

**SUSTAINABLE CAMPUS: AN INTEGRATED STUDENT KNOWLEDGE, WASTE (WS), ENERGY AND CLIMATE CHANGE (EC) FOR RECOGNITION IN “UI-GREEN METRIC WORLD COLLEGE RANKING”**

*Mohd Norazwan A. Bakar*  
Universiti Selangor  
[mohdnorazwan@unisel.edu.my](mailto:mohdnorazwan@unisel.edu.my)

*Hamdan M. Salleh*  
Universiti Selangor  
[hamdan@unisel.edu.my](mailto:hamdan@unisel.edu.my)

*Nasrudin Md Rahim*  
Universiti Selangor  
[nasrudin@unisel.edu.my](mailto:nasrudin@unisel.edu.my)

*Khairul Firdaus Ne'matullah*  
Universiti Selangor  
[kfirdaus@unisel.edu.my](mailto:kfirdaus@unisel.edu.my)

*Zahirrudin Idris*  
Universiti Selangor  
[zahir@unisel.edu.my](mailto:zahir@unisel.edu.my)

**Abstract**

*Institutions of Higher Learning in Malaysia, which serves as an educational and research institution, need to emphasize sustainability to ensure a continuous effort in maintaining it. The management of UNISEL is deemed desirable to provide more sustainable campus-based programs more regularly and continuously so that the practice can be used as a culture of sustainability in their daily lives. However, a low acceptance from the community, especially the campus sustainability efforts, makes it difficult for it to continue as there are no strong support and a high awareness of the importance of environmental care. The objective of this study was to identify the level of knowledge and awareness of students on sustainable campuses to support efforts to improve UNISEL's position in the “UI Green Metric World University Ranking”. Distribution of questionnaires carried out and involved a total of 2154 respondents. The study found that the level of knowledge, awareness, and practice of UNISEL's members is low and should be improved.*

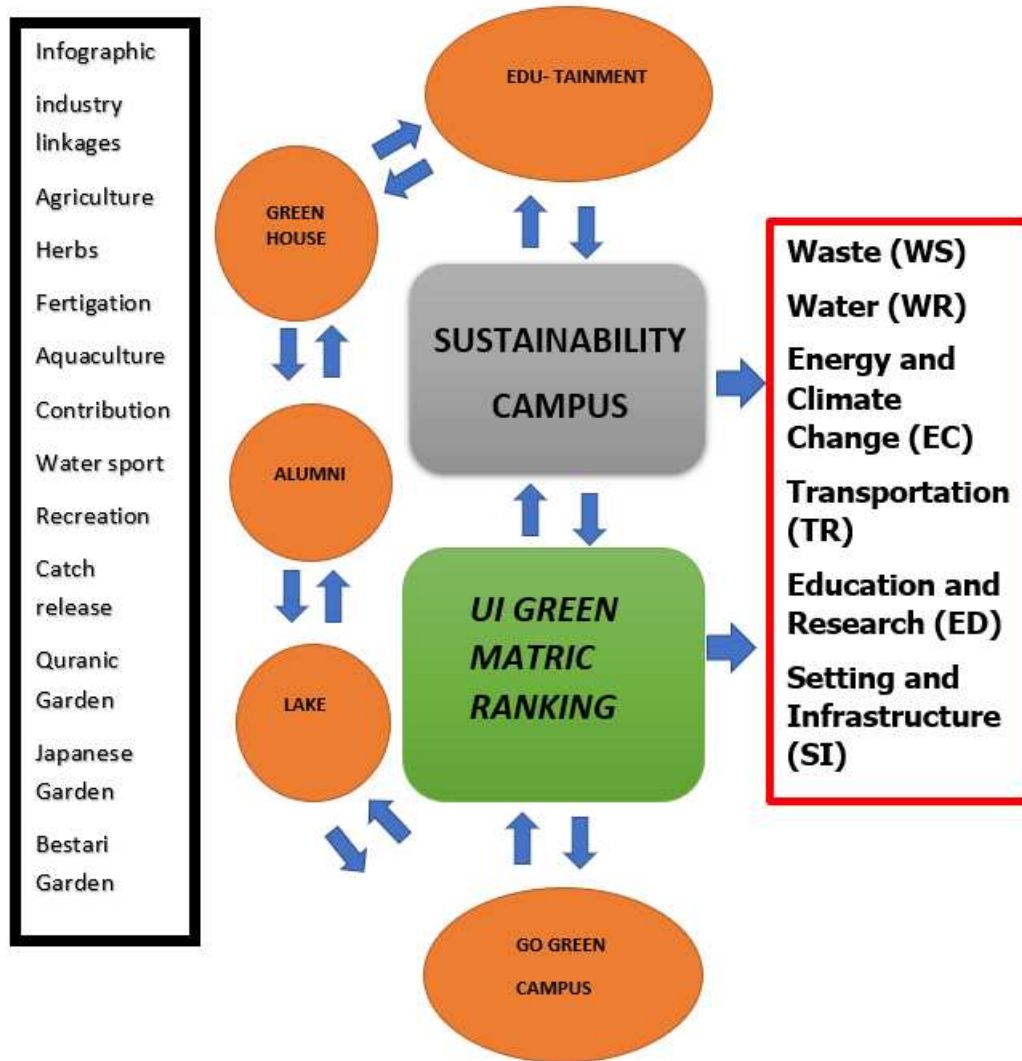
**Keywords:** Sustainability, Community, Environmental care

## **INTRODUCTION**

Campus sustainability is defined as an institution's efforts to tackle air pollution problems and decrease the poor effect on the environmental, social, and health economics in aid use by way of prioritizing teaching, research, outreach, and partnership to assist communities in making the transition to sustainable existence (Velazquez et al. 2006). In general, the thinking of campus sustainability dates again to 1990. An assertion known as the Talloires Declaration was defined as a college sustainability assertion that supported sustainable development initiatives. A complete of 22 universities have signed the announcement agreement. UNISEL is a higher institution that produces students who are no longer solely knowledge-based in the lecture room but grant education related to modern issues, particularly environmental care, as well as student involvement in applications involving a greater conducive campus environment.

Among the programs that have been carried out in UNISEL are the premier *gotong royong*, herbal tree planting campaign, tree endowment application, and the institution of a greening unit to make sure the sustainability of the campus continues to be the university's improvement agenda. Therefore, this research aims to identify the level of knowledge and focus of UNISEL students on the importance of campus sustainability and scholar involvement in making sure the awareness of “Ui Green Metric World University Ranking” is at the finest level. In the indications and classes of recognition, there are six categories, namely, Setting and Infrastructure (SI), Energy and Climate Change (EC), Waste (WS), Water (WR), Transportation (TR), Education and Research (ED)

Universiti Selangor (UNISEL) is one of Malaysia's private universities that responds to the name for sustainable improvement primarily based on campus greening. Although various packages based on sustainable improvement are carried out at UNISEL for the past 12 months, UNISEL's dedication and wish to create a sustainable campus is fantastically established based on the cooperation from stakeholders. Specifically, student involvement plays a vital key aspect. The issues that occur in the implementation of UNISEL campus sustainability; though almost all groups of workers along with the support team of workers understand the idea of campus sustainability, is that the existing involvement and cognizance are now not practiced, and to improve their involvement and understanding in an effort to improve sustainable practices among the campus neighbourhood (Azwa et al. 2016).



**Figure 1:** Sustainability Campus Model

## METHODOLOGY

This study uses quantitative methods to collect the data. The study respondents were 2155 respondents, which consisted of UNISEL students from both campuses. The selection of the respondents was based on a simple random sampling method. The research instrument used is a closed-ended questionnaire. The study data were analyzed using Statistical Package for Social Science (SPSS) version 21 and described in descriptive form.

## RESULT AND DISCUSSION

### Profile of Respondents

Table 1 shows that 30.8% of the respondents were male, and 69.3% were female. Among the groups of people, 78% were Malay students, 2.6% were Chinese students, and 19.4% were Indian students. There is a total of 26.5% students from the Faculty of Education and Social Sciences, 13.9% students from the Faculty of Computer Science and Visual Arts, 8.8% students from the Faculty of Engineering and Life Sciences, 7.8% students from the Centre for Foundation and General Studies, 38.3% students from the Faculty of Management and Economics and a total of 4.7% students from the Faculty of Life Sciences. In terms of types of academic study, the surveyed population is divided into three, namely undergraduate and foundation. There are 7.8% foundation students, 37.4% diploma students, and 54.8% bachelor students.

**Table 1:** Profile of respondents

Details	Frequency	Percentage (%)
Respondent		
- Male	663	30.8
- Female	1492	69.2
Race		
- Malay	1681	78
- Chinese	55	2.6
- Indian	419	19.4
Faculty		
- Faculty of Education and Social Sciences (FESS)	570	26.5
- Faculty of Communication Visual Art and Computing (FCVAC)	300	13.9
- Faculty of Engineering and Life Sciences (FELS)	190	8.8
- Centre for Foundation and General Studies (CFGS)	168	7.8
- Faculty of Business and Accountancy (FBA)	826	38.3
- Faculty of Health Sciences (FHS)	101	4.7
Academic level		
- Foundation	168	7.8
- Diploma	807	37.4

### Students' level of knowledge on the topic of sustainability

Table 2 shows the level and role of UNISEL citizens on sustainability on campus. From the data, 76.7% of the respondents are aware of the concept of sustainability on campus, followed by 7.2% who agree with the statement “strongly agree”, 13.4% who agree with the statement “disagree” and 9.9% who agree with the statement “disagree at all”. 39.4% of the respondents agreed that it is important to protect and preserve the environment, 32.4% fully agreed, and 4.0% disagreed. Furthermore, 54.2% of the respondents knew about the 1992 Rio de Janeiro Declaration on Sustainable Development, specifically Agenda 21. Only 5.0% of the respondents fully agreed, while 30.3% of the respondents disagreed.

**Table 2:** Students' Level of Knowledge on Sustainability

Details	Strongly disagree		Disagree		Neutral		Agree		Strongly Agree	
	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)
I am aware of the concept of sustainability	214	9.9	288	13.4	873	40.5	624	29.0	156	7.2
I am aware about the importance of preserving and maintaining the environment	240	11.1	86	4.0	283	13.1	848	39.4	697	32.4
I know about the Declaration of World Sustainable Development in Rio de Janeiro in 1992, specifically Agenda 21	335	15.5	652	30.3	755	35.0	306	14.2	107	5.0

### Awareness and role of students on sustainability

Table 3 shows the awareness and role of students on the sustainability of UNISEL. The results of the study show that 37.4% of the respondents agreed with the statement that they are aware that they play an essential role in the university in terms of sustainable development, followed by 6.9% who disagreed with this statement, 11.3% who strongly agreed and only 6.9% who disagreed with this statement. Students are also aware of the importance of advising friends to save resources. 39.0% of the respondents agreed with this statement, 13.1% fully agreed, and 7.2% disagreed. In addition, students have developed and are willing to develop sustainable

development activities and programs for the university community and the off-campus community. 33.3% of the respondents agreed, 10.8% strongly agreed, 13.1% disagreed, and only 8.2% of the respondents strongly disagreed. This proves that they are aware of the importance of the role of students in sustainability at UNISEL.

**Table 3:** Awareness and Role of Students Towards Sustainability – *Indicator and Categories*

Details	Strongly Disagree		Disagree		Neutral		Agree		Strongly Disagree	
	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)
I know that I have a great role at the university in terms of sustainable development.	169	7.8	148	6.9	788	36.6	806	37.4	244	11.3
I always advise my friends about saving resources.	146	6.8	155	7.2	730	33.9	841	39.0	283	13.1
I am ready and willing to manage sustainable development activities and programs for the university’s community and the off-campus community.	176	8.2	276	12.8	759	35.2	718	33.3	226	10.5

**Students’ Opinions on the Effectiveness of UNISEL’s Sustainability Awareness Efforts for the recognition of “Ui-Green metric World University Ranking”**

Table 4 shows the students’ opinions on the effectiveness of UNISEL’s awareness-raising activities on sustainability. A total of 29.33% of the respondents agreed that UNISEL taught them the importance of caring for the environment, while 13.5% of the respondents disagreed. 32.4% of the students agreed that UNISEL taught and encouraged students to adopt a culture of sustainability, such as recycling practices, and 13.2% of the respondents disagreed. About the sustainability program organized by UNISEL, 28.8% of the respondents fully agreed that such a program had a profound effect on them. Only 12.6% of the respondents disagreed, which shows that UNISEL students are aware of UNISEL’s sustainability efforts at a high level.

**Table 4:** Students’ Opinions on the Effectiveness of Sustainability Awareness Efforts from UNISEL - WASTE (WS)

Details	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)
I learned a lot about the importance of protecting the environment from UNISEL	181	8.4	291	13.5	875	40.6	632	29.3	176	8.2
UNISEL teaches and encourages me to adopt a culture of sustainability such as recycling practices (WS- waste)	180	8.4	284	13.2	786	36.5	699	32.4	206	9.6
The sustainability program organized by UNISEL has had a great impact on me.	190	8.8	272	12.6	917	42.6	621	28.8	155	7.2

**UNISEL students’ level of knowledge and awareness of sustainability on campus**

Awareness and knowledge of sustainability among campus residents are some of the fundamental elements to ensure the effective implementation of the concept of sustainability in a university (Cortese & McDonough 1999; Tillbury et al. 2005; Velazquez et al. 2006). Institutional sustainability requires a change in attitudes and behaviours of every individual in the institution (Chen et al., 2011; Dyball, 2010). Therefore, universities should continue to strengthen their capacity-building efforts among members to achieve sustainability on campus (Mitchell 2011). Findings in this research revealed that more than a quarter of UNISEL students (respondents) had low knowledge of the concept of sustainable development, 23.3%. This proves that students are indeed confused in interpreting the concept of sustainable development as there are many different definitions and perspectives (Walls & Laursen 2004 in Norfadillah et al. 2011). Brundtland (1987) stated that the concept of development should be closely related to meeting the needs of the present generation without compromising the needs of future generations, despite the various approaches that have been published to understand the very concept of sustainable development.

Moreover, knowledge of the World Declaration of Sustainable Development in Rio De Janeiro is only moderate at 45.8%. Knowledge of sustainable development is fundamentally poorly applied in the campus community, which poses a major challenge to UNISEL management. Furthermore, Walls and Laurenson (2004 in Norfadillah et al. 2011) state that this lack of knowledge transfer poses a challenge to faculty in incorporating diverse perspectives and providing an interdisciplinary approach to continuing education on sustainability. Due to the limited nature of sustainability programs organized at UNISEL, students feel a sense of responsibility and play an important role in providing the college with ideas for implementing programs that can spark the interest and increase the participation of all college residents (Harun et al. 2005). This challenge can be met if full commitment comes from the top and is supported by all stakeholders, whether in financial or non-financial resources.

## **CONCLUSION**

The studies show a need to improve the practices, knowledge, and awareness of UNISEL members on sustainability on campus. The university's management needs to provide more programs on sustainability on campus. The full cooperation of all campus residents is also important for successfully implementing any organized and planned program. It indirectly imparts knowledge, awareness, and love for nature and culture in daily life, which aligns with the university's efforts and aspirations to achieve sustainable campus status by 2020.

## **ACKNOWLEDGEMENTS**

The author would like to express his highest appreciation to Universiti Selangor (UNISEL) for funding the preparation of this article under a research grant (project code AP -2014-022) under the supervision of Prof. Dr. Er Ah Choy.

## **References**

Azwa, A.Z., Er, A.C., Naquah, A.R. & A.S.A Ferdaous, A. (2016). Consumers roles and practices towards sustainable UKM campus. *IJAAS* 3 (2): 30-34.



- Berita Harian. (2016). *UTM jimat tenaga RM7 juta dalam tempoh 10 tahun*. Retrieved December 28, 2016 from <http://www.bharian.com.my>
- Bruntland, G.H. (1987). *Our common future*. Oxford, Oxford University Press.
- Chen, C.J., Gregoire, M.B., Arendt, S. & Shelley, M.C. (2011). College and university dining services administrators' intention to adopt sustainable practices. Results from US institutions. *IJHSE*, 12(2), 145-162, <https://doi.org/10.1108/14676371111118200>.
- Cortese, A.D. & McDonough, W. (1999). *Education for sustainability: The university as a model of sustainability*. Second nature. Retrieved December 23, 2016 from <http://www.secondnature.org/pdf/snwritings/articels/univmodel.pdf>
- Dahle, M. & Neumayer, E. (2001). Overcoming barriers to campus greening. A survey among higher educational institutions in London. *IJSHE*, 2(2), 139-160.
- Dyball, M. (2010). Sustainability in an Australian University: Staff perceptions. *Proceedings of the 6<sup>th</sup> Asia Pasific Interdisciplinary Research in Accounting (APIRA) 2010 Conference*, 11-13.
- Haron, S.A., Paim, L. & Yahaya, N. (2005). Towards sustainable consumption: an examination of environmental knowledge among Malaysians. *IJCS* 29, 426-436.
- Mitchell, R.C. (2011). Sustaining change on a Canadian campus: preparing brock university for a sustainability audit. *IJHSE*, 12(1), 7-21.
- Norfadillah, D., Halimaton Saadiah, H., & Noraziah, A. (2011). Tahap kelestarian pelajar UKM ke arah kampus lestari. *Jurnal Personalia Pelajar*, 14, 1-10.
- Norfadillah, D., Halimaton Saadiah, H., Noraziah, A. & Sarah, A. (2012). UKM sebagai kampus lestari: tinjauan awal pengetahuan, kesedaran dan penglibatan pelajar dan kakitangan di kampus UKM Bangi. *GMJSS* 8(6), 76-90.
- Tillbury, D., Keogh, A., Leighton, A. & Kent, J. (2005). *A national review of environmental education and its contribution to sustainability in Australia: further and higher education*. Canberra: Australian Government Department of the Environment and Heritage and Australian Research Institute in Education for Sustainability (ARIES).
- Tillbury, D., Ryan, A., Corcoran, P.B., Abe, O. & Nomura, K. (2010). Sustainability in higher education in the Asia-Pacific: Developments, challenges and prospects. *IJHSE*, 11(2), 106-119.
- Velazquez, L., Munguia, N., Platt, A. & Taddei, J. (2006). Sustainable university: what can be the matter? *JCP*, 14(8), 10-19.
- Walls, A. & Laurenson, L. (2004). Environment, resource sustainability and sustainable behaviour: exploring perceptions of students in South West Victoria. *AJBE*, 2, 39-49.