Jomo Kenyatta University of Agriculture and Technology

Setting Trends in Higher Education, Research and Innovation

EDUCATION FOR SUSTAINABLE

DEVELOPMENT POLICY

MAY 2010

JKUAT IS 9001:2008 ISO CERTIFIED

Jomo Kenyatta University of Agriculture and Technology

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Jomo Kenyatta University of Agriculture and Technology

VISION

To be a university of global Excellence in Training, Research and Innovation for Development.

MISSION

To offer accessible quality training, research, and innovation in order to produce leaders in the fields of Agriculture, Engineering, Technology, Enterprise Development, Built Environment, Health and other Applied Sciences to suit the needs of a dynamic world.

CORE VALUES

(i)   Quality

(ii)   Team work

(iii)   Transparency

(iv)   Accountability

(v)   Professionalism

(vi)   Innovativeness

(vii)   Integrity

(viii) Dynamism

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DEFINITIONS OF TERMS

Vision: A statement describing an ideal future that is broad and inspirational to remain relevant over time.

Mission: A statement outlining how the vision is to be attained.

Stakeholders: Individuals or organisations with which the Jomo Kenyatta University of Agriculture and Technology Education for Sustainable Development (JKUAT ESD) programme works directly.

Sustainable Development: The way we use, conserve and enhance the community's resources so that ecological processes, on which life depends, are maintained and the total quality of life now and in the future is secured.

Education For Sustainable Development: A dynamic concept that aims at exploiting opportunities existent in all aspects of public awareness, education and training to create or enhance an understanding of the linkages among the issues of sustainable development.

The University: Refers to Jomo Kenyatta University of Agriculture and Technology

Staff: Refers to all employees of the University.

Policy: Refers to guiding principles for implementation of a strategy

Strategy: A set of planned activities to achieve the objectives of a policy.

ACRONYMS

ASAL	Arid and semi-arid land
BEED	Biomechanical and Environmental Engineering Department
CBOs	Community Based Organisations
EMCA	Environmental Management Coordination Act
ESD	Education for Sustainable Development
FST	Food Science and Technology
GDP	Gross Domestic Product
GoK	Government of Kenya
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
IBR	Institute of Biotechnology Research
ICT	Information Communication and Technology
IEET	Institute of Energy and Environmental Technology
IHE	Institutions of Higher Learning
IPR	Intellectual Property Rights
JICA	Japan International Cooperation Agency
JKUAT	Jomo Kenyatta University of Agriculture and Technology
MESA	Mainstreaming Environment and Sustainability in African universities
NEMA	National Environmental Management Authority
NGOs	Non-Governmental Organisations
RCE	Regional Centre of Expertise
RPE	Research, Production and Extension
SD	Sustainable Development
STI	Science, Technology and Innovation
UN	United Nations
UNDESD	United Nations Decade of Education for Sustainable Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNWCED	United Nations World Commission on Environment and Development
USAID	United States Agency for International Development
WHO	World Health Organisation

FOREWORD

The world is currently facing complex environmental problems caused by increasing population and increased development that have both resulted in environmental degradation, economic and social constraints. The consequences have been global warming, depletion of the ozone layer, increased waste, air and water pollution, poverty and food insecurity. Therefore, the UN declared the period (2005 - 2014) as the UN Decade on Education for Sustainable Development (UNDESD). As a response to this, Kenya has developed an Education for Sustainable Development (ESD) implementation strategy to serve all sectors.

The Kenya ESD strategy is guided by three broad strategic objectives namely to:-
  (i)   Enhance the role of education and learning for equitable, efficient and sustainable utilisation of the country's resources.
  (ii) Promote quality education through diverse learning and public awareness for improved quality of life and productive livelihoods.
  (iii) Promote teaching and learning that inculcates appropriate values, behaviour and lifestyles for good governance and sustainability.

When the National Environment Council (NEC) adopted the ESD implementation strategy document on April 24, 2008, NEMA was given the mandate to roll out the document for use by different stakeholders such as government institutions, civil society organisations, the private sector and media. Among the strategies used is Regional Centres of Expertise (RCEs) such as JKUAT coming together with other stakeholders to re-orient their practices towards sustainable development.

Therefore, the University through its vision endeavours to incorporate ESD pillars in its mandate of training, research, innovation and community service in order to become sustainable. The implementation of this strategy will enhance the capacity of the University and help in better management of the environment and sustainable development.

In line with the above, the University has developed this ESD policy, the implementation of which will make JKUAT a sustainable university.

Prof. Mabel Imbuga, PhD, EBS

VICE CHANCELLOR, JKUAT

CHAPTER ONE

1.0 BACKGROUND

1.1 Introduction

The year 1972 saw the first of the 10-yearly Earth Summits. This first summit held in Stockholm, Sweden is generally considered to be the primary defining event of international environmentalism. The conference produced some successes, including the 26 principles of the Declaration of the United Nations Conference on the Human Environment, an Action Plan for the Human Environment and an Environment Fund. Another significant outcome was the establishment of United Nations Environment Programme (UNEP), designed to promote environmental practices across the globe. UNEP has coordinated the subsequent Earth Summits.

The year 1982 Earth summit did not materialise due to political problems. In 1983, the UN General Assembly created the UN World Commission on Environment and Development (UNWCED) and appointed Dr. Gro Harlem Brundtland as the chairperson. Four years later, she published the Brundtland Report, and coined the term 'sustainable development'. The Report combines environmental and economic considerations and defined sustainability as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

During the Earth Summit of 1992 in Rio de Janeiro, Brazil, world leaders agreed to promote sustainable development by implementing the Kyoto Protocol which involved combating global warming, protecting biodiversity and stopping usage of dangerous poisons. Chapter 36 of Agenda 21 on Education and Public Awareness prioritised environmental education and training, and included concrete activities for implementation. The Summit hence recognised environmental education as a tool for enhancing the attainment of sustainable development. However, the move towards sustainability has been slow due various constraints.

During the 2002 Earth Summit on Sustainable Development in Johannesburg, South Africa, earlier efforts on sustainable development were expanded, and it became apparent that education was key to sustainability. This UN General Assembly through resolution 57/254, with UNESCO, designated the years 2005-2014 as the UN Decade on Education for

Sustainable Development (UNDESD), to be observed by all member states. Education for Sustainable Development (ESD) enables the society to develop the knowledge, skills, understanding and values to participate in decisions that will improve the quality of life now without compromising the needs of future generations. It is seen in some countries as a strategy for combating unsustainable consumption patterns while others see it as addressing issues of illiteracy and rapid population growth, which keeps large segments of the population in poverty. For example, the rapid consumption of the Earth's resources and energy is a well-known issue. This challenge can be addressed through ESD.

Kenya, as a member state of UN, saw the UNDESD as an opportunity to strengthen Education for Sustainable Development since education is a ray of hope for the global sustainability vision. Through NEMA, it responded to this international commitment by developing the national ESD Implementation Strategy, which was adopted by the National Environment Council (NEC) in 2008.

1.2 SD Challenges in Kenya

Sustainable Development issues in Kenya can be classified as societal, economic and environmental. Societal challenges include concerns of population growth, poor governance, corruption, bigotry towards cultural diversity, ethnic animosity, gender inequality, HIV/AIDS, incidence of malaria, tuberculosis and other communicable and non-communicable diseases. Other challenges include human rights abuse, all forms of violence and increased insecurity, scolded lifestyles and behavior, drug and substance abuse, and erosion of cultural values and morals, among others.

The economic issues revolve around systems of production, consumption, investments and service delivery towards an enhanced gross domestic product (GDP). However, several challenges such as high levels of poverty and related issues impede optimal performance of the economy. These challenges include inadequate investment in infrastructure leading to rising levels of unemployment, rural-urban migration, corporate irresponsibility and lack of accountability and corruption. Additionally, the inefficient and wasteful production systems lead to unsustainable utilisation of natural resources, resulting in their degradation. Further, the poor enforcement of policies and regulations governing production and marketing hinder economic growth and the attainment of its optimal performance.

The environment sector has presented even more challenges. The country continues to experience severe environmental challenges including droughts, natural disasters, acute water shortage, climate change and variability, floods, energy crisis, loss of biodiversity and poor waste management systems and loss of forest cover. Negative impacts on the environment have been as a result of the robust industrial development experienced in the country over the last four decades. This has resulted in increased waste generation leading to unsustainable waste management systems, particularly in institutions and local authorities.

Kenya Vision 2030 identifies several emerging challenges in SD which include environmental degradation, forestry, food insecurity, water resources, pollution and waste management, climate change, bio-technology, integrated environmental planning, unplanned human settlement, institutional and environmental legal framework. It is therefore imperative that national resources be utilised sustainably to meet the needs of the present generation without compromising the ability of the resource base to continue providing the same services and goods in the future. The Vision 2030 has, as a key goal, the attainment of status of a 'nation living in a clean, secure and sustainable environment' driven by the principles of SD. To realise this, the focus will be on four strategic thrusts, namely;

(i) **Conservation**

The country will intensify conservation of strategic natural resources in a sustainable manner without compromising economic growth. Kenya intends to have achieved 10% forest cover by 2030. In addition, research activities into viable usage of natural resources will be undertaken.

(ii) **Pollution and waste management**

Despite the high rates of growth envisaged in vision 2030, Kenya will progressively apply measures to guard against the adverse effects of increased pollution and waste.

(iii) **ASALs and high-risk disaster zones**

Enhancing disaster preparedness in all disaster prone areas and improving the capacity for adaptation to global climatic change.

(iv) **Environmental planning and governance**

Building the institutional capacity in environmental planning, and improving the impact of environmental governance in order to improve the overall management of the environment.

1.2.1 Need for ESD in Kenya

Kenya, while implementing ESD, recognises Agenda 21, which is the world's first action plan for sustainable development. The Agenda states that work on sustainable development has multiple fronts (e.g. environmental protection, good legislation and governance, economic incentives, overcoming corruption, human rights and security, and creating infrastructure - from transportation to financial pillars).

The overall aim of ESD is to empower citizens to act for positive environmental and social change by giving people knowledge and skills to help them find new solutions to their social, economic and environmental issues. ESD also targets the implementation of programmes that are locally relevant and culturally appropriate, taking into consideration the local environmental, economic and societal conditions. It also aims at enhancing the knowledge, skills, perspectives and values to empower people of all ages to assume responsibility for creating and enjoying a sustainable future.

The Kenya ESD implementation strategy is guided by three broad strategic objectives as follows:

(i)   To enhance the role of education and learning for equitable, efficient and sustainable utilisation of the country's resources.

(ii) To promote quality education through diverse learning and public awareness for improved quality of life and productive livelihoods.

(iii) To promote teaching and learning that inculcates appropriate values, behaviour and lifestyles for good governance and sustainability.

The National Environmental Management Authority (NEMA) is mandated by law (EMCA, 1999), to assist the public and private organisations as well as civil society groups to integrate ESD principles, values, and practices into all aspects of operations. NEMA has recognised Institutions of Higher Education (IHE) as central to the development of ESD in the country. IHEs could provide research, analysis, and conceptual guidance to create relevant and appropriate education systems. Therefore, IHEs could contribute to ESD by improving access to quality education, re-orienting existing education, developing public understanding and awareness, and training representatives of all sectors of private and civil society.

1.2.2 JKUAT and Vision 2030

The University has been endeavouring to meet the goals of Vision 2030 through its mandate of training, research, innovation and community service. Currently, JKUAT is engaged in a number of activities aimed at implementing SD, including:

(i)   Trials on wind energy, solar energy, bio-diesel and bio-gas generation and supply to the neighbouring community. These are being carried out by the Institute of Energy and Environmental Technology (IEET) and Biomechanical and Environmental Engineering Department (BEED).

(ii)   Provision of extension services geared towards technology transfer to communities to empower them in income-generating activities, through Research, Production and Extension (RPE) division.

(iii) Development of low cost and environmental friendly building materials by the Civil Engineering Department.

(iv)   Development of low-cost paints, detergents and fertilizer by Chemistry Department.

(v)   Food processing technologies, e.g. juice processing, porridge, chicken noodles and dairy products such as yoghurt by Food Science and Technology (FST) Department.

(vi)   Curriculum revision to include sustainable agriculture, and land resources planning and management by Horticulture Department.

(vii) Locally assembled farm machinery to assist farmers by Mechanical Engineering Department and BEED.

(viii) Production of high-yielding bananas, aloe vera, passion fruits, mangoes and mushroom by Institute of Biotechnology Research (IBR).

(ix)   Development of better methods of bee-keeping and honey-processing technologies by Department of Zoology.

(x)   Building capacity through entrepreneurship education by the School of Human Resource Development in collaboration with other institutions.

In spite of the University's effort to pursue these initiatives through its own available capacity, it faces various challenges. It is against this background that the University has embraced the ESD initiative.

1.2.3 ESD Challenges for the University

According to the Sessional Paper Number 1, 2005, education must empower people to conserve, sustain and exploit the environment for sustainable development. In addition, the Kenya Vision 2030 recognizes that education and training of all Kenyans is fundamental in equipping citizens with understanding and knowledge that enables them to make informed choices about their lives and those facing the Kenyan society.

Kenya being a natural resource based economy, education should empower the people to make informed decisions for sustainable development. The education sector will therefore provide the skills that will be required to steer Kenyans to the economic and social goals of the Vision. The Vision further provides for linkages between education, and other sectors including health, water and sanitation, environment, gender, housing and the youth. The Vision also recognizes the role of Science, Technology and Innovation (STI) in a modern economy, in which new knowledge plays a central role in wealth creation, social welfare and international competitiveness.

1.2.4 JKUAT ESD Implementation Approach

The university endeavours to take a leading role in addressing the environmental, economic and social-cultural challenges by integrating ESD strategies within its mandate. It is envisaged that proper implementation of the ESD strategy will lead to the JKUAT becoming a sustainable university as shown in Figure 1.
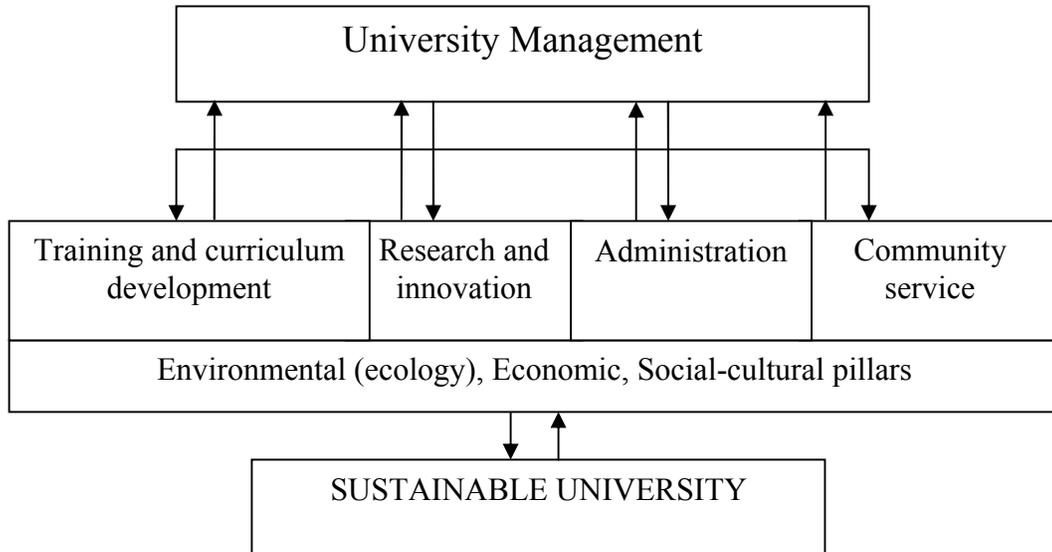
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Figure 1: ESD Framework

The University commits itself to implement the principles of ESD through the following actions:

(i)   Review its operations to reflect best sustainable development practices.

(ii) Establish and disseminate a clear understanding of sustainable development.

(iii) Utilise resources of the University to encourage a better understanding on the part of all stakeholders on the inter-related physical, biological and socio-economic challenges facing the planet earth.

(iv) Emphasise the ethical obligation of the present generation to overcome those practices of resource utilisation and those widespread disparities which lie at the root of environmental sustainability.

(v)   Enhance capacity of the University to teach and undertake research and action in society in sustainable development principles.

(vi) Cooperate with other organisations and the community in the pursuit of practical and policy measures to achieve sustainable development and thereby safeguard the interests of future generations.

1.3 JKUAT ESD Goal

The goal of the University ESD policy is to embrace, integrate and implement the principles of sustainable development in all aspects of its operations to encourage changes in behaviour that promote a more ecologically sustainable, economically viable and a just society for all.

1.4 ESD Policy Objectives

The objectives of the University ESD policy are:

(i)   To re-orient its operations in the medium term strategic plan to promote the social, environmental, cultural and economic knowledge, skills, perspectives and values inherent to sustainability.

(ii) To develop training programmes for imparting skills to promote sustainability practices.

CHAPTER TWO

2.0 POLICY FRAMEWORK

2.1 Introduction

The ESD policy aims at improving learning and enhanced participation of members of the University. It is also about the development and sustainability of the University community and its contribution to the global community. The policy will be guided by the following principles: -

    (i)   Improving the quality of life for all.

    (ii)   Changing personal attitudes and practices.

    (iii)   Integrate local and global development issues.

    (iv)   Promotion of social equity.

    (v)   Recognition of the creativity, ideals and talent of young people.

    (vi)   Participation in management and evaluative processes.

    (vii)   Respect for the community and conserving diversity.

    (viii)   Keeping within the earth's carrying capacity.

The University mandates of Training, Research, Innovation and Community service will be affected by the policy.

2.2 TRAINING MANDATE

2.2.1 Objective:

To develop programmes for imparting knowledge to promote environmental, social and economic practices.

2.2.2 Policy statement:

The University shall:
(i)   Integrate ESD in the curriculum based on the pillars of sustainable development.
(ii)   Deliver the curriculum that will adopt appropriate principles of pedagogy and be sensitive to geographical, gender, age, physiological and cultural diversity.
(iii)   Continuous engagement with stakeholders to impart knowledge and skills.

2.2.3   Strategy:

(i)   - Incorporate ESD principles in all curriculum review in the University while maintaining quality standards.

   - Allocate adequate resources to support ESD training policy.

(ii)   - Develop appropriate local training resources.

   - Training of trainers on ESD for students and other stakeholders.

(iii)   - Active participation in the Mainstreaming Environment for Sustainability in African (MESA) universities programmes.

   - Extend ESD training materials to collaborating and partnering organizations.

   - Develop guidelines and conduct ESD audits.

   - Practical involvement of students in conservation activities such as tree planting.

   - Encourage exchange programmes with best practicing institutions.

2.3 RESEARCH MANDATE

2.3.1 Objective:

To promote and encourage better research (basic and applied) methods on environmental, social and economic practices.

2.3.2 Policy statement:

The University shall:
  (i)   Encourage relevant research on emerging issues including climate change, waste management, biodiversity, biotechnology and green technologies.
  (ii) Develop partnerships and networks with relevant organisations on environmental, social and economic research areas.

2.3.3 Strategy:

  (i)   - Source and allocate funds for research on SD.
        - Facilitate staff and students to acquire skills on applied research methods.
        - Introduce thematic research.
  (ii) - Establish collaborations to undertake practical research on emerging SD issues.
        - Disseminate research findings to stakeholders.

2.4 INNOVATION MANDATE

2.4.1 Objective:

To promote development of appropriate technologies that address environmental, social and economic challenges.

2.4.2 Policy statement

The University shall:

(i) Promote development of green technologies
(ii) Develop guiding principles on innovations for the University.
(iii) Identify and promote utilisation of appropriate aspects of indigenous knowledge.
(iv) Promote use of information, communication and technology (ICT) in all its operations.

2.4.3 Strategy:

(i) - Develop and use green technologies.
   - Establish a Regional Centre of Expertise (RCE) for SD.
(ii) - Administration and implementation of Intellectual Property Rights (IPR).
   - Reward scheme for innovators.
(iii) - Establishment of an innovation park.
(iv) - Identify, document and harness indigenous knowledge and projects for economic empowerment.
   - Establish and use e-compliant mechanisms for training and all university operations.

2.5 COMMUNITY SERVICE MANDATE

2.5.1 Objective

To promote public awareness and build understanding of the principles of sustainable development through partnerships with the community under '3 Cares' of local well-being; i.e., Care for self; Care for one another and Care for one's environment.

2.5.2 Policy Statement

The University shall:

(i)   Establish mechanisms for promoting partnerships with the stakeholders.

(ii)   Promote cultural cohesion through community engagement and provide infrastructure for social harmony.

(iii) Offer equal employment and development opportunities to all.

2.5.3 Strategy

(i)   - ESD Policy statement displays in collaboration with internal/external community.

       - Stakeholder representation, including the physically challenged.

       - Engage stakeholders in annual SD events: workshops, sports and cultural events.

       - Share resources with the community.

(ii)   - Creating awareness of ESD through the media, public forums and creative art.

       - Mentoring community leaders on ESD issues.

       - Recognize religious days and provide space for socio-cultural activities.

(iii) - Implementation of the gender policy of the University.

       - Ensure fair and just employment practices.

CHAPTER THREE

3.0 ESD IMPLEMENTATION STRATEGIES

3.1 Overview
The JKUAT ESD policy implementation strategies are guided by Vision 2030, DESD, Sessional paper No. 1 of 2005 on education and the Strategic plan for the University. The implementation plan is based on all the mandates of the university, and it is presented in Tables 1-4. The objective of the plan is to integrate all the mandates in line with the pillars of SD, i.e. environmental, economic and social. These pillars are cross-cutting in nature and their impacts are felt across all stakeholders including the University, the neighboring community, the Kenyan community and the region. The implementation of the ESD policy is a priority in order for the University to achieve the goal of being a sustainable university.

3.2 Stakeholder Involvement
The implementation strategy of the ESD policy will involve communities, civil society, private sector, collaborating learning and research institutions, policy makers and development partners. The engagement of stakeholders in the implementation process is guided by their mandate, their capabilities and priorities. Stakeholders will be involved at all stages of the implementation including monitoring and evaluation. JKUAT will explore measures to enable donors finance the various ESD projects.

3.3 Resource Requirements
Implementation of the ESD policy requires a deliberate and targeted allocation of resources (financial, human and technological) that calls for resources capacity assessment. The impacts from various interventions in integration of ESD concerns often take time to be realized hence the need for prioritisation. The University undertakes to implement the policy with the help of potential partners.

Possible sources of support shall include JKUAT, GoK, parastatals, development partners, international organisations, universities, the private sector, NGOs and religious organisations. It should be noted that JKUAT has over time built technical capabilities in various disciplines related to sustainable development which can be found within its departments. However, it is

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expected that during implementation of the ESD strategy, the University may access other technical and logistical support from regional and international institutions, and development partners.

3.4 Structure of the Directorate of ESD

The proposed structure of the ESD Directorate shall be as shown in Figure 2. The Directorate shall report to the Vice Chancellor. It will liaise with the Deputy Vice Chancellors, Principals, Deans, Directors, CODs and the Registrars on matters of ESD. Data and information related to ESD generated from Departments, Faculties, Institutes, Schools, Campuses and University Colleges will be collated and transmitted to the Directorate for processing and analysis, and generation of necessary reports/documents. Recommendations arising from the analysis will then be communicated to relevant offices of the University and stakeholders.
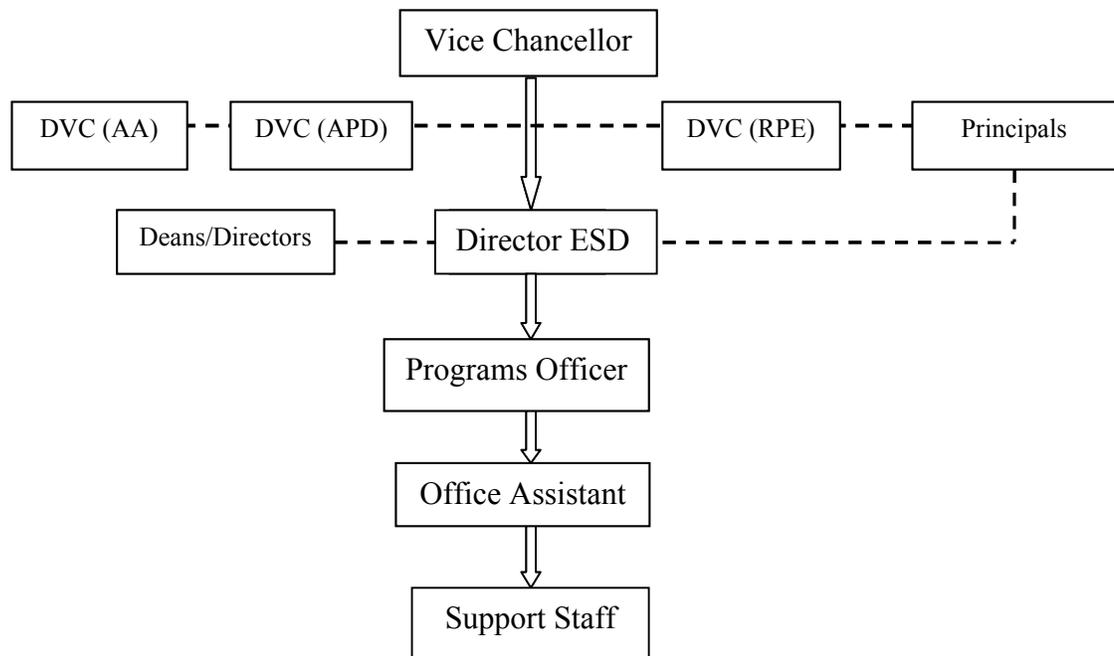
Figure 2: Interaction of the Directorate of ESD with other Offices

3.5 Monitoring and Evaluation

The purpose of monitoring and evaluation (M & E) of the ESD policy is to ensure its effective and efficient implementation as well as ensuring that sustainable development concerns are addressed and integrated in the University system. Table 5 presents activities, objectively verifiable indicators (OVIs), means of verification (MoV), reporting schedule and possible actors during the M & E. Monitoring and evaluation of the policy will be carried out every five years using participatory approaches with the involvement of stakeholders.

Table 1: Mandate: Training

Objective	Activity	Responsibility/ Actors	Source of support	Outputs	Output indicators	Outcome	Duration	Budget (KSh) [*]
To integrate ESD in the curriculum based on the pillars of sustainable development.	Mainstream ESD principles in all programs and training in the university	Vice Chancellor's Office and Directorate of ESD Training	JKUAT expects to collaborate with the following stakeholders, among others in the implementation of this policy: -NEMA -UNESCO -UNEP -UN University - UNDP - World Bank - European Union -JICA -CIDA - SIDA/DANIDA -Government of Kenya (GOK) -Local Authorities -World Health Organization (WHO) -USAID	-Identified ESD issues to be addressed by different programmes -Identified new audiences for different ESD courses and programmes -Programmes reoriented to ESD - Training on desired pedagogies -Departments mainstreaming ESD	-No. of trainings conducted -No of departments which have integrated ESD principles in their programmes -No. ESD issues identified No. of new audience identified	-Increased ESD awareness knowledge and skills	3Years	25 Million
	Allocate adequate resources to support ESD training policy.			-Resources provided -Funding offers received by the University	-Amount of funding received -No of ESD related funded projects	-Optimum funding for ESD implementation	3Years	5 Million
To deliver the curriculum that will adopt appropriate principles of pedagogy and be sensitive to geographical, gender, age and cultural diversity	Develop appropriate local training/teaching aids			Programs revised/reviewed	No. of departments that have reviewed programmes	-Integrated ESD curriculum	3Years	2 Million
	Training of trainers on ESD			-Resource training manuals on ESD developed -TOT trained	-No. of resource manuals developed -No. of TOT,s	-Quality ESD resource base	3Years	6 Million
To collaborate with relevant organizations to impart knowledge and skills.	Active participation in the Mainstreaming Environment and Sustainability in African Universities (MESA) programmes			-Directorate of ESD training -Collaborative activities undertaken	- Directorate of ESD training established -Number of Activities undertaken jointly with MESA.	-Continuous training on ESD offered to Universities, government organs and other organizations.	3Years	21 Million
	Extend ESD training materials to collaborating and partnering organizations			Developed resource materials on collaboration	-No. of resource materials developed	-Report on ESD resource materials developed	3Years	6 Million
	Develop guidelines and conduct ESD audits			Developed ESD guidelines	-No of guidelines and audits developed	- Audit reports	3Years	3 Million

*1 US $ = KSh. 80

Table 2: Mandate: Research

Objective	Activity	Responsibility/ Actors	Source of support	Output	Output indicators	Outcome	Duration	Budget (KSh) [*]
To promote relevant research on emerging issues including climate change, ecosystem management, waste management, biodiversity, biotechnology, green technologies.	Source and allocate of funds for research on SD	Vice Chancellor's Office and Directorate of ESD Training	JKUAT expects to collaborate with the following stakeholders, among others in the implementation of this policy:

-NEMA
-UNESCO
-UNEP
-UN University
- UNDP
- World Bank
- European Union
-JICA
-CIDA
- SIDA/DANIDA
-Government of Kenya (GOK)
-Local Authorities
-World Health Organization (WHO)
-USAID | Research engagement on climate change, ecosystem management, biodiversity and green technologies | -No. of projects established | -Research papers produced | 3Years | 30 Million |
| | Facilitate staff to acquire skills on applied research methods | | | -No of Staff trained in applied research Methodology | -No of staff trained | -Quality research papers | 3Years | 6 Million |
| To develop partnerships and networks with relevant organizations on environmental, social and economic research areas. | -Establish collaborations to undertake practical research on emerging SD issues | | | - Partnerships established
- Regional Centre of Excellence (RCE) established | -No of practical problems addressed.
-Number of active collaborative research activities | -Reports produced | 3Years | 6 Million |

*1 US \$ = KSh. 80

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Table 3: Mandate: Innovation

Objective	Activity	Responsibility/ Actors	Source of support	Output	Output indicators	Outcome	Duration	Budget (KSh) [*]
To promote development of Green technologies	Develop and use of green technologies.	Vice Chancellor's Office and Directorate of ESD Training	JKUAT expects to collaborate with the following stakeholders, among others in the implementation of this policy: -NEMA -UNESCO -UNEP -UN University - UNDP - World Bank - European Union -JICA -CIDA - SIDA/DANIDA -Government of Kenya (GOK) -Local Authorities -World Health Organization (WHO) -USAID	-Innovations products developed	Number of green technologies developed	-Green University community	3Years	120 Million
To develop guiding principles on innovations for the university.	Sensitization, administration and implementation of Intellectual Property Rights (IPR)			-IPR guiding principles developed -PR office established	- No of registered products	-Increased innovations	3Years	3 Million
	Reward scheme for innovators			-Established fund for innovators	-No of awards -Amount of funding for reward scheme.	-Increased innovations	3Years	9 Million
To identify and promote utilization of appropriate aspects of indigenous knowledge to sustain the environment.	Establishment of an innovation park			-Innovation park established	- No. of new technologies displayed	-Report	3Years	3 Million
	Identification, documentation and harnessing of indigenous knowledge (IK) and projects			-Appropriate IK knowledge documented	-IK database established	- Access to IK enhanced -Increased IK Usage	3Years	6 Million
To promote use of Information, Communication and Technology (ICT) in all its operations	Upscale the use of e-learning			-Established e-learning modules for SD	-No of SD issues implemented through e-learning	-Enhanced access to SD issues	3Years	6 Million
	Establish e-compliant mechanisms in the University operations.			-SD website established	-No of SD issues transacted electronically	-Paperless University in dissemination of all issues -Optimum heads on the website	3Years	1.5 Million

*1 US $ = KSh. 80

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Table 4: Mandate: Community Engagement

Objective	Activity	Responsibility/ Actors	Source of support	Output	Output indicators	Outcome	Duration	Budget (KSh)*
To establish mechanisms for promoting partnerships with the stakeholders.	ESD Policy statement (promoted to) displays in collaboration with internal/external community	Vice Chancellor's Office and Directorate of ESD Training	JKUAT expects to collaborate with the following stakeholders, among others in the implementation of this policy: -NEMA -UNESCO -UNEP -UN University - UNDP - World Bank - European Union -JICA -CIDA - SIDA/DANIDA -Government of Kenya (GOK) -Local Authorities -World Health Organization (WHO) -USAID	Stakeholder meetings held	Number of joint stakeholder meetings held	-Increased awareness on SD	3Years	1.5 Million
	Share resources with the community			Shared resources with the community	-No. of joint resources shared with the community	Improved standards of living	3Years	JKUAT social corporate responsibility
	Stakeholder representation in all levels of ESD management structure			Stakeholders co-opted as ESD committee members	No of stakeholders co-opted in the ESD committees	Enhanced acceptability of ESD activities	3Years	1.5 Million
To promote cultural cohesion through community engagement and provide infrastructure for social harmony.	-Creating awareness of ESD through media, -Engage the stakeholders in annual SD events: workshops, public forums, creative arts, sports and cultural events -Mentoring community leaders and groups			-Events held -Radio station established	-No of events organized -No. of SD programmes broadcasted -No. of channels broadcasting SD programmes	-Enhanced awareness on SD	3Years	45 Million
	Recognize religious days and provide space for socio-cultural activities			-Days celebrated -Space for socio-cultural activities provided	-No. of days celebrated -No. of spaces provided	Enhanced social cohesion	3Years	JKUAT social corporate responsibility
	Create conflict resolving committees at all levels			Conflict resolution committee established	-No. of committees established	- Enhanced social cohesion	3Years	1.5 Million

*1 US $ = KSh. 80

Monitoring and Evaluation (M&E)

Table 5: Training Mandate:

Activity	Objectively verifiable indicators (OVIs)	Means of verification (MOV)	Reporting schedule	Actors
Incorporate ESD principles in all programs and training in the university	-Baseline survey of ESD integration in university courses -Identified ESD issues to be addressed by different programmes -Identified new audiences for different ESD courses and programmes -ESD knowledge and skills acquired by the audiences -% of students who undertake ESD related projects -Number of programmes reoriented to ESD	• Baseline survey report • Examinations report • Report of number of • programmes reoriented	Annual	JKUAT and stakeholders
Allocate adequate resources to support ESD training policy	-Amount of money allocated	Financial reports	Annual	JKUAT and stakeholders
Develop appropriate local training/teaching aids	-ESD training materials, guidelines and awareness materials developed	No. of training manuals developed	Annual	JKUAT and stakeholders
Training of trainers on ESD	No of trainers trained	Report on ToTs held	Annual	JKUAT and stakeholders
Active participation in MESA programme	-No. of projects funded by MESA - No. of MESA meetings and trainings attended	-Reports on MESA meetings and trainings attended -Reports on MESA funded projects	Annual	JKUAT and stakeholders
Share ESD training materials with partner organizations	No. of ESD materials shared with partner organizations	-Reports on sharing of ESD materials	Annual	JKUAT and stakeholders
Develop guidelines and conduct ESD audits	-ESD audit guidelines developed - No. of ESD activities audited	-Reports on ESD audits guidelines and audited activities	Annual	JKUAT and stakeholders
Review the University academic quality assurance policy to mainstream ESD at all levels	-Reviewed University academic quality assurance policy	-Reports	3 Years	JKUAT and stakeholders

Table 6: Research Mandate

Activity	Objectively verifiable indicators (OVIs)	Means of verification (MOV)	Reporting schedule	Actors
Source and allocate funds for research on SD	-Amount of money raised for research - No. of projects funded	-Reports - Signed contracts - Signed MOUs	Annual	JKUAT, Stakeholders
Staff actively conduct research and disseminate the findings	-No. of research projects conducted - No. of publications made - No. of staff members involved in research - No. of staff trained on research - No. of innovations posted on the web	-Reports -Publications -Additional information on the website on innovations - No. of hits on the website	Annual	JKUAT, Stakeholders
Conduct joint practical research on emerging SD issues	- No. of joint practical research conducted	-Reports on number of new innovations - Reports on technologies promoted	Annual	JKUAT and stakeholders

Table 7: Innovation Mandate

Activity	Objectively verifiable indicators (OVIs)	Means of verification (MOV)	Reporting schedule	Actors
Develop and use green technologies	-No. of green technologies developed and used	Reports	Annual	JKUAT and stakeholders
Establish and support an active Regional Centre of Excellence (RCE) for SD	-Active RCE established	-Reports on the RCE membership and on going activities	Annual	JKUAT and stakeholders
Innovations protected by Intellectual Property Rights (IPR)	-No. of new invented innovations	-Reports	Annual	JKUAT and stakeholders
Upscale capacity building on innovations	-No. of researchers sponsored to attend trainings, seminars and exhibitions	Reports	Annual	JKUAT and stakeholders
Operationalize a reward scheme for innovators	-No. of innovators rewarded -Amount of additional support towards the reward scheme received	Reports	Annual	JKUAT and stakeholders
Establish and maintain an active innovation park	-Active innovation park established	-Reports -No. visitors to the park -No. of new technologies displayed in the park	Annual	JKUAT and stakeholders
Promote indigenous technologies and knowledge systems	- No. of indigenous technologies and knowledge systems identified and promoted	-Reports	Annual	JKUAT and stakeholders
Upscale use of e-learning	- No. of programmes in the University in which e-learning is used	Reports	Annual	JKUAT
Promote e-governance in University operations	-No. of departments in the University where e-learning is mainstreamed	Reports	Annual	JKUAT

Table 8: **Community service mandate**

Activity	Objectively verifiable indicators (OVIs)	Means of verification (MOV)	Reporting schedule	Actors
Engage the stakeholders in annual SD events: workshops, sports, cleanups and cultural events	-No. of SD activities held	-Reports -% increase in waste management	Annual	
Share resources with the community	No. of resources shared with the community	Reports	Annual	
Stakeholders representation in University governance	No. of committees where stakeholders are represented	Reports	Annual	
Creating awareness of ESD through media, public forums, display ESD billboards and Creative Art	No. of ESD awareness creation activities held	Reports	Annual	
Promote use of religious days and socio-cultural activities	No. of religious days and socio-cultural activities observed	Reports	Annual	
Strengthen conflict resolution at all levels	No. of new conflict resolution strategies developed	Reports	Annual	
Mainstreaming gender policy in the University	No. of gender equality events organized	Reports	Annual	
Promote integrity in employment, promotion and procurement in the university	Establishment of transparency measures	Reports	Annual	
Expand and sustain networks and collaborations for ESD	No. of new approaches for sustaining ESD networks and collaborations	Reports	Annual	

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