

Dimensions of Sustainability Practices for National Defence University of Malaysia

*Norlaila Mazura Hj. Mohaiyadin, Khairunnisa Mardzuki, Jessica Ong Hai Liaw,
Ahmad Azan Ridzuan, Aida Nasirah Abdullah and S. Inderjit.*

Faculty of Defence Studies & Management, National Defence University of Malaysia.

Abstract: The aims of this study are; (1) to review the sustainable development and sustainability practices for the Higher Education Institute (HEI) and (2) to present a conceptual framework of the dimensions of sustainability practices for the National Defence University of Malaysia (NDUM). This study uses a comprehensive literature review on sustainable development and sustainability practices in the HEI from year 1997 to 2016 at the national and international levels. This study identifies nine dimensions of the conceptual framework of sustainability practices for the NDUM which include: (1) Corporate Governance, (2) Students, (3) Staff, (4) Societal, (5) Environment, (6) Companies, (7) Health and Well-being, (8) Economic and Wealth, and (9) Continuous Improvement. This study can be extended to the construction of a survey to identify the items involved in each dimension of sustainability practices of the HEI in detail. In addition, this study can be lengthened to the creation of a sustainability index for the HEI to be used as a key performance index. Finally, this study can also be used for empirical studies to investigate the relationship between dimensions, regression and comparative study on sustainability practices among the HEI.

Key words: *Dimension of Sustainability Practices, Conceptual Framework*

INTRODUCTION

The issue of sustainability is significant to the Malaysian Higher Education Institute (HEI). However, the extensive discussions on sustainable development and focus on the dimensions of sustainability practices in the HEI, Malaysia are still limited and if available, merely focusing on the Malaysian Research University. Figure 1 show the number of articles on sustainable development in HEI, Malaysia from year 2009 to 2016 and this is the evidence of study in sustainable development in HEI, Malaysia which was merely initiated in year 2009. Authors found three articles that discussed on sustainable development in Malaysian College University or Polytechnic or College such as by

Keoy, Fadzil and Masnizan [1], Wilfredo and Crystal [2] and Nair, Mohamed and Marimuthu [3]. Additionally, authors identified ten articles that highlighted on sustainable development in Malaysian Research University such as by Omidreza, Elias, Osman and Kamariah [4], Zuhairuse et al. [5], Gobi and Rafee Majid [6], Omidreza [7], Mohd, Nur, Muhammad, Ismar and Adi [8], Wan Nur'ashiqin et al. [9], Ahmad, Mohammad, Hayati, Hasimah and Masilah [10], Norfadillah, Halimanton and Kamariah [11], Kwami, Che-Ani, Tawil and Basri [12], and Rosazman and Velan [13].

Corresponding Author: Norlaila Mazura Hj. Mohaiyadin, Lecturer, Sustainability in Higher Learning Education; Accounting Education; Education Management; Renewable Energy; Aborigines; National Defence University of Malaysia, Malaysia, norlaila@upnm.edu.my, +60123921375

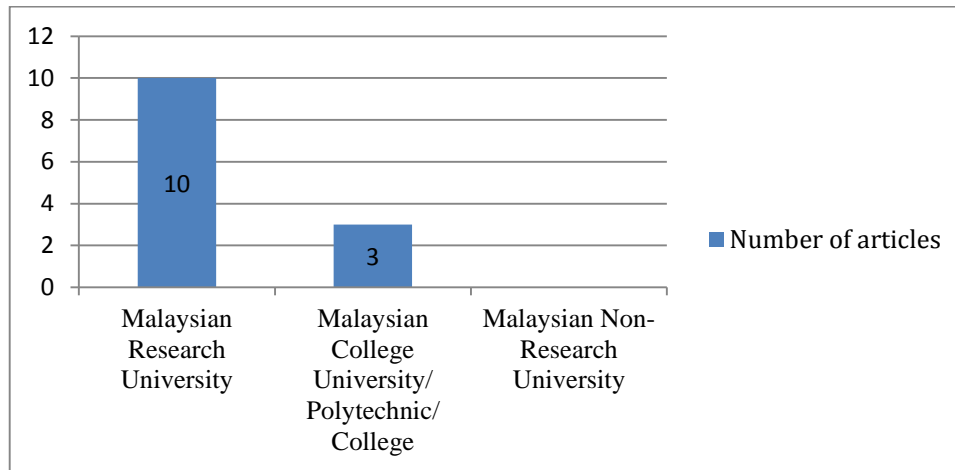


Figure 1: Number of articles on Sustainable Development in Malaysia from 2009 to 2016

Currently, there are no attempts to study and focus on the dimensions of sustainability practices in Malaysian Non-Research University and to fill the research gaps; this study focuses on the sustainability practices and creating a conceptual framework of the dimension of sustainability practices for the National Defence University of Malaysia (NDUM). This study will subsequently contribute to the awareness of sustainability practices among members in the NDUM and as an additional literature review in the field of sustainable development issues.

Objectives

The aims of this study are; (1) to review the sustainable development and sustainability practices

for the Higher Education Institute (HEI) and (2) to present a conceptual framework of the dimension of sustainability practices for the NDUM.

RESEARCH METHODOLOGY

This study uses a comprehensive literature review on sustainable development and sustainability practices in the HEI from year 1997 to 2016 at the national and international levels. Table 1 shows the published articles from year 1997 to 2016 with a total of 26 articles in respect to the sustainable development and sustainable practices in the HEI based on the country. Table 1 is developed to guide the development of a conceptual framework of this study and meeting the first aim of this study.

	1997-2001	2002-2006	2007-2011	2012-2016	Total Number of Article
Canada	1	2			3
Malaysia			6	7	13
USA		1			1
Europe	1		1	5	7
Mexico		1			1
China				1	1
Total Number of Article	2	4	7	13	26

Table 1: Articles on Sustainable Development and Sustainability Practices in HEI from Year 1997 to 2016 (based on country)

There are six countries involved in the publication of sustainable development and sustainability practices in the HEI. Authors found two articles; one

from Europe [14] and one from Canada [15] for the year 1997 to 2001. Authors later found four articles;

two from Canada [16-17] one from the USA [18], and one from Mexico [19] for year 2002 to 2006.

Moreover, authors also found seven articles; six from Malaysia [4-9] and one from Europe [20] for the year 2007 to 2011. Authors also found 13 articles; seven from Malaysia [1-3, 10-13] and five from Europe [21-25] and one from China [26] for the year 2012 to 2016.

FINDINGS

Table 2 presents the dimensions of sustainability practices based on the country. Researchers found

eight articles that discussed the corporate governance or university operation as one of the criteria for sustainability practices in the HEI. The activities involved may include the mission and vision setting that relate to sustainability in the HEI, policy decision making on sustainability in the HEI and university’s operation towards the sustainability practices. Authors found five countries that discussed the sustainable issue in corporate governance or university operation; Canada by Cole [16] and Legacy [17], the USA by Anthony [18], Mexico by Velazquez et al. [19], Europe by Manuel et al. [23], and Malaysia by Wilfredo and Crystal [2], Omidreza et al. [4], and Rosazman and Velan [13].

	Canada	Mexico	Malaysia	USA	Europe	China
Corporate Governance/ University Operation	2	1	3	1	1	
Student			3	1	5	1
Staff			4	2	2	1
Societal	3			1	2	
Environment/ Infrastructure Development	3	1	4		2	
Companies		1	1		2	
Health and Well-being/ Welfare	2		1		1	
Economic and Wealth	3				1	
Continuous Improvement/ Operational Practices			3		1	

Table 2: Dimensions of Sustainability Practices (based on dimension)

On the other hand, authors found that education is one of the dimensions in sustainability practices in the HEI. This dimension represents the student dimension in Table 2 because it seems like developing the sustainability curriculum for the students, how the education may cater to the industrial demand, marketability and comparability with other institutions. Authors found four countries that discussed on sustainability in student dimension such as the USA by Anthony [18], Malaysia by Wilfredo and Crystal [2], Omidreza et al. [4] and Rosazman and Velan [13], China by Hongwei et al. [26], and Europe by Roorda [14], Manuel et al. [23] and Staniskis and Katiliute [25]. Additionally, Missimer and Connell [22] focused on complex evaluation of sustainability in engineering education in Kaunas University Technology, Lithuania and Blekinge Institute of Technology, Sweden respectively. Svanstrom, Lozano-Garcia and Rowe

[27] revealed that sustainability issues in Learning Outcomes (LO) were also properly addressed in higher education curriculums in Tbilisi and Barcelona.

The staff dimension in sustainability practices in Table 2 covered on the welfare of academicians. The welfare of academicians revolves around the research grants on sustainable development, publication cost on sustainable development research, training, career plans and participation in mobility programmes. There are four countries that elaborated on this sustainability dimension; Europe by Roorda [14] and Manuel et al. [23], the USA by Anthony [18] and Velazquez, Munguia, Platt and Taddei [19], China by Hongwei et al. [26] and Malaysia by Wilfredo and Crystal [2], Omidreza et al. [4], Rosazman and Velan [13]. On the other hand, Nair et al. [3] found that there are needs to educate

trainee teachers (male and female) to achieve sustainability in science education.

Authors found only six articles from three countries that discussed on society issue in sustainability practices denoted in Table 2. The articles include from Canada by Dale [15], Cole [16] and Legacy [17], Europe by Roorda [14] and Manuel, et al. [23] and the USA by Anthony [18], and they all stated that societal is one of the dimensions of sustainability practices in the HEI. The relationship between the HEI and the locals contributed to the relevancy of the HEI towards the society. Activities can be measured as a society dimension such as social responsibility in terms of financial and non-financial contributions.

Environmental is also one of the dimensions of sustainability practices in the HEI. Authors found 10 articles from four countries including Canada [15-19], Europe [21, 23] and Malaysia [8, 10, 12-13] as presented in Table 2. Ahmad et al. [10] emphasised that the Energy Efficiency Index (EEI) is used as an indicator for the buildings' energy consumption performance in Universiti Teknologi Malaysia. Mohd et al. [8] found that there were physical developments planning in Research University Campuses in Malaysia, and that the Malaysia Science University or *Universiti Sains Malaysia* has the fewest problems as compared to other universities. On the other hand, Disterheft et al. [21] denoted that the Environmental Management System (EMS) can be employed as a tool for campus sustainability.

To measure the companies or professional field in sustainability practices or sustainable development in the HEI is to measure how far the HEI collaborated with the industries. Table 2 presents four articles from three countries such as Europe [14, 23], Mexico [19] and Malaysia [4]. Table 2 also highlights only four articles from Canada by Cole [16] and Legacy [17], Europe by Manuel et al. [23] and Malaysia by Kwami et al. [12] that discussed on health and well-being, which is one of the dimensions of sustainability practices in the HEI. To measure the health and well-being is referring to the health and well-being of the HEI's citizens, including consistency in insurance claim and

perhaps, the happy index could be adopted to measure the well-being of the HEI's citizens.

Moreover, authors found four articles from two countries that discussed on economic and wealth as one of the dimensions in sustainable development such as Canada [15-17] and Europe [23]. In this matter, authors believe that if other dimensions are sustained, therefore the economic and wealth of the HEI will be sustained as well. Last but not least, authors found four articles from two countries that discussed on continuous improvement or self-assessment or self-audit towards the other dimensions such as from Malaysia by Wilfredo and Crystal [2], Omidreza et al. [4], and Rosazman and Velan [13], and Europe by Manuel et al. [23]. Thus, with the above findings and to achieve the second aim of the study, authors identified nine dimensions for the conceptual framework of sustainability practices for the NDUM; (1) Corporate Governance, (2) Students, (3) Staff, (4) Societal, (5) Environment, (6) Companies, (7) Health and Well-being, (8) Economic and Wealth, and (9) Continuous Improvement as presented in Figure 2.

DISCUSSIONS

The term sustainability has been introduced to the world since 1987 by Gro Harlem Brundtland, the Vice President of the World Social Party in its report entitled "Our Common Future" and formally adopted by the United Nations (UN) in 1992 in the Sustainable UN Agenda 21 report. However, in regards to the sustainable issues in the HEI, it has been generally introduced in the early 1990s and the discussion is limited to few countries in the world. Similarly with sustainable issues in the HEI in Malaysia, many studies were introduced in 2007 alone and the discussion is limited to the research universities, some colleges and private universities without the involvement of non-research universities. Thus, a conceptual framework for this study is very useful to all universities in Malaysia, especially the NDUM because this study identifies the exact dimensions to measure the sustainability practice that can be implemented in universities based on previous literatures as shown in Figure 2. The findings can be used as empirical evidence because there are limited empirical researches in the HEI, Malaysia.

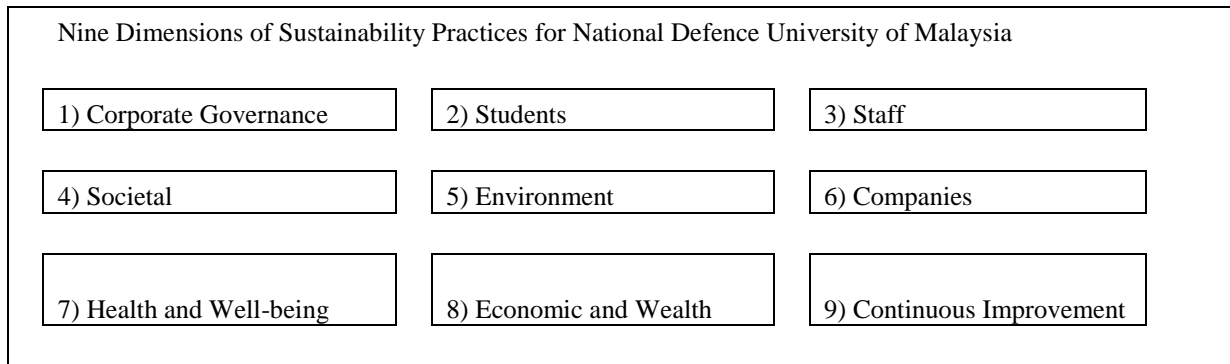


Figure 2: A Conceptual Framework of the Dimensions of Sustainability Practices for National Defence University of Malaysia

CONCLUSIONS AND RECOMMENDATIONS

This study discovered nine primary dimensions to measure the sustainability practices in the NDUM through comprehensive literature review on sustainable development or sustainability practices in the HEI from year 1997 to 2016 at the national and international levels. A conceptual framework of the dimensions of sustainability practices for the NDUM is created as a guide to explore how the sustainability practices are being implemented in the NDUM. This study can be extended to the construction of a survey to identify the items involved in each dimension of sustainability practices of the HEI in detail. In addition, this study can be lengthened to the creation of a sustainability index for the HEI to be used as a key performance index. Finally, this study can be used for empirical studies to investigate the relationship between dimensions, regression and comparative study on sustainability practices among the HEI in Malaysia.

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