN_ID53

Bamboo Avenue: A Living Laboratory approach for sustainable campus community engagement

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Abstract: The sustainability of a higher institution or campus is based on various factors. Among them is the sustainability of the campus community in supporting this approach. The strength of the campus community also lies in the involvement and concern of campus residents in jointly mobilizing activities that lead to this sustainability. Sustainable living concept of a campus should in line with the Sustainable Goal initiatives. Sustainability of a campus should able to manifest the whole resources and expertise in order to make the campus communities engage, celebrate and enjoy the sustainability of the campus. The concept of Living Laboratory or 'Living Lab' can be interpreted and used as a human-centered research and development approach. The Living Lab approach not only focuses on engaging students in the development process, but also seeks to facilitate interaction between other relevant stakeholders, such as academics, researchers, administrative officers, support staff and students. Living Lab is one of the approach for multi ways and involvement of students in teaching and learning endeavour. This paper aims to suggest a sustainable approach which is the living laboratory for campus community engagement. This approach of Living Lab in Universiti Teknologi Malaysia (UTM) was initiated through Bamboo Avenue, a High Impact Research Grant project. This project explored Bamboo as a sustainable living material for the campus. The project starts with planning and designing a small open space that act as a Living Lab for any student's projects related to Bamboo as sustainable materials. The project offers opportunities for students' involvement in designing as well as constructing and planting bamboo for planting materials or structures for recreational and educational activities. These Living Lab acts as a place for students to evidence as well test the functional aspect of their creative works as part of the park furniture. The abundance of this fast growing species is an advantage for UTM to fully utilise and at the same time exhibit it in this outdoor gallery. The abundance of these species in UTM is an advantage for this project to be sustained. In fact, this Bamboo Avenue project is a win-win situation for the management team of the Bamboo forest. The harvesting of bamboo is part of the necessary maintenance. Faculty of Built Environment and Surveying (FABU) has created an initiative to bring along not only students and academician for activities in the Living Lab but also support staff to be together as team players in Rakan Buluh FABU (bamboo friends of the Faculty of Built Environment and Surveying). This entity will together activate any activities related to bamboo in order to enlighten the sustainability and green technologies for the campus communities. This Bamboo Avenue is not only as a green project for UTM but also will become an iconic place for UTM communities. This will be an opportunity to attract investors from the industry to develop Living Lab physically in the UTM campus. The success of attracting investors to develop Living Lab physically and virtually will help to achieve the goal of UTM as a Sustainable Campus Living Lab, which will certainly provide many benefits to UTM as a research university.

Keywords: Living laboratory, Sustainable Campus, campus community engagement

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MYSUN_ID54

Modelling And Simulation of Fuel Cell Based Multi Level Inverter

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Abstract: This article presents a fuel cell based multilevel inverter suitable for electric vehicle applications. The suggested multilevel inverter produces an output voltage of seven-level alternating current (AC) with the configuration of the effective gating signals. Besides using the low pass filter, the total harmonic distortion of the sinusoidal output voltage is reduced. In the suggested multilevel inverter, the switching losses and the voltage stress of the power devices can be decreased. The operating principles of the suggested inverter are studied. A sinusoidal pulse-width modulation (SPWM) is utilized to drive the power electronic components. The effectiveness of the suggested topology is validated using MATLAB/Simulink software.

Keywords: fuel cell, multi-level DC-AC inverter, electric vehicle, total harmonic distortion (THD).

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MYSUN_ID55

The Awareness and Practices of Reduce, Reuse & Recycle (3R) among Students and Staff at Universiti Teknologi Malaysia

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Abstract: The 3R program has become the highlight at higher institutions in Malaysia as part of the sustainable campus initiative on solid waste management. The higher institution communities are the major contributor to solid waste generation. A survey was done among university staff and students at the Faculty of Built Environment & Surveying (FBES), Universiti Teknologi Malaysia (UTM) in October 2020 to investigate the 3R awareness level and practices towards sustainable campus. The 3R Awareness Enrichment Program was organised by the EARTH Society of Landscape Architecture aimed to strengthen the 3R practices among the FBES community at the UTM campus. The program theme is ´Sustainable Campus´ which is in conjunction with the October sustainability month. A set of online questionnaires were distributed to the FBES community to identify their awareness level on 3R practices. The survey is also important in investigating the reasons for not practising 3R in their daily life. A total of 160 respondents have completed the online survey. Results from the survey reveal that 71.42% agrees that 3R practices are important on campus and it shows that FBES readiness in implementing 3R is at a satisfactory level. Apart from the survey, a special webinar was held to educate the FBES community on the method of 3R practices. The 3R initiatives should not be a one-off practice but it has to be applied in our daily lifestyle. All parties must work together to achieve the goal of a sustainable campus but the 3R attitude must come from individuals.

Keywords: Campus sustainability, 3R program, solid waste management, Universiti Teknologi Malaysia

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MYSUN_ID56

Development of Advanced Hybrid Ocean Thermal Energy Conversion (OTEC) Intake Piping Filtrations System: First Experimental OTEC Plant of Malaysia

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Abstract: OTEC utilises temperature differences between ocean surface water and cooler deep water to produce electricity. The concept of using temperature differentials between surface and subsurface waters in tropical ocean areas as an energy source is not new, although the process has only recently become practical. One of OTEC's most significant advantages is that it allows the co-production of drinkable water, in addition to electric power through desalination. For each megawatt of generated electricity, it can produce up to 2 million litres per day. The electricity produced by OTEC has a fixed cost; therefore, it is not susceptible to the volatility of costs that affects other energy sources such as coal, natural gas, and petroleum. Also, no products of combustion are generated during the process since OTEC has the less environmental impact than other sources of energy. Input obtained from OTEC experts in Malaysia and Japan, the need to obtain good seawater quality is very important, it is proposed that an up -to -date design for water intake with filtering appropriate to the conditions in the waters of Port Dickson, N. Sembilan. Based on the latest data collections, there is a need to develop an additional seawater filter and piping system to support the overall development of the SATREPS OTEC project. The need for this additional contingency scope is identified once the exact location for the intake and quality of seawater is obtained. In short, an additional 183- meter piping system is required to ensure that H-OTEC operations can be carried out as originally planned based on the lowest low tide height data obtained. In addition, special seawater filters are required to minimize the rate of foreign particles and sludge entering the H-OTEC system that could potentially interfere with future operations and research activities.

Keywords: H-OTEC, sea water intake, filtration system, piping

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MYSUN_ID57

Should We Adopt Online Green Product Reviews? Source Credibility Theory (SCT) and Structural Equation Modeling (SEM) Results

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Abstract: Electronic Word of Mouth (E-WOM) has nowadays become an important influence on consumers in purchasing decisions. Adopting opinions and reviews that are posted online to aid purchasing decisions (Electronic Word-of- Mouth adoption) is considered an effective way for consumers who are faced with numerous choices of green products and services. Guided by Source Credibility Theory (SCT), this study aims to investigate the effects of E-WOM on green purchase intention by investigating the relationships between independent variables (i.e. sender's expertise, receiver's search extent and message trustworthiness), mediating variable (E-WOM review adoption) and the dependent variable (green purchase intention). This study analysed the data collected from 201 respondents using the Structural Equation Modeling (SEM) technique. Finding indicates that receiver's search extent and message trustworthiness did affect consumer's E-WOM review adoption. Receiver's search extent has significant effect on green purchase intention, while sender's expertise and message trustworthiness are insignificant to green purchase intention. In a nutshell, E-WOM review adoption mediates the relationships between sender's expertise and message trustworthiness with green purchase intention. As for the managerial implications, green product owners, managers, marketers and content developers should emphasise on online message trustworthiness in their advertising and promotional agenda as high quality reviews can definitely be useful as a company's marketing tool.

Keywords: Electronic Word of Mouth (E-WOM); Source Credibility Theory (SCT); green purchase intention; green product, review adoption.

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MYSUN_ID58

Designing an Energy Management System (EMS) in the university's context. A case study from Universiti Utara Malaysia

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Abstract: The use of energy, particularly electricity, on the Universiti Utara Malaysia (UUM) campus is increasing in parallel with the university's growth. This growth has a direct impact on the university's growing costs. On the other hand, increased energy use is viewed negatively from an environmental point of view due to dependency on fossil fuels in electricity generation. Therefore, energy management is a major concern on university campuses. The implementation of ISO 50001 standard for the energy management system (EMS) was developed to help improve organisations' energy efficiency. This study aims to conduct a feasibility study by evaluating existing energy management practices using energy management matrix and developing an energy management implementation framework in Universiti Utara Malaysia (UUM) to achieve the Energy Management Gold Standard (EMGS) certification delivered under the ASEAN Energy Management Scheme (AEMAS) based on excellence in energy management. This study adopted a qualitative approach, and the data collection has been conducted through Focus Group Discussion (FGD) and field visits to draw a benchmark. FGD involve various related experts'/energy managers in energy management system in UUM with other stakeholders such as UTM, UTHM, UniMAP, SEDA, MGTC that play a specific role in energy management policy development. This paper can act as a guide to other institutes wishing to adapt EMGS, primarily since it resulted in sustainable energy cost avoidance along with integration of energy efficiency into an organization's culture, and the development of an energy management implementation framework. Furthermore, the output of this study might assist UUM to develop future policies to reduce harmful air pollution, improve university community health, lower energy costs and the costs of compliance with national air quality standards and energy related regulations, create jobs, and improve the reliability and security of energy system of UUM in specific, and Malaysia in general.

Keywords: Energy efficiency, energy management system, energy management framework, qualitative approach, Universiti Utara Malaysia

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MYSUN_ID59

Preliminary Analysis of Energy Usage at UPM Serdang During Pandemic Covid-19

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Abstract: Buildings and facilities energy usage contribute to one of the high operational costs in UPM Serdang campus. Hence, an energy audit is helpful to provide insight into energy usage at faculty and institute level for UPM Serdang campus. A preliminary walk-through on energy audit was conducted to analyze the usage pattern between January 2020 and August 2021 at UPM Serdang campus premises using MYSUN Energy Audit Software. The energy usage data were provided by the Development Office and Asset Management of UPM. This time frame was chosen because the Movement Control Order (MCO) was expected to provide intuition on energy patterns for the case study. In total, fifteen faculties and three institutes' energy usage were analyzed. In this case, it was found that MCO attributes lower energy consumption. The Faculty of Medicine and Health Science (FPSK) dominated the highest energy usage compared to others faculty and institute throughout the period because the premises served as a teaching hospital, which required it's operational at 24 hours. Finally, we conclude that working from home (WFH) and online-based learning significantly reduce the energy consumption at UPM. Therefore, we foresee efficient energy usage within UPM Serdang premises is possible with proper planning supported by the proactive campaign from the management.

Keywords: Energy efficient, energy audit, pandemic, covid-19

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MYSUN_ID60

Production of Natural Food Through Treated Sewage Effluent Aquaponics System

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Abstract: In Malaysia, sewage treatment plants generate millions of litres of sewage effluent that basically go to waste. Converting this waste to something beneficial will not only reduce potential pollution to the environment, it will also bring benefits from many angles. The study in this paper was conducted to assess the viability of switching all the normal water in an aquaponics system to treated sewage effluent and whether the food produced adhere to the heavy metal limits stated in the Malaysian Food Act 1983. The system used was a recirculating, media bed aquaponics system with catfish as the aquaculture whereas the hydroponic part consisted of eggplant and two types of chillies. At the end of the study duration, the catfishes increased to 18-fold its initial weight on average while the total chillies harvested from both types of chilli trees amounted to 94 fruits. When samples of both catfish and chillies were tested for the presence of heavy metals, none of the parameters were detected in all samples except mercury in the catfish sample, which is far below the limit imposed by Malaysian Food Act 1983. Therefore this study showed that replacing water in aquaponic systems with treated sewage effluent is viable.

Keywords: Aquaponics, Effluent, Food Production

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MYSUN_ID61

Pray And Protect : Building Pro-Ecological Behaviors Through Eco-Theology: Case Studies Eco-Deen Indonesia And Muhammadiyah Green Cadre

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Abstract: Humans confront numerous societal problems in today's globalized world, including environmental concerns. Amongst digital natives, environmental conservation efforts are more popular now. Such a notable trend is the emergence of the eco-theological movement, which links religion and ecology, not only for religious purpose but also to reach suistainable development Goal. this study examined how integrating theology was conducted to build pro-ecological behaviors among digital natives in Eco Deen Indonesia and the Muhammadiyah Green cadre. Both movement concern with ecological activism but based on religion values. This descriptive-correlational study of the 60 members covers both movements and interviews with movement coordinators. Using theoretical concepts to explain eco-theology, we hope to find out what makes it attractive among digital natives, how these two movements combine religious values into ecological movements, and what kinds of pro-social behaviors their members are showing.

Keywords: Eco-theology, digital native, and pro ecological behaviors

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MYSUN_ID62

Marine Debris on The Beaches Of Sabah

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Abstract: Marine debris comprises solid materials of human origin discarded at sea or reaching the sea through waterways. It is a type of marine pollution that has been rapidly increasing and is being recognized as a massive problem of global ocean pollution with serious threats to the ecosystem, economy and society. Marine debris can be found floating or submerged in the sea, and also stranded on the beaches of coastal zones even in places with no population. As the debris floats it can easily drift away by currents and the wind action from the place of its origin to remote areas (Derraik, 2002; Estim & Sudirman, 2017). In an earlier study, Estim and Sidin (2014) and Estim et al. (2014; 2017; 2021) documented the transport of marine debris consisting of solid waste, garbage, trash and litter by ocean currents and tidal forces over long distances and sinking some part of it to the seafloor where it accumulated to large quantities.

Keywords: Marine debris, Marine pollution, Sabah marine waters

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MYSUN_ID63

Promoting Green Activities to Support Low Carbon Campus Initiatives in Universiti Teknologi Malaysia: Role of Students Colleges

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Abstract: Residential colleges are an institution that supports the implementation of low carbon initiatives in universities, especially Universiti Teknologi Malaysia. The implementation of green initiatives based on Sustainable Development Goals (SDG) is not only implemented at the university level through the UTM Campus Sustainability but also supported by 12 residential colleges in both Johor Bahru and Kuala Lumpur. With the large number of students in each college, the target of implementing these low carbon activities can be implemented in various aspects of initiatives under the SDGs. Some of the sustainability initiatives implemented are the implementation of urban agriculture projects such as aquaponics and hydroponics, the establishment of the College Sustainability Club, developing the Aquaponics Living Laboratory, implementing the Love Our Earth Campaign, organizing international essay competitions centered on sustainability, sustaining colleges with the use of energy saving elements such as solar lights and save water programme. This role is played by the college principal, fellow and fellow assistants, college management staff as well as college committee members. Synergies are also implemented with several agencies such as the Jabatan Perpaduan Negara, Kejiranan Rukun Tetangga (KRT) and the Jabatan Alam Sekitar. Various benefits are obtained by students such as increasing their understanding and knowledge of sustainability, promoting sustainability to the students' homes, improving problem -solving abilities, increasing the level of teamwork, encouraging continuous learning and so on. In this regard, the involvement of residential colleges in universities in the aspect of sustainability is very important and should be given full support by the university and other agencies.

Keywords: Low carbon initiatives, sustainability, students colleges, skills and abilities

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MYSUN_ID64

Characterization of Food Waste and Animal Manure-based Biocompost and its Application on Capsicum Frutescens Cultivation

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Abstract: Composting is beneficial for agricultural activities and it is recognized that food waste composition is very important, so composting can provide sufficient nutrient so as to be beneficial for Capsicum frutescens growth. This study aimed at elucidating the effect of Bokashi compost treatment synthesized from animal and food waste on this type of chilli plant growth. The effect of compost application produced from food waste and animal manures via aerobic composting method, for 42 days, on the of Capsicum frutescens production was observed and compared with that of chemical fertilizer (AB). Types of fertilizer treatment includes Bokashi T2 compost (chicken manure and food waste-based), Bokashi T3 compost (cow manure and food waste- based), Bokashi T4 compost (horse manure and food waste-based) and T1 (AB chemical fertilizer) as control. In this experiment, a total number of 40 plants were grown in 4 blocks, each block consisted of 10 plants cultured using Bokashi T2, T3, T4 and T1 respectively. Bokashi compost produced had pH range between 5.5 and 7. pH of planting medium, nutrient content; nitrogen, phosphorus, potassium and plant growth characteristics (i.e. plant height (cm), length of leaves (cm), breadthleaves (cm), number of leaves, number of branches and number of flowers) were monitored at 3-day interval in order to probe the effectiveness of Bokashi compost application on plant growth. Data were then statistically analyzed using Analysis of variance (ANOVA) and treatments were compared using Statistical Package for the Social Sciences (SPSS). Results clearly showed that Bokashi T4 was the most effective based on the Capsicum frutescens growth performance compared to those of Bokashi T2, T3 and T1 (control).

Keywords: Capsicum frutescens, composting, food waste, growth, performance Universiti Teknologi Malaysia

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MYSUN_ID65

MPPT of PV System under Diverse Partial Shading Conditions through Hybrid Crow Search Artificial Bee Colony

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Abstract: Photovoltaic (PV) system presents a key role in the generation of electricity these days due to their eco-friendly nature. However, on the account of its intermittent nature, PV systems face numerous challenges to track the global maxima peak power (GMPP). To accomplish those problems various conventional methods are used although these methods have oscillation around global maxima peak power (GMPP) and easily falls into local maxima peak power (LMPP). To avoid those problems this paper presented various methods such as crow search artificial bee colony (CSABC), artificial bee colony (ABC), and perturb and observe (P&O). The Proposed hybrid CSABC provides superior performance among the other two methods in terms of efficiency moreover, the proposed CSABC has been developed in MATLAB/ SIMULINK. The efficiency of the proposed method under partial shading conditions (PSC) is 99.44 % and the other two methods such as ABC, P&O are 98.02% and 87.73%.

Keywords: Photovoltaic (PV) system, crow search artificial bee colony (CSABC), artificial bee colony (ABC), maximum power point tracking (MPPT), partial shading conditions (PSC)

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MYSUN_ID66

The Study of Key Determinants and the Mediation Effect of E-Commerce Advantage on Brand Performance

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Abstract: Residential The purpose of this study is to investigate the effect of firm's capabilities as key determinants of e-commerce advantage and brand performance among SME's online business in Malaysia. This study exploring Research-Based View to develop the framework which consist of innovation capability, branding capability, market sensing capability, and human and organization capability. Survey data from 195 SMEs were collected and used to test the conceptual framework. The result showed that branding capability and human and organization capability have positive significant relationship with e-commerce advantage, whereas innovation capability and market sensing capability have negative significant relationship on e-commerce advantage. The findings also reveal that e-commerce advantage has a positive relationship with brand performance. Also, a mediation effect of e- commerce advantage is noted between human and organization capability and brand performance. These findings have noteworthy implications for theoretical and SME's on e-commerce adoption and formulate more effective online business.

Keywords: Resources-Based View Theory, E-Commerce, Firm's Capabilities

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MYSUN_ID67

Monitoring Campus Sustainability Plan: Integrating Hoshin Kanri X Matrix into Actions

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Abstract: The implementation of initiatives in an effort to create a sustainable campus requires a careful planning so that internal resources can be optimized. Often, the campus sustainability agenda is included in the institution strategic plan. As such, monitoring of the initiatives should be set accordingly to be in line with the institution goals. One of management tools that is able to bridging the gap between the identified initiatives and execution is the Hoshin Kanri X Matrix. This tool could assist an institutional strategic goals to drive progressively and eliminates waste that may occur due to inconsistency direction or poor communication among departments or schools. This study designs a planning-to-monitoring framework that enables campus sustainability manager to taken care all planned initiatives smoothly via Hoshin Kanri X Matrix. The study was designed accordingly to UUM Living Campus initiative devoted to bring together all staff and students to cherish and instill a noble spirit towards a sustainable campus by 2030.

Keywords: Campus sustainability, cross functional departments, strategic plan

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MYSUN_ID68

Increasing Community Awareness on Sustainable Living Through Utilization of Service Learning: Lesson from UUM@Community STEM Sustainability Program

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Abstract: Living sustainably needs the shifting mentality towards empowerment among every individual in a community. As the university is a campus that accommodates young and energetic individuals in the majority (i.e. students) mingled with many intellectuals (i.e. academia), the inhabitants on campus should be primed and utilized, where the paradigm shift should start to collectively take place. Utilizing platforms on campus enables a quick mobilizer to transfer the know-how on campus into the surrounding community. The service learning approach is a smart solution to mobilize the transfer of knowledge from campus to community effectively and sustainably. This study showcases a framework of the community outreach program, namely UUM@Community STEM Sustainability Program, that utilizes service-learning approach to increase the awareness among the community on selected sustainable development goals by the United Nation. The main aim is to increase ongoing effort in engaging community through the transfer of knowledge acquired in the university through a detailed framework of the program's operation. Students who undergo this program are assessed objectively, while feedback from the community is captured. Dashboard analytics for monitoring purposes are constructed to ensure that all data from the program can be visualized, understood, and analyzed more effectively and sustainably.

Keywords: Community outreach, sustainable development goals, service learning, dashboard analytics

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