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Development

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The Role of Regional Institutions in Higher Education and Sustainable Development by Nabukeera Madinah (PhD), Islamic University in Uganda Females' Campus (IUIUFC), Uganda

Abstract

With the liberalization of Uganda government policy on higher education (HE) services in the 1990s, student enrollment has increased substantially. This is evidenced by the number of private higher education (PHE) institutions being set up in Uganda. However, the higher education institutions (HEIs) are faced with a difficult situation of trying to understand how helpful regional Higher Education institutions can support and sustain development. This conceptual paper seeks to explore the criteria with which regional HEIs can support, sustain development and build a conceptual model to suit to the local HE services industry based on the principles of systems thinking, participatory planning, and sustainable development. Lastly, the required changes in teaching learning process were explained to create a base for new academic culture. To achieve the purpose, the literature of sustainability in HE, and the most popular activities, around the world, for integrating sustainability into all functions of universities and the role regional institutions in development were reviewed. The formation of Sustainability Committee in universities to plan for integrating sustainability into education, research, and outreach is the most important part of the model. It is hoped that the designed model could help to develop HE, on course of scientific power sustainability of the country. Based on this review, the elementary model was designed and areas for future research are highlighted.

Keywords: Higher education, regional institutions, sustainable development, sustainability

Introduction

Background

Sustainable development seems to be the rational goal we should be pursuing on this finite planet. But as we were growing up in our early years, global population was small, resources seemingly boundless and the prospects for growth unstoppable. As we grew on that seemingly glorious trajectory, we inched closer to the realization of that finiteness rapidly exhausting our natural capital in a way that innovation cannot keep pace, fueling conflict and violence through that scarcity, and nurturing inequalities within and across nations. The global population is growing at an unprecedented rate which our future might simply not be able to sustain. Sustainability, therefore, can no longer remain a complementary adjunct to our discourse on development. It must replace it and institutions of higher learning like universities have a bigger role to play in this (UNESCO, 2005).

"The universities must become a primary tool for Africa's development in the new century. Universities can help develop African expertise; they can enhance the analysis of African problems;

strengthen domestic institutions; serve as a model environment for the practice of good governance, conflict resolution and respect for human rights, and enable African academics to play an active part in the global community of scholars” (Bloom, Canning, & Chan, 2006; Holmberg & Samuelsson, 2006; Teichler, 1988). “Information Technology Should be Used to Tap Knowledge from Greatest Universities to Bring Learning to All, Kofi Annan Pronounces” (Annan, 2000).

Mindful of the importance of sustainable development to Africa, the Association of African Universities (AAU) dedicated both the 2006 and 2008 editions of its African Universities Day celebrations to the theme *“Role of Higher Education in Promoting Sustainable Development in Africa”* (AAU, 2008a, 2008b). This was also the theme of its 12th General Conference held in Abuja, Nigeria in May 2009 (MacGregor, 2009). Achieving sustainable development in Africa has therefore been included as one of the new core programmes in the 2013-2017 Strategic Plan. The AAU's program on “Achieving Sustainable Development” aims at ensuring that the continent's higher education institutions (HEIs) continues to remain relevant to the continent's developmental needs by developing innovative local strategies to entrench values, behavior and lifestyles required for a sustainable future and for positive societal transformation (AAU, 2008b; Lozano, Lukman, Lozano, Huisigh, & Lambrechts, 2013).

It is against this background that this paper addresses the role of regional institutions in higher education and sustainable development. In context, higher education (HE) in this paper is as defined by the National Council for Higher Education (NCHE). HE refers to any education offered to post advanced level certificate or its equivalent (NCHE, 2013a, p. 13). HE institutions are trusted with development of human investment through learning and teaching, constructing information base through exploration and knowledge expansion, and distribution and use of information and knowledge by cooperating with the information users (Okwakol, 2009). The purpose of education is for society to have an appreciation of knowledge, skills and values for attaining a country's vision of achieving the status of a fully established nation in terms of moral, social justice , spiritual economic development and ethical asset (NCHE, 2013b).

HE sector in Uganda

The Ugandan HE sector has endured substantial growth as a result of efforts taken by the government through Ministry of Education to expand the education industry. It is through government strategic policy decisions, long-term goal to make Uganda a regional center of brilliance in education. The growth of HE in Uganda can be evidenced in several areas: increase in number of higher education institutions (HEIs), increased students' enrolment, additional government policies in promoting education, although there is decrease in government spending and the country's continuous need for human capital development (Ariffin, Ahmad, Ahmad, & Ibrahim, 2008).

Up until 1987, HE in Uganda was completely a public undertaking till the number of students who qualify for HE became too many for the few public institutions to handle. This, coupled with the liberalisation of education in Uganda led to the emergence of private players engaging in education including public-private partnerships (PPPs) Notwithstanding the survival of PPPs in the HE zone, the value for money and availability of HE has fallen short of the investors' and participants expectations in many Sub Saharan and African countries including Uganda (Kasenene, 2010), which is a blow to sustainable development.

Universities are facing a lot of difficulties as a result of lack of regional support, involvement in terms of standardization and these include the quality of HE which is affected by 4Cs according to Mpaata (2010) (i) changing University customs characteristics, ii) Rising costs (iii) Increasing competition, and iv) The impending crises. The four 4Cs are not enough to explain the difficulties that universities are facing which include (a) rising complaints as a result of increased students expectations (b) change (c) rising needs for collaborations, and (d) citizen chancellors for public universities were mostly Presidents of East African countries, who now have stopped being chancellors. The addition of 4Cs invents a new platform of 4Cs in form of difficulties affected by HE in Uganda. To understand these forces, institutions of HE need to constantly recover and reinforce themselves otherwise, they come to an end as excellence academic centers. The additional 4Cs extends Mpaata's 4Cs to 8Cs although the main focus of his 4Cs was mainly quality, they remain to be challenges affecting HE at large.

Sustainable Development/Education Sustainable Development

Education for Sustainable Development (ESD) allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future. ESD means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behavior and take action for sustainable development. ESD consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way. ESD requires far-reaching changes in the way education is often practiced today (UNESCO, 2005).

A better understanding of the linkages among regional institutions' trends and the associated changes in sustainable higher education (SHE) aspect is needed. This explains that change is a fact of life (Armstrong & Taylor, 2014; Chapman, Barcikowski, Sowah, Gyamera, & Woode, 2002; Clarkson, 1995) in universities as well as other institutions and organizations (Elliot, 1991). These changes should aim at progressing the management of resources (human, economic, etc.) and be rearranged to advance internal social equality. Universities must endure their mission to ensure students learn, educate, train and enforce research using an attitude branded by independence, ethics, expectation and responsibility. Changes in knowledge construction; Multidisciplinary (interdisciplinary) and trans-disciplinary (different disciplines working jointly) methods should be taken and non-scientific customs of information should be discovered. Changes in the educational presentation and models; New teaching/learning methodologies that allow the growth of critical and imaginative intellect should be combined. The capabilities which are collective to all higher-education graduates should be decided and the agreeing expectations should be well-defined. In an information as well as knowledge society, HE should alter us from unsettled rubber bullet into guided armaments: missiles proficient of altering track in flight, adjusting to adjustable conditions, and continuous point of correctness.

The notion is to teach people to absorb quickly as they move along, with the ability to transform their mindset and even surrender the earlier verdicts if essential, without regrets. Teaching and learning must be more vigorous, live, linked to real situations, and planned with students and their

exceptional potentials in mind. Changes intended at tapping the potential of communication technologies and information in the manufacture and distribution of facts. The objective of such alterations is to create the digital wisdom (Prensky, 2009). Changes for social responsibility and information transmission; the effort of higher-education institutions must be pertinent and collaborated. What they do, and what is anticipated of them, must be realized as a service to humanity in the community; their research must be applied in nature to deal with social needs; and the products of their research must be shared effectively with society through applicable information instruments with standards in place through the formation of regional institutions supported by policy and stakeholders should be seen to participate.

A distinguished development in the internationalization of HEIs in the last decade has been the aggregated to the highlights on regional level cooperation and reform creativity(Knight, 2008).The rising number of regional established university networks, regional student movement, flexibility and mobility programs, and pan-regional higher education cooperations are only a few specimens. More importance is the development of regional level frameworks for academic recognition systems, assuring quality, and credential frameworks as these reorganizations are founded on an earlier arrangement of structures, approaches and laws. The Bologna Process in Europe is the most important design of regional level of restructuring. It endures to be the bravest and major deliberate strength to improve regionalization of HE in the world(Muche, 2005). Different sentiments arose on the motivation, aftermaths, accidental penalties, and way forward of the Bologna process. Nevertheless, it pushed other regions and sub-regions around the world to gaze more extremely at the importance, procedure and modesty of starting earlier arrangement of their own HE organizations(Knight, 2014).

Literature Review

Literature analysis on the current creativity of regionalization of HEIs in Africa, proves the importance and recognition of HEIs. For example, in 2007 the African Union shared a major report on the “Synchronization of HE Programmes in Africa: An approach for the African Union” which aimed at structuring a faster relation in the development amidst HE institutions, systems, linkages, classifications, national systems, regional university cooperations and other crucial HE stakeholders(Union, 2007). One of the stimulating initiative was starting the pan- African HE and research planetary as priority in order to consolidate the capability and part of regional university cooperations (Woldetensai, 2009). For instance the African HE regionalization creativity comprises of the Inter University Council of East Africa, African Quality Rating Mechanism, the Nyerere African Scholarship scheme, AfriQAN- network of quality assurance agencies, regional centers of excellence, updated Regional UNESCO Arusha Convention on the Recognition of Qualifications, a Pan-African University, and the new Open Education Africa project. Regional level initiatives to ease the formation and arrangement of quality assurance and authorization systems, student flexibility movement patterns, common degree levels, a research/education ICT backbone, and research systems, collaborations, co-authoring beyond boundaries are in nowadays in advancement stage. These type of creativity demonstrates the purpose and obligation of Africa to create stronger pan regional partnership and synchronization of systems while keeping a distinguished significance of bilateral and multi-lateral internationalization efforts (Hoosen, Butcher, & Njenga, 2009; Knight, 2014).

One of the strands of the literature in the current debate in economic geography has focused particularly on the interactions of 'regional collective learning' between firms and institutions within local enterprise clusters (Keeble, Lawson, Moore, & Wilkinson, 1999). The other strand, on the 'learning region', and 'regional innovation systems', considers in addition the role of regional institutions and social capital in facilitating networking and the generation and diffusion of knowledge. Both this localized learning and the regional innovation system suggest that geographical proximity between organizations is important in stimulating dynamic learning and innovation (Potter, Moore, & Spires, 2002, 2003). In this literature, regional institutions are allegedly expected to actively create a number of economic and social relations to help facilitate a series of institutional interactions. Universities are seen as one of the important regional institutions involved in this.

These interactions are variously called 'interactive learning' (Ács, 2000; Acs, Desai, & Hessels, 2000) 'innovation networks' (Morgan, 2007; Morgan & Cooke, 1998), 'institutional thickness' (Amin & Thrift, 1995) 'localized learning' (Lorenzen, 2001), or 'soft social capital' (Putnam, 1995) (1995). This implies that knowledge, learning and communication require consideration at a local and regional level, along with an examination of these institutional interactions. A consideration of "the institutional preconditions of the learning region" will be helpful to understanding the mechanisms of knowledge creation at regional level, and to identifying the preconditions for becoming an innovative region.

Knowledge transfers are strongly emphasized by economic geographers working on innovation systems and localized learning concepts. In general terms, there are contrary views on the association of spatial proximity and the different transferability of various types of knowledge. In short, "many transactions are highly sensitive to geographical distance by virtue of their substantive complexity, uncertainty and recurrence over time" (Scott & Storper, 2007).

In this process, many scholars emphasize the importance of regionally embedded knowledge and the shared norms and values which allow effective organizational as well as individual learning (Oerlemans, Meeus, & Kenis, 2007). Some authors argue that forms of "hybrid" or tacit knowledge (Chatterton & Goddard, 2000) are most readily developed within the region because "tacit knowledge is collective in nature, and because it is wedded to its human and social context, it is more territorially-specific than is generally thought" (Morgan, 2007). In this line of thinking, collective learning processes and a collective tacit knowledge are linked to the region because of the coincidence of social, cultural and spatial proximity. The idea of collective tacit knowledge in regions bears strong similarities to the concept of 'untraded interdependencies' and 'social capital', but further clarification of these concepts is needed. From a somewhat different perspective, Michael Porter as cited in Lawson argues that "competitive advantage is created and sustained through a highly localized process" (Lawson, 1999) and that "national competitive advantage resides as much at the level of the cluster as it does in individual industries". This process is increasingly associated with regions.

Role of Regional institutions towards HEIs

Regional institutions aim at establishing co-operation in academic staff exchange and research. Sometimes this type of linkage may include the establishment of sandwich programmes whereby a

young university may establish a master's or doctoral degree program which is in two parts. The course work part is provided by the co-operating university abroad and the research part and thesis/ dissertation writing is done at the home university (Varghese, 2006).

Regional institutions are responsible for co-ordinating the development of HE and research, through:

- a) Advising the universities in Africa as well East Africa on HE matters in aspects to do with teaching and learning, research and community services.
- b) Facilitating networking among HEIs and with external institutions and international community on board.
- c) Facilitating maintenance of quality standards and harmonization of HE systems for promoting regional integration in the different regions like the Inter-University Council (IUCEA) For East Africa.
- d) Providing support for the development of HE systems and research
- a) Harmonization of HE systems also aimed at transforming region education into a common HE. There is need to develop tools for guiding harmonization of HE for East Africa to operate as a common HE area. The tools consist of: regional quality assurance policy framework, quality assurance system, program benchmarks, qualifications Framework for HE.

However regional institutions in Education at higher level of learning have failed to meet their objectives since they encounter a number of challenges which include;

- Incorporating education sustainable development (ESD) in all university curricula across the east African region.
- Failure to link educational reform and economic viability.
- Lack the technical knowledge and insufficient human capital in Sustainable Development Concept.
- There is no linkage between ESD Program with community participation.
- Lack of interdisciplinary curriculum which fails to incorporate traditional disciplines.
- Lack of participation.
- Lack of funds; and
- Lack of policy frameworks.

The above mentioned challenges pose threat to the universities in terms of sustainable development with regards to ensuring moral commitment, community outreach, sustainable physical operations, sustainable physical operations, ensuring ecological literacy, develop interdisciplinary curricula, encourage sustainable research, ensuring partnership with stakeholders and Inter university collaboration (T. Wright, 2004; T. S. Wright, 2002).

Regional Institutions and HEIs

The launch of the AAU in 1967 and Council for the Development of Social Science Research in Africa (CODESRIA) in 1973 represent Africa's earliest efforts at nurturing trans-continental academic cooperation within the African continent (Jowi, 2009, 2016; Varghese, 2013). Since the 80s a number of regional institutions has enabled HE to take place in Uganda, and in Africa as a whole with each institution having a role they play to ensure that HE becomes a reality. These institutions include but not limited to Inter-University Council (IUCEA) regional university

organizations For East Africa i.e Uganda, Kenya, Tanzania, South Sudan, Rwanda and Burundi, East African Community (EAC)¹, African Union (AU)², International Institution for Educational Planning (IIEP), International Development Agency (IDA), the Association for the Development of Education in Africa (ADEA), particularly its Working Group on HE, which promotes networking, policy advocacy and capacity building (NEPAD, 2005, p. 20) and Association of African Universities (AAU) provides a forum for consultation, exchange of information and co-operation among institutions of HE in Africa, its headquarter is in Accra, Ghana and it is presently composed of over 260 members drawn from 45 African countries³, East African Qualifications Framework for Higher Education(EAQFHE), National Council for Higher Education (NCHE) in Uganda, Cameroon, Kenya, Mozambique, Tanzania, Sudan, DRC, Tunisia, Zambia, Zimbabwe, Namibia and South Africa, International Network for Quality Assurance Agencies in Higher Education (INQAAHE) dealing with fifty five (55) countries, Asian Pacific Quality Assurance Network (APQN), Accreditation and Quality Assurance Agency in Madagascar (AQAA), Conseil Africain et Malgache pour L'Enseignement Supérieur (CAMES) in 16 Francophone countries, Region Universities, Southern African Development Coordination (SADC), African Development Fund (ADF), Organization of Islamic Conference (OIC),“the European University Association (EUA)the Flemish Inter-University Council for Development Cooperation (VLIR-IOUS), the European Students' Union (ESU), the Association of Norwegian Higher Education Institutions (UHR), and the European Access Network (EAN)⁴” , Association of Commonwealth Universities (ACU) to launch the ten year renewing the African University Program. Southern African Regional Universities Associations (SARUA), African Quality Assurance Network (AfriQAN) launched in 2009 by the Association of African Universities (AAU 2009) in partnership with International Association of Universities IAU⁵ (IAU 2010)to launch the 10-year Renewing the African University Program, AAU and the Association of Universities and Colleges of Canada (AUCC) are implementing a major three-year partnership initiative known as Strengthening HE Stakeholder Relations in Africa, signed in 2009.

IAU is the UNESCO-based worldwide association of HEIs that was founded in 1950. It currently has over 600 membership from HEIs and organizations in 150 countries worldwide. The IAU collaborates with various international, regional and national bodies active in HE. One of IAU's thematic priorities, as contained in its 2010 annual report, is higher education and sustainable development. The IAU/Kyoto Declaration on Sustainable Development(IAU, 2014) adopted by the Association in 1993, led the organization to regularly convene meetings (conferences seminars,

¹Established in 1967, the East African Community collapsed in 1977, but was revived in 2000. The Southern African Customs

Union was originally established in 1910 under colonial rule and was re-launched by independent states in 19

²The AU was established in 2001 and replaced the OAU.

³Members of the AAU provide a forum for networking and collective action on common issues among member institutions. Given its mandate as the voice of the African higher education community, AAU commits itself to ensuring that higher education remains relevant to the continent's development and prioritizes sustainable development as a thematic priority on its program.

⁴Project: *Fostering Trust and Exchange between Europe and Africa* (2008-2010), which was funded by the European Union's Erasmus Mundus program and implemented by an international consortium consisting of African and European higher education organizations. They intended to address different but inter-linked actors: universities and university associations, policy makers in Africa and Europe, development cooperation agencies and regional political bodies such as the European and the African Unions.

⁵The International Association of Universities, or IAU, has been active in encouraging universities to promote sustainable development since the 1990s and, in 1993, adopted a policy statement known as the Kyoto Declaration on Sustainable Development.

discussion groups and the like) on Higher Education for Sustainable Development (HESD). IAU sits on the United Nations Decade of Education for Sustainable Development (UN-DESD) Reference Group; it sits on the United Nations University (UNU) Regional Centers of Expertise (RCE) selection Committee of peers; participates in different other international fora; develops partnership to strengthen HESD with for instance the United Nations Environment Program (UNEP) and other organizations to develop projects and trigger action on sustainable development at higher education level (NEPAD, 2005).

The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), the Forum for Agricultural Research in Africa (FARA), Conseil Africain et Malgache pour l'Enseignement Supérieur (CAMES), Global University Network for Innovation (GUNI) is composed of 214 institutions from 76 countries, its membership is drawn from United Nations Educational, Scientific and Cultural Organization (UNESCO)⁶ Chairs in HE, HEIs, research centers and networks related to innovation and social commitments of HE, Decade of Education Sustainable Development (DESD⁷). Pan African University (PAU) is a step towards the implementation of the Arusha Convention which aims at harmonization of academic programs across borders to achieve enhanced collaborations, quality assurance, structural convergence, compatibility, recognition and transferability of degrees to facilitate mobility (Hahn & Teferra, 2012, 2014). The PAU initiative is committed to advancing sustainable development (SD) in HE in Institutional Governance, Curriculum: Teaching and Learning; Research, Campus Operations, and Outreach and Services.

The private sector is a fast-growing segment in HE in many countries in Africa as evidenced by a rise into the number of higher institutions and increased enrollment in many African countries like Uganda, Kenya, Tanzania, Senegal, Benin, Ghana, Cameroon and Mozambique. While Anglophone countries have moved to establish as many private institutions (Levy, 2003) their counterparts the Francophone countries are moving at a slow pace. It is estimated that sub-Saharan countries are estimated to have more than 100 private universities with more than half were established in 1990. According to the World Bank, it is estimated that during the period 1991-1999 nearly over 65 private universities were established in sub-Saharan Africa.

Legal Framework

Article 5 of the treaty for the establishment of the East African Community (EAC) clearly states that in order to promote the achievements of the objectives of the Community, Partner States agree to undertake concerted measures to foster cooperation in Education and Training within the Community. In particular, the Partner States agreed to co-ordinate their human resources development policies and programmes and also to harmonize curricula, examination, certification and accreditation of education and training institutions in the Partner States through the joint action of their relevant national bodies charged with the preparation of such curricula. In the same vein, they also agreed to exchange information and experience on issues common to the educational

⁶United Nations Educational, Scientific and Cultural Organization

⁷The Africa region launched the DESD and its regional Strategy of Education for Sustainable Development for Sub-Saharan Africa (SSAESD) at the Association for the Development of Education in Africa (ADEA) Biennial meeting in Libreville, Gabon, in March 2006. Furthermore, the Ministerial Statement of Commitment and Call for Support and Action on the SSAESD underlines the importance of ensuring that 'African cultures, knowledge systems, languages and ways of life are integrated into frameworks, programmes and activities developed within the Decade'.

systems of the Partner States from which they would collaborate in putting in place education and training programmes.

The East African Community (EAC) through the Sectoral Council for Education (SCE) i.e., the EAC Secretariat, commissioned a study on the harmonization of the East African education systems and training, and assigned this task to the IUCEA on March 13, 2009. The IUCEA engaged experts from member universities to undertake a regional comparative study in the five EAC Partner States with a view to harmonizing the national goals and philosophies of education, curriculum content, education structures, policies and legal frameworks.

The Role of Regional Institutions in Higher Education towards Sustainable Development

With regard to HE, the Regional institutions should support sustainable development, through individual universities' commitment to address sustainability in many ways including:

- The creation of networks of institutions in all the world regions i.e., Mainstreaming Environment and Sustainability in African Universities MESA⁸ in Africa. Net in Asia-Pacific, COPERNICUS Alliance in Europe⁹, ARIUSA¹⁰ in Latin America and the Caribbean – in order to build capacity, share experiences and expand the influence of education for sustainable development.
- Building Partnership with universities on Environment for Sustainability like Global Universities Partnership on Environment and Sustainability GUPES¹¹ – a network of 370 universities across the globe to implement environment and sustainability practices into the curricula.
- Mainstreaming education for sustainable development in both education and sustainable development policies;
- Transforming learning and training institutions by integrating sustainable development principles in daily activities;
- Building capacities in educators and trainers;
- Accelerating the implementation of sustainable solutions at local and community levels through knowledge and community outreach.

⁸ MESA Partnership Program is one of UNEP's initiatives with universities to support the UN Decade of Education for Sustainable Development (UNDESD). MESA, which currently has a membership spanning over 85 universities in Africa, supports the mainstreaming of environment and sustainability concerns into teaching, research, community engagement and management of universities in Africa.

⁹ Alliance that focuses on the sustainability transformation of institutional, national and international science systems. It reflects on policies and practices that support or hinder researchers and educators of higher education institutions to practice inter- and trans-disciplinary approaches of sustainability science.

¹⁰ It's an academic network for the environment created in Bogota October 26, 2007 by higher education environment and sustainable development stakeholders. Its objectives are promote, coordinate and support actions towards environmental education; promote academic and scientific cooperation between academic networks for the environment and sustainable development.

¹¹ Is a network comprising over 500 member institutions from 80 countries – from both global South and North – from five continent's GUPES was the result of a consultative forum organized by UNEP and its partners in Nairobi in November 2010 to deliberate on ways of escalating UNEP's engagement with universities. It builds on the successes of the Mainstreaming Environment and Sustainability in African Universities (MESA), the Mainstreaming Environment and Sustainability in the Caribbean Universities (MESCA) and the Asia-Pacific Regional University Consortium (RUC).

- Organize regional conference on HE for Sustainable Development (HESD) involving HEIs to adopt a 'whole-institution approach', including transformative leadership, encouraging capacity development and undertaking an assessment of the institution for sustainability.
- Engage with different types of knowledge and work with critical community groups such as youth and the private sector, and engage with policy issues in relation with HE & Sustainable development.
- Enforce the commitment to HE for sustainable development of all stakeholders and inviting governments to allocate substantial resources to enable the implementation of the GAP priority actions.
- Administer institution's responsibility, to integrate sustainable development into all their teaching, research, community engagement and campus operations (Mohamedbhai, 2015).

Challenges Faced by Regional Institutions Supporting Higher Education towards Sustainable Development

However, regional institutions encounter a number of challenges in their effort to ensure the role of higher education in sustainable development. These include:

- The lack of a coordinated approach at all the levels of the individual and regional institutions to implement the necessary changes;
- Insufficient staff development activities to implement the empowerment of staff to transform curricula and pedagogy towards a sustainable development perspective regionally; and
- The persistence of disciplinary boundaries that inhibit the potential to address complex sustainable development issues (Mohamedbhai, 2015)
- Education and research policies and regional development policy are often managed by different ministries. If the *regional* dimension of HE is to be made more explicit, better coordination between ministries is needed.
- Poor communication within the regional institutions and HEI regarding the meaning and concept of sustainable development and how it applies. Whereas this seems to focus on what might be considered traditional challenges to organizational change, communication is a success factor in administrative management and can fail a system.

Regional institutions need to manage emerging dynamics such as growing competition for program orientation between universities and polytechnic institutions, shrinkage of the traditional job market which leads to situation of "workers without jobs" and "workers without wealth" (Joseph, 2015). They should also constantly review the way the HE system is managed and its role in the development of human resources and innovations that are appropriately supported by purposeful research.

Whereas the list of challenges seems to focus on what might be considered traditional challenges to institutional change (such as funding, time and capacity), the opportunities listed capture a range of innovative and creative ways for HE. 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:

- a) Inter-disciplinary nature of research in sustainable development
- b) Demand from internal and external stakeholders, including students and employers
- c) Zeitgeist – primarily attributed to climate change, but also progressive awareness of other sustainability issues
- d) Collaborations/partnerships to work together
- e) Networks to learn from each other
- f) A proactive unit or an individual within the HEI driving sustainable development with a clear plan
- g) The *incentive structures* for researchers working in HEIs may be further developed to promote cooperation with the surrounding society including private sector companies.
- h) Funding situation in respect of fulfilling the task of cooperation with the surrounding society and with the business community in particular is not very robust. Here the development from small scale and short term projects to *long-term structures* may be considered.
- i) Make compulsory institutional reforms in HE institutions to allow the alliance process to continue.
- j) *More knowledge* is needed concerning the direct effects universities potentially have on regional development, in order to avoid the promotion of merely 'symbolic' policy.
- k) The African Union Commission (AUC) views regional integration as a key and intermediate step towards integration of African countries into the global economy. This is also to bring convergence to Africa's HE system which is diversely structured along geographical, colonial, linguistic and structural lines. Policy implications through creation of networks of universities, private companies and regional and local authorities with a view to creating a framework for single cooperation projects. Regional institutions should ensure that university policies and systems are designed for collaborative, inter-institutional teaching and research. The programs should fit into the administrative and other standard university systems, such as access to libraries, and should be seen as an "opportunity" rather than an a burden.
- l) Strengthening strategic planning for African university outreach; stimulating effective university industry linkages; and strengthening the capacity (Samoff & Carrol, 2004; Samoff & Carroll, 2004).
- m) The African Union's (2007) strategy for harmonization and standardization of HE Programs represents an unprecedented collaborative effort in this respect. In a broader perspective, standardization would contribute to increased pan-African academic cooperation through promoting intra-regional academic mobility and collaborative knowledge production across research networks (King, 2007).
- n) Internationalization, particularly through transnational and trans-disciplinary partnerships among universities; represent one of the most effective options for strengthening research capacity and governance arrangements for research and innovation. There is need for systematic and coherent approaches to integrating HE Policy into national economic and development strategy.
- o) A vibrant private sector in HE plays a critical role in stimulating regional integration in education hence deepening regional integration implying a creation of the appropriate conditions for guaranteeing factor mobility, the free movement of people.

- p) Since the financing needs are huge, to the end the regional institutions will play a catalytic role by mobilizing both its sovereign and non-sovereign financing instruments using the umbrella of capacity building pillar. In its catalytic role, they can continue to mobilize intermediaries that are able to finance both public and private HE and leverage additional resources through co-financing and private sector investments.

Similarly, the current momentum to remedy the digital isolation of the African continent is becoming another formidable force behind a new wave of national, regional and transnational partnership initiatives that focus on strengthening Africa's Internet connectivity infrastructure and lowering the costs of Internet connectivity within Africa and between Africa and the world. The best known examples of African ICT-oriented infrastructure cooperation ventures include the African Virtual University and the National Research and Education Networks. One audacious initiative is the UbuntuNet Alliance, a consortium that deploys submarine optic fiber technology and other terrestrial infrastructure to provide a backbone for trans-Africa Internet connectivity to promote regional and international research networking (Kahiigi Kigozi, Vesisenaho, Tusubira, Hansson, & Dainelson, 2012).

Regional Institutions and Higher Education Sustainable Development Conceptual Model Sustainability

The most pervasive definition of sustainability is that of the Brundtland Commission: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" as stated by the World Commission on Environment and Development 1987(Brundtland, 1987). This commission states that environmental protection and development are not contradictory to each other and initiates the three dimensions of sustainability: social, economic and environmental. As pointed out by the chairman of the Swedish Association for protecting the Environment (Karlsson, 2003) a definition of this term is not aided by the fact that it consists of two terms that each are difficult to interpret. Karlsson (2003) points to some questions that have arisen in the public debate regarding the term. Is it development in itself, defined in terms of growth that should be sustainable? Should development only be allowed to proceed within some sort of sustainable limit, defined based on availability of resources and the carrying capacity of the human and natural environment?

The term "sustainable development" became prominent after the Rio Earth Summit in 1992 which prioritized global environmental discussions and improved upon the initial framework introduced at the United Nations Conference on the Human Environment, Stockholm in 1972. The resulting Rio Declaration on Environment and Development, however, advocated the role of education in preventing ecological degradation (Cleveland, Kubiszewski, MILLER, & Saundry, 2007).

In an attempt to address these imbalances, a variety of models and frameworks were created to identify priority areas in sustainable development and ways to achieve progress by identifying economic, social and environmental goals. These three elements compose the three pillars of sustainable development, also identified at the Rio Earth Summit, as a means to clarify the definition of sustainable development and its application. Each one of the three pillars carries similar importance in creating and maintaining stability and balance. People, the planet and profits

are all inseparably linked and interdependent, and must therefore be synchronized accordingly. The following models and frameworks provide feasible and understandable ways to co-ordinate the three pillars of sustainable development (Carnegie & Burritt, 2012; Sosik & Jung, 2011; Velazquez, Munguia, & Sanchez, 2005).

There are three basic model of sustainable development discussed in the literature namely; triple bottom line model (Elkington, 2004; Henriques & Richardson, 2013) natural step model (Holmberg, 1998; Robčrt, 2000) and five capitals step model (Stacey & Stacey, 2012; Tuazon, Corder, & McLellan, 2013). This conceptual paper will deal with natural step model only as the other two models are outside the ambit of this paper.

The Natural Step Model

The next generation of sustainability models tried to integrate decision making frameworks to help people make the right choices. Using a scientific approach, *the Natural Step* used the emerging theory of systems thinking to help generate an applicable model to limit human action affecting changes in nature (Tuazon et al., 2013). The world was conceived as a complex system with four dominant system conditions.

In the sustainable society, four conditions are usually translated into the principles of sustainability. These are (i) Concentrations of substances extracted from the Earth's crust; (ii) Concentrations of substances produced by society;

(iii) Degradation by physical means; and, in that society; (iv) People not being subjected to conditions that systematically undermine their capacity to meet their needs.

To become a sustainable society, we must eliminate our contribution to:

(1) the progressive buildup of substances extracted from the Earth's crust (for example, heavy metals and fossil fuels); (2) the progressive buildup of chemicals and compounds produced by society (for example, dioxins, PCBs, and DDT); (3) the progressive physical degradation and destruction of nature and natural processes (for example, over harvesting forests and paving over critical wildlife habitat); and (4) conditions that undermine people's capacity to meet their basic human needs (for example, unsafe working conditions and not enough pay to live on).

This approach focuses on society's interactions with the Earth. Since its introduction, corporations and businesses have adopted these principles to manage resources and to become more sustainable. However, this is an incomplete model as it focuses substantially on the environment, yet fails to adequately address the other components of sustainability.

Systems Thinking

Systems thinking is an emerging discipline, which has developed over the last 40 years in many different fields and through a range of applications. The term system was first used to refer to both social systems and living organisms in an influential work by Lawrence Henderson (Capra, 1996). Since that time, "a system has come to mean an integrated whole whose essential properties arise from the relationships between its parts, and systems thinking the understanding of a phenomenon within the context of a larger whole"(Capra, 1996). The root of the word system is derived from the Greek *synhistanai*, 'a complex whole put together' (Capra, 1996; Skeat & Skeat, 1993).

The development of systems thinking can be characterised as an attempt to find common principles that can apply at different levels of scale and across different types of complex phenomena. It is not a new science or a discipline, but rather “a methodology that makes possible the collection and organization of accumulated knowledge in order to increase the efficiency of our actions” (De Rosnay, 1979).

Checkland, author of *Systems Thinking, Systems Practice*, says that systems thinking has arisen in part in response to three problems in science: ‘complexity in general, the extension of science to cover social phenomena, and the application of science in real world situations’ (Checkland 1991, pg. 74). He does not feel that these problems have yet been solved or dealt with satisfactorily, but that systems thinking has offered a way to supplement scientific reductionism.

A major shift in the last three decades has been an increasing awareness of global ecological problems, which highlights the difficulties that reductionist science has of dealing with highly interrelated and complex systems (Grossmann, 2000; Shiva, 1988).

Systems thinking is an approach to integration that is based on the belief that the component parts of a system will act differently when isolated from the system’s environment or other parts of the system. Standing in contrast to positivist and reductionist thinking, systems thinking sets out to view systems in a holistic manner. Consistent with systems philosophy, systems thinking concerns an understanding of a system by examining the linkages and interactions between the elements that comprise the whole of the system. When you encounter situations which are complex and messy, then systems thinking can help you understand the situation systemically. This helps us to see the big picture from which we may identify multiple leverage points that can be addressed to support constructive change. It also helps us see the connectivity between elements in the situation, so as to support joined-up actions. The links below provide an introduction to systems thinking and how to manage and facilitate it.

Participatory planning

In a systems view, people are an inextricable part of the system under study. Participants’ values, goals and perceptions are an integral part of a viable plan. Participatory planning is an urban planning paradigm that emphasizes involving the entire community in the strategic and management processes of urban planning; or, community-level planning processes, urban or rural. It is often considered as part of community development (Fisher, 2001).

Participatory planning is a participatory process aimed at defining, proposing and having enforced a management plan on issues of common interest. An example of a university management plans to enforce participatory planning. Emphasis is given to a management plan as an approach that allows for integration of knowledge of stakeholders, scientists and policy makers, thus stimulating participatory research and action. Typically, participatory planning is an opportunity to tailor management rules at local/regional scale according to stakeholders needs. With the aim of contributing to the establishment of a bottom-up approach rather than the typical top-down approach, one can also integrate experience based and research based knowledge. Participation can be defined as “the process of decision making and problem solving, involving individuals and

groups who represents diverse interests, expertise and ideas and who act for the good of all those affected by the decisions they make and the actions that follows" (Fisher, 2001).

Participation, then, is at the core of planning. In some cases it represents the key element that determines the willingness of stakeholders to be engaged in participatory activities. If there is an active and open dialogue between relevant stakeholders and policy makers, this stimulates knowledge production, its mobilization and integration. In order to succeed, participatory planning activities should ensure the legitimacy, saliency, credibility and transparency of the process. It is also important to incorporate the needs of all actors involved in the process, including policy makers, in terms of problem solving (Berkes, Reid, Wilbanks, & Capistrano, 2006).

There is need to establish an open dialogue, collaboration and mutual trust between all stakeholders as key in participatory processes. In addition, one should empower those who previously have been excluded from the management discourse. All this may include the development of new skills in participants and the building of new knowledge through the integration of different knowledge systems and scales (Seale, 2009; Tilbury, 2004). Practically experience in group management is useful, as well as knowledge of the use of tools and working as a team. When using management plans as a tool, extensive knowledge of academicians as well as the administrative organization is needed in order to ensure both the needs of policy makers and academicians, while achieving sustainability.

Conceptual Model for the Regional Institution in Higher Education towards Sustainable Development

Rather than providing a definitive list of actions and approaches to sustainable development incorporation in HEIs, this paper develops a conceptual model to suit local higher education services industry based on first, universities create a link between knowledge generation and transfer of knowledge to society for their entry into the labour market &Second, they actively contribute to the societal development through outreach and service to society."It will demonstrate that by examining the various functions and operations of a university, HEIs can develop far-reaching policies that give consideration to teaching and research, infrastructure, course content, biodiversity and regional community.

The following section presents the conceptual model to suit local HE services industry based on first, universities create a link between knowledge generation and transfer of knowledge to society for their entry into the labour market &second, they actively contribute to the societal development through outreach and service to society. This is designed to help the reader to better understand need for ESD and roles played by the regional institutions and appreciate the need for changes in the academic culture of HEIs.

Education for sustainable development

Biological diversity, or biodiversity, is manifested at all levels of organization (genes, species, ecosystems and landscapes) and is seen in all forms of life, habitats and ecosystems (tropical forests, oceans and seas, savannah ecosystems, wetlands, dry lands, mountains, etc.). The effect

of human activities - magnified in recent years by population growth and global climate change - has greatly reduced biodiversity in ecosystems around the world(UNESCO, 2014a).

Education in climate change: Education is an essential element of the global response to climate change. It helps young people understand and address the impact of global warming, encourages changes in their attitudes and behavior and helps them adapt to climate change-related trends(UNESCO, 2014b).

Disaster risk reduction: Disasters in this decade like in Haiti and Pakistan in 2010 showed the need to “*use knowledge, innovation and education to build a culture of safety and resilience at all levels*” education for disaster. The role of risk reduction strategies can thus be presented according to three types of activities: 1) Save lives and prevent injuries should a hazardous event occur, 2) Prevent interruptions to the provision of education, or ensure its swift resumption in the event of an interruption, and 3) Develop a resilient population that is able to reduce the economic, social and cultural impacts should a hazardous event occur(UNESCO, 2014a).

Cultural diversity: Our rich diversity . . . is our collective strength.” (Johannesburg Declaration, 2002). Humanity has inhabited every corner of the world, except Antarctica, for centuries. As groups of people worked and lived together, they developed distinctive cultures. Together the cultures of the world create a rich and varied tapestry. The resulting cultural diversity expands choices, nurtures a variety of skills, human values and worldviews and provides wisdom from the past to inform the future. Cultural diversity is a mainspring for sustainable development for individuals, communities and countries. Thus, building an effective global approach to sustainable development and ESD needs to address respecting, protecting and maintaining the cultural diversity of the world now and in the future(UNESCO, 2014a, 2014b).

Poverty reduction: The Millennium Development Goals, adopted in 2000, are the world’s quantitative targets for addressing extreme human deprivation in its many dimensions. The targets range from halving extreme poverty to reducing child and maternal death rates, and countering environmental degradation, all of which should be accomplished by 2015. Education is part of the MDG framework; however, the MDG targets for education are far less ambitious and more restrictive than for example the Education for All agenda or the objectives of the DESD(UNESCO, 2014a, 2014b).

Gender equality: Gender-based discrimination in education is both a cause and a consequence of deep-rooted disparities in society. Poverty, geographical isolation, ethnic background, disability, traditional attitudes about their status and role all undermine the ability of women and girls to exercise their rights. Harmful practices such as early marriage and pregnancy, gender-based violence, and discriminatory education laws, policies, contents and practices still prevent millions of girls from enrolling, completing and benefitting from education. Gender must therefore be integrated at all levels of education, from early childhood to HE, in formal and non-formal settings and from planning infrastructure to training teachers(UNESCO, 2014a).

Health promotion: Health is defined in relation to the environmental and human characteristics of people’s daily lives and the links between them. Health includes the impact of human activities on the health of individuals and groups, their economy and their environment.

Hunger, malnutrition, malaria, water-borne diseases, drug and alcohol abuse, violence and injury, unplanned pregnancy, HIV and AIDS and other sexually transmitted infections are just some of the problems that have enormous implications for health(UNESCO, 2014a).

Awareness and education are powerful ways to drive behavioural change related to health:

- Health promotion is the process of enabling people to increase control over and improve their health;
- The goal of universal education cannot be achieved while the health needs of all remain unmet;
- Education should also enable people to learn to live healthily in a world with HIV and AIDS and other major widespread health risks;
- Policy, management and systems should provide guidance, oversight, coordination, monitoring and evaluation to ensure an effective, sustainable, and institutionalized educational response to health challenges;
- Education should enable learners to adopt caring and supportive attitudes to others as well as protective and health-seeking behaviours for themselves

Sustainable lifestyles: Sustainable consumption means buying goods and services that do not harm the environment, society, and the economy. Although it is predominantly an issue for high-income and emerging economies, consumption is an excellent entry point for teaching about sustainable development. Consumer education is practical, touching the daily lives of people near and far away. Local consumer action can have a global, social, economic, and environmental impact, both today and tomorrow(UNESCO, 2014a).

Education therefore has an important role to play for consumers, in terms of:

- learning to know about the products we buy; encourage curiosity about how and where goods are produced as well as what the working conditions are in the country of origin? How far are goods shipped to reach the supermarket shelves? What is the environmental footprint of the production and transport of certain products?
- using knowledge about the impact of our economic choices in order to change our behavior and consumption habits. However, knowledge is not enough. ESD is a transformative learning process and aims to change the way people interact with the world.

Peace and Human security: Living in an environment of peace and security is fundamental to human dignity and development. Given that sustainable development is pertinent to every aspect of human life, teaching and learning for sustainable development must have social, economic, environmental and cultural perspectives. Peace and human security are among the 27 principles of sustainable development, Principle 25 reads: "Peace, development and environmental protection are interdependent and indivisible"(UNESCO, 2014a, 2014b).

- Education is vital to the task of acquiring the capacity to live together peacefully. It can help to prevent insecurity and conflicts from thwarting progress towards sustainable development. Education can also be called upon to rebuild a more sustainable society after violent conflict. By 'learning to live together', learners acquire knowledge, values, skills and attitudes for dialogue, cooperation and peace. ESD helps develop the capacity to respect differences and diversities as well as to build social tolerance.

Water: Although water covers more than two-thirds of the earth's surface, less than 0.5% is readily available for human use. It thus represents a scarce resource for people around the world.

Shortages of water, particularly for drinking and sanitation, are often primarily driven by an inefficient supply of services rather than by water shortages, hence the important role of education in promoting sound water governance(UNESCO, 2014a).

ESD provides an opportunity for learners, especially the excluded or marginalized, to receive a water-related education, including science, water-fetching, sanitation and hygiene as well as to develop the relevant knowledge, skills, values and behaviors in a water sustainability-friendly context. This implies that:

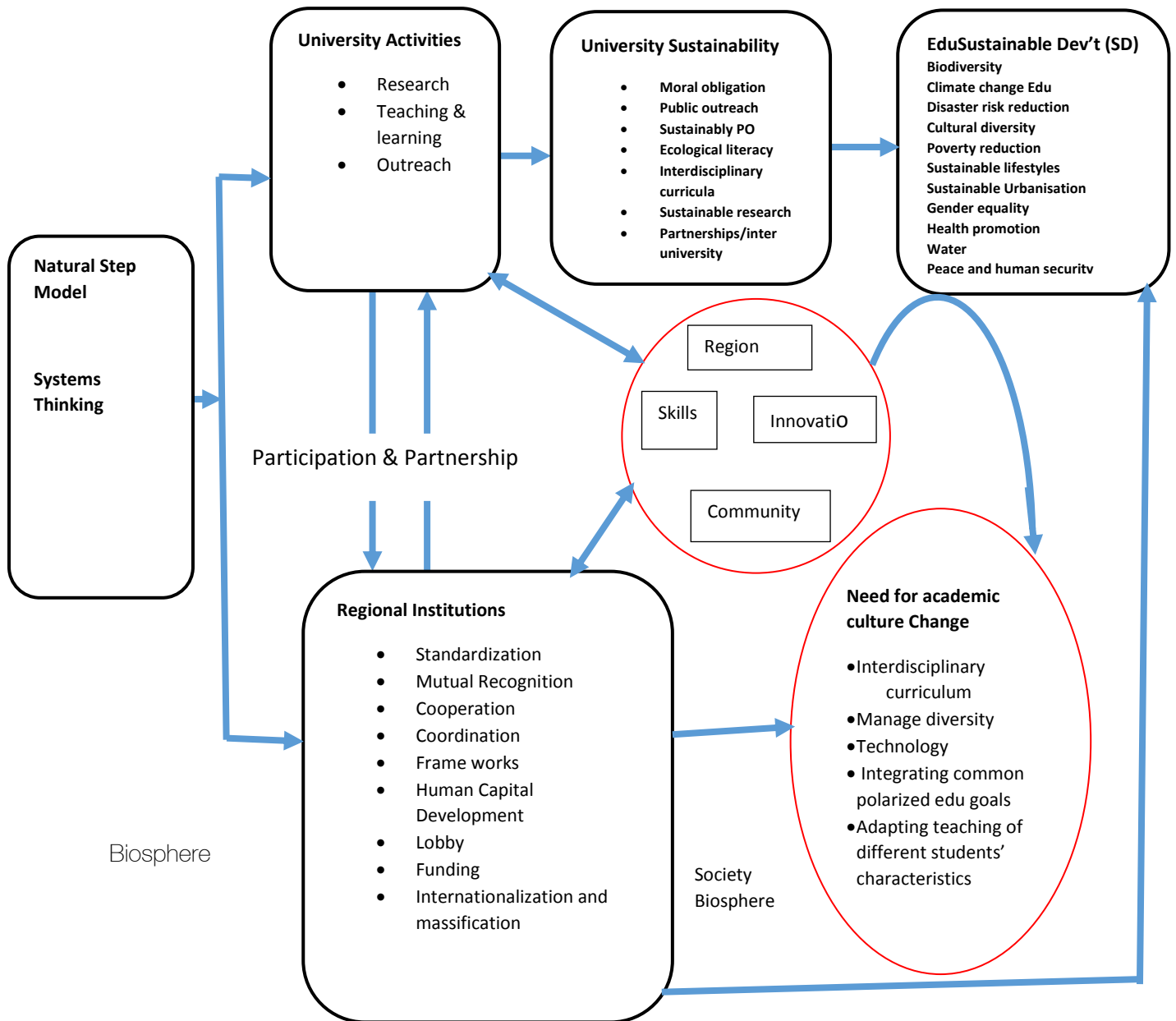
- Learning encourages behavioral changes and provides the skills required for participation in water governance;
- Schools and other educational environments promote water sustainability, with access to safe water and sanitation facilities;
- Educational structures, policy and management provide guidance, oversight, coordination, monitoring and evaluation to ensure an effective, sustainable and institutionalized educational response to water governance challenges.

Sustainable urbanization: Half of the world's population now lives in urban areas and the other half increasingly depend upon cities for economic, social, cultural and political progress. In cities, education policies must typically serve highly diverse populations. Providing education for all – in particular girls, persons with disabilities, migrants, the poor and the marginalized is a complex exercise requiring effective public services and the collaboration of numerous partners(UNESCO, 2014a).

Learning to live together sustainably in cities is one of the most important educational challenges of our time. This requires a focus on:

- Creating a quality learning and educational environment that promotes sustainability;
- Providing lifelong learning opportunities in cities;
- Teaching tolerance and mutual understanding in urban societies;
- Enabling children and youth to learn to live and participate in urban life;
- Enhancing learning to create inclusive societies in inclusive cities;
- Developing learning in all its diverse forms.

Conceptual Model



Source: Author

Embedding Sustainable Development into Institutional Functions

Each HEI has contributions to make to the sustainability effort and can subsequently adopt a methodology appropriate to the overarching goals of the institution. To meet the various challenges presented, commitment to sustainable development implies that it will be applied to the various operations within a HEI, rather than one concentrated area. As noted above it is important to institutionally integrate sustainable development into all of the different functions of an HEI. Throughout the literature review, two dominant strategies of embedding sustainability emerged: incremental or holistic integration. Incremental integration starts with one project that creates awareness and visibility of pertinent issues, and then progressively evolves to encompass other functions of the HEI. From these bases it could easily engage academics and university managers and to get the learning spread through to teaching.

The second strategy of holistic integration was based on the university in its environment and the organization creating the atmosphere for sustainable development. This was particularly true of Portland State University (PSU) and the University of British Columbia (UBC). Both universities were situated in cities that took sustainability very seriously: It would actually have been very difficult for these universities to ignore the sustainability agenda.

To assist HEIs in formulating their approaches, this paper offers a model for reflection with ways to embed sustainability into the various functions of the HEI. A more detailed version can be found in illustration, *Regional Institutions and Higher Education Sustainable Development Conceptual Model* to assess how the natural step model is used in the emerging theory of systems' thinking to help generate an applicable model to help us make the right choice with physical action affecting changes in nature, understand regional institutions role in ESD, incorporate ESD in individual HEIs in terms of their activities, encourage participation, partnerships, strategic plans on how to encourage innovation, skill, community while appreciating the need for academic culture change in order to address environmental, social and economic sustainability within and beyond the campus, the curriculum and the community. The questions demand sincere reflection on the regional institution's approach to sustainability, but allow for flexibility and adaptability in the responses. Using the model as a guide, HEIs can formulate plans that correspond to the organizational mission, particular local and regional needs, and cultural differences, as well as analyze and review current sustainable (or unsustainable) activities.

The role of universities in ESD

Universities are expected to be part of ESD and are challenged to utilize their main functions of teaching, research and community engagement. Through teaching, universities are expected to teach students about sustainable development with a view to encourage them to make sustainable choices (Clugston and Calder, 2002). Through community engagement, universities have the potential to go beyond the university community to engage people in the community on sustainable development. The role of universities in ESD is made more important by the fact that the students they teach are the decision-makers of the future. They are the future developers and managers of society's institutions. Universities also have great influence on industry and

government policies and decisions. Investing in HE is therefore essential to the production of the experts needed to address sustainability and other societal problems.

Ever since universities were identified as having responsibility for developing necessary capacity required for a sustainable future, a number of sustainability declarations in HE have defined specific roles for universities to furthering ESD. The declarations include the 1977 Tbilisi Declaration, the Talloires Declaration (1990), the Kyoto Declaration 1993, the Lüneburg Declaration (2001) etc. (see Wright 2002; 2004 for a full list and a summary of the contents of each declaration). A summary of the defined roles is as follows:

- a) Moral obligation: universities are morally bound to create change through preparing graduates to deal with environmental problems.
- b) Public outreach: universities should apply their knowledge in solving the problems of society in the communities in which they reside.
- c) Sustainable physical operations: greening the campus is considered a key component in becoming more sustainable.
- d) Ecological literacy: there is need for universities to aid the development of an environmentally literate people to help in understanding the functions of world, human impacts on the biosphere and translation of understanding to action.
- e) Develop interdisciplinary curricula: subjects studied should show a link to the environment to help students become more environmentally literate.
- f) Encourage sustainable research: encourage research that contributes to local, regional and global sustainability.
- g) Partnership with government, non-governmental organizations (NGOs) and industry: this is an encouragement for coordination of efforts since the university cannot create social change on its own (at various levels).
- h) Inter university cooperation: this will facilitate sharing of information and cooperation in pursuit of practical solutions to the sustainability problem.

The above defined roles are priority areas for universities wanting to be involved in sustainability in HE. The declarations which defined these roles were all developed in the context of developed countries. Of critical importance in mainstreaming sustainability is to bear in mind the contextual nature of sustainable development challenges. Priority environmental and sustainability problems vary geographically, leading to variations in ESD foci and approaches.

What is particularly clear about the identified roles of HEIs in sustainable development is that they can be addressed through university day to day functional activities and management operations. However, there is still no agreement on what course of action to take in implementing sustainable development and this is partly due to controversies surrounding the meaning of the concept of sustainable development itself see (UNEP, 2007). However, universities as centers for the creation and dissemination of knowledge (Tünnermann Bernheim and de Souza Chai, 2003), have the potential of engaging some of their functions (e.g. research) to gain a better understanding of the

concept and to develop response strategies. The whole process should also be a learning process on the part of universities (UNEP, 2009).

Conclusion

Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues. Both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behavior consistent with sustainable development and for effective public participation in decision making. In the year 2000, the United Nations Millennium Declaration was adopted, which emphasizes that a global development demands a comprehensive view. The declaration formed the basis of time-bound and measurable goals for development. It contained eight goals that should promote a global development. Among them were goals for reduction of poverty, reduction of infant mortality, reduction of the HIV/AIDS, malaria spreading and a sustainable development until 2015.

The role of regional institutions in facilitating intra-continental SHE investment cannot be understated. It is clear that the involvement of HEIs would be crucial for attainment of SD. Focus should be put on green education/learning, learning for a sustainable future educators, corporate responsibility, environment, sustainable consumption, regional/international, cooperation, capacity, collaboration, coordination and frequent cooptation. Sustainability at regional and university campus can flourish if they focused most on good experiences, paying little or no attention to describe the issues hampering their evolution (Velazquez et al., 2005). The world needs committed people to help save the environment and to preserve the biodiversity that still exists. Collaborations through HEIs is one of the most important ways to bring about change. However, there is a need for further alignment of education and sustainable development sectors; the need to do more work for institutionalizing ESD to ensure strong political support to implement ESD on a systemic level; and, finally, the need for more research, innovation, monitoring and evaluation to develop and prove the effectiveness of ESD good practices.

References

- AAU. (2008a). Promoting Sustainable Development (SD) and Education for Sustainable Development (ESD): The Role of Higher Education Institutions in Africa <http://www.aau.org/page/psd-background>, html, June, 2016.
- AAU. (2008b). Promoting Sustainable Development (SD) and Education for Sustainable Development (ESD): The Role of Higher Education Institutions in Africa https://www.google.co.ug/?gws_rd=ssl#q=AAU-2006+and+2008+editions+of+its+African+Universities+Day+celebrations+to+the+theme+%E2%80%90Role+of+Higher+Education+in+Promoting+Sustainable+Development+in+Africa%E2%80%9D, html, June, 2016.
- Ács, Z. J. (2000). *Regional innovation, knowledge, and global change*: Cengage Learning.
- Acs, Z. J., Desai, S., & Hessels, J. (2000). *Regional Innovation*. Paper presented at the 'In Search of an Enabling Strategy', in ZJ Acs (ed) *Regional Innovation, Knowledge and Global Change*. London and.
- Amin, A., & Thrift, N. (1995). Institutional issues for the European regions: from markets and plans to socioeconomics and powers of association. *Economy and Society*, 24(1), 41-66.
- Annan, K. (2000). Information technology should be used to tap knowledge from greatest Universities to bring Learning to all. *United Nations Information Service*.(No. UNIS/SG/2625)(New York: UN, 2000), <http://www.unis.unvienna.org/unis/pressrels/2000/sg2625.html>.
- Ariffin, A. A. M., Ahmad, A. H., Ahmad, S., & Ibrahim, A. (2008). Determining decision-making styles and demographic differences in selecting higher education services among Malaysian. *International Journal of Business and Society*, 9(1), 1.
- Armstrong, M., & Taylor, S. (2014). *Armstrong's handbook of human resource management practice*: Kogan Page Publishers.
- Berkes, F., Reid, W. V., Wilbanks, T. J., & Capistrano, D. (2006). Bridging scales and knowledge systems. *Bridging scales and knowledge systems: Concepts and applications in ecosystem assessment*, 315.
- Bloom, D. E., Canning, D., & Chan, K. (2006). *Higher education and economic development in Africa* (Vol. 102): World Bank Washington, DC.
- Brundtland, G. H. (1987). World Commission on Environment and Development.(1987). *Our common future*, 383.
- Capra, F. (1996). *The web of life: A new scientific understanding of living systems*: Anchor.
- Carnegie, G. D., & Burritt, R. L. (2012). Environmental performance accountability: planet, people, profits. *Accounting, Auditing & Accountability Journal*, 25(2), 370-405.
- Chapman, D., Barcikowski, E., Sowah, M., Gyamera, E., & Woode, G. (2002). Do communities know best? Testing a premise of educational decentralization: community members' perceptions of their local schools in Ghana. *International Journal of Educational Development*, 22(2), 181-189. doi: 10.1016/s0738-0593(01)00026-8
- Chatterton, P., & Goddard, J. (2000). The response of higher education institutions to regional needs. *European Journal of Education*, 35(4), 475-496.
- Clarkson, P. (1995). *Change in organisations*: Whurr London.

- Cleveland, C., Kubiszewski, I., MILLER, M., & Saundry, P. (2007). United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, Brazil. *The Encyclopedia of Earth, Boston, 9*.
- De Rosnay, J. (1979). {The Macroscope: a New World Scientific System}.
- Elkington, J. (2004). Enter the triple bottom line. *The triple bottom line: Does it all add up*, 11(12), 1-16.
- Elliot, J. (1991). *Action research for educational change*. McGraw-Hill Education (UK).
- Fisher, F. (2001). *Building Bridges Between Citizens and Local Governments to Work More Effectively Together: Concepts and strategies*. UN-HABITAT.
- Grossmann, W. D. (2000). Realising sustainable development with the information society—the holistic double gain-link approach. *Landscape and urban planning*, 50(1), 179-193.
- Hahn, K., & Teferra, D. (2012). Harmonization and Tuning: Integrating African Higher Education. *International Higher Education*(69), 20-22.
- Hahn, K., & Teferra, D. (2014). Tuning as instrument of systematic Higher Education reform and quality enhancement: the African experience. *Tuning journal for higher education*, 1(1), 127-163.
- Henriques, A., & Richardson, J. (2013). *The triple bottom line: Does it all add up*: Routledge.
- Holmberg, J. (1998). Backcasting: a natural step in operationalising sustainable development (*). *Greener management international*, 30-30.
- Holmberg, J., & Samuelsson, B. E. (2006). *Drivers and Barriers for Implementing Sustainable Development in Higher Education: Göteborg Workshop, December 7-9, 2005; [United Nations Decade of Education for Sustainable Development (2005-2114)]*: Unesco.
- Hoosen, S., Butcher, N., & Njenga, B. K. (2009). Harmonization of higher education programmes: A strategy for the African Union. *African Integration Review*, 3(1), 1-36.
- IAU. (2014). Global Higher Education Portal on Higher Education for Sustainable Development (HESD). <http://www.iau-aiu.net/content/global-higher-education-portal-higher-education-sustainable-development-hesd.html>, June, 2016.
- Joseph, C. C. (2015). Advancement of Quality in Higher Education. *A Presentation at the "Learning for Change" Conference held at Nelson Mandela African Institution of Science and Technology, in Arusha, Tanzania on 27th – 29th May 2015*.
- Jowi, J. O. (2009). Internationalization of higher education in Africa: Developments, emerging trends, issues and policy implications. *Higher Education Policy*, 22(3), 263-281.
- Jowi, J. O. (2016). Governance of higher education, research and innovation in Ghana, Kenya and Uganda. <https://dem2.acer.edu.au/dem/ict-research/page/governance-of-higher-education-research-and-innovation-in-ghana-kenya.pdf>, June, 2016.
- Kahiigi Kigozi, E., Vesisenaho, M., Tusubira, F., Hansson, H., & Dainelson, M. (2012). Peer Assignment Review Process for Collaborative E-learning: Is the Student Learning Process Changing? *International Journal of Advanced Computer Science and Applications*, 3(12), 149-155.
- Karlsson, M. (2003). Biosafety principles for GMOs in the context of sustainable development. *The International Journal of Sustainable Development & World Ecology*, 10(1), 15-26.
- Kasenene, E. S. (2010). Improving the effectiveness of public and private education in Sub-Saharan Africa: The case study of
- Uganda. NHCE, Kampala. *Government of Uganda Ministry of Education GoU*.

- Keeble, D., Lawson, C., Moore, B., & Wilkinson, F. (1999). Collective learning processes, networking and 'institutional thickness' in the Cambridge region. *Regional Studies*, 33(4), 319-332.
- King, R. P. (2007). Governance and accountability in the higher education regulatory state. *Higher Education*, 53(4), 411-430.
- Knight, J. (2008). Higher education in turmoil. *The Changing World of Internationalisation*. Rotterdam, The Netherlands: Sense Publishers.
- Knight, J. (2014). A model for the regionalization of higher education: The role and contribution of tuning. *Tuning journal for higher education*, 1(1), 105-125.
- Lawson, C. (1999). Towards a competence theory of the region. *Cambridge Journal of Economics*, 23(2), 151-166.
- Levy, D. (2003). Expanding higher education capacity through private growth: Contributions and challenges. *Observatory on Borderless Higher Education*.
- Lorenzen, M. (2001). Localised learning and policy *Innovation and learning for competitiveness and regional growth*: Nordregio.
- Lozano, R., Lukman, R., Lozano, F. J., Huisingh, D., & Lambrechts, W. (2013). Declarations for sustainability in higher education: becoming better leaders, through addressing the university system. *Journal of Cleaner Production*, 48, 10-19.
- MacGregor, K. (2009). AFRICA: AAU 12th general conference begins. <http://www.universityworldnews.com/article.php?story=20090502104358919>, html, June, 2016.
- Mohamedbhai, G. (2015). What role for higher education in sustainable development. <http://www.universityworldnews.com/article.php?story=20150108194231213>, html, June, 2016.
- Morgan, K. (2007). The learning region: institutions, innovation and regional renewal. *Regional Studies*, 41(S1), S147-S159.
- Morgan, K., & Cooke, P. (1998). The associational economy: firms, regions, and innovation. *University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship*.
- Mpaata, A. (2010). University Competiveness through Quality assurance; The Challenging Battle for Intellectuals.
- Muche, F. (2005). Opening up to the Wider World. *The External Dimension of the BolognaProcess*. ACA Papers. Bonn: Lemmens.
- NCHE, N. C. f. H. E. (2013a). Tracer Studies National Council for Higher Education. <http://www.unche.or.ug/publications/tracer-studies/html>, April, 2013.
- NCHE, N. C. f. H. E. (2013b). Tracer study of 2005 graduates from five universities and four colleges. *Printed by National Council for Higher Education*.
- NEPAD. (2005). THE PROMOTION OF SUSTAINABLE DEVELOPMENT BY HIGHER EDUCATION INSTITUTIONS IN SUB-SAHARAN AFRICA. http://www.iau-hesd.net/sites/default/files/documents/promotion_sd_by_heis_sub_saharan_africa.pdf, June, 2016.
- Oerlemans, L., Meeus, M., & Kenis, P. (2007). 8. Regional innovation networks.
- Okwakol, M. (2009). The need for transformative strategic planning in universities in Uganda. *NCHE Journal Kampala*. Retrieved from.
- Potter, J., Moore, B., & Spires, R. (2002). The wider effects of inward foreign direct investment in manufacturing on UK industry. *Journal of Economic Geography*, 2(3), 279-310.

- Potter, J., Moore, B., & Spires, R. (2003). Foreign manufacturing investment in the United Kingdom and the upgrading of supplier practices. *Regional Studies*, 37(1), 41-60.
- Prensky, M. (2009). H. sapiens digital: From digital immigrants and digital natives to digital wisdom. *Innovate: journal of online education*, 5(3), 1.
- Programme, U. N. D. (2006). *Uzbekistan Human Development Report*. UNDP.
- Putnam, R. D. (1995). Tuning in, tuning out: The strange disappearance of social capital in America. *PS: Political science & politics*, 28(04), 664-683.
- Robčrt, K.-H. (2000). Tools and concepts for sustainable development, how do they relate to a general framework for sustainable development, and to each other? *Journal of Cleaner Production*, 8(3), 243-254.
- Samoff, J., & Carrol, B. (2004). *Conditions, coalitions and influence: The World Bank and higher education in Africa*. Institute of development studies.
- Samoff, J., & Carroll, B. (2004). Comments on The Promise of Partnership and Continuities of Dependence. *African Studies Review*, 47(1), 201-207.
- Scott, A. J., & Storper, M. (2007). Regions, globalization, development. *Regional Studies*, 41(S1), S191-S205.
- Seale, J. (2009). Doing student voice work in higher education: an exploration of the value of participatory methods. *British Educational Research Journal*, 36(6), 995-1015.
- Shiva, V. (1988). *Staying alive: Women, ecology and development*. Zed Books.
- Skeat, W. W., & Skeat, W. W. (1993). *The concise dictionary of English etymology*. Wordsworth Editions.
- Sosik, J. J., & Jung, D. D. (2011). *Full range leadership development: Pathways for people, profit and planet*. Taylor & Francis.
- Stacey, A., & Stacey, J. (2012). Integrating Sustainable Development into Research Ethics Protocols. *Electronic Journal of Business Research Methods*, 10(2), 54-63.
- Teichler, U. (1988). *Changing Patterns of the Higher Education System. The Experience of Three Decades*. *Higher Education Policy Series*, 5: ERIC.
- Tilbury, D. (2004). Environmental education for sustainability: A force for change in higher education *Higher education and the challenge of sustainability* (pp. 97-112): Springer.
- Tuazon, D., Corder, G., & McLellan, B. (2013). Sustainable development: a review of theoretical contributions. *International Journal Sustainable Future for Human Security*, 1(1), 40-48.
- UNEP. (2007). Mainstreaming Environment and Sustainability in African (MESA) Universities Partnership project, Phase 2. Project document draft. *UNEP*.
- UNEP. (2009). Education for Sustainable Development innovations-Programmes for universities in Africa. *Share-Net: Howick*.
- UNESCO. (2005). Education for Sustainable Development (ESD). <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/html>, June, 2016.
- UNESCO. (2014a). Education for Sustainable Development. <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/around-the-world/africa/html>, June, 2016.
- UNESCO. (2014b). Shaping the future we want-UN Decade of Education for Sustainable Development 2005-2014 final report. <http://unesdoc.unesco.org/images/0023/002303/230302e.pdf>, June, 2016.
- Union, A. (2007). *Harmonization of Higher Education Programmes in Africa: A Strategy for the African Union: Summary Report*. Paper presented at the Addis Ababa: Meeting of the

- Bureau of the Conference of Ministers of Education of the African Union (COMEDAF II+), African Union.
- Varghese, N. (2006). *Growth and expansion of private higher education in Africa*. UNESCO, International Institute for Educational Planning.
- Varghese, N. (2013). *Governance reforms in higher education: A study of selected countries in Africa*. Paper presented at the Policy Forum on governance reforms in higher education in Africa, Nairobi Kenya. Paris: UNESCO.
- Velazquez, L., Munguia, N., & Sanchez, M. (2005). Deterring sustainability in higher education institutions: An appraisal of the factors which influence sustainability in higher education institutions. *International Journal of Sustainability in higher education*, 6(4), 383-391.
- Woldetensai, Y. (2009). Regional harmonization of higher education for Africa: Background document. *Accra, Ghana: Association of African Universities*.
- Wright, T. (2004). The evolution of sustainability declarations in higher education *Higher education and the challenge of sustainability* (pp. 7-19): Springer.
- Wright, T. S. (2002). Definitions and frameworks for environmental sustainability in higher education. *International Journal of Sustainability in higher education*, 3(3), 203-220.