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Embedding Sustainable Development into Higher Education: A Case Study from Egypt

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Abstract

A rapid movement of educational reform is taking place nowadays. Education for sustainable development is becoming increasingly important at all levels of the educational system including higher education due to the scarcity in natural resources. The higher education for sustainable development gained a great importance in developed countries, let alone developing ones as Egypt. In order to cope with global and international changes, after three years since Egypt January 2011 youth revolution, one of the main challenges in Egypt is how to integrate different sustainability ideas and principles within different educational activities. The universities play the core role towards sustainable development which reflects the main aim of this study that aimed to generate a model for its adoption in Egypt through examining a case study of Heliopolis University for Sustainable Development as the first non-profit university in the Middle East declaring sustainable development as its overall guiding principle, as a model of embedding Sustainable Development into Higher Education in Egypt. On the academic level, the importance of this study raised from the fact that there are few studies within the Egyptian context that shed the light on the themes, meanings, opportunities and challenges facing teaching for sustainable development at higher education. On the practical level, this study aimed to shed the light on a good model of a case study of higher education for sustainable development in Egypt, including the challenges and opportunities revealed as well as the areas where recommendations needed to support higher education's contribution to sustainable development.

Key Words: *Sustainability, Development, University, Environmental Education, Sustainability in Higher Education, Education for Sustainability.*

Introduction

In recent years the planet's state of health and its future well-being have become the focus of much increased public attention and concern and in many countries higher education is now expected to play a significant role in helping society towards a more sustainable future through providing large numbers of graduates with the knowledge, skills and values that will enable the society as a whole to progress towards more sustainable ways of living. However, a key challenge for higher education is to discover the most effective ways for producing 'sustainability literate' graduates (Chalkley 2006). Education for sustainable development (ESD) is one of the most important tools for raising awareness about environmental issues within a sustainable development context. However, there are still many problems associated with its execution (Filho 2010).

The concept of sustainable development (SD) was raised as the response to the enormous and very harmful effects of the change in the civilization direction (Czapla 2011). With the decision to run the UN Decade on Education for Sustainable Development (2005-2014), the United Nations acknowledged the need for identifying suitable initiatives, approaches and methods, via which knowledge on sustainable development may be promoted, taking into consideration its complexity (Filho 2010). Accordingly with the significant increase in the global threats, education has a fundamental role to play for providing the new generation with a vision of education that seeks to empower them to assume responsibility for creating a sustainable

future (Kanbar 2012). Hence, it is time that Arab countries realize the profound association between the environment and development. There are severe environmental challenges in Egypt, threatening its long-term ability to support life. It is important for the government in Egypt to develop national educational strategies for sustainable development to support the new generations to face the threats of the global challenges. In order to cope with global and international changes, after three years since Egypt January 2011 youth revolution, one of the main challenges in Egypt is how to integrate different sustainability ideas and principles within different educational activities. It is time for Egypt, to realize the profound association between the environment and development. This study demonstrated a case study of higher education for sustainable development in Egypt, analyzing the challenges and opportunities revealed as well as it provided recommendations to promote higher education for sustainable development initiatives in Egypt.

Literature Review

Over the last thirty years, the idea of sustainable development has come to be seen in policy circles across the globe as an urgent response to a range of environmental issues that threaten the human well being, education, and particularly higher education, increasingly is seen to have a crucial role in sustainable development as was explored through the emerging literature review (Scott 2007). Sustainable development cannot be achieved through changes in one sector alone; accordingly the higher education is seen as a focal point to support global sustainability and to create sustainable solutions for the future. Sustainability in higher education (SHE) draws on various disciplines such as environmental education, policy analysis, economics, management, sociology, ecology, psychology and philosophy. Despite some success of SHE research to date, Scott argued that the international community has a lack of cohesion amongst researchers and he has called for the development of a comprehensive SHE research plan (Scott 2007).

Higher Education for Sustainable Development: Understanding and Defining the Concept on the International Level

Sustainability is a dominant concept but achieving it is not a simple task. The challenge is to modify our living patterns so that the way for meeting our needs of the present does not compromise our ability to meet those of the younger generation (Davidson 2003). The notion of sustainable development is not always clear. According to Di Giulio (2006), over 300 definitions of the concept have been found. It can be understood in various meanings and is defined in many contexts as a technical term used in forestry; as an ecological term; as well as a new definition refers to the development of humanity and of human societies (Di Giulio 2006).

However, in recent years an understanding of the concept of sustainability has been established. It consists of three dimensions: the protection of the natural environment, the maintenance of economic vitality, and observance of specific social considerations. Sustainable development is generally thought to have three components which are environment, society, and economy. For example, a healthy society relies on a healthy environment to provide food and resources, safe drinking water, and clean air for its citizens (Hola 2009). In order to preserve the natural world, economic, social and environmental factors must be jointly considered and harmonized (Johnston 2007). The term sustainable development became noticeable after the Rio Earth Summit in 1992 which prioritized global environmental discussions and also advocated the role of education in preventing ecological degradation (UN 1987). Today sustainability has become generally a formal requirement for most of the development planning documents around the world; however, its practical implementation is a difficult because of the need to acquire new knowledge and to transform attitudes and behavior with regard to sustainability. Accordingly, universities are seen as key stakeholders in achieving a sustainable future and education follows the prevalent key values of society (Klavins 2010).

The area of study and action now variously called 'education for sustainability' EFS or 'education for sustainable development' ESD is fundamentally connected to nature studies and environmental education EE (Sherren 2008).

Education for sustainable development is a fairly new concept in different parts of the world. According to different points of view and literature accumulated, education for sustainable development contains within it the concept of the essential needs of the world's poor, to which overriding priority should be given; as well as the concept of limitations imposed on the environment's ability to meet present and the future needs (Hola 2009). Education for sustainable development (ESD) used to mean learning that promotes 'sustainable development' (Lipscombe 2008). The concept of Sustainable Development has been around for many years. The most cited definition was published years ago in the report from the World Commission on Environment and Development: "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Holmberg 2005). The popularity of this definition is probably due to its clear referencing of the inter-generational issue which is at the heart of models of resource consumption and socioeconomic development (Scott 2007). Traditionally, sustainable development is conceptually can be considered in terms of three main pillars. First the Environmental sustainability refers to the ability of the environment to continue to function properly indefinitely and to minimize environmental degradation Secondly Economic sustainability refers to the way to achieving economic growth as well as making use of the globe resources in a sustainable way. Thirdly Social sustainability refers to the actions and THE effort to promote development that does not lessen the stock of social and human resources as well as maintain harmonious communities (Ramzy 2012). As noted by Pyle, sustainable development is a process that includes also strategies that promote a more equitable distribution of well-paying jobs, reduced social inequality, the political empowerment of the citizenry, and improved health conditions (Pyle 2002). According to Haigh, environmental education can be perceived as a continuous learning process based on respect for all life and its purpose includes developing an ethical awareness of all forms of life with which humans share this planet. It should include a respect for all life cycles promoting the understanding and implementation of sustainability (Haigh 2006). According to Kanbar, education for sustainable development ESD is based on the principles and values that underlie sustainable development SD, and it deals with the four dimensions of sustainability which are environment, society, culture and economy (Kanbar 2012).

Education for sustainable development ESD is becoming increasingly important at all levels of the educational system including higher education. However, sustainability in higher education remains an emerging specialization within sustainability science that can be interpreted in a number of ways; whether the focus is on reducing a university's ecological footprint and improving its sustainability performance or reflecting on the mission of higher education for sustainable development (Beringer 2008). United Nations UN is now encouraging all countries to address Education for sustainable development by making (2005 to 2014) the Decade for Education for sustainable development (Cotton 2007).

In response to this responsibility there have been several attempts , on the well known is the Talloires Declaration, which is an international agreement signed by over 350 university presidents in over 40 countries to take actions to implement sustainable practices into their institutions. Moreover, the Baltic 21 is a regional expression of the global Agenda 21 adopted by United Nations "Earth Summit". The Baltic 21 has also highlighted the role of education as a means to support objectives on sustainable development; as well as it links together stakeholders in a common attempt for regional sustainable development (Johnston 2007). The higher education focus on sustainability in North America is also gaining more attention with the American College and University Presidents Commitment. The kick-off event in spring 2007 claimed commitments to sustainability from almost 300 college presidents to initiate ways to eliminate global warming emissions and to integrate sustainability into the curriculum (Morris 2008). Moreover, the Copernicus Campus is a European network of colleges and universities dedicated to a sustainable future and it includes more than 320 colleges and universities from 38 countries, given an important place in their activities including curricula, institutional management and services (Morris 2008).

Education for sustainable development involves learning how to make decisions that consider the long-term future of the economy, ecology and equity of all communities (UNESCO 2003). UNESCO argues that Higher education has a special responsibility to generate the knowledge needed as well as to communicate this knowledge to decision-makers and the public-at-large (UNESCO, 2001). UNESCO also calls all relevant stakeholders to review the programmes and curricula of schools and universities, in order to better address the challenges and opportunities of sustainable development (UNESCO 2002).

Higher Education for Sustainable Development: Roots and Characteristics

In response to the fundamental changes in the state of the world we are living in, the idea of sustainable development has emerged on the political agenda over the last thirty years, As was agreed upon at the United Nations Conference on Environment and Development (Earth Summit) held in 1992 in Rio de Janeiro, education is seen as crucial to achieving a more sustainable development. In this process, educational institutions are considered as a key disseminator of the idea of sustainable development. In 2002 the United Nations UN proclaimed the years from (2005-2014) the world Decade of Education for Sustainable Development DESD (Barth 2011). The outcomes of the Rio agreements set out what nations should do to achieve sustainable development SD in the 21st century (Kanbar 2012).

Reflecting international political commitments to sustainable development since the Rio Earth Summit in 1992, Education for Sustainable Development ESD has gained an increasingly high profile within higher education over the past two decades. The first major step in this direction came in 1990, when university leaders from over 320 higher education institutions in 47 countries signed the 'Talloires Declaration', committing to environmental sustainability in higher education. A similar chain of commitments to Education for Sustainable Development can be observed in the UK, where in 1993 the Toyne Report emphasized the need to improve environmental responsibility in the higher education sector (Cottona 2009). From 1998, actually there has been an emerging focus on learning in the UN targeting priority areas for action which were all confirmed by the Earth Summit for firstly clarifying and communicating sustainable development concepts; secondly reviewing national education policies and reorienting practices, including teacher education and higher education teaching and research; thirdly incorporating education within national sustainable development strategies; as well as promoting sustainable consumption and production through education; adding to promoting investment in education; sharing innovative practices; and raising public awareness (Scott 2006).The Johannesburg World Summit on Sustainable Development in 2002 reconfirmed the importance of integrating sustainable development into education; strengthened the linkage between poverty, the environment, and the use of natural resources; and created the Commission on Sustainable Development to ensure effective follow-up (Hola 2009). In 2005, coinciding with a UK government report, the Higher Education Funding Council for England produced an ESD strategy and action plan. This was followed in 2008 by a strategic review that supports a vision of higher education as a main contributor to society's efforts to achieve sustainability through developing curricula, pedagogy and extra-curricular activities that support students to develop the values, skills and knowledge to contribute to sustainable development (Cottona 2009). Since the launching of the Decade of Education for Sustainable Development DESD, many sustainability concerns have been integrated in education focusing on encouraging citizens to live sustainably; reorienting education programmes to focus on the development of knowledge, skills, and values related to sustainability; as well as building awareness of the concept of SD; providing practical training and continuing education to teacher trainers. In declaring these global initiatives, the international community clearly recognizes that a change towards SD and a better quality of life start with education. Thus, according to Kanbar, achieving SD requires the recognition of the challenge of sustainability 'learning to know"; the acting with determination "learning to do"; the collective responsibility and constructive partnership "learning to live together'; the indivisibility of human dignity 'learning to be"; and the individual and collective actions "learning to transform oneself and society" (Kanbar 2012). Gradually, universities and other higher education institutions HEIs have been integrating sustainable development values and practices into their core activities of teaching and research, institutional management for preparing students to enter the labor

market with skills to support green economies and as messengers of ideas. However, the international discussion has failed to specify the various actions that higher education institutions can adopt (Johnston 2007).

Education for Sustainable Development grows from a variety of sources and it is delivered through both formal and informal strategies. Public surveys indicate that people see scientists as the source of the most reliable environmental information (Pearson 2005).Topics of sustainable development that should be addressed in higher education programs vary in many disciplines such as conflict resolution, human rights, ethics, gender equity, poverty alleviation, peace, human security, citizenship, democracy and governance. Moreover, as was demonstrated by Hola, the energy, health, water, rural and urban development, corporate social responsibility, social / environmental effects of globalization, production and consumption patterns, cultural diversity, biological diversity, ecological principles and ecosystems, natural resources management, climate change, and disaster prevention should be given a special interest in all higher education programs (Hola 2009). Contemporary sustainable development education is expected to be oriented on future development, ensuring proper quality of the present and future life, reflecting the integration of the issues about democracy, equality and human rights into the curricula of environmental and social sciences (Ueckienë 2005). As was noted earlier, on the occasion of the United Nations Conference on Sustainable Development, held in Rio de Janeiro from 20-22 June 2012, it was agreed that Higher Education Institutions should teach sustainable development concepts, through ensuring that they form a part of the core curriculum across all disciplines so that the graduates develop skills necessary for sustainable development. Higher Education Institutions are also encouraged to provide sustainability training to professionals and practitioners, adding to encourage research on sustainable development issues through exchanges of scientific and technological knowledge. The Green campuses should also be supported by reducing the environmental footprint through energy, water and material resource efficiencies in the buildings and facilities; as well as adopting sustainable procurement practices in the supply chains and catering services; adding to adopting effective programmes for waste minimization, recycling and reuse and encouraging more sustainable lifestyles. Support sustainability efforts in the communities through working with local authorities and civil society to foster more resource-efficient communities. The importance to engage with and share results through international frameworks was also highlighted such as the UN Decade of Education for Sustainable Development, led by UNESCO, the UN University system, the UN Academic Impact, the Global Compact, the UN-supported Principles for Responsible Management Education initiative in order to exchange knowledge and experiences and to report regularly on progress and challenges (UN 2012).

Higher Education for Sustainable Development: Objectives and Functions

Globalization perspectives take the view that sustainable development is unworkable unless issues of socio-economic globalization are first addressed. Paradigm shift perspectives consider sustainable development as dependent on a basic change in society's core beliefs and values which higher education can help to support it (Katayama 2008). Education for sustainable development support people to develop the knowledge, values and skills to participate positively in decisions about the way they do things individually and collectively, as well as locally and globally in order to improve the quality of life without damaging the planet for the future (Davidson 2003).The demands of the twenty-first century require the universities to attempt towards the development of globally minded citizens able to effectively function in the context of an increasingly complex, pluralistic world (Sherren 2008).

Today, the importance of voluntary work in the community is recognized by both governments and higher education institutions. In both North America and the European Community, citizenship education and or the service learning' education gives learners the capacity to play an effective role in society at local, national and international levels, and helps them to become responsible citizens who are aware of their rights and duties that include responsibilities to environmental sustainability (Haigh 2006). As was noted earlier, universities' roles in sustainability education include its contributions to the various components of

the sustainability based on research and development of technology towards sustainability; training technicians in monitoring targets and detection of sustainability concerns; adding to giving graduates the skills, knowledge and attitudes to make a sustainability contribution (Pearson 2005).The importance of sustainable development is appreciated through the education process. It is crucial that young people are educated for sustainable development because they are our future. Effective education will ensure that young people have a fuller understanding of the world around them. It will provide young people with the opportunity to begin to value the world's cultural diversity and provide an appreciation of the issues facing our world and of the impact that they have on those issues (Davidson 2003). Education empowers people for their role in society and therefore it is crucial to promote the sustainable development of the global community. The roles and functions of the universities can be perceived as a link between knowledge generation and transfer of knowledge to society in two ways. First, universities tend to prepare through teaching, training and research the future decision makers of society. Second, universities actively contribute to the societal development through outreach and services to the society. However, the challenge for higher education is to create a rich learning environment that prepares learners for their various roles in society (Abu 2010).

According to Okolie, Higher education for sustainable development would contribute to the stated goals of improving the lives of target communities and peoples (Okolie 2003). Higher education can function to exercise ethics and scientific and intellectual concerns in their various activities, adding to ensure equality regardless of race gender, language, religion or economic or social distinctions, or physical disabilities. Moreover, higher education can function to educate, train and undertake research to contribute to the sustainable development and improvement of society as a whole and ensure the development of highly qualified graduates and responsible citizens (Jie 2012). Higher education should provide learners with skills, perspectives, values and knowledge to live sustainable in their communities. Higher education also produces leaders of the country who manage governmental bureaucracies, political parties, economic agencies and private sector industries who all constitute the stakeholders of sustainable development. Accordingly it is essential to educate and build a 'vanguard group' of leaders in each sector of society, public or private who will take a primary and leading role in promoting the values of sustainable development (Abu 2010). The roles and functions of university in enhancing sustainable development are fasten to basic issues as increasing the relevance of teaching and research for the societal processes discouraging unsustainable patterns of life; improving the quality of teaching and research; bridging the gap between science and education; strengthening interactions with actors outside the university, in particular with local communities and businesses; as well as introducing decentralized and flexible management concepts in higher education (Abu 2010).

Higher Education Institutions play a key role in building more sustainable societies and creating new paradigms as they have the mission to promote development through both research and teaching, as well as through disseminating new knowledge for their students to build their capabilities (Lozano 2009). According to Johnston, there are two unique opportunities for Higher education institutions to engage in sustainable development as they form a link between knowledge generation and transfer of knowledge to society through the preparation of teachers as well as they actively contribute to the societal development through outreach and service to society. Higher education institutions have moral responsibility to increase the awareness, knowledge, skills, and values needed to create a sustainable future (Johnston 2007).Today individuals have to handle complex situations and to consider different consequences while at the same time being able to decide. Higher education for sustainable development tends to support the development of relevant competencies by combining meaningful interdisciplinary topics with innovative learning settings, adding to familiarize students with the changeability of complex systems so that they understand better society and its development (Barth 2010).

Effective environmental sustainability education tends to affect the approach of those involved in environmental decision-making, both in the corporate business world and the wider community. Accordingly, the target of Education for environmental sustainability must do more than simply build the

learner's understanding of environmental sustainability issues. However, it should affect the learner's behavior for changing the world based on appreciating the social responsibilities (Haigh 2006).

Higher Education for Sustainable Development: Urgent need in the Arab region

The global environmental challenges are becoming noteworthy obstacles to human well-being as well as a situation that urgently calls for the redirection of national development policies to highlight sustainability concern. As noted earlier when the UN adopted a Decade of Education for Sustainable Development, the goal is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning to encourage changes in behavior that will create a more sustainable future for present and future generations. Recognizing that human behavior can be changed to limit harmful effects on the environment, sustainable development concept has evolved to include more than just recycling and constructing buildings with solar panels, but also to cover basically how individuals and communities should behave and interact with the Earth (Johnston 2007). For this reason, higher education is considered fundamental to the strategy for achieving sustainability in the Arab region. Clearly the growing environmental challenges in the Arab region are more negatively impacting sustainability at all levels because of the rapid increase in population, together with the changing consumption patterns, put strong pressures on the carrying capacity of already frail Arab lands, which is in turn creating more burdens on infrastructure and resulting in overcrowded and unhealthy living conditions in many Arab cities. Noticeably, water shortage and poor water quality are the most significant challenges that confront well-being in the Arab region. The majority of Arab lands are dominated by dry lands, leading to reduction in agricultural production, malnutrition, poor health, poverty and which is consequently sometimes creating social and political conflicts. Another challenge in many Arab cities is the air pollution level that exceeds World Health Organization (WHO) standards and negatively affects the economic and health sectors of Arab population. Climate change may cause problems in many ways, such as worsening of the water shortage problem, reducing agricultural production, and threatening human well-being (Kanbar 2012).

Adding to the above environmental problems that Egypt faces as a part in the Arab region, Egypt also suffers persistent fuel and electricity shortages, as well as the threat of rising sea levels from global warming. Quite often, the answer proposed for Egypt's energy challenges, consists of an urgent need for renewable energy. Egypt's renewable resources, including the sun, wind and biomass, are certainly considerable, yet it is still a challenge to provide a solution for Egypt's energy problems. Hence, universities as researching and teaching institutions are playing a crucial role to promote sustainable development, since they educate future decision makers and providing them with key competencies to contribute to a more innovating society and a sustainable future (Barth 2010). The Higher Education Sustainability Initiative aims to get institutions of higher education to commit to teach sustainable development concepts, encourage research on sustainable development issues, green their campuses, and support sustainability efforts in their communities (Lozano 2009).

Facing the increasingly significant environmental problems and in an effort to achieve Education for Sustainable Development objectives in the Arab region, the UNESCO Regional Bureau for Education in the Arab States in Beirut (Lebanon) has carried out a study, the period 2006&2007, to explore mechanisms to be adopted in order to ensure sustainability in the region. However, the study identified many challenges in the Arab region and revealed that Higher Education Systems in the region are facing major problems that are adversely affecting their ability to achieve sustainability (Kanbar 2012).

Higher Education for Sustainable Development: Implementing the Vision

Sustainable development is still a fresh and challenging schema. For conveying the Education for Sustainable development vision, according to Johnson's study, higher education institutions can engage it in the learning and planning process through three strategies. The first strategy is to employ some type of assessment, either through peer review or a strategic evaluation. This strategy facilitates assessment and

feedback to the process. However, the careful selection of the peer institution is important to understand each other's challenges and to help each other to support their strengths. Moreover the regular progress reports published for providing support and recommendations can accelerate the process, as well as can provide transparency of the indicators being measured into the procedures. A second strategy to delivery was concerned with the process, so that the higher education institutions actually participate in transformation based on defining clear action plans and targets which in turn can help facilitate the integration of those values and realization of the objectives. A third strategy to ensure implementation of the vision is by adapting initiatives to the unique situation of each institution. As was noted, there is an interaction between the three strategies and higher education institutions are encouraged to adopt various modes of delivery to ensure that sustainable development is adequately implemented (Johnston 2007). Each higher education institution has contributions to make to the sustainability effort and can subsequently adopt an appropriate methodology. The commitment to sustainable development implies that each higher education institution will be applying sustainability issues to the various operations rather than one concentrated area. As noted above, it is important to integrate sustainable development into all of the different functions of an each higher education institution. The incremental or holistic integration are two emerging dominant strategies for embedding sustainability into higher education institution. Incremental integration starts with one project that creates awareness and visibility of significant issues, and then gradually evolves to include other functions, following a strategy of starting their engagement with sustainability as projects that combined consultancy and research. Accordingly it is easier to engage academics and university managers and to spread learning. The second strategy of holistic integration is based on the university in its environment for creating the atmosphere for sustainable development through establishing and reinforcing cycle of sustainability activities between the city, the university, the staff, the citizens and the students. Accordingly, it would actually have been very difficult for these universities to ignore the sustainability vision (Johnston 2007). There are also many ways in which universities can be involved in sustainable development for taking the responsibility for leading society towards a sustainable future. According to Klavins, universities should model sustainable practices for society such as by greening the campus, improving waste management, introducing innovations for saving energy and resources, developing an environmental management system. Higher education institutions can conduct real-world problem-based research and teach students the skills of integration and system-thinking to cope with the complex problems of sustainability (Klavins 2010). It is also crucial to prepare and disseminate, internally and externally, regular reports of sustainable development plans, programs and progress. It is essential to highlight the role of top management commitment and support for sustainable development by clearly including the sustainable development in the Vision and Mission statements, as a solid reference for supporting the implementation of the sustainable development activities (Lozano 2009). Universities should address sustainable development issues which involve institutional change of one sort or another. Such change will relate particularly to how the university presents its role through vision and mission statements and how its resource usage is managed; as well as what and how it teaches its students; adding to how that teaching is managed (Scott 2007). Additionally, according to Johnston, there are three types of actions that might support the higher education institution to be proactive in sustainable development. First action is to engaging in peer review that tend to build strong mutually beneficial collaborations and to ensure policies are implemented and progress being made. Publishing reviews outcomes will also increase transparency and accountability, as well as promote broader adoption of good practices. Second action is to establishing professional recognition for staff engaged in sustainable development research, teaching or managing to support developing internal advocates who place pressure on higher-level administrators to act, and also to create a culture of sustainability. Third action is to building the capacity of university leadership from the principal to heads of departments and then staff and students will ensure that strategic initiatives are implemented and that demand for sustainability from students is well informed and positive and also to develop multi-level commitment to the ideas (Johnston 2007). To enable higher education institutions to achieve their vision, the attention should be focused on policy areas that should be addressed to facilitate economic, social and environmental sustainability within the institution. From the perspective of intervention from the legislature, the commitment to sustainable development in higher education institutions is the first action needed to be taken and should focus on strengthening political collaboration

and international agreements, as well as establishing financial incentives for sustainability to be achieved. Making sustainable development a priority at the national level would influence its implementation within the higher education institutions. The adoption of policy is seen as necessary to make progress in sustainable development. Moreover, the government intervention at any level in sustainable development education is essential for reform and approval of sustainable development principles. Government can specifically work with higher education institutions in a range of areas to develop policies, research agendas and regional commitments, as well as to provide incentives and apply political pressure (Johnston 2007).

Higher Education for Sustainable Development: Indicators for a Sustainable University

The Talloires Declaration defines a sustainable university as an institution engaging in education, research, policy-making and exchange of information on population and the environment as well as in development toward a sustainable future. Moreover, it is an institution establishing programmes to produce expertise in environmental management, sustainable economic development and population. It is setting an example of environmental responsibility by establishing the programmes of resource conservation, recycling and waste reduction at universities and related fields in order to ensure that all university graduates are environmentally literate and responsible citizens (Klavins 2010). According to Hola, the following indicators for a sustainable university should be taken into consideration, which are first the 'Educational' indicator referring to the extent to which the university staff has participated in professional development in education for sustainability as well as the extent to which the university community has been educated to actively participate in the sustainable management of the university. Second indicator is 'Environmental' referring to the extent to which the plan incorporates a long term vision for the university in its progress towards sustainability as well as the extent to which the university considers the environmental consequences of its actions, adding to the extent to which there is support from other levels of the education system to assist the university achieves sustainability through facilities and operations sections. 'Recycling' is the third indicator and it refers to the extent to which recycling program is taking place by all university community and the extent to which training program and workshops about benefits of recycling are put in consideration among university community service activities. Fourth indicator is the 'University grounds' referring to the extent to which the university has increased the variety of the university surrounding and whether landscape design reduces the consumption of resources. The six indicator is the 'Social' referring to the extent to which partnerships have been established between the university and the local community such as environmental experts, local businesses, government and non-government organizations as well as the extent to which the university community is actively involved in the development of NGOs (Hola 2009). To match this point of view some indicators for a sustainable university should be put in consideration, which are as an example:

A- Learning Environment and Green Campus:

According to Johnston, at many Higher Education Sustainable Development workshops, the campus was the starting point for the discussions on sustainability. The campus provides the back drop for learning and represents a greatest opportunity to make a tangible visible commitment to sustainable development through changes in buildings and facilities. For these reasons it was important that the campus be an example of sustainable living, using the existing green building standards for new construction and existing facilities to use the campus for helping students and staff live sustainably and to demonstrate commitment to sustainability. The campus, like other functions of the higher education institution should be considered as an area that can be fully integrated into sustainability concepts. The aim for campuses is to be inspiring places that enhance users' understanding of sustainable development. The campus should also be considered as a place that can guide and inform other institutions as a laboratory, where the higher education institution effectively demonstrates its innovative measures and commitments to sustainable development (Johnston 2007). Moreover, environmental sustainability education is not just a classroom activity. Certainly, it is possible to teach, in a formal classroom setting about the environment. However, it

is also possible to build upon this understanding through the direct involvement of students in field experiences in the outside world. Environmental education can contribute effectively to sustainable development if it is constructed as a process that remains with the learner and if it becomes a lifelong process rather than restricted to the few years of formal education (Haigh 2006). Learning environments should offer access to good quality scientific knowledge as a key factor for sustainable development. However, without the appropriate context and applications, knowledge cannot successfully promote sustainable development Hence, universities should promote sustainable development through research by addressing how to increase the relevance of teaching and research for leading to more sustainable patterns of living; for strengthening interactions with actors outside the university as with local communities and businesses who should eventually apply the product of research in sustainable development context (Abu 2010). According to Scott, learning environment must be 'learner-focused and holistic', in order to be compatible with the promotion of sustainable development along the economic, environmental and social perspectives; as well as to be compatible with both the physical learning environment and with the socioeconomic characteristics of learners. Moreover, it should be focused on identified learning outcomes. There is a 'seven-stage' approach to be followed. First, a 'learner profile' is identified in order to map the world from the learner's perspective as particular type of professional or graduate, and the organizations or environmental aspects with which the learner interacts most are placed. Second, prospective course content is identified by listing the knowledge and skills necessary to manage each interaction in a way that is consistent with sustainable development. Third, identified knowledge and skills are scored in terms of their ability to contribute to a sustainable society. Fourth, the desired learning outcomes are specified and, fifth, the design of delivery mechanisms is identified. The sixth stage is a 'values audit', designed to check whether the course is compatible with the values of staff and students. Following this seventh, a course guide can finally be prepared (Scott 2006).

B- Reorienting Teacher Education towards Sustainability:

Teachers in universities know that their job is to promote learning by their students, rather than to promote sustainable development. Thus, if sustainable development does require learning, then learning goals must be a fundamental part of it (Scott 2006). Higher education for sustainable development can be practiced only through teacher who have been trained on the values and perspective of sustainability (Abu 2010). Teacher education is an important actor as an agent of change to promote the social, economic and environmental values of sustainable development within and beyond the higher education institution (Johnston 2007). Hence it is crucial to reorienting teacher education towards sustainability. There should be an instrument for facilitating collaboration between researchers and educators within the university and in other universities adding to the teacher training institutions around the world. The experience gained through the network will be used to formulate guidelines to set different approaches to reorienting teacher education towards sustainability (Scott 2006). To enhance learning about sustainable development, different teaching methodologies should be used in the classroom, lecturing is the most used teaching method and is definitely very helpful to disseminate information quickly to a large audience. However, it should be combined with other teaching methods in order to facilitate students' involvement, to develop communication skills and encourage critical thinking all of which are required to support sustainable development education (Kanbar 2012). It should also promote teaching methods that enable students to acquire skills such as interdisciplinary thinking, integrated planning, and participating in local, national and global processes towards sustainable development (Lozano 2009). According to Cotton, few previous researches exist on lecturers' understanding of and attitudes towards sustainable development. Academics are likely to resist attempts to integrate sustainable development across the institution, especially if their views are not taken into account. For this reason, it is important to undertake research that considers the extent lecturers feel sustainable development is a worthwhile and appropriate addition to the higher education curriculum (Cotton 2007). Academics, however, do not have to take sustainable development seriously, except there is an accreditation pressure, or that they are interested, or perhaps students just demand it. Accordingly it is crucial to reorient teachers' education towards sustainability as it is their role

to educate students to examine critically policies, ideas, concepts and systems, then to make up their own minds (Scott 2007).

C- Curriculum Development:

Education for sustainable development is playing an increasing role in the higher education curriculum (Cotton 2007). Curriculum development is an important aspect in higher education to create informed graduates who are knowledgeable about sustainability (Scott 2006). Higher Education Institutions have a responsibility to provide leadership on education for sustainable development to acquire the values, competencies, skills and knowledge necessary to building a more sustainable society, which would imply revising teaching content to respond to global and local challenges (Lozano 2009). The sustainable development is not just another topic to be added to an overcrowded curriculum but it should be an entry to a different view of curriculum for an organizational change. Learning and teaching in the context of sustainability should be based more on investigative learning rather than reproductive learning; as well as on exploring reality rather than reading books; which means it should be based on active learning rather than passive reception of information and on gaining experience rather than acquiring knowledge (Cottona 2009). Accordingly, universities curriculum development is also an important aspect in higher education with the opportunity to create informed graduates who are knowledgeable about sustainability (Scott 2006). Since education for sustainable development is about continuous learning, so it is also essential to integrate sustainable development aspects into existing traditional courses (Holmberg 2005). The implementation of education for sustainable development in higher education would require different approaches of curriculum integration. The simplest form of integration consists of an insertion of sustainability-related topics in conventional learning settings like a lecture series. Such an approach offers the opportunity to introduce new topics. A closer integration of sustainable development in higher education also needs new learning approaches like self-directed and problem-oriented learning that supports competence development. While these two approaches allow for new topics as well as new methods, an even closer implementation needs the development of independent courses, such as specific study programs. These include approaches like project-oriented studies as well as interdisciplinary programs that are open to innovative approaches as well as topics that cannot be covered by a single discipline. The most far-reaching approach may be a general orientation on the overall concept of sustainable development as a guiding principle of higher education (Klavins 2010). According to Johnston, students, as the key recipients of the knowledge and skills imparted from the higher education institution, thought that eventually the ability of a higher education institution to build their sustainability literacy would affect their choice of course or institution (Johnston 2007).There are a number of courses 'Responsibility-oriented' that are related to corporate social responsibility in management that refer to sustainable development. Responsibility and ethics are also a major concern. A number of other courses descriptions can focus on 'Skills related to manufacturing' to explore for example whether and how design and innovation can be directed towards ensuring a socially, economically and environmentally sustainable future. Another number of courses descriptions can also be 'Skills related to environmental management' to acquire skills for formulating for example environmental life cycle plans; designing integrated pollution prevention and control systems or recognizing threats to environmental sustainability as well as for contributing to critical debate on environmental issues. Moreover, another number of courses descriptions can also be 'Skills related to society and social skills' as there is a growing demand for people who can explain complex geographical issues, such as environmental change, and pollution, in ways the general public can understand (Katayama 2008). According to Pearson, creating the opportunities for students to learn about transdisciplinary environmental issues is the key to delivering better sustainability education and this would require broader curricula. Hence, there is an urgent need for a strategic approach to curriculum change that needs to be actively fostered and also this would require a major organizational change in which environmental education becomes integrated into a university's organization, teaching and research (Pearson 2005). For instance, progress in global awareness in the field of environmental protection depends on an educational system making a powerful influence on globalization. Therefore, the curricula designed for teaching globalization in different branches applied in the process of building awareness of the global environment

must be accordingly developed (Ueckienë 2005). The aim of such a re-adjustment of existing curricula is to design learning settings that bridges disciplinary knowledge and allows for the integration of different types of knowledge for solutions of practical relevance (Barth 2010).

D- Stakeholders Involvement:

According to Van Dam, learning for sustainable development could be expressed as learning to deal with dilemma's in a complex societal context in which ecological, economic and socio-cultural aspects are at stake and in which links between the local and the global level are made. Government is not the only party responsible for the quality of society; however, organizations operating in the private domain, nongovernmental organizations NGO's and world citizens are responsible as well (Van Dam 2006).

As different stakeholders understand sustainable development in different ways and seek different outcomes, the most significant challenge is resolving their competing objectives. However, the coordination between internal and external stakeholder also offers opportunities for higher education institution to coordinate the three pillars of sustainable development (Johnston 2007). It is hard for any of the UN's goals to be achieved without a great deal of learning across all sectors, arising from experience, from work in schools, colleges and universities, from training, and through professional and institutional development (Scott 2006). According to Johnston, the most important way a higher education institution can contribute sustainable development is to engage internal and external stakeholders across the various functions of the institution to ensure co-operation in the process. Developing sustainable development action plans would engage senior management and give leaders a chance to emerge as advocates within the institution. This includes developing measurable features of sustainable development and then using it to demonstrate for shareholders the progress in economic, environmental and social development (Johnston 2007).

The informal environmental sustainability education, including personal involvement in NGO environmental action, can also be an effective way of increasing the understanding of environmental and sustainability issues. NGO projects help provide practical environmental education and also promote environmental awareness (Haigh 2006). The Organization for Economic Cooperation and Development OECD reviews of higher education in regional and city development demonstrate how building partnerships between the higher education institution and the community can offer opportunities for lifelong learning as well as for contributing to the development of knowledge intensive jobs which will enable graduates to find local employment and remain in their communities (OECD 2009). Moreover, higher education institution engagement with the regional and local communities builds mutually beneficial relationships that include various parties and stakeholders, supporting a wide adoption of sustainability principles and practices (Johnston 2007).

The importance of local communities' involvement is not just as being a source of students, but as a partner who will look to the higher education institution for support and to gain knowledge from their contribution to sustainable development through building partnerships or starting projects such as with local schools, museums, parks, or businesses. Additionally, higher education institution can assert its role as an agent for change, for empowering the local citizenry and for providing locally relevant sustainable solutions and in working collaboratively through local partnership with various institutions (Johnston 2007).

According to Likon, there is a need to continue with environmental education and at the same time to address the wider concept of education for sustainable development. It has been stressed the importance of building networks between governments, schools and universities and between people active in education sector. Moreover, the importance of building networks with industry has been also highlighted (Likon 2011). In the implementation of sustainable development projects in the communities, higher education can be more effective if it adopts a strategy of partnership. It is about working collaboratively with major

stakeholders in the system so that the main objective of education becomes that of producing students who are actively engaged in addressing crises in their society (Hola 2009).

Higher Education for Sustainable Development: Challenges and Opportunities for Implementation

The pathway for achieving sustainability outcomes in environmental education is plagued with challenges. Universities are key components of the formal delivery of environmental education yet because of lots of challenges, they do not always provide effective environmental and sustainability education (Pearson 2005). Despite of more than 30 years of efforts to implement Higher Education for Sustainable Development, as it was emphasized by recent studies in Malaysia, Great Britain and Australia, there is a deficit in students' knowledge about sustainability and there is still a delay regarding the dissemination of sustainable development into the standard curricula and functions of universities (Richter 2011). Although many nations around the world have emphasized the need for education to build capacity to achieve sustainability, only limited progress has been made on any level. This lack of progress can be in some cases because of a lack of vision or a lack of awareness of the role education for achieving sustainability. In other cases, this lack of progress can be because of policy or lack of resources such as funding (Hopkins 2005). According to Hola, it is so clear that it is not an easy job to agree about what teaching for sustainable development should be look like which makes this job much more complicated (Hola 2009). Another challenge is related to the difficulty to understand the concept of sustainable development because of its different sustainable dimensions. According to Likon, the collaboration among different stakeholders such as schools, faculties, nongovernmental organizations NGOs, industries and others is requested for integral understanding of natural and social environment and their processes as only the holistic approach could lead to quality education for sustainable development (Likon 2011). According to Scott, there are major barriers to the successful embedding of education for sustainable development into many of the subject disciplines in higher education as because of an overcrowded curriculum; or being perceived irrelevance by academic staff; limited staff awareness and expertise; limited institutional drive and commitment (Scott 2007). The most frequently cited challenges, According to Johnston, can be listed as lack of strategic leadership, low demand from most internal and external stakeholders, including students and employers, poor communication regarding the concept of sustainable development and how it applies (Johnston 2007). However, according to Cotton, one of the most challenges is related to the difficulty of incorporating the concept of sustainable development into the curriculum across the various disciplines. For Lozano, one of the main barriers is based upon the fact that humans do not usually like to make changes, adding to the lack of proper communication within the organization, as people's time overload is a barrier to achieve progress towards sustainable development. Moreover, the number of students has increased during the last decade, but the internal management and the administrative structures have lagged behind in adapting to this increase as well as have failed to properly determine the amount of time that is required to make changes as it requires longer time to be successful (Lozano 2009). Furthermore, the lack of resources, such as an existing research agenda for Higher Education Sustainable Development, also delayed its development within the institutional setting (Hopkins 2005). According to Cottona, the constraints on the inclusion of sustainable development in teaching are mostly related to the limited relevance of sustainable development to some disciplines as the decision on whether to include it within the curriculum appears to depend upon both the lecturers' personal beliefs and the disciplinary context in which they work. Moreover, another constrain is the Tensions between top-down and bottom-up approaches as Some lecturers had a belief that stronger support for sustainable development in university policies and practice would have a positive impact on their ability to include it in teaching. Adding to the Conflict with 'conventional' higher education pedagogies as there is a potential for tension between the ambitious pedagogies recommended by many theorists and those commonly encountered in contemporary higher education (Cottona 2009). Some of the more prevalent challenges reported for reorienting teacher education to address sustainability, as was demonstrated by Hopkins, fell into the following reasons. First reason is 'Institutional Awareness, Support, and Resources' because official national curriculum is rarely mandate sustainability. Teacher certification guidelines do not mention sustainability; adding to the lack of trained professionals who are knowledgeable about Education for Sustainable Development. Moreover it is related to the lack of funding and material

resources; lack of national, and local policy to support it; lack of an institutional climate that supports creativity, innovation, and risk-taking, which are necessary to support transformative efforts to reorient education to address sustainability. In addition it is also related to the lack of reward for institutions or faculty members who undertake Education for sustainable development programs. Second reason is concerned with 'Prioritizing Sustainability in the Educational Community' because of the lack of awareness of its importance; lack of knowledge complicated by the lack of access to related training; adding to the lack of support from the ministries of education. Third reason is related to 'Reforming Education Systems and Structures' because education for Sustainable Development is not part of ongoing educational reform. The fourth reason is related to 'Education for Sustainable Development in Action' as the prevalence of traditional disciplinary curriculum frameworks makes incorporating the transdisciplinary sustainability concept difficult. Fifth reason is 'Establishing and Sustaining Partnerships' because the programs are often developed without local community participation or involvement of other stakeholders leaving the program without local context or relevance; adding to the lack of coordination of effort between ministries such as of environment, education, health, or agriculture (Hopkins 2005). Sustainable development has yet become a major strategic parameter of university life that links the business, learning, research and community functions of institutions which is a measure of the scale of the challenge such institutions face (Scott 2006). Whereas the list of challenges seems to focus on what might be considered traditional challenges to organizational change such as funding, time and capacity. However, there are also opportunities that can capture a range of innovative and creative opportunities for higher education institutions. These opportunities are a mixture of local connections and concerns and larger global issues such as the global significance of climate change. The opportunities include Interdisciplinary nature of research in sustainable development, Demand from internal and external stakeholders, including students and employers, collaboration and awareness of major sustainability issues. The opportunities include also establishing networks to learn from each other, a proactive unit or an individual within the higher education institution driving sustainable development with a clear plan. However, in comparing the challenges and opportunities, the overlaps between them become apparent. Employer and student demand is seen as a potential opportunity to influence innovative teaching styles, course offerings and degree requirements, but is obviously not providing the drive needed for sustainable development as its absence is also cited as a challenge (Johnston 2007).

Research Questions

The research aimed at answering the following questions:

1. What does higher education for sustainable development denote at the international level?
2. What are the roots, characteristics, objectives and functions of higher education for sustainable development?
3. How are the higher education institutions' policies, teaching practices, research and other activities contributing to a shared understanding of sustainable development amongst internal and external stakeholders?
4. What are the requirements and indicators of higher education for sustainable development?
5. What are the challenges and opportunities of implementing higher education for sustainable development?

After reviewing the related literature review to answer the basic research questions, a case study from Egypt was presented as an application of Higher Education for Sustainable Development in Egypt.

Heliopolis University for Sustainable Development (HU): Founding Institutions

In October 2012, Heliopolis University for Sustainable Development (HU) welcomed its first students in the areas of Pharmacy, Engineering, and Economics and Business Administration. HU is the first non-profit university in the Middle East declaring sustainable development as its overall guiding principle. HU was

established by the SEKEM initiative, which has been working in the field of sustainable development of people, society, and earth in Egypt since 1977. The founder of this initiative, Prof. Dr. Ibrahim Abouleish, received in 2003 the Right Livelihood Award for his work. Furthermore, he has been recognized as an "Outstanding Social Entrepreneur" by the Schwab Foundation. In 2008, he received the Order of Merit of the Federal Republic of Germany. In 2012, he was honored with the "Business for Peace Award" given to particularly business-worthy companies by the committee of Nobel laureates (HU 2014). All of which, it signifies the Sustainable Development orientation and ideology of the founder.

Heliopolis University for Sustainable Development (HU): Vision and Mission 'Sustainable Education Different on Purpose'

Heliopolis University 'strives for the sustainable development of individuals, communities, and nature in Egypt and the world'. Accordingly, HU aims to provide a high-quality educational and research experience in which students can develop both personally and intellectually to gain a broad understanding of the issues related to sustainable development and relevant scientific disciplines selected by them. Moreover, HU aims to promote social engagement of students and to equip them with a set of personal transferable skills and key ethical values for contributing to their community. HU basically targets students to be the champions of sustainable development through providing education that combines teaching, research, and practice with a uniquely humanistic core programmes HU tends for students to grasp the complexity of the interactions between people and nature to encourage them to discover their role in shaping this system as responsible citizens. As a university, education at HU goes far beyond the classroom, as used to be taken outside into real life. The students are encouraged to transform their learning into forward looking action and students have also many opportunities to work on real-life projects in companies, NGOs, start-ups, or other original initiatives (HU 2014).

Heliopolis University for Sustainable Development (HU): Sustainability Coin and Four C's of Sustainable Development

For HU, sustainable development is as a combination of 'an inner spiritual and aesthetic humanistic perspective and an outer physical and social scientific perspective'. These perspectives are the two sides of the "sustainability coin". All HU programmes are oriented to sustainable development through developing an integrated humanistic and specialized curriculum. At HU, each combination of specialist-core studies is embedded in such an integrated way. Moreover, both core and specialist programmes were developed in HU according to the four C's of Sustainable Development: 'Engaging in Context, Raising Consciousness, Assimilating Content and Making a Contribution'. Through this unique design, HU contributes to the sustainable development of society and also increases the contribution of each student through a renewed understanding that integrates teaching, learning, research, and practice. Moreover, HU has adopted the "Project Competence Degree" concept, whose main feature is the intertwining of theory with business needs. Along the studies, HU aims to develop the students to be social entrepreneurs who are able to face and overcome tomorrow's challenges through working on projects with partner companies. Thus, the students acquire new competences through studying and applying new skills in a real-life environment based on both academic education and practical experiences that inspire students to think innovatively (HU 2014).

Heliopolis University for Sustainable Development (HU): International Relations and Research orientation

The Heliopolis Academy HA is the research center of the Heliopolis University as it serves as a center for innovative and applied research in fields directly relevant for sustainable development. Research is undertaken in the various disciplines such as 'Medicine; Pharmacy; Bio-dynamic Agriculture; Sustainable Economics; Social Sciences; Community Development and Arts'. HA extends its activities to researchers from different national research institutes and universities in order to form a national platform that works

complementarily with synergy and integration. HA aims to building a national dynamic research system where national resources are utilized more effectively and it is also representing a business incubator that encourages the development of new technologies requested for local economic development. Moreover, HA provides variety of services to researchers in order to promote research productivity such as first the 'Capacity Building Programme' which is organized in different fields in order to produce high quality researchers according to the required international standards as for proposal writing, intellectual property management or ethical issues related to research. Second service is the 'Link to the Industry'. HA is actually part of the SEKEM initiative, business companies, NGO's, and educational institutions.

Hence, HA can offer to researchers the opportunity to implement their ideas and transform them into tangible industrial models. Third is the 'Sponsored Programmes' that tend for assisting researchers in obtaining funds for their research projects or finding the appropriate partners in different fields of expertise. The fourth service is 'Grant Management' which is responsible for managing all legal and administrative aspects related to the received grants, in compliance with the donor's guidelines and requirements. Fifth service is 'Intellectual Property Management' to handle the protection of the intellectual property rights of the researcher, the institution, and the industrial partner,. Sixth service is the 'Market Research' that works on assisting researchers in marketing their research output whether as an end product or proprietary technology. Heliopolis University has also built up an extensive network of cooperation and international research projects research. In the framework of the Memoranda of Understanding signed with these universities, HU has agreed upon different forms of cooperation with its partners such as student exchange programmes or the creation and development of joint study programs (HU 2014).

Case Study Analysis

Compared to all what was previously illustrated throughout the literature review regarding the Higher Education for Sustainable Development, as well as based on HU transdisciplinary approach to education through teaching, research, stakeholders networks and practices, HU presents an initiative Egyptian model that tends to develop and support the skills and values necessary to achieve the goals of sustainable development. According to the acting head of marketing department at Heliopolis University, Dr Omar Ramzy clarified that for Heliopolis University, Education for sustainable development ESD is a way of life as they perceive green as a lifestyle not as a color. ESD is the core philosophy of the university and the core program is based on ESD curriculum. In Heliopolis University, they blend ESD principles in each and every subject. Even the quality assurance unit assures that ESD principles are being infused in HU curricula. Students' activities are also focused on ESD themes. Dr Omar added that HU is globally recognized as a central hub for ESD principles in the region. All HU's European and regional partners share with HU the same vision. HU's research agenda is based on ESD dimensions. Dr Omar clarified that HU's Education for sustainable development principles and themes are extended beyond the campus to include training school teachers from the surrounding geographical areas on teaching ESD principles in schooling curricula (Ramzy 2014). On the other hand, regarding the challenges to implementing sustainable development at HU, there is only one major barrier, as was clarified by Dr Omar, which is the Egyptian schooling system as it is totally far away from the ESD principles; thus HU is facing difficulties in introducing these green concepts to freshmen students (Ramzy 2014).

Egypt as ranked high in the uncertainty avoidance range makes people normally not risk-takers. Also, Egypt as a developing nation suffered from authoritarian regime for more than 30 years, makes people feel more comfortable to join well-established conventional institutions that have formal rules and regulations to follow. Accordingly, reorienting universities to address sustainable development is crucial to provide the graduates with the necessary sustainability skills, knowledge and values. However, these findings are very challenging in Egypt since creating awareness about ESD seems like an essential prerequisite for ESD infusion in Egypt. It would have been much easier if ESD were already introduced and integrated in the Egyptian education system through both public and private universities to ensure infusion (Ramzy 2012). As for the opportunities to implementing sustainable development at HU, Dr Omar argued that the main

opportunity is being different in the market as by definition 'our university is Heliopolis University for Sustainable Development and our slogan is (Different, on purpose)' (Ramzy 2014). HU is the first non-profit university in the Middle East declaring sustainable development as its overall guiding principle and specialization is based on a new understanding of the university concept and not just the traditional curriculum of conventional universities. What differentiates HU from other universities is its vision for sustainable development and as previously noted, the curriculum of a university with an ESD context has to be different, as it is reflecting the three social, economic and environmental pillars of sustainable development (Ramzy 2012).

Higher education for sustainable development is considered a unique type of education that deserves more attention and the most competitive advantage for ESD providers is the quality of education. Moreover, the type of education is one of the most important features affecting university image and selection, hence promoting this new type of education will help promoting the university providing it as being different. According to Dr Omar, offering ESD especially in well-established universities is a good opportunity and more attractive for moderate and highly cultured students (Ramzy 2012).

Conclusion

The world is in urgent need for sustainable development, not only to prevent the activities that lead to deterioration of the environment, but it is about changing values; behavior; attitude; thinking and working in a strongly different way. It is becoming crucial at both the global and local levels to incorporate education for sustainable development more effectively into the education system.

As was argued by Filho, it is crucial to address the need for the documentation of works and experiences on education for sustainable development as well as to promote some of the good practices by disseminating research happening in different countries (Filho 2010). Hence, the above case study of Heliopolis University for Sustainable Development (HU) was presented as an initiative model of higher education for sustainable development in Egypt.

Young people within higher education will be the future decision makers of the future and they should learn to live in ways that increase the quality of life for themselves and for others. As was noted earlier, although the integration of matters related to sustainable development at university level is a highly requested, there are still lots of challenges preventing this from taking place, which should be taken into consideration to promote and support the higher education for sustainable development in Egypt.

Sustainable development is a fundamental challenge that all societies would face through developing the curriculum and the capacity of staff; through identifying the best ways of disseminating good practice among educators; incorporating education for sustainable development into initial teacher training and continuing professional development; through tackling the threatening problems in a transdisciplinary way and definitely through communicating sustainable development across the stakeholders and major sectors of the each society.

At the end, it may be argue that good higher education for sustainable development, as a tool for transformation, lies at the heart of good education as sustainable development issues provide the backdrop for all political and economic, social and environmental aspects of life. In order to cope with global and international changes, as well as to help society achieve sustainable development, after three years since Egypt January 2011 youth revolution, Both public and private universities should consider the education quality as the most appealing feature for students when selecting a university. One of the main challenges in Egypt is how to integrate different sustainability ideas and principles within different educational activities.

Egypt, as a developing country still require further universities models, having wider achievement and scope of excellence in sustainable development. In order to acquire the respect of future generations, each higher education institution in Egypt should play a role as a key reference for sustainable development, as a community leader, as a deliverer of change, as a social entrepreneur, as a responsive to societal need and as a tool for contributing to global, regional and community sustainable development.

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