

Sustainability Practices In National Defence University of Malaysia

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Abstract

The aims of this study are to investigate the level of sustainability practices items in each dimension; either the most common or least common practices and to investigate the level of overall sustainability practices that fall under high, medium or lower common practices in National Defence University of Malaysia (NDUM). A sample of 188 respondents from administration, selected faculties and centres of NDUM participated in responding to the survey of this study. Researchers used descriptive analysis from the Statistical Package for the Social Sciences software. Results found that there are common and least common sustainability practices in each dimension, and they have similarities and differences in terms of findings with previous literatures. Results also found that the sustainability practices for all dimensions are at a medium level. The results of this study will contribute to the awareness of sustainability practices among members of the university and to add to the literature review in the field of sustainability issues.

Keyword: level; sustainability practices; descriptive

1. Introduction

The main approach required for universities to achieve world class status is by the establishment of an APEX (Accelerated Programme for Excellence) and in 2009, the Science University of Malaysia, also known as *Universiti Sains Malaysia (USM)* was chosen over nine other universities in Malaysia in APEX. This allows the university to receive special support and nurture to achieve world class standing to be at par with other world class institutions [1]. *USM* chose sustainability as their platform [1]. [2] highlighted that the issue of campus sustainability plays an important part in sustaining the position of the best universities abroad. In terms of current researches in Malaysia, [3] stated that the extensive discussion on sustainable development and focus on the dimension of sustainability practices in Malaysian Higher Education Institutions are still limited, and if available, they merely focus on the Malaysian Research University.

Therefore, the aims of this study are to investigate the level of sustainability practices items in each dimension; either the most common or least common practices, and to investigate the level of overall sustainability practices that fall under high, medium or lower common practices in National Defence University of Malaysia (NDUM). The results of this study will contribute to the awareness of sustainability practices among members of the university, assisting the expected autonomy of NDUM to upgrade the NDUM brand at par with USM as in the APEX list, as well as making sustainability practices attainable for NDUM's decision-making policy.

2. Literature Review

[3] stated that there are nine rubrics or dimensions, such as corporate governance, students [4], staff [4], society, environment,

companies, health and well-being, economic and health, and continuous improvement. Meanwhile, [5] denoted that there are seven rubrics or dimensions: corporate governance, students [4], staff [4], society, environment, companies and continuous improvement. This study adopted the framework from [3] and reconciled with the sustainability practices in Spain Universities, created by [5]. [5] found that the highest mean in sustainability practices in corporate governance dimension is related to implementing responsible management of resources (austerity plans or policies of responsible consumption), but the lowest mean is the presence of administrative or political structure that focus on sustainability topics in Spanish universities. The university will enhance the student-centred and sustainable curricula, market relevance, technology learning, skills competency, and linkage between research and learning [6]. On the other hand, [5] found that the highest mean in sustainability practices in students dimension is practices related to having a structured process to register students' complaints. The university may offer recognition and reward incentives to staff to be involved in sustainable development and leadership in the regional community [6]. [5] also found that the highest mean in sustainability practices in staff dimension is focused on policies aimed at equal opportunities and professional careers, but the lowest mean is the training provided for the service staff in Spanish universities.

[5] also found that the highest mean in sustainability practices in society dimension is developing cultural activities, but the lowest mean is assessing the students' satisfaction in Spanish universities. On the other hand, UKM encourages its students to switch off the lights and computers, and use passive cooling ventilation for constructing buildings [7]. [5] also found that the highest mean in sustainability practices in environment dimension is related to reducing energy consumption, but the lowest mean is providing information about the quantity and use of recycled water in Spanish universities. In terms of collaboration with companies for sustainability practices, [7] found that UM, UKM,

UPM and USM have formed a partnership with the World Wide Fund for Nature (WWF), Malaysia and Non-Government Organisation (NGO) in Educational Environments (EE). [5] also found that the highest mean in sustainability practices in companies dimension is the creation of research networks between universities and companies to create, share and transfer knowledge to society, but the lowest mean is enhancing the quantity of ecological products brought from local suppliers in Spanish universities. [5] found that the highest mean in sustainability practices in continuous improvement dimension is the degree accreditation related to sustainability criteria, which is the most implemented practice, but the lowest mean is assessing the responses to complaints regarding privacy and data protection in Spanish universities.

3. Methodology

Researchers personally administered the survey to collect data from the administration, selected faculties and centres in NDUM from November 2017 until April 2018. Researchers adopted the survey on sustainability practices in Spain by [5]. There are two parts in the survey together with the Malay language translation. Part A is about the demographic of respondents, such as the type of respondent, the gender and the age of respondent. Parts B until H focus on the sustainability practices from corporate governance, students, staff, society, environment, companies and continuous improvement. There are 12 items in each dimension. Researchers used the five-Likert scale to measure all items in each dimension. A sample of 188 respondents was selected from administration, such as the Deputy Vice Chancellor Office (Academic Affairs and Internationalization), Deputy Vice Chancellor Office (Student Affairs and Alumni), Deputy Vice Chancellor Office (Research and Innovation), Bursar and Leadership, Corporate and International Affairs, selected faculties, such as Faculty of Defence Studies and Management, Faculty of Engineering, Faculty of Defence Science and Technology, and selected centres, such as Centre for Quality Assurance and Data Management, and Centre for Entrepreneurship Development and Innovation. The number of respondents is sufficient for this study as according to [8], Population (N = 360), Sample (S = 186). Researchers also used the Statistical Package for the Social Sciences (SPSS) features, such as frequency, descriptive, skewness and reliability analyses.

4. Results

TABLE I shows the demographic of respondents. According to the type of respondent, non-academic is the highest contributor to this study with 62.2% and followed by the academic with 36.8%. Referring to the gender, the highest percentage is female respondents with 59% and followed by male respondents with 41%. For the age category, the highest percentage is 50.5% from the range of age between 30 and 39 years old and the lowest percentage is more than 50 years old category with 10.1%. The Cronbach's Alpha values for all variables or dimensions are more than 0.90, which is excellent in terms of reliability. The category of internal consistency of variables refers to the rules of thumb in reliability analysis [9]. There are 12 items in each dimension and all items are packed together to represent a variable.

Table 1: Demographic Of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Types of respondent	Academic	71	37.8	37.8	37.8
	Non-Academic	117	62.2	62.2	100.0
	Total	188	100.0	100.0	
Gender	Male	77	41.0	41.0	41.0
	Female	111	59.0	59.0	100.0
	Total	188	100.0	100.0	
Age	More than 50	19	10.1	10.1	10.1
	40-49	35	18.6	18.6	28.7
	30-39	95	50.5	50.5	79.3
	18-29	39	20.7	20.7	100.0
	Total	188	100.0	100.0	

Table II shows the descriptive statistics for sustainability practices from corporate governance dimension. Practices related to implementing long term strategies (M = 3.71, SD = 0.733) are the most common practices in NDUM for sustainability practices from corporate governance dimension. Practices related to implementing the international declarations on sustainability issues are the least common practices in NDUM with M = 3.51, SD = 0.682 for this dimension. TABLE III shows the descriptive statistics for sustainability practices from students' dimension. Practices related to improving disability assistance with M = 3.54, SD = 0.927 are the least common practices in NDUM for sustainability practices from students' dimension. There are two identified most common sustainability practices in this dimension; first, Practices related to enhancing employability with M = 3.86, SD = 0.778 and second, Practices related to improving language training (M = 3.86, SD = 0.805).

Table IV shows the descriptive statistics for sustainability practices from staff dimension. Practices related to enhancing research activities with M = 3.87, SD = 0.756 are the most common practices in NDUM for sustainability practices from staff dimension. Practices related to enhancing sustainable criteria in staff recruitment and encouraging disabled recruitment are the least common practices in NDUM for sustainability practices from staff dimension with M = 3.52, SD = 0.950. TABLE V shows the descriptive statistics for sustainability practices from society dimension. Practices related to developing sport activities with M = 3.93, SD = 0.727 are the most common practices in NDUM for sustainability practices from society dimension. Practices related to supporting classes for older people are the least common practices in NDUM for sustainability practices from society dimension with M = 3.55, SD = 0.803.

TABLE VI shows the descriptive statistics for sustainability practices from environment dimension. Practices related to encouraging environmental awareness, activities and research are the most common practices in NDUM for sustainability practices from environment dimension. There are two identified sustainability practices that are the least common practices in this dimension; first, Practices related to reducing water consumption with M = 3.52, SD = 0.849 and second, Practices related to implementing regular audits for consumption of water (M = 3.52, SD = 0.849).

Table II. Sustainability Practices from Corporate Governance Dimension (CGD)

Sustainability Practices from CGD	N	Minimum	Maximum	Mean	Std. Deviation
Practices related to implementing the international declarations on sustainability issues	188	2	5	3.51	.682
Practices related to improving management through benchmarking between universities	188	1	5	3.62	.775
Practices related to improving transparency and accountability with stakeholders	188	2	5	3.66	.747
Practices related to implementing the declarations on sustainability issues	188	2	5	3.59	.737
Practices related to implementing sustainability in mission or vision statement	188	2	5	3.57	.731
Practices related to implementing administrative/political responsibility regarding sustainability management in universities	188	1	5	3.62	.796
Practices related to implementing sustainability in the strategic planning of universities	188	2	5	3.70	.778
Practices related to implementing long term strategies	188	2	5	3.71	.733
Practices related to implementing annual objectives	188	2	5	3.63	.701
Practices related to measuring the fulfillment of annual objectives	188	2	5	3.60	.728
Practices related to improving the sustainability interest in university senior management	188	2	5	3.56	.802
Practices related to implementing comprehensive supervision on the efficacy and efficiency at universities	188	1	5	3.59	.744

TABLE VII shows the descriptive statistics for sustainability practices from companies' dimension. There are 2 identified sustainability practices that are the most common in this dimension; first, Practices related to implementing research networks between university and companies to create, share and

transfer knowledge with $M = 3.74$, $SD = 0.738$ and second, Practices related to implementing sustainable criteria in the contracting and selection of suppliers ($M = 3.74$, $SD = 0.723$). Practices related to facilitating outsourcing procedures with $M = 3.59$, $SD = 0.766$ are the least common practices in NDUM for sustainability practices from companies dimension.

TABLE VIII shows the descriptive statistics for sustainability practices from continuous improvement dimension. Practices related to implementing continuous improvement in collaboration with other universities with $M = 3.85$, $SD = 0.738$ are the most common practices in NDUM for sustainability practices from continuous improvement dimension. There are two identified sustainability practices that are the least common in this dimension; first, Practices related to measuring the number of incidents of discrimination with $M = 3.60$, $SD = 0.951$ and second, Practices related to implementing policies being regularly evaluated in hiring catering services, with sustainable criteria ($M = 3.60$, $SD = 0.917$) in the NDUM.

TABLE IX presents the level of sustainability practices in NDUM. According to TABLE X, the sustainability practices from each dimension are at a medium level (M is within 2.41-3.80) based on [10], corporate governance ($M = 3.6121$, $SD = 0.61529$), students ($M = 3.7611$, $SD = 0.65270$), staff ($M = 3.6822$, $SD = 0.67306$), society ($M = 3.7057$, $SD = 0.62363$), environment ($M = 3.5541$, $SD = 0.72834$), companies ($M = 3.6689$, $SD = 0.62185$) and continuous improvement ($M = 3.6928$, $SD = 0.69856$). The determination of level of sustainability practices in this study is adopted from [10]. Furthermore, TABLE X also presents the symmetry of data distribution, which is indicated by the skewness of statistics. All variables are normally distributed, where the statistics of skewness are between -1.96 and 1.96 for all variables as according to [11]. Thus, all variables can be tested for the parametric test.

Table III: Sustainability Practices From Students Dimension (Stud)

Sustainability Practices from STUD	N	Minimum	Maximum	Mean	Std. Deviation
Practices related to improving scholarships for students	188	1	5	3.72	.820
Practices related to implementing incentives for students to participate in mobility programmes	188	1	5	3.79	.868
Practices related to implementing educational psychology service	188	2	5	3.64	.772
Practices related to improving disability assistance	188	1	5	3.54	.927
Practices related to enhancing multiculturalism	188	2	5	3.67	.806
Practices related to improving training in skills/ students' involvement in university management teams	188	2	5	3.79	.756
Practices related to improving teaching service (quality accreditation, curriculum and study plans)	188	1	5	3.81	.822
Practices related to enhancing employability	188	2	5	3.86	.778
Practices related to enhancing self-employment/ entrepreneurship	188	1	5	3.85	.803
Practices related to improving sustainability training	188	2	5	3.80	.766
Practices related to improving language training	188	1	5	3.86	.805
Practices related to implementing student satisfaction surveys/ student complaints	188	1	5	3.80	.787

Table IV: Sustainability Practices From Staff Dimension (Stad)

Sustainability Practices from STAD	N	Minimum	Maximum	Mean	Std. Deviation
Practices related to improving sustainability training to faculty members/ support staff	188	1	5	3.65	.809
Practices related to improving general training/ day to day operations for faculty members/ support staff	188	1	5	3.74	.841
Practices related to implementing policies for career plans at equal opportunities for faculty members/ support staff	188	1	5	3.61	.868
Practices related to reconciling work and family life	188	1	5	3.65	.868
Practices related to enhancing sustainable criteria in staff recruitment and encouraging disabled recruitment	188	1	5	3.52	.950
Practices related to enhancing social action	188	1	5	3.72	.760
Practices related to assessing and improving the working environment	188	1	5	3.75	.825
Practices related to improving staff health through health examination and providing information on accident rates and on sick leave	188	1	5	3.76	.860
Practices related to defining policies in terms of decreasing temporary/ contract employment	188	1	5	3.63	.852
Practices related to implementing incentives for staff to participate in mobility programmes	188	1	5	3.57	.872
Practices related to enhancing research activities	188	2	5	3.87	.756
Practices related to improving internal communication and providing staff participation in management teams	188	1	5	3.71	.854

Table V: Sustainability Practices From Society Dimension(Socd)

Sustainability Practices from SOCD	N	Minimum	Maximum	Mean	Std. Deviation
Practices related to developing cultural activities	188	2	5	3.68	.756
Practices related to developing sport activities	188	2	5	3.93	.727
Practices related to enhancing donations to associations	188	2	5	3.71	.763
Practices related to participating in non-governmental organisations	188	2	5	3.64	.786
Practices related to enhancing volunteer and social work programmes	188	1	5	3.77	.736
Practices related to implementing intercultural programmes	188	2	5	3.70	.792
Practices related to supporting classes for older people	188	1	5	3.55	.803
Practices related to satisfaction surveys to assess social attitudes	188	2	5	3.66	.761
Practices related to improving dialogue with stakeholders	188	2	5	3.68	.777
Practices related to implementing volunteer and solidarity initiatives made by staff	188	2	5	3.76	.775
Practices related to implementing volunteer and solidarity initiatives made by students	188	2	5	3.72	.739
Practices related to implementing family day	188	1	5	3.67	.894

5. Discussion

Researchers found that the most common practices in corporate governance dimension are Practices related to implementing long term strategies, which are different with the study by [5], which focuses on budget planning. Even the mean for Practices related to implementing the international declarations on sustainability issues is the lowest, but it is still high if compared with [5]. Moreover, researchers found that the most common practices in students dimension are Practices related to improving disability assistance, which are the least common practices in NDUM, but it is the most commonly implemented in Spain [5]. Practices related to enhancing research activities are the most common practices in NDUM for sustainability practices from staff dimension. This is consistent with [6] that stated that the university acts as a source of expertise through research and consulting by bringing together the talents and elements of sustainability by adopting the best sustainability practices through on-campus management. Practices related to developing sport activities are the most common practices in NDUM for sustainability practices from society dimension and this finding is consistent with [5].

Table VI: Sustainability Practices From Environment Dimension (Envd)

Sustainability Practices from ENVD	N	Minimum	Maximum	Mean	Std. Deviation
Practices related to implementing formal declarations about university policies on global warming and climate change	188	2	5	3.54	.776
Practices related to implementing long-term environmental policies	188	1	5	3.57	.846
Practices related to implementing environmental management systems	188	1	5	3.59	.852
Practices related to implementing regular energy audits	188	1	5	3.53	.797
Practices related to reducing energy consumption	188	1	5	3.53	.837
Practices related to reducing water consumption	188	1	5	3.52	.849
Practices related to implementing regular audits for consumption of water	188	1	5	3.52	.849
Practices related to preventing of waste water	188	1	5	3.54	.849
Practices related to assessing the quantity of recycled supplies	188	2	5	3.53	.777
Practices related to reducing noise	188	1	5	3.57	.890
Practices related to reducing emission	188	1	5	3.57	.853
Practices related to encouraging environmental awareness, activities and researches	188	1	5	3.64	.825

Table VII: Sustainability Practices From Companies Dimension (Comd)

Sustainability Practices from COMD	N	Minimum	Maximum	Mean	Std. Deviation
Practices related to implementing research networks between university and companies to create, share and transfer knowledge	188	2	5	3.74	.738
Practices related to implementing sustainable criteria in the contracting and selection of suppliers	188	2	5	3.74	.723
Practices related to designing criteria and special recruitment programmes with companies with integration of groups at risk of social exclusion	188	2	5	3.65	.703
Practices related to improving information on the percentage of goods bought which are sustainable (social brand reputation)	188	2	5	3.64	.750
Practices related to improving information on the percentage of contracts paid in the terms agreed upon	188	2	5	3.64	.751
Practices related to enhancing scientific, humanistic and/or technological disclosure	188	2	5	3.65	.769
Practices related to facilitating outsourcing procedures	188	1	5	3.59	.766
Practices related to enhancing quantity of ecological products bought from local suppliers	188	2	5	3.66	.761
Practices related to buying products which reduced environmental impact	188	1	5	3.66	.780
Practices related to encouraging business activities	188	1	5	3.71	.769
Practices related to implementing save energy policies	188	2	5	3.68	.749
Practices related to implementing save water policies	188	1	5	3.64	.850

Table VIII. Sustainability Practices From Continues Improvement Dimension (Cimd)

Sustainability Practices from CIMD	N	Minimum	Maximum	Mean	Std. Deviation
Practices related to implementing complaints and suggestions by categories by different stakeholders	188	1	5	3.64	.806
Practices related to measuring number of incidents of discrimination	188	1	5	3.60	.951
Practices related to assessing number of complaints regarding privacy and data protection	188	1	5	3.67	.906
Practices related to implementing continuous improvement in management and service	188	1	5	3.67	.864
Practices related to implementing continuous improvement in accreditation	188	1	5	3.71	.811
Practices related to implementing continuous improvement in infrastructure	188	1	5	3.69	.921
Practices related to implementing policies being regularly evaluated for the hiring of catering services, with sustainable criteria	188	1	5	3.60	.917
Practices related to implementing online complaints and suggestions	188	1	5	3.67	.894
Practices related to implementing continuous improvement in curriculum	188	1	5	3.73	.798
Practices related to implementing continuous improvement in industrial relations	188	1	5	3.77	.737
Practices related to implementing continuous improvement with stakeholders	188	2	5	3.72	.715
Practices related to implementing continuous improvement in collaboration with other universities	188	2	5	3.85	.738

Researchers also found that Practices related to encouraging environmental awareness, activities and research are the most common practices in NDUM for sustainability practices from environment dimension, similarly to the study in UKM by [7] that encourages students to switch off the lights and computers, and use passive cooling ventilation for constructing buildings. As compared to [5], the most common practices are related to reducing energy consumption. Rresearchers are in the opinion that sustainability practices from environment in NDUM are still at the

environmental awareness level and based on observation, notices on reducing energy consumption are not a big issue in the university. There are two identified least common sustainability practices in this dimension; first, Practices related to reducing water consumption and second, Practices related to implementing regular audits for the consumption of water. This is consistent with [12] that found that Malaysian Polytechnics were not implementing water conservation and ‘green’ practices in their institutions.

Table IX: Level Of Sustainability Practices In National Defence University Of Malaysia

N	Corporate Governance						Companies	Continues Improvement
	Valid	Missing	Student	Staff	Society	Environment		
	188		188	188	188	188	188	188
		0	0	0	0	0	0	0
Mean		3.6121	3.7611	3.6822	3.7057	3.5541	3.6689	3.6928
Median		3.6667	3.9167	3.8333	3.7500	3.6667	3.7083	3.9167
Std. Deviation		.61529	.65270	.67306	.62363	.72834	.62185	.69856
Variance		.379	.426	.453	.389	.530	.387	.488
Range		3.00	3.00	3.67	3.00	3.58	3.00	3.83
Minimum		2.00	2.00	1.33	2.00	1.42	2.00	1.17
Maximum		5.00	5.00	5.00	5.00	5.00	5.00	5.00
Skewness		.008	-.346	-.620	-.172	-.394	-.263	-.440
Level*		Medium	Medium	Medium	Medium	Medium	Medium	Medium

Researchers also found that Practices related to implementing research networks between university and companies to create, share and transfer knowledge are the most common practices in sustainability practices from companies dimension and this is consistent with [5]. This finding is also supported by [13] that stated that when higher education institutions have good rapport with companies, where such companies have trainees or graduating opportunities, graduates have jobs in the companies and teachers have a part time job with the companies, it is considered as practicing sustainability. Researchers also found that Practices related to implementing sustainable criteria in the contracting and selection of suppliers are also the most common practices in this dimension and this contradicts with [5] that found that this practice is the least common practices in Spain. Practices related to implementing continuous improvement in collaboration with other universities are the most common practices in NDUM for sustainability practices from continuous improvement dimension and it is consistent with [5]. Practices related to measuring the number of incidents of discrimination are the least common practices from continuous improvement dimension in NDUM and this is consistent with [5]. The level of all sustainability practices from each dimension is at a medium level. Researchers are in the opinion that there is an existence of sustainability practice in NDUM as compared to [5] that focused on Spanish universities. However, the top management must play a role in empowering sustainability practices in the organisation.

6. conclusion and recommendation

Though there are less common sustainability practices in each dimension, the least common sustainability practices in NDUM are more than 3.5 in average. These findings show the existence of sustainability practices in NDUM, but the policies should be improved from time to time, such as disabled students and staff, improving social responsibility practices, encouraging environmental awareness campaign, improving outsourcing procedure with sustainable criteria and preventing any discrimination. The cooperation between the top management, academic and non-academic staff and students should be increased so that the top management creates friendly policies on sustainability practices to be sustained in the long term. It is recommended for further studies to be carried out on other respondents of public universities to investigate whether there are any similarities in findings. Besides that, the potential researches in this field may also adopt the qualitative research methods, such as interview and focus group discussion for an in-depth study.

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