



## Exploring strategies for sustainable 'ecocampus': The experience of Universiti Malaysia Sabah

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### Abstract

The ideal of sustainability is to balance social needs with economic growth and environmental integrity. The importance of this ideal cannot be over-emphasised such that sustainable campus should be implemented in higher educational institutions to nurture the practice of environmental sustainability. In 2013, Universiti Malaysia Sabah (UMS) introduced the idea of sustainable campus (EcoCampus) accompanied by the establishment of EcoCampus Management Centre. This paper explores current strategies to achieve this vision of EcoCampus based on secondary sources of information. Reports regarding the UMS strategies to achieve sustainable campus were obtained for the period 2013 - February 2015. The findings reveal that UMS has successfully introduced a five-year plan for the period of 2013 to 2017 to transform UMS into EcoCampus including natural resource conservation and energy saving projects.

**Keywords:** EcoCampus, environmental awareness, environmental practice, sustainable campus, sustainability strategies, UMS

### Introduction

The issue of sustainability is an agenda that centralizes the balance of social needs, economy and the environment. Hall (2000: 4) opined that "*sustainability is everyone's concern*" and "*one of the biggest challenges of the twenty-first century*" (van Weenen, 2000: 20). In accordance with that, sustainability issue has been applied in the sphere of tertiary education. Sustainable campus or university with sustainable quality is a globally debated topic in which the topic of sustainability should be employed in tertiary education so that the benefits can be nurtured in the long run. The institutions of higher education are a place to gain knowledge and sustainability needs to be studied in order to achieve the vision and mission of each university.

Thus, sustainability issue can be tackled via education provided at the higher level institution by deeply exploring the topics encased in the concept of sustainability. The thought of sustainability has existed for two decades ago and institutions of higher education across the globe are trying to practice and inculcate the idea of sustainability concept. In 1990, 22 universities signed the Talloires Declaration that brings the idea of sustainability in the sphere of tertiary education encompassing all aspects of administration and learning such as research, operation and university outreach which is deputized under the patronage of University Leaders for a Sustainable Future (ULSF, 1994). In line with its founding, other international universities started to join the Declaration and participation jumped to 437 as of March 2012. This idea is supported by the *United Nations Decade of Education for Sustainable Development* (DESD) (2005-2014) in which the organization emphasizes education so that the idea of sustainable concept can be applied among the university community, represented by the academic staff, administrative staff and students.

In Malaysia, education is a key priority in the government policy in which the Malaysian government acknowledged that education can produce a useful human capital and at the same time assists in realizing the Vision 2020. Additionally, in Malaysia, a number of institutions are given the status of Research University such as Universiti Malaya, Universiti Sains Malaysia, Universiti

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Kebangsaan Malaysia, Universiti Putra Malaysia and Universiti Teknologi Malaysia. These universities are recently listed in the QS World University Rankings ([www.myuniversiti.com](http://www.myuniversiti.com)). This is a positive outcome of the university educational system in Malaysia since they are appreciated and turned out to be able to contend with other universities globally. Thus, the issue of campus sustainability plays an important part in sustaining the position of best university that puts up a good educational services on par with the higher education offered abroad. The research on sustainable campus in Malaysia is still in its infancy and only a few studies about sustainable campus have been carried out by local researchers. Researchers have analysed literature regarding to sustainable campus in Malaysia and found that most studies about sustainable campus in the country are carried out in the peninsular Malaysia but none in Sabah. In Sabah, Universiti Malaysia Sabah has been categorised as a comprehensive university and started out to embrace the precepts of sustainable growth in the campus. Therefore, studies on sustainable campus need to be done in Universiti Malaysia Sabah to identify strategies adopted by the university in realizing the idea of sustainable development.

## Literature review

### *Concept of Sustainable Higher Education (SHE)*

The concept of SHE has different interpretations according to researchers in this particular field. Velazquez, Munguia, Platt and Taddei (2006: 812) in their article titled *Sustainable university: what can be the matter?* defined sustainable campus as “a higher educational institution, as a whole or as a part, that addresses, involves, and promotes on a regional or global level, the minimization of negative environmental, economic, societal and health effects generated in the use of their resources in order to fulfil its functions of teaching, research, outreach and partnership, and stewardship in ways to help society make the transition to sustainable lifestyles.” Similarly, Sinniah and Majid (2009: 1) defined sustainable campus as “a higher educational institution that practises and promotes the minimization of adverse environment, economic and societal impacts in the use of its resources in order to fulfil its function of teaching and conducting research.” Apart from that, a western researcher Cole (2003: 30) defined sustainable campus as “an institution which actively engages the knowledge of the university community to address the ecological and social challenges that we face now and in the future.” Local researchers such as Saadatian et al. (2009) propose that institutions of higher education in Malaysia are already taking on the concept of sustainability in their governing body that is demonstrated through several initiatives which are divided into five basic parts such as (1) sustainability in policy, planning and administrations (2) sustainable courses and curricula (3) research and scholarship (4) university’s operations, and (5) outreach and services.

To promote the concept of sustainability in the university administration, *Energy & Environmental Education Resources, Inc.* (2006) outlined three basic components that are (1) improving economic efficiency, (2) protecting and conserving the ecological system, and (3) improving human welfare. All of these components must be realized so that the goal of sustainable campus can be achieved.

### *Sustainable campus literature review*

Studies on sustainable campus have been conducted by researchers in Malaysia as well as other countries. Several higher learning institutions abroad became case studies for sustainable campus, such as the University of Amsterdam (van Weenen, 2000), University of Michigan (Levy & Marans, 2012), Griffith University (Davis et al., 2009), College of Alabama and College of Hawaii (Emanuel & Adams, 2011) as well as 80 other institutions in other countries conducted by Velazquez et al. (2006). While in Malaysia, a number of local universities have been chosen to become units of analysis, such as Universiti Kebangsaan Malaysia (Saadatian et al., 2009; Wan Nur’ashiqin et al., 2011; Derahim et al., 2012; Fadzil et al., 2012; Err, 2012), Universiti Sains Malaysia (Saadatian et al., 2009), Universiti Malaya (Saadatian et al., 2009), Universiti Putra Malaysia (Saadatian et al., 2009), Universiti Teknologi Malaysia (Sinniah & Majid, 2009).

A study by van Weenen (2000) entitles “Towards a vision of a sustainable university” has successfully developed a model that is known as ‘the sustainable university classification model’

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based on his study subject, the University of Amsterdam. He has introduced the needs to include the concept of SHE that is interpreted into a concept recognized as “LIFE” which ‘L’ represents *the limits in resources*, ‘I’ as *independent*, ‘F’ as *fundamental changes* and ‘E’ as *equity*. With this, he formulates that sustainable development can be “achieved “by acknowledging limits, by respecting interdependence with nature, by addressing fundamental aspects of production and consumption, and by actively working with developing countries practically to realise a more equitable distribution and use of resources.”

Levy and Marans (2012), on the other hand, have conducted a research in the University of Michigan by proposing a concept recognized as ‘culture of environmental sustainability’ and the objective of the survey is to provide guidelines on how other institutions can promote pro-environmental behaviour in their respective campuses. The results of the study showed that there are 5 factors that influence individual behaviour that are (1) knowledge about a raised issue, (2) knowledge procedures, (3) social incentive, (4) material incentive and (5) reminder or warning. With these components, the researchers believe that University of Michigan must carry out three actions that can underpin the evolution of pro-environmental behaviour through education, collaboration and evaluation.

In Malaysia, Universiti Kebangsaan Malaysia (UKM) has been the most popular study subject for the topic of sustainable campus. Many local researchers favoured UKM as their study subject and interesting results have been documented. For instance, Err and Catherine (2012) studied how networks of key parties may realize the idea of campus sustainability in UKM using the theoretical framework of ecological modernization. The results of this study demonstrated that networks of key parties such as government-university, university-community, government-community is indispensable to achieve sustainable campus in UKM. The government-university played an essential role in reaching sustainable development through environmental reform, making decisions to implement environmental programs with the utilization of science and technology. Meanwhile, university-community network proved to be able to achieve the idea of sustainable campus in UKM with the support of the community in activities such as Zero Waste Program and Recycling Centre. On the other hand, the network of government-community was established through the formation of environmental clubs and associations such as Zero Waste program and I Love My Ecosystem. The authors later concluded the study by suggesting that environmental management in the university is not entirely about environmental protection alone, but also every aspect of life of the UKM community. Derahim et al. (2012) carried out a study about knowledge, awareness and the involvement of UKM students and its staff. According to the researchers, the UKM community, namely staffs and students are the most important individuals in satisfying the idea of sustainable development. The outcome of the study found that, the major challenge for the administration of UKM to create a sustainable campus is the gaps and weaknesses in students’ knowledge and awareness.

Saadatian et al. (2011) indicated that the engagement of the campus community needs to be studied to realize the idea of sustainable campus in the institutions of higher learning in Malaysia. A survey has been conducted by the researchers on Malaysian professionals who attended the 3rd International Conference on Sustainability held at USM on 20-22 November 2009. The outcome of this survey found that the community and sustainability in the campus context have a strong relationship. Several challenges have been identified as the obstacles in accomplishing the goal of campus sustainability in higher learning institution in Malaysia such as ethnic polarization, less fluent in English and gender asymmetries in the admission process. However, the researchers in this study acknowledge that the community is a significant aspect to develop the idea of sustainability on campus in Malaysia.

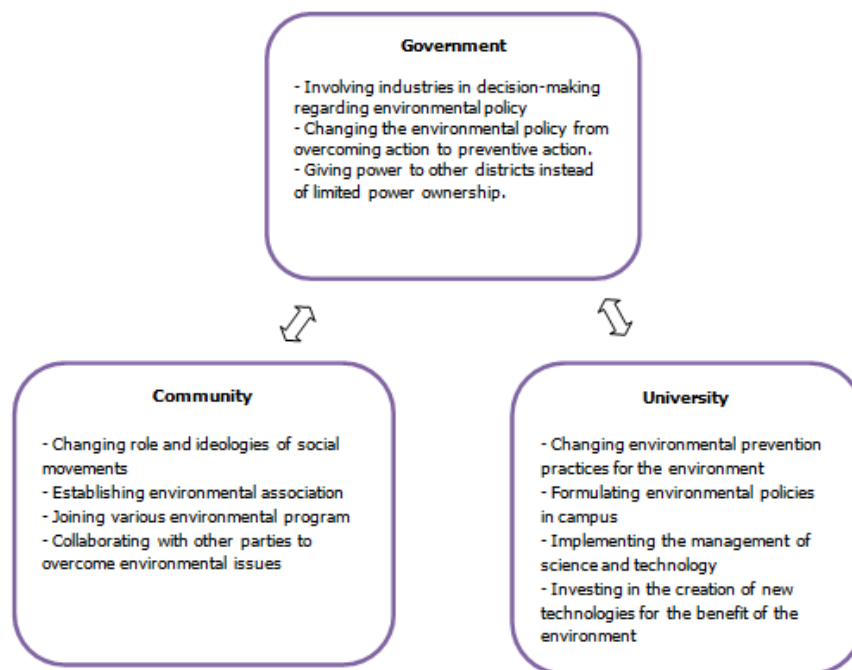
#### *Ecological modernization theory application in the context of sustainable campus*

Ecological modernization theory emphasizes the importance of the environment and has already become an important perspective in the field of environmental sociology (Büttel, 2000). This theory has also become the main framework in environmental studies that are widely practiced by western scholars and has been used to generate an understanding of the dynamics and mechanisms that can enhance the management and improvement of environmental performance (Er & Catherine, 2012).

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The early writing by Mol in 1997 entitled *International Handbook of Environmental Sociology* provides a clear understanding relating to theories of environmental sociology including the ecological modernization theory. In the setting of the campus, ecological modernization theory can be used to determine how the idea of sustainable campus can be achieved with the support of the stakeholders who have an interest in this matter. Er and Catherine (2013) claimed that, no research about the relationship between the government and universities had been done before. Therefore, the writers of this paper believe that the ecological modernization theory in the context of sustainable campus can be used to explain the relationship between the stakeholders using Universiti Malaysia Sabah (UMS) as a case study.

Er and Catherine (2012) who chose Universiti Kebangsaan Malaysia as a study case successfully applied this theory and analysed the issue between the three major stakeholders in the environmental management. Three stakeholders in the context of sustainable campus have been identified, namely the government, universities and communities (see figure 1). Each party bears its own function and responsibility in realizing the idea of a sustainable campus. First, the government is ready to allow universities to participate in decision-making regarding environmental issues. As the universities can maintain environmental resources, the government should help universities to distribute environmental responsibilities. Second, universities play an important role in attempts to engender new knowledge in science and technology. This can be viewed from the aspect of research in which academics need to create new technology that are environmentally friendly so that natural resources can be maintained in accordance with the concept of sustainable development. Third, the public can also participate in the programs and seminars that emphasize the idea of sustainable campus. With the community participation in sustainable campus activities they have the opportunity to identify the importance and gaining new knowledge about the environment. Through this awareness, it may assist in making the public to continue caring for the environment and sustainable campus in general.



Source: adapted from Er & Catherine (2012: 111)

**Figure 1:** Ecological modernization theory

*Previous literature regarding local and abroad universities strategies towards the vision of sustainable campus*

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Saadatian et al. (2009) classified university could implement strategies towards sustainable campus by having 5 rubrics, there are (1) sustainability in policy, planning and administration, (2) sustainable courses and curricula, (3) research and scholarship, (4) university's operation, and (5) outreach and services. The below table indicates that the local and international universities successfully introduced strategies that hoped to realise campus sustainability.

**Table 1. Local and International universities' strategies towards sustainable campus**

Strategies		
	Universities	Examples of strategies
Sustainability in policy, planning and administration	Universiti Malaya (UM)	<ul style="list-style-type: none"> <li>Enhance awareness through social responsibility and respect to environment and sustainability</li> </ul>
	Universiti Kebangsaan Malaysia (UKM)	<ul style="list-style-type: none"> <li>Sustainable Programme e. g. Sustainable UKM Charter.</li> </ul>
	Universiti Sains Malaysia (USM)	<ul style="list-style-type: none"> <li>'The University in a Garden',</li> <li>'Kampus Sejahtera'</li> </ul>
	Universiti Putra Malaysia (UPM)	<ul style="list-style-type: none"> <li>'<i>AlamCipta</i>': International Journal on Sustainable Tropical Design Research and Practice</li> </ul>
Sustainable courses and curricula	University of Georgia, Bucknell University, Furman College	<ul style="list-style-type: none"> <li>Environmental courses</li> </ul>
	University of Maryland	<ul style="list-style-type: none"> <li>Environmental courses through peer education programs</li> </ul>
	University of California, University of Berkeley & University of Pennsylvania	<ul style="list-style-type: none"> <li>Sustainable training in building design for workers</li> </ul>
	University of Michigan, University of Waterloo	<ul style="list-style-type: none"> <li>Outreach teams of innovative engineering projects e.g. solar car</li> </ul>
	Universiti Malaya (UM)	<ul style="list-style-type: none"> <li>Master's level course known as 'Integrated Approaches to Sustainable Development Practice'</li> <li>Bachelor of Environmental Engineering</li> <li>Masters and PhD programmes with related sustainability issues</li> <li>Centre for Research in Biotechnology for Agriculture (CEBAR)</li> </ul>
	Universiti Kebangsaan Malaysia (UKM)	<ul style="list-style-type: none"> <li>Programmes entail sustainability issues for an example, 'Sustainable Use of Natural Resources</li> <li>Bachelor degrees for an example, Environmental Health and so on</li> <li>Masters and PhD programmes</li> </ul>
	Universiti Sains Malaysia (USM)	<ul style="list-style-type: none"> <li>Centre for Education, Training and Research in Renewable Energy Efficiency (CETREE)</li> <li>Masters and PhD programmes</li> </ul>
Sustainable Research and Scholarship	Universiti Putra Malaysia (UPM)	<ul style="list-style-type: none"> <li>Faculty of Biotechnology and Bio molecular Sciences</li> <li>Bachelor, Masters and PhD programmes related to sustainability issues</li> <li>First Semester of 2007-2008, UPM offered 39 courses at the post-graduate level</li> </ul>
		Universiti Malaya (UM)

		Environmental Management and Technology” between Malaysia, Denmark, and Netherland
	Universiti Kebangsaan Malaysia (UKM)	<ul style="list-style-type: none"> <li>• Institute of Environment and Development (LESTARI) provides opportunities for students to undertake research on sustainability issues</li> <li>• Housed Lake Chini Research Centre and Institute of Solar Energy Research (SERI) among the institutes studies on issues related sustainability</li> <li>• Obtained around RM229 million research grants from various sources</li> </ul>
	Universiti Sains Malaysia (USM)	<ul style="list-style-type: none"> <li>• ‘Kampus Sejahtera’ have been published 17 monographs and books containing issues on sustainability</li> <li>• USM has funded and collaborated in 50 projects related to issues on sustainability under the ‘Kampus Sejahtera’ programme.</li> <li>• USM has also provide various fellowships to students at Masters and PhD levels</li> </ul>
	Universiti Putra Malaysia (UPM)	<ul style="list-style-type: none"> <li>• UPM has given financial support such as fellowship or different kinds of research assistantship to students</li> <li>• Institutes which are researching on issues related to sustainability include the Institute of Bioscience, Institute for Community and Peace Studies, Institute of Tropical Forestry and Forest Products, Faculty of Environmental Studies and Faculty of Design and Architecture</li> </ul>
Sustainable operation	Universiti Malaya (UM)	<ul style="list-style-type: none"> <li>• Recycle Project</li> <li>• Established restaurants serving middle eastern dishes and food on the campus and these eating places will let the sizable number of middle eastern students to cater for their favourite foods inside the campus without having to travel and produce emissions of green gas</li> <li>• UM use fluorescent lamps which consume less energy and more efficient</li> <li>• UM not only has been covered by municipality transportation fleet but also private shuttles with the aim to encourage people to use public transportation.</li> </ul>
	Universiti Kebangsaan Malaysia (UKM)	<ul style="list-style-type: none"> <li>• Recycle project</li> <li>• On-going initiatives by the university to conserve energy including encouraging the students to turn off the lights and computers at some faculties, as well as constructing buildings which use passive ventilation for their cooling</li> <li>• UKM has unique and beautiful flora and fauna, with various indigenous sustainable landscapes</li> </ul>
	Universiti Sains Malaysia (USM)	<ul style="list-style-type: none"> <li>• USM provides some bicycles at its sport centre to encourage students to have sustainable transportation mode</li> <li>• Organising different campaigns, such as “No Straws Campaign”, “Say No to Plastic Bag Campaign”, “2700 New Undergraduates’ Pledge to Go Green”, “Banning Polystyrene Containers” were done at the university</li> <li>• Has policy which emphasizes on purchasing green products</li> </ul> <ul style="list-style-type: none"> <li>• Other initiatives such as rain water harvesting, restriction of motorcycle use to reduce noise, energy management programme and energy</li> </ul>

		consumption audit and air quality, have also been introduced by the university
	Universiti Putra Malaysia (UPM)	<ul style="list-style-type: none"> <li>• Recycle project</li> <li>• Public transportation boosted via shuttle services</li> <li>• Cycling lanes</li> <li>• Potable water heaters and coolers have been catered in most of the hostels and study rooms to prevent the students from using their own water heaters and coolers</li> </ul>
	University of Maryland	<ul style="list-style-type: none"> <li>• Enhancing campus community' awareness through Recycle Project which based on green orientation programme</li> </ul>
	University of Vermont and University of Harvard	<ul style="list-style-type: none"> <li>• Enhancing awareness through Recycle Project with "greening one's workplace"</li> </ul>
	California Institute of Technology, Princeton University	<ul style="list-style-type: none"> <li>• Recycle Projects through programme for purchasing green office and cleaning supplies</li> </ul>
	University of Chicago and Massachusetts Institute of Technology	<ul style="list-style-type: none"> <li>• Peer programme for instance "sustainability ambassadors"</li> </ul>
	University of Virginia	<ul style="list-style-type: none"> <li>• Peer programme for instance "conservation advocates"</li> </ul>
	Dartmouth College	<ul style="list-style-type: none"> <li>• "eco-reps" programme under the peer programme</li> </ul>
	University of Wisconsin, Madison	<ul style="list-style-type: none"> <li>• Gain supports to achieve mission of reduce the energy consumption</li> </ul>
	Bucknell University	<ul style="list-style-type: none"> <li>• Have introduced "recycling monitors"</li> </ul>
	Pennsylvania State University	<ul style="list-style-type: none"> <li>• Provides accommodation and study rooms for students to form resident community such as 'Earth House'</li> </ul>
Outreach and services	Universiti Malaya (UM)	<ul style="list-style-type: none"> <li>• Offers distance learning programmes, such as <i>Masters of Bio-safety</i></li> <li>• Part-time programmes for those in the working community</li> <li>• Collaborating with other overseas universities such as University of Southampton with project called "Energy Research Group"</li> <li>• Events pertaining to sustainability have also been held namely, World Environment Day, Rain Forest and Our Environment Exhibition, Earth Day, Green Day, workshop on problem-Based Learning in Environmental Education and '<i>Hari Kesedaran Alam Sekitar</i>'.</li> <li>• UM also has a partnership with WWF Malaysia and NGO in Educational Environment (EE)</li> </ul>
	Universiti Kebangsaan Malaysia (UKM)	<ul style="list-style-type: none"> <li>• UKM offers part-time programmes for working community such as Environmental Management</li> <li>• Has collaborative research works with overseas universities on sustainability such as Mahidol University and Chulalongkorn University in Thailand, Aalborg University in Denmark and Berlage Institute in the Netherland.</li> <li>• "ASEAN-EU" University Network Programme allocated the universities with grants curriculum development to establish new programme such as Masters in Urban Quality Development and Management</li> <li>• UKM community outreach also embarked to initiate projects for the villagers of KundangHulu Johor, and studies on flood mitigation</li> <li>• UKM also has a partnership with WWF Malaysia and NGO in Educational Environment (EE)</li> </ul>
	Universiti Sains Malaysia (USM)	<ul style="list-style-type: none"> <li>• USM offers part-time programmes for the working community as well as distance learning in various aspects of sustainability</li> </ul>

		<ul style="list-style-type: none"> <li>• USM also has a partnership with WWF Malaysia and NGO in Educational Environment (EE)</li> </ul>
	Universiti Putra Malaysia (UPM)	<ul style="list-style-type: none"> <li>• UPM also offers part-time programmes such as Masters of Environmental Studies and distance learning programmes for the working community</li> <li>• UPM has organised workshops, seminars, and lectures, which indirectly and directly are addressing the concept of sustainability</li> <li>• There have been several collaborations with the external community, so as to motivate more sustainable life like the collaboration with Universiti Malaysia Sabah (UMS) to improve the livelihood in Kota Marudu and encourage a sustainable management for shoreline and fisheries</li> <li>• UPM also have partnerships with WWF Malaysia and NGO in Educational Environment (EE)</li> </ul>

Source: Saadatian et al. (2009); Levy & Marans (2012)

## Research method

Secondary data, such as books, journal articles, newspapers, and official websites of multiple institutions were used in this study to identify different strategies employed by higher educational institutions in Malaysia and abroad. Secondary data in this study is important to identify the strategies adopted by other institutions of higher learning and to answer questions that spring up from the judgment of the researchers (Boslaugh, 2007). A number of journals relevant to the issue of sustainable campus in the country and abroad were analysed to understand sustainability. Moreover, in the case of Universiti Malaysia Sabah (UMS) the book of sustainable campus and the official website of 'Eco-campus Management' have been used by the researchers to obtain data regarding the strategies adopted by UMS since the introduction of the idea of sustainable campus. Reports regarding to UMS strategies towards sustainable campus have been obtained from 2013 until February 2015 from the official website of UMS and content analysed by the researchers in this study.

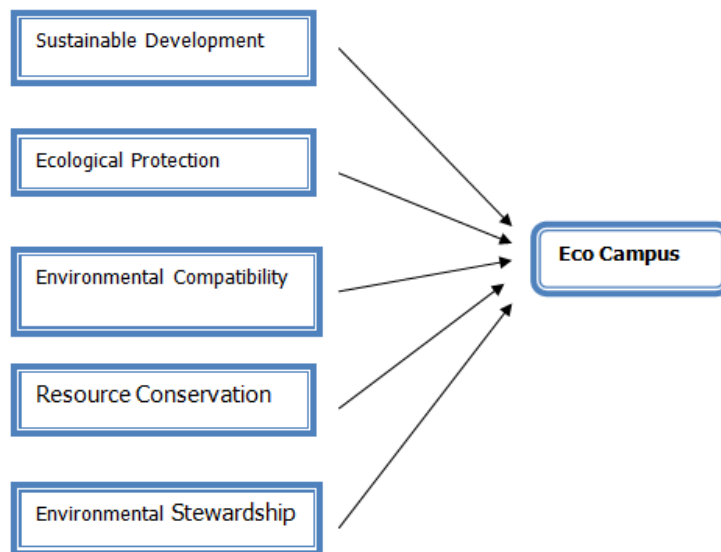
## Findings and discussions

### *The Universiti Malaysia Sabah (UMS) strategies towards sustainable campus*

UMS has introduced the idea of sustainable campus in early 2013 and termed as 'EcoCampus'. In line with the introduction of EcoCampus, UMS establishes a centre entrusted about EcoCampus known as 'EcoCampus Management Centre'. UMS is committed to become an excellent higher educational institution in teaching and research as well as innovative, relevant and sustainable in developing EcoCampus by incorporating environmental considerations in planning and activities. Protection of the environment in the campus is a challenge and this issue is still debated at local, national and global level. Therefore, the participation and cooperation of stakeholders in this matter are important to realize EcoCampus. UMS defined EcoCampus as 'a reference centre that acts as a guardian of the environment, contributes to the global efforts towards sustainability by introducing environmental excellence in teaching and learning, research, infrastructure development, environmental management and operations, as well as all matters affecting the campus', in addition EcoCampus enables institutions to systematically identify, evaluate, manage and improve environmental performance and practical with the main purpose is to promote education and awareness of environmental protection, and move towards environmental sustainability through good planning and operations and practicing management. EcoCampus will be included in the teaching curricula and research and as a foundation, and act as a guide for the campus community through university leadership (EcoCampus Action Plan, 2013: 9).

The cores of UMS EcoCampus in implementing the idea of sustainability in the management of UMS are as follows:

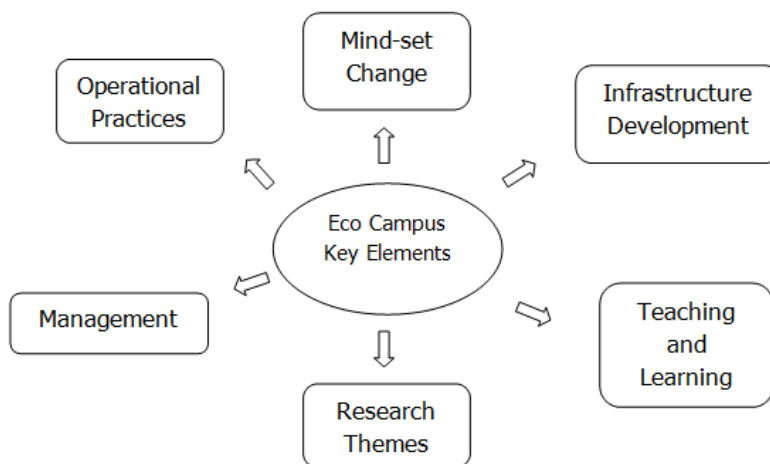




Source: EcoCampus Action Plan (2013: 10-11)

**Figure 1.** *EcoCampus core values*

Six main cores can be beneficial to UMS if they are carried out systematically and effectively as follows:



Source: EcoCampus Action Plan (2013: 12-13)

**Figure 2.** *EcoCampus key elements*

Among the benefits to be derived are (1) strengthening environmental awareness, (2) enabling social change through action, (3) maintaining natural resources and a healthy lifestyle, (3) fostering leadership on the environment, (4) maintaining revenue generation through savings and downstream effects, (5) adapting to climate change, and (6) striving to achieve international recognition. At this time UMS is very committed in this regard and the university strategies in line with the goal of EcoCampus have already been made. There are five phases of the direction and focus of the main activities given by UMS such as the following explanation:

**Table 3. EcoCampus blueprint (2013-2017)**

Phase and Year	Main Activities
Phase 1 and Year 1 (January-December 2013)	<ul style="list-style-type: none"> <li>EcoCampus initiative launched.</li> <li>Environmental Management System (EMS) initiated. Environmental Management System (EMS) Awareness Campaign launched; Training programme for staff; Environmental Policy in Place; International Recognition and Accreditation (ISO14001) sought.</li> <li>Energy, Water, and Paper Saving Programmes reinforced.</li> <li>Research proposals provide due emphasis to the environment and sustainable development reviewed. Acceptance of environmental values as a priority topic of research; encourage research on sustainable development issues; pilot projects.</li> <li>Emphasis on the environment and sustainable development programme contents reviewed. Adopting EcoCampus themes by all sections of the UMS community; inculcating sustainable development concepts across all programmes.</li> <li>Introduction of environmental perspectives in the curriculum.</li> <li>Governing body for EcoCampus established.</li> <li>3R + R/5R (Reduce, Reuse, Recycle, Renew and Respect), emission reduction project, and energy conservation project implemented.</li> <li>EcoCampus seminars and workshops organised.</li> <li>Outreach programmes established; sustainability efforts in the communities in which we reside and serve are supported; environmental leadership training programmes conducted.</li> </ul>
Phase 2 and Year 2 (January-December 2014)	<ul style="list-style-type: none"> <li>Carbon footprint reduced (greening of the campus).</li> <li>Milestone projects implemented.</li> <li>Progressive training of staff in Environmental Management System.</li> <li>Environmental audit carried out (conformance of environmental procedures documented).</li> <li>Green investment mechanisms established.</li> </ul>
Phase 3 and Year 3 (January-December 2015)	<ul style="list-style-type: none"> <li>Environmental Management System (EMS) established and implemented. International recognition and accreditation achieved ISO14001; Audit and management review conducted.</li> <li>Results through international frameworks engaged and shared (exchanging knowledge and experiences).</li> <li>Networks to discuss best practise and exchange ideas set up.</li> <li>Continual improvement reviewed.</li> </ul>
Phase 4 and Year 4 (January-December 2016)	<ul style="list-style-type: none"> <li>Environmental solutions to other institutions of higher education to achieve EcoCampus status provided.</li> <li>Procurement policy in place.</li> <li>Continual improvement reviewed.</li> </ul>
Phase 5 and Year 5 (January-December 2017)	<ul style="list-style-type: none"> <li>Continual improvement reviewed.</li> <li>EcoCampus status declared.</li> </ul>

Source: EcoCampus Action Plan (2013: 18-19)

UMS concentrates on covering all aspects of social, economic and natural environment in which all EcoCampus strategies are based on the concept of sustainability. In particular EcoCampus strategies can be applied in the daily operations of UMS as shown in the following schedule:

**Table 4. EcoCampus management strategies**

Items	Operational practices
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(Green office check list)	<p><i>Personal Computer and Monitor</i></p> <ul style="list-style-type: none"> <li>• Switch off your PC over lunch and whenever you plan to be away from your desk for an extended period of time.</li> <li>• Do not leave the monitor on overnight.</li> <li>• Remove your screen saver.</li> </ul> <p><i>Photocopier, Printer and Scanner</i></p> <ul style="list-style-type: none"> <li>• Make sure the standby is set properly.</li> <li>• Switch printers or photocopiers off overnight.</li> <li>• Print and photocopy less by using double sided.</li> </ul> <p><i>Lights</i></p> <ul style="list-style-type: none"> <li>• Switch lights off in general office areas at night.</li> <li>• Encourage the last one out to turn off the lights.</li> </ul> <p><i>Air Conditioner</i></p> <ul style="list-style-type: none"> <li>• Switch air conditioner off when it is not needed.</li> <li>• Make sure all doors and windows are properly closed.</li> <li>• Make sure that no furniture and other items block the air conditioner.</li> </ul> <p><i>Solid waste</i></p> <ul style="list-style-type: none"> <li>• Email whenever possible</li> <li>• Post documents to websites or shared computer drives.</li> <li>• Use and re-use internal mail envelopes.</li> <li>• Use paper already printed on the side for note paper.</li> </ul>
Student living check list	<ul style="list-style-type: none"> <li>• Turn of the light/fan/air conditioner when not in use.</li> <li>• Buy local products.</li> <li>• Educate ourselves about sustainable foods.</li> <li>• Bring your own utensils.</li> <li>• Reduce waste.</li> <li>• Buy reusable items.</li> <li>• Walk instead of drive for a healthy lifestyle.</li> <li>• Carpool.</li> <li>• Enable power setting management in computer</li> <li>• Drink boiled water instead of bottled water</li> <li>• Report water leaks</li> <li>• Dispose food items in composting bins</li> </ul>
Sustainable kitchen and restaurant guidelines	<p><i>Pollution prevention</i></p> <ul style="list-style-type: none"> <li>• Never pour hazardous wastes down the drain.</li> <li>• Never mix different hazardous wastes.</li> <li>• Chemicals controls.</li> </ul> <p><i>Energy Efficiency and Conservation</i></p> <ul style="list-style-type: none"> <li>• Achieve neutral carbon footprint</li> <li>• Using enly sustainable sources of energy</li> <li>• Using more energy efficient equipment.</li> </ul> <p><i>Non-Toxic Products</i></p> <ul style="list-style-type: none"> <li>• Use biodegradable products.</li> <li>• Look for environmentally friendly label.</li> </ul> <p><i>Purchasing Organic Food</i></p> <ul style="list-style-type: none"> <li>• Purchase organic food is possible.</li> <li>• Think sustainability and biodiversity.</li> <li>• Practice healthy lifestyle.</li> </ul> <p><i>Water Conservation and Efficiency</i></p> <ul style="list-style-type: none"> <li>• Pay attention to pipe leaks.</li> <li>• Repair leaks.</li> <li>• Use equipment that saves water.</li> </ul>
Items	Operational practices
Sustainable kitchen and restaurant guidelines	<p><i>Recycling and Composting</i></p> <ul style="list-style-type: none"> <li>• Reduce waste.</li> <li>• Use reusable items.</li> </ul>

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	<ul style="list-style-type: none"> <li>• Encourage composting</li> </ul>
Awareness	<ul style="list-style-type: none"> <li>• 'SAY NO TO PLASTIC BOTTLE'.</li> </ul>

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Source: UMS EcoCampus Management Centre's Website, 2015

### Current UMS achievement towards EcoCampus (2013-2014)

International collaborations and recognitions
<ul style="list-style-type: none"> <li>• 1<sup>st</sup> University in Asia to be a member in the Environmental Association for Universities and Colleges (EAUC)</li> <li>• 1<sup>ST</sup> University in Malaysia to be a member in International Sustainable Campus Network (ISCN)</li> <li>• Ranked 244<sup>th</sup> globally in 2014 UI Green Metric World University Ranking in 2014</li> <li>• Board Member of South East Asia Sustainable Network (SEASN)</li> <li>• Contributes to Sustainable Development Solutions Network (SDSN) Malaysia Chapter, a United Nations (UN) initiative</li> </ul>
EcoCampus objectives achievements
<ul style="list-style-type: none"> <li>• 62.50 per cent Environmental Awareness Level</li> <li>• 16.82 per cent Reduction in Energy Consumption</li> <li>• 7.00 per cent Reduction in Paper Consumption</li> <li>• 2.15 per cent Reduction in Water Consumption</li> </ul>
EcoCampus Activities
<ul style="list-style-type: none"> <li>• 1 Signed Mou with <i>Hatareka Perunding</i> for Recycling Centre</li> <li>• 1 Signed LoI with Sustainable Energy Development Authority (SEDA) Malaysia for Energy Management</li> <li>• 1 Environmental Management System Committee established</li> <li>• 1 Green Community Committee established</li> <li>• 1 Sustainability Leadership Course developed and organised</li> <li>• 1 Campus Ecotourism package developed and run</li> <li>• 1 CSR Project Fund on Sustainability from CIMB Bank</li> <li>• 2 Regional Conferences on Campus Sustainability in 2014 and 2015</li> <li>• 3 Dedicated EcoCampus Management staffs</li> <li>• 3 Collaborations with local and international universities</li> <li>• 9 Posters on EcoCampus Guidelines published</li> <li>• 16 Sustainability Awareness Event</li> <li>• 29 Sustainability Action Event</li> <li>• 36 EcoCampus Key Person</li> <li>• 62 International and National Media Coverage</li> </ul>

Source: EcoCampus Management Centre Website, 2015

## Conclusion

UMS strategies towards EcoCampus can be achieved if every individual, including the community of UMS exercise their responsibilities properly and thoroughly. The ecological modernization theory is not only relevant but also vital. Further research on sustainable campus may aid UMS to progress in its quest to achieve the goal of sustainable campus.

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