



# Education for Sustainable Development The Case of Masinde Muliro University of Science and Technology (MMUST)

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## *Abstract*

*The unit-based sustainability assessment tool (USAT) was administered at Masinde Muliro University of Science and Technology (MMUST), Kenya, between January and March 2012. The assessment focused on establishing to what extent the University integrated sustainability concerns into its core functions of teaching, research and community engagement. Using a unit-based assessment tool allowed for 'building the picture' of the whole university, as well as concentrating on specific units as required, that is, on one faculty at a time. The assessment revealed that, in terms of addressing sustainability concepts and issues, the overall university performance rating was 50.76%. The data clearly indicated that university performance was best in the teaching approaches cluster of indicators, followed by staff expertise and willingness to participate in sustainability teaching and research. Performance in community engagement and research and scholarships was lowest. The study revealed the need for resource mobilisation by the University for the purposes of additional training, community engagement, research and scholarships, increased sensitisation with regard to ESD (education for sustainable development) planning and implementation, and regular audits.*

## **Introduction**

Education for sustainable development (ESD) is described as 'education that enhances sustainable development' and whose mission is 'to provide an enabling environment and capacity for all sectors and stakeholders to contribute effectively towards the achievement of sustainable development' (NEMA, 2008:13). ESD can potentially help governments and development partners to ensure that capacity exists for achieving the Millennium Development Goals (MDGs), since ESD provides *learning goals* that help to achieve the MDGs (UNESCO, 2008). Education and learning lie at the heart of approaches to sustainable development and are therefore also matters of concern in higher education, as this article discusses in more detail.

## **The background of ESD in Kenya**

The United Nations Conference on the Human Environment held in Stockholm in 1972 helped to focus attention on environmental concerns. In the years following the Conference, the global community acknowledged that more exploration was needed on the interrelationships between the environment and socio-economic issues of poverty and underdevelopment (UNESCO, 2008). Subsequently, the concept of sustainable development emerged in the 1980s in response to a growing realisation of the need to balance economic and social progress with

concern for the environment and the stewardship of natural resources. The concept gained worldwide momentum with the publication, in 1987, of *Our Common Future* by the World Commission on Environment and Development (UNESCO, 2011).

The Decade of Education for Sustainable Development (DESD) was a result of a series of international conferences, declarations and initiatives which began with the 1992 Rio Earth Summit and culminated in the 2002 Johannesburg World Summit on Sustainable Development. The Johannesburg Summit also reaffirmed the educational objectives of the MDGs (UNEP, 2008). The MDGs provide a universal framework for development, agreed to by all United Nations (UN) member states in 2000. They serve as a means for developing countries and development partners to work together in pursuit of a more sustainable future. Furthermore, the Johannesburg Summit proposed the DESD as a way of signalling that education and learning lie at the heart of approaches to sustainable development. Subsequently, at its 57th Session in December 2002, the UN General Assembly proclaimed the DESD for the period 2005 to 2014 (UNESCO, 2008).

As a response to the DESD declaration, Kenya, in 2008, developed a national ESD strategy supported by the National Environment Management Authority (NEMA). The strategy outlines the implementation of, and vision for, ESD in the Kenyan context and presents ways to engage in change for the sake of sustainable development. It proposes action-oriented strategies to guide stakeholders in their journey towards sustainable development (Republic of Kenya, 2008). In the strategy, ESD is described as ‘education that enhances sustainable development in Kenya’ and whose mission it is ‘to provide an enabling environment and capacity for all sectors and stakeholders to contribute effectively towards the achievement of sustainable development’. The implementation and coordination of ESD is carried out by means of seven strategies:

1. Advocacy and vision-building;
2. Consultation and ownership;
3. Partnership and networks;
4. Capacity-building and training;
5. Research and innovation;
6. The use of information and communication technologies (ICTs); and
7. Monitoring and evaluation (Republic of Kenya, 2008).

Several regional centres of expertise (RCEs) have also been established to enhance this process (Republic of Kenya, 2008), one of which is located at MMUST. RCEs were established by the United Nations University in 2005 to achieve the goals of the DESD by translating its global objectives into the context of the local communities in which they operate (UNESCO, 2011), which has implications for the role of universities that are involved in RCEs, as will be discussed below in more detail. Additionally, in line with the DESD principles, in 2011, the Ministry of Environment and Mineral Resources (MEMR) of the Kenyan government published the National Education for Sustainable Development Policy. According to Republic of Kenya (2011:10), the goal of the policy is ‘education that enhances sustainable development in Kenya’. This emphasis on ESD in Kenyan education does not exclude higher-education institutions.

### ESD at Kenyan universities

In Kenya, at the level of higher education, environmental education is offered both at undergraduate and graduate level – as a full course in some universities and as a unit in others. Jomo Kenyatta University of Agriculture and Technology (JKUAT) developed an ESD policy to guide its programmes and operations, assisted by the Environmental Programme Support (EPS) within the NEMA, and funded by the Danish Development Agency (DANIDA) and the Swedish International Development Cooperation Agency (SIDA) (UNESCO, 2011).

Two key higher-education initiatives in Kenya include participation in the network of Mainstreaming Environment and Sustainability into African Universities (MESA) and the Education for Sustainable Development in Africa (ESDA) project. Developed by the United Nations Environment Programme (UNEP), the MESA brings environment and sustainability concerns into the mainstream in terms of teaching, research, community commitment, and the management of universities in Africa. As a result of this programme, six universities in Kenya have raised awareness within and beyond their institutions, promoting a new way of thinking about the environment, development and society (UNESCO, 2011).

The MESA programme has made e-learning a key focus of its activities. For instance, in the creation of partnerships with the UNEP's Online Access to Research in the Environment (OARE), the Global Virtual University provides training on the design and development of e-learning courses for MESA participants. The MESA has also contributed to enhancing the quality and development of teaching and learning materials. A number of MESA participants use the MESA ESD Innovations Tool-Kit to design new materials. They have also used UNEP MESA materials in their teaching, such as the Africa Environment Outlook Report (UNESCO, 2011).

The ESDA is a project of the United Nations University (UNU) Institute for Sustainability and Peace (ISP) and of Kenyatta University, whose aim is to develop and test graduate-level education programmes for professionals potentially engaged in sustainable development in Africa. Professionals at the graduate-school level are trained to acquire relevant knowledge, skills and experiences related to sustainable development. ESD developments in Kenya will be promoted through this training (UNESCO, 2011).

### ESD at Masinde Muliro University of Science and Technology (MMUST)

According to Nguka (2012), an RCE Creation Seminar sponsored by the Nile Basin Initiative and facilitated by the NEMA and members of RCE Greater Nairobi was held in Kakamega, Kenya, from 3 to 5 December 2008. From 2009, the newly appointed Coordinator of RCE Kakamega Western Kenya, and other members of the RCE, began ESD activities in collaboration with the Deputy Vice Chancellor (DVC)'s Office of Academic Affairs at the MMUST. Activities have centred on building partnership and collaboration in order to spearhead ESD activities at the MMUST and in the western Kenya region.

Subsequently, in 2011, SIDA advertised an opportunity for African and Asian participants to attend the annual International Training Programme (ITP)1 ESD at various universities and institutions in 2012 in Sweden. A 20-member Working Committee, including MMUST lecturers, students and community members from Kakamega, was formed in February 2012

under the Office of the DVC Planning Research and Extension (PRE). The Committee was from then on referred to as the MMUST ESD Research Project Committee.

During Phase 1 of the ITP, the MMUST ESD Research Project Committee carried out an audit of the MMUST curricula of all centres, faculties and schools. The activity was urgent, for the Committee needed to design strategies in respect of the ESD/MESA. Baseline information was therefore important. The assessment at the MMUST would reveal levels at which sustainability concepts and issues were being addressed.

### *Research Aim, Objectives and Rationale*

**Main aim:** To audit the curricula at Masinde Muliro University of Science and Technology (MMUST) in order to establish their quality regarding sustainable development with a view to building on and strengthening them and improving on their weaknesses.

Specific objectives:

1. To establish the level at which academic faculties at the MMUST offer courses which deal with sustainability concerns;
2. To determine the extent to which staff and students in academic faculties of the MMUST are involved in research and scholarship activities in the area of sustainability; and
3. To establish the level of involvement of academic faculties at the MMUST in sustainability-related, community-engagement activities.

**Rationale:** Sustainable development has continued to be a common concern at all UN conferences and there has been consensus that education is a driving force for the change needed. It has also been pointed out that peace, health and democracy are mutually reinforcing prerequisites for sustainable development. As noted above, a national ESD strategy was developed for Kenya by the NEMA in 2008. The national ESD implementation strategy proposes action-oriented strategies to guide stakeholders in their journey towards sustainable development (Republic of Kenya, 2008), but it does not provide guidance on generating baseline information in universities. Several studies have been undertaken in other parts of the world (Lozano & Peattie, 2011; Matarazzo-Neuberger & Filho, 2010; Mcmillin & Dyball, 2009). These authors point to the need to conduct an audit as a first step and a basis for identifying points of weakness in mainstreaming sustainability into academic programmes and for planning for improvements. This research formed part of the road map to achieving the DESD objectives at the MMUST, in Kenya, and internationally.

### *Methodology and Design*

The unit-based sustainability assessment tool (USAT) developed by Togo (2009) and published by Togo and Lotz-Sisitka (2009) was used as a framework to gauge to what extent environmental sustainability in teaching, research and community engagement had been embraced at the University. The USAT forms part of a range of international sustainability-assessment tools

that allow universities to reflexively review their progress in engaging with environmental and sustainability concerns. The USAT allows for 'unit-based' assessment at the level of departments, and for different activities (e.g. policy, student activities, community engagement, etc.) within universities. It is a flexible tool that can also be contextually adapted to the institution and/or national context in which it is used. With the aid of this tool, the MMUST was audited within the first three months of participation in the ITP, which audit formed a baseline for conceptualising change initiatives in the University. An overall assessment of all the core functions was initially performed to provide an overall picture of ESD at the MMUST, Main Campus.

This was done in line with Archer's recommendation. In her theory of social change, Archer states that different strata may possess different emergent properties and powers, thus influencing the whole in different ways (Archer, 1995). The advantage of this method was that it would help to identify areas of change and successes by means of a relatively rapid assessment technique. The results, representing the performance of the various centres/schools/faculties, could then be averaged to obtain the overall performance of the institution.

The study adopted a survey-research design in which the respondents were interviewed, guided by a structured questionnaire. The target population was the entire MMUST. The study population was the 24 departments organised into six faculties, schools and centres (hereafter simply referred to as 'faculties') as follows: Faculty of Education and Social Sciences (6 departments), Faculty of Science and Agriculture (5), School of Health Sciences (6), Centre for Disaster Management and Humanitarian Assistance (CDMHA) (4), and Faculty of Engineering (3).

The unit of analysis was the department. The census method of data collection was adopted where one respondent from each of the departments was interviewed. The respondents were heads of departments, since they were assumed to have sufficient information about their departments. To supplement information from the interview, content analysis of course outlines and examination papers, as well as other evidentiary documents, was conducted to confirm and/or extend the information captured by the USAT.

Part A of the USAT was used for this research (see Appendix A). It had six indicator clusters: curriculum, teaching approach, research and scholarship activities, community engagement, staff expertise and willingness to participate in sustainability teaching and research, and, lastly, examinations and assessments (details of the specific indicators can be found in Appendix A). Assessment criteria in Part A were coded with clear descriptions (Togo & Lotz-Sisitka, 2009) as follows: The responses were scored on a scale of 0–4, where 0 denoted lack of sustainability, 1 indicated little sustainability, 2 represented adequate sustainability, 3 showed substantial sustainability, and 4 meant a great deal of sustainability. Data obtained was summarised in tables and was analysed by determining sums, means, and percentage-sustainability levels. The data was presented in the form of radar charts.

## *Results and Discussion*

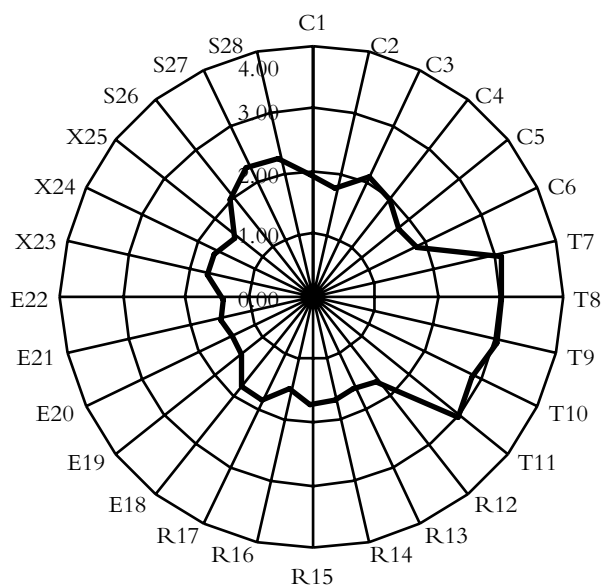
### **General performance by Masinde Muliro University of Science and Technology (MMUST)**

The results are discussed in three subsections, namely: sustainability performance of the University, sustainability performance of individual faculties, and comparison of sustainability

performance among faculties. The general performance of the University in respect of ESD in its core business of teaching, research and outreach rated 2.04, corresponding to 50.90% (Figure 1) across all indicators.

The University performed best in the teaching approaches cluster of indicators (T7–T11), where the average score was 3.08 (77.12%), while the worst-performing cluster of indicators was for community engagement (E18–E22) at 1.52 (37.88%). Using this measure, it can therefore be said that the University is adequately embracing sustainability or sustainability-oriented teaching approaches, such as critical thinking, in its teaching. This may have been supported by the existence of the Faculty of Education, which offers courses in teaching methods, and by the practical nature of several programmes offered in the various faculties, given that the MMUST is a science and technology institution. The USAT suggests that teaching approaches that integrate theory and practice, and that embrace critical thinking and the active involvement of students in the learning process, are more strongly oriented to sustainability teaching (Togo & Lotz-Sisitka, 2009). The next-best performance result obtained from the use of the indicators was in expertise and willingness to teach and research on sustainability issues, which thus showed an interest in these issues amongst staff of the University. The two clusters of indicators were the only ones that scored above average. There is, however, need for improvement in the University’s sustainability engagement in respect of all clusters of indicators. Curriculum assessment showed a need to integrate more sustainability issues across all faculties. Although teaching approaches performed better, there is still room for improvement. The University should also work very hard with regard to community engagement, as well as examinations and research and scholarships. The poor performance of these aspects may be attributed to limited funding at the University. Activities in these clusters require substantial funding.

**Figure 1.** Sustainability performance of the Masinde Muliro University of Science and Technology



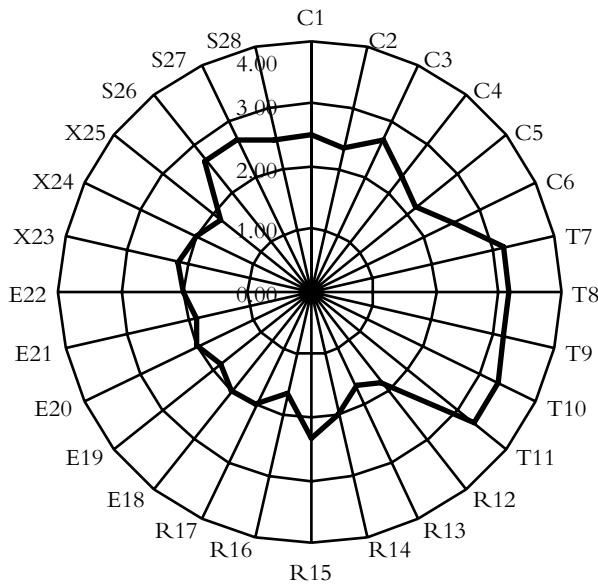
**Sustainability performance of University faculties, centres and schools**

There were clear differences in the performance of the faculties with respect to the key sustainability indicators. A summary of the results per individual faculty is provided below.

*Faculty of Education and Social Sciences*

The sustainability performance of this faculty is illustrated in Figure 2 and was generally above average, with an average sustainability score of 2.35 (58.63%).

**Figure 2.** Sustainability performance of the Faculty of Education and Social Sciences

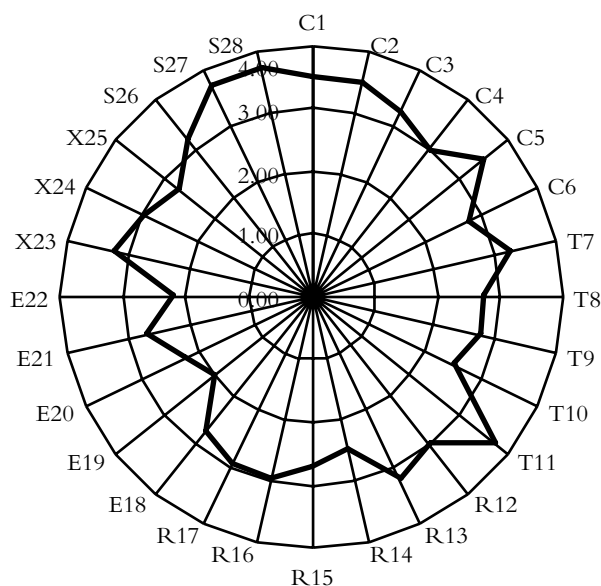


The Faculty rated highest in the teaching approaches cluster (T7–T11), in which all indicators scored between 3.17 and 3.33 out of a possible maximum score of 4. This could easily be explained by the fact that this is a faculty that trains teachers and so is likely to have integrated sustainability concerns in its curriculum. The lowest performance was recorded in the research and scholarship cluster (R12–R17), where scores ranged from 1.68 to 2.33. The performance in all the other clusters was moderate. The indicator that returned the lowest score was the degree to which global sustainability issues and challenges form part of the Faculty’s research (R13). This could be due to the fact that the Faculty engages most in training teachers whose curriculum is highly localised and is designed to produce local teachers using specifically local content. There is a need for the Faculty to address this concern and to attempt to integrate global issues in its research and scholarship activities.

### *Centre for Disaster Management and Humanitarian Assistance (CDMHA)*

The sustainability performance of the Centre is given in Figure 3. The Centre had an average score of 2.99 (74.8%) out of a possible maximum of 4. This can generally be regarded as a good score, and more so because the performance distribution was relatively uniform.

**Figure 3.** Sustainability performance of the Centre for Disaster Management and Humanitarian Assistance



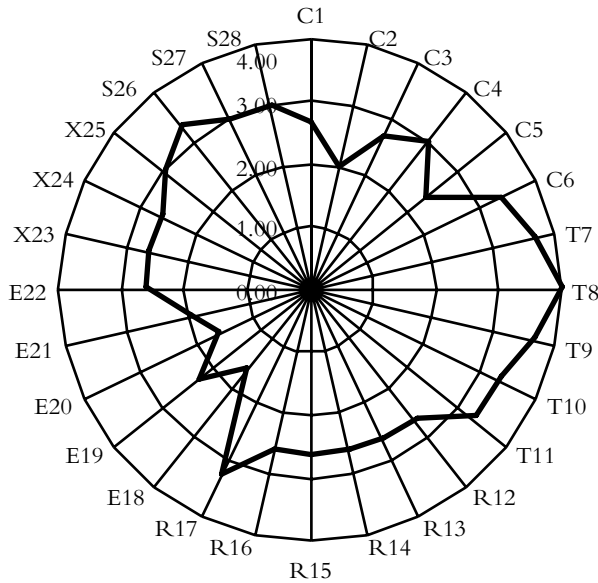
The performance across the clusters was more or less the same, although the clusters that scored almost entirely within the highest quarter were curriculum (C1–C6), which score ranged from 2.75 to 3.5, and staff expertise and willingness to participate (S26–S28), which scored between 3.25 and 3.75. The fairly high performance of the Centre can be explained by the nature of programmes that it is involved in, as these have major sustainability objectives. In most of the programmes, the Centre aims at managing disaster and providing for sustainable solutions to avoid recurrence. The lowest score (2.0) was in the community-engagement cluster and corresponded to the indicator showing the level of commitment of the Centre's resources in sustainability projects in the community (E19). By seriously focusing on this area, the Centre could expand the impact of its teaching programmes to communities surrounding the University.

### *Faculty of Engineering*

The Faculty's sustainability performance is given in Figure 4. The average performance score was 2.81 (70.24) out of a possible maximum of 4. The performance within the indicator clusters was mixed, with the teaching-approach cluster (T7–T11) scoring highest (3.3–4.0) and the community-engagement cluster (E18–E22) scoring the lowest (1.67–2.67).



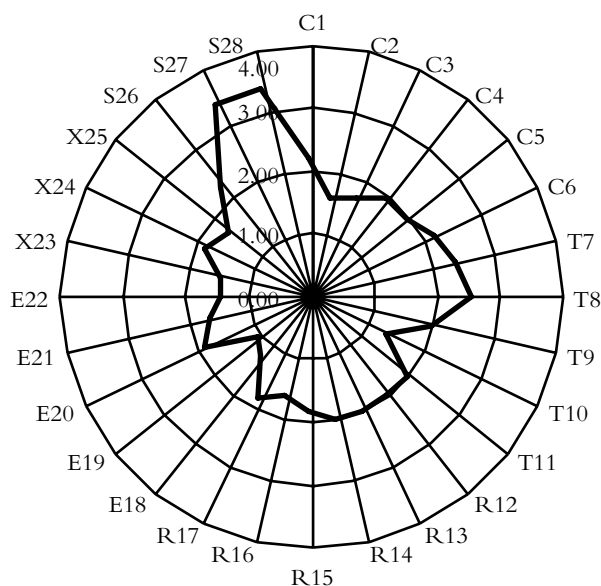
**Figure 4.** Sustainability performance of the Faculty of Engineering



This Faculty emphasises a practical teaching approach, and this may have contributed significantly to the high performance in the teaching-approaches cluster. Within this cluster, the Faculty received the highest possible score in respect of the critical-thinking skills indicator (T8), which was most probably due to the nature of solutions that the programmes in the Faculty have to offer. There is a high demand for originality, ingenuity and innovation in the Faculty’s programmes. All the same, there is need for improvement in the areas where the score was low, especially community engagement. The Faculty ought to think seriously about making use of the high, critical-thinking potential to address community problems in addition to providing global, industrial solutions. This would be in line with the views of Sterling (2001) that sustainability logically necessitates a deep learning response in educational thinking and practice and *anticipative* education, recognising the new conditions and discontinuities which face present generations.

*Faculty of Science and Agriculture*

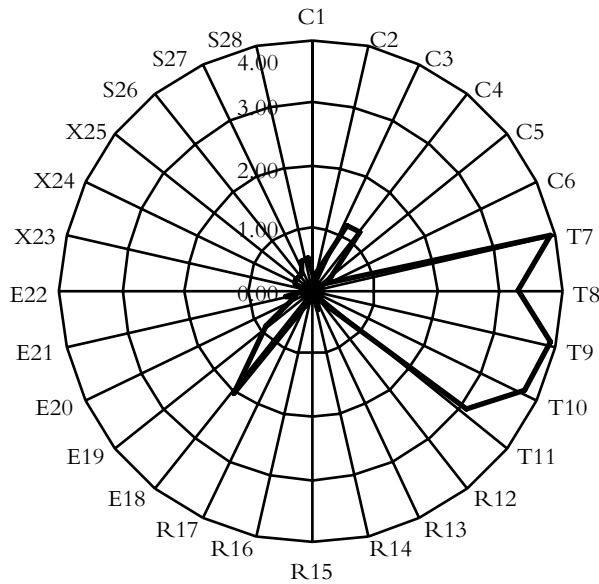
These are in fact two faculties, but they were considered as one for the purpose of this study, based on the fact that they previously functioned as one faculty, had only recently been split, and the Faculty of Agriculture still had only one department. The sustainability performance of the Faculty is given in Figure 5.

**Figure 5.** Sustainability performance of the Faculty of Science and Agriculture

Performance was mixed, with a mean score of 1.93 (48.35%). The only cluster of indicators that scored more than 75% was staff expertise and willingness to participate in sustainability-related education. The clusters in respect of curriculum, community engagement and examinations were particularly poor, which shows that staff willingness to participate in sustainability education was not being translated into teaching practice or community-engagement activities. The indicator with the lowest score was the level of commitment of the Faculty's resources to sustainability projects in the community. The poor performance of the Faculty could be attributed to the rigidity of the programmes offered and the type of knowledge on offer in the Faculty. The Faculty offers mainly basic sciences, which are universally designed with little flexibility. These include courses such as Physics, Chemistry, Biology and Mathematics. This deviation from other faculties also underscores the need to recognise existing differences in the nature of the disciplinary programmes offered by different faculties and the obligation to offer courses that may have little or no relation to sustainability. This does not mean that possibilities do not exist for integrating sustainability concerns in ways that are discipline-congruent.

#### *School of Health Sciences*

The sustainability performance of the School was far below average (Figure 6). The average score for the School was only 1.06 (26.5%) out of a maximum possible score of 4.

**Figure 6.** Sustainability performance of the School of Health Sciences

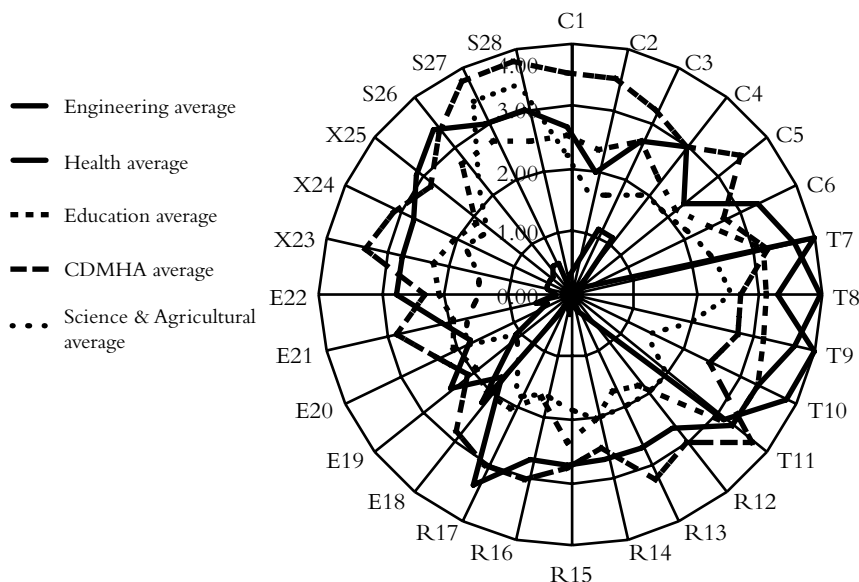
The scores were less than 25% for most of the indicators. The only indicator cluster that recorded a high score (3.17–4.0) was teaching approaches (T7–T11). Two indicators in this cluster, capacity to make informed decisions (T7) and a sense of responsibility (T9), even recorded the highest score possible of 4. Generally, for this cluster, the School performed above average. Just as for the Faculty of Engineering discussed above, this again relates to the practical nature of the courses offered in the School. The health-related courses require a high degree of practical application, personal judgement and critical thinking. Performance in all the other clusters was below average. The lowest score was 0.17 (4.25%), recorded in respect of five indicators (C1, R13, R15, R16, E22). The low score in the research cluster could be related to the nature of research undertaken, which is highly specific with a very high degree of ethical consideration. Also, with a stronger focus on social sustainability (rather than environmental sustainability), this score may well have looked entirely different, as was discussed in the follow-up workshop where the data was first presented. This may also explain the score of ‘low’ community engagement, as well as the low scores for the staff expertise and willingness clusters, even after considerable evidence was gathered to the effect that the School was seriously engaged in community work in the areas of public health and nutrition, and dietetics. This shows that the most probable explanation of the ratings here could lie in the respondents’ understanding of sustainability concerns. This finding that different faculties tend to interpret sustainability differently was also reported on by Togo (2009), who, in her research, argued that there is a need to build a common understanding of sustainability across the institution. As mentioned above, sustainability generally refers to the integration of social, economic and environmental aspects. This brings a very important dimension of sustainability education to the fore, namely how the integration

of social, environmental and economic aspects within various disciplinary frameworks are to be interpreted and actualised in higher education. This also shows that researchers using the USAT and other sustainability tools need to be wary of ‘making judgements’ based on the assessments, unless underlying concepts used in the assessment tool are clear and are shared by researchers and those participating in the research.

**Comparison of sustainability performance among faculties**

Figure 6 summarises the comparison of performance among faculties. This is an important tool for whole-institution reflexivity, for self-assessment and for the setting of targets for improvement purposes. Combining results and making them available for discussion can also help with the development of a common understanding of sustainability in higher-education institutions, as was shown in the follow-up workshop where the results were discussed and the issues surrounding the School of Health Sciences results were discussed.

**Figure 7.** Sustainability performance of the faculties, Centre and School



From the performance across the faculties, Centre and School, it can be deduced that there are clusters in which there is generally good performance, while there are others with generally poor performance. These include teaching approaches (good performance) and community service (poor performance).

This comparison may help to highlight areas where the faculties, Centre and School need to make either individual or concerted, university-wide collective efforts to ensure improvement in performance. A faculty (or Centre or School) that finds itself performing very poorly, where all the others are performing well, could also engage in further self-evaluation in order to understand the points of deviation and address them where possible.

When making comparisons between the faculties, School and Centre, it is important to recognise inherent differences between programmes in order to avoid targeting those that have different orientations in certain clusters. As discussed earlier, for example, the Faculty of Science and Agriculture offering basic sciences may not be easily comparable with another faculty that has more practical and field-oriented programmes. As shown in this study, when making comparisons among faculties, it is also important to explore the meanings of sustainability and how sustainability is understood in various disciplinary contexts, as shown by the School of Health Sciences case above.

### *Conclusions and Recommendations*

The present study was able to establish the extent to which the University has mainstreamed sustainability concerns in its core business of teaching, research and community engagement. Overall, the performance of the University was average and there is need for improvement. Departments that engaged in community-related programmes tended to perform better in ESD than those that did not with regard to indicators that relate to these engagements. This is because ESD pedagogy tends to promote integration of theory and practice. Also, departments with highly applied programmes as well as significant community engagements tended to perform better than those offering the basic sciences.

Sustainability performance in respect of the indicator clusters for curriculum, research and examinations was average and needs improvement. This raises issues around the links between teaching approach and curriculum content, as one would expect high performance in teaching approach to be linked to high performance in curriculum content and assessment practice for purposes of a holistic ESD approach. Generally, the University has substantial expertise in sustainability matters, and this together with its willingness to engage in sustainability teaching and research should be made use of. These were found to be positive indicators in the University and showed the potential for agency in improving curriculum, assessment, and community-engagement activities.

From the results of the present study, it is recommended that the University engage in fundraising and other collaborative activities in order to build the capacity of its staff with regard to sustainability teaching and research, and to fund community engagement and research activities. This could be done in collaboration with ESD partners within the UNU RCE structure involving potential partners such as the SIDA, the UNEP, UNESCO, the NEMA, various non-governmental organisations (NGOs), private companies/organisations and other stakeholders, as was discussed in the follow-up workshop at the MMUST where the sustainability audit results were discussed amongst participating units and faculties. It is also recommended that the University engage in regular sensitisation activities relating to sustainability, such as ESD workshops, and in regular audits to continuously mainstream sustainability into University engagements. Student involvement was not audited in this sustainability assessment, but also provides a potentially important area for strengthening University-based agency for sustainable development.

### *Notes on the Contributors*

Patricia Kariaga (Chairperson), Mary Goretti Kariaga (Vice-Chairperson), Dr Vitalis Ogemah (Head of the Research Sub-Committee) and Violet Nyando (Secretary) are all members of the MMUST ESD Research Committee. Email: pkariaga@gmail.com.

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### *Endnote*

1. The main participant, Patricia Kariaga of the Department of Criminology and Social Work in the Faculty of Education and Social Sciences, who was selected to attend the Sida/Natura International Training Programme in Higher Education for Sustainable Development from 20 April to 5 May (Phase 2) in Sweden. A selected co-participant, Mary Goretti Kariaga of the Department of Sugar Technology in the Faculty of Agriculture, Veterinary Science and Technology, also joined the main participant in a continuation of the training from 29 October to 8 November 2012 (Phase 4) at Rhodes University, South Africa.

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## Appendix A

from Togo & Lotz-Sisitka, 2009

### Unit-based sustainability assessment tool

#### Part A: Teaching, research and community service

##### Assessment criteria

##### Rating

X	=	Don't know	no information concerning the practice
0	=	None	there is a total lack of evidence on the indicator
1	=	A little	evidence shows poor performance
2	=	Adequate	evidence show regular performance
3	=	Substantial	evidence show good performance
4	=	A great deal	excellent performance

Code	Indicator	Score					
		x. Don't know	0. None	1. A little	2. Adequate	3. Substantial	4. A great deal
<b>Curriculum</b>							
C1	The extent to which the department offers 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 enrolls students in courses that engage sustainability concerns						
C6	The level of cross-faculty collaboration in teaching sustainability programmes						



Code	Indicator	Score					
		x. Don't know	0. None	1. A little	2. Adequate	3. Substantial	4. A great deal
<b>Teaching approach:</b> How far the teaching approach contributes to development of the following characteristics among students:							
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						
<b>Research and scholarship activities</b>							
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						
<b>Community engagement</b>							
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 to 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						

