TRANSFORMING HIGHER EDUCATION TOWARDS SUSTAINABILITY: AN ISLAMIC PERSPECTIVE

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Abstract: Universities have been traditionally defined as centers for gaining knowledge, teaching and research. Through their teaching activities, universities offer specialized training for different sectors of the society, as well as the education essential for the development of the personality. The importance of knowledge and learning in Islam as the last divined religion is doubtless through numerous references to Quran, Sunnah (sayings and living habits of Prophet Muhammad) and Hadith (narrations originating from the words and deeds of Prophet Muhammad). Having such strong theoretical framework for knowledge and learning, Muslims were pioneers in knowledge and sciences for centuries.

With large pools of disciplinary experts, high quality research facilities, best infrastructure and a cohort of students with varied academic interests, universities have considerable comparative advantage to promote sustainability in the communities they serve. For this matter, universities of the Islamic world have the opportunity to refer to the rich traditions of Islam in creating and disseminating knowledge throughout the history.

This paper would argue the framework, concept and approaches in education for sustainable development (ESD) embedded in social, economical and environmental aspects and will try to answer the above challenges with having the core teachings of Islam and its relation with knowledge in sight. This issue will be further discussed in relation with the core missions of higher education in educating, conducting research and providing services to the community as it has been defined by the Islamic thoughts and also by the UNESCO (1998).

Keywords: education transformation; higher education; Islamic heritage; Islamic knowledge; sustainability; trans-disciplinary approach.

INTRODUCTION

Universities have been traditionally defined as centers for gaining knowledge, teaching and research. Generally (through their teaching activities), universities offer specialized training for different sectors of society, as well as the education essential for personality development. Additionally, university education boosts the theoretical knowledge among different divisions of society as well as offers practical solutions to deal with societies' dilemmas. Conventionally, the traditional framework of a university consisted of a close circle of students and lecturers. This isolated compound is usually referred to as the "ivory tower." As an elite component of society, this circle had for a considerable amount of time in history been able to bend the wills of societies to suit its own agenda. Recent centuries however,

have seen the once closely-knit relationship among universities, knowledge and ethics increasingly fading away.

The importance of knowledge and learning in Islam as the last divine religion is undoubtedly made clear through numerous references in the Quran, Sunnah (sayings and living habits of Prophet Muhammad) and the Hadith (narrations originating from the words and deeds of Prophet Muhammad). By nature of its being, Islam is a religion based on knowledge - "He has taught you which you knew not," (Qur'an 2:239). This knowledge finds its source from the knowledge of the Oneness of God (Allah) together with the utmost trust and complete dedication to He who saves humanity. There are many references in Islamic resources (specifically in the Quran), in which human beings are encouraged to utilize their intelligence and power of thinking in spreading the words of Allah and to propagate good deeds in order to serve the communities they live in. In fact, the importance of knowledge in Islam is so crucial to it that according to Zaimeche[1] (2003); the world *Ilm* (knowledge) is repeated 750 times in the Quran.

With the existence of such a strong theoretical framework for the pursuit of knowledge and learning, Muslims were great pioneers in producing and utilizing knowledge and the sciences for many centuries. Mosques, schools and even universities were some of the means used by Muslims during the early stages of Islam's development to spread knowledge and intellectualism around the globe. The great importance of knowledge seeking and dissemination is well reflected in Prophet Muhammad's Hadith to "Seek knowledge from the cradle to the grave."

Just a glance into the history of Islam reveals to us that at the time, there were public and private libraries in almost all Islamic cities with places such as Cordoba and Baghdad housing libraries with more than 400,000 books in each of them. As Scott (2007)[2] argues, during Spain's Islamic age, education was merged into the fabric of society and the blessings of education enjoyed in all parts of Spain. There were over 800 schools in Cordoba alone where Muslim, Christian and Jewish students collectively acquired knowledge. Such a rich knowledge-based background bears testament to Islam as the ideal theoretical and operational framework for knowledge acquisition in the university of the 21st century. As a knowledge-based religion, Islam has the potential to offer new horizons and perspectives for humanity by combining the theoretical and practical aspects of Islam with that of the modern sciences and technologies.

However, in light of the needs of the new millennium, universities all around the world are beginning to realize their rapidly changing roles in a globalizing world. The full benefits of a university can only be made manifest when both the university and the society it is located in are organically linked together. In other words, a university's activities must be flexible enough to factor in the needs of its society - given society's rapidly changing needs and trends.

Recognizing the role which education can play in the development of societies that are more equitable and sustainable, the United Nations launched the Decade of Education for Sustainable Development in 2005. As mentioned in Section 6 of the 2009 Bonn Declaration, "Education for sustainable development is setting a new direction for education and learning for all. It promotes quality education, and is inclusive of all people. It is based on values, principles and practices necessary to respond effectively to current and future challenges."

With large pools of disciplinary experts, high quality research facilities, state-of-the-art infrastructures and a cohort of students with varied academic interests, universities have considerable comparative advantages in promote sustainability within the communities they serve. For this reason, the universities of the Islamic world have the opportunity and advantage to refer to the rich traditions of Islam, which has played a pivotal role in the creation and dissemination of knowledge throughout history. That being said, it is also important to understand that sustainable development is itself a very complex process, and as of such a single solution cannot be devised as a global standard. Nonetheless, with their core values of truth-seeking and insight for innovation, universities have a profound role to play in developing students' capacity to adaptively manage a changing world.

BACKGROUND

Universities are rarely discussed from the perspective of the "tragedy of the commons." This however is the very plight affecting universities and societies (business communities, public communities, etc.) due to the effects of globalization. Although universities have an excellent record in serving the needs of both the university and the outside community, they are too often trapped in reconciling "conflicts of interest" which ultimately condemn universities as dumping grounds, scapegoats or testing platforms for different problems - ranging from the environmental to the social as well as the economic. Fortunately, certain

[1] Zaimeche (1996). Education in Islam - The role of the Mosque. *Muslim Heritage Journal*.

[2] Scott (2007). The Role of the 'ulamā' in an "Islamic Order": The Early Thought of Muhammad al-Ghazali (1916- 1996), *Maghreb Review*, Vol. 32, Nos. 2-3 (December 2007), pp. 149-174.

better-informed approaches have already been introduced to arrest this situation and change it for the better. Various new reformations are occurring among different universities which ultimately produce new concepts such as quality assurance, policy revisions, university corporatization, etc.

Although some of these approaches have been partially successful in their respective efforts, what remains unchanged in most of these approaches is the element of un-sustainability. This is most often seen at; (a) The implementation process which creates weak synergies and coherencies, ending in an inability to recognize the diversity that exists among universities, (b) The incomprehensiveness of the solution - resulting in more ad-hoc and reactive approaches.

In addition to the above, the values and norms of universities are altogether too homogenized. Even in Islamic countries' local settings, many universities attempt to define their ideals to match those of Harvard, Oxford, Cambridge, and other similarly well-established institutions. However, it is important to note that these universities have (for a considerable amount of time) pursued the modeling of sustainability as their long term agenda and that as a concept, sustainability is not a new agenda to them. On the other hand, a large number of developing Islamic countries are not quite yet at this milestone in their understanding of sustainable development and its relationship to higher education. Complicating the situation is the fact that often times, many of these universities from the Western world place varying emphases with regard to the principles and practices of sustainability as a result of their differing local/contextual priorities and concerns; yet some universities from developing regions - including those from certain Muslim countries, are investing much of their efforts and resources into emulating these Western "ideals."

Unfortunately, it is often the case that a number of Islamic nations have largely ignored their rich Islamic backgrounds in their attempts at generating and distributing knowledge throughout the modern world. In actuality, many of the challenges and issues which are currently faced by universities around the world have already been experienced and accordingly answered by the sustaining Islamic framework knowledge creation. The encouragement of Islam in acquiring knowledge was well-illustrated in Prophet Muhammad's *hadith*, "Acquire knowledge, it enables its possessor to distinguish right from the wrong, it lights the way to heaven; it is our friend in the desert, our society in solitude, our companion when friendless; it guides us to happiness; it sustains us in misery; it is an ornament among friends and an armor against enemies." (Syed, 2001)[3].

This paper argues the framework, concept and approaches in Education for Sustainable Development (EfSD) that are embedded in social, economic and environmental aspects and will attempt to answer the above challenges by utilizing the core teachings of Islam and its close relationship with knowledge. This issue will be further discussed with regard to the core missions of higher education in educating, conducting research and providing services to the community as was defined by Islamic teachings and UNESCO. According to UNESCO[4] (1998), the four goals of EfSD in higher education i.e. basic quality education, reorienting education for EfSD, creating and raising awareness on EfSD, and training for EfSD have already provided a holistic framework of action to replace the reactive and ad-hoc problem-solving approaches that are currently used by most universities around the world.

EDUCATION FOR SUSTAINABLE DEVELOPMENT

The United Nations pronounced the years 2005-2014 as the Decade of Education for Sustainable Development (DESD) with the aim of incorporating the main elements, ethics and practices of sustainable development into all levels of education and learning. Most universities around the world still practice extremely disciplined methods of research, teaching and administration. This unfortunately is the main obstacle against implementing a concept as holistic as sustainability, with such regimented institutions being incompatible with the sustainability agenda – a challenge not easily overcome. As Cortese[5] (1999) argues, "Many schools around the world are making important strikes toward necessary changes in education." This reflects the intense efforts that go into transforming conventional higher education systems toward one centered on the tenets of sustainable development.

When utilizing the Brundtland[6] (1987) definition of sustainable development as a pattern of development

[3] Syed, I., (2001). *The Pleasure of Learning in Islam.* Available at: http://www.islamfortoday.com/syed05.htm (Accessed on April 2011)

[4] United Nations Agenda 21 Official Website. Available at: http://www.un-documents.net/a21-36.htm (Accessed on April 2011)

[5] Cortese, A. D. (1999) Education for Sustainability: The Need for a New Human Perspective. *Second Nature*. p. 7.

[6] World Commission on Environment and Development, *Our Common Future (The Brundtland*

which "meets the needs of the present without compromising the ability of future generations to meet their own needs," one is made aware that this concept is not limited to a specific number of disciplines or areas, but that it is applicable to a larger, global scale encompassing all communities and ecosystems – both man-made and natural, now and in the future.

With regard to the connection between the definition of sustainable development and the concept of education, Agenda 21 - the international action plan drawn up at the United Nations Conference on Environment and Development (UNCED, Rio, 1992) identifies education as a crucial component in bridging the divide. It clearly states that 'education is critical for promoting sustainable development' and that 'countries should stimulate educational establishments in all sectors, especially the tertiary sector, to contribute more to awareness building.' [7](Agenda 21, 1993, Chapter 36.3/ 36.10.d).

Although sustainable development may appear to be a relatively new concept in higher education, it is important to note that many sustainability-related activities and elements are already in place in existing curricula and structures of many universities around the world. Therefore, it is necessary to bear in mind that sustainability in higher education is not so much a revolution as it is an evolution of currently existing platforms. On the other hand, it is also important to note that in many instances, the current framework of higher education is unable to accommodate sustainability on its own and therefore a fundamental change is needed if it is to be made compatible with the sustainability agenda. As Sterling[8] (2003) argues, sustainability does not necessarily require an 'add-on' to existing structures and curricula, but implies a change in the fundamental paradigm of our culture and hence also in our educational thinking and practices. Seen in this light, sustainability is not just another issue to be added into an overcrowded curriculum, but a gateway to different views on curriculum, pedagogy, organizational change, policies and most importantly, ethos.

In a 2006 article on sustainable campuses in the Chronicle of Higher Education, Carlson[9] argues that university initiatives on sustainability are only minor steps that aim to project the appearance of sustainability - in other words, a form of "greenwashing." Echoing this sentiment are criticisms by certain groups who point out that universities are taking a very slow approach with regard to sustainability integration in comparison to corporate entities.

In light of such criticisms, Cortese's[10] (2001) definition of a sustainable university may prove invaluable in assisting us in our understanding of the fundamental elements of a sustainable university - "A sustainable university can be considered as an institute of higher education as a whole or as a part, that addresses, involves and promotes, on regional or global level, the minimization of environmental, economics, societal and health negative effects in the use of their resources in order to fulfill its main functions in teaching, research, outreach and partnership, and stewardship among others as a way in helping the society make the transition to sustainable lifestyles."

From an Islamic point of view, Al-Khouli[11] (2005) states that the success of sustainable development is dependent on the faith and practices of Islam which lays great emphasis on improving the condition of Earth at the hands of humanity, as humans are described as the *Khalifa* (vicegerents) of *Allah* on earth. He also adds that everything that was created by *Allah* was created in due proportion and is measured both quantitatively and qualitatively.

As an institution, education has always been highly viewed and revered in Islam. The first verse of the Quran readily demonstrates the significance of education in Islam via the beginning of the verse with the word "Iqra," - a command meaning 'read' in Arabic, which indirectly also encompasses the concepts of 'learning,' 'exploring' and 'seeking enlightenment.'

Report). Oxford, Oxford University Press, 1987. Pp. xv + 387.

[7] United Nations Agenda 21 Official Website. Available at: http://www.un-documents.net/a21-36.htm (Accessed on April 2011)

[8] Sterling (2003). *Higher Education, Sustainability and the Role of Systemic Learning, in Higher Education and The Challenge of Sustainability: Contestation, Critique, Practice, and Promise,* ed. by John Blewitt.

[9] Carlson (2006, October). In search of the sustainable campus. *The chronical of higher education,* 53(9), 10-14.

[10] Cortese and McDonough (2001). *Accelerating the Transition to Sustainability Through Higher Education,* Environmental Grant makers Association News & Updates, pp. 11-13, 34.

[11] Al-Khouli (2005). *On Islam's Attitude towards Sustainable Development. Economics Department*, Faculty of Economics and Administration, King Abdulaziz University, Jeddah, Saudi Arabia.

The importance of education for the betterment of society was also emphasized by the Prophet Muhammad, who asserted that for Muslims to fulfill their role in serving humanity, they must acquire knowledge for the common good. According to the Prophet (as narrated by Abu Hurayrah[12]), "If anyone acquires knowledge of things by which *Allah's* good pleasure is sought, but acquires it only to get some worldly advantage, he will not experience the odor of Paradise."

When examined, it is easy to see that many elements of Education for Sustainable Development are in line with the core teachings and beliefs of Islam. The Islamic Declaration on Sustainable Development[13] clearly outlined these elements at the 2002 World Summit on Sustainable Development, Johannesburg, "Indeed, the most beloved by *Allah* are the pious and the charitable, and the most hated by *Allah* are the one who wreck havoc on earth. Charity is every good deed that benefits people and takes care of the environment in which they live. It may be an act of social solidarity, a contribution to the restoration of peace and security or the eradication of poverty and unemployment, in a bid to achieve justice and equity through collective participation in the development enterprise, motivated by religious, cultural and humanitarian drives."

INSTITUTIONAL LEADERSHIP AND PLANNING

A subject that plays a vital role with regard to sustainability and its connection to universities is the concept of creating a suitable and sustainable system of leadership and governance. From an Islamic point of view, leadership is considered an *amanah* (trust) which is placed on leaders by their followers. This phenomenon demonstrates the importance of democracy as one of the most vital elements in leadership. Through this framework, followers have the right to revoke the *amanah* from their leaders whenever it is felt that the leader is unable to fulfill their needs and requests. As is depicted in the following paragraphs, this serves as a reminder to leaders to not disregard the importance of practical duties and their implementation particularly those concerning themselves and their followers.

According to Al-Khudri[14], the importance of Islamic leadership was emphasized by Prophet Muhammad who mentioned the following, "When three are on a journey, they should appoint one of them as their commander." This journey does not necessarily imply a physical voyage *per se*, but can also be used as a practical metaphor with regard to new destinations embarked upon by humanity. The transformation of higher education toward sustainability is one such journey that requires diligent planning and appropriate leadership if success is to be attained.

In achieving this goal, reviewing the existing international structure and agenda of Sustainable Development (SD) holds a high degree of importance. That being said, it is also necessary to consider an appropriate national structure to translate the international SD agenda down to local levels. The first step toward accomplishing this objective is to link international and national leadership structures in SD efficiently and comprehensively. As mentioned earlier, this can be achieved by reviewing existing pledges and declarations on SD from around the globe.

The issue of institutional leadership for sustainable development covers a vast range of elements including (but not limited to) legislation, enforcement, rules and regulations, economic incentives and education. In order to come up with an inclusive leadership strategy for SD, it is important to consider all of the above elements comprehensively.

In approaching SD related issues, it is important to keep in mind that sustainable development does not only consider planning but also takes into account implementation and practices. Interestingly, and parallel to this matter, is the fact that it is the practice devised by the system of leadership in question which gives true value to a particular leadership. Taking this into consideration, a good look at some existing well-known pledges and declarations on institutional leadership can be of great assistance in modeling sustainable institutional leaderships. Examples of such important declarations include the American College and University Presidents' Climate Commitment (ACUPCC), the *Talloires* Declaration and the Promotion of Sustainability in Postgraduate Education and Research (ProSPER.Net).

Understandably, another important aspect of leadership is to maintain a clear practical vision and mission. The setting up of a clear mission and vision can assist any institution on its route toward achieving its goals and objectives. From an Islamic

[12] Abu Hurayrah, Translation of Sunan Abu-Dawud, Knowledge (Kitab Al-Ilm), Book 25, Number 3656".

[13] General Framework of Islamic Agenda for Sustainable Development Islamic Declaration on Sustainable Development (2002): Background Paper No.5. available at: http://scienceislam.net/article.php3?id_article=261&lang=fr

[14] Al-Khudri Abu Said bin Abu Daud, 2:721, *Chapter 933*, hadith #2602.

point of view, a strong vision has always been a vital element of leadership. The vision of Prophet Muhammad to enlighten the Arab world from its then-state of *Jahilliyah* (ignorance) led the Muslims to build one of the greatest empires the world has ever known - the Islamic Empire, stretching from India to Europe. Consequently, this vision turned the Islamic Empire and its inhabitants into a powerhouse where knowledge and the Sciences flourished and spread to the entire civilized world. Undoubtedly, Muslims owe a great debt to the Prophet Muhammad with regard to their scientific and intellectual progress as a result of his vision to spread enlightenment to all corners of the Earth.

The importance of Prophet Muhammad's vision is well-depicted in a narrative by Lings[15] (1983), "After many vain attempts to split or dislodge a rock he struck, 'Umar went to the Prophet who took the pickaxe from him, and gave the rock a blow at which a flare as of lightning flashed back over the city and towards the south. He gave it another blow and again there was a flash but in the direction of *Uhud* and beyond it towards the north. A third blow split the rock into fragments, and this time the light flashed eastwards. Salman saw the three flashes and knew they must have some significance, so he asked for an interpretation from the Prophet who said: "Did you see them, Salman? By the light of the first, I saw the castles of Yemen; by the light of the second, I saw the castles of Syria; by the light of the third, I saw the white palace of Kisra at Mada'in. Through the first has God opened up to me the Yemen; through the second has He opened up to me Syria and the West, and through the third, the East."'

In contemporary settings, addressing sustainability and its related issues through their vision and mission statements can assist Institutions of Higher Education (IHEs) with better understanding and guidelines toward sustainability action and implementation. Some of these visions and missions may include - preparing students for service, leadership training, meaningful lifelong work and learning, assisting students in developing awareness of the environment, the commonality of human problems, and an appreciation of the diversity of the world thus leading students into continuous reflection on the gravity and value of their work and services to others.

Another significant issue which should be considered with regard to leadership for sustainability among institutions of higher education and which is also highly emphasized in the Islamic perspective is the concept of motivation and rewards. This notion is well-illustrated in the concepts of *Jannah* (paradise) and *Jihannam* (hell) whereby the believers and those who work in the path pleasing to Allah are always promised paradise as a reward. As the Quran says, "Whoever works righteousness - whether male or female - while he (or she) is a true believer verily, to him We will give a good life (in this world with respect, contentment and lawful provision), and We shall pay them certainly a reward in proportion to the best of what they used to do," (Al-Nahl 16:97).

Islam's system of motivation starts with the *Ikhlas Al-Niyyat* (good intentions) and later on progresses to the practical aspects of the subject i.e. *Ikhlas Al-Amal* (good practice). This is an indication that Islam takes into account a holistic approach with regard to the spiritual and practical aspects of motivation. Believers are aware that what they do in life is an *Ibadah* (worship) of Allah and that they will be rewarded by Him both in this world and the next. As an observer, *Allah* is omniscient and therefore believers are certain that their good deeds will be noted and rewarded. Such a belief system paves the way for a high sense of motivation which can translate itself into job productivity and commitment.

A large number of institutions of higher education, such as universities and colleges, regard the issue of sustainability or its related activities as an extra component to be added on to traditional university activities. It bears mentioning here that conventional sustainability related activities such as those concerning the environment (recycling, tree planting, etc) and/or community engagement (carrying out of courses or executive projects in communities) are more often than not voluntarily. As of such, there is a real need to consider appropriate techniques that will function to encourage and motivate university staff and students to involve themselves in such activities and to continuously sustain their participation. This is well-supported in Islamic ideology as was clearly emphasized by Allah to his followers on the importance of voluntary approaches and their rewards. It is for this reason that the Quran mentions, "Let there be no compulsion in religion. Truth stands out clear from error; whoever rejects evil and believes in Allah has grasped the most trustworthy handhold that never breaks. And God hears and knows all things," (Baqarah, 2: 256).

From a contemporary point of view, the allocation of budget to sustain such activities can positively elevate the level of encouragement and participation among university staff in such activities; on the other hand, university leaders should also strongly convey the message that they are fully committed to sustainability initiatives. Such commitment can be shown in many different ways and via different mechanisms. Accordingly, an environment in which

[15] Lings (1983). Muhammad: His Life Based On The Earliest Sources. Rochester, VT: *Inner Traditions International*, p. 218.

university staff feel appreciated for their efforts in sustainability related activities must be created.

Mechanisms that facilitate such recognition can vary from the immediate (such as a pay raise and bonuses) to the long-term (granting of points for Key Performance Indicators and Key Intangible Performance). In order to sustain successful long-term staff motivation, certain administrative and governance sectors of the university must undergo a "sustainability reform" such as internal university audits and revamp some of its regulations and standards.

However, as argued by Blackburn[16] (2007), the most powerful of motivators is a relatively simple and inexpensive one: the act of Caring. Most employees will go to great lengths to assist their organization and satisfy their manager if they are convinced that the management and company truly cares for their well-being. It is a fact that sometimes, emotional incentives can be much more powerful than financial ones. This is also a key element in Islamic motivation as depicted by Allah's nature as a *Rahman* (the companionate) and *Rahim* (the merciful) being.

Students also play an important role in pursuing the cause of sustainability at tertiary institutions. An effective incentive in encouraging greater student involvement would be to grant academic credits to students involved in voluntary sustainability-related activities. Additionally, students can also be motivated to participate if certificates or letters of appreciation from the institution are awarded to them. That being said, it is nonetheless important to not disregard the potential benefits of financial compensation.

Understandably, the implementation of sustainability at universities is not an easy task – especially so given their complex working structures. As of such, such an endeavor would undoubtedly prove difficult if it was managed by a sole body within an institution. If successful implementation of goals and objectives is to be achieved - as per an institution's vision and mission, the formation of certain relevant teams and/or groups is essential in order to identify relevant issues which must be addressed and design an action plan/roadmap to address these issues accordingly. Such groups may be known by different terminologies such as a steering committee, taskforce, etc. depending on the nature of the issue(s) they seek to address.

Accordingly, Islam also greatly encourages the subject of *Mashwarah* (group consultation) in all stages of life ranging from those concerning family matters to greater nation-wide issues. For this reason, the Quran clearly encourages the concept of group consultation by stating, "And make Mashwara (consult) with them in affairs (of importance). Then when you have firmly decided, have trust on Allah. Verily Allah loves those who have trust (in Him)."

The creation of sustainability indicators is a vital element with regard to sustainability implementation at universities, with different types of Indicators devised for different phases in the lifetime of a project. These three important phases and their associated indicators can basically be defined as: (i) short-term - baseline, process, drivers indicators, (ii) mid-term – response, action, result indicators and, (iii) long-term - outcome or impact indicators.

The devised indicators may be direct or indirect depending on the objectives being measured. The main challenge in developing sustainability indicators however is that the best indicators are those for which data is not usually available, and while sometimes such data is available, these may not be ideal for measuring sustainability. As of such (depending on data availability) direct, proxy or interim indicators may be used instead - taking care not to compromise the quality of acquired results.

INCORPORATING SUSTAINABILITY INTO FACILITIES

A major impetus for incorporating sustainability into facilities is the protection of the environment. From a Quranic point of view, it is stated that the "Environment, is Allah's creation. The creation of this earth and all its natural resources is a sign of His wisdom, mercy, power and His other attributes and therefore serves to develop human awareness and understanding of this creator," (Ar-Ra`d, 13: 2-4; 21:79). Therefore, the harming of the environment can be interpreted as the harming of *Allah's* creations and clearly, such an action would be against His will. For this reason, Islam by nature supports efforts that aim to conserve the environment and its natural resources. The devastating effect of human activity on the environment was also well recognized in Islam as stated by the Quran, "When the earth is shaken with a (violent) shaking, and the earth reveals what burdens her, And man says: What has befallen her? On that day she shall tell her story," (99:1-4).

When issues that are described in the Quran are taken into context with the current situation of the world, the concept of Green Buildings becomes a familiar term with regard to sustainability in an institution. There are many alternative terms and definitions concerning the concept of green buildings. According

[16] Blackburn (2007). *The Sustainability Handbook.* Environmental Law Institute, TJ International Ltd. UK.

to the US Environmental Protection Agency[17] (2009), "Green building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from setting to design, construction, operation, maintenance, renovation and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. Green building is also known as a sustainable or high performance building." The notion of green building includes various aspects of the concepts that involve the built environment such as energy efficiency, water and waste management, materials, and so on.

Proponents of sustainable design argue that green technologies and design strategies will enhance interior environmental quality and thus be more conducive to human health and productivity than buildings that use standard practices (Browning and Romm, 1995)[18]. In recognition of this fundamental issue, a series of attempts by different universities around the world have aimed to popularize the concept of green buildings and to mainstream this concept into their campus sustainability agenda.

Unfortunately, a concept such as sustainability may sometimes appear to be inaccessible to a large sector of society. As a concept, it has mostly been popularized and marketed in the academia rather than disseminated as a tangible concept for the masses. It is vital therefore that a university creates an environment which aims to empower good sustainability practices that in turn may be useful for the community in which it is located. This is especially critical because as centers of expertise, universities have the knowledge capacity to turn sustainability from a pure academic agenda into an agenda that is applicable for practice among public communities.

As students form the primary "costumers" of any university or tertiary institution, they play an important role in promoting and implementing the sustainability agenda. By the same token, as the main objective of every university is the education, training and equipment of its student body with the necessary knowledge and skills needed for dealing with societies' challenges, students can also be considered a strong force in pushing forward the sustainability message.

There are many campus initiatives through which universities can stream their students into the sustainability agenda. Most importantly, these initiatives can help the university to overcome its sustainability-related challenges and further assist the communities these students belong to in overcoming their respective sustainability issues.

CURRICULA

A crucial step in reorienting a university toward sustainability is to create a framework in which all parties involved in the process of teaching and learning can align themselves into the sustainability agenda. This framework should be designed in a manner which aims to increase the understanding of students on the issue of sustainability while simultaneously incorporating the elements of sustainability into the teaching material. The output of this framework should succeed in generating interest among students in working toward the cause of sustainability while encouraging them to identify ways in which they can contribute toward this cause.

Ideally, the framework should be divided into several sections in order to preserve the holistic nature of sustainable development; a research conducted by the NGO “Second Nature,” may prove extremely useful in providing a platform to create such a framework. In their initiative, Second Nature identified certain themes of sustainability that they thought were central divided these themes into several sections. Among the themes identified were Scale, Human Connections to the Physical and Natural World, Ethics and Values, Function of Natural Systems, Technological and Economic Relationships to Sustainability, Motivating Environmentally Sustainable Behavior and the Pedagogical Strategies for Integrating Sustainability. Following their identification, such themes can later be developed and divided into more sub-themes depending on the administrative and socio-cultural situations and priorities of local institutions of higher education.

Given sustainable development’s broad holistic concept and its many different aspects, it is vital that a multidisciplinary approach that enables the curriculum to answer contemporary sustainability issues is devised. As is clearly stated in chapter 36 of the UN’s Agenda 21, in order to be effective, environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human (which may include spiritual) development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communication.

[17] U.S. Environmental Protection Agency. (October 28, 2009). Green Building Basic Information: Available at: http://www.epa.gov/greenbuilding/pubs/about.htm (Accessed on February 2011)

[18] Browning (1995). *Greening and the Bottom Line: Increasing Productivity through Energy Efficient Design.* Special Publications 888, Gaithersburg, MD.

Keeping in mind the above, enabling a multidisciplinary approach at a university is also one of the most significant barriers in the face of sustainability implementation. Universities are traditionally known to clearly separate academic disciplines and as of such, creating a cross-faculty approach may seem like no easy task. Even where academic approaches are concerned, methods or recruitment and promotion of faculty staffs are generally disciplined based due to the fact that many academicians feel more comfortable within the borders of their specialties rather than beyond them. Unfortunately, this situation also translates itself into the curriculum, with most universities confining the curriculum within the borders of various disciplines. This phenomenon makes it exceedingly difficult to introduce a multidisciplinary approach into a tertiary institution's system.

Although it is important that academicians and students build specializations in a particular discipline, the holistic nature of sustainability should nonetheless still be given due recognition in universities. Academicians, researchers and students alike should be encouraged to involve themselves and contribute to team-oriented research and innovation. This would not only diversify certain aspects of a research but also enable it to become more beneficial for a larger group of audiences.

As a process, it is important to understand that sustainability is a process of evolution and not one of revolution. Therefore, it is important to create an environment that is conducive for the integration of sustainability elements into the existing curricula of each university before introducing new courses. As mentioned earlier, sustainable development is a holistic concept and consequently, encompasses many different streams. As of such, it may be the case that many of the courses currently being taught in a curriculum may already contain sustainability elements in them. However, because sustainability is a relatively new term in higher education circles, existing sustainability elements in the curriculum may be missed out or even overlooked.

In light of this, a team consisting of university academicians, researchers and administrative staff should first be formed to define the concept of sustainability suitable for their institution and how it relates to the university. This definition may vary from one institution to the next depending on the university and its set priorities. Following the identification of this "committee," the next step would be to create a set of sustainability indicators suited to the university's priorities. The primary consideration that goes into developing these indicators is the agenda of sustainability integration into the core of a university's affairs. Indicators provide specific information that enables proper decision-making and alerts project managers to emerging problems. In line with the SD agenda, indicators should be sustainability-focused in order to serve the purpose of evaluating the university's position against the sustainability agenda.

Another manner in which a university can play a vital part in achieving sustainability is via *In-service education*. This is arguably one of the most important links between the university and the community in terms of education for sustainable development, as this approach has the ability to break the barriers surrounding a university and connect its academicians and students to the community-at-large for the cause of education for sustainable development.

Apart from modifying existing courses, it is also necessary to create courses that are directly relevant to both the different aspects of sustainability and the original disciplines. For this purpose, a group of skilled academicians and researchers should create a team to draft out a number of new courses based on an earlier assessment of the current curriculum. The assessment should be conducted with the help of in-house sustainability indicators with representatives of NGOs, the corporate sector, governmental agencies, alumni and even students involved in the initiative.

RESEARCH AND SCHOLARSHIPS

During the Golden Age of the Islamic empire (between the tenth and thirteenth centuries) many places on earth were deprived of knowledge, while Islamic research and scholarship prospered and boasted an inspiring openness to the rational sciences, art and literature. It was during this period that the Islamic world made most of its contributions to the humanity's scientific and artistic heritage. Ironically, at this time, Islamic scholars also preserved much of the knowledge of the Greeks which were prohibited by the Christian world, which would otherwise have been lost to us today. Other outstanding contributions were made in the areas of chemistry, botany, physics, mineralogy, mathematics, as well as astronomy, as many Muslim thinkers regarded scientific truths as tools which they may use to access religious truths. The importance of research in Islam is so high that the Quran mentions it directly in Surah Zaumar (39:33) that "And who so bringeth the truth and believeth therein such are the dutiful."

Through this progressive process, Islam succeeded in introducing some of the greatest scientists and researchers the world had ever seen such as, Khawrazmi, Biruni, Avicenna, Razi, Kashani, and countless others. This demonstrated the strong backbone which formed the body of the Islamic

world in the areas of research and scholarship. Some of the oldest centers for research in diverse fields of sciences were established within the cities of the Islamic world such as in Baghdad, Cordoba, Marv, Alexandria or the University of Fez in Morocco which was also known as the Qarawiyyin. The development of these centers of research and scholarships was one of the main reasons that contributed toward the flourishing growth of the Islamic civilization.

As Zaimeche[19] (1996) explains, "The renown of such places attracted large numbers of students. In large numbers they flocked to the Mosque of Medina, which had one of the earliest and most advanced schools. Al Qarawiyyin attracted scores of students from all over Morocco, the rest of North Africa, Andalusia and even the Sahara. Generally they were housed by the successive Moroccan dynasties and the people of Fes."

The importance of research as seen through an Islamic perspective can be translated into contemporary settings by the establishment of sustainability-related research centers that foster the implementation of sustainability. These research centers can act as focal points of sustainability both within a university and beyond it by producing skillful researchers and by coordinating sustainability-related researches in different faculties and centers within the same university.

Accordingly, this research centre can also host researchers and scholars from different disciplines within the university together with researchers from outside the university. The center will also prove strategic in publicizing its works and efforts on sustainability out to the public thus functioning as the sustainability pulse of the university. Furthermore, the centre can also ensure the smooth functioning of university administration within the sustainability framework by conducting trainings, roadshows and at a more advanced stage - sustainability auditing.

The above concept is also mirrored in a historical core Islamic concept - that of creating research centers throughout communities. As earlier mentioned, Islamic research centers which were developed at well-known locations gathered a large number of eminent Muslim and non-Muslim scholars of the day, either as students, lecturers, or both. Some of the graduates of the mosques of Muslim Spain included Ibn Roshd, Ibn Al-Sayigh, and Ibn Bajja. In Basra (Iraq), Al-Khallil Ibn Ahmad gave lectures on philosophy at a mosque, and among those listening to him was one of his students – Sibawaih, who went on to become one of the most famous Arabic grammarians of all time.

Historically, the poor and society's *bottom billion* have been those who benefit the least from any kind of scientific or development in research. This is largely due to the manner in which conventionally, universities were too caught up in *viewing* the interests of the market. A sustainability focus however, adopts the holistic aim of serving humanity as its focal point. As is widely accepted, the social aspect is one of the main pillars of sustainable development and a pattern of development that does not consider the interests of society's *bottom billion* cannot be defined as sustainable.

For this reason, the needs of the *bottom billion* must be considered with regard to research and development within a university as well as through its faculties and centers of excellence. A number of innovative measurements should be taken into consideration in areas such as research costs, intellectual property rights and certain legal aspects in order to make researches more relevant and beneficial to those trapped in the *bottom billion*. Researches should be designed in such a manner that no social sector is to be marginalized. Since improving humanity's quality of life remains one of the main aims of science, this concept should be considered for all sectors of society - especially those in need.

This matter is certainly well-depicted in teachings of Islam - with social justice and equality being among the core elements of Islam. Attending the needs of the *bottom billion* has always been a prime objective of Islam as depicted in a Hadith narrated by Abu Moosa Ash'ari, where according to him, the Prophet said; "Feed the hungry, visit the sick and free the captives." The importance of looking after the interests of marginalized peoples was also well-captured in the Quran, "They give food, out of love for Him (Allah), to the poor, the orphan, and the slave, saying: We feed you only for Allah's pleasure - we desire from you neither reward nor thanks," (76:8,9). This commitment in supporting the marginalized and the *bottom billion* should also be integrated into processes of research and development which seek to answer the needs of society's distressed.

It is worth stressing that the most pressing issues faced by the developing world today are poverty, hunger, disease, illiteracy and civil strife. These problems are aggravated by the lack of access these communities have to education, employment, energy, food, healthcare, sanitation, shelter and water. It is imperative therefore that Science, Engineering and Technology are employed as crucial elements in devising solutions for such problems. It is undeniable

[19] Zaimeche (1996). Education in Islam - The role of the Mosque. *Muslim Heritage Journal.*

that the meeting of the MDGs in the developing world will ultimately depend on the availability of scientifically skilled manpower and the technologies they have at their disposal. To this end, universities can play a vital role in directing R&D toward answering the needs of the *bottom billion*.

"The world has problems, but universities have departments," this criticism by Brewer[20] in 1999 was aimed at the sciences for their detachment with regard to their research objects. Since then, the world has seen many concepts developed with the aim of solving upcoming complex societal issues. In order to collaborate on relevant societal issues with members of society, Science has had to actively engage the public – the Transdiciplinarity approach is seen as one way toward this goal: "Transdiciplinarity is always related to something; it is connected with concrete societal problems and means a higher quality of a research process by integrating practice experience," (Jahn 2005)[21]. Another instance of transdisciplinary research defined: "The core idea of transdisciplinarity is different academic disciplines working jointly with practitioners to solve a real-world problem," (Klein et al. 2001)[22].

Keeping these definitions in mind, it is clear to see that universities seem to be an ideal platform for transdisciplinary research - consisting as they are of several departments and faculties. This pool of knowledge and expertise can be coordinated and synchronized toward the main goals of sustainability. Another strong thrust for the expansion of transdisciplinary research is the growing number of complex problems in real-world settings for which knowledge-based solutions are sought for but for which knowledge of a single scientific discipline or societal field is insufficient.

In a transdisciplinary research process, determining problems involve making fundamental decisions about what aspects are seen as important and what constitutes disputed ground. Furthermore, decisions must reflect the uncertainties in the knowledge surrounding the problems. These challenges can be addressed by restructuring problems and correcting assumptions in the course of research. As of such, transdisciplinary research requires a research design that is basically recursive.

A key task of transdisciplinarity is to address scientific and societal interface, implying that the role and image of science in society matters, as does the conceptualization of society in science. However, persisting conventions of these roles, images and conceptions are sometimes in conflict with the goal of transdisciplinary research in addressing real-world problems which are characterized by a high degree of complexity in terms of factual uncertainties, value loads and societal stakes. If left undisputed, these conventions often lead into dead-lock scenarios and false expectations in transdisciplinary practice.

COMMUNITY PARTNERSHIP

Islam is one of only a few religions in the world with a high degree of emphasis on the role of the community in the social processes of life. As the Quran mentions, "And hold fast, all together, by the rope which *Allah* (stretches out for you), and be not divided among yourselves; and remember with gratitude *Allah's* favor on you," (Al- Emran: 103). The phrase *Ummah Wahida* in the *Quran* ("One Community") refers to the entire unified Islamic world. What make Islam unique with regard to its outlook on the community is that the community (*Ummah*) in Islam is not founded on ethnicity, nationality, locality, occupation, kinship, or special interests. This holistic view of Islam regarding the community is in line with the holistic view that sustainable development holds of society and the sectors comprising it.

One of the most important aspects of sustainability in the context of a university is to ensure that the university's knowledge and expertise are freely-accessible to the community. University academicians, researchers and students alike can all play important functions in spreading knowledge and expertise beyond university walls. They can impart on the community the skills needed to solve their problems while simultaneously exposing them to new ideas and innovations. Additionally, such efforts will assist the university in strengthening its ties with the communities surrounding it.

Aaccording to Rahman[23] (2008), Islam states that "Knowledge sharing is an essential influence on the success of any knowledge management initiative." The importance of knowledge sharing is well-

[20] Brewer (1999) "The Challenges of Interdisciplinarity." *Policy Sciences 32* (1999): 327-37.

[21] Jahn (2005). *Soziale Ökologie, kognitive Integration und Transdisziplinarität. Technikfolgenabschätzung - Theorie und Praxis*, 14 (2), S 32-38.

[22] Klein (2001). Transdisciplinarity: Joint Problem Solving among Science, Techonology, and Society. Synthesebücher, *SPP Environment*, Basel, Birkhäuser Verlag.

[23] Rahman (2008). *Inspiring and Encouraging Organizational Knowledge Sharing Through Religion*. World Congress of Muslim Librarian & Information Scientists

reflected in Islamic thoughts and also in the *Quran* (Surah Al-Alaq: 1-5) which states the importance of knowledge and stresses on the obligation of every Muslim to seek, teach and share knowledge through systematic ways for divine objectives.

As pointed out by Mohd Nor[24] (2005), the culture of knowledge-sharing among Muslims is demonstrated in the process of *dakwah*. Islam recognizes the concept of sharing beneficial knowledge via the preaching of the *dakwah* which is a great *Ibadah* (worship) toward *Allah*. The practice indirectly motivates followers to spread knowledge between colleagues in the community, including at the workplace in order to attain the recognition of *Allah* as the ultimate reward for the sharing of knowledge (*dakwah*).

Coincidentally, an important step in bridging communities to universities is the concept of Indigenous Knowledge. According to UNEP, Indigenous Knowledge (IK) can be broadly defined as the body of knowledge that an indigenous (local) community accumulates over generations of living in a particular environment. This definition encompasses all forms of knowledge – technologies, know-how skills, practices and beliefs – that enable the community to achieve stable livelihoods in their environment. A number of terms are used interchangeably to refer to the concept of IK, including Traditional Knowledge (TK), Indigenous Technical Knowledge (ITK), Local Knowledge (LK) and Indigenous Knowledge System (IKS).

As a field, Indigenous Knowledge and practices have in past decades seen a steady decline in popularity in a world that is fixated on laboratory statistics, chemical engineering and intensive undertakings of modernization. Stereotypes exist regarding Indigenous Knowledge and practices as a field of pseudo-science that is concerned with shamanism, witch doctors and faith healings as opposed to modern medication - and where culture is concerned, as a 'backward' collage of rituals and practices that conflict with modernization efforts.

However, when Indigenous Knowledge is successfully integrated into the fabric of modern society, it is able to contribute significantly to the richness of a society, giving it history and a sense of identity in a world whose lines are increasingly blurred by rapid globalization and ongoing rigorous endeavors at separating Indigenous Knowledge from secular mainstream knowledge. In addition to this, the incorporation of Indigenous Knowledge into our daily life might even edify and further strengthen modern practices and aspects of society to our advantage. In such an event, universities can act as an ideal platform for researchers to combine Indigenous knowledge and the modern sciences for the greater benefit of humanity.

In addition to the above matter, the issue of how to enable universities to better contribute to innovation processes has become an important issue in the international agenda. Transferring the results of university research to industries may take several forms and can thus be achieved in different ways. i.e. patenting, licensing, spin-off firms, etc. Although the transferring of results from academic research into the industry is widely accepted as a crucial contributing factor for industrial growth and competitiveness, this is nonetheless not an effortless or easy linear process of direct knowledge transfer from academia to the industry.

THE WAY FORWARD

As was argued in earlier sections of this paper, although universities can act as advocates in championing sustainability, the conventional structures of universities seem to be the main barrier in actual implementation of sustainability within a university. For this reason, a potential solution may be to create a multidisciplinary approach in which different sectors of the university can act and cooperate with each other toward the cause of sustainability.

The lack of a holistic sustainability framework is another important obstacle impeding sustainability integration at a university. This framework should be fully supported by a university's senior officials and be created through a series of discussions with academicians and experts from various sectors in the university. Such a framework should contain the necessary elements for sustainability mainstreaming within the different sectors of a university and suggest appropriate action plans to drive the agenda forward.

Insufficient funding has often been blamed as a major barrier against sustainability implementation at a university. It is obvious that approximating adequate budgets for multidisciplinary researches and activities require a great amount of reshuffling with regard to budget writing. Although this problem is inevitable, perhaps apart from a university's regular source of funding, new external sources of financing should also be considered. There are many institutions or organizations around the world that fund sustainability related projects and research within universities. These organizations should be

[24] Mohd Nor (2005). Developing knowledge ecology through religious understanding. *International Conference on Knowledge Management* (ICKM) 2005.

approached and a new chapter in collaboration with external funders opened.

Apart from the two major groups of academicians and students, a university also consists of several different types of administrative staff and sectors. Directing these employees toward sustainability is also a major challenge in implementing sustainability into the texture of a university. It is necessary therefore to justify how sustainability can be accommodated into the current administrative systems of a university with the least amount of disturbances to the original framework of the university. This would entail overcoming the bureaucracy found in administrative sectors and reorienting them toward the university's framework of sustainability. Such reorientation would encompass a wide array of activities ranging from the changing of the selection criteria for new employees to the way these employees are to be evaluated and ranked. Understandably, this will also affect the rewarding systems of university employees as well.

Monitoring and Evaluation (M&E) are an integral part of any project cycle management. M&Es must be a continuous process, right from the start of the project to the very end – this is crucial to determine how well a project is in meeting its targets and the overall goal. M&E is sometimes extended to include a short post-project period beyond the completion of the final project report and external review. Additionally, good monitoring alerts project managers to emerging problems and provide valuable feedback to project planners, financial partners and implementers. The auditing tool used in the auditing process fully depends on the purpose of the audit being carried out. For this matter, the objectives and scope of the audit should be well defined before the audit takes place. Certain elements such as financial limitations are deciding factors on how deep or detailed the audit should be. The expertise of those conducting the audit should also be a matter of high consideration as well - on the other hand, there should also be a rough expectation of how cooperative the audited entity will be with the auditors. Since the auditing process requires massive date collection, bilateral cooperation is of vital importance.

Islam requires that Islamic nations (the *ummah*) collectively focus their attention on implementing science and technology in creating a new Islamic civilization. By so doing, the *ummah* can play a role in stopping the inequity, dissonance and breakdown existing in human life encompassing the social, economic, cultural, and political. On a holistic level, this mission is in line with the concept of sustainable development and can be pursued by universities via their existence as centers which disseminate knowledge. As centers of excellence, universities also function as think tanks, and research centers through which the Islamic perspective on science and technology can be advocated. This would certainly assist in enabling Islamic societies to once again rise and find their historic position within the scientific, economic and political contexts of today's world. As reiterated by Prophet Muhammad: "The best form of worship is the pursuit of knowledge."

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