# THE PROMOTION OF SUSTAINABLE DEVELOPMENT BY HIGHER EDUCATION INSTITUTIONS IN SUB-SAHARAN AFRICA

Survey Report

Higher education institutions in Sub-Saharan Africa are key agents for improving sustainable development on the continent. However, there are few studies available to demonstrate what roles they play and what practices prevail in these institutions to achieve sustainability. Yet, African higher education institutions committed themselves to integrating sustainable development and sustainability issues in their institutions' curricula and day-to-day campus life by adopting the Declaration on **"Sustainable Development in Africa – The Role of Higher Education"** at the 12th General Conference of the **Association of African Universities** (AAU) held in May 2009 in Abuja, Nigeria.

Like the AAU, the **Global University Network for Innovation** (GUNi) and **the International Association of Universities** (IAU) are equally committed to advancing sustainable development in higher education. They were present at the 12th AAU General Conference and one of the outcomes of that event was for the three organisations to join synergies in developing a project that aimed at facilitating the promotion of sustainability by African higher education institutions and, hence, promoting better understanding of the issues globally.

This is what led to the joint GUNi-IAU-AAU project **"Promotion of Sustainable Development by Higher Education Institutions in Sub-Saharan Africa"** which has been funded in part by the **Spanish Agency for International Development and Cooperation** (AECID).

Academic institutions vary considerably in how they approach sustainability: some concentrate on minimizing their ecological impact through changes in campus operations; others emphasize sustainability in the curriculum; yet others concentrate on university outreach and/or embed sustainable development principles in their overall development strategy. The project gathered relevant data through a survey questionnaire that was sent out to African higher education institutions in Sub-Saharan Africa. The questionnaire focused on the following areas: **Institutional Governance, Curriculum: Teaching and Learning; Research, Campus Operations**, and **Outreach and Services.** From the responses obtained from 73 higher education institutions, information on the institutions' accomplishments in achieving sustainability in each of these five critical dimensions was compiled.

This report presents the findings of the survey. It is hoped that the analysis and recommendations herein will be useful tools to higher education institutions in Africa in their efforts to re-orient their activities to respond to the environmental and development challenges confronting the continent. It is hoped as well that the report will be of interest to other higher education institutions that are working towards better inclusion of sustainable development in all their operations.

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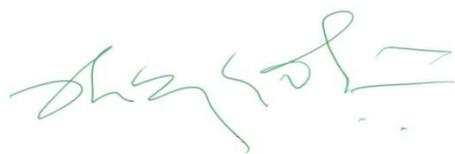
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List of acronyms

AAU	Association of African Universities
ACES	Curriculum Greening of Higher Education, acronym in Spanish
ACU	Association of Commonwealth Universities
AECID	Spanish Agency for International Development and Cooperation
DESD	Decade of Education for Sustainable Development
EMS	Environmental Management Systems
ESD	Education for Sustainable Development
GHESP	Global Higher Education for Sustainability Partnership
GUNi	Global University Network for innovation
HEI	Higher Education Institution
HESD	Higher Education for Sustainable Development
IAU	International Association of Universities
ICT	Information and Communication Technology
IGAD-ICPAC	Intergovernmental Authority on Development - Climate Prediction and Applications Centre
IRT	Institutional Response Team
ISO	International Organisation for Standardisation
LEADHER	Leadership Development for Higher Education Reform
MDGs	Millennium Development Goals
MESA	Mainstreaming Environment and Sustainability in African Universities programme
NEPAD	New Partnership for Africa's Development
NGO	non-governmental organisations
PhD	Doctor of Philosophy
RCE	Regional Centre of Expertise
SD	sustainable development
SPSS	Statistical Package for the Social Sciences
ULSF	University Leaders for a Sustainable Future
UN-DESD	UN Decade of Education for Sustainable Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNU	United Nations University
WCED	World Commission on Environment and Development
WSSD	World Summit on Sustainable Development

Executive summary

This report on promotion of sustainable development by higher education institutions in sub-Saharan Africa presents and analyzes data from an online survey launched jointly by the Global University Network for Innovation (GUNi), the International Association of Universities (IAU) and the Association of African Universities (AAU) in May and June, 2010.

In determining what contributions higher education in Africa has made towards sustainable development, the AAU chose the theme "Sustainable Development in Africa – The Role of Higher Education" for its 12th General Conference. The three organisations were present at the conference. One of the outcomes was the idea of the three organisations joining synergies and developing a project that could facilitate the promotion of sustainability by African higher education institutions (HEIs) as contained in the final declaration of the Conference. This, in addition, would help to promote better understanding on these issues globally.

The specific objective of the study was to establish current sustainability practices in higher education institutions in Africa. The overall aim of the study is to assist sub-Saharan African higher education institutions to develop institutional strategies to enhance their practices towards achieving sustainable development in Africa. The study was intended to be extensive to develop an overview of sustainability practices in the region. An online survey was launched and 498 HEIs were invited to participate. Seventy-three (73) institutions responded (14,7%), either fully or partially, to the questionnaire.

Results of the study show that higher education institutions in Africa are promoting sustainable development both on their campuses and in their communities. Commitment to sustainability is reflected in some of the universities' written statements. Some have integrated sustainability in their curricula; some are involved in sustainability research and outreach projects. African universities are also involved in sustainability partnership at various levels and some are setting aside funds for sustainability projects. Involvement in sustainable development initiatives is, however, still significantly small in most universities. However, the momentum attained so far is a sign of progress which universities can take advantage of in improving their sustainability practices.

Among other suggestions, the study recommends capacitating universities in education for sustainable development (ESD) through training programmes, workshops for senior management, as well as assisting them in setting up ESD strategies and coordinating units.

Universities are also encouraged to target mainstreaming sustainability in structures that influence the functioning of the whole university, for example, written policy statements, to ensure that sustainability becomes a university-wide initiative.

The next phase of this project will be focussing on skills development and training of agents involved in the work of HEIs in sub-Saharan Africa, so as to strengthen the role of these HEIs in promoting sustainable development in the region.

Chapter 1. Background to the study

1.1 Introduction

This study was jointly initiated by the Global University Network for Innovation (GUNi), the International Association of Universities (IAU) and the Association of African Universities (AAU) in May and June, 2010.

GUNi is composed of 214 institutions from 76 countries. Its membership is drawn from United Nations Educational, Scientific and Cultural Organization (UNESCO) Chairs in Higher Education, higher education institutions (HEIs), research centres and networks related to innovation and social commitments of higher education. GUNi aims at encouraging a wide range of actors in higher education to foster cooperation among themselves as well as promote debate and exchange of knowledge on higher education issues. Its publication, Higher Education in the World 3, analysed among others, issues related to sustainability and the contribution of higher education to sustainable development. At its 5th International Barcelona Conference on Higher Education in November, 2010, GUNi chose the theme *Higher Education's Commitment to Sustainability: from Understanding to Action* as a follow up to issues discussed in the Higher Education in the World 3 report. The outcomes of the 5th Barcelona Conference will be featured in the Higher Education in the World 4 report, which is under preparation.

IAU is the UNESCO-based worldwide association of HEIs that was founded in 1950. It currently draws its over 600 membership from higher education institutions and organisations in 150 countries worldwide. The IAU collaborates with various international, regional and national bodies active in higher education. 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 (http://www.iau-aiu.net/sd/sd_dkyoto.html) adopted by the Association in 1993, led the organisation to regularly convene meetings (conferences seminars, 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 Centres 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 Programme (UNEP) and

other organisations to develop projects and trigger action on sustainable development at higher education level.

The AAU provides a forum for consultation, exchange of information and co-operation among institutions of higher education in Africa. Its headquarters are in Accra, Ghana and it is presently composed of over 260 members drawn from 45 African countries. Members 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 prioritises sustainable development as a thematic priority on its programme. Indeed, the Association has deliberately propagated the concept of sustainable development on many statutory occasions in the last five years, notably during the celebrations of African University Day 2006 and 2008 when the themes *Education for Sustainable Development* and *Sustainable Development in Africa: The Role of Higher Education* were respectively chosen; at presentations at AAU Conferences and more significantly as the general theme of its 12th General Conference held in Abuja, Nigeria in May, 2009. The African University Day falls on 12th November every year and is celebrated by all AAU member institutions.

This study was jointly developed by the three organisations following the AAU's 12th General Conference. The theme of the conference was centred on the role of higher education in sustainable development in Africa. This study was initiated to push the agenda one step further. The three organisations jointly developed the project *"Promotion of Sustainable Development by Higher Education Institutions in Sub‑Saharan Africa"* which is partly funded by the Spanish Agency for International Development and Cooperation (AECID). This chapter provides a background to this research by discussing the setting of the study in the African context, outlining the objectives of the study and providing a summary of the structure of the report.

1.2 Setting

The African continent is wealthy in natural heritage and resources and is characterised by a diversity of cultures, knowledge, resources and development opportunities (UNEP, 2008). According to Case (2006) Africa gathers one fifth of all known plant, mammal and bird species, and one sixth of amphibians and reptiles. Its climate is naturally highly diverse and highly variable, with climatic conditions ranging from the extremely arid regions of the Saharan deserts to the extreme humid regions of the Congo rainforest (Conway, 2009). The

rich and diverse natural and cultural environment in Africa endows the continent with a multiplicity of opportunities for development. However, the productivity and sustainability of Africa's environment and the future well-being of its people depends on how these resources are managed now, and in the future.

Despite the existence of development opportunities, the African continent is currently faced with a number of sustainability challenges which are threatening both the natural environment and the socio-economic well-being of its people. Global climate change reports indicate that Africa is highly vulnerable to the impacts of climate change (see for example Desanker, Undated; Eriksen et al, 2008; Conway, 2009). Other threats to the natural environment include deforestation, over-exploitation of resources, deterioration of marine and coastal ecosystems and water quality issues (Paden, 2007; UNEP, 2008). Problems of poverty, food insecurity, wars and violence, HIV/AIDS, environmentally related diseases, drought, water and sanitation are prevalent in the continent (Paden, 2007; Intergovernmental Authority on Development - Climate Prediction and Applications Centre (IGAD-ICPAC), 2007; UNEP, 2008). Within the world economy, Africa holds a marginal position. Most African countries do not meet the human development index (Wackernagel, 2007) and 19 countries with the lowest human development index are in sub-Saharan Africa (Paden, 2007). The challenge for Africa is to overcome these threats to development and utilise and manage its rich natural resources sustainably for the well-being of its people today and tomorrow. Africa needs to urgently increase human capacity and skills to improve development opportunities, and to respond and adapt to these risks.

In Africa, higher education was identified to be of significance in facilitating the development process (Samoff and Carrol, 2003; New Partnership for Africa's Development (NEPAD), 2005) and universities are acknowledged to be key agents for improving sustainable development in the continent. The African Union has therefore put in place an initiative to revitalise Higher Education in the continent so that it can contribute more effectively to Africa's development path (NEPAD, 2005). However, as Africa has become ever-more affected by increases in poverty, and state spending has come under pressure, universities have been neglected, and have suffered enormously from brain drain. Some of the problems higher education in Africa is currently facing include the following:

- **Financial challenges and issues of equity in access to higher education** – One of the challenges faced by higher education is that state subsidies are not adequate. This is partly due to changes in the world economy which left most African countries in financial problems resulting in a decline in public higher education funding. At the

same time, recipients of such subsidies were found to be coming from middle to high income backgrounds, which resulted in the stipulation that they should share the cost of education. This has resulted in commercialisation of educational programmes, financial difficulties among students especially the poor and therefore issues of access to education.

- **Privatisation of higher education** – Due to the decline in government subsidies, some new higher education institutions are operating as for-profit private institutions. These institutions target programmes that are demanded more in the job market and are therefore more competitive. At the same time, they use staff from subsidised institutions at a low cost, who will be wanting to supplement their meagre incomes.

- **Brain drain** – There has been an outflow of skilled personnel to developed countries. This is a result of a number of issues among them poor working conditions, low salaries, big classes, conflict, declining funding opportunities etc. This compromises educational quality.

- **HIV and AIDS** – African higher education has not been spared from the devastating effects of HIV/AIDS. Some of such effects include deaths among staff members, frequent absenteeism due to illnesses or caring for sick family members. This also leads to problems educational quality as discussed bellow.

- **Educational quality and relevance problems** – Enrolment has been increasing in HEIs in Africa and this has not been matched by resources like staff. At the same time, staff are increasingly becoming preoccupied with extra income generating activities as a result of poor salaries; which leaves less time for research. There are also problems of outdated curricula and shortages of qualified staff. All these problems, together with Brain drain, HIV/AIDS problems etc. compromise the quality of the education that African universities offer.

- **Information and Communication Technology (ICT)** – ICT has been noted to be a necessity for higher education to be effective. However, access to ICT in African HEIs is constrained by a number of factors which include lack of capacity and unfavourable policy environments - especially the high cost of bandwidth.

(Katikiti, 2000; Samoff and Carrol, 2003; NEPAD, 2005; Assié-Lumumba, 2006).

Most of the problems discussed above compromise the quality of the education that African HEIs offer. With few resources and a history of neglect, higher education systems in Africa are struggling to respond to the increased demand for their services. Consequently, the efforts of African countries towards tackling environment and development problems have yielded minimum results due to, among others, a dearth of expertise and institutional

infrastructure. These problems and the capacity gaps place Africa in a special situation that requires urgent, concerted and sustained action (UNEP, 2007).

1.3 Objectives of the study

African HEIs committed themselves to integrate sustainable development and sustainability issues in their institutions' curricula and day-to-day campus life in the framework of the Conference Declaration at the 12th General Conference of the AAU. While HEIs in Sub-Saharan Africa have been identified as key agents for improving sustainable development in the continent, there are few studies available to demonstrate what roles they play and what practices prevail in these institutions to achieve sustainability.

This study was therefore carried out to get an impression of the main sustainability practices in HEIs in sub-Saharan Africa, the main objective being: *to obtain an overview of the major actions, experiences and practices that HEIs in Sub-Saharan Africa are developing so as to promote sustainable development through their activities.* The study was multi-faceted and was designed to stimulate discussion among key stakeholders in each university. Before the execution of the study, it was noted that hardly any institution would be able to demonstrate high achievement of sustainability in all or even in the majority of areas being surveyed, as very few, if any, institutions embody sustainability in a holistic sense. Thus the objective was not for institutions to compete in showing high achievements in the questionnaire, but to bring to the fore what was being done so far and what could be developed further in the future.

The project hopes to assist HEIs in Sub-Saharan Africa to develop comprehensive institutional strategies that would enhance their overall institutional mission and action plans towards achieving sustainable development in Africa. The findings of the study have so far been reported at the 5th GUNi International Barcelona Conference on Higher Education which took place in Barcelona, in November 2010. This report will be made available to institutions which participated in the study.

1.4 Structure of the report

The report is divided into six chapters as follows:

- **Chapter 1** is an introduction to the study. It discusses the conception of the study following the AAU's 12th General Conference. It also reviews sustainable development opportunities and challenges in the African continent in which the study is situated and provides an overview of the study objectives.

- **Chapter 2** provides a contextual background to the project by reviewing emerging trends which shaped the study. It explores the role of education and that of universities in sustainable development and summarizes examples of sustainability initiatives in some of the HEIs.

- **Chapter 3** is the study methodology and discusses the research design, the scope of the study and the data collection methods. It also details how validity and trustworthiness issues were dealt with in the context of the study.

- **Chapter 4** is a presentation of the data and is divided into five major sections. The five sections represent the five focus areas in the survey questionnaire, namely: institutional governance; curriculum; teaching and learning; research, campus operations; and outreach and services.

- **Chapter 5** presents an analysis and discussion of the findings. The discussion is also guided by the five main focus areas discussed in chapter 4.

- **Chapter 6** is the conclusion to the study. It provides a summary of the findings and recommendations for improving the roles of higher education institutions in Africa in sustainable development.

Chapter 2. Context of the study

2.1 Education for Sustainable Development

This study took place against the backdrop of increasing sustainable development concerns in Africa and the world over. Environmental and sustainable development issues are currently topical in debates at international levels. Through various conventions, strategies have been suggested to tackle them. Internationally practical endeavours to deal with the issue of sustainable development include conferences, agreements, legal measures and institutions (Haque, 2000) to mention a few. International conferences have addressed various environmental problems (climate change, pollution, biodiversity, etc) and there has been an increase in awareness of environmental and sustainability issues through these conferences and other forms of intervention. This was however not adequate in dealing with sustainable development issues. Economic development has resulted in costs to the natural environment while sustainable development has remained a big challenge. This led to calls for public awareness, communication, education and social marketing, and Environmental Education and Education for Sustainable Development were defined internationally as a response to the crisis (Lotz-Sisitka, 2004).

Even though environmental issues are said to have penetrated the curriculum as early as the 18th century (Webster, 2004), it was in during the 1972 Stockholm Conference that education was considered important in addressing environmental problems. Since then, the role of education was in addressing environmental issues became central to major international meetings. The 1992 United Nations Conference on Environment and Development in Rio emphasises its role in sustainable development through Chapter 36 of Agenda 21. The role of education was strengthened ten years later at the 2002 World Summit on Sustainable Development (WSSD) and other key issues (social justice and the fight against poverty) were included as key principles of sustainable development (UNESCO, 2005). ESD was then identified as critical in sustainable development at a global level and the Decade of Education for Sustainable Development (DESD) was declared. UNESCO was given the role of implementing agency for the decade.

The goal of ESD was defined by many authors, UNESCO among them. In short, the objective is to teach the main beliefs underlying sustainable development with the intention of making students more ethical and responsible (UNEP, 2006). This is expected to make learners proactive and to develop among them skills to plan for and find solutions to

sustainable development challenges. The thematic areas to be addressed by ESD were identified by UNESCO (2005). They are multi- and interdisciplinary and, in addition to natural environmental issues, include social, economic and even political issues like poverty, gender health, peace, culture, human rights and ICTs. Besides developing understanding, awareness and the skills to cope with these issues among students, education is also tasked with improving access to quality education and re-orienting existing educational programmes (ibid).

According to UNESCO (2005), ESD is a new vision of education that seeks to empower people of all ages to assume responsibility for creating and enjoying a sustainable future. ESD is thus a lifelong learning process geared towards ensuring a conscious acceptance of the inter-connectedness of human beings and ecosystems. According to Ingrid and Yoshie (2006), ESD must begin in early childhood, as the values, attitudes, behaviours and skills acquired in this period may have a long-lasting impact in later life. Accordingly, both informal and basic education are important in the pursuit of ESD goals.

2.2 The role of universities in ESD

Universities are expected to be part of ESD the cause and are challenged to utilise 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 higher education 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 higher education have defined specific roles for universities to furthering ESD. The declarations include the 1977 Tbilisi Declaration, the Talloires Declaration (1990), the Kyoto Declaration1993, 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:

- **Moral obligation:** universities are morally bound to create change through preparing graduates to deal with environmental problems.
- **Public outreach:** universities should apply their knowledge in solving the problems of society in the communities in which they reside.
- **Sustainable physical operations:** greening the campus is considered a key component in becoming more sustainable.
- **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.
- **Develop interdisciplinary curricula:** subjects studied should show a link to the environment to help students become more environmentally literate.
- **Encourage sustainable research:** encourage research that contributes to local, regional and global sustainability.
- **Partnership with government, non-governmental organisations (NGOs) and industry:** this is an encouragement for coordination of efforts since the university cannot create social change on its own (at various levels).
- **Inter university cooperation:** this will facilitate sharing of information and cooperation in pursuit of practical solutions to the sustainability problem.
  (Wright, 2002, p. 214-218; Wright, 2004, p. 13-17).

The above defined roles are priority areas for universities wanting to be involved in sustainability in higher education. 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. Additional themes relevant to Africa which specify sustainability challenges to grapple with in the African context have also been identified by declarations developed in the developing world, that is, the Ubuntu and the Kasane declarations. The Ubuntu Declaration (2002) by the education and scientific organizations of the world (including Global Higher Education for Sustainability Partnership (GHESP[1]), UNESCO, IAU and the University Leaders for a Sustainable Future (ULSF[2]), etc) is very significant in its call for more emphasis on ESD globally (Clugston and Calder, 2002; Ubuntu Declaration, 2002). New thematic areas which emerged from the Ubuntu and Kasane declarations include issues of access and gender equity in education, equitable socio-economic development,

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[1] GHESP is no longer operational. Its term of operation expired at the end of 2007 (ULSF, 2002).
[2] The ULSF is also no longer as active as it used to be.

inequalities in knowledge, indigenous and contemporary knowledge systems, ICTs and teacher education (Ubuntu Declaration, 2002; UNEP 2006).

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, 2006). However, universities as centres for the creation and dissemination of knowledge (Tünnermann Bernheim and de Souza Chaui, 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, 2006).

In Africa, public universities continue to be budget-dependent on governments whereas budgetary contribution per capita is declining due to the increasing enrolment of students in higher education (Kariuki, 2009). Private HEIs have stepped in to supplement governments' efforts. However, some of them, especially for-profit HEIs, have become heavily 'commodified' wherein students are regarded as consumers and institutions as suppliers (Zeleza and Olukoshi, 2004). Profit motives rather than the general welfare of society inform the vision and mission statements of some of these private institutions, especially in countries with weak regulatory agencies. Kariuki (2009) notes that in some cases, private universities are organized and managed as purely business enterprises without focusing on the strategic importance of higher education in the context of sustainable development.

Despite these and other problems, universities have taken up the challenge to play a role in finding solutions to sustainable development challenges. In Africa, higher education remains the "pedagogy of hope" through which future opportunities and future successes can be achieved (Botman, 2009). Universities therefore have to be constantly assessed on their roles and expectations and be reminded, guided and assisted in addressing sustainable development. The following section discusses some of the initiatives that have been taken by universities to address environmental and sustainability issues.

2.3 Examples of ESD initiatives in some universities

Despite a lack of clarity on how to engage in ESD, universities worldwide have been using different approaches to try and implement sustainable development practices. While a number of initiatives were identified, for example curriculum changes or re-orientation, introducing new teaching methodologies and involving students in action oriented sustainable development research; the most common approach is the use of international standards for industries (International Organisation for Standardisation (ISO) 14001 and the Eco-Management and Audit Scheme).

The list below captures the actions taken by a few universities to respond to calls for ESD.

- Swedish universities: use of Environmental Management Systems (EMS) (Arvidsson, 2004)

- The University of Glamorgan in Wales: developed an Environmental Policy, implemented Environmental Impact Assessment and developed an environmental management programme (Price, 2005).

- The University of Applied Sciences in Germany: use of EMS, offers a Diploma in Ecology and Environmental Protection and all the students (about 30-40 per year on average) engage in all the Eco-Management and Audit Scheme steps through practical training and projects. The university is involved in research in alternative sources of energy, techniques for emission reduction, efficient use of energy and resources and chemistry in power plants (Delakowitz and Hoffman, 2000).

- Spanish universities: redefined their studies through the ACES (Curriculum Greening of Higher Education, acronym in Spanish) Network Project. The ACES Model orientates teaching methodologies and brings to light the aspects required in innovating the university curriculum (Geli and Leal Filho, 2006).

EMSs provide universities with the opportunity to practice what they teach (Nicolaides, 2006) and they do contribute to environmental sustainability. Though (Price, 2005) argue that lack of a sense of responsibility and incentives negatively affect implementation of EMS at universities, however, compared to other university functions, it may be easier to target campus environmental management than implement environmental/sustainability initiatives in other functions. Most of such initiatives are oriented towards environmental rather that sustainability issues (Clugston and Calder, cited by Shriberg, 2002).

It is interesting to note that internationally, HEIs are increasingly developing master's programmes in sustainable development. This was revealed through a study which investigated best practice models of master's degrees in sustainability sciences. Examples of such programmes are captured in table 2.1.

Table 2.1 Examples of masters' degrees in sustainability sciences

University	Programme	Multi- and inter-disciplinarity
Columbia University, New York, USA	Master of Science in Sustainability Management	Focuses on the economic, policy, ecological, planning, engineering aspects of the environment and complex interactions between natural and social systems
EOI Business school, Spain	International Master in Sustainable Development and Corporate Responsibility	Programme aimed at teaching student to integrate economic, social and environmental perspectives into the business development strategy and generate value for society.
Ramapo College, New Jersey (Proposed for 2009-2010), USA	Master of Arts in Sustainability Studies	Topics: biophysical/human dynamics, the built environment, organizational/social processes, application of knowledge of sustainability in realms of civil society, government, and business etc.
UNEP TONGJI Institute of Environment for Sustainable Development, China	Master's Programme in Environmental Management and Sustainable Development	A multi-disciplinary focus on history and culture, environmental sociology, environmental management and policy, environmental science, global environmental changes etc.
Utrecht University, the Netherlands	Joint International Master's Programme in Sustainable Development	Unique multidisciplinary approach combining natural and social sciences. Students from different tracks work together in multidisciplinary research
University of Queensland, Australia	Master of Sustainability Science	Interdisciplinary with a focus on environmental politics and policy, conservation, society, democracy, economics, corporate environmental management, environmental law, crisis management, etc.
University of Tokyo, Japan	Master of Sustainability Science: the Graduate Program in Sustainability Science	Students encouraged to address complex sustainability problems through transdisciplinary research. Courses are from a wide range of academic fields, spanning the humanities and sciences and include business and industrial oriented courses, socio-economic, policy, ecological, holistic thinking, bio engineering issues etc.
Stockholm Resilience Centre, Sweden	Master's in Sustainable Enterprising	Transdisciplinary coursework and projects using knowledge and tools from social and environmental sciences. Includes: resilience, environmental law, change management, social responsibility, governance issues, etc.

Source: Adapted from Togo (2010b).

Development of sustainability programmes show that universities are not only focussing on environmental management but on other university functions like teaching and research in implementing sustainability practices. Unlike EMSs which are more of environmental rather

than sustainability initiatives, the main focus of the programmes are sustainable development issues. Both the teaching and research components of the programmes are multi- and interdisciplinary and address issues at the interface of ecological and socio-economic environments. Discussed initiatives are only meant to illustrate some of the sustainability practices in universities but do not get close to representing the typology of initiatives currently existing in universities.

2.3.2 The African experience

African universities are faced by complex sustainable development challenges that range from environmental, social, economic and political challenges (a number of these were outlined in chapter 1). With a history of colonialism, universities in most countries are also faced with the challenge of re-designing education systems inherited from the colonial period to that which is relevant in their social structures (Assié-Lumumba, 2006).

While there has not been a comprehensive study to investigate sustainability practices in higher education in Africa before this one, many universities in the continent offer a variety of degrees in sustainability sciences (Togo, 2010a). Many are also engaged in community engagement initiatives and campus operational management practices that promote sustainable development. Recently, a UNEP initiated programme called Mainstreaming Environment and Sustainability in African (MESA) Universities Partnership (2004) is helping universities in Africa to mainstream sustainability. The programme, due to be completed in 2014, has achieved a number of significant sustainability outcomes in participating universities. Table 2.2 is an outline of a few initiatives in African universities implementing sustainability with the support of the programme. Note that all these initiatives had been implemented by end of 2008, about 4 years after the programme was founded.

Table 2.2 Some of the achievements by the MESA Universities Partnership

University	Sustainability initiatives
Egerton University, Kenya	• Development of a Masters Degree in Environmental Science based on UNEP MESA material • Expansion of the botanical garden • Establishment of an environmental week
Mekelle University, Egypt	• Inclusion of a chapter on sustainable development in all courses in the department of land resources • Tree planting with the land resource management and environmental protection and environmental club to raise student awareness on environmental issues
University of Buea, Cameroon	• Establishing a national network with other universities for ESD • Establishing a regional network with universities in Chad, Central African Republic, Gabon and Republic of Congo for ESD training • Utilising adapted case studies to consider ways of integrating sustainability into various degree programmes • On-going revision of existing university syllabi to include ESD
Universities of Abomey-Calavi (Benin), Abobo-Adjame, Cocody (Cote d'Ivore), Ouagadougou, International Institute of Environmental and Water Engineering (Burkino Faso) and the School of Technology (Cameroon)	• The universities, working through a partnership approach, have developed a four credit course entitled Sustainable Development, Environmental Education and Ecosystem Approach to human health at Masters Degree level. • A research action project has also been established on domestic waste management involving decision-makers, researchers, civil society and municipalities.
The University of Mauritius, Mauritius	• Researching sustainable technologies for composting paper waste and also for providing more sustainable energy resources for Mauritius. • Development of a General Environmental Management module for all students
University of Botswana, Botswana	• Introducing a Masters Degree in Environmental and Sustainability Education.
Zanzibar University, Tanzania	• Introducing a module on sustainable development into the Development Studies curriculum • Reorienting the law curriculum to integrate community issues relevant to sustainable development.
Obafemi Awolowo University, Nigeria	• Sustainable development issues are being mainstreamed into four programmes in the Humanities namely Religious Studies, Philosophy, History and Sociology. • Also introducing concepts of campus stewardship, and community service initiatives that address environmental sustainability issues.

Source: UNEP (2008, pp 31 and 40).

By 2008, the programme had about 77 universities participating from more than 40 countries (UNEP, 2008). The examples are therefore only meant to be illustrative; much more sustainability work by the MESA Universities Partnership is taking place throughout universities in the continent. Most of the initiatives resulting from the MESA Universities Partnership started taking place in the work context of individual members who were participating in the programme. A study was carried out (Togo, 2009a) to inform the adoption of a holistic and systems approach in sustainability mainstreaming so as to make it a university-wide initiative in participating institutions. Outputs from that research are already

informing adoption of sustainability practices in universities which are participating in the partnership programme.

This report documents the research methods and findings of the first major study to investigate sustainable development practices in African HEIs. Chapters coming after this one describe the research process and the findings.

Chapter 3. Methodology

3.1 Research design

The GUNi-IAU-AAU collaborative sustainable development in higher education research was designed as an empirical study intended to gain an impression of the main sustainable development practices in higher education institutions in sub-Saharan Africa. The study was empirical in the sense that it relied on expert information as professed by people who observe the occurrences or information sought by the research as part of their day to day work experience. In addition, it was basically designed to gather evidence of sustainability initiatives with most of the data gathered answering the what, where and when questions. Depth was sometimes sought in some questions which required respondents, in addition to identifying sustainability practices, to provide more information on the practice, especially the extent to which the practice is implemented (see Appendix 1A for the questionnaire that was used in the survey). The survey questionnaire builds on the work undertaken by the Association of University Leaders for a Sustainable Future (ULSF) in the same field (see www.ulsf.org/).

The research was structured as a descriptive study. It was aimed at establishing an overview of sustainability practices in higher education in sub-Saharan Africa. The questionnaire, which was the main data collecting tool in the survey, was designed as a qualitative questionnaire to establish the extent of implementation of sustainability initiatives. Due to emphasis on the degree to which initiatives were implemented, the questionnaire was designed in such a way that respondents could choose their responses from either a list of categories or ordered response levels. Some questions also had 'yes' or 'no' response options. This resulted in the generation of numerical data representing these qualitative responses.

3.2 Scope of the study

This study was conducted in universities in sub-Saharan Africa. In line with the concept of holism, it was intended to cover as many universities in the sub-region as possible. Without engaging any meticulous criteria in selecting respondents, a total of 498 institutions from 41 sub-Saharan African countries were invited to participate in the study. This invitation was made to officially recognised HEIs, including public, private not-for-profit and private for-profit institutions. They were sent an invitation letter which contained information on how to

complete the questionnaire. One hundred and fourteen (114) institutions showed their interest in responding to the survey and 73 institutions from 23 countries (14.7% of the total number of institutions invited) participated by partially or fully responding to the questionnaire. All the institutions which completed the questionnaire automatically formed part of the study.

Figure 3.1 shows the number of responding institutions in each country while Appendix 2 outlines the names of the institutions, their countries, medium of communication and the proportion of the questionnaire each of the institutions completed.
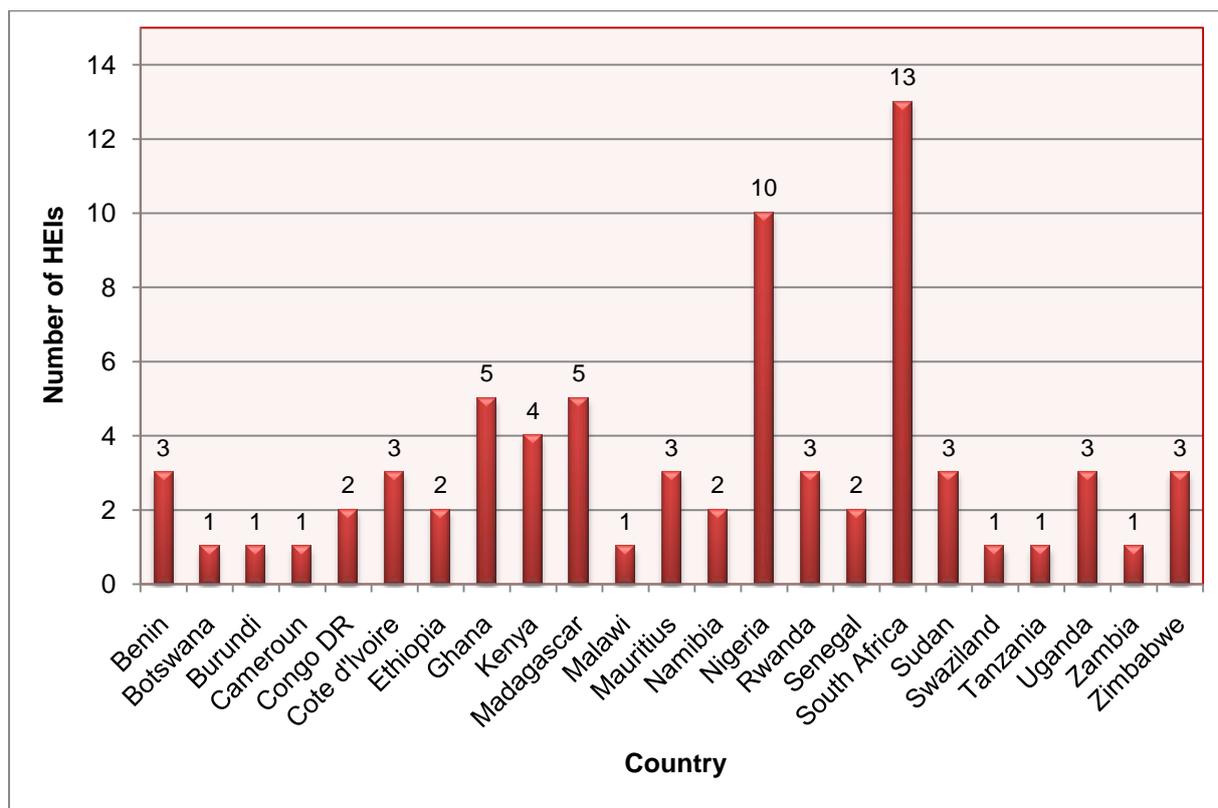
Figure 3.1 Number of responding institutions in each country

As mentioned above, out of the 73 institutions which responded, some only partially completed the questionnaire. This was however expected and the introduction to the questionnaire made it clear that hardly any institution would be able to demonstrate high integration of sustainability in all or even in the majority of areas being surveyed. However, 74% of the 73 respondents completed 70% or more of the questionnaire while only 8.0% of institutions did not complete 50.0% or more of the questionnaire (see Figure 3.2). It is worth mentioning also that a 'no' answer to some sections was marked as a 100% response while

a 'yes' answer without proceeding to answer follow-up sub-questions would not attain the full 100% mark for the institution for that particular section.
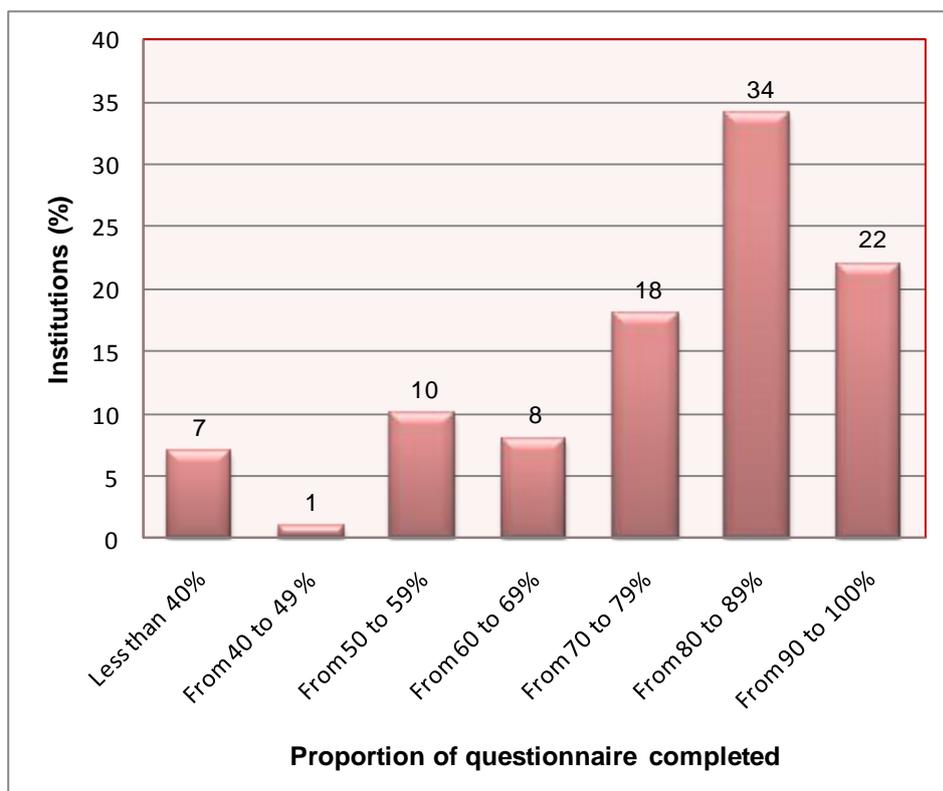
Figure 3.2 The extent to which institutions completed the questionnaire

From the above discussion, the major limitation of the study is a result of the fact that out of the institutions invited to participate (498), most (85.4%) did not respond to the survey, in spite of repeated reminders. As a result, it was not possible to obtain comprehensive and complete data on sustainability in HEIs in sub-Saharan Africa.

3.3 Data collection techniques

Both primary and secondary data are presented in this report. Secondary data were sourced from literary works to provide a context to the study and to discuss relevant methodological and theoretical vantage points. Secondary data also supports analysis of data in various sections of the report. These are all duly acknowledged in the reference section of this report. Primary data was collected through the online questionnaire developed for the purpose of this study. While universities could complete the questionnaire online, to facilitate participation, there was an option for universities to send responses by fax or by email.

The questionnaire was in two languages, that is, English and French. The questionnaire was circulated accompanied by an introductory letter from the three collaborating organisations (GUNi, IAU and AAU) on the purpose of the survey as well as the definitions of the concepts of sustainable development, sustainability and education for sustainable development (Appendix 1B). The design and focus of the questionnaire was based on a holistic approach and on the understanding that academic institutions vary considerably in how they approach sustainability. Some concentrate on minimising their ecological impact through changes in operations; others emphasise sustainability in the curriculum; yet others concentrate on university outreach and/or embed sustainable development principles in their overall development strategy. Given this diversity, the Survey Questionnaire was designed to help HEIs assess the extent to which each institution incorporates sustainable development in the following areas:

- Institutional governance,
- Curriculum: teaching and learning;
- Research,
- Campus operations, and
- Outreach and services.

Most of the data sought by the questionnaire were meant to establish the existence of sustainability practices in various operations of the university. The questionnaire was also designed to collect respondents' impression and institutions' accomplishments in achieving sustainability in each of the five critical dimensions mentioned before. Responding to the questionnaire was expected to take a few hours, and it was suggested to institutions that it would be best if the study was carried out in two or more sessions.

Most of the questions were closed questions with categorized responses from which respondents would choose the most appropriate category. Some questions sought for 'yes' or 'no' answers while for others, respondents were expected to rate the performance of the institution in particular sustainability practices. Different rating scales were used to get an appreciation of, for example, the extent of university engagement with a particular sustainability practice. Examples of rating scales used are:

- 0 (don't know); 1 (not at all); 2 (a little); 3 (quite a bit); and 4 (a great deal),
- 0 (poor); 1 (average); 2 (good); 3 (very good) and 4 (excellent).

3.4 Assumptions

Some of the variables sought by the questionnaire are assumed to have an influence on the commitment of an institution to sustainable development or its adoption of sustainability initiatives. These include age, size and type of institution and leadership commitment to sustainable development. One assumption is that the bigger (size) the institution the more likely it will pursue sustainability issues. While university physical operations are known to have an impact on the environment (Sterling, 2004), larger institutions are likely to have greater impacts which might influence the decision by university managers to pursue sustainable options. The other assumption is based on the fact that institutions established during the colonial period in Africa (as discussed in section 2.3.2: The African experience) responded more to the needs of colonial masters than those of the communities in which they are located (Assié-Lumumba, 2006). As no literature was identified which establishes the relationship between age of universities and commitment to sustainable development, it will be interesting to see if these old African universities are taking initiative to pursue sustainability. It is assumed that these institutions are more inclined to pursue sustainability as they need to re-orient their education and to make it more relevant to today's challenges. Similarly, not-for-profit institutions are assumed to be more likely to engage in sustainable development as compared to for-profit institutions. This assumption is based on the postulation that for-profit institutions are income driven and therefore more likely to engage in profit generating ventures/projects compared to sustainable development ventures. Leadership commitment to sustainability was also used because it is considered an important factor that can influence change. "Without leadership, there is no commitment to change, and little chance of shifting institutional culture, of creating a sense of urgency, or of mobilizing key stakeholders" (Association of Commonwealth Universities (ACU), 2002). The assumption is that the higher the leadership commitment to sustainability, the greater the existence of sustainable development initiatives/projects within an institution.

3.5 Validity issues

The study pro-actively addressed validity issues during data collection by suggesting the appointment of Institutional Response Teams (IRTs) to respond to the questionnaire. These were supposed to be comprising of personnel with adequate knowledge and information on the dimensions being probed. This was meant to ensure consensus as well as stimulate discussion among key stakeholders in each HEI. It was also suggested that institutions appoint a Coordinator for all the IRTs. The Coordinator would be responsible for

consolidating all the responses into a single document before returning the completed questionnaire.

3.6 Data presentation and analysis

As mentioned earlier, closed questions were mostly used and responses were either a choice from among categorised answers or were in form of a rate which represents the extent of implementation of a practice. This resulted in use of figures to represent narrative responses. This made it possible for data to be entered into a statistical package in preparation for data analysis. The Statistical Package for Social Sciences (SPSS) software was used. This enabled presentation of data in form of frequency tables, graphs and pie charts. A few of these graphs and charts were also constructed using excel. The organisation of the data followed the 5 major operational dimensions of universities identified in the questionnaire.

In developing explanations, induction which takes place at the empirical level of experienced events was used. Induction facilitated generation of themes/conclusions regarding major sustainability practices and levels of integration of sustainability in the functions of the university. A trend analysis was performed to determine how different variables (e.g. size of institution, year of establishment) were influencing the extent to which sustainability practices were being implemented.

Data analysis was also informed by systems philosophy. This allows for understanding university-based educational functions in relation to, for example, sustainable development (socio-economic and ecological) needs in the environment in which education is embedded. The data was recontextualised within current sustainability challenges facing the African continent and the role of universities defined through sustainability declarations in higher education. This enabled an understanding of sustainability practices and the processes in universities in relation to the broader environment in which they are situated.

4.1 Introduction

This chapter presents and explains data from the online survey on sustainable development practices in higher education institutions in Africa. It merely reports on facts that are being analysed further on (see chapter 6 for the discussion). As explained under methodology in chapter 3, the age, size and commitment of institutional leaders to sustainability were used in some instances as moderating variables to test some hypotheses. These variables are presented in the following section entitled 'Profile of participating institutions'. This is then followed by results on the five thematic areas explored by the study.

4.2 Profile of participating institutions

4.2.1 Age and types of responding institutions and language of instruction

Among the responding institutions, 50 out of a total of 73 (68.5%) were public institutions; 16 (21.9%) were private not-for-profit HEIs; 5 (6.8%) were private for-profit institutions; and 2 (2.7%) were not indicated (see Figure 4.1).
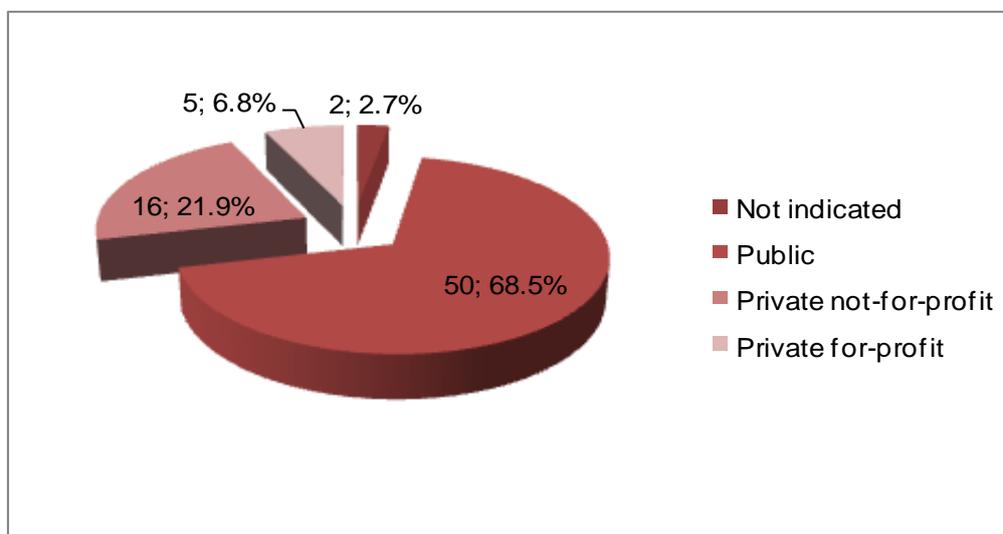
Figure 4.1 Types of responding institutions

In the online survey, the age of an institution was defined as the year of establishment. From Figure 4.2, 5 (6.8%) of the institutions in the survey were established in or before 1960 while 16 (21.9%) were established after 2000. The highest proportion of responding institutions

were those established between 1991 and 2000 (24 institutions) which accounted for 32.9% of the total. While public institutions were established as early as the 1960s, many of them (24 out of 50) were established after 1990. Most private institutions were established after 1980 (except for 2 which were established earlier). Two of the private higher education institutions did not however indicate their years of establishment (see Figure 4.2).
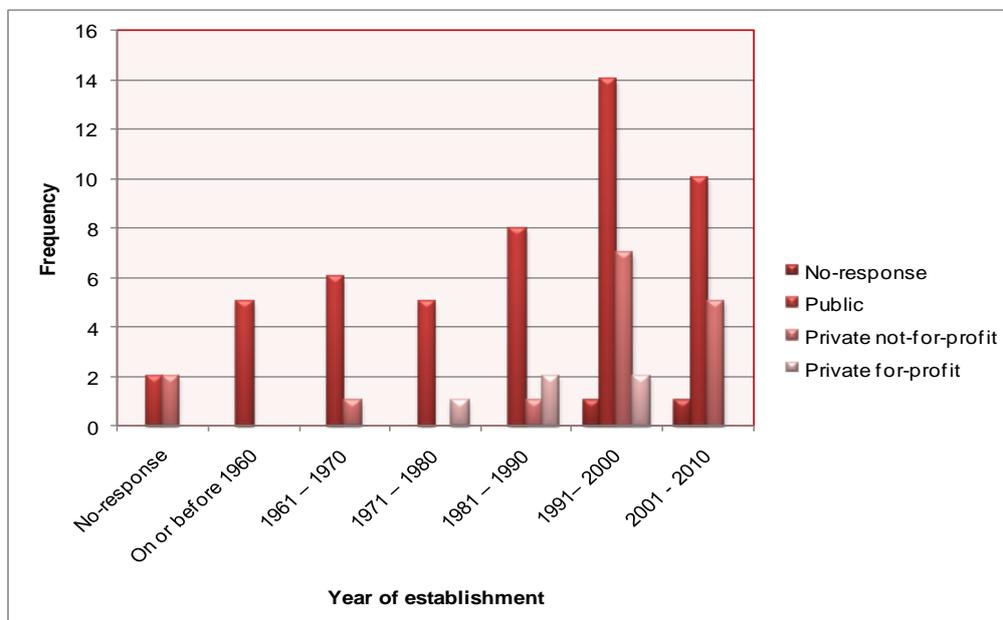
Figure 4.2 Age and types of responding institutions

Eighteen (24.7%) of the responding institutions use French as the medium of instruction. The rest (75.3) used English (see Figure 4.3).
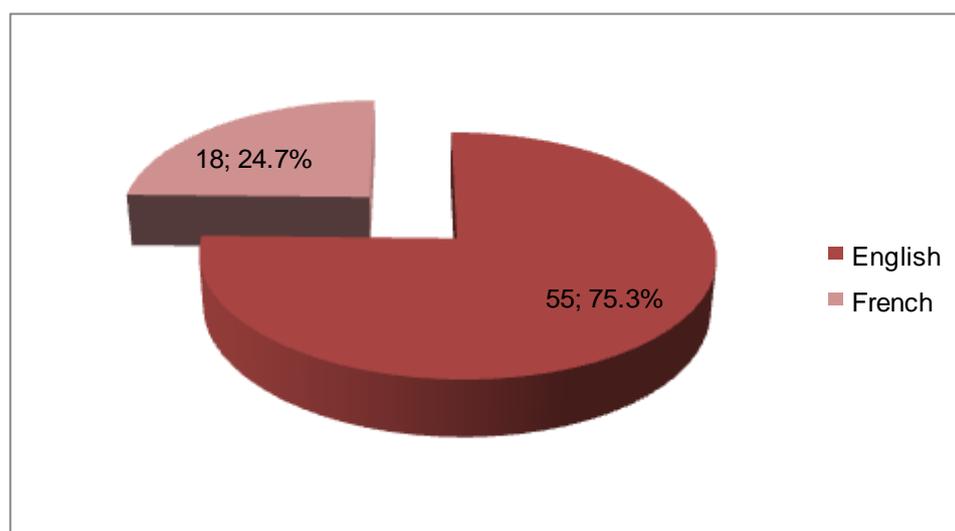
Figure 4.3 Language of instruction

4.2.3 Sizes of responding institutions

According to Figure 4.4 (below), a little more than half (52.1%) of responding institutions had a student enrolment of between 1001 and 10,000. The relatively larger institutions (with population of more than 10,000) accounted for 28.7% of responding institutions.
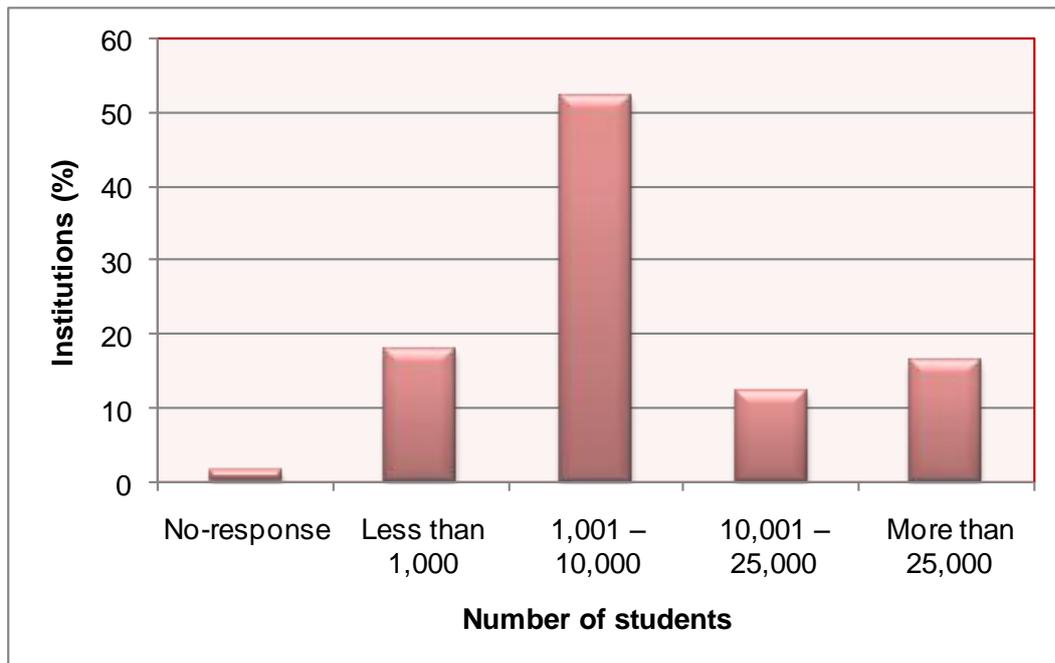
Figure 4.4 Sizes of responding institutions

4.2.4 Degrees offered in responding institutions

Slightly more than half of the responding institutions offer a range of programmes from undergraduate level (certificates, diplomas or bachelors) to Doctor of Philosophy (PhD) level (50,7%), while 28.8% offer programmes ranging from bachelors to masters degree level. Very few have either undergraduate programmes only (8.2%) or postgraduate programmes only (2.8%) (Table 4.1).

Table 4.1 Degrees offered by responding institutions

Degrees offered	Frequency	Percent
Bachelors and other Certificates	6	8.2
Postgraduate Diplomas	3	4.1
Diplomas and Certificates only	1	1.4
Bachelors - Masters	21	28.8
Bachelors - PhD	37	50.7
Bachelors, Postgrad. Diplomas and PhD	3	4.1
Postgrad. Diplomas, Masters and other certificates	1	1.4
Masters, PhD and other certificates	1	1.4
Total	73	100.0

4.3 Mission, Strategic Planning, Governance & Administration

This section covers policy documentation on and practical demonstration of sustainability issues in institutions. The responses given by institutions are categorised and presented below.

4.3.1 Stand-alone sustainable development strategy/plan

Among the responding institutions, 46.6% have stand-alone sustainable development strategies while 28% do not (see: Figure 4.5 below). The rest either did not respond or the respondents did not know if their institutions had such strategies.
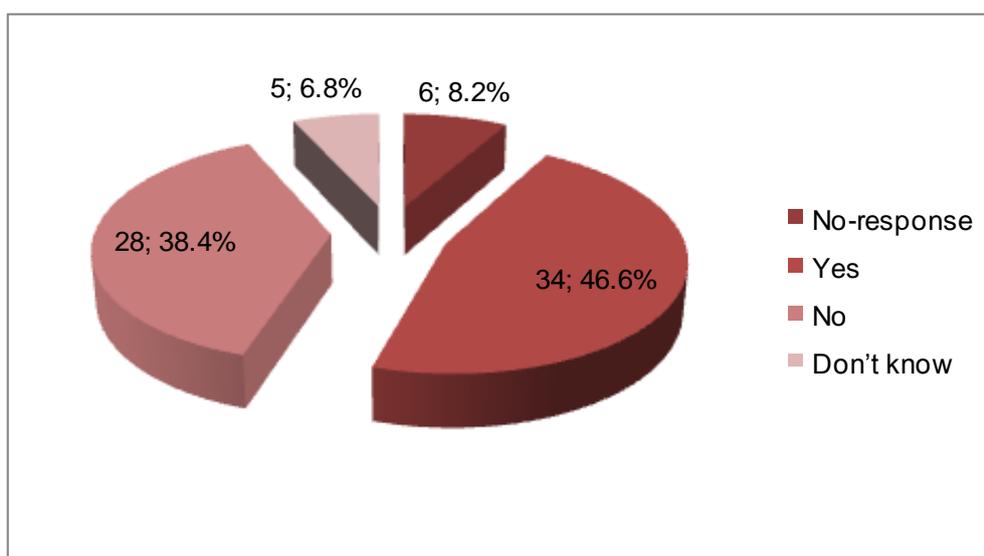
Figure 4.5 Availability of stand-alone sustainable development strategy in institutions

To establish whether there is a relationship between sizes of institutions and commitment to sustainable development, data on availability of stand-alone sustainable development strategies were plotted against size of institution. The results show the existence of more stand-alone sustainable development strategies in smaller HEIs (with enrolment of up to 10,000) compared to the bigger ones (Figure 4.6). This finding negates the assumption hypothesised in chapter 3 (section 3.4) that the bigger the institution the more likely it will pursue sustainable development practices.
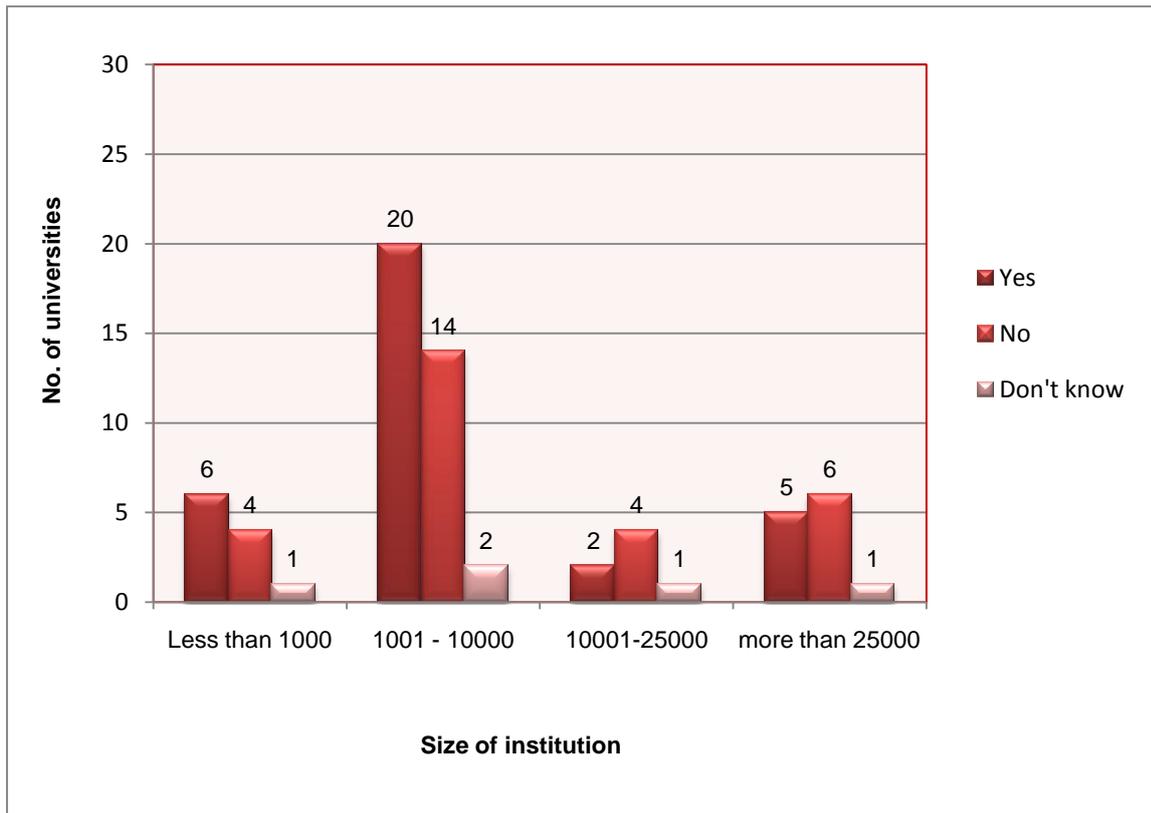
Figure 4.6 Size of institution versus availbaility of sustainability strategy/plan

4.3.2 Reflection of commitment to sustainable development in formal written statements

IRTs rated the extent to which their institutions' written formal statements reflected commitment to sustainability issues in three institutional structures, namely, the institution as a whole, the colleges/schools or divisions and other units or departments within the institutions. The rating scale ranged from 0-4 as follows: 0 (don't know); 1 (not at all); 2 (a little); 3 (quite a bit); and 4 (a great deal). Table 4.2 summarises the results.

Table 4.2 Commitment to sustainable development in written institutional documents

Organisation	Policy document	Annual report	Brochure	Catalogue	Other
The institution as a whole	3	3	2	2	1
College/school or division	3	3	2	2	2
Other units/departments within the institution	3	3	3	2	2

Out of 50 public institutions, 60% had formal policies which showed substantial commitment to sustainable development (either quite a bit or a great deal). Similarly, private not-for-profit institutions also showed high commitment (62.5%) to sustainable development. However, none of the 5 private for-profit institutions stated that sustainable development features a great deal in their policies (see Table 4.2). This observation confirms the assumption that for profit institutions are less likely to pursue sustainable development (see section 3.4).

Table 4.3 Type of institution by commitment to sustainable development in formal policies

Type of institution	Sustainable development in formal institutional policy						
	Not indicated	Don't know	Not at all	A little	Quite a bit	A great deal	Total
Not indicated	0	0	1	0	1	0	2
	.0%	.0%	50.0%	.0%	50.0%	.0%	100.0%
Public	6	1	8	5	9	21	50
	12.0%	2.0%	16.0%	10.0%	18.0%	42.0%	100.0%
Private not-for-profit	3	0	0	3	4	6	16
	18.8%	.0%	.0%	18.8%	25.0%	37.5%	100.0%
Private for-profit	0	0	2	1	2	0	5
	.0%	.0%	40.0%	20.0%	40.0%	.0%	100.0%
Total	9	1	11	9	16	27	73
	12.3%	1.4%	15.1%	12.3%	21.9%	37.0%	100.0%

4.3.3 Positions/Committees/Structures reinforcing institutional commitment to ESD

There were 61 responses to the question on existence of positions, committees and/or structures to reinforce commitment to ESD in institutions. Most institutions have an institutional research agenda on sustainable development (60%). In descending order, this was followed by socially and environmentally responsible investment practices and policies (42.6%); Sustainable Development Coordinator (39.3%); Dean of Environmental Programmes or Director of Sustainability Programmes (39.3%); Environmental Council/Sustainable Development Task Force (37.7%); and orientation programmes on

sustainability for faculty and staff (36%). The rest of the structures were in less than 20% of surveyed universities (Figure 4.7).
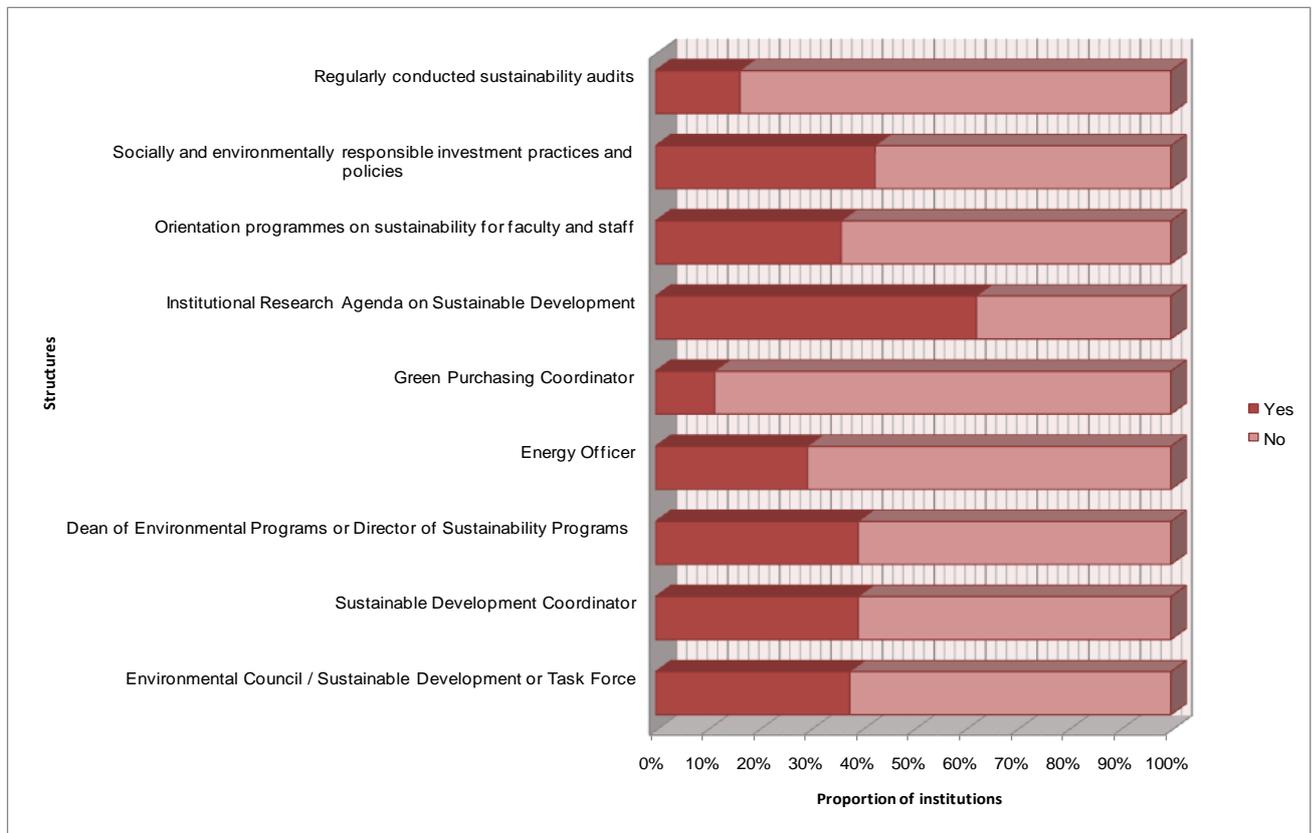
Figure 4.7 Positions/Committees/Structures reinforcing ESD

4.3.4 Established multidisciplinary and interdisciplinary structures for research, education and policy development on sustainability issues

According to Naituli and Kronlid (2009) and Vosskump (1986), interdisciplinarity is important in ESD as it enables a shift from scientific specialisation to dialogue between the disciplines. From the survey, 44 institutions (60.3%) responded positively to having multi- and interdisciplinary structures for research, education and policy development on sustainability issues (Figure 4.8).
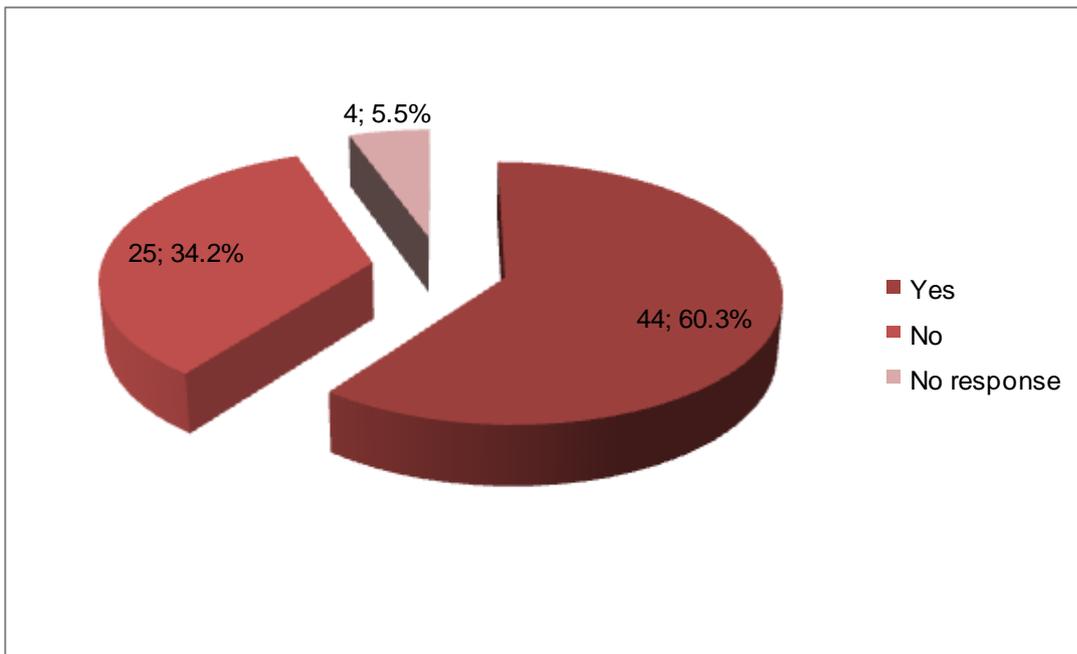
Figure 4.8 Availability of multi- and interdisciplinary sustainable development structures

When the relationship between type of institution and availability of sustainable development structure was sought, it was established that a higher proportion of public and private not-for-profit institutions have multi- and interdisciplinary structures. Among the surveyed public institutions, only about a third did not have such structures. However, in private for-profit HEIs, most institutions did not have multi- and interdisciplinary structures. This further confirms the assumption that not-for profit institutions are more likely to adopt sustainable development compared to for-profit universities.

4.3.5 Level of commitment of leaders to sustainability issues

The level of commitment of leaders within universities to sustainable development activities was ranked on a scale from 0 (don't know); 1 (none) to 4 (a great deal). Average ratings for different categories of leaders ranged from 2 (a little) to 3 (quite a bit) (see Figure 4.9).
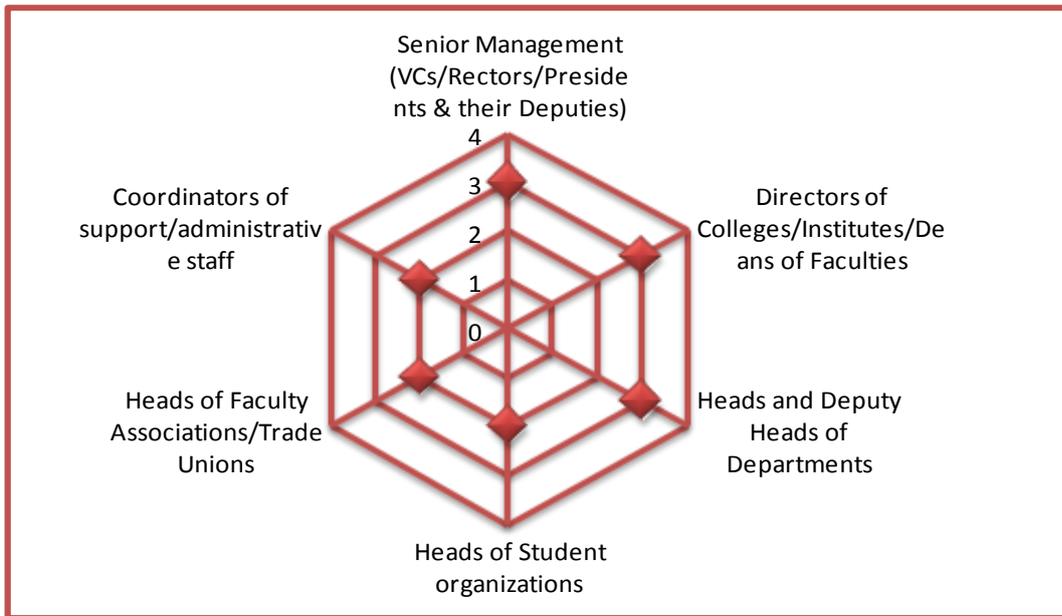
Figure 4.9 Commitment of different clusters of HEI leaders to sustainability and sustainable development issues

A positive relationship was established between level of management commitment to sustainable development and the establishment of multi- and interdisciplinary structures on sustainable development. Higher levels of management commitment were associated with the existence of more multi-and interdisciplinary structures. This corroborates with the assumption made earlier (see section 3.4) that higher levels of institutional commitment can positively influence the adoption of sustainable development initiatives in institutions.

4.3.6 Key events over the past year that show HEIs concern for, and commitment to, sustainability

Responses on key past events that show concern for sustainability were from a total of 48 institutions. The institutions identified 117 events that showed their institutions' commitment to sustainability issues. These events included conferences; sensitization activities; courses; research projects; workshops; training programmes; capacity building programmes; seminars; debates; lectures; environment days; and clean up campaigns.

Some of these events focused on the promotion of peace; discussions on waste management, the effects of climate change, the importance of biodiversity, energy, water management reforestation, depletion of natural resources and health topics. The main outcomes achieved through these events include an increase in publications; promotion of

partnerships with other institutions; better levels of awareness of sustainable development topics among students and the local community in general; development of education programmes; technology innovations; community development; prevention of diseases; the establishment of green funds; the design of guidelines procedures; and the identification of trends and means to accelerate the achievement of the MDGs.

4.3.7 Institution's overall communication/public awareness strategy on sustainability and sustainable development

In terms of communication and public awareness strategies on sustainable development, most institutions (more than 60%) were rated as having either average (31.5%) or good (30.1%) strategies. Very few strategies (in 5.5% of responding institutions) were rated as excellent. These results are presented in Figure 4.10.
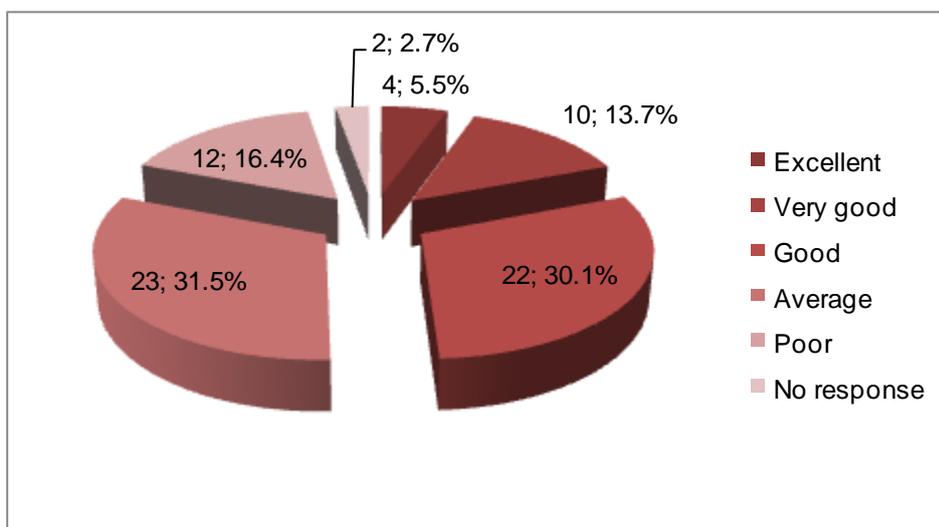
Figure 4.10 Communication strategies on sustainable development

4.3.8 Economic, material and infrastructure support for sustainability projects/activities

All institutions except 1 responded to the question on support for sustainability projects/activities. Figure 4.11 shows that half of the responding institutions did not receive any support for sustainable development projects or activities.
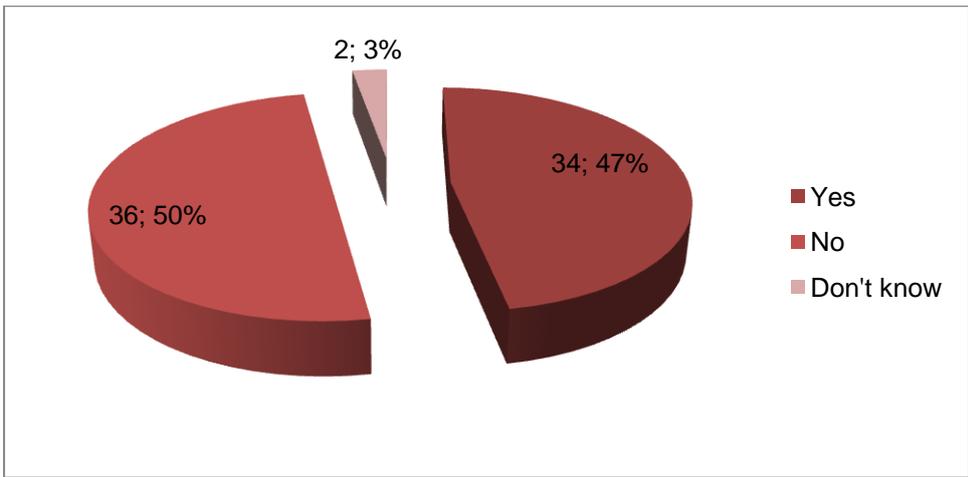
Figure 4.11 Support for sustainable development activities

With the understanding that senior university leaders are institutions' chief finance officers and are important in institutional policy-making processes, the study investigated the relationship between leaders' commitment to sustainability issues and receipt of support for sustainable development activities at their institutions. The results showed that institutions with leaders who were rated as having either 'quite a bit' or 'a great deal' of commitment to sustainable development issues were the only ones that received support for sustainable development activities.

4.3.9 Support for sustainable development activities

There were no responses from over 60% of the 73 institutions on the question of type of support received for sustainable development activities. However, of the few that responded, financial assistance in various forms was the most frequent response (Figure 4.12).
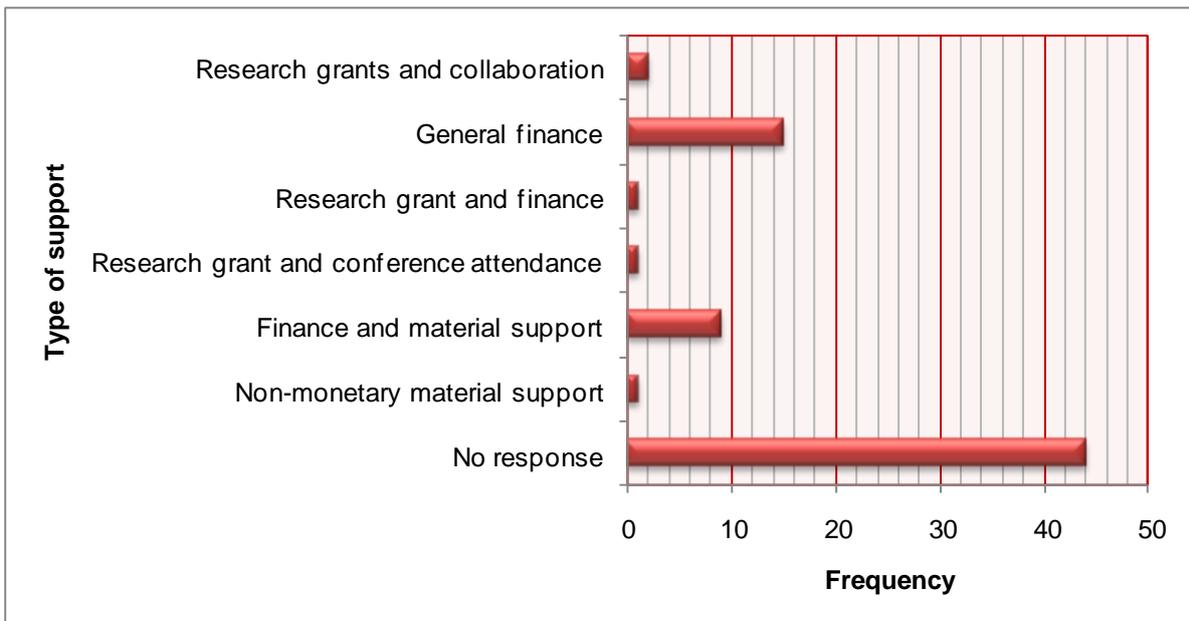
Figure 4.12 Type of support received for sustainable development activities

The average financial support for sustainable development activities received in 32 institutions over the past 5 years was indicated. As shown in Figure 4.13, 10 received less than $20 000, 4 received an average of $20 000 - $ 50 000 while 10 received between $50 001 and $200 000 on average per year. Only 8 received support in excess of $200 000.
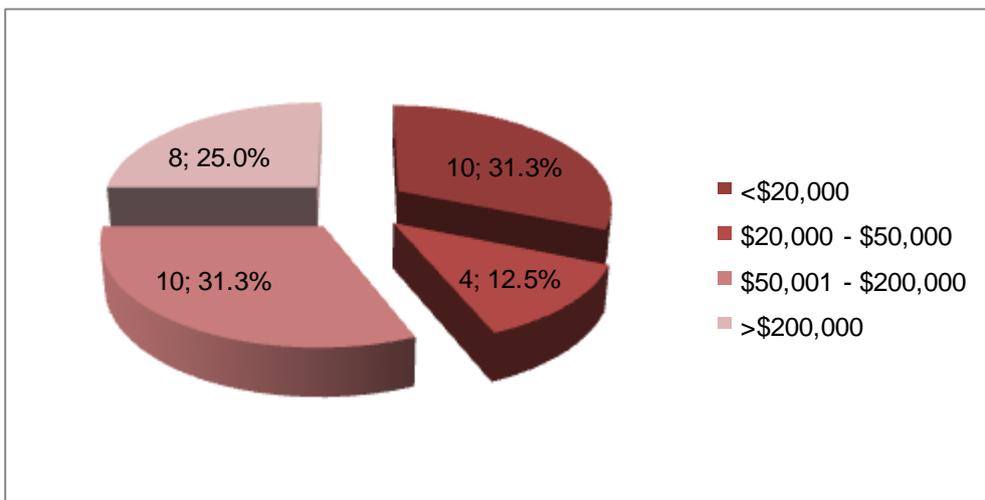
Figure 4.13 Average annual financial support for sustainable development-related activities over the past 5 years

The assumption that larger institutions showed more commitment to sustainable development issues was proven wrong in terms of funding as there was no relationship

between size of institution and amount of funds allocated for sustainability activities. Funding for sustainability initiatives in big and small institutions alike ranged from as low as less than $20 000 per year to over $200 000. Funding for sustainable development activities in these institutions is received from various sources but mainly from development partners and foundations, Governments, the private sector and the university's internally generated funds.

4.3.10 Development of sustainability partnerships

Figure 4.14 shows that over 60% of the surveyed responding institutions have established some form of partnerships. The partners include other universities and institutes, governmental agencies, national governments, international associations, research centres, corporations, foundations, etc. They are either from other African nations or from outside the continent, especially Europe.
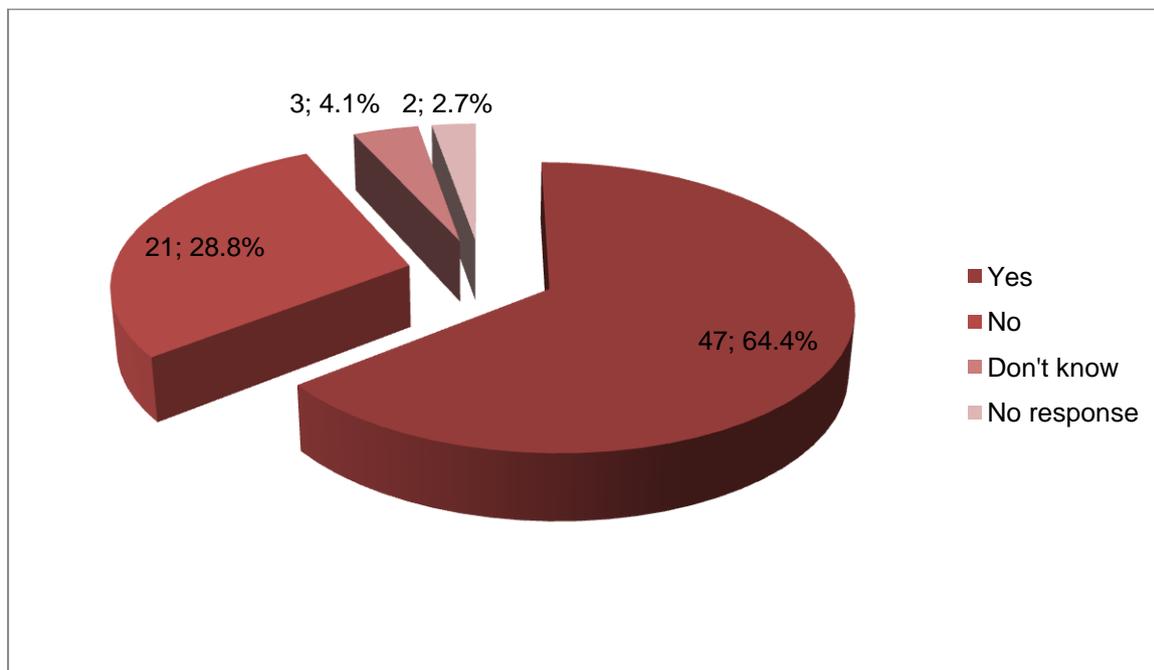
Figure 4.14 Development of partnerships for internal projects

A total of 111 projects were listed by respondents as products of these partnerships. These include education programmes; capability projects to develop leadership in sustainable development; staff and student exchange; research projects; improvement of institutional facilities; library capacity building; resources management; waste management; strategies to support communities on topics of gender, peace, health and early childhood; issues of climate change; renewable energy projects; and cultural promotion, among others.

The Brundtland Report identified three principles of sustainable development, namely environment, equity and growth. The Brundtland Commission's notion of sustainability was about changing the quality of growth to make it less materialistic, less energy-intensive and more equitable in order to meet essential human needs (World Commission on Environment and Development (WCED), 1987). Specific issues of environmental sustainability were outlined to establish to what extent HEIs were promoting them. IRTs rated the performance of their institutions using scores ranging from 0-4; 0 (don't know); 1 (not at all); 2 (a little); 3 (quite a bit); and 4 (a great deal). Across all the identified sustainability practices average scores for all the institutions ranged from 1 to 2 (see Figure 4.15).
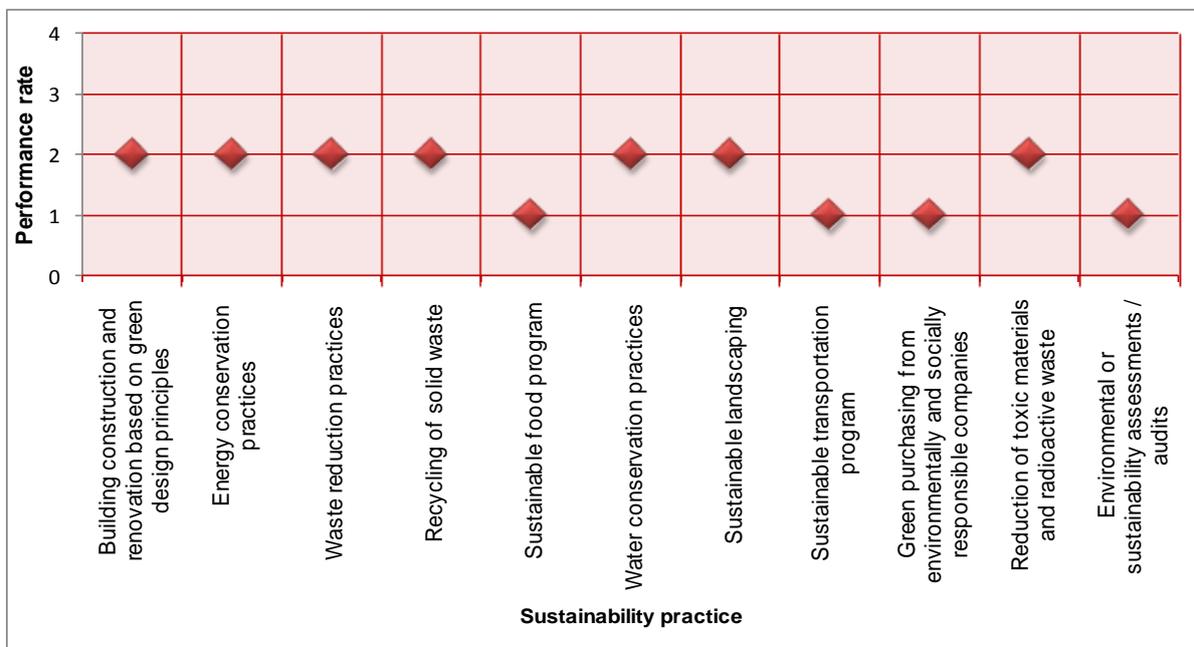
Figure 4.15 Institutional commitment to specific sustainable development practices on campus/Campus operations

Even though institutional commitment to specific sustainability practices was rated to be low as in figure 4.6, institutions had plans to pursue some of these practices in future. In descending order, frequently identified practices for future action include energy conservation initiatives (identified in 54 institutions); developing new strategic plans with a strong sustainability component (48 institutions); developing compulsory courses in sustainability (32 institutions); and developing sustainable food programmes (20 institutions).

4.4.1 Integration of sustainability in traditional education disciplines

Asked to indicate the extent to which sustainability issues were woven into traditional disciplinary education, responses from 69 institutions showed that sustainable development issues have been fairly woven into all the traditional disciplines. Those that have done so 'quite a bit' and a 'great deal' are mostly in the social sciences (Figure 4.16).
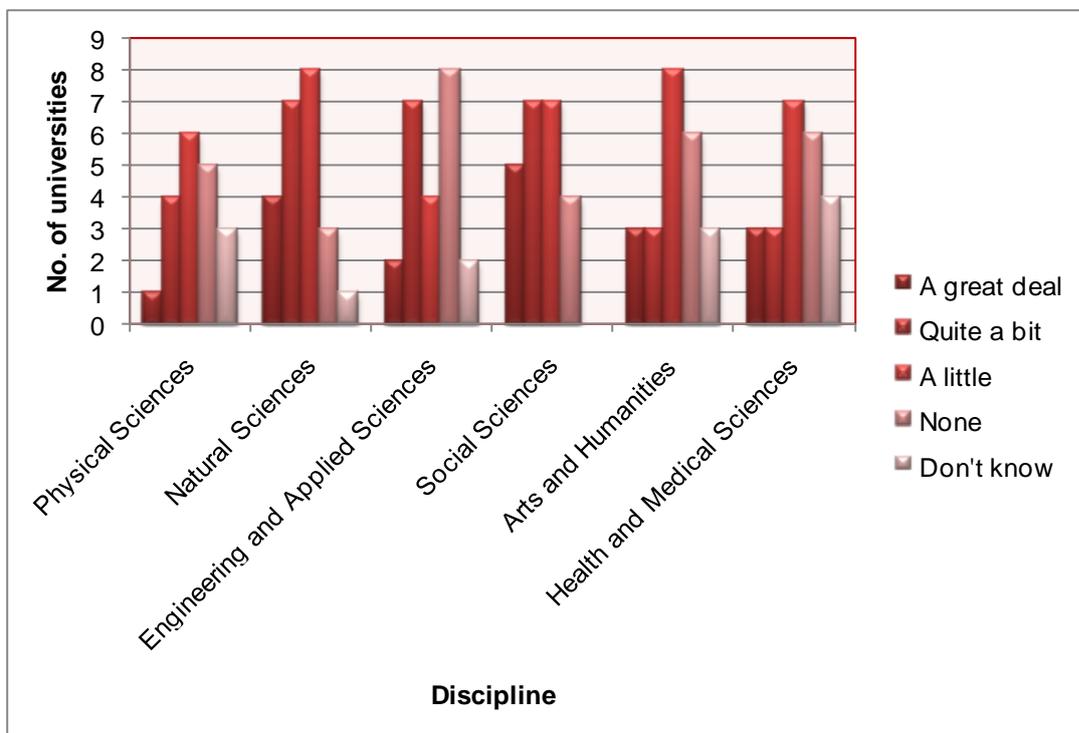
Figure 4.16 The extent to which sustainability is woven into traditional education disciplines

Only 25.5% (out of 68 institutions which responded) offer specific sustainable development degree programmes; 72.1 % do not while for the rest, the IRTs did not have information (see figure 4.17).
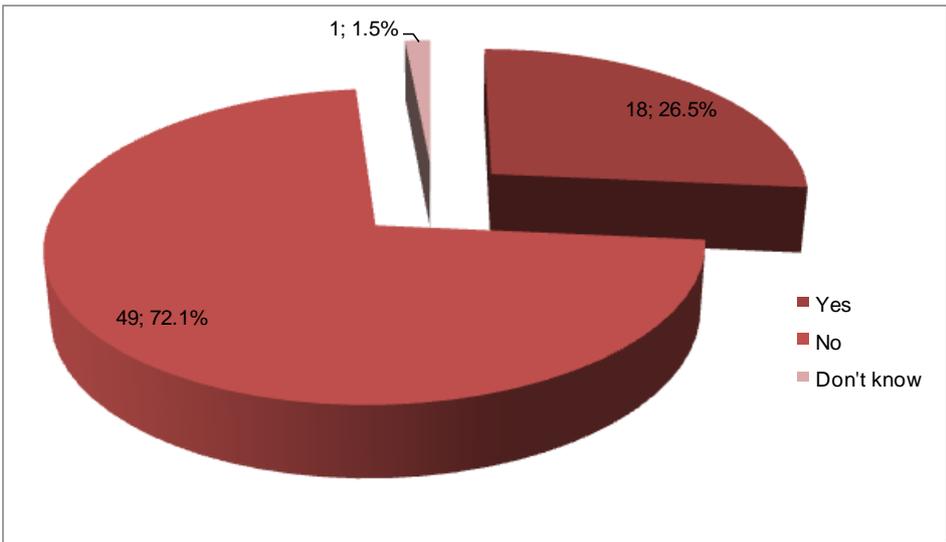
Figure 4.17 Degree programmes on sustainable development

4.4.2 Essential sustainability and sustainable development course currently not being taught

Respondents identified a number of courses essential to sustainable development but which were not being offered by their institutions at the time of the study. The courses are categorised and presented in Figure 4.18, while those that could not be categorised are classified as 'others'.
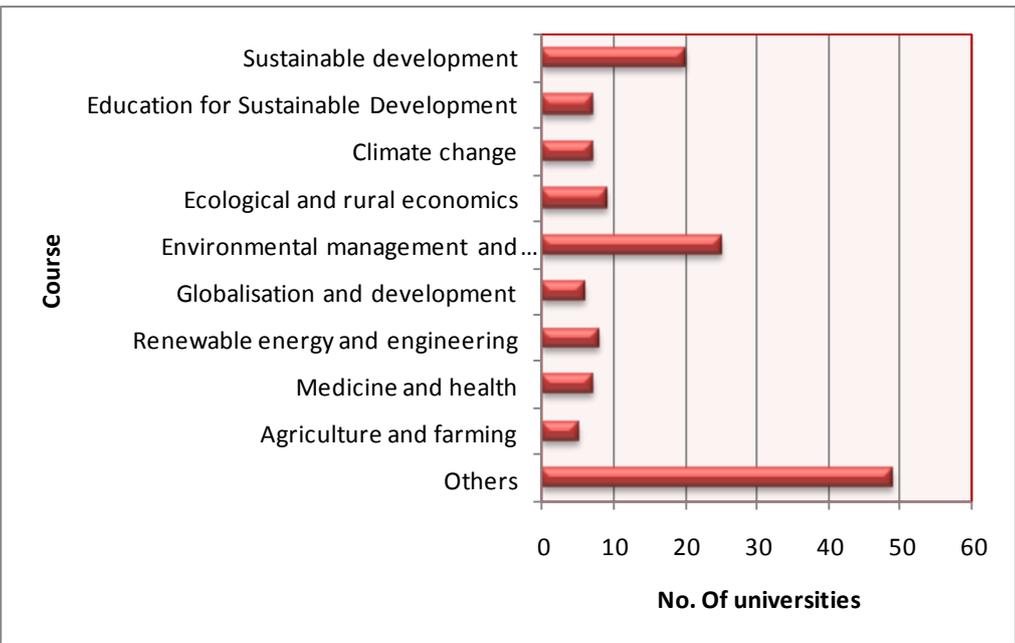
Figure 4.18 Essential sustainability and sustainable development course currently not being taught

More than half of the institutions forming part of this study do not offer interdisciplinary courses on sustainable development. Only 29 institutions (39.7%) indicated that they offer such courses. Considering the different types of institutions, such courses were mostly offered by public rather than private institutions. None of the private for-profit institutions had interdisciplinary courses on sustainable development (see figure 4.19).
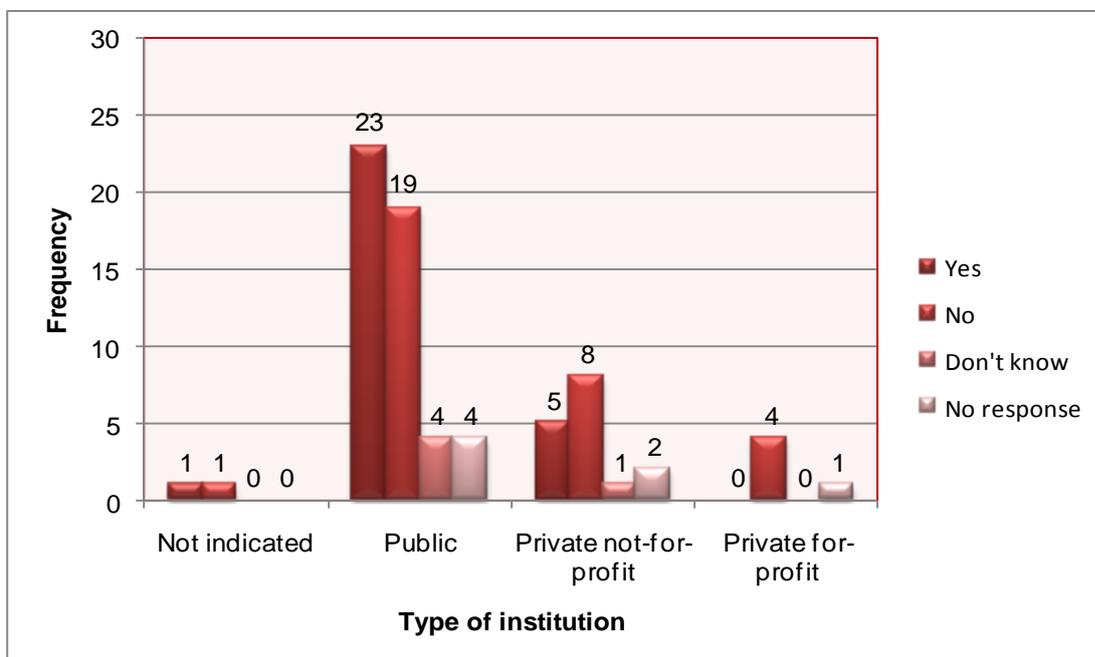
Figure 4.19 Interdisciplinary courses on sustainable development by type of institution

About 58% of the interdisciplinary courses on sustainability offered by the institutions were offered as compulsory courses.

Institutions were guiding their students to choose career paths in the sustainability/ sustainable development field. Fifty-six (56) institutions responded to this question. In descending order, the most widely used approaches to encourage them are as follows: fieldwork; career counselling and pledges of social and environmental responsibility; role modelling; and job fairs (see figure 4.20).
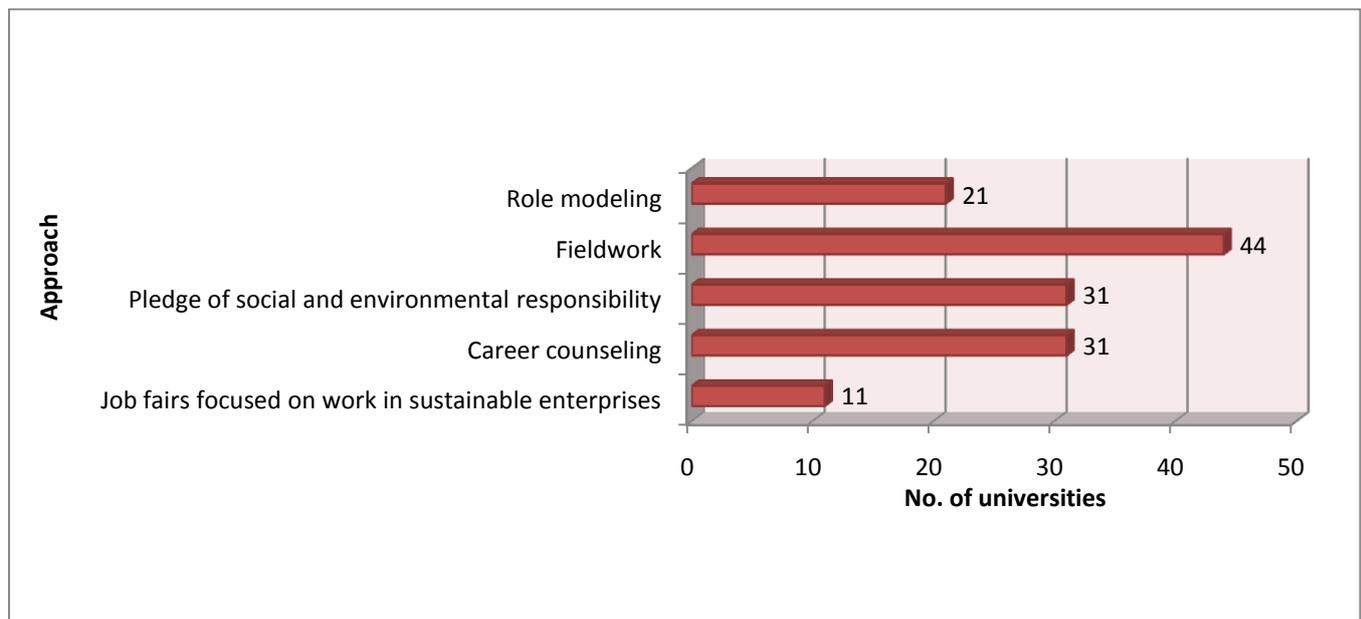
Figure 4.20 Approaches used to encourage students to choose careers in sustainable development

Direct involvement of student groups in sustainability issues was low in most of the institutions. Of the responding higher education institutions, 13.7% indicated that their students were involved a great deal in sustainability activities and 21.9% quite a bit (see Figure 4.21).
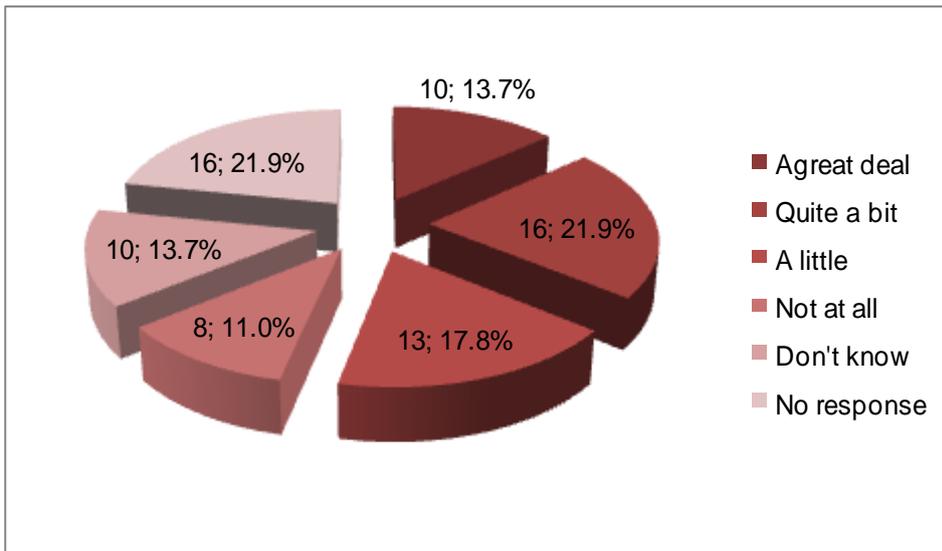
Figure 4.21 Students' involvement in sustainable development related initiatives

4.4.5 Factors influencing the introduction of a new course

A number of factors can positively or negatively influence the introduction of new courses incorporating sustainable development issues and concerns (Figure 4.22). Respondents identified both the positive factors and those which could be barriers to the process. The positive factors, starting with the most common among institutions, are:

- implementation of national policy directions
- new institutional policy development
- new faculty leadership
- new staff member, and
- introduction of reward system.
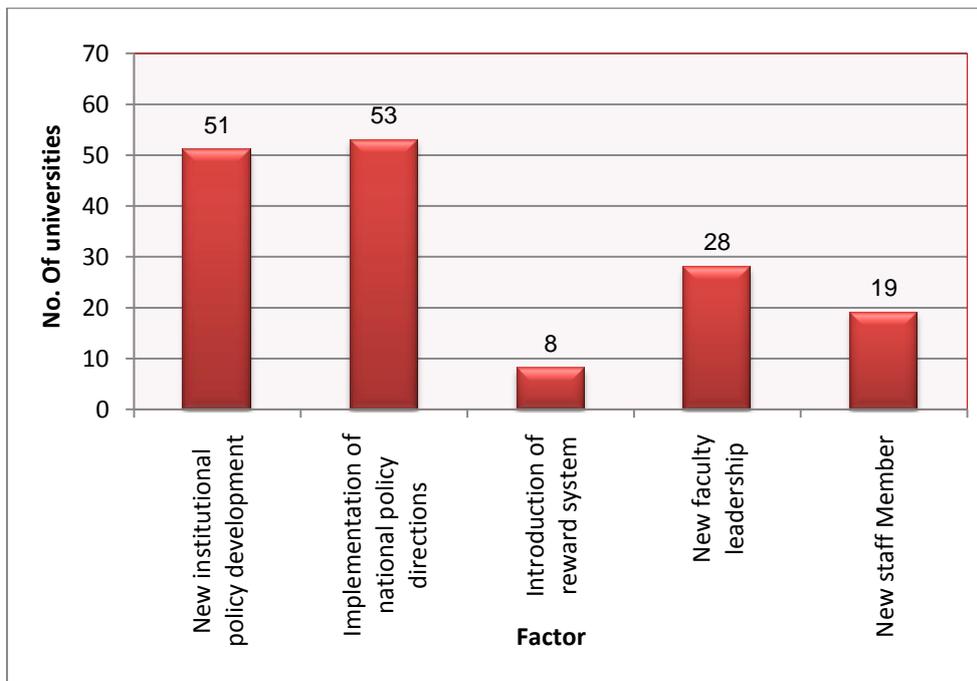
Figure 4.22 Factors influencing the introduction of a new course

With regard to barriers hindering the introduction of sustainable development-oriented courses, IRTs identified quite a number of factors. Some of these were lack of finance, lack of human resources or specialized staff, lack of awareness and information about sustainable development, etc. See Figure 4.23 for a comprehensive list.
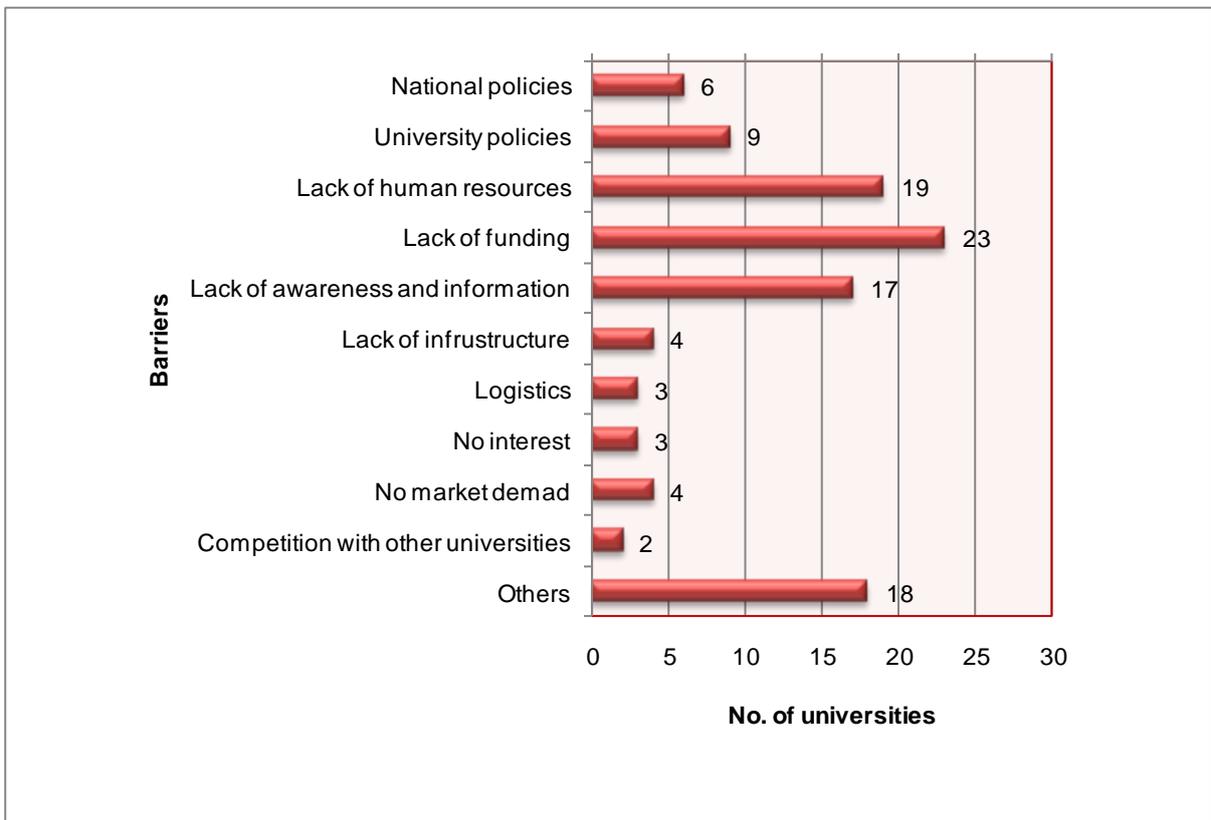
Figure 4.23 Barriers to the introduction of sustainable development courses

4.4.6 Provision of faculty and staff development opportunities

Out of 65 responding institutions, IRTs from 49.2% indicated that their institutions had provision for significant faculty and staff development opportunities to enhance understanding, teaching and research in sustainability. Figure 4.24 below shows the proportion of institutions with and without such opportunities from among the respondents:
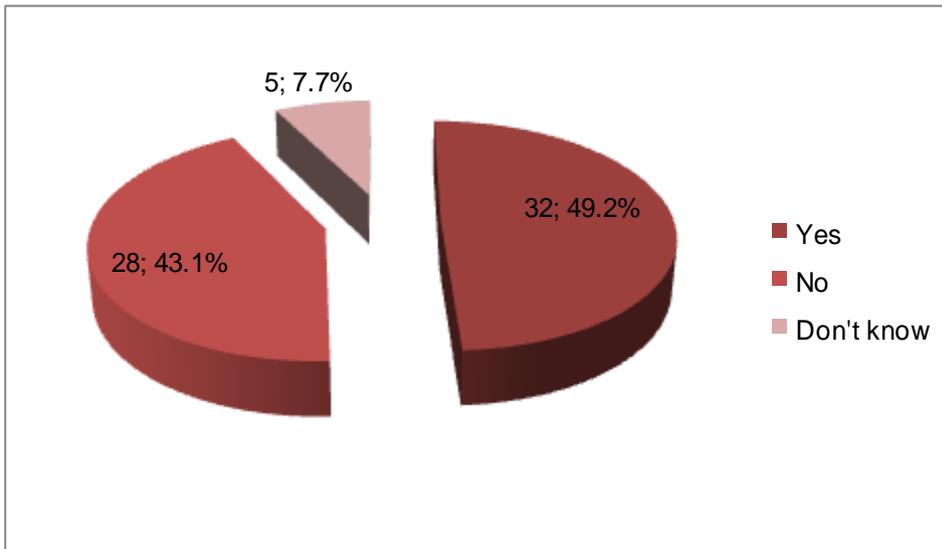
Figure 4.24 Provision of staff and faculty opportunities in sustainable development

Table 4.4 is an outline of recent faculty/staff development opportunities and the number of institutions (frequency) that undertook them. Few responses were received, which may indicate that not many institutions are currently engaging their employees in staff development in sustainability despite 49.2% indicating that they have such programmes (Figure 4.24).

Table 4.4 Professional training/staff development recently undertaken by institutions

Staff development opportunity		Frequency
Professional Training	Training and short courses	8
	Masters and other postgraduates	2
	PhD	4
	Financial assistance to staff	2
	Development programme	2
	Others	3
Work teams	Seminars	2
	Research groups	5
	Collaborations	1
	Consultancies	1
	Inside study projects	1
Mobility programmes	Inter-university cooperation	2
	Trainings	2
	Outreaches	2
	Studying trips	2
	Conference participation	2
Other staff development opportunities	Health services to people	1
	Capacity development	1
	Forums	1
	Membership to organisations addressing sustainability	1

4.4.7 Mainstreaming of sustainability/ sustainable development into the university curricula

Out of 65 responses, many institutions (59%) were not involved in mainstreaming practices while 41% indicated that they were involved. Among those involved most have been doing so in social sciences, natural sciences and education disciplines. Figure 4.25 outlines various disciplines and the number of institutions involved in mainstreaming sustainability in each of the disciplines.
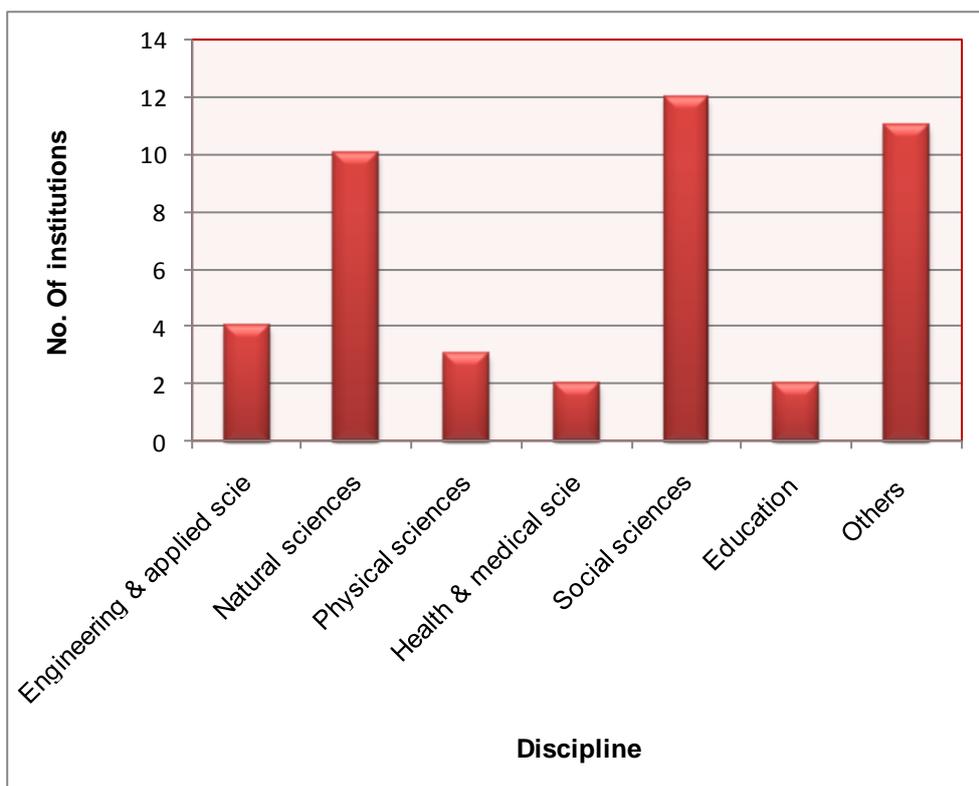
Figure 4.25 Institutions involved in mainstreaming sustainability in various disciplines

Still on the subject of mainstreaming, IRTs were asked to identify factors that motivate integration of sustainability courses. The most common factors identified by 14-15% of responding institutions are the development/introduction of policies; staff's own initiatives and concern for the environment. Other factors include the need to enhance sustainability awareness, funding, and climate change issues. Only 6% of the institutions indicated that sustainability was not their focus.

4.4.8 Teacher training

Among the sixty-two institutions which responded to the teacher training question, only 22 (35.5%) have faculties of education. Twenty-nine (46.8%) do not have faculties of education and the rest of the responses (17.7%) were "don't know" (see Figure 4.26 below).
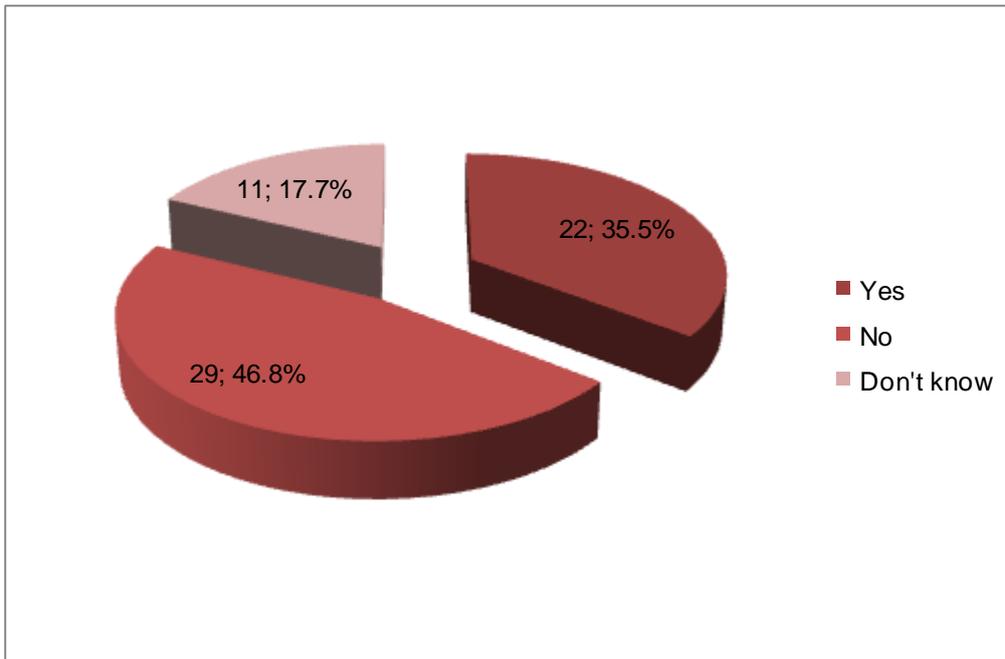
Figure 4.26 Existence of faculties of education in universities

Out of the 22 universities with a faculty of education, more than half (56%) are not producing learning materials in ESD. The learning materials are in the form of books and publications, manuals and guide etc. Figure 4.27 shows the number of universities producing each of the identified ESD learning materials.
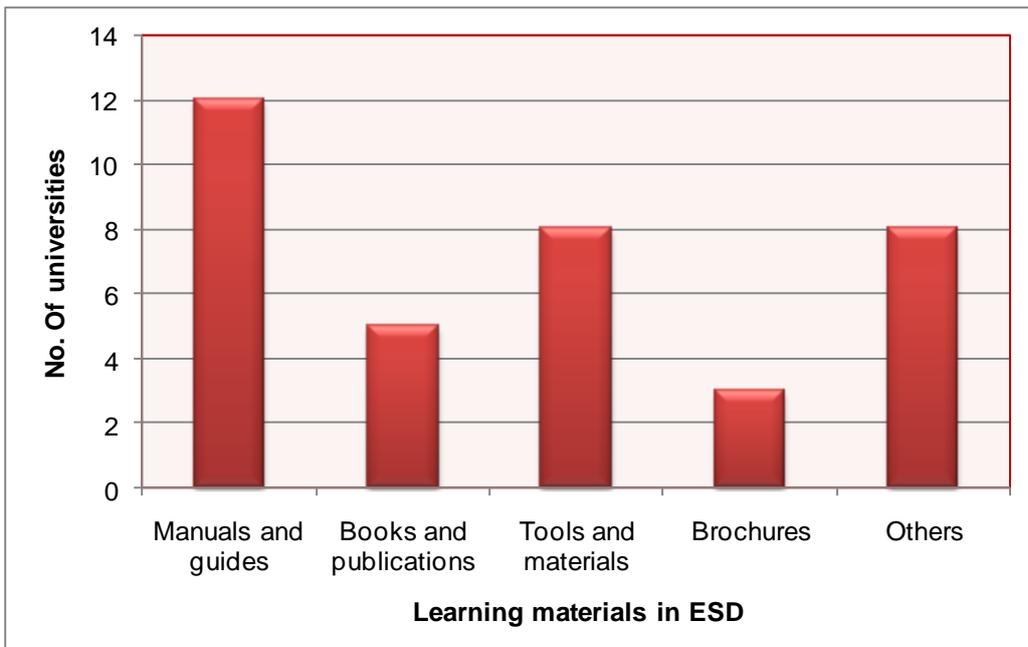
Figure 4.27 Production of learning materials in ESD

4.5 Research and campus operations

4.5.1 Factors motivating research on sustainability issues

There were 60 responses from universities on factors motivating researchers to be involved in sustainability research. Dominant among the responses (mentioned by more than 10% of responding institutions) were the availability of partnerships on sustainable development issues, supportive institutional research environments, donor funding, market forces (public sector demand) and national government policies. Other factors identified include the influence of colleagues, availability of government funding, leadership innovation and consumer/public sector advocacy for eco-efficiency.

4.5.2 Amount of research on sustainability by disciplines

Responses on the amount of research on sustainability issues were poor especially in the Health and Medical Sciences, Education and Management disciplines. The bulk of research on sustainable development contributes 20-40% of all research in many disciplines in most of the universities. For example, out of 60 respondents, research on sustainable development issues in 36 institutions contributes 20-40% of all research in natural and physical sciences. In comparison, fewer universities have sustainability research that contributes to more than 40% of all research. Results from the survey are as shown in table 4.5.

Table 4.5 Amount of research on sustainability by disciplines

Discipline	No. of Responses	> 40% of all research	20-40% of all research	< 20% of all research	None
Natural and Physical Sciences	60	12	36	9	3
Engineering & Applied Sciences	26	12	10	3	1
Arts & Humanities	23	4	10	9	-
Social Sciences	20	6	11	1	2

4.5.3 Student and graduate research being conducted on sustainability issues

A similar trend was established for both student and graduate research being conducted on sustainability issues. In most universities (28 for student research and 40 for graduate research), it contributes to less than 20% of all research. Very few universities (less than 10 for each category) have student and graduate research contributing 30-40% or more than 40% of all research (see Figure 4.28).
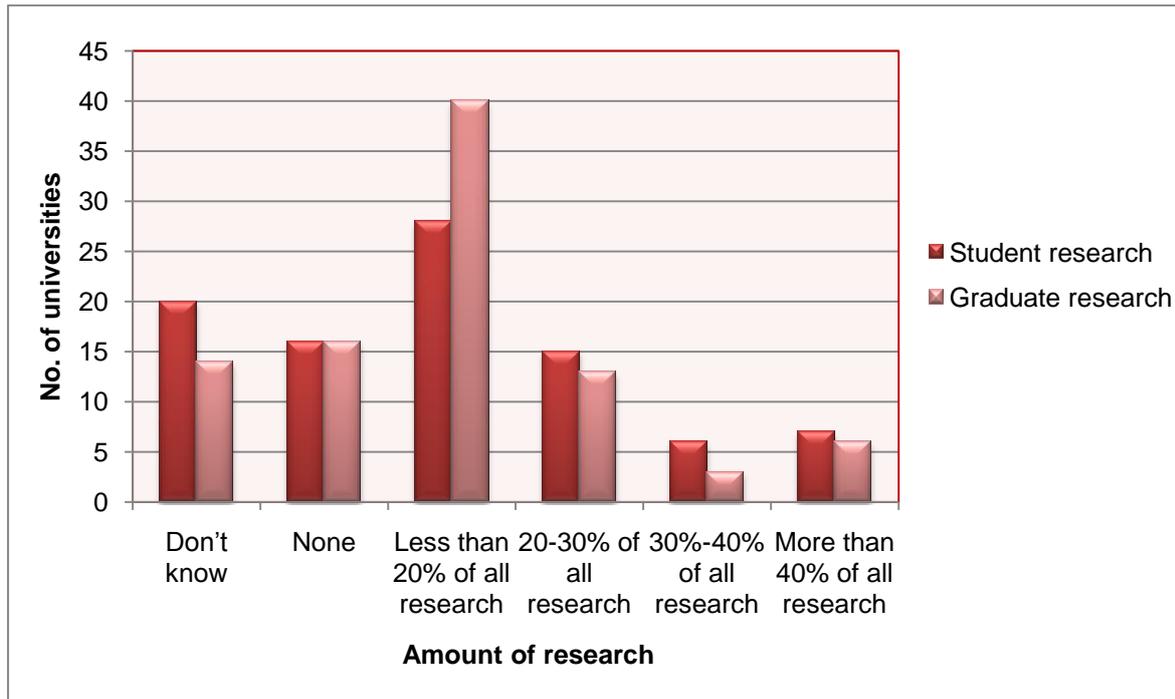
Figure 4.28 Student and graduate research being conducted on sustainability issues

4.5.4 Use and impact of the results of sustainability research projects

Research results from sustainability projects by both faculty and students are put to various uses in African universities. Among the 56 institutions that responded, most common uses of faculty research on sustainability (in descending order), are:

- publication in refereed journals
- presentations at international conferences
- documentation in university/departmental library

With regard to student researches on sustainability, institutions identified similar uses. However, the difference is that most student research results are used for documentation in university/departmental library rather than for publication in refereed journals as is the case

with faculty research outputs. They are also not used for advocacy and policy-making in any of the 55 universities which responded to the question. Table 4.6 has all the statistics.

Table 4.6 Use of research results from sustainability projects

Use of research on sustainability issues	Number of universities	
	Faculty research	Student research
Documentation in university/departmental library	49	50
Publication in refereed journals	50	27
Presentation at international conferences/workshops	50	30
Dissemination through international networks, centres of excellence, etc	31	18
Practical demonstration within the university community	28	29
Practical demonstration through university outreach programmes	33	23
Advocacy, policy making	27	0

Asked whether research on sustainable development carried out in the institutions had had any impact in the institutions and/or their communities, 50.0% of the 60 institutions that respondent indicated that some impact had been made while 28.0% responded negatively to the question. Figure 4.29 represents the responses.
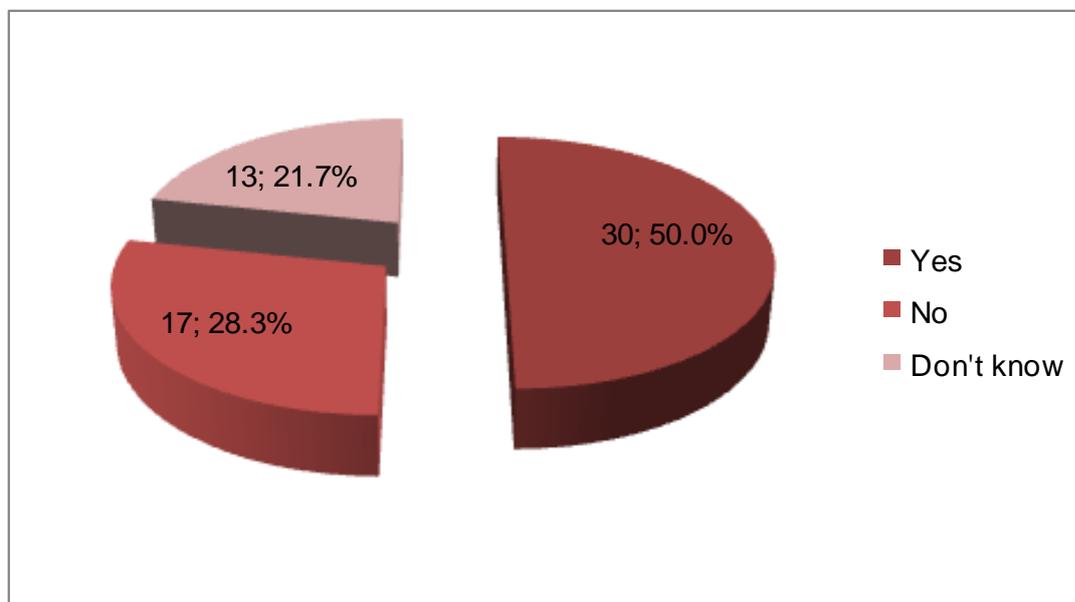
Figure 4.29 Research making impact on sustainable development in institutions and/or communities

Institutions were asked to list the sustainable development research projects that they were involved in and to describe their impacts on the institution and the community. Table 4.7 outlines the projects and summarises their impacts.

Table 4.7 Projects related to sustainable development undertaken by some HEIs

Project	Impacts
Agro-forestry practices to enhance resource-poor livelihoods	Improved yield, agro-biodiversity, soil fertility, energy income
Animal production	Artificial Insemination to increase milk production, formulation of animal feed which resulted in improved animal diets
Bureau of Market Research (BMR): Sustainable Environmental Practices at UNISA - 2009	Draft Environmental Sustainability Policy
Campus Greening	Natural beauty, creation lush environment, improved landscape/improved crop yield
Chemistry	Fight against pollution, helping to protect water resources
Energy	Reduction in energy use, energy saving through a switch off campaign, mechanical energy in rural areas to provide drinking water and eradicate diseases from drinking river water and water from creeks; provision of solar energy for energy conservation, reducing energy costs, reducing greenhouse gas emissions, rural electrification
Fish farming	Waste recycling; improved yields
Gender equality	Attitude change
Mushroom Farming	Improved yields
People land management and environmental change	Improved yield, agro-biodiversity, soil fertility, energy income
School compost project	Recycling, reusing and reducing principle used at the institution
Sustainable Stellenbosch	Local food security; waste campaign; land reform; capacity building workshops
Waste treatment	Pollution control

4.6 Outreach and services

4.6.1 Involvement in sustainable development partnerships

Most institutions are involved in sustainability partnerships with a variety of partners. These include local (57.5%), national (60.3%), regional (56.2%), and global (52.1%) bodies (see Table 4.8). Universities are encouraged to get involved in partnerships among themselves; and with other organisations to improve the quality, strength and the scale of responses to

sustainable development as they cannot create change on their own (see Hopkins and McKeown, 2002; Hemmati and Whitfield, 2003; Wright, 2004).

Table 4.8 Partnerships between institutions and external bodies

Responses	Local bodies	National bodies	Regional bodies	Global bodies
Yes	57.5%	60.3%	56.2%	52.1%
No	19.2%	20.5%	23.3%	21.9%
No-response	23.3%	19.2%	20.5%	26.0%
Total	**100%**	**100%**	**100%**	**100%**

4.6.2 Institutional outreach initiatives

Sustainable development outreach programmes require the presence of certain facilities and structures. Thirty eight (38) of the 73 institutions indicated that structures and facilities existed for sustainable development outreach initiatives, the most common being orientation programmes on sustainability for students. Figure 4.30 shows the number of institutions with each of the identified structures/facilities.
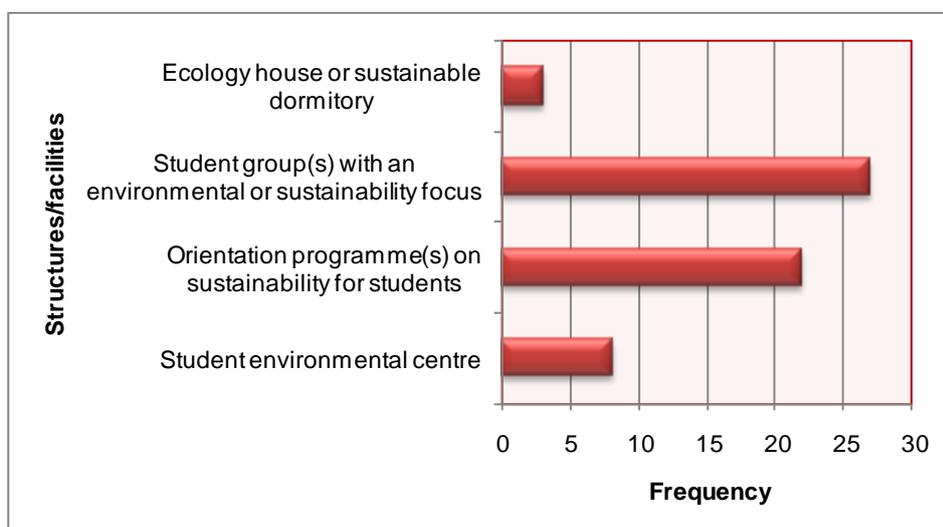
Figure 4.30 Structures/facilities for ESD outreach initiatives

4.6.3 Involvement in rural development

Forty-one (41) out of 61 respondents (67.2%) stated that they were engaged in rural development. Figure 4.31 represents the statistics of involvement of institutions in rural development from among the responses received.

6; 9,8%

14, 23.0%

41, 67.2%

- Yes
- No
- Don't know
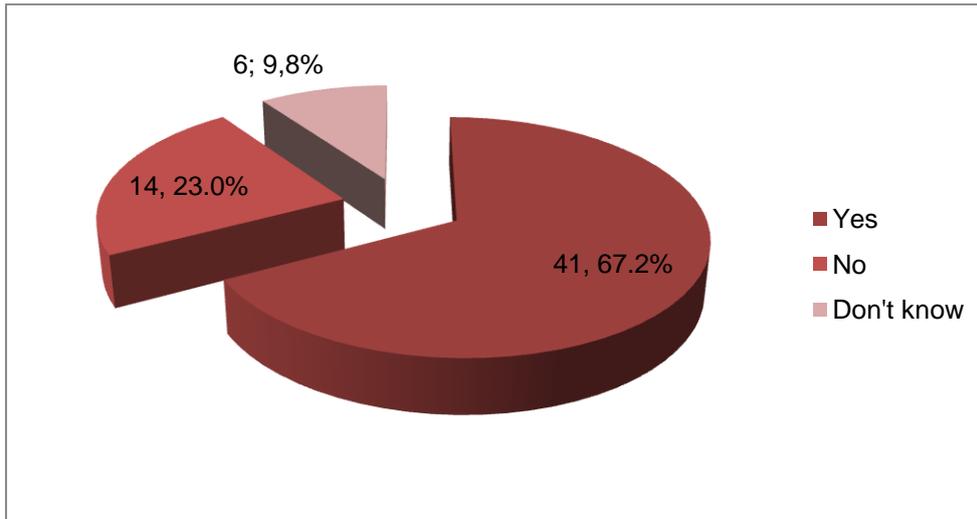
Figure 4.31 Involvement of institutions in rural development

Among the 41 institutions that engage in rural development, this involvement is in form of research (63.4%), staff and student outreach activities (48.8%) and internship (43.9%) etc. Table 4.9 outlines the nature of involvement and the number of institutions involved in each of the activities.

Table 4.9 Activities in rural development

Activity	Frequency (n=41)	%
Research	26	63.4
Direct collaboration	13	31.7
Internship	18	43.9
Staff/student outreach programmes	20	48.8
Others	5	12.2

4.6.4 Engagement in peace, security, conflict resolution/prevention training

Out of 61 respondents, 52.5% of institutions were engaged in peace, security, conflict resolution/prevention training. Thirty-two percent (32%) were not and in the rest of the cases (14.8%) responding teams did not have adequate information to answer the question. This information is graphically presented in figure 4.32.
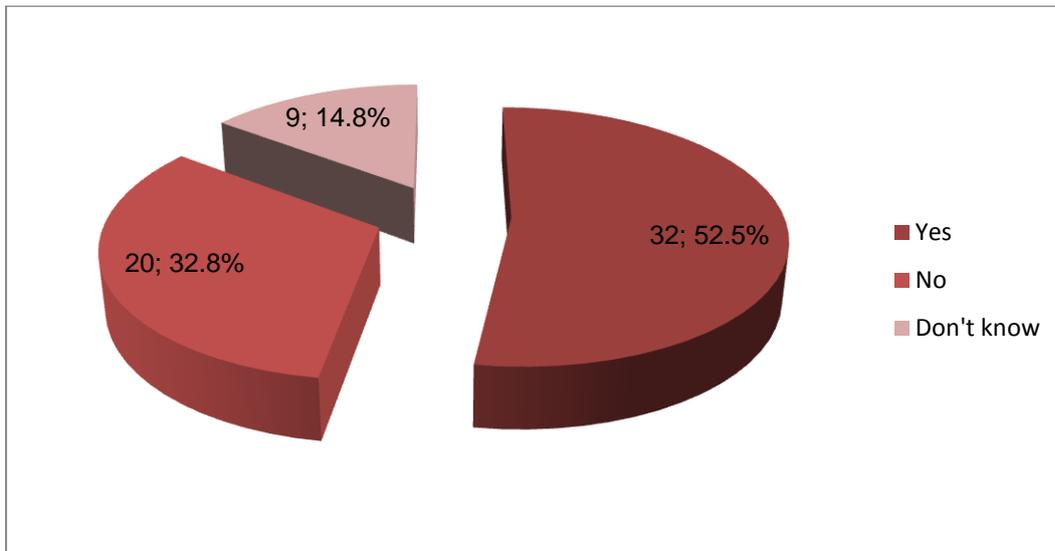
Figure 4.32 Involvement of institutions in peace, security, conflict resolution/prevention training

Table 4.10 outlines the nature of involvement of institutions in peace issues and the number of institutions involved in each of the activities.

Table 4.10 Activities in peace, security, conflict resolution/prevention training

Activity	Frequency (n=32)	%
Research	14	43.8
Direct collaboration	9	28.1
Internship	5	15.6
Staff/student outreach programmes	12	37.5
Others	8	25

4.6.6 Involvement in cultural diversity, intercultural dialogue and understanding

A total of 57 institutions (representing 59.6% of respondents) responded to the question on promotion of cultural diversity. Of these, more than half (59.6%) indicated that they do promote cultural diversity, intercultural dialogue and understanding. The rest of the statistics are as shown in figure 4.33.
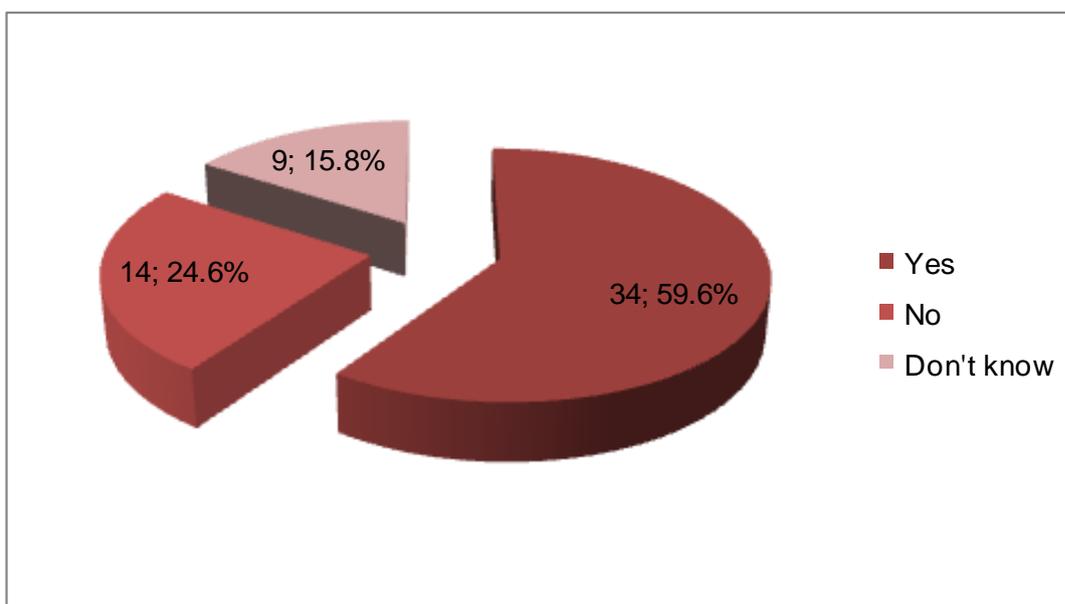
Figure 4.33 Institutional engagement in cultural diversity, intercultural dialogue and understanding

Table 4.11 outlines the mechanisms through which the involved institutions (the 59.6% mentioned above) engage in cultural diversity issues.

Table 4.11 Activities in cultural diversity, intercultural dialogue and understanding

Activity	Frequency (n=34)	%
Research	16	47.1
Direct collaboration	13	38.2
Internship	4	11.7
Staff/student outreach programmes	17	50
Others	11	32.4

4.6.7 Involvement of institutions in HIV prevention

More than 80% (out of 58 institutions that responded) indicated that they are involved in the prevention of HIV (Figure 4.34).
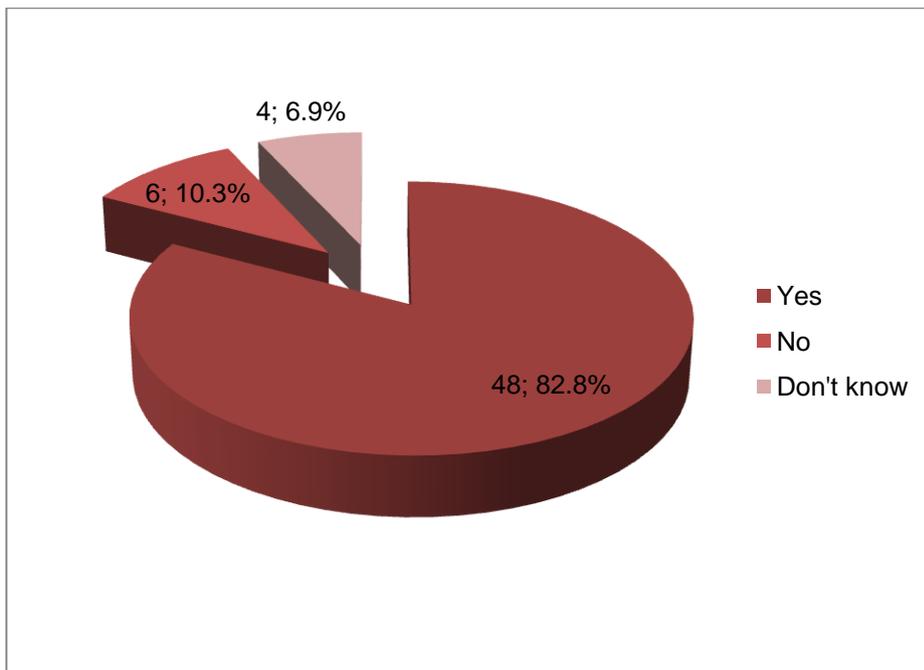
Figure 4.34 Institutional engagement in HIV prevention

The most common forms of initiatives that institutions were taking in engaging with HIV prevention include staff/student outreach activities (32.5%), direct collaboration (27.7%) and research (22.9%). The other initiatives mentioned include internships, campaigns, information and training programmes for NGOs and health workers in counselling skills, care for people living with HIV and AIDS and leadership skills training for people living with HIV and AIDS.

4.6.8 Non-formal/ informal sustainable development programmes and activities

Fifty-five percent of the 73 respondents had some form of non-formal and informal sustainable development programmes that they were involved in. These programmes and the respective target audience are outlined in Table 4.12.

Table 4.12 Non-formal/informal sustainable development programmes/activities and the target audience

Program / Activity	Audience
Pedagogical Resource/Materials	Mostly represented by students and teachers, although in some cases the government, the general public and industry/business.
Advocacy/Training	Government, civil society, environmental organizations, general public, international community, students from universities and other schools, industry/business
Workshops	Students, teachers, government, civil society, general public, industry/business.
Advertising	General public, universities, industry/business.
Best Practices	Students, general public, civil society, industry/business.
Event Campaign Media (print, radio, film, etc.)	Mostly general public, although students, government, industry/business, government and mass media.
Policy Research	Universities, government, rural communities and civil society
Assessment/Evaluation	Teachers/researchers, students, civil society, government, communities and the development sector.

4.7 Conclusion

This chapter presented the primary data collected from 73 HEIs which responded to the survey questionnaire. Overall, some universities in Africa are addressing sustainable development issues in a variety of ways through their functions and operations. The main functions being exploited in addressing sustainable development include teaching, research and outreach initiatives. Some institutions have leaders who are committed to promoting sustainable development practices in their institutions. Commitment is also evidenced through the existence of structures that support mainstreaming activities, inclusion of sustainability focus in written institutional statements, and funding for sustainability initiatives. Some universities are also involved in sustainability partnership at various levels.

Despite the existence of sustainable development initiatives in universities in Africa, involvement is still low in most universities due to various reasons. A number of universities identified barriers such as lack of funding, lack of awareness and information, lack of human resources and lack of university and national policies among others. A lot still needs to be done to promote sustainability actions in African universities. It is encouraging that positive outcomes are being realised from involvement in sustainable development even though most of the initiatives are still in their infancy. It is therefore important not to lose the momentum gained to improve the current sustainability status of African universities.

Chapter 5. Discussion

5.1 Introduction

This chapter discusses the results of the study described in chapter 4. Most of the discussion draws on literature on higher education and sustainable development. The analysis is informed by an inductive approach which mainly takes place at the empirical level of observed events. The discussion is done in a way which recontextualises data within systems thinking, to discuss it in relation to the African context. A systems view of higher education in Africa is therefore adopted where conclusions about what is happening in these institutions are developed and explained according to the African context in which the institutions are situated.

5.2 Profile of universities

Most HEIs which responded to the survey are public institutions. They are also relatively young with many of them having been established after 1960. This is the period during which, according to the data most African countries were gaining independence. Higher education policy was changing and universities were beginning to address issues of relevance in their contexts. New challenges were also arising in the newly independent states, for example, the need to respond to national development priorities of new governments (Samoff and Carrol, 2003). Economic development was however emphasised at the expense of other social development considerations and solutions to challenges like poverty were sought through economic development. Increase

From collected data, instead of seeing an increase in the number of HEIs with time due to an increase in the demand of their services, there was not much change between the number of institutions established in the 1960s (7 HEIs) and those that were established in the 1970s (6 HEIs). The observed trend from the data could have been due to the fact that the 1970s were a period of economic distress (UNEP, 2006) and, in Africa; the situation is made worse by other contextual challenges which include diseases (e.g. HIV/AIDS) and conflict (Samoff and Carrol, 2003).

All the African universities forming part of this study were found to be using French and English as media for instruction, both of which are foreign languages. Pütz (1995, p. 1)

exposed this linguistic dependence by citing Mateene who argues that "... all African countries use European languages which are those of their colonial masters, in nearly all their official business, and almost to the detriment of their national African languages ...". English and French were inherited from colonialism. Indigenous languages are not used as official languages yet they are part of culture and it has been established that culture is an important carrier of ESD messages (Shumba and Togo, 2009). There is a possibility of losing some ESD messages when indigenous languages are lost.

Some of the African universities are large with more than 25 000 students. They also offer a variety of programmes from certificates, bachelors degree to postgraduate programmes. Mainstreaming sustainable development in all university programmes would mean reaching out to all these students. The responsibility of universities is made more significant by the fact that they train a lot of people who will work in various sectors of the economy and can potentially influence adoption of sustainable development in those sectors. Universities should therefore develop students who can critically engage with sustainable development so as to enable them to play a role in improving the quality of life in the future (Clugston, 2000). The following sections discuss mainstreaming of sustainability in various university operations in African HEIs.

5.3 Mission, strategic planning, governance and administration

Many institutions in Africa have some form of sustainable development support structures. The study investigated the existence of stand-alone sustainable development structures, existence of sustainable development in formal university written statements, the level of commitment of university leaders in sustainable development etc. The results show that many universities in the region have such supporting structures which is an indication of their commitment.

In written statements, this commitment is reflected through policy documents and annual reports more than through other documents (brochures, catalogues). Public and private not-for profit HEIs were reported to reflect such commitment much more as compared to private for-profit HEIs. This raises the question of educational quality in these institutions versus profit. There is still need for African HEIs to improve their social, environmental and economic relevance (UNEP, 2006) especially when considering the effects of colonialism in these institutions. This has a bearing on the quality of the education it offers and relevance to its socio-economic environment. If institutions are profit driven, they are likely to pursue

programmes that attract many students without paying much attention to their contribution to sustainable development. This may be the reason why private for-profit institutions do not reflect much commitment to sustainable development through their written statements. The same trend was observed with regard to the existence of multi- and interdisciplinary practices where they were found to exist mostly in public and private not-for-profit universities. Interdisciplinary practices are however crucial as they develop an understanding of the interlinkages between disciplines and the environment among students (Wright, 2004).

More than 90% of responding institutions have communication/public awareness strategies on sustainable development. The quality of such strategies differs from one university to another. Practices and structures like sustainability coordinators, institutional research agendas on sustainable development, staff orientation programmes on sustainability, etc. while they do not exist in all HEIs forming part of the study also reflect commitment to sustainable development. Some of the sustainability practices have been taking place off-campus which shows that the universities recognise their responsibility both to the university community and to the broad socio-economic environment in which they are situated.

On average, management commitment in African institutions was rated to range from 'a little' to 'quite a bit.' A positive relationship was established between the existence of multi- and interdisciplinary structures and management commitment to sustainable development among university leaders. Institutes with higher levels of management commitment were found to have more multi- and interdisciplinary structures than those with lower levels. Sustainable development in universities should target university leaders as they can positively influence the adoption of sustainability initiatives. They can also influence institutional policies to incorporate sustainable development.

The ULSF initiative, even though it is now weak, involved university leaders in sustainability related issues. The Talloires Declaration; a statement of commitment to environmental sustainability by university presidents, stated that university heads must provide leadership and support in mobilising resources so that their institutions can respond to sustainability challenges (UNESCO, cited in Wright, 2002). The MESA Universities Partnership also singles out university leaders as targets for some of its activities, e.g. seminars, in pursuit of the aims and objectives of the programme.

Support received by HEIs for sustainable development activities was mostly in the form of research grants and collaboration. This support was received by institutions with leaders who were rated as having either 'quite a bit' or 'a great deal' of commitment to sustainable

development issues. Besides internally generated funds, development partners and foundations, government sector and industry are all funding sustainable development initiatives at universities. This shows a raised awareness of sustainable development in many organisations. It also shows that universities in Africa are partnering with other organisations in pursuing sustainable development (partnerships are further discussed under outreach and services in section 5.6).

Kariuki (2009) notes that state funds disbursed to higher education in Africa are relatively constant, however, as universities compete with other demanding needs in the economy, governments tend to concentrate their spending on the development of other areas of society. There is therefore need for HEIs in Africa to identify other sources of financial support to fund their operations. Partnerships to solicit various kinds of financial support (e.g. infrastructure, training, conference attendances, publications, etc) were suggested as one approach to address the problem.

Sustainability declarations also mention sustainable physical operations as one of the roles of universities in sustainability in higher education (Wright, 2002). According to the theme, universities should have, for example, ecological policies and should establish physical operations like aimed at conservation of resources (recycling, waste reduction, etc. (ibid.)). In management operations, universities in Africa were found to be promoting initiatives like green building design, energy conservation, waste reduction, water conservation and sustainable landscaping among others. Promotion of these initiatives is however still very low which might seem to suggest that physical operations are not a major focus in African universities. Other relevant practices which were not being promoted in HEIs include sustainable food and transport programmes, green purchasing and environmental assessments. Institutions, however, had plans to pursue these and other sustainable development practices in the future. These are some of the practices that should be adopted by universities in promoting sustainable development (ULSF, 1999). It is crucial to address them because universities are relatively big institutions in terms of population size. In this study for example, some African HEIs were found to have more than 25 000 students (this figure excludes staff). There are therefore considerable impacts on the environment (Sterling, 2004) from only the day to day running of such institutions. There is still a long way to go before the universities can be said to have sustainable physical operations, and they should therefore build on the initiatives already in place.

This section focuses on integration of sustainable development in teaching and learning. As noted earlier, interdisciplinarity is key to ESD (Naituli and Kronlid, 2009; and Vosskump, 1986) which calls for an integrated approach. The expectation is that ESD will be mainstreamed across all disciplines.

Promotion of sustainable development in university curricula is being done in various ways in African universities. Those identified in this study include mainstreaming in traditional disciplines and in teacher training and developing interdisciplinary courses on sustainable development. Universities were also involved in providing staff development opportunities and encouraging students to choose careers in the sustainable development field.

One of the major roles of education in ESD is reorienting existing curricula to address sustainability (UNESCO, 2005). This entails systematic integration or mainstreaming of key sustainable development principles in educational programmes. Sustainable development issues are multi-dimensional and interconnected and this should be recognised in mainstreaming sustainable development in curricula. Sustainable development issues have been fairly woven into all the traditional disciplines especially in the social sciences. Despite this observation, there is still need to promote this process in universities. This is because across the disciplines, most of the mainstreaming has only taken place 'a little' (42 cases in total) and there are very few cases of a great deal of mainstreaming, mostly in the social sciences (5 universities). The same observation can be made regarding sustainable development programmes where only few institutions do offer them. This information however does not show lack of awareness as, when responding teams were asked to identify essential sustainability courses currently not being offered in their institutions, they came up with a wide range of them. Multi- and interdisciplinary courses were identified across the disciplines (e.g. health, agriculture, engineering, education etc.). Respondents also identified factors that can influence the introduction of new courses. The three most common among institutions relate to policy and university leadership. Addressing leadership issues (commitment and policy) can therefore go a long way in influencing other university operational functions to mainstream sustainable development.

Sterling (2004) argues against the perception that ESD basically entails a change in the curriculum as this results in adapting to existing education trends which may not necessarily be sustainable. Instead, he suggests the use of holistic approaches like systems thinking. Martin, Dawe and Jucker (2006) also argue for transdisciplinary and interdisciplinary

teaching and approaches which develop critical thinking among students. Interdisciplinarity is therefore encouraged in departments whose disciplines focus on a single dimension of sustainable development so as to recognise the holistic nature of sustainable development. This facilitates developing an understanding among students of the connections and interlinkages between individual subjects and, according to Wright (2004), between each subject and the environment which is not the case if they only study a single mandatory course in environmental studies.

There are still a number of barriers which institutions in Africa have to overcome to influence the pace and direction of change in their operations. The most prominent factor (mentioned by most institutions) is lack of funding. This was followed by lack of human resources and lack of awareness and information. The first two challenges (finance and human resources shortages) are characteristic of higher education in Africa. As mentioned earlier in this report, African states have reduced state funding for higher education due to other economic constraints. A multitude of factors could also have resulted in human resources shortages, for example, poor working conditions, poor salaries, lack of academic freedom and other related issues (NEPAD, 2005).

At the time of this study, not all universities in Africa had faculty/staff development opportunities. Very few institutions identified recently undertaken training/staff development opportunities. The underlying target of ecological literacy, one of the frequent themes in sustainability declarations on higher education (Wright, 2002), is to encourage universities to develop an understanding of sustainability issues among staff (e.g. through staff development in the subject), students and the public. Staff development opportunities may, to an extent, also address the problem of brain drain which is characteristic of higher education in Africa today. Among the suggested criteria to respond to the theme is the setting up of environmental programmes (ibid.). Staff development in sustainable development is one area that is still lagging among other sustainability practices in universities. There is need to improve the few opportunities that the study identified.

While involvement of student groups in sustainability was reported to be low, universities reported to have deployed other strategies in order to get students engaged in sustainable development initiatives. Field work was the most common among universities with others being career counselling, job fairs, role modelling etc. Role modelling makes it possible for learning to be reciprocal between educators and learners (Martin et al, 2006). Besides role modelling, behaviour change among students can also be influenced through engaging them in experiential learning through which they get hands-on experience in seeking solutions to

sustainable development issues. This can be through fieldwork for example. As mentioned above, fieldwork was identified by most universities forming part of this study.

Less than half of the responding universities have teacher training faculties. Fewer still, indicated that they were producing sustainable development materials. The existence of teacher training faculties in some of the universities reminds us that higher education has a responsibility to other primary and secondary education levels. It depends on these levels for the initial education of its students and it educates staff for those levels through teacher education and other facilities. A coordinated approach is therefore necessary to promote sustainability practices in teacher education which could potentially proliferate to other tiers of education.

5.5 Sustainability research and campus operations

Research in sustainable development was also encouraged in universities through sustainability declarations were they are expected to get involved in research that contributes to sustainable development (Wright, 2004). In African universities, there are a variety of factors which influence researchers to be involved in sustainable development research initiatives. These include the existence of sustainable development partnerships, institutional research environments and funding among others. Research initiatives are taking place at different scales in a variety of disciplines but overall, it mostly contributes to 20-40% of all research in specific disciplines.

Faculty sustainability research was being used for a variety of purposes but most common among these are publication in refereed journals, presentations at international conferences and documentation in university libraries. More or less similar uses were also mentioned in the case of student research. The research results were said to be making an impact in various ways especially improving campus environmental management practices (energy saving, landscaping, recycling etc.). Most of the projects are taking place on campus and most mainly pertain to the natural environment. A few off-campus impacts were also identified. There is also evidence of an integrated approach and interdisciplinarity with some projects focusing on challenges in their local communities and some on social challenges like gender and food security and other economic benefits. The fact that researchers in higher education have academic freedom might make it difficult to encourage them to get involved in sustainability research (Wright, 2004). However, because sustainability research is still low across all disciplines in African universities, it may be of utmost importance to use

other forms of encouragement, incentives among them (e.g. grants/funding for sustainable development research and conferences).

5.6 Outreach and services

A sustainable institution supports sustainable community development in its local area and in the surrounding region through projects and partnerships. It may also seek international cooperation in solving sustainability challenges through conferences, student/faculty exchanges, etc. The theme of public outreach has to do with universities situating themselves in the societies in which they reside. The basic idea behind public outreach is that universities, besides educating students about sustainable development, have a responsibility to promote sustainable development in the communities in which they are located (Wright, 2002).

Partnering of universities with other organisations in seeking solutions to sustainable development is also encouraged (Wright, 2002; 2004). Through the UN-DESD International Implementation Scheme, UNESCO encourages these partnerships at local, national, regional and international levels (Lotz-Sisitka, Olvitt, Gumede, and Pesanayi, 2006). The survey reveals that, African universities have established partnerships/joint ventures aimed at responding to sustainable development with research centres, international associations governmental agencies etc. and have realized a number of sustainable development outcomes including research projects, promotion of culture, supporting communities in peace, health and early childhood activities among others, as specified in chapter 4. Evidence shows that African universities are involved in partnerships at various levels, from local to global levels. Because the concept of sustainable development is controversial (Observatory of Good University Practices, 2006), partnerships may provide a platform for universities to deliberate on how they can get involved in sustainable development. They can also share knowledge, generate activities collaboratively and develop strategies and methodologies to improve sustainable development (ibid.). According to Hemmati and Whitfield (2003) the quality of decisions and scale of implementation of sustainability practices also improves if there is diversity in experiences among the parties involved. Diverse disciplinary backgrounds can result in a transdisciplinary approach (Hopkins and McKeown, 2002) which is valuable in sustainable development as it transcends disciplines.

The study established that more than 25 HEIs have student groups with an environmental focus. Others have orientation programmes for students and students' environmental

centres. Students are tomorrow's decision makers in various fronts of national development and therefore have to be encouraged to play pro-active and positive roles in sustainable development so as to cultivate the right values before they assume positions of responsibility in society. A study carried out at a university in South Africa concluded that while students are identified as beneficiaries institutional programmes on sustainable development in higher education, they actually have agency (the capacity to act) to play a role in spearheading ESD initiatives and can make huge impacts within the university and in the community (Togo, 2009b).

Among other outreach initiatives the study investigated involvement of institutions in rural development, peace security and conflict resolution prevention/training, cultural diversity issues and HIV/AIDS prevention. In all the identified activities, more than half of responding institutions are involved in such programmes. Universities are mostly engaged in these activities through research. Regarding the HIV/AIDS prevention initiative, universities were also involved through internships, campaigns, information and training programmes etc.

These issues are topical on the African continent where diseases and war are still widespread. Prevalence of diseases like HIV/AIDS (Paden, 2007; UNEP, 2008) leads to pressure on the health system and the economy of countries (IGAD ICPAC (2007). Wars and political violence have resulted in an increase in the number of people living in exile in the continent (Paden, 2007). This impedes sustainable development initiatives as universities are deprived of state funding for sustainability projects due to these other priority areas of national development. Pursuing cultural diversity issues is also crucial as, in Africa, sustainable development in the past has been realised through the people's diverse cultures and their values and practices; this could influence decision making in the future (Shumba and Togo, 2009). As mentioned before, the relationship between the university and its society is part of what makes higher education relevant (UNESCO, 1995; Tünnermann Bernheim and de Souza Chaui, 2003). This makes it necessary for HEIs to be involved in local development initiatives so that through understanding the needs of the society, they can re-orient their programmes to address immediate societal challenges and in the process improve the relevance of their education.

The survey identified a number of informal and non-formal sustainable development programmes that African universities were engaged in. These include advocacy/training, workshops, advertising and policy research etc. Informal and non-formal educational programmes on sustainable development are important as they promote the same sustainability goals that formal programmes are attempting to address. They should

therefore be pursued alongside the formal programmes. According to Shumba and Togo (2009), continual learning through informal activities can actually encompass pathways that can enable beneficiaries of sustainability programmes to find a way to rejoin the formal system.

Chapter 6. Conclusions and recommendations

The conclusions presented here are followed by a series of recommendations for improving the roles of HEIs in promoting sustainable development in Africa. There is a lot that still needs to be done to promote involvement of universities in sustainable development. It is particularly important to target structures that have an influence on the running of the whole institution, for example university written statements, funding structures and leadership. Adopting a university-wide approach may also result in positive outcomes, especially mainstreaming sustainability across all university functions including all curricula, research, outreach, operations, student and management activities.

6.1 Conclusions

Not much work has been done so far to assess sustainability in HEIs in Africa, yet assessing sustainability is necessary to benchmark initiatives in institutions, identify weak areas and measure progress with time. Sustainability assessments help universities to define their priorities in ESD and provide them with a basis for comparing and reflexively reviewing their sustainability efforts. They also help to communicate the efforts and progress of institutions to stakeholders (Lozano, 2006).

This study assessed the existence of, and, in some cases the extent to which practices are mainstreamed/integrated in 73 universities in Africa. The study essentially focused on the main university operations which include institutional governance, teaching and learning, research, operations and outreach activities.

Many of the investigated universities are making an effort to address sustainability in different ways. Sustainability is promoted both within the campus and in the community, with a number of benefits having been realised in both contexts. In most universities and for most of the practices that the study investigated, efforts are still not well developed and are not uniform but they are evident through a number of initiatives. The idea of the study was however, not for universities to be competitive in their sustainability efforts but to give them an opportunity to identify their strengths and weaknesses and share their experiences on sustainable development.

A number of factors were identified by IRTs as affecting the adoption of sustainability practices in universities. Finance was identified as the main set-back among other

challenges, such as human resources shortages and lack of awareness. These may well have been contributing to low levels of engagement with sustainability among universities.

Despite low performance in most of the investigated practices, these initiatives were found to be diverse. Depending on how ESD is approached, diversity can actually provide opportunities for deliberating on issues therefore creating prospects for social learning in ESD (Wals, 2007). The study revealed the state of sustainable development in African institutions and has helped identify areas in which they are weak. This provides an opportunity for interested universities to revise and improve their practices.

6.2 Recommendations

One of the aims of this study was to come up with recommendations to inform the future of sustainability practices in universities in Africa. Drawing on the research findings, some suggestions can be made to inform future sustainability practices in African universities. The following recommendations are proposed:

University leaders

- Sustainable development in universities should start by targeting university leaders as they have the authority to positively influence policies and the adoption of sustainability initiatives by staff members. University leaders' buy-in can be attained through short courses and/or workshops aimed at improving their understanding of sustainable development and the role that their institutions can play in promoting it. Such courses/workshops can also capacitate the leaders on how to mainstream sustainability in their strategic plans and formal written statements. The AAU could include this in its Leadership Development Workshops.

Staff orientation/awareness

- Staff orientation, awareness, and exchange programmes in sustainable development can help equip university employees in sustainability issues. Not all university employees have the knowledge and understanding of sustainable development. There is need for initiatives that develop sustainability awareness among employees, for example, orientation programmes for new staff members, staff awareness campaigns and establishing staff exchange programmes in sustainable development, among others. This may perhaps be one of the areas the Leadership Development

for Higher Education Reform (LEADHER) projects financed under the IAU LEADHER Programme could focus on.

Policies, vision and mission strategies

- Mainstreaming the goal of sustainable development in university formal written statements like policies, vision and mission strategies help to show institutional commitment to sustainable practices. To an extent, policies in higher education in Africa do show commitment to ESD. However, it might be necessary to develop sustainable development policies or to re-orient the existing ones so that the objective of sustainable development becomes more explicit. Policies like that do encourage members of the university to be involved in sustainability initiatives.

Establishment of sustainable development structures

- Not all HEIs in Africa have stand-alone sustainable developments strategies and structures/positions/committees to support ESD. As universities have the primary goal of producing graduates in various disciplines, the goals of sustainability may be treated as marginal if there are no positions which are specifically established to promote ESD. This study recommends the establishment of sustainable development structures (e.g. a coordinating unit or task force). The unit/task force will be responsible for coordinating all sustainable development concerns at the university including communication strategies on sustainable development, developing research agendas on sustainable development for the university, drafting annual budgets for sustainable development activities, coordinating curriculum integration workshops, promoting outreach programmes, organising seminars, debates, lectures, environment days, and clean up campaigns, and other activities on sustainability.

Sustainability assessments

- Sustainability assessments have not been comprehensively done in most HEIs in Africa. This research is the first attempt to do a comprehensive study on ESD in African universities and other higher education institutions. A database/Portal that documents African higher education experiences with ESD needs to be created for sharing with other institutions and organizations interested in ESD worldwide.

Training programmes

- Training programmes can be run for faculty on how to mainstream sustainability in their work contexts. The focus of such programmes could be on different work environments, for example campus environmental management, teaching, research, community engagement etc.

Learning methods
- Pedagogical reforms are necessary in African higher education so as to re-orient current knowledge systems towards multi- and interdisciplinary programmes. This will guarantee the quality and relevance of programmes. This process needs to be supported by exposing students to holistic and systems thinking approaches which may help them to recognise the connections that exist between various disciplines and the environment.

Staff development and incentives for sustainability research
- Encouraging and supporting staff (financially or in other ways) who undertake to train in the sustainable development field and supporting student researches in sustainable development through incentives like research grants can encourage involvement of members of the university in sustainability initiatives. This will also help to improve research outputs in sustainable development. Grants for master's and doctoral studies can end up encouraging students to undertake studies in sustainable development and therefore influence a career path in the sustainable development field.

Outreach programmes in sustainable development
- Staff and students need to be encouraged to participate in outreach programmes in sustainable development. They can also undertake applied sustainable development research intended to solve local community challenges as part of outreach and community programmes. This goes a long way in promoting the relevance of the university in the local community in which it is situated.

Encouraging private for-profit institutions to get involved in sustainable development initiatives
- There is also need to reach out to private universities, especially for-profit institutions, to encourage them to be involved in sustainable development. These institutions may neglect ESD in favour of programmes which generate higher financial returns.

Conferences and awards

- Conferences and awards are one way of encouraging staff and students in engaging in sustainable development. GUNi, IAU and AAU should continue to organise annual conferences for university and other higher education institutions where good practices on sustainable development can be shared. To make these conferences relevant, award schemes could be instituted for best practices in environmental management or campus greening, for instance. Institutions that excel in promoting sustainable development could be assisted with financial and material resources to become Centres of Excellence in their countries or sub-region.

6.3 Next steps

The second phase of the GUNi, IAU and AAU collaborative sustainable development project has the following objectives:

General objective:
- To train and develop the skills of agents involved in the work of HEIs in sub-Saharan Africa, leading to initiatives and practices that strengthen the role of these HEIs as promoters of sustainability in the region.

Specific objectives:
- To promote sustainability and raise awareness of its importance at HEIs in sub-Saharan Africa in the four main institutional areas: research, teaching, engagement with society and institutional management.
- To produce and distribute informative material on sustainability-driven initiatives and practices aimed at training and developing the skills of the principal agents in higher education in Sub-Saharan Africa.
- To create forums through which regional actors in higher education can share their knowledge of sustainability and higher education in the region.
- To promote collaborative work between the project partners (GUNi, IAU and AAU) and with HEIs and other higher education stakeholders in the region.

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Appendix 1.

1A. Survey questionnaire

Promotion of Sustainable Development by Higher Education Institutions in Sub-Saharan Africa

Survey Questionnaire

This Survey Questionnaire is submitted to your institution jointly by the:

Global University Network for Innovation (GUNI)
International Association of Universities (IAU)
Association of African Universities (AAU)

GUNI-IAU-AAU Survey Questionnaire on HESD

1

SURVEY QUESTIONNAIRE[1]

Respondents are invited to complete the following sections:

A. Respondents' Details, page 2

B. Institutional Profile, page 3

C. Mission, Strategic Planning, Governance & Administration, page 4

D. Curriculum: Teaching and Learning, page 8

F. Research, page 12

E. Outreach and Awareness Creation, page 13

A. RESPONDENTS' DETAILS

Name of Institution:

City and Country:

Year of Establishment:

Name	Designation/ Position	Unit/ Department	Contact Details
	Senior University Officer (Rector/President/Vice Chancellor/Deputy Vice-Chancellor)		
	Dean of faculty / Academic staff Member		
	Senior Researcher and/or Doctoral student or post-doctoral fellow		
	Administrator		
	Contact person outreach and services		
	Other		

Contact person and email address (for follow-up if needed):

Date completed:

2

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1) <u>Type</u> of Institution (Please mark <u>one</u>)

   Type
   ☐ Public
   ☐ Private/not for profit
   ☐ Private/for profit

2) What <u>degrees</u> are offered at your institution? (Please mark all relevant):

   ☐ BA/BSc (1st cycle) level
   ☐ Post-Graduate Diplomas
   ☐ MA/MSc (2nd cycle) level
   ☐ PhD (3rd cycle) level
   ☐ Other (e.g. Diploma, Certificate, etc)...................................

3) <u>Size</u> of the Institution / Student <u>Enrolment</u>: How many students (part-time and full-time, and all levels of degrees) were enrolled at your institution as of the beginning of the 2009/10 academic year? (Please select <u>one</u>):

   ☐ Less than 1,000
   ☐ 1,001 to 10,000
   ☐ 10,001 to 25,000
   ☐ More than 25,000

4) Student body: who does your university serve?

   - Rural population
   - Urban population
   - Don't Know

5) Does your university have a stand-alone Sustainable Development (SD) Strategy or Plan?[2]

Yes   No   Don't Know

6) To what extent do the most current formal written statements describing the purposes and objectives of the units listed below reflect a commitment to sustainability, SD or Education for Sustainable Development (ESD)?

[Please rate using the following scale: 0 – don't know; 1 – not at all; 2 – a little; 3 – quite a bit; 4 - a great deal]

Unit/written statement	Policy document	Annual report	Brochure	Catalogue	Other (List)
The institution as a whole					
College/school or division (list them below)					
•					
•					
•					
Other units/departments within the institution					
•					
•					
•					

Comments: (Excerpts of such documents would be welcome)

7) Institutions committed to education for sustainable development (ESD) create certain positions and committees, as well as engage in certain practices, which reinforce this commitment. Please check (√) all of the following are present on your campus:

Environmental Council / Sustainable Development or Task Force

Sustainable Development Coordinator- ( ) student or ( ) staff member

Dean of Environmental Programs or Director of Sustainability Programs (a high level officer responsible for these activities)

Energy Officer

Green Purchasing Coordinator

Institutional Research Agenda on Sustainable Development

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[2] Some reference to Sustainability, Sustainable Development and Education for Sustainable Development are proposed under Annex I.

Orientation programmes on sustainability for faculty and staff

Socially and environmentally responsible investment practices and policies

 Regularly conducted sustainability audits

Other:

8) Has your institution established multidisciplinary and interdisciplinary structures (such as an institute or center) for research, education and policy development on sustainability issues?

Yes   No

If yes, please describe:

Title	Date of implementation	Responsible/director	Short description

9) What is the level of commitment of different leaders in your institution / on your campus to sustainability and SD issues?

[Please rate using the following scale: 0 – don't know; 1 – none; 2 – a little; 3 – quite a bit; 4 - a great deal]

Position	Rating
Senior Management (VCs/Rectors/Presidents & their Deputies)	
Directors of Colleges/Institutes/Deans of Faculties	
Heads and Deputy Heads of Departments	
Heads of Student organizations	
Heads of Faculty Associations/Trade Unions	
Coordinators of support/administrative staff	
Others (please specify)	

10) Please list key events that have happened in the past year that shows a concern for, and commitment to, sustainability on your campus (e.g. seminars/ conferences, inter faculty lectures, Earth Day celebrations, mainstreaming of ESD workshops into campus activities etc.).

Event	Time line	Main Outcome

11) How do you rate your institution's overall communication/public awareness strategy on sustainability and SD?

[Please rate using the following scale: 0 – poor; 1 – average; 2 – good; 3 – very good; 4 - excellent]

12) Does your institution receive any economic, material, infrastructure (etc...) support specifically for sustainability and/or SD projects/activities (research, conferences, seminars, outreach programmes, etc)?

Yes   No   Don't Know

If yes please specify:

Activity	Type of support

If yes, please indicate how much funding is received to support these activities per annum? (Indicate relevant average over the past 5 years) And what are the principal sources of funding for these activities?

Amount in US$	
<$20,000	
$20,000 - $50,000	
$50,001 - $200,000	
>$200,000	

Source(s) of funding	% of total
Government	
Development Partners/Foundations	
Private Sectors	
University's internally generated funds	
Individuals	
Others	

13) Has your institution developed one or more partnerships at regional, national and international level in order to develop internal project(s)?

Yes   No   Don't Know

If yes, please specify:

Project	Partner	Timeline	Main Outcome

14) In terms of moving toward environmental sustainability, please rate the extent to which your institution has implemented the following practices.

[Please rate using the following scale: 0 – don't know; 1 – not at all; 2 – a little; 3 – quite a bit; 4 - a great deal]

Operational Practices	Rating
Building construction and renovation based on green design principles	
Energy conservation practices (including lighting, heating, cooling, ventilation, windows, etc.)	
Waste reduction practices (such as e-communications, double-sided copying, "waste free lunch" program, etc.)	
Recycling of solid waste (including paper, plastic, metal, e-waste, etc.)	
Sustainable food program (such as local, organic, and/or fair trade food)	
Water conservation practices (including efficient toilets, minimal irrigation, harvested rainwater, etc.)	
Sustainable landscaping (emphasizing Integrated Pesticide Management practices, native plants, biodiversity, minimizing lawn, etc.)	
Sustainable transportation program (including bicycle/pedestrian friendly systems, car pools, bus pass programs, biodiesel projects, etc.)	
Green purchasing from environmentally and socially responsible companies (products are non-toxic, water and energy conserving, etc.)	
Reduction of toxic materials and radioactive waste	
Environmental or sustainability assessments / audits	
Others (please specify):	

15) Please check (√) all of the following next steps that your institution is planning to develop to strengthen your commitment to sustainability

Energy conservation initiative	
Sustainable food program	
Compulsory course on sustainability	
New strategic plan reflecting sustainability	
Other:	

Learning

16) Indicate the extent to which sustainability is a focus woven into traditional disciplinary education in the following:

[Please rate using the following scale: 0 – don't know; 1 – none; 2 – a little; 3 – quite a bit; 4 - a great deal]

Discipline	Rating
Physical Sciences	
Natural Sciences	
Engineering and Applied Sciences	
Social Sciences	
Arts and Humanities	
Health and Medical Sciences	
Others	

17) Does your institute offer a specific degree programme in sustainability/SD?

Yes   No   Don't know

If yes, please indicate the name of the programme, the faculty/department and the degree level (Bachelors, Masters, etc)

SD programme	Faculty /Department	Degree level

18) At the various degree levels, what proportion of all taught courses relate to issues of sustainability and sustainable development?

Please rate using the following scale:

- 0 (don't know)
- 1 (none)
- 2 (less than 20% of courses taught)
- 3 (20-30% of courses taught)
- 4 (30%-40% of courses taught)
- 5 (more than 40% of courses taught)

Degree level	Faculty	Rating
BA/BSc (1st cycle) level		
Post-Graduate Diplomas		
MA/MSc (2nd cycle) level		
PhD (3rd cycle) level		
Other (e.g. Diploma, Certificate, etc)		

19) What course(s) do you regard as essential to sustainability/sustainable development that is/are currently not being taught?

Course of Study	Faculty	Degree level

20) Does your institution offer an interdisciplinary course on sustainability/sustainable development?

Yes   No   Don't know

If yes, please indicate:

Name of the Course	Level	Compulsory YES/NO

21) How does your institution encourage students to consider sustainability/SD issues when choosing a career path? [Please check (√) below all that apply]

Job fairs focused on work in sustainable enterprises	
Career counseling	
Pledge of social and environmental responsibility	
Fieldwork	
Role modeling	
Other (please specify)	

22) To what extent are student groups directly involved in sustainability/SD initiatives?

[Please rate using the following scale: 0 – don't know; 1 – none; 2 – a little; 3 – quite a bit; 4 - a great deal]

Title sustainability/SD initiatives	Timeline

Teaching

23) At your institution, what factors influence the introduction of a new course? Please tick (√) all that applies:

- New institutional policy development

- Implementation of national policy directions

- Introduction of reward system

- New faculty leadership

- New staff Member

- Other:

24) What barriers could you identify that may hinder the introduction of SD/sustainability oriented courses?

25) Does your institution provide significant faculty and staff development opportunities to enhance understanding, teaching and research in sustainability?

Yes   No   Don't Know

If yes, please describe recent faculty or staff development opportunities in these areas:

Type	Title	Timeline
Professional Training /development		
Work teams		
Mobility programs		
Others		

26) Has mainstreaming of sustainability/SD been introduced into the university curricula?

Yes   No

If yes, please list which discipline(s), timeline and the degree level:

Discipline	Degree level	Timeline

27) What has motivated the teaching/integration of a course on sustainability:

Teacher training

28) If your institution has a faculty of education or offers teacher training, is sustainability/SD/ESD a major part of the focus?

Yes   No   Don't Know

29) If the university is involved in production of learning materials, sustainability/SD/ESD taken into consideration?

Yes   No   Don't Know

If yes please list some of the learning materials:

Type of Material	Title

E. RESEARCH

Research areas on sustainability are cross-cutting and include topics such as renewable energy, sustainable building design, ecological economics, business and sustainable development, indigenous/traditional knowledge, cultures and technologies, population and development, total environmental quality management, agriculture and food self-sufficiency, water management, etc.

30) What factors motivate researchers at your institution to undertake research on sustainability/SD? (Please mark as appropriate)

A supportive institutional research environment	
Colleagues	
Donor funding	
Government funding	
Market forces (private sector demand)	
Leadership innovation	
Partnerships (e.g. other researchers, industry-government-university; industry-university; etc)	
National Governments' policies	
Consumer/public sector advocacy for eco-efficiency	
Others (please specify)	

31) Estimate the amount of research in the area of sustainability being done in the various disciplines (e.g. Physical Sciences, Natural Sciences, Humanities, etc).

Please rate using the following scale:

- 0 (don't know)
- 1 (none)
- 2 (less than 20% of all research)
- 3 (20-30% of all research)
- 4 (30%-40% of all research)
- 5 (more than 40% of all research)

Discipline	Rating

Please list the most relevant faculty research of related to sustainability/SD:

Project Research	Unit/department	Responsible

32) Estimate the amount of student research in the area of sustainability being done in the various disciplines at each degree level.

Please rate using the following scale:
- 0 (don't know)
- 1 (none)
- 2 (less than 20% of all research)
- 3 (20-30% of all research)
- 4 (30%-40% of all research)
- 5 (more than 40% of all research)

Undergraduate

Discipline	Rating
Physical Sciences	
Natural Sciences	
Humanities	
Etc....	

Graduate

Discipline	Rating
Physical Sciences	
Natural Sciences	
Humanities	
Etc....	

33) What use is made of the results of faculty research projects on SD/Sustainability? (Please mark as appropriate)

Documentation in university/departmental library	
Publications in refereed journals	
Presentation at international conferences/workshops	
Dissemination through international networks, centres of excellence, etc	
Practical demonstration within the university community	
Practical demonstration through university outreach programmes	
Used for advocacy, policy making	
Others (please specify)	

34) What use is made of student research projects on SD/Sustainability? (Please mark as appropriate)

Documentation in university/departmental library	
Publications in refereed journals	
Presentation at international conferences/workshops	
Dissemination through international networks, centres of excellence, etc	
Practical demonstration within the university community	
Practical demonstration through university outreach programmes	
Others (please specify)	

35) Does the research on SD carried out at your institution impact (e.g. reduction in energy use, campus greening, improved crop yield, waste recycling, etc) on the institutional operations and the community?

Yes   No   Don't Know

If yes, please describe:

Project	Impact

A sustainable institution supports sustainable community development in its local area and in the surrounding region through projects and partnerships (primary and secondary schools; local governments and businesses; etc). It may also seek international cooperation in solving global justice and sustainability challenges through conferences, student/faculty exchanges, etc.

36) To what extent is your institution involved in sustainable development/sustainability work through formal partnerships or relationships at regional, national or international levels?

Type of Partner	Yes/No
Local	
National	
Regional	
Global	

37) Please indicate your institutional outreach initiatives and on which dimensions of sustainability they focus.

Initiative	Implementing Unit/Department	Focus on sustainability		
		Environment	Socio-cultural	Economy

38) Does your Institution provide students with specific opportunities and settings committed to sustainability/SD. Please check (√) which of the following are present on your campus:

Student Environmental Center

Orientation program(s) on sustainability for students

Student Group(s) with an environmental or sustainability focus

Ecology House or Sustainable Dormitory

Other:

39) Is your institution engaged in rural development?

Yes   No   Don't Know

If yes what forms do these engagements take?

Type	Name of the project	Faculty/Department	Timeline
Research			
Direct collaboration			
Internship			
Staff/Student outreach activities			
Others (please specify)			

40) Is your institution engaged in peace, security, conflict resolution/prevention training?

Yes   No   Don't Know

If yes, what forms do these engagements take?

Type	Name of the project	Faculty/Department	Timeline
Research			
Direct collaboration			
Internship			
Staff/Student outreach activities			
Others (please specify)			

41) Is your institution engaged in the promotion of cultural diversity, intercultural dialogue and understanding?

Yes   No   Don't Know

If yes, what forms do these engagements take?

Type	Name of the project	Faculty/Department	Timeline
Research			
Direct collaboration			
Internship			
Staff/Student outreach activities			
Others (please specify)			

42) Is your institution engaged in **the prevention of HIV/AIDS?**

Yes   No   Don't Know

If yes, what forms do these engagements take?

Type	Name of the project	Faculty/Department	Timeline
Research			
Direct collaboration			
Internship			
Staff/Student outreach activities			
Others (please specify)			

43) Please indicate your main non-formal or informal SD programmes /activities and the targeted audience (Business/Corporations/Industry, Community, Civil Society, Government, General Public, etc)

Program/Activity type	Audience
Pedagogical Resource/Materials	
Training	
Advocacy	
Workshops	
Advertising	
Best Practices	
Event Campaign Media (print, radio, film, etc.)	
Policy Research	
Assessment/Evaluation	
Other (please specify)	

Annex I.

Some definitions of sustainable development, sustainability and education for sustainable development:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Brundtland Commission - United Nations, 1987 - *Our Common Future* (1987), Oxford: Oxford University Press, ISBN 0-19-282080-X). While the exact ambit of the concept is open to debate, it is generally accepted that inherent in the concept of sustainable development are the economic, social and environmental aspects. A simpler definition however is that given by the children in Buliigo boarding and day primary school, Iganga District, Uganda. According to them, sustainable development is the vision of a world which is conscious of what it uses and what it leaves behind for others.

"**Sustainability** is an evolving paradigm for planning and decision-making. It is a promise. It is a dynamic condition which requires a basic understanding of the interconnections and interdependency among ecological, economic, and social systems." (The Sustainability Education Center, 2002). Sustainability teaches us to be less materialistic, less energy-intensive and more equitable while pursuing essential human needs such as food, energy, basic housing, freshwater and health.

Education for sustainable development (ESD) is a visionary approach to education that seeks to help people better understand the world in which they live, and to face the future with hope and confidence, knowing that they can play a role in addressing the complex and interdependent problems that threaten the future, such as poverty, wasteful consumption, environmental degradation, urban decay, population growth, gender inequality, health-related problems, conflict and the violation of human rights. (Education for Sustainable Development Information Brief paper of UNESCO, 2005). ESD represents a catalytic process for social change that utilizes all aspects of public awareness, education and training to enhance an understanding of the linkages among issues of sustainable development.

In its Declaration of the Decade for Education for Sustainable Development (2005-2014), the United Nations emphasized on education as an indispensable element for achieving sustainable development, and invited Governments to consider the inclusion of measures to implement the Decade of Education for Sustainable Development in their respective educational strategies and action plans. An academic institution committed to sustainability should help students understand the roots of today's injustices and motivate them to seek justice and humaneness in full integration with understanding the roots of environmental degradation and modelling environmentally sustainable practices (John B. Cobb Jr., "Sustainability and the Liberal Arts" conference, 1998 - http://www.ulsf.org/dernbach/history.htm).

Indigenous people have argued, through various international forums such as the United Nations Permanent Forum on Indigenous Issues and the Convention on Biological Diversity, that there are *four* pillars of sustainable development, the fourth being cultural. *The Universal Declaration on Cultural Diversity* (UNESCO, 2001 - http://unesdoc.unesco.org/images/0012/001271/127160m.pdf) further elaborates the concept by stating that "...cultural diversity is as necessary for humankind as biodiversity is for nature"; it becomes "one of the roots of development understood

not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence". In this vision, **cultural diversity is the fourth policy area of sustainable development.**

Annex II.

The following are among a range of taught topics with direct links to sustainable development:

Physical Sciences:
- Sustainable Systems;
- Sustainable Ecosystems;
- Environmental Health Engineering;
- Environmental Strategy, etc.

Natural Sciences:
- Green Chemistry;
- Sustainability Studies;
- Human Population and Natural Resources Management, etc.

Engineering and Applied Sciences:
- Sustainable Production and Consumption;
- Land Ethics and Sustainable Agriculture;
- Telecommunications Program;
- Applied Studies in Sustainable Community Development, etc.

Social Sciences:
- Bioethics;
- Globalization and Sustainable Development;
- Environmental Policy and Management;
- Urban Ecology and Social Justice; Population, Women and Development;
- Gender Studies;
- Critical Gender Studies;
- Economics and Sustainability;
- Socio-political Sciences and Sustainable Development, etc.

Humanities:
- Environmental Philosophy;
- Nature Writing;
- History teaching;
- Sustainable Development and Law;
- Environmental Conservation Education;
- Applied Humanities for the Pursuit of Sustainability;
- Humanities and Sustainable Development, etc.

Health and Medical Sciences:
- Health, Environment, and Sustainable Development;
- Greening and Sustainability in health, etc.

Interdisciplinary courses

30 April, 2010

Dear Head of Institution,

Higher education institutions (HEIs) in Sub-Saharan Africa are key agents for improving sustainable development in Africa. Yet, there are few studies available to demonstrate what roles they play and what practices prevail in these institutions to achieve sustainability. African HEIs committed themselves to integrate sustainable development and sustainability issues in their institutions' curricula and day-to-day campus life in the framework of the Conference Declaration at the 12th General Conference of the Association of African Universities (AAU) held in Abuja, Nigeria (May, 2009) under the theme *"Sustainable Development in Africa – The Role of Higher Education"*.

The Global University Network for Innovation (GUNI) and the International Association of Universities (IAU) are likewise committed to advancing sustainable development in higher education. They were present at the AAU 12th General Conference and one of the outcomes was the idea of the three organisations joining synergies and developing a project that could facilitate the promotion of sustainability by African HEIs as contained in the final declaration of the Conference. This, in addition, would help to promote better understanding on these issues globally.

These three organizations now join their efforts to push the agenda one step further. GUNI, IAU and AAU have jointly developed the project *"Promotion of Sustainable Development by Higher Education Institutions in Sub-Saharan Africa"* which is funded in part by the Spanish Agency for International Development and Cooperation (AECID).

The main objective of the project is to obtain an overview of the major actions, experiences and practices that HEIs in Sub-Saharan Africa are developing so as to promote sustainable development (SD) through their activities.

Academic institutions vary considerably in how they approach sustainability: some concentrate on minimizing their ecological impact through changes in operations; others emphasize sustainability in the curriculum; yet others concentrate on university outreach and/or embed SD principles in their overall development strategy.

Given this diversity, the project includes a Survey Questionnaire designed to help HEIs assess the extent to which each institution incorporates sustainable development in the following areas: Institutional Governance, Curriculum: Teaching and Learning;

Research, Campus Operations, and Outreach and Services. It is also designed to collect your impressions and your institution's accomplishments in achieving sustainability in each of the five critical dimensions mentioned above.

GUNI, IAU and AAU would like to invite you to take part in the project by completing the Survey Questionnaire (please see attached the pdf version of the Questionnaire). Please note that the survey is multi-faceted and designed to stimulate discussion among key stakeholders in each university. Therefore, we suggest that a Coordinator be appointed to head an Institutional Response Team comprising personnel with adequate knowledge and information on the five areas. The exercise could take a few hours, and may be best carried out in two or more sessions. The Coordinator should consolidate all the responses into a single document before returning the completed questionnaire.

It is important to recognize that hardly any institution will be able to demonstrate high achievement of sustainability in all or even in the majority of areas being surveyed, as very few, if any, institutions embody sustainability in a holistic sense. Thus the objective is not for institutions to compete in showing high achievements in the questionnaire, it aims at bringing to the fore what is being done so far and what could be developed further in the future.

In case you accept our invitation, please send a brief message to guni-iau-aau-sdafrica@guninetwork.org

The questionnaire must be completed online. You can access it by clicking on the following link: http://www.guninetwork.org/GUNI-IAU-AAU-sdafrica/

To start, please use your e-mail address (the one to which this message has been sent) and the password we have sent you as your login data. You will be able to edit the responses given in the questionnaire until you have completed it. Instructions for completing the questionnaire are also available on the website. We kindly ask you to complete and return the survey questionnaire no later than by 31 May 2010.

The project hopes to assist HEIs in Sub-Saharan Africa to develop comprehensive institutional strategies that would enhance their overall institutional mission and action plans towards achieving sustainable development in Africa. The data gathered will be analyzed and the findings and recommendations will be reported initially at the 5th GUNI International Barcelona Conference on Higher Education to take place in Barcelona, in November 2010, and will be also published in the Higher Education in the World 4 report edited by GUNI.

If your institution participates in this survey, we would be pleased to send you two copies of this publication free of charge. Reports will also be published and made available by IAU and AAU.

If you need further information or any clarification in completing the questionnaire please do not hesitate to contact us at: guni-iau-aau-sdafrica@guninetwork.org

We very much hope that this project will be of interest to your institution and we look forward to hearing from you very soon. Thank you in advance for your cooperation.

Yours sincerely,

Cristina Escrigas
Executive Director
GUNI

Eva Egron Polak
Secretary General
IAU

Goolam Mohamedbhai
Secretary General
AAU

Appendix 2. List of responding institutions

Responding institutions, their countries, medium of communication and the proportion of the questionnaire each institution completed

Institution	Country	Language	% of questionnaire completed
Université des Sciences et Technologies du Bénin	BENIN	French	80.67%
Université des Sciences Appliquées et Management	BENIN	French	94.75%
Institut supérieur de Formation professionnelle	BENIN	French	44.67%
University of Botswana	BOTSWANA	English	89.50%
Université de Ngozi	BURUNDI	French	65.25%
Ecole Nationale Supérieure des Travaux Publics	CAMEROON	French	100%
Université technologique Bel Campus	CONGO, THE DEMOCRATIC REPUBLIC OF THE	French	34.33%
Université évangélique en Afrique	CONGO, THE DEMOCRATIC REPUBLIC OF THE	French	83.58%
Université de l´Atlantique	CÔTE D´IVOIRE	French	36.58%
Institut national polytechnique Félix Houphouët-Boigny	CÔTE D´IVOIRE	French	83.08%
Ecole nationale supérieure de Statistique et d´Economie appliquée	CÔTE D´IVOIRE	French	78.58%
Jimma University	ETHIOPIA	English	76.58%
Bahir Dar University	ETHIOPIA	English	100%
Ghana Telecommunications University College	GHANA	English	87.75%
Kwame Nkrumah University of Science and Technology, Kumasi	GHANA	English	59.33%
Regent University College of Science and Technology	GHANA	English	76.17%
University of Ghana	GHANA	English	75.67%
University of Mines and Technology, Tarkwa	GHANA	English	87.75%
Kenyatta University	KENYA	English	91.67%
United States International University	KENYA	English	57.17%
The Catholic University of Eastern Africa	KENYA	English	100%
Strathmore University	KENYA	English	61.92%
Hautes Etudes Chrétiennes du Management et de Mathématiques appliquées	MADAGASCAR	French	85.08%
Institut National des Sciences et Techniques nucléaires	MADAGASCAR	French	83.42%
Institut supérieur de la Communication, des Affaires et du Management	MADAGASCAR	French	35%

Université de Fianarantsoa	MADAGASCAR	French	83.58%
Institut national des Sciences comptables et de l´Administration d´Entreprises, Antananarivo	MADAGASCAR	French	66.75%
University of Malawi	MALAWI	English	82.33%
University of Mauritius	MAURITIUS	English	89.50%
Mauritius Institute of Education	MAURITIUS	French	81%
University of Technology, Mauritius	MAURITIUS	English	33.33%
Polytechnic of Namibia	NAMIBIA	English	73.17%
International University of Management	NAMIBIA	English	78.58%
University of Lagos	NIGERIA	English	84.33%
Adamawa State University	NIGERIA	English	75.25%
Olabisi Onabanjo University	NIGERIA	English	74.58%
University of Ilorin	NIGERIA	English	91.92%
University of Calabar	NIGERIA	English	90.25%
Gombe State University	NIGERIA	English	88.17%
Umaru Musa Yar´adua University	NIGERIA	English	91.67%
Redeemer´s University	NIGERIA	English	87.67%
Bayero University, Kano	NIGERIA	English	70%
University of Uyo	NIGERIA	English	79.50%
Kigali Institute of Education	RWANDA	English	38.17%
Kigali Health Institute	RWANDA	English	96.42%
Institut supérieur d´Agriculture et d´Élevage de Busogo	RWANDA	English	64.67%
Université de Thiès	SENEGAL	French	80.67%
Institut international des Sciences et de la Technologie	SENEGAL	French	82.50%
Linea Academy	SOUTH AFRICA	English	68.17%
University of the Free State/Universiteit van die Vrystaat	SOUTH AFRICA	English	87.08%
Vaal University of Technology	SOUTH AFRICA	English	63.50%
University of Johannesburg	SOUTH AFRICA	English	98.92%
Stellenbosch University/Universiteit Stellenbosch	SOUTH AFRICA	English	72.92%
University of South Africa/Universiteit van Suid-Afrika	SOUTH AFRICA	English	100%
Nelson Mandela Metropolitan University	SOUTH AFRICA	English	81.67%
Regenesys Management	SOUTH AFRICA	English	84.83%
Rhodes University	SOUTH AFRICA	English	100%
Production Management Institute of Southern Africa	SOUTH AFRICA	English	97.92%

Cape Peninsula University of Technology	SOUTH AFRICA	English	80.58%
Foundation for Professional Development	SOUTH AFRICA	English	51.67%
Jameat Aali El-Neel	SOUTH AFRICA	English	55.42%
University of Swaziland	SWAZILAND	English	91.67%
University of Dar es Salaam	TANZANIA, UNITED REPUBLIC OF	English	74.42%
Gulu University	UGANDA	English	81.67%
Uganda Martyrs University	UGANDA	English	78.58%
Mbarara University of Science and Technology	UGANDA	English	58.75%
Copperbelt University	ZAMBIA	English	84%
Midlands State University	ZIMBABWE	English	84.67%
Great Zimbabwe University	ZIMBABWE	English	88.92%
National University of Science and Technology	ZIMBABWE	English	90.58%
Jameat Nyala	SUDAN	English	53.17%
Ahfad University for Women	SUDAN	English	92.33%
West Kurdofan University	SUDAN	English	59.50%