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Sustainability Assessment of University of Gondar, Gondar, North-west Ethiopia

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Abstract

The purpose of this article is to provide an overview of the cross-institutional assessment of sustainable development practices in the University of Gondar (UoG). The focus of the assessment was the level of UoG academic departments' integration of sustainability concerns in teaching, research and community service. Management contributions to sustainable development, student initiatives on sustainability issues and policy statements about sustainable development of UoG were also considered in the assessment.

The data collection was based on the Unit-based Sustainability Assessment Tool (USAT); in addition, supplementary information was collected through observations across the four campuses of UoG from January to February 2012.

The result of the assessment showed that only a few academic departments have incorporated sustainability concerns in their curricula and teaching approach. The initiation and commitment of academic departments in mainstreaming sustainability concerns in the research and community service delivered were relatively poor. The operation and management of UoG showed inadequate sustainable development practices on waste management, energy utilization and purchasing from

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environment-friendly companies. In addition, the written policy and statements of UoG did not reflect sustainability in an explicit manner. The university is expected to respond to the key themes defined through sustainability declarations on higher education; there is also a need to establish the relevance of these in relation to the systemic environment.

From the study undertaken, we have learnt that sustainability assessment of universities using USAT will be more valuable, if universities have already initiated the embedding of sustainability so that USAT can be used to benchmark the continual improvement.

Keywords: Higher education institution, sustainability, Unit-based Sustainability Assessment Tool, University of Gondar

INTRODUCTION

Education in all its forms plays an indispensable role in addressing the critical challenges of sustainable development. The interconnected issues of globalization, poverty alleviation, social justice, democracy, human rights, peace and environmental protection require inclusive partnerships to create a global learning environment (UNESCO 2005).

Education for sustainable development is a dynamic concept that utilizes all aspects of public awareness, education and training to create or enhance an understanding of the linkages among the issues of sustainable development and to develop the knowledge, skills, perspectives and values which will empower people of all ages to assume responsibility for creating and enjoying a sustainable future (UNESCO 2005).

Academic institutions vary in the way they approach sustainability. Some concentrate on minimizing their ecological impact through emphasizing operational practices that include waste reduction and/or recycling, carbon dioxide and air pollution reduction, energy and water conservation practices, sustainable landscaping and so on (ULSF 1999 as cited by Togo 2009).

Cross-institutional assessment tools identify the sources of support and resistance for sustainability initiatives, which leads to effective sustainability policies, objectives and programmes. Assessment tools can help alleviate this problem through identification of best practices and focusing campus efforts on continual improvement. The tools also facilitate communication of progress within and across institutions, which is key to the mutual success in moving towards the ambitious and amorphous target of sustainability in higher education (HE) (Shriberg 2002).

In this article, a Unit-based Sustainability Assessment Tool (USAT) was used to assess the sustainability performance of the University of Gondar (UoG). The UoG is one of the oldest universities in Ethiopia. Established in 1954 as a Public Health College and Training Centre, the university has steadily grown and evolved into one of the top education institutions in the country today having 21,636 undergraduate and 1,829 postgraduate students.

METHODS

The sustainability assessments of UoG were mainly based on the 'Unit-based Sustainability Assessment Tool (USAT)' (Togo and Lotz-Sisitka 2009) which was developed by United Nations Environment Programme (UNEP) Mainstreaming Environment and Sustainability into African universities. The tool integrates different faculties and departments, administrative and research units, given the way that universities tend to be managed via departments or unit heads (Togo and Lotz-Sisitka 2009).

The USAT was designed not only to establish to what level universities have integrated sustainability concerns in teaching, research and community service, but also to consider organizational level and management unit contributions, student initiatives and policy statements.

It has four parts (A, B, C and D): Part A focuses on the core mission of universities and covers curriculum, teaching approach, research, community service activities, examinations/assessment and staff expertise. It targets heads of teaching departments to give their impression on the indicators. Part B deals with other university operations and the management of the university, including the estates division and management divisions such as human resources, planning and research. Part C deals with student activities which may be linked to or be independent of the other parts. Part D focuses on policy, including institutional written statements (Togo and Lotz-Sisitka 2009).

Respondents rated the parameters on six choices ranging from X to 4 of each indicator (Togo and Lotz-Sisitka 2009) where:

- X (don't know)—indicated a lack of information concerning the practice but not necessarily an absence of such information.
- 0 (none)—indicated the absence of information regarding the indicator in question; this was an equivalent of about 0 per cent of such information.
- 1 (a little)—indicated that the evidence showed poor performance on the concerned indicator and this was about 25 per cent of full information regarding the indicator.
- 2 (adequate)—indicated that the evidence showed regular performance, about 50 per cent of full information required by the indicator.
- 3 (substantial)—indicated that the evidence showed good performance, about 75 per cent of full information.
- 4 (a great deal)—indicated that the evidence showed excellent performance, more than 75 per cent of full information.

From January to February 2012, the USAT Part A was distributed to all the departments—67 in number, while Parts B and D were distributed to the vice presidents of the university and faculty deans and Part C to the students' representatives. The collected data were entered into excel and the results were presented in radar diagrams (Togo and Lotz-Sisitka 2009). Supplementary data were also collected through observations across the four campuses of UoG.

RESULTS AND DISCUSSION

Teaching Method, Curriculum, Research and Community Service of UoG Academic Departments

Only 11 academic departments showed a sustainability performance above average (adequate performance) on the core mission of the university: curriculum, teaching approach, research, community service activities, examinations/assessment and staff expertise (see Figure 1). The rest 56 departments showed relatively poor performance on the indicators. The few academic departments that showed adequate performance may be due to the nature of their courses so that the curriculum was tailored to deal with sustainability issues such as environmental concerns, poverty reduction, land management, solid waste management, etc. This is highly true for the Population Studies and Environmental and Occupational Health and Safety departments which have the maximal score on the indicator (see Figure 1). The survey elicited a moderately positive response to the teaching approaches (see Figure 2). Most of the subject-centred departments revealed that critical thinking was an important skill which was also the main focus in the teaching–learning process. However, most of the departments lack system thinking and integrated problem-solving in their teaching approach.

There were some practices of sustainable development in most of the academic departments in connection with research and community engagement activities (see Figure 2). Only one of the campuses, College of Medicine and Health Science

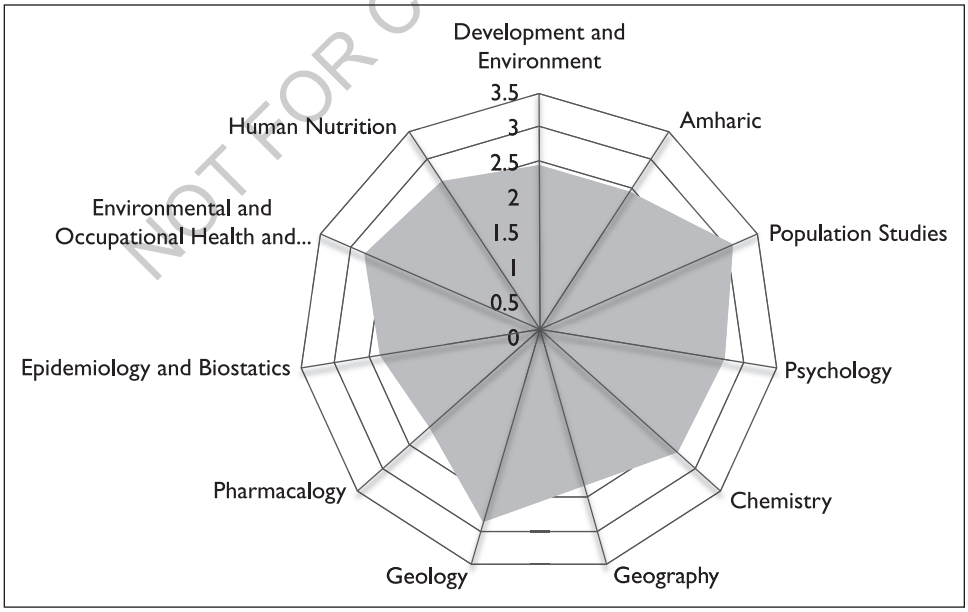

Figure 1 Academic departments that show adequate sustainability performance on Part A of USAT

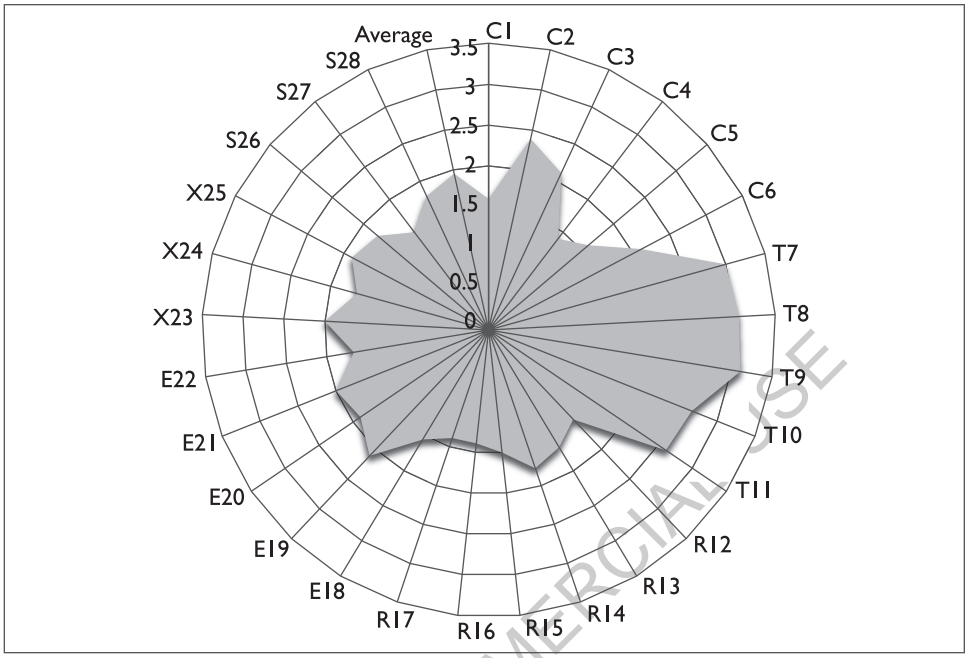

Figure 2 Academic departments sustainability rating per indicator (C1-C6, T7-T11, R12-R17, E18-E22, X23-X25 and S26-S27)

Notes: C1 = The extent to which the department offer courses that engage sustainability concerns, **C2 =** The level of integration of sustainability topics in courses referred to above, **C3 =** The degree to which local sustainability issues and challenges form part of the department's teaching programme, **C4 =** The degree to which global sustainability issues and challenges form part of the department's teaching programme, **C5 =** The extent to which the department enrol students in courses that engage sustainability concerns, **C6 =** The level of cross faculty collaboration in teaching sustainability programmes, **T7 =** The capacity to make informed decisions, **T8 =** Critical thinking skills, **T9 =** A sense of responsibility, **T10 =** Respect for the opinions of others, **T11 =** Integrated problem-solving skills, **R12 =** The extent to which the department (staff and students) is involved in research and scholarship in the area of sustainability, **R13 =** The degree to which global sustainability issues and challenges form part of the department's research, **R14 =** The degree to which local sustainability issues and challenges form part of the department's research, **R15 =** The extent to which the department is collaborating with other faculties, institutions and stakeholders in pursuit of solutions to sustainability problems, **R16 =** The extent to which aspects of sustainable development are used in selection/execution of research, **R17 =** The level to which aspects of sustainable development are reflected in the department's research outputs, **E18 =** The extent to which the department (staff and students) is involved in community engagement in the area of sustainability, **E19 =** The level of commitment of the department's resources in sustainability projects in the community, **E20 =** The degree to which local sustainability issues and challenges form part of the department's community engagement, **E21 =** The extent to which the department collaborates with other stakeholders in addressing community sustainability challenges, **E22 =** The extent to which aspects of sustainable development are used in selection/execution of community engagement projects, **X23 =** The extent to which sustainability aspects are assessed/examined during course, **X24 =** The extent to which sustainability aspects are considered in evaluating/assessing projects, **X25 =** The degree to which sustainability aspects are assessed in evaluating service learning programmes, **S26 =** The level of expertise of staff members in the area of sustainability, **S27 =** The extent to which staff members are willing to carry out research and service activities on sustainability aspects/topics, **S28 =** The extent to which staff members are willing to teach sustainability topics.

of UoG, has a community service programme as part of its curriculum called Team Training Programme (TTP) in which students learn through the community service delivered. Most sustainability issues to be familiarized in TTP were not available; engaging the community to mitigate public health problems were not focused on; instead, students usually worked by themselves. Community engagement is defined as

> the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people. It is a powerful vehicle for bringing about environmental and behavioural changes that will improve the health of the community and its members. It often involves partnerships and coalitions that help mobilize resources and influence systems, change relationships among partners, and serve as catalysts for changing policies, programs, and practices. (CDC 2011)

Keeping this idea in mind, TTP lacks an explicit collaboration between stakeholders; collaboration was not even a factor to alleviate public health problems. This might be the reason why sustainability performance of UoG taking community engagement as indicator was low (see Figure 2).

The overall sustainability performance of academic departments on curriculum, teaching approach, staff expertise, research and community engagement was 1.94 (48.5 per cent) (see Figure 2). This finding was lower than the findings of the research undertaken on five departments in the University of Botswana during 2008, which was 2.38 (59.5 per cent) (Ketlhoilwe and Jeremiah 2010). A study undertaken on Rhodes University, South Africa in 2009 also showed 2.5 (62.5 per cent) which is a better performance as compared to UoG (Togo 2009). The low sustainability performance of academic departments may indicate that sustainability is a new concept that has not yet got recognition. The possible reasons for this might be limited to awareness and expertise in the field; in addition, both graduate and undergraduate curriculum was too congested to incorporate sustainability highlights.

It is known that the purpose of a university is to help society meet its skills needs for the future; and it might do that both by teaching established skills to students and by carrying out research that elaborates new technological and socio-economic responses to meet the future problems and opportunities we expect to face (Gough and Scott 2007). Considering the results of the study on assessment, the academic departments did not focus on students' learning for achieving the skills demanded by the employer. This is justified with the thinking that academic departments were not concerned in mainstreaming sustainability in their teaching, research and community engagement (see Figure 2).

Being one of the universities in an emerging country, UoG academic departments should look at the rapidly growing population and urban centres that often lack the infrastructure and institutional needs to protect human and environmental health that are often connected to institutional, governance, awareness and capability issues as well as to sectoral and macroeconomic policies (Kidundo 2006). To address this, designers of the teaching programmes of the academic departments have to specify learning outcomes, not only in relation to knowledge and understanding but also

in terms of intellectual, professional and practical competences and in terms of transferable/key skills (Lozano et al. 2006). One way of doing this is to change the academic curricula and research priorities based on environmental and sustainability issues. However, the complex nature of environmental and sustainability issues may produce a more complex epistemological challenge (Lotz-Sisitka and Lupele 2006). Risks associated with production, namely environment and sustainability risk and the risks and vulnerabilities associated with poverty, are the challenges that are partially known and many 'solutions' remain open-ended and fallible, as scientific certainty remains elusive (Beck 1992, as cited by Lotz-Sisitka and Lupele 2006). Changing a curriculum might also require intensive care in considering the context of the courses and their suitability for highlighting sustainability issues. Goals, content approaches of the course, information resources for the course and assessment of students' knowledge and achievement are some of the concerns to be considered (Lozano et al. 2006).

OPERATION AND MANAGEMENT OF UoG AND STUDENT INVOLVEMENT

The enormous amount of resources and products flowing into a university leads to a natural counterpoint: an enormous amount of waste flowing out. Every year, thousands of pounds of packaging, used papers, empty printer cartridges, uneaten food, outdated technology, unwanted clothing, dorm furnishings and so on are generated (Amarello et al. 2012).

Based on the indicator of USAT on operation and management, UoG showed low sustainability performance (see Figure 3). Waste collection bins were available in UoG campuses, but there are no provisions for servicing solid wastes such as recycling; instead, solid wastes are dumped outside the city while part of the wastes, including toxic ones, are burned in incinerators. Liquid wastes in Maraki and Teweodros campus were treated through an oxidation pond outside the university setting. There was no liquid waste treatment for the other two campuses. In order to have initiation and commitment for waste management in all campuses, an advocacy effort should be conducted among staff and students. Awareness can play an important role in making the university community cognizant of their environmental impacts by establishing meaningful connections between themselves and the environment (Shriberg 2002).

The power source of UoG was from hydroelectric; even though the power source is renewable, UoG has shown little concern regarding its energy use (see Figure 3). There was only a single total energy utility data which could not indicate which building prioritized its energy improvement resources most effectively (UC Berkeley 2011).

Energy, in one form or another, supports every aspect of the university's operations. The need to monitor and limit its consumption is not just a factor of economic cost, but a reality in regard to conserving energy supplies (Stratton 2010). Installing metering in every building and creating positive attitudes among staff and students towards sustainable energy consumption can be the first step in improving energy efficiency.

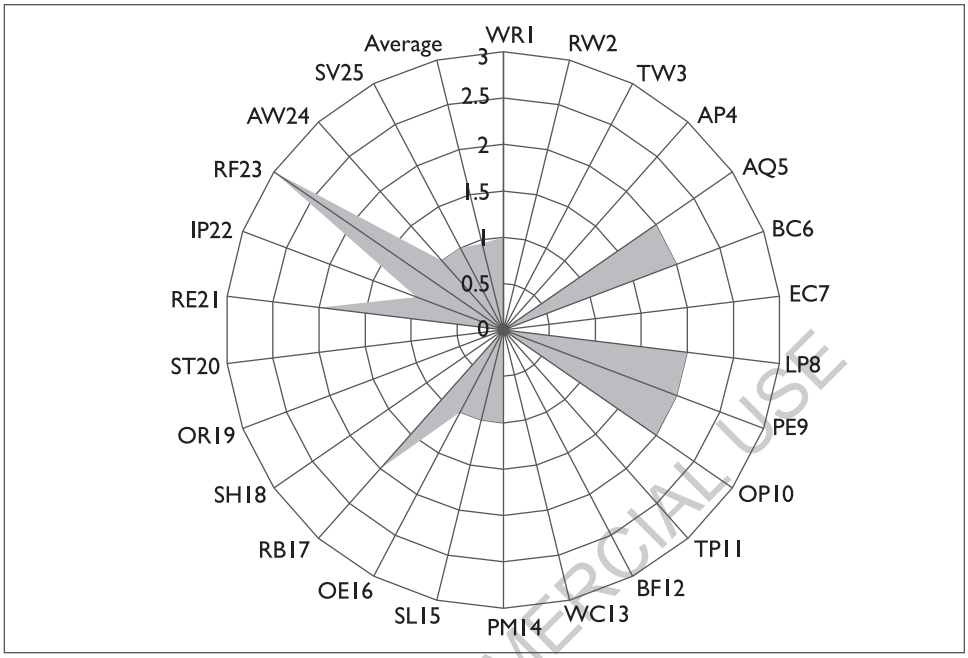

Figure 3 Sustainable development concerns of UOG in various operation and management practices per indicator (WR1, RW2, TW3, AP4, AQ5, BC6, EC7, LP8, PE9, OP10, TP11, BF12, WC13, PM14, SL15, OE16, RB17, SH18, OR19, ST20, RE21, IP22, RF23, AW24 and SV25)

Notes: WR1 = Waste reduction practices, **RW2** = Recycling of solid waste (including paper, plastic, metal, etc.), **TW3** = Source reduction of toxic materials and radioactive waste, **AP4** = CO2 and air pollution reduction practices (including alternative fuel use, renewable energy sources, emission control devices, etc.), **AQ5** = Indoor air quality standards and practices, **BC6** = Building construction and renovation based on ecological design principles, **EC7** = Energy conservation practices (in offices, laboratories, libraries, classrooms and dormitories), **LP8** = Local food purchasing programme, **PE9** = Purchasing from environmentally and socially responsible companies (including buying and using 100 per cent post consumer chlorine free paper), **OP10** = Organic food purchasing programme, **TP11** = Transportation programme (including bicycle/pedestrian friendly systems, car pools, bus pass programmes, electric/natural gas campus vehicles), **BF12** = Use of bio-fuel (not sourced from food production land), **WC13** = Water conservation practices (including efficient shower heads and irrigation systems), **PM14** = Integrated Pest Management practices (including reduction of pesticides to control weeds), **SL15** = Sustainable landscaping (emphasizing native plants, biodiversity, minimizing lawn, etc.), **OE16** = Integration of sustainability operations into the educational and scholarly activities of the university, **RB17** = The presence of a body responsible for sustainable development at the institution, **SH18** = Consideration of aspects of sustainability in staff hiring decisions, **OR19** = Consideration of aspects of sustainable development in orientation programmes for new staff members, **ST20** = Staff development in sustainable development, **RE21** = Staff rewards for sustainable development related activities, **IP22** = Consideration of aspects of sustainable development in institutional planning, **RF23** = Allocation of research funds for sustainability projects, **AW24** = Awareness raising in sustainable development, **SV25** = Visibility of sustainable development through celebration of environmental days (e.g., Arbor day, water week, etc.).

Purchasing in UoG was mainly based on the cost, and associated expenses for the product itself such as delivery, installation and maintenance of the product; concerns such as choosing environmentally and socially responsible companies for purchasing does not seem to be a concern (see Figure 3). Universities consume a steady stream of technology products, office supplies, vehicles, lighting, furniture and other products. In order to address the environmental, social and economic costs of these purchases, purchasers should heed the what, where and how much of their purchases (Amarello et al. 2012).

In UoG, there are a few sustainable development activities undertaken, such as mobilizing students and academic staff for greening and cleaning the campus every year, but for only one or two days. Such activities in UoG appear to lack a routine and there was nobody responsible for sustainable development activities in the campuses (see Figure 3). In addition, consideration for aspects of sustainable development in staff hiring, development, institutional planning and allocation of research funds were minimal (see Figure 3).

In order to make sustainability a concern in UoG, there should at least be a responsible body for initiating as well as managing sustainability in all the campuses. This body/office should be responsible for preparing awareness programmes via workshops and seminars, and in forming working groups for further influencing sustainability aspects.

There is some student involvement in the operation and management of UoG, including in the prevention of HIV and promotion of ethnicity and culture, but students' involvement in recycling, waste management and energy saving activities was null (see Figure 4). Lack of well organized sustainable activities by the managements of UoG might be the reason for the poor performance of students' involvement in sustainable development practices. Staff and students of UoG should work with the local community to capture the environmental importance of the campus and make it function as a centre of the community.

POLICIES AND WRITTEN STATEMENTS OF UoG

According to the responses obtained on the indicator sustainable development related policy and written statements: the extent to which the Ethiopian HE policy reflects an engagement with sustainability concerns *and* the degree to which national and global sustainability issues inform decision-making processes in HE policy and structures, the findings were adequate for the country (see Figure 5). With adequate sustainable development related policy and written statement at the country level, there appeared to be a lack of support given to HE institutions for sustainability programmes. There were no clear institutional sustainable development related policies and their integration in the vision and mission statement of UoG (see Figure 5). Universities are expected to respond to the key themes defined through sustainability declarations on HE; there is also a need to establish the relevance of these in relation to the systemic environment. The role of the university should closely relate to its context or setting (UNESCO 2001).

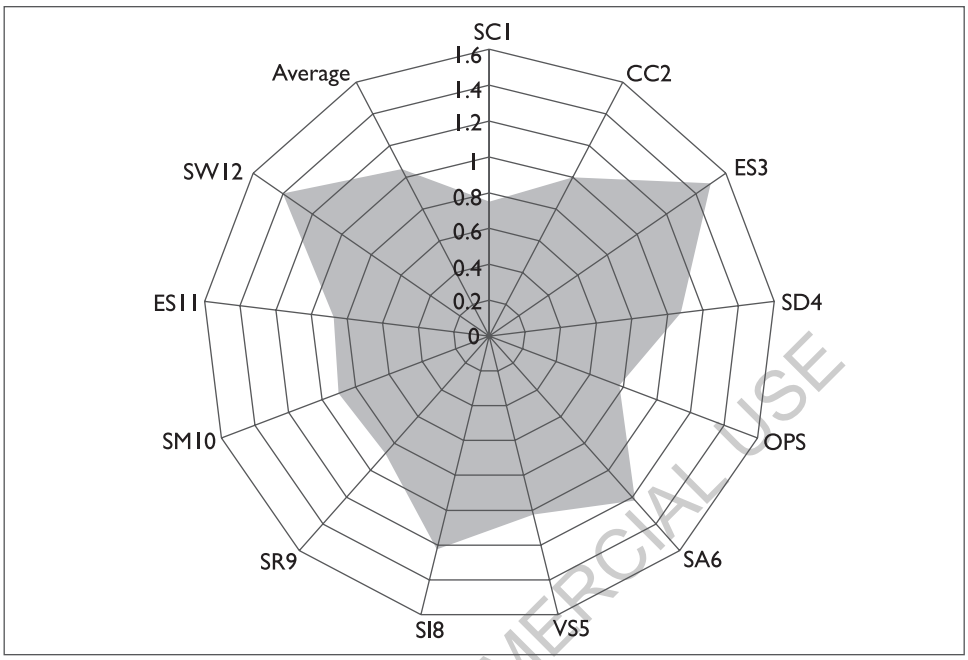

Figure 4 Student involvement of sustainable development concerns in UoG per indicator (SC1, CC2, ES3, SD4, OP5, SA6, VS5, S18, SR9, SM10, ES11 and SW12)

Notes: SC1 = Student Environmental Centre, **CC2** = Career counselling focused on work opportunities related to environment and sustainability, **ES3** = Environmental societies or other Student Group(s) with an environmental or sustainability focus, **SD4** = Sustainability practices in residences or dormitories by students (e.g., recycling), **OP5** = Orientation programme(s) on sustainability for students, **SA6** = Student environmental and sustainability awareness programmes, **VS7** = Voluntary community service by students, related to sustainability issues and concerns, **SI8** = Involvement of student groups across campus in sustainability initiatives, **SR9** = SRC involvement in environmental and sustainability initiatives, **SM10** = Student collaboration with management in the area of environmental and sustainability, **ES11** = Environmental and sustainability activities initiated by students themselves (independent of departments, lecturers, management, etc.), **SW12** = Students' willingness to take responsibility in the environmental and sustainability area.

The overall sustainability performance was 1.4 (35.1 per cent) which showed relatively low sustainability performance within the university. The practical implication of the study indicated that UoG had not been interfacing sustainability issues in its curricula, management operations and educational policies.

The strength of the USAT used in this assessment was its clear focus on the sustainability dimension in HE; it indicated the dimensions measured empirically. In addition, the result of the assessments using USAT can show the level of the university's community perception, initiative and commitment to sustainable development.

Getting supplementary information such as exam question papers, a list of research topics and publications by students, total resource utilization and amount of waste

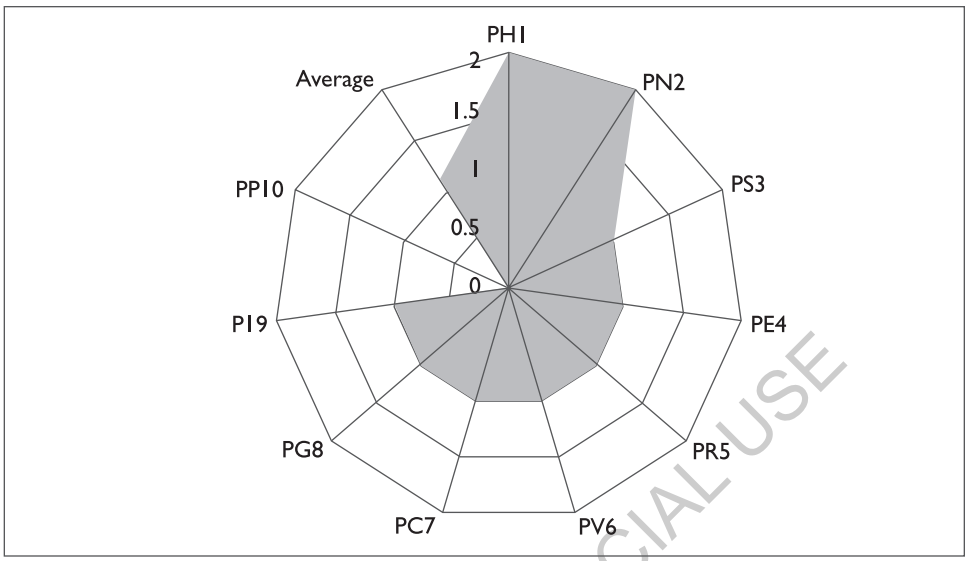

Figure 5 Reflection of policy and written statements of UoG on sustainable development concerns per indicator (PH1, PH2, PS3, PE4, PR5, PV6, PC7, PG8, P19 and PP10)

Notes: PH1 = The extent to which the country's HE policy reflects an engagement with sustainability concerns, **PN2** = The degree to which national and global sustainability issues inform decision-making processes in HE policy and structures, **PS3** = The level of support given to HE institutions on sustainability programmes, **PE4** = Existence of sustainability/sustainability related policies at the institution, **PR5** = Integration of sustainability issues in institutional policies, **PV6** = Integration of aspects of sustainable development in university vision and mission statement, **PC7** = Reflection of local sustainability challenges in policies and written statements, **PG8** = The degree to which policies and written statements reflect national and global sustainability issues, **PI9** = Implementation of policies of sustainability/sustainability related policies, **PP10** = Plans to improve sustainability focus in the next policy review cycle.

generation, was found difficult during the study, since USAT does not include such information. However, USAT will be more useful for assessing universities that have already embedded sustainability and to benchmark their continual improvement.

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