Winter November 10, 2009

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Sustainability in Higher Education in 24 Different Universities

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Abstract,

Sustainability as a development that achieves human needs lasting satisfaction and human life quality improvement, has gained increasing interest among policy makers, planners and academicians all over the world. It has been an important component of the future well-being of humanity and the earth. Universities are one of the key institutions that can contribute to a better understanding of environmental issues. It could play an essential role for the future. A nation that intends to have a high ranking in achieving sustainability, especially in higher education, needs to move forwards to sustainability. This paper by employing literature review method and investigating the initiatives of 24 Universities will analyze the different aspects of sustainability in higher education. The weakness of existing evaluation will be discussed. Finally, the paper will delineate relationship between different actors like outreach and services, operation, research and scholarship, courses and curricula, mission and structure, researchers and scholarship. Result from the study is hoped to enlighten to university top management in terms of sustainable higher education.

Key words: Sustainability, Higher education
1-Introduction

Malaysia is a country that has achieved a high ranking in sustainability in the world by getting the second highest seat among Asian countries and was placed at 38 among 146 countries worldwide (Ninth Malaysia plan, 2006). Although decision makers have recognized the needs to develop a more sustainable approach to the higher education, it is not idealistic on practice in this country. Different aspects of sustainability have been emphasized on national Malaysian plan. For example, in chapter 19 sustainable energy, chapter 23 enriching arts and heritage, chapter 22 promoting environmental stewardship in the country have been mentioned. Hence, universities could be a good laboratory to start on different parts of sustainability. Many of these Malaysian universities are also government-linked institutions that despite privatization still functioning as a source of outreach and services to the community and economic sustainability (Rashid, 2007). According to Hansen et al, (2006), university consortium networking has developed a target activity for sustainability capacity building over the last decade, where Malaysia and Thailand is the only Asian participant in this program. However, sustainability in regard of higher education looks to be new in the country. This topic is very important for Malaysian higher education organizations, because Weenen (2000) suggested that it is the biggest cosmopolitan challenge to universities in the twenty-first century.

Malaysia as a fast developing country has started to invest on higher education. It could be a proper destiny for all Asian students who are seeking knowledge and technology in an inexpensive and affordable atmosphere. The questions, which arise, are; 1-what does sustainability in higher education mean? 2- from where one should start? 3- What is the priority between different research issues? 4- What scenario can be proposed for a new higher education?

This paper has reviewed different universities actions toward sustainability in higher education. Those are; curricula and courses; mission and structure; researches and scholarships; operations, and outreach and services. In this review, the weakness of the existing evaluation has been discussed and different proposed model has been investigated. Finally, by gathering the information in all of these methods, models, questionnaire formats, articles and thesis a new scenario has been proposed for Malaysian higher education organization. This paper attempts to analyze the foundation
of different approach to sustainability in higher education. It tries to identify common concept of these different approaches and different methods, which all pursues a common goal. This goal is to achieve sustainable educational organization. Then by identification of these bases, it tends categorize the different subjects that have already been considered by different higher organization in the world.

Furthermore this paper is going to elaborate the different aspects of sustainability in higher education and will give a brief explanation on their assessments. It will argue the dark spots, which exist in these topics to feed the researchers for new glance to topics

2-Sustainability

The popular definition of sustainable development describes sustainable development as “a development that meets the needs of present without compromising the ability of future generations to meet their own needs” (Brundtland Commission, 1987). It means that having a development, which encompasses restoring environmental integrity, improving economic prosperity and promoting social equity. In addition, it needs collective action in a democratic community (Dola, 2006).

One important element in sustainable development is to reach balance between economic, social and environmental goals. Whereas, people participation in planning process is also needed to gain input and support (Roseland, 2007). Sustainable development is primarily aimed at providing a good quality of life for human beings, both now and future (Jones, 2007). Furthermore Osman et al, (2006), claimed that this is the issue that even ordinary people are concerning about.

3-Sustainability in higher education

Institution of higher education in this paper is an explicit term that is called for an institution, which authorized for conferring bachelor, Master and PhD degrees. The goal of education is to urge humankind being ethical, responsible, better informed and more knowledgeable (Weenen, 2000). In addition, these two terms “sustainability” and “higher education” have always had an interactive influence over each other. Higher education organizations like universities have all the expertise necessary to develop the conceptual
framework for sustainability. This could help the sustainable trend. Meanwhile universities are places, where produce future decision makers in both public and private sectors. On the other hand, if the sustainability could be applied in universities concretively much more benefits, such as energy conservation will be achieved by the universities themselves.

These institutional organizations like universities or colleges have great impacts on their surrounding via using different resources in their boundaries. They also affect their community through modeling of environmental stewardship. The simplest form of this advantage is in the university operation. Proper management of resources will lead to sustainable energy consumption, sustainable waste management, sustainable water consumption, sustainable transportation and others.

4- History of Sustainable Higher Education

Sustainable Higher Education, gained the scientists’ interest, institutes and public seriously. It started from Talloires declaration as a first official statement, in France in 1990 and proceeded to Johannesburg summit in 2002. After that, the importance of the central of education in aiding societies to move toward sustainability, worldwide, was emphasized. To support this agenda United Nation Educational, Scientific and Cultural Organization (UNESCO) took the first pace on a worldwide basis to foster the movement to Sustainable Higher Education (SHE). For this purpose, they designed a framework entitled Decade of Education for Sustainable Development, which officially launched in January 2005, and must be completed by December 2014 (Huisinsh et al, 2006). Consequently preliminary researches, by UNESCO and numerous other organization and individual educators throughout the world were done. Finally, an approach to education that strengthened the application of social values, particularly integrity and fairness, came out as the most important parameter of SHE (ibid). However, despite the activist call for sustainability in higher education, Shriberg (2002) declares, the result is not satisfactory.

This unsatisfactory processing is referring to universities management and their strategies. This slow progress in sustainability is a global phenomenon but this inefficient progress in higher education has been assessed and yield more frustrating results
(Jenks, 2000). Richards (1999), believes that to create a sustainable universities, university managers should act fundamentally different from old environmental management. It has to include systematic change and incremental improvement. It needs integration of environmental, social and eco efficient goals).

The universities can bear responsibilities for knowledge and awareness enhancement of university’s stakeholders while boosting the current technologies and tools toward sustainability. In Malaysia, like other part of the world and based on a blind survey of the authors, this movement has already started but it remains not fast enough to reach to the climax level. According to Hansen et all, (2006), Sustainability approach in MU-AAU Corporation, a cooperation between Mahidol University in Thailand(MU) and Alborg University in Denmark(AAU) and Universiti Kebangsan Malaysia(UKM ) is a prove of starting this approach even in Malaysia.

5- Aspects of Sustainable Higher Education (SHE)

Some higher educations have focused on sustainability in their researches besides the other topics (Bringer, 2006). They intend to explore the route of embedding environmental literacy, as one aspect of sustainability, into every segment of campus operation or curricula. These researches, aim to point on policy, considering environmental issues in the context of economy, equity, health and safety (Weenen, 2000). The direction of these researches related to speculation of different higher education organizations with different cultures, environments, geographical boarders and policies. For instance, Waterloo University focuses on awareness, efficiency, equality, cooperation and natural system (Weenen, 2000). In Fachhochschule Alan in Germany, it is more on usage of paper, heating, lighting, water and procurement (Ibid). Another example is Amsterdam University, which looks to sustainability trough “LIFE” ( “L” means limits in resource,” I” means being independent, “F” means fundamental changes and “E” means equity) (Ibid).

5-1 Courses and Curricula
One important aspect of Sustainability Higher Education (SHE) is curriculum. This issue considers the number of courses, which is being taught in an institute or in a university. For assessment of this issue, the courses syllabuses should be checked and be investigated. It focuses on how many of courses contain sustainability issues. In this instance, a university is chosen and list of different faculties and different group programs is listed. The next step will be analyzing the courses syllabuses and its relationship to sustainability. The courses that have a completely related issue to sustainability will be counted in absolute frequently. The course, which has some things, that covers only some parts of sustainability issues is counted in relative frequency. At the end, the time of teaching of these courses, will be recorded and the combination of these two parameters, frequency and duration of teaching, gives an indiector for curricula sustainability. An example of this kind of research is the one, which Tomas B Ramos and his colleagues fulfilled to investigate the place of EIA in Portugal University. Due to their research, the authorities in Portugal’s higher education expressed that, EIA is a well-established field of knowledge in higher education (Ramos et al, 2007). Since EIA is well known tool for environmental sustainable assessment they were conveying this concept that curricula in Portugal university is sustainable (Ibid).

The same strategy was used in the University of Juvaskyla, Finland. They used the same methodology and compared the salaries of different alumnus with different curricula. They announced that the changing curricula have been extremely imposing to change the alumnus wages (Hanna, 2003). They investigated that alumnus at the era which universities curricula comprised sustainable syllabuses were getting at least 20 % more than their predecessors (Ibid).

Some people believe that changing curricula is a multifunction route toward sustainability. For instance, Calvin Collage in USA implied a program aiming to change existing curricula to sustainable curricula. The goal of this program was: 1-engaging all university scholars in sustainability issues; 2- Enhancement of collaboration, 3-creativity via curriculum change 4- Engaging students to multidisciplinary course and teach them group work activities (Curry et al., 2007).

5-2 Research and scholarship
Another topic, concerning to the sustainability in higher education, is research and scholarship. In this field, the number of researches that has been fulfilled and number of
scholarships in a limited period, for example annual, is taken into account as an indicator for sustainability. Scholarship allocations and researches in different topics and different faculties in an educational institution, university, college, are being considered as an index. In this domain the proportion of particular researches and scholarships, which encompassing sustainability issues to all the number of ongoing research and scholarship is considered as an indicator index. University Erasmus in Netherlands has done much in this regard, by analyzing the positive affects of allocation of scholarship in sustainability issues, they found out this allocations have direct effects on enhancement of sustainability in every part pf university (Bass et al, 2000). This university enhanced its research toward more sustainable higher education by contributing more scholarships or opportunities for interdisciplinary researches and work and study programs (Ibid).

5-3 University Operation
One of the other topics, which ensues sustainability in higher education, is sustainability in campus operations. It indicates the different actions, which is fulfilling in the campus territory, for having a more sustainable institute.

Several scholars in these filed like Ween, (200), Shriberg, (2001), Ramos et al, (207), Wright, (2007), Hansen, (2006), Velazquez et al, (2005) and some institute like Association of University Leaders for a Sustainable Future, Association for the Advancement of Sustainability in Higher Education, (ULSF), has addressed parts of these issues. Those are 1-source reduction of toxic material; 2- source reduction of radioactive wave; 3-sustainable landscape, biodiversity, lawn minimization, native plants, protecting against invasive plants; 4- pesticide control and pest management, 5- sustainable dining and organic food, 6- sustainable transportation, 7-waste reduction scheme, 8- recycling of solid waste management, 9-sustainable purchasing, 10- sustainable construction and renovation, 11- sustainable energy or energy conservation, 12- renewable energy (solar energy), 13- indoor Air quality, 13- CO2 Reduction and reducing air pollution, 14-conservation of culture and heritage, 15-egonomics, 16- equity and poverty, 17- handicapped people facilities, 18- occupational health and safety, 19- global climate.
Usually when somebody address this aspects, features like photo voltaic electricity, gray water treatment system, composting toilet and native landscaping is considered. Meanwhile ranking of building based on Leadership in Energy and Environment Design, LEED, certificate comes out. For evaluating this part, more than using the assessment methods like LEED, employ questionnaires or interview method.

5-4 Outreach and services
The last topic pertinent to sustainability in higher education is outreach and services. Precisely This topic comprise the effects of an higher education to others in term of sustainability by its deed. It addresses the interaction of sustainability issues between an educational organization and its surrounding neighborhood. In the other word, how a university or a collage can increase the awareness of nonacademic people or help them to move faster forward to sustainability goals. It could be partnership between the educational organization and local government, business enterprises and even schools. Furthermore, these institutes through seminars, conferences and exchange programs could get the help of international cooperation. Meanwhile these institutes could help the other members of a surrounding community. For assessing this topic, getting information from universities managers and faculty managers could give some clues but it would not be accurate and not 100% reliable for some political or organizational issues.

5-5 Sustainability in policy; planning and administration
This part contains institutional missions, planning of an organization and its structure. This topic investigates in what extent formal written statements of an educational institute contain suitability issues. It also includes how many of the eight coming elements exist in a certain educational institute. Those are: 1-sustainability committees, 2-sustainability coordinators, 3-sustainability councils, 3-sustainability task forces, 4-sustainability energy officers, 5-green purchaser officers or committees, 5- regularly sustainability audit, 6- celebration for environmental issues and other environmental orientation,7- faculty and staff rewards for sustainability activities 8- Department or committee for getting fund for sustainability (ULSF,1992).
6 Different popular models for higher education sustainability assessment

There are many higher education sustainability assessment tools in the world which have their strength and their weakness. In this part the two popular models is being discussed.

6-1 Campus Sustainability Assessment Framework (CSAF)

Lindsay Cole, (2003) in Royal Roads University in Canada has proposed this model, which has been constituted based on several different indicators. The significance of this model is using the participatory methodology in its process of its creation, which is very new and delicate method. In addition, this model has been vastly being used in different universities, which only in Canada 32 universities have used this model for their assessment. Furthermore, it employed 145 advisors’ opinion during its invention. Before going to the model it should be mentioned that the whole of these elements orbiting over two major parameters. These are people and ecosystem. Ecosystem includes 1-air, 2-water, 3- land (well-being, health) 4-material and 5-energy. People comprise 1-knowledge, 2- community, 3-governance, 4-economy and 5-wealth. Assessing the relation between these elements in campus has been called CSAF.

Figure 1: CSAF model or sustainable egg, (Cole, 2003)

The structure of CSAF is based on 10 main indicators and the 169 sub indicators, which could assess an educational institute. This framework is a tool kit, which has been
designed for assessing the universities. It is an academically standardized audit tool for Canadian campuses (Cole, 2003).

Since this tool kit has been designed for Canadian universities, applicability of this tool for other country is doubtful (Beringer, 2006). Even some universities in Canada are not able to find information regarding indicators contained in CSAF (Ibid).

6-2 Sustainable University Classification Model

Some other scientists look through the sustainability in higher education from different angel in multidimensional scope. Sustainable Classification Model has looked to this issue through three angels to answer these three questions: 1-Why should be involved? 2-How would be organized? 3- How would be organized (Weenen, 2000)

![Figure 2: The Sustainable University Classification model (Weenen, 2000)](image)

This model answered the proposed questions in different axis separately and in different levels. For instance, for the answer of “what can we do” the model has answered in engagement axis. It expresses the primary approach for any organization is physical operation or sustainable campus. The second level is research, which might cover the campus operation. In the third level, this educational organization reformulates management and policy. At the end, university changes its written statements and its policy entitled mission. The two other axes have a similar explanation regarding those two other questions.
7- Authors proposed scenario

There are several tools and models that assess Sustainability of a Higher Education however there is not a simple, explicit, model that can be used easily by everyone. The proposed model shows the relationship between different influential actors in a higher organization institute which should be addressed properly in order to increase the overall sustainability of an educational organization.

Although these coming actors has been partly been addressed by different scholars and institutes like, Beringer, (2006), Curry (2007) Cole, (2003), Hanna et al (2003), Houisngh et al, (2006), Ramos et al (2007), Weenen (2000), ULSF, it has not been collected and explained this much explicit that every body can understand. The authors claim that the exclusivity of this scenario is its comprehensiveness and explicitly. More over it delineate the relationship between different important actors in the realm of higher education sustainability and its effects on awareness rising and changing consumption pattern.

It expresses, the first step for conceptualization of sustainability in higher education, is setting a sustainability mission and structure. This mentioned element has interactive relation with strategies for fostering sustainability in Higher Education. In the realm of strategy four main parameters of course and curricula, research and scholarship, outreach and services and operation are being considered.

The authors believe that for sustaining a green campus not only the whole showing parameter should be considered properly but also they should be assessed regularly. The assessment results in one hand alters the consumption pattern and increases the public awareness on the other hand giving feedback to decision makers for better mission and consecutively better strategy.
8-Conclusion and discussions:

The study investigated the interrelation between sustainability and higher education. It was argued that sustainability in higher education has had different meanings and it is
not a specific described definition. Although different higher organizations institutions have represented this concept in their own educational organization in diverse actions, the foundation is the same. This foundation is conceptualizing the philosophy of sustainable development in the important aspects of a higher education institution. As far as this concept has been interpreted in different country differently, the reason should be analyzed in future researches. The difference between their interpretations might refer to different geographical boarders, different cultures, and different level of existing sustainability in different institutes.

This paper delineates that for having a sustainable scenario apart from location and culture, at first mission, as a leading element, should be fostered. 1-Campus sustainability (operation), 2-course and curricula, 3-researches and scholarships and 4-outreach and services to the surrounding community should be emphasized. Authors believe that implementing the assessment in Sustainable Higher Education actors not only improve the quality of top level of an organization -like mission, management, planning etc- but also enhance the awareness of people and changes consumption pattern.

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