

## Essence of, Approaches to and Transformation Process in Higher Education for Sustainable Development: A Critical Review

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**Abstract:** *The study aims at reviewing the essence of sustainable education, highlighting its different approaches and analyzing transformation process of higher education for sustainable development (HESD). Since there is lack of sustainability research in the developing countries, the study addresses the issues of higher education towards sustainability from the perspective of a developing nation. This research is qualitative and descriptive in nature. It considered extensive literature survey to meet the research objectives. The study found that the issue of higher education for sustainable development got global attention especially in the Western society. In Mexico, many public universities introduced sustainability education as core course at the graduate and post-graduate level. Among the Asian nations, Malaysia has set an example taking initiative to transform higher education for a sustainable society. Universiti Sains Malaysia (USM) got APEX status incorporating that dimension in the program. Bangladesh, the local context of the study, is lagging far behind in attempting to sustainable education. Both public and private universities are facing many challenges towards that dimension, which are highlighted in this study.*

**Keywords:** Sustainable development, higher education, transformation process, Bangladesh

### 1. Introduction

Sustainability is a most crucial global agenda of the day (Porritt, 2007). The issue of sustainable development came into light at the end

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of 1980s. There is no clear cut definition of the term sustainable development. It carries different meaning to different individuals, groups and organizations. However, no one denies to accept the general idea of “meeting the needs of the present generation without compromising the needs of the future generations” (WECD, 1987). Global society today achieves neither ecological nor social sustainability (Unerman *et al.*, 2007). Rapid industrialization along with greater consumerism has led to increased levels of environmental pollution and waste. Dust, gas and smoke are discharged into the air by factories and food processing plants. Harmful chemicals are dumped into the seas and rivers especially in the developing countries. Lack of sustainability knowledge seems to be fundamental issue behind the negative impacts on environment and society.

Higher education for sustainability that is, sustainable development has become an emerging issue of research (UNESCO, 2009). The avenues of higher education that is, universities either private or public hold a unique position in society. These are critically important places in view of knowledge production, knowledge perpetuation, and knowledge dissemination (Stephens *et al.*, 2008). Due to climate change effects the environmental protection and the implementation of the sustainability concept is of growing international importance (Wehrmeyer & Chenoweth, 2006). UN Conference in Rio De Janero first highlighted the issue of environmental education for sustainable development in 1992 (Down, 2006). Though enormous researches have been conducted in the field of sustainable development throughout the world, but the research on higher education for sustainable development especially in the developing nations is very limited. The essence and various approaches of sustainability education, and its transformation process are not obvious that requires further attention.

The study aims at reviewing the essence of sustainability education, highlighting its different approaches and analyzing transformation process of higher education for sustainable development (HESD). Since there is lack of sustainability research in the developing countries, the study incorporated a case of sustainability education at tertiary level in a local context. Bangladesh has been selected for the case as it is the first victim of climate change affecting sustainable development of the country (Daily Star 2009, December 20). Moreover, due to severe environmental pollution, Bangladesh runs to facing ecological catastrophe (Inam, 1995). This study is qualitative

and descriptive in nature. It has critically reviewed the desk-based findings that is, secondary sources of information. Next section of this study is related to essence of sustainability education followed by different approaches to sustainability education and transformation process of HESD. The study comes to an end with a case from local setting followed by concluding remarks.

## **2. Essence of Education for Sustainable Development**

The concepts of sustainable education and sustainability education, though interrelated, are not same. Sustainability education basically refers to incorporation of environmental education, community development approaches, human rights, human resource development, good governance, and economic impact into academic curricula (**Sobhani et al.**, 2010). Besides, sustainable education usually refers to strategic development of university along with human resources for a sustainable tomorrow. It requires quality intakes, skilled & experienced teaching resource, sufficient infrastructure, updated and standard curricula, and available logistic support that facilitate learning process (**Lalwani**, 2009). Sustainability education is an interregal part of education for sustainable development. This paper includes both sustainable as well as sustainability education under the purview of higher education for sustainable development (HESD). Before going to discuss about HESD, it is better to have a look at sustainable development. Sustainable development encompasses restoring environmental integrity, improving economic prosperity and promoting social equity. The important issue of sustainable development is to reach balance between economic, social and environmental goals (**Jones**, 2007). Development of human resource may be considered as the basis of sustainable development that may bring remarkable benefits to promote cultural, ecological, economic, social and political development (**Yee**, 2009).

“Sustainability” and “education” have always had an interactive influence over each other. The goal of education is to urge humankind being ethical, responsible, better informed and more knowledgeable (**Weenen**, 2000). Higher education institutions like universities have all the expertise necessary to develop the conceptual framework for sustainability. This could help the sustainable trend of the day. Universities are the avenues of producing future decision makers in both public and private sectors. Higher education for sustainability, 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 tertiary 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 Higher Education for Sustainability. For this purpose, they designed a framework entitled Decade of Education for Sustainable Development, which officially launched in January 2005, and be completed by December 2014 (**Huisin**g et al, 2006). Consequently preliminary researches were conducted by many organizations such as, UNESCO and individual researchers throughout the world. Finally, an approach to education that strengthened the application of social values, particularly integrity and fairness, came out as the most important parameter of sustainability education.

Many researchers have focused on sustainable and sustainability education (**Bringer**, 2006; **Tahir & Saadatian**, 2009). The beginning of the new millennium saw the boom of education for sustainable development (ESD) articles on developing understandings of ESD definitions, policy, curriculum, and theory (Wright and Pullen, 2007) followed by the publications on global research agendas on ESD (**Wright**, 2007; **McKeown**, 2007), summaries of ESD research approaches in different countries (**Hansjo"rg & Werner**, 2006; **Heimlich**, 2007) and conceptual analysis of the ESD research (**Breiting**, 2009). (Cited in **Reunamo & Pipere**, 2010) They intended to explore the route of embedding environmental literacy, into every segment of operations or curricula as the main attempts of sustainability. 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 borders 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. Another example is Amsterdam University, which looks to sustainability in "LIFE" as "L" means limits in resource, "I" means being independent, "F" means fundamental changes, and "E" means equity. However, the inefficient progress in higher education for sustainability has been assessed and yield more frustrating results (**Jenks**, 2000). The slow processing is being referred to universities management and their strategies.

Richards (1999) believes that to ensure higher education for sustainability, university authorities should make systematic change and actively consider transformation process towards sustainable development (Tahir & Saadatian, 2009).

### **3. Approaches to Sustainable Sustainability Education**

Global trends affect education and educational systems to adapt, change, and anticipate the social and economic needs of the day for sustainable society. A key challenge in any educational reform is the methodological considerations or approaches. There are many approaches introduced by the recent researchers regarding sustainable education (see for example, Cheong, 2009; Yee, 2009). Some approaches seem to be theoretical and some of them are imaginative (Yee, 2009). Some approaches, as rephrased below, generate important ideas in formulating the transformation policies for higher education towards sustainability.

#### **3.1 Freedom of Choice: No Choice, No Freedom**

Yee (2009) introduced Freedom Vs. Restriction as an approach in higher education for sustainable development. Yee defined freedom in education as about giving people choices, aimed to educate individuals on freedom of choice and freedom to be themselves with their own brand of personalities that can be nurtured via indoor and outdoor classrooms. Key expected outputs are individuals who: (i) appreciate the freedom of choice; (ii) free themselves from restricted choices made for them; (iii) think for themselves about the cost of making wrong choices; (iv) feel grateful for who they are in terms of their uniqueness while accepting others who are different from them; (v) help others to see the value-added by freedom of choices. Hence, freedom of choice is vital for basic well-being and democracy because “no choice, no freedom” (Cookson, 2002, p. 57). In the western society, students have the freedom to choose universities because they have the ability to pay for their education through expensive tuition fees (Vedder, 2005), which is unlike some countries across the world where universities are subsidized by governments.

#### **3.2 Free from Politics and Market Based System**

As noted by De Wit (2006), higher education should be independent from the power of politics. In the past, in many countries like France, Italy, Spain and Germany, efforts to reform higher education by the politicians failed because they were not able to involve and commit the higher education community (Cited in Yee, 2009). To De Wit, the

European higher education reform was due to the fact that [it] was lagging behind its competitors – especially the USA - in R&D, with regard to innovation and change. The US is ranked the world's top for efficiency enhancers and innovation factors according to GCR (2009). There is growing dissatisfaction with the results of the political processes that dominate the schooling production decisions and access issues throughout most of the world that could create the culture of polarization (Merrifield & Salisbury, 2005). This is especially true for the K-12 education system in the U.S. as the present US education system is shaped by a political process in which constitutes collectively determine how to produce education. Unlike the K-12, American universities are mostly operating under a competitive-market with the freedom to decide. That is why Merrifield & Salisbury supports market-based system that is responsive to market forces. American universities are recognized as being of high quality relative to K-12 because the former are privately-controlled and reflect greater innovation due to the “freedom from some bureaucratic structures and regulations” (Vedder, 2005, p. 280).

### 3.3 Liveliness Approach

According to Yee (2009), the concept of *Liveliness vs. Dullness* can be applied inside and outside classrooms. Liveliness refers to the quality or state of having abundant or intense activity and dullness refers to the quality or state of lacking quickness of mind. The environment within classrooms and the campus is critical for the development of a person not only in terms of the development of his own knowledge and learning but also in the development of his soul, spirit, senses, mind and emotional health. Therefore, the environmental effect on the well-being of a person should not be underestimated. The environment of the academic institutions should be open, spacious, lively and natural. As for learning and teaching in classrooms, students and instructors of the new century are expected to be soft, warm, mobile, flexible, expressive, responsive, yet spirited and enlightened. It is important to understand that education is more than taking exams and passing exams. Exams limit students' creativity, imagination and ability as they have no control over what and how they are tested. In Japan, for instance, as cited in Doyon (2001, p.446) Sugimoto wrote, “Exhausted students both mentally and physically by examination hell seek relaxation, enjoyment and diversion in their university life” due to the strict Japanese schools system. Thus, education is about *Liveliness*, relating life to living, and not about *Dullness*.

### 3.4 Approach of Mobility

The purpose of mobility is to support students and staff mobility within and outside the country for international understanding, co-operation and networking in higher education. Staff mobility is good for innovation in teaching and research. Instead of keeping them, better to set them free. In Europe, one of the main focuses of the Bologna Process and the Lisbon Strategy under the European higher education reform is to promote staff and students mobility. The Lisbon Strategy and the Bologna Process, the development plan for the European Union, setting 2010 as the final step for Europe to become the world's most competitive economy is in fact, the first step for continuous improvement of higher education for graduates interacting from a global perspective (Yee, 2009).

### 3.5 Social Justice: Equality of Chances

The Secretary-General of the United Nations, **Ban Ki-Moon** (2009) stresses that social justice for all people to achieve a satisfactory level of well-being and equality of chances is at the heart of the UN's global mission to improve development and human dignity. Likewise, the President of the 63<sup>rd</sup> Session UN General Assembly Peace, Miguel d'Escoto **Brockmann** (2009) indicates that respect for all human rights is a pre-requisite for social justice. It requires policy making that recognizes the human rights as full members of society, however, one must remember that making a policy that recognizes the human rights as full members of society to work effectively is harder than making a policy for the sake of making a policy. How to integrate social justice in higher education? What about introducing a social justice course to all students across all disciplines in institutions of higher education? A good example would be Columbia University, Lee Bollinger, who is passionate enough to teach a class entitled "*Freedom of Speech and Press*" every year to undergraduate students (Office of the President, **Lee. C. Bollinger**, 2008). However, nothing can be changed in higher education overnight because different countries have different policies. One must remember that to promote social justice, human rights are needed and before human rights, freedom is required.

### 3.6 Goal Setting: Maximizing Efficiency

What should be the ultimate goal of a university? Learning? Teaching effectiveness? Research? World Ranking? Top 5? Top 10? Top 50? Top 100? Meeting political needs? Yet, are these needs parallel to those needs of higher education key players - students, parents, industries and the universities themselves? **Leonhardt** (2009), for

instance, compares higher education to health care and observes that, “there is a real parallel here to health care. We pay doctors and hospitals for more care instead of better care, and what do we get? More care, even if in many cases it doesn’t make us healthier” (p. B1). What is the main purpose of higher education in any society? Advanced knowledge? Private return? Economic growth? The betterment of society? The betterment of the world? Global recognition? What do leaders of a university want? Is there a tradeoff between what they want and to whom they are accountable? Who are universities accountable to? Students? Staff? Society? Industries? Politicians? Tax payers? Is it not the sustainable goal to make the best use of resources? How can universities make the best use of their resources? Is it efficient if a teacher teaches the same course in the same department at the same university for years using the same technique? Indeed, the teacher is not keeping up with the discipline and not able to animate his own teaching with that experience.

### **3.7 Community Engagement Learning**

Since universities do not exist as a separate entity from their communities; institutions of higher education have begun to look not only at learning outcomes but also at whether students’ volunteer work would make a difference in people’s lives in the community (Ashburn, 2009). Among the many questions that are worth considering by universities regarding community engagement and community learning are: (i) Do a university really care about what is going on with people in the community? (ii) What does the community need rather than what does a university want to give? (iii) How serious are university authorities to sit down and talk with the people of community? As for the case of Malaysia, some university top executives have participated recently in community projects of experiencing the lives of indigenous families in Malaysia (USM, 2009). As for American universities, community services have long been part of their social commitment and learning culture. For instance, during the administration of President George W. Bush, the U.S. President’s Higher Education Community Service Honor Roll was launched to recognize universities’ achievement in community services. In 2008, three universities under the category of general service and another three under the category of leadership for helping disadvantaged youth were awarded the US President’s Higher Education Community Service Honor Roll (Learn and Serve America: Corporation for National and Community Service, 2009).



### 3.8 Quality with Morality: Islamic Approach

How quality education can serve for society without morality? Moral degradation is not a vital reason behind social injustice, violation of human rights, environmental pollution, economic depression and.....? Is religion not the principal source of morality and ethics? There is a concrete and detailed instruction in Islam to preserve the society and environment. The main theme of Quran is man, in defining him, explaining his nature, enumerating his status, attitude, aptitude, guiding his conduct, manner, morals and ethics (Sulaiman, 2005). Islam intensifies the feelings of societal obligations in an individual person by specifically providing for the fulfilment of contractual obligations. As indicated in the holy *Qur'an*, "all natural calamities in the land and seas are originated by the human society" (*Al-Qur'an*, 30:41). It is further stated in the holy *Qur'an*, "Oh ye who believe, fulfil (all) obligations" (*Al-Qur'an*, 5:1).

Prophet Mohammad (pbuh) said, "Every one of you is a guardian and is responsible for his charge. The ruler (leader) is a guardian; the man is a guardian of his family; the lady is a guardian and is responsible for her husband's family and offspring; and so all of you are guardians and are responsible about your wards" (*Al-Hadith: Sahih al-Bukhari*, 7:62:128). It is clearly mentioned in the holy *Qur'an*, "Oh, believers! Fear Allah as one should fear (about his or her deeds) and do not die unless you are a perfect Muslim" (*Al-Qur'an*, 3:102). There are many verses in the *Qur'an* that talk about fear of Allah as a basis of Islamic responsibility (see also *Al-Qur'an*, 1: 196-198; 33:70; 49:13; 59:18; 47:36; 3:76; 39:20). It is the faith of all Muslims that they will be asked to account for each and every deed and responsibility (*Al-Qur'an*, 99:7-8). Hence, the faith of ultimate accountability to Allah can serve ensuring sustainable development on this earth and hereafter.

### 4. Transformation Process towards HESD

In transforming higher education towards sustainable development, a university needs to review all approaches as stated before. It has to revise its all activities in all areas including teaching and learning, research, innovation, curricula and studies, consultancy and services, students and alumni. Sustainable development is not only a topic responding to a global challenge but also picking up the interests and needs of the students and teachers (Barth, 2009). Indeed, transformation plan towards HESD is a rigorous process that must vary from one institution to another based on time, institutional goal, and its financial sustainability. According to Salmi (2006), the

transformation strategy consists of two primary foci, namely (i) transforming the output/outcomes necessary to be world renowned in sustainable development, and (ii) transforming the three pillars of higher education, namely the concentration of talent, the abundance of resources and the acculturation of supportive governance (Cited in USM, 2008). In transforming Universiti Sains Malaysia (USM) for the APEX program, the university had to review particularly addressed the seven thrusts of the National Higher Education Action Plan (MoHE, 2007), in terms of:

- Widening access and enhancing equality;
- Improving the quality of teaching and learning;
- Enhancing research and innovation;
- Strengthening the institution;
- Intensifying internationalization;
- Enculturation of lifelong learning;
- Delivery system.

In general, a university can develop its transformation process adopting a number of steps, which are stated below.

#### **4.1 Introducing a General Study Module**

The need to consider and integrate aspects of sustainability into higher education is a generally accepted mandate of the day. Many universities have offered courses on Environmental Laws, Environmental Management, Corporate Governance, Business Ethics, Entrepreneurship, Corporate Social Responsibility, Development Studies and so on that incorporated vital issues of sustainable development (Mohammad, 2009; Sobhani et. al. 2010). Some universities in the Western world attempted to introduce a general study module on sustainability issues. In Mexico, some public universities have considered praxis of the sustainability education like a process that comprises of the non-formal education (Vázquez & Villaseñor, 2009). As reported by Barth (2009), a general study module is feasible but it requires a long run effort to make it really sustainable. Implementation of such restructure comes along with a threefold challenge: (i) Students need learning settings on offer which on the one hand can be linked to their real-life experiences, and on the other hand support the development of competencies in interdisciplinary settings with innovative learning approaches. (ii)

Teachers are faced with the challenge of a changing role from someone who imparts knowledge to a moderator of learning processes. Thus, the didactical design, considering the heterogeneity of their students and the necessity to create learning environments that support individual competence development on the one hand and allow still some guiding on the other hand, is getting increasingly important. And finally (iii) such a redesign in curricula needs an organizational umbrella, which allows for such new learning approaches, supports the additional expenses both for learners and teachers and considers the important function of the University as a “life world” in which competence development takes place. In sum, an integration of sustainable development in higher education is still an option for the universities globally though the challenges described can be handled.

#### **4.2 Undertaking Community Problem Solving Projects**

Universities may undertake community problem solving (CPS) projects to prepare students to promote education for sustainable development. In conducting CPS projects there is no need to make drastic changes to the curriculum but to allow time for the CPS projects to be conducted by all students as a core course, not as an elective. A CPS project was undertaken at the graduation level as course requirement by **Cheong** (2009) and found that participation in CPS projects is a viable and rapid way to promote education for sustainable development. In a CPS project, students are allowed to work in groups intending to solve a specific problem in a selected community. They need to develop their own strategies and action plans to solve the problems identified. Finally, each group is required to submit a project report and present their CPS projects orally for evaluation purpose (**Cheong**, 2009).

#### **4.3 Integrating Sustainability into Teaching**

Taking cognizance of the need to navigate institutions of higher learning toward sustainability-led education, Chong (2009) focused on six magic keys for the formulation of the teaching and learning environment that will ensure sustainability of present and future learners. The instructional framework for nurturing future learners need to focus on sharpening the right-brain aptitudes of the learners. **Reynolds** (2008) has succinctly summarized these six aptitudes as shown below:

- i. Design - (Not just function but also Design) - Design is a combination of utility and significance. One very central

prescriptive guideline is to design instruction that is *learner-centric* instead of *content-centric*.

- ii. Story – (Not just argument but also Story). Story is context enriched by emotion. It is an effective strategy for teaching content in instruction is through the use of stories or scenarios.
- iii. Symphony – (Not just focus but also Symphony). A symphonic approach is the ability to bring the pieces all together for the learners to see the gestalt or the whole. It is about utilizing whole mind — logic, analysis, synthesis, intuition — to make sense of the whole world (i.e., topic), finding the big picture and determining what is important and what is not.
- iv. Empathy – (Not just logic but also Empathy). It is the capacity to go beyond logic and understand others and forge relationships. Empathy is the ability to experience the world from another person's perspective.
- v. Play – (Not just seriousness but also Play). Play includes games, humor and joyfulness. Seriousness has its place but everyone needs some light heartedness and time to play. Games have become a large and influential device that is teaching whole-minded lessons to learners and foster thinking styles characteristic of the brain's right hemisphere.
- vi. Meaning – (Not just accumulation but also Meaning). Meaning is the ability to find purpose in life. In the designing of meaningful events in instruction, one important role is to constantly look for ways to avoid fashioning boring and frustrating learning experiences.

#### **4.4 Integrating Alternative Teaching Model**

In the present context in many universities the teacher is the authority who knows what that truth is and imparts that knowledge to his students through a one way flow of information. In other words, the teacher stands in front of a large hall and gives a lecture, making little or no effort to engage the audience in a discourse. The emerging alternative learning model is built on the constructivist paradigm in which learning is a facilitated social and cognitive activity with multiple ways of interaction between the teachers and the learners. Knowledge has multiple meanings in different contexts and at different stages in the learning process which is centered on the learners rather than the lecturers. This is a model more suited for the rapid changes of

the knowledge society, which provides a comprehensive framework for both lecturers and students to understand their roles in the university as an institution of higher education. The new focus of education for sustainable development is not only to educate students about what sustainable development is, but also to educate so that they can achieve sustainable development. It desires to bring a change in students so that they can take action rather than to simply absorb information for examinations (USM, 2008).

#### **4.5 Raising Diversity of Talents**

The main challenge currently confronting universities is how to accurately anticipate and most effectively foster innovation in research and teaching (USM, 2008). A university needs to be turned into a temple where supremacy of ideas reign while working hard at creating the environments that are supportive of idea generation and the innovation system. Creative and innovative people normally stay at places that are more in tune to their needs. The opportunities for discovery in today's era of information technology are more promising than ever especially if there are outstanding talents within university population or those closely linked with the university. Talents are not only limited to academicians but also supporting staff and students. Quality of teaching resources is a vital factor towards producing quality graduates and high quality research. This can be done by recruiting the best possible high quality candidates as well as improving the caliber of the current faculties and students.

#### **4.6 Changing Evaluation Procedure**

As stated by USM (2008), students now study mainly to pass examinations, not to gain or develop knowledge for the benefit of humankind. Hence, alternative assessments need to be introduced. Other than examinations there are methods or approaches, which are student-centered such as, use of portfolios, rubrics, matrices, peer assessments and personal reflections. These approaches may offer greater flexibility and creativity for evaluation suited to each student's learning style, multiple intelligences, analytical capabilities and interests.

#### **4.7 Career Designing Program**

The intention would not to be market or industry driven but graduates unable to secure meaningful employment are a drain on resources. Practical and industry experience must go hand-in-hand with the theories and knowledge acquired in the classrooms. Career designing program (CDP) need to be conducted for the outgoing students so that they can make necessary preparation to compete in the competitive job market. Training modules need to be developed based on the questions of national and international competitive examinations. Mock interviews may be arranged to prepare the graduates for the real life interviews for job. Workshop may be organized on preparation of individual Curriculum Vitae. Job fairs may be organized on a regular basis to deploy the qualified graduates in the right places. Apart from job placement, students should be encouraged to become entrepreneur that will lead them to become employer rather than employee.

#### **4.8 Other initiatives**

There are some other initiatives that need to be attempted in the transformation process, which are as follows:

- a. There is a need to eliminate unnecessary and irrelevant policies and bureaucracies that are existed in practice towards a sustainability-led university.
- b. University should disseminate quality education with morality. Quality without morality can never ensure sustainable development. Hence, emphasis should be laid on ethical education and research.
- c. University should have 'environment preservation and beautification committee' or a separate division to protect and preserve its natural environment. Tree plantation programs need to be undertaken on a regular basis within the university campus.
- d. Students' involvement and participation in intellectual, cultural, and social activities should be increased up to a satisfactory level. These can enhance the awareness of students on various national and global issues. Sufficient autonomy should be given to them in exercising their perceived rights and actions by expanding their skills on leadership, creativity, innovation towards sustainability.
- e. Technology-enhanced learning (TEL) needs to be introduced to enhance the learning experience for the digital natives familiar with podcasting, blogging, massively multiplayer on line role

playing games (MMORPG), electronic forums, multitasking, instant gratification and so on (USM, 2008).

- f. Editorial assistance and linkages is also an important component to increase the amount and quality of research output. For example, editors of high ranking international journals may be invited to provide regular training in scientific writing as well as to personally guide researchers on their manuscripts (on a consultancy basis) (USM, 2008).
- g. It is badly needed for linking research and its findings for the betterment of the society. Neither research should be conducted for academic promotion, exposure, or ritualistic purpose nor its findings be disseminated amongst academic peers only in obscure or high impact factor journals. Research findings must be circulated for the benefit of the humanity or local community through monographs or mass media for the general public. The community can ultimately be benefited thorough application of research findings in the real life situations.

### **5. Contextual Discussion**

Bangladesh, a developing nation in South-East-Asia, is lagging far behind in comparison with developing nations from taking initiatives for sustainable development. The country has been facing severe economic, social and environmental problems, which are the crucial sustainable issues. In view of economic status, the country has a per capita income of only US\$554 (Bangladesh Ministry of Finance 2009). Feeding 150 million people with a piece of land measuring 0.15 million square kilometers is really challenging. Having an annual budget of AUD \$ 10.2 billion (Bangladesh Ministry of Finance 2009) the country is struggling to meet the basic needs for its citizens (EPB 2009). There are a number of social problems in the country. Two million female workers are employed in Bangladesh in its export oriented garments sector, where the pay structure is very low and barely meet the day to day expenditure (**Burns**, 2005). Women workers in the garment industries have to survive particularly harsh working condition (**Afrin** 2002). Child labor is another major problem in the country. Among factors contributing to child labor are rapid population growth, adult unemployment, bad working conditions, lack of minimum wages, exploitation of workers, low standard of living, low quality of education, lack of legal provisions and enforcement, low capacity of institutions, gender discrimination, conceptual thinking about childhood, etc. One or more of the above contribute to the large

numbers of children working under exploitative or hazardous conditions (ILO, 2009). Another major social problem is acid attacks on women, mainly due to refusal of marriage proposal and failure to give dowry to the husband. These attacks are increasing at alarming rates as government has failed to prosecute the attackers (Anwary, 2003). Drug addiction is gradually being increased (UNDCP 1997).

In addition to socio-economic problems, the country has a number of environmental issues which are mostly hindering the sustainable development. It is the most vulnerable country to climate change impact (USAID, 2009). Being the largest delta in the world located at the downstream of the second largest river system, the country is subject to a series of climatic events. The probable impacts of global climate change (GCC), particularly sea-level rise and the associated impact on ecosystems and economic loss, adds to the already daunting array of environmental issues. Climate change will change the physiography and demography of Bangladesh. By 2050, 70 million people could be affected annually by floods; 8 million by drought; up to 8% of the low-lying lands may become permanently inundated (USAID, 2009).

Bangladesh has been high risk prone area for last couple of years, for arsenic polluted water due to arsenic release in groundwater from the sediments deposited during the Holocene period (DPHE, 2001). So, supply of safe drinking water remains the most crucial issue in a large area in Bangladesh (Jakariya et. el., 2005). In addition to its human caused environmental problems, Bangladesh has been severely affected by natural disasters in last few years. For example, in 1991, nearly 150,000 lives were taken by a cyclone. Hundreds of natural disasters, both large and small, occur each year in Bangladesh (Dilley et. el., 2005). Bangladesh is a country where 40 percent of the people go to bed hungry every night, where 40 percent of the people are chronically malnourished and stunted. It is a country where too many mothers die in childbirth, where too many infants die before they reach their first birthday (US Department of State, 2009). From the above contextual highlights of socio-economic and environmental issues, it is evident that Bangladesh is more vulnerable in sustainable development. To mitigate the social, economic and environmental problems, it is essentially required to create awareness among the people where sustainability education at the universities can play a vital role.



As noted by **Sobhani** et al. (2010), higher education for sustainable development is surrounded by a number of challenges in Bangladesh. There is a lack of sustainable plan in both public and private universities of the country. Higher education in Bangladesh has been offered and solely controlled by the public universities, even today to a great extent. But unfortunately these public universities failed to accommodate the big flow of interested participants for higher education. At the same time, the standard of education in the public universities was found to be deteriorating and not so promising to complete globally (**Mamun** et al., 2008). In view of sustainability study so far the public universities introduced got poor attention due to continuous fall in quality level of education, involvement of students into ill politics. Student politics under the guidance of national political parties has become a major problem to ensure leaning atmosphere in the public universities. Due to high freedom in Public University Act 1973, teachers are not being made accountable to their academic and societal responsibilities. Opportunities for research are also insufficient. Research is being conducted mostly for promotion to senior position, academic exposure, and utilization of allocated funds. Research findings are rarely applied for societal benefits.

Aiming at educating human resources at the tertiary level, Bangladesh introduced higher education in the private sector under the Private Universities Act in 1992. Since then fifty four (54) private universities have been established in the country. Interestingly all the private universities of Bangladesh offer business education, namely BBA and MBA programs. Although the business education in the private sector has expanded rapidly since 1992, sustainable development in the education sector is lagging far behind. A study conducted by **Sobhani** et al. (2010) revealed that lack of knowledge and environmental awareness; understanding the conceptual framework of sustainability education, problems of introducing general module, scarcity of competent faculty members; limited infrastructure and institutional support; lack of government policies and financial support; offering need-based education only; lack of motivation of the students to learn sustainability issues; high tuition fees; and dependency on foreign grant and so on are the main challenges behind sustainable education in the private universities of Bangladesh.

Indeed, it has become a need of the day to overcome all challenges in order to ensure sustainable development. Developed countries like Australia, Japan and the UK have been undertaking different measures

to ensure sustainability education at the tertiary level. Environmental study has become a common course of learning in the Western countries. It seems that Bangladesh lacks in planning, policy developing and strategy formulating in introducing sustainability education. Though some of the public and private universities have introduced environmental education in Bangladesh but these are highly insufficient to protect the society from unjust, inequality, violation of human rights and environment from various types of pollution like water contamination, air pollution, sound pollution, destruction of natural beauty etc. Government along with University authorities should move forward against the challenging future. Joint efforts are required to take necessary measures for keeping the environment free from pollution, society from unjust and economy from imbalanced distribution.

### **6. Concluding remarks**

The study was an attempt to reviewing the essence of sustainable education, highlighting its different approaches and analyzing transformation process of higher education for sustainable development. Due to lack of sustainability research in the developing countries, the study contributed significantly in addressing education for sustainable development at tertiary level in a local context. The study reveals that higher education can play vital role in ensuring sustainable development in a nation. There are various approaches towards education for sustainable development, which are mainly principle based and policy oriented. A university may consider these approaches in formulating transformation process, policies and strategies towards a sustainability-led university. There is no unique transformation process of higher education towards sustainability that could be followed by a university. It depends on the sustainable plan, policy, objective and nature of a university. Mostly the processing plan should be guided by the crucial sustainability need in a local setting. Bangladesh is lagging far behind in planning and making efforts behind education for sustainable development at tertiary level. Since there are a lot of challenges, combined efforts of the Government and University authorities are required to ensure sustainable education in both public and private universities in Bangladesh. The study conducted literature survey that limited it to secondary sources of data and information. Hence, the study generates scope for further research through empirical investigation. A comparative study in education for sustainable development between public and private universities may be of significant contribution.

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