



# **RESEARCH, INNOVATION AND EXTENSION BULLETIN, VOL 2 - 2024**



 @UoE\_Main

   UniversityofEldoret





Administration Block



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Prepared by Prof. Lizzy. A Mwamburi





## Foreward

University of Eldoret is guided by her Mission of providing quality education, training, research, and consultancy in Science, Agriculture, and Technology (SAT) to meet the needs and aspirations of a dynamic society. Through her Strategic and Vision Plan, the University is committed towards internationalizing her operations by advancing reputable research and innovation through competitive process by keeping abreast with the current issues and emerging technologies and advances.

To achieve this, the University has continuously enhanced outreach programs, capacity building and exchange programs aimed at expanding the pool of researchers within and beyond to contribute to knowledge production. Under this arrangement, the University has endeavored to promote a vibrant and productive research environment that over the years has positively contributed to the National Development Agenda and Vision 2030. This has been achieved through prudent use of research resources, open and conducive environment for collaborative research and consultancy, having a clear guideline for research and consultancy and protection of our intellectual property.

Further, through our collaborations with research bodies in the NOREB region, the East African Community and beyond, the University has ensured that policy briefs are formulated to inform policy makers on issues affecting our surroundings by adhering to the government development agenda, and the United Nations Sustainable Development Goals. Through these collaborations, the University has supplemented and motivated staff to seek research funding and at the same time nurture young vibrant researchers through the Annual allocation of research funds through the University Annual Research fundings/Grants (ARGs). This has ensured that research activities are intensified annually, which has been central in opening up the University to a

number of external research support and development partners, which has created an enabling environment for collaborative research at a national and international level.

This second issue of the Research, Innovation, and Extension Bulletin (RIEB) highlights university research accomplishments from July 2021 to June 2023. To support research, the university has formulated the following policies:

- UoE Research and Innovation Policy (UoERIP)
- UoE Intellectual Property Policy (UoEIPP)
- UoE Consultancy Policy (UoECP)
- Research Ethics Policy (In the process of finalizing it)

Through these policies, the University has been able to put in place stringent measures aimed at overseeing the way research activities are conducted within the University. This has been central in promoting a vibrant and productive research environment for purposes of contributing to key National Development Agenda.

Finally, to create awareness on our various areas of research and specialization, the University has disseminated research findings through outreach activities such as Farmer Field Days; Workshops and Seminars; Annual Agribusiness Trade Fairs; Agricultural Shows, and Exhibitions; and also, through academic forums such as Conferences, Workshops and Publications. In efforts to support our staff; and students improve their skills, expertise, and competency, the University holds training and Workshops sessions on a wide range of subjects. This bulletin acts as a vehicle for communicating pertinent news on research, innovation and best practices enhanced by university students and staff, and introducing them to beneficial research resources. The University will continue to foster an environment suitable to undertake research and innovative agenda.

**Prof. Thomas Kimeli Cheruiyot**  
Vice-Chancellor

## Message from The Deputy Vice-Chancellor (PRE)

Affirming the importance of research, consultancy and innovation in the life of a researcher.

The University of Eldoret Statutes VII of 2013 clearly places the office of Deputy Vice-Chancellor (PRE) at the center of all research activities in the University. Within the Five (5) years of our existence, we have endeavoured to promote research initiatives at the University in order to meet internationally accepted standards. We have managed to provide a conducive environment favourable for our researchers to carry about their works. This has been attained through;

- Provision of a framework for the governance of research and research development.
- Affirming the importance of research, consultancy and innovation in the life of a researcher.
- Affording researchers with equal opportunities to access research calls, consultancy opportunities and linkages with external research funders.
- Integrating postgraduate researchers into the main University research system.
- Advocating the need of enhancing honesty, integrity, cooperation, accountability and the need of capacity building and training to our researchers.

This second issue of Research, Innovation, and Extension Bulletin (RIEB) provides a run down of activities conducted in the Directorate of Research and Innovation and affirms our intention of internationalizing our research processes through the Vision of the Division of working towards advancing knowledge generation through adequate research, innovation and consultancy within the various areas of our specialization.



**Prof. Phillip Raburu PhD,**  
*Deputy Vice-Chancellor (PRE)*

## Message from The Director Research & Innovation

For Kenya to achieve Sustainable Development Goals (SDGs), Kenya Vision 2030 and the Bottom-Up Economic Transformation Agenda (Beta) plan, higher institutions of learning must invest in research and innovation, which focus on social, economic, political, environmental, and health issues.

The vision of the Directorate is to achieve excellence in research, innovation, outreach, and consultancy services. This is done by promoting discovery and inventions, application and dissemination of knowledge from coordinated research, innovation, and consultancy activities. These activities are prioritized in the University quality objectives, and strategic plan taking cognizance of national goals as articulated in the Kenya Vision 2030 and the *“Bottom-Up Economic Transformation Agenda (Beta) plan”*.

In the last year, the university undertook various activities including the award of the University of Eldoret Research Grants (UOERG) which supports innovative, general research, and adaptive projects that address societal needs articulated but not limited to priority areas of Kenya Vision 2030. The UOERG has contributed greatly to increasing the number of publications, innovations, and completion rates of postgraduate students sponsored by various funded projects.

To position the University as a research center, faculties participate in writing competitive individual and collaborative research proposals for external funding. In the 2022/2023 financial year, the University received a significant increase in research funds amounting to Ksh45,734,825.36. These grants are geared to facilitate conducting of studies that contribute towards solutions to mitigating societal challenges.

The University has come up with numerous innovations that are at various stages of development. A total of over 96 innovations were showcased in the five innovation weeks since its inception in 2019. The University has also participated in innovation fairs such as The Nairobi Innovation Week where seven UOE innovations were showcased and the Africities Summit (9<sup>th</sup> Edition) where five innovations were showcased.



**Prof. Lizzy A. Mwamburi, PhD**  
*Director, Research & Innovation*



## Message From The Head of Department Intellectual Property Management

The office is mandated to promote innovations and Intellectual Property (IP) development and technology transfer from the University to the public

Innovations are creations of the mind that lead to the development of new products, processes, or services that benefit society or improve the quality of life. The Intellectual Property Management Office (IPMO) of the University of Eldoret is homed in the Directorate of Research and Innovation. The office is mandated to promote innovations and Intellectual Property (IP) development and technology transfer from the University to the public. The office receives and evaluates all innovation and invention disclosures and facilitates the acquisition of IP rights from the relevant authorities. The IPMO strives to sensitize researchers and promote awareness and enthusiasm for generating exploitable IP for the university by organizing training workshops and seminars. So far, several innovations from the University have been protected through patents, utility models, plant breeder's rights, and copyrights in areas relating to food security, energy (bioenergy utilization), and waste management. The IPMO organizes and participates in annual Innovation Weeks to showcase the inventions and innovations from the University. The office is also committed to the commercialization of innovations and technology transfer of innovations to solve societal problems and contribute to the achievement of the Kenya Vision 2030 and the United Nations Sustainable Development Goal.



**Dr. Becky Aloo**  
*Head, Intellectual Property*

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## List of Acronyms and Abbreviation

ARG	Annual Research Grant
CCTV	Closed Circuit Television
UoECP	University of Eldoret Consultancy Policy
DRI	Directorate of Research and Innovation
DVC (A&F)	Deputy Vice-Chancellor (Administration and Finance)
DVC (PRE)	Deputy Vice-Chancellor (Planning, Research and Extension)
FY	Financial Year
IPMO	Intellectual Property Management office
UoEIPP	University of Eldoret Intellectual Property Policy
KES	Kenya Shillings
KIPPRA	Kenya Institute for Public Policy Research and Analysis
M	Millions
MU	Moi University
NACOSTI	National Commission Science and Technology
NRF	National Research Funds, Kenya
OISC	Outreach and International Student Centre
RIEB	Research, Innovation and Extension Bulletin
R&D	Research and Development
UoERIP	University of Eldoret Research and Innovation Policy
SDGs	Sustainable Development Goals
TRP	Tangible Research Property
TWAS	The World Academic of Science
UoE	University of Eldoret
UoEREC	University of Eldoret Research Ethical Committee
UoERF	University of Eldoret Research Fund
VC	Vice-Chancellor

## BACKGROUND INFORMATION

The University of Eldoret (UoE) is located 10 km from Eldoret town along Eldoret-Ziwa -Kitale road. The large track of agricultural land makes it ideal for the realization of its mandate as a University of Science, Agriculture, and Technological Innovations. UoE was founded in 1946 by the white settlers as a Large-Scale Farmers Training Centre. In 1984, it was converted into a teachers' training college and renamed Moi Teachers Training College to offer Diploma in Education. Due to the double intake crisis, the college was taken over by Moi University (MU) in 1990 as a Campus and renamed Chepkoilel Campus offering natural, basic, and applied science programs. In August 2010, through Legal Notice No. 125 of 13th August 2010, the campus was upgraded into a University College with the name Chepkoilel University College, a Constituent College of MU. Upon the award of a Charter by the President on 11th February 2013, the University College was renamed the University of Eldoret (UoE). The University has established a Town Campus in Eldoret Town, housed in the MUSCO building, and has a Liaison Office in Nairobi housed on the 12th Floor of Pension Towers.

Since the acquisition of the Charter, the University has graduated 17,627 students. UoE has a total student population of 12,820. This enrollment comprises 10,732 government-sponsored and 2,088 enrolled under module II. The University develops market-driven courses as it strives to be a University of Choice. The number of staff grew by 66%. The university has expanded schools from seven (7) to nine (9). UoE was granted ISO 9001:2008 Certification by the Kenya Bureau of Standards in June 2016 and upgraded to ISO 9001: 2015 in September 2018.

The University is endowed with modern facilities that support quality learning, research, and outreach programs. These include a well-equipped library, lecture halls, theatres, laboratories, workshops, and fully mechanized dairy and agricultural land. To enhance security, the University has installed security features including a perimeter fence, modern gates, floodlights, and surveillance cameras (CCTV).

### 1.1 University Vision

The University Vision is: *"A premier University that nurtures global leaders and innovators"*.

### 1.2 The University Mission

The University's mission is: *"To provide quality education, training, research, and consultancy in Science, Agriculture, and Technology to meet the needs and aspirations of a dynamic society"*.

### 1.3 The Motto

The University motto is: Flame of knowledge and innovation

### 1.4 The Core Values

The core values of the University are:

- Integrity
- Innovativeness
- Customer satisfaction
- Competitiveness
- Equity
- Responsiveness
- Inclusivity

### 1.5 The Objective of the University

1. To attain a 90% completion rate of students admitted to respective programs annually
2. To increase the adequacy of facilities and infrastructure that are in line with applicable statutory and regulatory requirements
3. To increase internal research funding by 5% annually
4. To disseminate at least 60% of research findings to communities annually
5. To train 2% of staff annually
6. To achieve performance targets as set in the University performance contract



## 1.6 The Office of The Deputy Vice-Chancellor (Planning, Research, and Extension)

The office of the Deputy Vice-Chancellor- Planning, Research, and Extension (DVCPRE) was established in May 2018 with the mandate of overseeing issues about Research, Innovations, Consultancies, Extension/Outreach activities, Industrial linkages, partnerships and collaborations, Resource Mobilization, planning and implementation of physical infrastructural projects, Strategic Planning and Performance Contracting. Since its inception, the division has made some strides toward the achievement of these objectives. The division is headed by the Deputy Vice-Chancellor of Planning, Research, and Extension and houses the Directorates of Research and Innovation, Linkages, Partnership and Collaborations, Strategic Planning and Performance Contracting, Income Generating Unit, Resource Mobilization and Strategic Initiative and Registrar Planning office, Estates department, the Outreach and International Students' Centre. The role of the division, therefore, is to support academic programs which is the core mandate by providing resources, a conducive environment for learning and fostering strategic collaborations with key partners for the achievement of the University's vision and mission. The division is committed to creating a conducive work ecosystem that supports our highly competent dedicated and professional staff to provide exemplary services to our students, faculty, support staff, and other stakeholders.

## 1.7 Research Goals

The University of Eldoret specifies the development and dissemination of knowledge and innovation through research as one of the major functions of the University. According to this provision the Charter empowers the Council to promote and develop facilities to make the University a global centre of research excellence. To achieve its mandate in research and extension, the University of Eldoret aims to promote a vibrant and productive research environment that positively contributes to national industrialization and development goals by putting in place appropriate structures for effective research funding and management of research activities. The Office of the Directorate of Research and Innovation

### Directorate Vision

Achieving excellence in Research, Innovation, Outreach, and Consultancy

### Directorate Mission

To promote the discovery and invention, application, and dissemination of

knowledge through quality Research and Innovation

### Directorate Quality Objectives

The quality objectives of DRI are;

1. To develop capacity for research and innovation at the University of Eldoret for at least 10% of staff and students annually
2. To promote timely dissemination of research findings and innovations through 4 dissemination avenues annually
3. To promote innovative research in high-priority areas inside and outside the University in line with Vision 2030 by facilitating 2 innovation projects annually and
4. To initiate 3 outreach and 2 consultancy activities annually with external stakeholders

### The mandate of DRI

The mandate of DRI is to:

1. Oversee training of staff on proposal development, research methods, and accessing research resources
2. Facilitate research teams to develop grant-winning proposals.
3. Compile a list of refereed journals for publication.
4. Establish a database of research projects, letters of agreement, project work plans, and publications.
5. Timely processing of research impressions.
6. Preparation of audited financial reports for projects.
7. Establish and operationalize IPM office – facilitate IP and patent registration of inventions at UoE.
8. Facilitate enhancement of high-quality research by staff and postgraduate students.
9. Oversee extension of research findings.
10. Establish a consultancy unit to coordinate and facilitate Consultancy activities.
11. Disseminate information at UoE – internal conferences, and bulletins.
12. Facilitate publishing of internal and external research.
13. Definition of Research and Innovation.

## 1.7.1 Definition and the Role of Research

The word “research” originated from the old French word “researcher” meaning to search and search again. It implies repeating a search for something and implicitly assumes that the earlier search was not exhaustive and complete in the sense that

there is still scope for improvement. Research is defined as the careful consideration of a study regarding a particular concern or problem using scientific methods. It can also be defined as a systematic inquiry to describe, explain, predict, and control the observed phenomenon. It involves inductive and deductive methods. It involves the collection, organization, and analysis of information to increase understanding of a topic or issue. A research project may be an expansion of past work in the field to test the validity of instruments, procedures, or experiments. Research may replicate elements of prior projects or the project as a whole.

The primary purposes of research are documentation, discovery, interpretation, and the research and development (R&D) of methods and systems for the advancement of human knowledge. Approaches to research depend on epistemologies, which vary considerably both within and between humanities and sciences.

### 1.7.2 Definition and the Role of Innovation

Innovation is the development of new ideas that lead to the creation of new products, processes, or services. The goal of innovation is to use money to bring a new idea and eventually to invention or commercialization; whether this is a profitable product or simply a better way of doing something. The innovations that lead to viable businesses are used to solve societal problems and improve quality of life.



## RESEARCH POLICIES

For universities to contribute to national and global advancement, policies must be in place that create objectives, and standards, and provide a mechanism for the university to be held accountable to the public. Policies are an essential part of any organization and procedures that provide a roadmap for day-to-day operations. They ensure compliance with laws and regulations, give guidance for decision-making, and streamline internal processes. The University of Eldoret's research policies guides the administration, staff, and students on how to handle research, innovations, and consultancies. The UoERIP, UoEIPP, and UoECP were all reviewed for the first time in 2020 and approved for use in March 2021.

### 2.1 UoE Research and Innovation Policy Overview

#### Aim of the policy

This policy establishes a framework to effectively guide research and Innovation at the UoE.

#### Justification

The need for such a framework is necessitated by several factors, including the need for:

- i. Fostering an open and conducive environment for collaborative research and consultancy
- ii. Providing clear guidelines for research, innovation, and consultancy
- iii. Motivating staff to seek research funding
- iv. Protection of intellectual property
- v. Efficient use of research resources and
- vi. Safeguard health and safety

#### Strategies

The University shall achieve its research commitments by:

- i. Annually allocating funds to the University of Eldoret Research Fund (UoERF) Intensifying efforts to attract external research support from development partners.
- ii. Creating an enabling environment for collaborative research with national and international partners

- iii. Fostering productive research with the private sector and
- iv. Promoting inventions and innovations.

### 2.2 UoE Intellectual Property Policy Overview

#### Creation of the UoEIPP

The Policy shall operate in compliance of UoEIPP related Laws of Kenya, including The Copyright Act 2001 (2009), The Seeds and Plant Varieties (Plant Breeder's ) Regulations, 1994 (2002), The Trade Marks Act (2002), The Industrial Property Act, 2001 (2001), The Copyright (Amendment) Act No. 9 of 1995 (1995), The Trade Marks (Amendment) Act No. 5 of 1994 (1994), The Seeds and Plant Varieties Act (1991), The Trade Marks (Amendment) Act, No. 1 of 1984 (1984), and the relevant Rules and Regulations, and treaties.

#### Objectives of the UoEIPP

The objectives of the UoEIPP shall be to:

- i. Promote the progress of science and technology and ensure discoveries, innovations, inventions, and creations generated by the staff and students of the UoE are utilized in ways most likely to benefit the public
- ii. Protect the rights of scholars to benefit from the products of their scholarly work
- iii. Develop criteria for determining the role and obligations of UoE, inventor(s), and other stakeholders concerning inventions, discoveries, and works created at the University.
- iv. Make guidelines for recognition of IPP ownership
- v. Govern the disposition of UoEIPP generated at the University
- vi. Create an enabling environment for generation and expedite the dissemination and application of new knowledge by University researchers for the greatest benefit to the University and the public through efficient and timely processing of technology transfer.
- vii. Provide for fair and equitable distribution of benefits accruing from UoEIPP.
- viii. Promote, preserve, encourage, and aid scientific investigation and research.
- ix. To encourage and reward UoE staff who innovate, invent and create Intellectual Property (IP).

- x. Make provisions for sensitizing members of staff and students on UoEIPP

### Application of this Policy

This Policy shall apply to all employees, students, collaborators, partners, and guests of the University.

Areas of potential for UoEIPP:

- i. Software
- ii. Hardware, including equipment
- iii. Models, including computer or industrial models
- iv. Modeling tools
- v. Audio or visual recordings, including audiovisuals
- vi. Educational/training materials and tools
- vii. Methods and/or techniques
- viii. Solutions to technical problems
- ix. Environmental remediation technologies
- x. Quality/accreditation systems or processes
- xi. Design/artistic projects
- xii. A new name for a product, service or program, logo, or slogan
- xiii. New plant varieties
- xiv. Novel chemicals either natural or synthetic and
- xv. Products of genetic engineering

### Types of UoEIPP

IP, for this policy, is defined as the tangible or intangible results of research, development, teaching, or other intellectual activity. IP may include the following:

- i. Patents
- ii. Utility models
- iii. Industrial design.
- iv. Copyright in literary work and geographical indications
- v. Trade and service marks
- vi. New plant varieties
- vii. Trade secrets and know-how
- viii. Integrated circuits or layout designs
- ix. Tangible Research Property (TRP) and genetic resources and
- x. Traditional knowledge and folklore

## 2.3 UoE Consultancy Policy Overview

The purpose of the consultancy is to contribute to national development through the provision of required services with the following specific objectives:

- xi. To promote national development by providing solutions to identified
- xii. problems
- xiii. To share university staff expertise with society
- xiv. To generate additional revenue for the university and income for staff
- xv. To contribute to government revenue through taxes from its operations

The consultancy shall involve work of a professional nature undertaken by university staff which includes but is not limited to:

- i. External data collection, analysis, and subsequent reports;
- ii. Laboratory analyses
- iii. Workshop production and
- iv. Training services

The purpose of this policy is to guide the processes of procurement and implementation consultancy at The UoE. This policy provides a framework for the staff of the university to engage in consultancies as per the approved university terms and conditions of service. This policy seeks to provide an enabling environment for:

- i. Efficient management of funds and other resource sharing after management
- ii. Fostering an open individual and collaborative consultancy by the University
- iii. Providing clear guidelines for consultancy
- iv. Motivating staff to seek consultancy opportunities.

This policy covers all areas of consultancies where the university has expertise internally and through collaborative arrangements. It requires all staff to declare to the university any consultancies that require more than the stipulated university time as per current workload policy and require the use of university facilities, equipment, and other resources. This policy applies to all UoE staff, students, collaborators, and partners of the university. This policy does not apply to those activities, paid or unpaid, which are in furtherance of scholarship or general dissemination of knowledge.



## RESEARCH FUNDS

Universities are epitome of research centered at coming up with policy briefs and innovative ideas to inform key policy makers. The calibre of research conducted during the period under review were centered at advancing knowledge, addressing societal challenges and contribute to the development of innovative new technologies that can benefit the society, industry and the economy as a whole. At the Directorate of Research and Innovation, we have endeavoured to support researchers to reach their peak within their research endeavours. Our funding and supporting partners when it comes to research are diversified ranging from governmental funders, industry collaborators, philanthropic support among many more. Out of these fundings, the university has realized research output in terms of publications (academic journals, conference preceedings and books), and patents for commercialization.

### 3.1 External Funded Projects

The University under the Directorate of Research and Innovation has continued to solicit research funding from bilateral and multilateral donors to achieve its research goals. Table 3.3 below indicates the projects that have so far been funded by several funding agencies for the 2022/2023 financial year.

**Table 1: Projects Funded by Different External Funding Agencies from 2022/2023 FY**

No.	Project Title	PI	The Funding Agency
1	Exploiting genetic variations in the rice germplasms to outsmart blast disease in Kenya	Dr. Benson O. Nyongesa	International Foundation for Science
2	Strengthening Postgraduate Research Training in Aquatic Sciences in East Africa (SPORT-EA)	Dr. Frank Masese	Ministry of Foreign Affairs of the Kingdom of Netherlands through IHE Delft Institute for Water Education
3	ISP MSSEESA Project	Prof. Mghendi Mwamburi	International Science Programs - Uppsala University
4	Taxpayer Engagement and government accountability in Kenya	Dr. Paul Okelo Odwori	Institute of Development Studies -IDS
5	The Role of Savings and credit cooperative Societies in the Promotion of effective financial management opportunities and Challenges	Dr. Alice Limo	Noble SACCO
6	Adapting to climate-resilient farming systems in Western Kenya: the sustainable path by embedding agroecology in research, education, and outreach (ADCLIM)	Dr. Abigael Otinga	VLIR-UOS
7	Experiential Learning on Climate Smart Nutrient Management (ECLINUM) in Uasin Gishu County, Kenya	Dr. Ruth Njoroge	2022 African Plant Nutrition Outreach Fellowship

No.	Project Title	PI	The Funding Agency
8	WONDERGRO-FIPS Africa	Dr. Ruth Njoroge	Farm Input Promotions Africa Ltd

**Table 2: Projects Funded by Different External Funding Agencies from 2023/2024FY**

No.	Project Title	Collaborators	PI
1	Shark Conversation Funds	Rockefeller Philanthropy Advisors, University of Eldoret	Prof. Boaz Kaunda Arara
2	Pyrethrum improvement through application of mutation and enhancing technologies (KENTEGRA project)	University of Eldoret, Laikipia University, Ndabibi and Mau Narok	Prof Miriam Kinyua
3	SCIFSA project – Partnership for Training Scientists in Crop Improvement for Food Security in Africa	Makerere University, Cairo University, University of Dakar, University of Ghana, University of Eldoret.	Prof. Julius Ochudho
4	Mcknight Foundation Project	Mcknight Foundation, USA, University of Eldoret	Prof. Wilson Ng'etich
5	McKnight Sorghum Project	McKnight Foundation, University of Eldoret, Moi University	Prof. Beatrice Were
6	The World Academic of Science (TWAS) Research Grant	Swedish International Development Cooperation (SIDA), University of Eldoret	Prof. Lizzy Mwamburi
7	Natural Environment Research Polaris Way North STA (Moca Project)	Natural Environment Research Council, University of Eldoret	Prof. Odipo Osano
8	ADCLIM project	KU-Leuven, IITA , University of Eldoret	Dr. Abigael Otinga
	UNICARSSA PROJECT	University of Lisboa, Makerere University, Royal Tropical Institute, University of Eldoret	Dr. Abigael Otinga
	CRAPAE Project	RUFORUM, University of Eldoret	Dr. Abigael Otinga
	VLIROUS Project	Flemish Interuniversity Council, KU Leuven, University of Eldoret	Dr. Abigael Otinga
9	International Foundation for Science (IFS) Rice Project –Exploiting genetic variations in the rice germplasms to outsmart blast disease in Kenya.	International Foundation for Science, University of Eldoret	Dr. Benson Nyongesa
10	Optica Foundation Project	Optical Society of America, University of Eldoret	Dr. Dismas Choge
11	Sustainable Waterpans	University of Eldoret, IHE Delft Institute for Water Education, Netherlands, Tanzania	Dr. Frank Masese
12	COTRA Project	Collaborative Training in Fisheries and Aquaculture in East, Central and Southern Africa	Dr. Frank Masese
13	Fish Genetics and Genomics Laboratory Project	National Research Fund, University of Eldoret	Dr. James Barasa

No.	Project Title	Collaborators	PI
14	Wondergro-Fips Project	University of Eldoret , FIPS Africa Limited	Dr. Ruth Njoroge
	ECLINUM Project	African Plant Nutrition Institute, University of Eldoret	Dr. Ruth Njoroge
	Aftican Fertilizer and Agribusiness Partnership Project (AFAP)	University of Eldoret	Dr. Ruth Njoroge
15	AFR Eldoret-Iten Water Fund, Kenya	The Nature Conservancy, Kenya, University of Eldoret	Dr. Ruth Njoroge
16	GRCF Grants	Royal Holloway University of London, University of West London, University of Eldoret	Dr. Salinah Rono
17	PIPFA project ( Prosperity & Innovation in the Past and Future of Agriculture in Eastern Africa)	University College London, University of Eldoret	Dr. Wilson Kipkore
18	SOPHEA Project :Strengthening One Planetary Health Eastern Africa Project	University of Wurzburg, Catholic University for Health and Allied Sciences (CUHAS-BUGANDO)	Ms. Melvin Anyango

### 3.2 Internal Research Grants

The UoE's vision is to be a premier University that is globally visible in knowledge generation and technological innovations. Therefore, the University stepped up its efforts in supporting funded research and innovation projects. The research projects are based on SDGs, Kenya Vision 2030, and the government Bottom-Up Transformation Agenda. Since its inception in 2015, calls for UoE annual research grants for internal proposals have been advertised and funded. These research projects are based on the identification of societal challenges or needs and conducting studies that contribute towards solving or mitigating these challenges. The project duration is 1 year and postgraduate students and the local communities are always incorporated into these projects. Of significance, researchers are always encouraged to do patents for their innovative research work.

A total of 21 successful applicants from academic staff and middle level non-academic staff received the fund in the 2021/2022 and 2022/2023FY respectively. Tables 4 and 5 below indicate the lists of research projects awarded by the University Annual Research Grants (ARG).

### 3.3 Consultative Meetings, Monitoring and Evaluation of Externally Funded Project within The University

The Ag. Finance Officer present in the meeting also discussed and highlighted key lessons from their benchmarking exercise that can be incorporated into the



Plate 1: Deputy Vice-Chancellor (AF) representing the VC, & DVC (PRE) Prof. Phillip Raburu, awarding Research Grant Letter to Dr. Grace Mureithi (PI) and Dr. Richard Ochieng (Co-PI) during the signing of the Cohort 8 Annual Research Grant Agreements

**Table 3: List of Research Projects for Cohort 7 funded by ARG during 2021/2022 FY**

No.	PROJECT TITLE	PRINCIPAL INVESTIGATOR
1	Dr. Jacob Onyango	Building Trust and Tax Morale through Participatory Budgeting in Kenya: Case of Selected Counties
2	Prof. Hellen Ipara	Promoting sustainable management of community forests for biodiversity conservation and improved livelihoods.
3	Prof Philip Raburu	Assessment of Heavy Metals in Urban Streams Water, Sediment, and Fish Mussels in Lake Victoria Basin, Kenya
4	Prof Elizabeth Omami	Effect of Seed Pelleting on Seed Quality of Selected African Leafy Vegetables in Western Kenya
5	Dr, Kiptoo K. G. Kipkorir	Formulation and Evaluation of a Hand Sanitizer Produced Using Selected Locally Available Herbal Plants Extract from the North Rift Region
6	Dr. Alice Limo	Pandemic-Focused Dialectical Behaviour Therapy and Mental Health of Learners Living with Disability in the Era of Covid-19 in selected schools in Western Kenya Region.
7	Dr. George Ariya	Developing a Tour Guide App (Tourguide) for Sustainable Guiding Services in Maasai Mara Ecosystem, in Kenya
8	Dr. Florence Okari	Manufacture affordable and environment-friendly Sanitary towels using cheap, locally available biodegradable Materials to reduce menstrual poverty and pollution.
9	Dr. Lydia C. Kipkoech	The dynamic of Science, Technology, Engineering, and Mathematics Programmes in Universities on Meeting Industry Needs in Kenya.
10	Dr. Christopher Saina	Design, Fabricate, Test, and Evaluate the Performance of a Low-Cost Potato Grading Machine
11	Prof. Teresa Akenga	The interplay of artificial intelligence and ethno phyto medicine in the drug discovery Campaign against cancers prevalent in Kenya
12	Dr. Javan Were	Potato-Legume Intercrop Effects on Water and Nutrient Use Efficiency, Crop Productivity and Soil Fertility in Western Kenya

**Table 4: List of Research Projects for Cohort 8 Funded by ARG during 2022/2023 FY**

No.	PROJECT TITLE	PRINCIPAL INVESTIGATOR
1	Dr. Grace Mureithi	Developing and Integrating Social Innovation, Service-Learning Program in University Education (ICT & Innovation)
2	Dr. Pascaline Jeruto	Characterization of Cassava ( <i>Manihot Esculenta Crantz</i> ) Landraces in Kenya. (Food & Nutrition Security)
3	Dr. Shem. M. Mwasi	Implications of Urban Ecology in Green Planning and Climate Change Mitigation in Eldoret Town, Kenya. (Sustainable Natural Resource Management)
4	Dr. Samuel Kariuki	Assessing the Risk and Prevalence of Bat-Borne Viruses in The Mount Eldon Region of Kenya (Universal Health Care)
5	Dr. Emily J. Too	Towards Understanding the Genetic Diversity, Diseases and Pests, Yield Potential and Nutrient and Biochemical Richness of Kenyan Grain Amaranth Accessions for Enhanced Food and Nutrition Security. (Food & Nutrition Security)

No.	PROJECT TITLE	PRINCIPAL INVESTIGATOR
6	Dr. Naomi Kutto	Mental Health Focused Solution Through Free Peer-To-Peer Counseling Using Technology. (Universal Health Care)
7	Prof. Ezekiel Kiprop	Pathological Behaviour and Effect of <i>Salvia nilotica</i> and <i>Paenibacillus polymyxa</i> on Virulence Genes Expression of <i>Xanthomonas Axonopodis</i> pv. <i>vignicola</i> Infecting Cowpea. (Food Security & Nutrition)
8	Dr. Enos Wambu	Facile New Technology for Harvesting Storm Water Among Climate Vulnerable Communities (FONTAINE) (ICT & Innovation)
9	Dr. Peter Kirui	Digital Democracy Praxis in Promoting or Threatening Peace During Elections:



Plate 2: DVC-PRE-Addressing Externally Funded PIs



Plate 3: Participants during the Consultative Meeting and M&E Exercise for Funded Projects



## PUBLICATIONS

### 4.1 Publications

University publications are critical components of academic research and knowledge dissemination, and they form the backbone of the core mandate of any higher learning institution. University as centres of excellence are called upon to enhance knowledge dissemination through sharing new discoveries, theories and insight to the local community and beyond. During the period under review, the Directorate of Research and Innovation recorded a total of 280 peer reviewed journals as follows, in the 2021/2022FY (28 Publications), 2022/2023FY (116 Publications) and 2023/2024FY (136 Publications) per Annexure 1,2, & 3.

## WORKSHOPS AND CONFERENCES

### 5.1 Workshops and Conferences attended in the 2021/2022FY

Workshops and conferences play a crucial role in the professional development of university researchers. This it does through knowledge sharing, skill development, networking and collaborations, and publication opportunities. Table 5 shows workshops and conferences attended during the years under review.

#### 5.1.2 Virtual Social Science Research Council University Outreach In African Universities

The Directorate of Research and Innovation hosted a Virtual Social Science Research Council University Outreach in African Universities, Workshop that was held on 15th December 2021 by Dr. Duncan Omanga from 5:00 pm. They presented the Grants /funding application opportunities for African scholars crafting a fundable proposal. The SSRG Africa Grants Program Include:

- APN-Africa Peace Building Networks
- Next-Generation Social Science in Africa

The next generation of social science in Africa Grants included the following fellowships.

1. Doctoral Dissertation Proposal fellowship
2. Doctoral Dissertation Research Fellowship
3. Doctoral Dissertation Completion

4. Post-doctoral fellowships
5. Doctoral dissertation proposal fellowship

#### 5.1.3 The Microbiology Workshop

The Microbiology Workshop was held at the University of Eldoret in the School of Business Conference Hall on 7-9<sup>th</sup> September 2022. The workshop was funded by the American Society for Microbiology (ASM) through Dr. Becky Aloo who is a lecturer in the Department of Biological Sciences and the Young Ambassador for ASM in Kenya. The American Society for Microbiology is a global organization whose mission is to bring together Microbiology students, researchers, and professionals and to advance microbial science globally. The objective of the Microbiology Festival at the University of Eldoret was to bring together the undergraduate and postgraduate Microbiology students of University of Eldoret for a fun-packed and hands-on learning sessions and inspire them in their discipline. The three-day workshop was the hallmark for inspirational talks, career talks, and fun-filled learning sessions for the Microbiology students. The talks and sessions were led by the members of staff of the Department of Biological Sciences, namely, Prof. Lizzy Mwamburi, Dr. Salinah Rono, Dr. Becky Aloo, Dr. Pixley Kipsumbai, Dr. Emily Chemoiwa, Dr. Samuel Kariuki, Ms. Florence Oseso, Mr. John Mackambo, Ms. Emily Chelimo, and Ms. Hellen Ruto. On day one of the workshop, the participants were briefed about ASM by Dr. Becky Aloo after which they participated in Agar

**Table 5: Workshops and Conferences (September-December, 2021)**

No.	Name of the workshop/s attended	Name/s of the staff attended	Year
1	Workshop II for Training of Trainers for Teacher Education and Management	Dr. Peter Kirui	8th-10 <sup>th</sup> November, 2021
2	Workshop II for Training of Trainers for Teacher Education and Management	Dr. Hellen Sitawa	8th-10 <sup>th</sup> November, 2021
3	STI-Professional Module 1- NACOSTI	Prof. Lizzy Mwamburi	2021
4	Technology Transfer and Research Commercialization	Prof. Lizzy Mwamburi	October, 2021
5	Effective intellectual property Policies for Academic and Research institutions	Prof. Lizzy Mwamburi	September, 2021



Plate 4: Microbiology Workshop was held at University of Eldoret in the School of Business conference Hall from 7-9th September 2022

Art where they used their imaginations to craft images on bacteriological media. Day two of the workshop included talks on Building Resumes, Conducting Special Projects in Microbiology, Dance with the Microbes, Microbiologists for the Future and Microbiologists are the Future, Winning Postgraduate Scholarships as options for graduates, and the Role of Microbiology and Microbiologists in Africa. The last day of the workshop involved a fun-filled Kahoot it! online learning on General Microbiology followed by a talk from the Chairperson of the Microbiology University of Eldoret Students Association (MUESA).

#### 5.1.4 International Interdisciplinary Conference, 2021

Table 6, shows The 7<sup>th</sup> International Interdisciplinary Conference, 2021, presenters

Table 6: 7<sup>th</sup> International Interdisciplinary Conference, 2021

No.	Presenter	Paper Title	University
1	Prof. Teresa Akenga	Education and COVID-19: A Case of Sub-Saharan Africa	University of Eldoret, Kenya
2	Stephen Kimno	Evaluation of Proximate and Mineral Composition of Mutant Dolichos Lablab ( <i>Lablab purpureus</i> L.) Accessions in Kenya	University of Eldoret, Kenya
3	Maina, C. M. and Maina, F.N.W	Efficacy of Lemon Extract in Managing White Leaf Spot Disease in Kales ( <i>Brassica oleracea</i> )	University of Eldoret, Kenya
4	Ouma, P.O., Mugalavai. V.K., Onkware, A.O., Ouma, R., & Alima, T.D.	Food Security Status during the Covid-19 Pandemic among Vulnerable Groups in Keiyo South, Elgeyo Marakwet County, Kenya	University of Eldoret, Kenya
5	Ontumbi George Morara & Ochieng Richard	Food Security Urban Farming Nexus for Sustainable Development; Experience of Kenya	University of Eldoret, Kenya
6	Orawo D. Akech & Mabonga G. Achieng'	Innovative Classroom Practices in Kenyan Schools. Assessing the Role of Digital Technology	University of Eldoret, Kenya
7	J. K. Chepkwony, P.G. Mwitari, P.K. Kipsumbai, C.C. Bii, and V. C. Tuei	Anti-Dermatophytic Activity of <i>Salvia nilotica</i> Methanolic Crude Leaf Extract against Trichophyton Mentagrophytes	University of Eldoret, Kenya

No.	Presenter	Paper Title	University
8	Omete F. Ikapel, G. Namusonge, M. Sakwa	Financial Management Efficiency and Financial Performance of Commercial Banks Listed on the Nairobi Securities Exchange	University of Eldoret, Kenya
9	P. Okelo Odwori, Felicity Murunga, R. Kendagor, and Julius Koech Njeri	New Economic Frontiers with Covid 19: An Assessment of Selected Sectors in Uasin Gishu and Elgeyo Marakwet Counties, Kenya	University of Eldoret, Kenya
10	Patrick Acleus Kafu	Education Reforms as a Strategy of Reconstructing Higher Education for Transformation of Modern Africa. The False Start for Modern Kenya	University of Eldoret, Kenya
11	Peter Kirui	Politics of Unitarism versus Regionalism as Threat to Peace in the Horn of Africa: The Case of Ethiopia and Somalia	University of Eldoret, Kenya
12	Abebaw Azanaw Haile, J. Kimanz, and Hellen Ipara	Site Selection for garbage disposal using spatial multi-criteria decision analysis in Simien Mountains National Park, Ethiopia	University of Eldoret, Kenya
13	Emmy C. Kerich	A Review of the Current Household Drinking Water Treatment Options in East Africa	University of Eldoret, Kenya
14	Kilimo J, Fatuma D, Ngetich J K, Kiptoo K, Sumukwo J, Njogu J	Making Kenyan Urban Transportation System Green: The Case of Eldoret Municipality	University of Eldoret, Kenya

### 5.1.5 Conferences Attended

Two conferences were organized by different departments and supported by the Directorate of Research and Innovation. A total of 118 abstracts were presented during both conferences as indicated in table 7.

**Table 7: Conferences held in 2022**

No.	Name of the Conference	When and where	No. of participants
1	Food and Nutrition Security Conference, 2022	15th to 17th February, 2022, UoE Town Campus	76 staff and students
2	Chemical Sciences Conference	16th, 17th and 18th March 2022, UoE Town Campus	42 Staff and students
	TOTAL		118



*Plate 5: Dr. Wamunga giving her opening remarks at Food and Nutrition Security Virtual Conference*



### 5.1.6 Food and Nutrition Security Conference Summary Report

The University of Eldoret hosted a 3-day Food and Nutrition Security Virtual Conference at the University of Eldoret town campus from 15th to 17th February 2022 theme: *"Towards food and nutrition security: Challenges and Opportunities"*. A total of 76 abstracts were presented during the conference.

## 5.2 Workshops and Conferences attended in the 2022/2023 FY

During the year under review, the following workshops and conferences were attended:

### 5.2.1 Stakeholders' Training on Recordation by The Anticounterfeit Authority (ACA)

The meeting took place on 8<sup>th</sup> December 2022 at Starbucks Hotel Eldoret from 8:00 am to 1:00 pm. The meeting was attended by key stakeholders and officials of the Kenya Revenue Authority, Kenya National Chamber of Commerce, Ministry of Investment, Trade & Industry, Ministry of Interior, Kenya Bureau of Standards,



Plate 6: Stakeholders' Training on Recordation by the Anticounterfeit Authority (Aca) (8<sup>th</sup> December, 2022) - The University of Eldoret was represented by Dr. Becky Aloo and Dr. Emily Chemoiwa

Kenya Trade Network Agency, and University of Eldoret. The University of Eldoret was represented by Dr. Becky Aloo and Dr. Emily Chemoiwa of the

Department of Biological Sciences. The main speaker in the training was Mr. Ibrahim Bulle from ACA. The following is a brief report of the discussions at the meeting.

Counterfeiting includes taking the following actions without the authority of the owner of intellectual property rights in Kenya. Most counterfeit goods are fast-moving consumer goods with a brand reputation in terms of quality.

The Anticounterfeit Authority was established as an agency by the Anti-Counterfeit Act of 2008 to prohibit the trade of counterfeit goods. The Statute Law Act of 2018 added responsibility to ACA, including recordation, and upgraded the Agency to Anticounterfeit Authority. Curbing counterfeiting in Kenya is core to trade facilitation which attracts both domestic and foreign direct investments. It also encourages innovations which is a major driver of economic growth in the country. Combating counterfeiting enhances the ease of doing business and thus has a positive impact on the growth of industries, trade, and investments which translate into employment and job security. Fighting counterfeits encourages innovations and domestic manufacturing industries such that what can be produced locally need not be imported. ACA is this protecting IPRs through patents, copyrights, and trade secrets to promote production.

### 5.2.2 The 12<sup>th</sup> African Regional RCE Conference

The 12<sup>th</sup> African RCE Regional Meeting held on 28-30 November 2022 at Kenyatta University Conference Centre, Nairobi hosted by RCE Greater Nairobi, the National Environment Management Authority Kenya (NEMA-K), and the Kenyan RCE Network, with the support of United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS) under the theme 'Role of African RCEs in Climate Action'. The sub-themes included;

- Environmental Education for Sustainability and climate change;
- Improved livelihoods for communities through climate change adaptation and mitigation;
- Engaging and empowering youth and children as champions for climate action;
- Skills-driven education, science, technology, and innovation for climate change.

The University of Eldoret, which hosts the RCE-North Rift, was represented by Prof. Philip Raburu (DVC, PRE), Prof. V Sudoi, Dr. Mark Kiptui (Dean, School



of Environmental Science and Natural Resource Management), Dr. Christopher Kipsaina, Dr. Georgine Kemboi, and Mr. Agan Leonard both who gave their presentations under different sub-themes.

This meeting was graced by the Director General, National Environment Management Authority (NEMA) –Mamo B. Mamo, EBS, Secretary General, Kenya National Commission to UNESCO (KNATCOM) - Dr. Evangeline Njoka, Kenya Country Coordinator Regional Office for Africa United Nations Environment Program (UNEP)- Dr. Cyrill Siewe, Regional Director and Representative for Eastern Africa Educational, United Nations Scientific and Cultural Organization (UNESCO)- Prof Hubert Gijenz, Regional Advisor to the RCE community in Africa- Dr. Akpezi Ogbuigwe, UNU -IAS, Global RCE Service Centre- Jonghwi.

### 5.2.3 Environment Institute of Kenya Conference

The EIK Conference was held on 24<sup>th</sup>-25<sup>th</sup> November 2022 at Panari Hotel, Nairobi. The main theme of the Conference was “Can Planet Earth Stay Afloat for Intergenerational Equity? Our Obligation”. The Sub-themes of the conference were:

- The Built Environment and Assessment of Environmental Performance
- Climate Change, Human Health, and Food Security
- Energy and Emerging Technologies Forestry, Biodiversity, and Land-use
- Emission Reduction Strategies and Waste Management

The University was represented by Prof. Elias Ucauwun who presented a paper titled, “A Concept for Sustainable Integrated Solid Waste Management through Transportation, Disposal and Energy Generation”.

Keynote presentations were made at the start of each of the two days before the breakout sessions in which individual papers on different themes of the conference were presented.

The keynote speakers touched mainly on the current key three environmental issues of global warming, biodiversity loss, and pollution. Some of the keynote speeches by NEMA officials addressed the practice of Environmental Impact Assessment and Environmental Audit.

The highlight of the paper is the innovative proposal to use a conveyor network system to transport solid waste in large cities from points of generation to the disposal site and use the combustible components to generate power that would then be used by the system to drive the conveyor belt system. This would bring about



Plate 7: The 12th African RCE Regional Meeting held on 28-30 November, 2022 at Kenyatta University Conference Centre

environmental and cost gains. Currently, solid waste is collected and delivered to disposal sites using trucks or rail wagons, which are very unreliable and expensive to maintain, especially in cities of developing countries.

As an institution (UoE, SENR) that offers training in EIA and EA, there is a need to keep in close consultation with NEMA and EIK and regularly revise the curriculum, which is used in the training.

In attendance were NEMA officials as well as EIK, among the chief guests was H. E. Prof. Grace Cheserek, the Deputy Governor of Elgeyo Marakwet County, and Dr. Fatuma Daudi of UoE, SENR.

### 5.2.4 UoE @10 Years Celebrations-Scientific Conference, Public Lecture and Panel Discussion

The University of Eldoret was chartered ten years ago on 11th February 2013 as a public university. To commemorate its 10 years of existence, the University organized a UOE @10 years' celebration between 18-24 March, 2023 based on the theme Celebrating a Decade of Knowledge and Innovation. During the celebrations, the Directorate of Research and Innovation organized and oversaw the Scientific Conference, Public Lecture, and Panel Discussion Sessions that were held between

20-21 March, 2023. In total, the sessions witnessed an attendance of over 400 participants.

### Scientific Conference Session

The Scientific Conference Session ran from 20-21 March, 2023 where keynote speeches and paper presentations were delivered during parallel sessions. It was officially opened by Prof. Teresa Akenga (Former Vice Chancellor) who was accompanied by the University Management including Prof. Wilson Ng'etich (Deputy Vice-Chancellor -AF), Prof. Philip Raburu (Deputy Vice-Chancellor -PRE), Prof. Lizzy A. Mwamburi (Director, Research, and Innovation), and CPA Francis Ikapel (Ag. Registrar Administration) among others. In her speech, the Vice Chancellor highlighted the success the University has achieved in Research and Innovation over the past 10 years. The University was also privileged to receive a keynote speech from Prof. Atinuke Olusola Adebajani from Kwame Nkrumah University of Science and Technology. Her speech was entitled Strengthening Inter-Institutional Collaboration in Higher Education between East and West Africa. Prof. Atinuke applauded the University for its exemplary performance despite it being a relatively young University. A total of 134 UoE staff and students attended the official opening of the Scientific Conference. On Tuesday 21 March, 2023, the participants also received a keynote speech from Prof. Miriam Kinyua who highlighted her success, challenges, expertise, and lessons learned in her journey of pursuing research and innovation

The Scientific Conference also witnessed poster and paper presentations from UoE researchers during the parallel sessions that were held on 20 and 21 March 2023. Spearheaded by the Scientific sub-committee, the Directorate received a total of 108 abstracts from UoE researchers for paper presentations and 35 abstracts for poster presentations. A total of 5 breakout rooms were set aside each day to allow UoE researchers to present their research findings. Over 40 researchers presented their research findings.

### Public Lecture Session

The Public Lecture Session was held on 20 March 2023 in the afternoon. The session was graced by guest speakers from Life University, USA; Dr. John Downes and Dr. Hussein Elsangak. The guest speakers gave a lecture on Life University as a Leading Vitalistic Institute for Health and Wellness. The session recorded an attendance of 130 participants including the University management was led by the Former Vice-Chancellor Prof. Teresa Akenga who was accompanied by the University Management including Prof. Wilson Ng'etich (Deputy Vice-Chancellor -AF), Prof.



*Plate 8: Prof. Atinuke Olusola (Keynote Speaker) Giving her Speech at the UOE Scientific Conference Session*

Philip Raburu (Deputy Vice-Chancellor -PRE), Prof. Lizzy A. Mwamburi (Director, Research, and Innovation), and CPA Francis Ikapel (Ag. Registrar Administration) among others.

### Panel Discussion Session

Two Panel Discussion Sessions were held on Tuesday 21, March 2023 and they were based on the themes: supporting commercialization of research among young innovators and fostering strategic partnerships in the current dispensation. The session was attended by a diversity of panelists from various institutions. The first-panel session comprised Mr. Joseph Murambula (CEO, Kenya Climate Innovation Center), and Mr. Stephen Mwongela (CEO PlusFarm) as its panelists. This session was moderated by Prof. Linnet Gohole and Dr. George Ariya. The second session comprised Ms. Jacqueline Kotonya (MD Chemelil Sugar Company), and Mr. Bishar Ali (Branch Manager, ABSA Bank). This session was moderated by Prof. Donald Otieno and Dr. Vivian Tuei. A total of 125 UOE staff and students attended the panel discussion session. It was also graced by the University's management including Prof. Wilson Ng'etich (Deputy Vice-Chancellor -AF), Prof. Philip Raburu (Deputy Vice-Chancellor -PRE), Prof. Lizzy A. Mwamburi (Director, Research and Innovation), and CPA Francis Ikapel (Ag. Registrar Administration) among others.





Plate 9: Public Lecture Session Held on 20 March, 2023 led by the Former Vice Chancellor Prof. Teresa Akenga who was accompanied by the University Management including Prof. Wilson Ng'etich (Deputy Vice-Chancellor -AF), Prof. Philip Raburu (Deputy Vice-Chancellor -PRE), Prof. Lizzy A. Mwamburi (Director, Research, and Innovation), and CPA Francis Ikapel (Ag. Registrar Administration) among others.



Plate 10: Panel Discussion Session on 21 March 2023 attended by Prof. Wilson Ng'etich (Deputy Vice-Chancellor -AF), Prof. Philip Raburu (Deputy Vice-Chancellor -PRE), Prof. Lizzy A. Mwamburi (Director, Research, and Innovation), and CPA Francis Ikapel (Ag. Registrar Administration) among others.



### 5.2.5 8<sup>th</sup> International Interdisciplinary and Inter-Universities Consortium-Africa Research Conference 2023

The 8<sup>th</sup> International Interdisciplinary and Inter-Universities Consortium-Africa Conference 2023 (8IIUC-A 2023) will be held at Mount Kenya University Main Campus in Thika from 29-31 March 2023. The University of Eldoret will participate in the conference and a total of 20 participants have been scheduled to present their research findings as per the attached list of accepted abstracts

### 5.9 Ismyco Conference

The ISMYCO 2022 & ICM 2022 Conference was held on September 6-9, 2022 in Thailand, the following papers were presented during the conference.

1. Biocontrol Of Aflatoxigenic Fungi Associated With Sugarcane And By-Products- Pamela Mwikali, Lizzy Mwamburi
2. Aflatoxin Levels In Peanuts From Markets In Eldoret And Kericho Towns, Kenya- Helene Nyirahakizimana<sup>1</sup>, Lizzy Mwamburi<sup>1</sup>, Johnstone Wakhisi, Charity Mutegi, John Wagacha, and Maria Elisa Christie
3. Aberration Of Mean Corpuscular Haemoglobin In *Oreochromis niloticus* And *Clarias Gariepinus* After Exposure To Aflatoxins- Onyangore Faith<sup>1</sup>, Mwamburi Lizzy.

### 5.3 Workshops and Conferences attended in the 2023/2024FY

During the year under review, the following workshops and conferences were attended:

#### 5.3.1 The Rift Valley Regional National Research and Development Policy Stakeholders Consultative Forum

The University through the Directorate of Research and Innovation led by the Director Prof. Lizzy A. Mwamburi participated in the Rift Valley Region National Research and Development Policy Stakeholders Consultative Forum which was hosted at the Boma Inn Hotel on Tuesday, 25<sup>th</sup> July, 2023.

The consultative forum which was facilitated by Research and Innovation Systems of Africa (RISA), UK Aid, ISAAA Africentre, NACOSTI, NRF and the government of Kenya through the Ministry of Education, State Department of Higher Education and Research was open by Mr. Vincent Olucho who was representing the Principal Secretary State Department of Higher Education and Research.



Plate 11: University Represented at the Rift Valley Regional National Research and Development Policy Stakeholders Consultative Forum at Boma Hotel

The consultative forum brought on board participants from the greater Rift Valley region who were vital in offering their inputs towards the National Research and Development Policy in readiness for validation by the relevant government agencies.

#### 5.3.2 8<sup>th</sup> Devolution Conference

The University through the Directorate of Research and Innovation and Corporate and Marketing Section participated in the 8<sup>th</sup> Devolution Conference which was held on 15-19 August 2023 at the Eldoret Sports Club, Uasin Gishu County. The Conference whose overall theme was “Driving Transformation from the Local Level: County Government as the Centre of Economic Development” and the sub-theme: Driving Transformation from the local level” saw the University displaying the following innovations:

- i. Beetroot value-addition and marketing - Dr. George Ariya
- ii. Improved wheat varieties (EldoMavuno) - Prof. Mirium Kinyua
- iii. Nutrient-Dense and Sensory-Enhanced Sorghum-Based Stiff Porridge (Ugali) for Children - Dr. Abigael Otinga.



Plate 12: University Booth at the 8th Devolution Conference, Eldoret Sports Club, Uasin Gishu County



Plate 13: University Management Members, Faculty Members and Public Lecture Speakers from Discovery Institute

### 5.3.3 Public Lecture on the Quest of Intelligent Design

The University through the Directorate of Research and Innovation in liaison with the School of Arts and Human Development, Department of Humanities hosted a Public lecture themed 'The Question of Intelligent Design: We Follow the Evidence Where it Leads on 11th of September, 2023 at the Kerio Hall. The lecture which was attended by University Management Board members led by the Vice-Chancellor Prof. Thomas K. Cheruiyot, Chair/CEO BioCosmos Africa Mr. Dag Kr. Norli, Chair BioCosmos Kenya Dr. Richard Ochieng, Reuben Kigame HSC and over 500 participants was presented by Dr. Casey Luskin and Dr. Brian Miller from Discovery Institute. The Public Lecture culminated with the Award of Certificates to 22 students who formed the 1st Cohort of CID BioCosmos Kenya.

### 5.3.4 International Microorganism Day

The Department of Biological Sciences, with the generous support of the American Society for Microbiology (ASM) marked the day on 18th September 2023 at the University Grounds to educate the public about the importance of microbes and microbiology in human welfare. The theme of the event was 'Marveling at the Wonders of the Microscopic World'. The organization of this event was spearheaded



Plate 14: Group Photo during the International Microorganisms Day held on 18<sup>th</sup> September, 2023



by Dr. Becky Aloo from the Department of Biological Sciences who is the Head Intellectual Property Management and Ms. Marystella Injete (former Microbiology student of the University of Eldoret and the current Ambassador of the ASM-Kenya in collaboration with Microbiology technical & teaching staff and Microbiology students of UoE through the Microbiology students Association.

#### 5.3.4 National Research Fund Sensitization Workshop for Focal Persons

The Directorate was represented the University in a Sensitization Workshop for Focal Persons that was held at Eserian Hotel, Naivasha on 21<sup>st</sup> September, 2023. The theme of the workshop was to sensitize focal persons on practical data collection requirements for the National Research Repository, focusing on land, water and energy.

#### 5.3.5 The CEIL Summit 2023

The Commercialization and Entrepreneurial Leaders' (CEIL) 2023 summit was held in Mombasa from 17 – 19 October 2023. The summit brought together different stakeholders to exchange ideas and explore opportunities for collaboration to foster the commercialization of innovations in Kenya and Africa.

The summit was attended by the Head of Intellectual Property Management, Dr. Becky Aloo. Among the key points of discussion at the summit were the regional approach to enabling commercialization, Kenya Network of Entrepreneurial Institutional Leaders, Enabling Entrepreneurialism and research commercialization in our institutions – Partners (updates and vision 2024-2025), What reforms should be addressed in our institutions to enable commercialization of research outputs + Reflection, and Partnerships for research commercialization/translation in the ecosystem Current Status and desired goals for 2024-2026.

#### 5.3.6 The Kenya-UK-LMIC Partnership Networking Workshop

The University of Eldoret through the Directorate of Research and Innovation and Department of Biological Sciences housed at the School of Science held a two-day Workshop on 30 – 31 October 2023 at the Forestry Building. The Research workshop which was organized by the Kenya-UK-LMIC Networking and Collaborative Research Partnership on leveraging fish microbial genomics to enhance food hygiene and reduce antibiotic resistance spread along the food supply chain was officially



Plate 15: Director, Research and Innovation Prof. Lizzy A. Mwamburi represented the University in a sensitization Workshop for Focal Persons at Eserian Hotel, Naivasha



Plate 16: The CEIL Summit 2023



Plate 17: The Kenya-UK-LMIC Partnership Networking Workshop

opened by Deputy Vice-Chancellor (PRE) Prof. Phillip Raburu representing the Vice-Chancellor.

### 5.3.7 8th International Interdisciplinary Conference

The University through the Directorate of Research and Innovation in collaboration with the School of Education, School of Arts and Human Development, and School of Business, Economics, and Management Sciences held the 8th International Interdisciplinary Conference (8IIC-2023) themed: Sustaining Human Development in an Emerging Digital Era on 9-10 November 2023 which brought together scholars, research and intellectual minds in the cross-cutting themes within the social Science spheres. A total of over 200 participants attended and over 60 abstracts were presented both online and physical during the conference as per annexure 4.

### 5.3.8 9<sup>th</sup> International Interdisciplinary Conference

The University through the Directorate of Research and Innovation was organized by the Directorate in Conjunction with the School of Engineering, School of Science, School of Agriculture and Biotechnology and School of Environmental Studies and Natural Resource Management conducted the 9IIC-2024 Conference

themed 'Innovation for a Sustainable Future: Unlocking Scientific Technologies in Science, Agriculture, Environment and Engineering' on 9-10 May, 2024. The conference brought together scholars, researchers and intellectual minds, and a total of over 55 Abstracts were received and presented during the conference as per Annexure 5.

### 5.3.9 Public Lectures

On 3<sup>rd</sup> November 2023, during the final day of the 5<sup>th</sup> Innovation Week a Public Lecture by Prof. Tom Migun Ogada, the Board Chairman of the Kenya National Innovation Agency (KeNIA) was conducted delving in-depth into 'The opportunities and challenges for Intellectual Property Commercialization for Universities'.

On 9<sup>th</sup> November, 2023 during the first day of the 8th International Interdisciplinary Conference, a Public Lecture on *Revolutionizing Education: The Power of Data Driven e-Learning* by Dr. Kennedy Okong'o was presented.

### 5.3.10 De-Mystifying Social Science Workshop

In order to meet the diverse needs of social scientist within the university, the Directorate of Research and Innovation conducted a workshop on de-mystifying social science which was facilitated by Dr. Ellen Pfeiffer on 28<sup>th</sup> November, 2023 at the School of Education Conference Room 1. The workshop which was more interactive brought together over 70 postgraduate students from diverse schools.

### 5.3.11 Patent Drafting Workshop by the Kenya Industrial Property Institute

The University through the Intellectual Property Management Office (IPMO) which is housed under the Directorate of Research and Innovation held a patent drafting workshop for innovators and members of the Intellectual Property Management Committee at EKA Hotel, Eldoret on 14 -15 November, 2023. The training was conducted by Mr. Benson Baituru who is a patent examiner from the Kenya Industrial Property Institute (KIPI).

The workshop was held as an extension of the 5th Annual Innovation Week and Public Lecture. The main aim of the workshop was to equip the innovators with the knowledge and skills required to effectively draft and protect their intellectual properties. The workshop was thus important in promoting the protection of intellectual properties from the University and potentially facilitating their commercialization and knowledge sharing. The training is expected to contribute





Plate 18: The 8th International Interdisciplinary Conference (8IIC-2023)



Plate 19: The 9th International Interdisciplinary Conference (9IIC-2024)





Plate 20: The 5th Innovation Week-Public Lecture



Plate 21: Dr. Kennedy Okong'o giving his Lecture during the 8IIC-2023 Conference



Plate 22: Patent Drafting Workshop



*Plate 23: Dr. Ellen Pfeiffer Workshop on De-Mystifying Social Science*



*Plate 24: Group Photo on Day 1 of the 5th Innovation Week and Public Lecture*



to increased applications for Intellectual Property protection from the University and the vision of the University to nurture global leaders and innovators.

### 5.3.12 The 5<sup>th</sup> Innovation Week and Public Lecture

Anchored by our Vision of becoming a premier University that nurtures global leaders and innovators, the University through the Directorate of Research and Innovation and the Department of Intellectual Property Management housed under the Office of the Deputy Vice Chancellor of Planning, Research, and Extension (PRE) held its 5<sup>th</sup> Annual Innovation Week and Public Lecture from 1 – 3 November under the theme '*Innovating for a Greener and Sustainable Future*' to highlight the importance of environmental conservation and the role of innovation in finding sustainable solutions to mitigate environmental degradation, reduce pollution, and preserve natural resources.

Overall, the Innovation Week showcased over 40 innovations and was attended by over 500 people. The exhibitors were students and staff from various Schools in the University, as well as Public and Private Institutions like the Eldoret National Polytechnic, Egerton University, Tumaini Herbalists, Northrift Herbalists, Kenya Forest Research Institute, Onja-Uone Macadamia Company, and Rivatex. The Innovation Week was also attended by representatives from Moi University, and Turkana University. The University extends appreciation to the National Bank of Kenya which was the main sponsor of the Event.

### 5.3.13 Workshop on Students' Mobile Apps Development

In observing a circular communication from Kenya National Commission for UNESCO (KNATCOM) through its Communication and Information Program, the University selected 25 students from various schools through the Directorate to attend a three-week intensive training and competition workshop on the development of mobile apps. The inter-university workshop kick-started on 29th January 2024 and ran up to 16th February, 2024 at Moi University's Medical Education Centre. Its mandate was to empower 50 brilliant students from the University of Eldoret and Moi University in the realm of innovative technologies to solve various societal challenges and contribute to the realization of the United Nations Sustainable Development Goals.

Students from the University of Eldoret scooped the 1st and 3rd positions in the competition. The winning team developed an app on Carbocalc while the 2nd



Plate 25: Workshop on Students Mobile Apps Development

Runners-up developed an app on Ustawinest. The winning teams were awarded by KNATCOM and will further get assistance to finalize developing the apps, protect their applications, and launch them in the market.

The Department of Intellectual Property Management housed under the Directorate of Research and Extension will undertake the mentorship, incubation, and support of all student teams to realize the completion of the mobile apps for further opportunities. Figure one below shows the group Photo for the Workshop on Students Mobile Apps Development.

The complete list of student teams and their mobile apps is provided in annexure 6.

### 5.3.14 University Represented During The 3<sup>rd</sup> EAC Regional STI Conference

The University was well represented by the Director of Research and Innovation Prof. Lizzy A. Mwamburi during the 3<sup>rd</sup> Edition of the East Africa Community regional STI Conference which was held between 6th-8th March, 2024 at the Sarova Panafric Hotel, Nairobi, Kenya. The STI Conference themed: '*Accelerating Development and Diffusion of STI Solutions for a Resilient East Africa*' was opened by Prof. Walter Oyawa, CEO-NACOSTI on behalf of the Cabinet Secretary, Ministry of



Plate 26: 3rd EAC Regional STI Conference

Education Hon. Ezekiel Machogu.

### 5.3.15 World Engineering Day

The second day of the 2024 World Engineering Day event took place at the University of Eldoret on 4th March 2024. The exhibition of innovations during the event was supported with KES. 70,000 from the IPMO Vote. There were a total of over 300 participants. There were talks by a representative from Moi University, Prof. Eng. E. Kipkorir and the Dean of the School of Engineering, Eng. Clement Kiptum. There were also presentations by the Institution of Engineers of Kenya (IEK) North Rift Branch Secretariat, comprising engineers from various organizations across six counties, as well as two student presidents from the University of Eldoret and Moi University. The guest engineer was Eng. Faith Koome representing the Chair of the Institution of Engineers of Kenya North Rift Branch, delivered remarks on behalf of the board. Although the Vice Chancellor of the University of Eldoret, Prof. Thomas Cheruiyot, was expected as the guest of honor, he represented due to prior office commitments. All participants proceeded to visit the engineering exhibitions at the engineering complex followed by lunch at Sarova restaurant located at the student center. Among the innovations that were showcased at the event are: plastic injection molding machine, manual honey extractor, variable pitch potato grading.



Plate 27: World Engineering Day-2024 Group Photo



## INNOVATIONS

### 6.1 Innovation Report 2021/2022 FY

The Intellectual Property Management office under the Directorate of Research and Innovation organized a three-day Innovations Exhibitions week that took place on Wednesday 17 – Friday 19 November 2021). The innovation week provided an opportunity to staff and students of UoE to display their innovations that aimed at solving societal challenges relating to the Big Four Agenda and entrepreneurship among others. The theme of the innovation was *"Driving Innovation for Sustainability"*. Other institutions including Eldoret National Polytechnic, Rift Valley Technical Training Institute, and Eldo-Hub were invited to participate.

The Innovation Week attracted sponsorship from ABSA Bank, National Bank, Kenya Seed Company, and Cooperative Bank. The start of the Innovation Week coincided with the launch of the Innovation Action Plan for Eldoret on Wednesday 17 November at the EKA hotel, of which the University of Eldoret is a key stakeholder. This plan will make Eldoret a model innovation hub and center of excellence in Kenya. The launch was attended by the British High Commissioner H.E. Josephine Gauld, Project Director for Knowledge Transfer Network (KTN) Global Alliance Africa Dr. Nee-Joo Teh, Governor, Uasin Gishu County, Eldoret Innovation Advisory Committee, and other partners. The University of Eldoret was represented by Prof. Miriam Kinyua who represented the Vice-Chancellor, Prof. Lizzy Mwamburi (IPMO), and Mr. Tim Koskei. The Innovation Action Plan will present a unique opportunity for UoE to build strong innovation networks with improved visibility, access, and understanding of opportunities and resources at local, national, and international levels and increase capacity for innovation and adoption.

EldoHub CEO Ms. Magdaline Chepkemai and Knowledge Transfer Network Global Alliance Africa Country Lead Ms. Sheilah Birgen were part of the Panel titled *'Commercialization of Innovations in Universities'* and moderated by Dr. Hoseah Kiplagat on the same Wednesday in the afternoon.

The Former Vice-Chancellor Prof. Teresa Akenga led the management in touring the innovations that were exhibited by staff and students on Thursday 17 November. The Vice-Chancellor who opened the Innovation Week officially, lauded those

who had come out to showcase their research and innovations. In the speech, the Vice Chancellor noted that it was only through research that solutions to societal problems could be solved. She challenged the academic staff to guide and mentor the students to realize their innovations.

The call has attracted 61 innovations of which 41 were from the University of Eldoret and were spread across all the nine schools. The best innovations were awarded trophies that were donated by ABSA Bank.

The Public lecture on Friday 19 November titled *'Universities as Incubation Hubs'* by CEO of the Kenya National Innovation Agency (KeNIA) Dr. Tonny Omwansa was attended by the Vice-Chancellor, DVC PRE, DVC ASA, and DVC A&F. The speaker highlighted on the role of KeNIA ongoing initiatives in supporting the commercialization of innovations from individuals, TVETs, Universities, and Research centers. He emphasized to develop successful incubation hubs, UoE should adopt the 5.0 model by adding Innovation and Industrialization to Teaching, Research, and Community development.

The Department of Intellectual Property Management under the Directorate of Research and Innovation organized Innovation exhibitions week that took place from Wednesday 17 November to Friday 19 November 2021. The innovation week is part of the Directorate's work plan for the year 2021/2022. The innovation fair provided an opportunity to UOE Innovators and surrounding institutions to display/showcase their Innovations aimed at solving societal challenges relating to the Big Four Agenda and Vision 2030. The current innovations specifically address issues of Health and Nutrition, Affordable Housing, Food Security, Environment, and Entrepreneurship among others. Some of the innovations were still at the concept/idea stages while others were already products, incubation, and prototype stages.

The exhibition involved students and staff of UOE and neighboring institutions including Eldoret National Polytechnic, Rift Valley technical training institute, ELDOHUB, and the North Rift Herbalist Association. Each institution paid a registration fee of 25,000/-. This year's innovation Call attracted 61 exhibitions. Seven out of nine schools from the University of Eldoret participated by showcasing

their exhibitions. The total attendance for the first day was 100, the second day had 259 and the last day had 131 attendees making a total of 490. The best four innovations were awarded trophies from ABSA Bank. All participants will get a certificate.

### Sponsors

The sponsors included the National Bank of Kenya which facilitated the events ceremony dinner at EKA hotel, ABSA Bank awarded the trophies to the winning teams and stationery, trees for the tree-planting ceremony, and T-shirts for participants, Cooperative Bank and Kenya Seed also contributed towards the event.

### Innovation Day Opening Ceremony

The start of the Innovation Week coincided with the launch of the Innovation Action Plan for Eldoret on Wednesday 17 November at the EKA hotel, of which the University of Eldoret is a key stakeholder. This plan will make Eldoret a model innovation hub and center of excellence in Kenya. The launch was attended by the British High Commissioner H.E. Josephine Gauld, Project Director for Knowledge Transfer Network (KTN) Global Alliance Africa Dr. Nee-Joo Teh, Governor, Uasin

Gishu County, Eldoret Innovation Advisory Committee, and other partners. The University of Eldoret was represented by Prof. Miriam Kinyua who represented the Vice-Chancellor, Prof. Lizzy Mwamburi (IPMO), and Mr. Tim Koskei. The Innovation Action Plan will present a unique opportunity for UoE to build strong innovation networks with improved visibility, access, and understanding of opportunities and resources at local, national, and international levels and increase capacity for innovation and adoption.

The Former Vice-Chancellor Prof. Teresa Akenga led the management in touring the innovations that were exhibited by staff and students on Thursday 17 November. The Vice-Chancellor who opened the Innovation Week officially, lauded those who had come out to showcase their research and innovations. In the speech, the Vice Chancellor noted that it was only through research that solutions to societal problems could be solved. She challenged the academic staff to guide and mentor the students to realize their innovations.

A ceremony of tree planting was done after the tour to help commemorate the innovation week led by the Former Vice Chancellor, Prof. Teresa Akenga

**Table 8: List of Innovations Showcased during The Innovation Week, November 2021**

No.	INNOVATION TITLE	INSTITUTION	INNOVATOR/S	SUMMARY OF THE INNOVATION
1.	KENRHO Cooler	University of Eldoret	Rhoda Muriithi and Kennedy Gituma	improve food security and food safety
2.	Increase the number of oven bread-producing firms in the county.	University of Eldoret	Lilian Songok and Lilian Bitok	Gluten-free diet is the only remaining option for people with celiac disease and severe gluten intolerance therefore to tap into this market there is need to provide solutions through manufacturing gluten free flour and producing gluten free bread
3.	Innovation of nondairy alternatives	University of Eldoret	Joel Taruru, Kevin, Oduol, Charlotte, Serrem (and others)	The four variations of Creamy Peanut Yogurt will be utilized by people with lactose intolerance, allergic to cow's milk and hypercholesterolaemia as a functional and specialty beverage.
4.	Wasify Agricultural Service	University of Eldoret	Obed Marube	Many Agricultural graduates from colleges and Universities are languishing in unemployment. This company seeks to address this issues inorder to lift the living standards of farmers.
5.	Ingoho vetnut is an online platform that offers the farmers the basic information concerning the farming on both chicken and cattle rearing.	University of Eldoret	Ingoho Vetnut Toroitich	With the farmers getting the basic information on health and feeds of chicken and cattle, an affordable source of proteins remains available. In this way food security in rural Kenya is ensured

No.	INNOVATION TITLE	INSTITUTION	INNOVATOR/S	SUMMARY OF THE INNOVATION
6.	Honey Zest Co. Limited	University of Eldoret	Ruth Jepchirchir	The innovative approach to train farmers on quality honey production then buying their products from them has ensured the success of the company.
7.	Digital farming.... Zeatech Nutrisol group	Outreach Centre	Benjamin, Shadrach, Collet and Brian	To increase maize production via early diagnosis of major nutritional deficiencies in maize.
8.	Ready-to-use Therapeutic foods (RUTFs) Intervention.	University of Eldoret	Mary Atieno Onyango, Charlotte Serrem and Florence Wamunga	This will ensure much time for caretakers' involvement in economic activities outside the hospitals.
9.	Industrial Microbiology	University of Eldoret	Kipkogei Chemitei, Dr Salinah J Rono	This innovation will first enable Kenya leverage on her huge arid and semiarid landmass which is currently barren
10.	Microbial Inoculations	University of Eldoret	Laban Ngobiro	These endophytes can protect the plants during droughts by enhancing the growth of the roots which in turn aids in efficient water absorption and anchorage of the plants in the soil.
11.	Innovation of plant extracts as medicine for health	University of Eldoret	Lexa Gomezgani Matasyoh	The innovation is good for the health of people of Kenya and the world as a whole because other places do not know about these vegetables which are a source of medicine.
12.	Wind energy	University of Eldoret	Julius S. Maremwa; Denis N. King'ang'i	This research work designed a Mathematical model for efficient water extraction for riparian communities. The Model enables the control of wind turbines performance in Riparian areas.
13.	Design a retirement benefit cover for the informal sector workers by determining the amount of benefit paid to and contributions made by the latter to the retirement scheme.	University of Eldoret	ACS/031/17 Nevil Maloba; ACS/015/17 Ivine Chepngetich; ACS/012/17 Cynthia Mwako; ACS/007/17 Esafu Kelvin; ACS/032/17 Festus Cheruiyot; Mr. Ambrose Sewe	This innovation sought to design a retirement cover for the informal sector. It presents an appropriate pension arrangement needed to ensure that the informal sector participants do not fall into financial setbacks in their old age.
14.	Effects of plant extracts on germination of seeds	University of Eldoret	Kemboi Moses	Potential herbicide
15.	Synthetic Organic Chemistry	University of Eldoret	Prof Teresa Akenga, Prof Samuel Lutta, Dr Stephen Barasa, Dr Edwin Akumu,	easily detects presence or absence of fluoride in drinking water.
16.	Water quality management by use of integrated filter system.	University of Eldoret	George Chepkwony	It improves water quality by clearing turbidity and bad odour in water collected from unprotected water sources.



No.	INNOVATION TITLE	INSTITUTION	INNOVATOR/S	SUMMARY OF THE INNOVATION
17.	Fluid mechanics	University of Eldoret	George Ndungu and Robert Mutungi	Reduce accidents
18.	Improved way of harvesting honey by farmers	University of Eldoret	mercyline chepkemioi	Higher profits and better honey quality
19.	Improve modern homes to better them to cater for urban growth and slams	University of Eldoret	Charlene kimutai, Victoria mwende,, Christopher Ruthi, Julius Musili	Improving homings
20.	Fintech	University of Eldoret	Patrick Kimani & Morris Tutu	Financial literacy
21.	Designing of wheel hub motors	University of Eldoret	Sammy kipkosgei Birech	The motor will help reduce on the relative amount of time travelled by the rider, increase the distance covered and to make cycling replacement of motorcycle for their pollution in line with the world target of sustainability and environmental conservation, and reduce their gross misconduct in the highway for the safety of both the driver, passenger and the pedestrians.
22.	Manufacture of Bicycles using recycled aluminum	University of Eldoret	John Arnold	Bicycle lovers and the general population would appreciate the innovation since bicycles with similar properties will be locally assembled and sold cheaply.
23.	Manufacture of affordable and environment friendly Sanitary pads.	University of Eldoret	Sam OKemwa	The essence of this research is to develop affordable-ecofriendly menstrual pads and promote their use globally reducing menstrual poverty.
24.	Find a new way of supplying water to the communities with very little tax on the quality.	University of Eldoret	Erick Makokha Mukanda	Acces to Clean water is a basic need for the survival of human kind
25.	Composite Solar Brooder	University of Eldoret	Caren Wandera, Meline	Supports Use of Renewable Energy
26.	Improving comfort on roads. Introducing modern way of vehicle speed control and traffic counting.	University of Eldoret	Enosh Osumo	Improving comfort on roads. 2. Introducing modern way of vehicle speed control and traffic counting.
27.	Aquaponic systems that try to boost food production using limited space, little water and less investment.	University of Eldoret	Mr. Hansen Ezangala and Dr. Josiah Sabwa Ani	The innovation helps to reduce pressure on land that would have been used for agriculture to carry out other human activities such as settlement and industrialization

No.	INNOVATION TITLE	INSTITUTION	INNOVATOR/S	SUMMARY OF THE INNOVATION
28.	Address food insecurity and livelihoods through promotion of Omega-3 enhanced Catfish production under intensive climate smart backyard pond technology.	University of Eldoret	Zacharia Shitote	Tensions on the natural catches due to overfishing will be reduced as aquaculture using intensive climate smart technology is adopted
29	Production of a ready to drink beetroot beverage	University of Eldoret	Okemwa Peninah, Dr. Catherine Sempele, Dr. George Ariya	<ul style="list-style-type: none"> <li>i. Availability of powdered beetroot will remove the cumbersome preparation process.</li> <li>ii. The beverage will be in a ready to drink form thus easy access to consumers.</li> <li>iii. The beverage will be available in a variety of flavours.</li> <li>iv. The beverage will be nutritionally rich due to additional nutrients from other ingredients.</li> <li>v. The beverage can be conveniently packaged for ease in transportation and use thus accessible to many consumers.</li> <li>vi. The beetroot already has numerous health benefits; thus, this will be a preferred beverage for health-conscious consumers.</li> <li>vii. The beverage can be sweetened appropriately to make it appealing to the various consumer age groups.</li> <li>viii. The project can be scaled for income generation.</li> <li>ix. Beetroot powder can be used in other recipes like the making of sauces, soups, cakes, vegetable salads to name a few other than just a beverage</li> </ul>
30.	Use of the otherwise dangerous element as a basic raw material for the construction of signature litter bin designs and ad boards for the purpose of advertisement.	University of Eldoret	Camillus Kipchirchir Kemboi, Dr Wambui Ng'ang'a, Dr Julie Makomere, Maureen Ondayo	Employing upscale use of otherwise hazardous materials ie disposed car tyres
31.	Proposed Construction of a Modern Dispensary at the University of Eldoret	University of Eldoret	Kipngetich Raymond Ted/S/1047/16 2, Okoti Julia, Ted/S/1108/16, Bii Kipkirui Enock Ted/S/1021/16 4., Peter O. Ajanja Ted/S/1015/15	To apply the theoretical knowledge and skills learnt from Building and Construction Technology to solve related problems in the society especially in the health sector.

No.	INNOVATION TITLE	INSTITUTION	INNOVATOR/S	SUMMARY OF THE INNOVATION
32.	An automatic fire exit lock system	University of Eldoret	Serah wambugu TED/S/1040/16, James k odhiambo. TED/S/1096/16, Job Omwega. TED/S/1081/1	<ol style="list-style-type: none"> <li>1. It is low-cost fire alarm system and can be implemented at various places with minimum investment. ,</li> <li>2. It is simple and is implemented using minimum component requirements.</li> <li>3. Provides occupant notification devices – audible and/or visual signals that facilitate evacuation.</li> <li>4. To enhance safety of people and property in premises.</li> </ol>
33.	An Energy Saving, Automated Street, Lighting Control, Using Arduino in a Learning Institution	University of Eldoret	Isaac Onsare Ombiro: Reg. No. Ted/S/1038/16 Kefa Ogenche Simba: Reg. No. Ted/S/1024/16 Peter Uduy: Reg. No. Ted/S/1028/16	This project will automatically switch ON the Street lights at the right time when required hence enhances security. By switching OFF and dimming the street lights, it will reduce the amount of power wastage by reasonable amount which will assist in energy conservation. The lifetime of the streetlights gets enhanced because the lights do not stay ON during the whole night, and also helps to increase safety measurements
34.	Planning for Sustainable Educational Complex, case of Embaringo Primary School.	University of Eldoret	The Starlets	The purpose of our innovation is to underscore a proper planning to the institution to enable sustainable and effortless service delivery to the pupils therein
35.	Self-service poshomill which can be operated by a client on its own without the help of an attendant.	The Eldoret National Polytechnic	Furaha Kevin	The innovation seeks to contribute to the Kenya's big 4 agenda through manufacturing and food security.
36.	Biomass combustion device capable of burning solid fuels using forced convection to increase burning efficiency and reduce harmful emissions.	The Eldoret National Polytechnic	Manfred Githinji	Reduced emission causing pollutions from biomass aka 'misogoro' thus contributing towards a healthy environment
37.	Cancer and Kidney Treatment	North Rift Herbalist Association	Dr. Susan Yator	To find cancer and kidney treatment
38.	African traditional herbal medicine for Arthritis	North Rift Herbalist Association	Dr. Laban Losili	To get the cure of Arthritis
39.	African traditional herbal medicine for malaria	North Rift Herbalist Association	Dr. Samwel Kimeto	To get an alternative medicine of malaria
40.	African traditional herbal medicine for diabetes	North Rift Herbalist Association	Dr. Samwel Kimeto	To treat and cure Diabetes

No.	INNOVATION TITLE	INSTITUTION	INNOVATOR/S	SUMMARY OF THE INNOVATION
41.	African traditional herbal medicine for malaria	North Rift Herbalist Association	Dr. Anna Nabwile	To get an alternative cure for malaria
42.	Traditional Ornament Wear	North Rift Herbalist Association	Dr. Loitasiwa Chepsekigh	To reinstate and embrace the traditional ornament wear
43.	Traditional african medicine of HIV/ AIDS	North Rift Herbalist Association	Dr. Hellena Murget	To get the cure of HIV/ AIDS
44.	Animal feed mixing equipment	Rift Valley Technical Training Institute	Collins Kipchumba	enhance productivity of the farm animals which will lead to high gains by the farmers
45.	Road Safety Gadget	Rift Valley Technical training Institute	REBECA JEROBON	Have a regulated road safety network 2) Reduce the number of accident occurrence in the roads especially the blind spots. 3) Enhance general national economy.
46.	Poultry Structures	Rift Valley Technical Training Institute	Kipsoi K. Benson Adm. No. 119R02628 (Agriculture and Environment DPT) keneddy Kipkurui. Adm No.121R05356 (Building and Construction DPT) Mentor: Evans Ondati (Trainer)	Agribusiness/agricultural innovations and technologies have great potential in addressing and improving the livelihood of slum dwellers especially those with a small space to practice these innovations and technologies.
47.	Burgler Alarm System	Rift Valley Technical Training Institute	Elsie Mutai	<ol style="list-style-type: none"> <li>1. To design a system that will detect an intruder breaking a beam into a confined place.</li> <li>2. To design a system that will alert the user when a ray of light falls on the confined place</li> <li>3. To design a system that will detect an intruder when stepping on a foot sensor.</li> <li>4. Ensure that the systems efficiency is at 100% output</li> </ol>
48.	Improvised DRONE technique to control locusts	Rift Valley Technical Training Institute	Emmanuel Ooko Ouma & Ephraim Otieno Ochola	This project seeks to provide an efficient and alternative solution of eradicating locust in the country.
49.	Smart car	Rift Valley Technical Training Institute	Mark kusimba, ledesmus kibet	
50.	Single row planter	Rift Valley Technical Training Institute	Mark kusimba, fred kiprop	

No.	INNOVATION TITLE	INSTITUTION	INNOVATOR/S	SUMMARY OF THE INNOVATION
52.	Effect of a formulated ration using seed waste, on milk quantity and quality among lactating friesian cows.	University of Eldoret	Yator M.J., 2. Kitilit J.K., Oliech G.O. And Rachuonyo H.A	used as a supplement to improve on milk yield of dairy animals.
53.	Cli-Smart Technology	University of Eldoret	Danish Owiti,Vivian Awour and Emmanuel Kipkorir	Address food security in line with vision 2030. To be an alternative source of income generation to farmers in Uasin Gishu County. To create Sustainability within the environment. Mass education
56	Homemade filtration system (Flouride, THMS, VOC)	University of Eldoret	David Samoei	
57	Spaciotempral analysis of land surface temperature (LTS) using remote sensing and GIS: Case of Uasin Gishu County	University of Eldoret	David Samoei	
58	Innovative Agricultural information packaging( FARMWORX)	UNIVERSITY OF ELDORET	Kelvin Warimu	Farmworx Kenya informs and walk with the farmer step by step providing solutions to his dairy challenges from our vast experience. We've got a strong believe on showing the farmer on how to fish rather than giving him the fish.

## 6.2 Innovation Report 2022/2023 FY

### 6.2.1 4<sup>th</sup> Innovation Week And Public Lecture

The Directorate of Research and Innovation organized the UoE 4<sup>th</sup> Innovation Week and Public Lecture that took place from Monday 28 to Wednesday 30 November 2022. Guided by the theme Building Livelihoods through Innovations, the innovation week provided participants with an opportunity to exhibit innovations that aimed at solving societal challenges and were in line with the Kenya Vision 2030 and the goals and priority areas of the AU Agenda 2063. The Innovation Week was attended by staff and students from the University of Eldoret, the Rift Valley Technical Training Institute, Ol'lessos Technical Training Institute, Rivatex, Kenya Seed Company Eldoret, NACOSTI, County Government of Nandi, ABSA Bank, UK Knowledge Transfer Network, and EldoHub. The Innovation Week had an overall attendance of 460 individuals. The hybrid sessions (panel session and public lecture) had a total of 699 views on YouTube live streaming.

#### Day 1 - 28 November 2022

The Innovation Week commenced with a hybrid Panel Discussion Session where the topic of Fostering Collaborations between Universities and the Private Sector was tackled. Chaired by Ms. Sheilah Birgen from UK Knowledge Transfer Network and Prof. Kisilu Kitainge the Director of Industrial Linkages, Partnerships, and Collaborations; the panel session consisted of various panelists including Dr. Yulita Mitei Cheruiyot (Deputy Governor County Government of Nandi), Ms. Magdaline Chepkemoi (CEO Eldohub), Mr. Bishar Ali (Branch Manager ABSA Bank Eldoret), Mr. Julius Songok (ABSA Bank Eldoret Branch), and Ms. Esther Cherop (Branch Manager Kenya Seed Company Eldoret). The discussions during the panel session explored the various avenues through which the government, private, and academic institutions can collaborate effectively to promote the commercialization of innovations, fund innovators, and promote the sustainability of innovations in today's competitive markets. A total of 136 participants physically and 454 virtual participants attended the Panel Discussion Session.





Plate 28: A total of 136 participants physically and 454 virtual participants attended the Panel Discussion Session on 28th November, 20221



Plate 29: Opening of the Innovation Week which was graced by the Former Vice Chancellor Prof. Teresa Akenga. Accompanied by Prof. Wilson Ngetich (Deputy Vice Chancellor – A&F), Prof. Donald Oteno (Ag. Deputy Vice Chancellor – PRE), Prof. Julius Ochuodho



Plate 30: Mr. Godfrey Kalerwa from NACOSTI, discussing the topic of Research and Intellectual Property Management in Universities and Research Institutions.

### Day 2 - 29 November 2022

The second day was the official opening of Innovation Week which was graced by the Former Vice Chancellor Prof. Teresa Akenga. Accompanied by Prof. Wilson Ngetich (Deputy Vice-Chancellor – A&F), Prof. Donald Oteno (Ag. Deputy Vice Chancellor – PRE), Prof. Julius Ochuodho, Prof. Lizzy Mwamburi (Director, Research, and Innovation), Prof. Kisilu Kitainge (Director, Industrial Linkages, Partnerships, and Collaborations), Prof. Beatrice Were (Ag. Director, Board of Postgraduate Studies), Dr. Getrude Were (Director, Quality Assurance), Dr. Judith Makwali (Director, Gender, Equity, and Diversity) and Mr. Dennis Olike (Senior Assistant Registrar, HR), the VC toured the innovations exhibited by participants. This included 19 innovations from 6 UoE Schools, 10 innovations from Rift Valley Technical Training Institute, 2 Innovations from Ol'lessos Technical Training Institute, and textiles from Rivatex company. In her speech, the Vice Chancellor thanked all participants and applauded the exemplary innovations exhibited by innovators. She urged the participants to commercialize their innovations as this will contribute to the realization of the Innovation Week's theme. A total of 158 individuals visited the exhibitions throughout the day.

### Day 3 - 30 November 2022

A public lecture session was held on the third day with the guest speaker, Mr. Godfrey Kalerwa from NACOSTI, discussing the topic of Research and Intellectual Property Management in Universities and Research Institutions. The guest speaker discussed the different ways (such as patenting and trademarks) through which intellectual properties from innovations can be protected. He also expounded on the various laws, policies, and bodies/organizations that govern and handle intellectual property. Being a hybrid session, the Public Lecture session was attended by 166 participants physically and 245 virtual participants. The Innovation Week ended with a prize-giving ceremony where the best four innovations were given awards.

## 6.2.2 The Kenya Innovation Week 2022

The Kenya Innovation Week (KIW) held on 6-8 December 2022 in Nairobi under the theme "*Connecting Innovation Globally*" presented an opportunity for exhibitors from around the globe to exhibit their innovations. The 3-day exhibition that was officially opened by the head of state also hosted 6 summits, 64 sessions, 141 speakers, and over 1000 delegates.

### The six summits;

- i. Skills and Talent for Innovation summit focused on diffusing the right skills

including competence-based curriculum, problem-based approaches, design thinking, digital skills, innovation leadership, talent development, and mobility. In addition, the summit explored mechanisms of breaking silos and building bridges between academia and the private sector, government, and the informal sector.

- ii. The 4th Industrial Revolution (4IR) and Digital Transformation Summit offered unprecedented digital transformation and advancements in Artificial Intelligence (AI), robotics, the Internet of Things (IoT), 3D printing, Genetic Engineering, and Quantum Computing.
- iii. The commercialization summit focused on strengthening best practices and systems for good research and commercialization, bringing the various players together while exposing them to various linkages to exploit research and intangible assets as substantive alternative sources of revenue.
- iv. Start-up Kenya summit focused on start-ups from across the country, aiming to link the most promising start-ups to investors and funders.
- v. Innovations in Public Sector Summit demonstrated examples of opportunities to develop stronger innovation policies and strategies relating to the public sector.
- vi. Students' Innovations Summit focused on various products and enterprises created by students that have the potential to impact people and society

The head of state in his opening speech emphasized on the Government of Kenya's commitment to mainstream innovation into a way of life in the public and private sectors. He encouraged each government sector to domesticate a strategy for continuous innovation through forged collaborations among the various stakeholders, organizations, government, academia and industry. He mandated the agency to initiate and develop the appropriate policies to promote these collaborations and to mobilize resources to support innovations. The President tasked tertiary institutions to incorporate business modelling, creation of enterprises and commercialization of research outputs through joint ventures with other stakeholders in order to enhance incomes and accelerate national development.

### Recommendations

Our institution could take up the challenges by the head of state and;

- i. Incorporate an innovation component in the curriculum to be taught from year 1 to 4 to all undergraduates in all programs.
- ii. Ensure that all research at postgraduate level have a business component.
- iii. Encourage collaborative research in order to enhance uptake of research outputs.



### 6.3 Innovation Report 2023/2024 FY

#### 6.3.1 Courses on IP and Innovation undertaken by IPC members

The members of the IPC have been undertaking some free online courses related to IP and Innovation to enhance the capacity of IPMO in managing innovations at the University. The following members have completed the mentioned courses:

- iv. Dr. Emily Chemoiwa – WIPO General Online Course on IP (DL101)
- v. Dr. Emmy Chepkoech-WIPO General Online Course on IP (DL101)
- vi. Dr. George Ariya – WIPO General Online Course on IP (DL101)
- vii. Dr. Becky Aloo – Kabarak University Online Course on Introduction to Innovation
- viii. Dr. Becky Aloo – Kabarak University Online Course on Establishing an Innovation Hub
- ix. Dr. Becky Aloo – Advanced Course on Intellectual Property Management (DL450)

#### 6.3.2 Innovations under Commercialization

In the financial year, the following innovations were developed.

**Table 9: Innovations under Commercialization**

No.	Items	Innovators	Year of Innovation	Status
1	New Improved Potatoes Variety (Eldo Amani, Eldo Bidii, Eldo Fanaka)	Prof. Miriam Kinyua	2023	Commercialized
2	Waste Plastic Umbrella Parts	Eng. Ahmed Swaleh	2023	Ready for Commercialization

#### 6.3.3 5<sup>th</sup> Innovation Week 1-3 November 2023

Anchored by our Vision of becoming a premier University that nurtures global leaders and innovators, the University through the Directorate of Research and



Plate 31: The Deputy Vice-Chancellor (A&F) Prof. Wilson Ng'etich and the Deputy Vice-Chancellor (PRE); Prof. Phillip Raburu touring the exhibition stands on the 2<sup>nd</sup> Day of the Innovation Week



Plate 32: Ms. Esther Ateka and her supervisor Dr. Charlotte Serem holding their Omebix Innovation which emerged the best during the Innovation Week.

Innovation and the Department of Intellectual Property Management housed under the Office of the Deputy Vice Chancellor of Planning, Research, and Extension (PRE) held its 5<sup>th</sup> Annual Innovation Week from 1 – 3 November under the theme ‘Innovating for a Greener and Sustainable Future’ to highlight the importance of environmental conservation and the role of innovation in finding sustainable solutions to mitigate environmental degradation, reduce pollution, and preserve natural resources.

Overall, the Innovation Week showcased over 40 innovations and was attended by over 500 people. The exhibitors were students and staff from various Schools in the University, as well as Public and Private Institutions like the Eldoret National Polytechnic, Egerton University, Tumaini Herbalists, Northrift Herbalists, Kenya Forest Research Institute, Onja-Uone Macadamia Company, and Rivatex. The Innovation Week was also attended by representatives from Moi University, and Turkana University. The University extends appreciation to the National Bank of Kenya which was the main sponsor of the Event.

The best innovations during the Innovation Week were awarded as presented in following table.

**Table 10: Best Innovations during the 5th Annual Innovation Week and Public Lecture from 1-3 November 2023**

Position	Names of Innovators	Institution	Title of Innovation
1.	Esther Ateka and Dr. Charlotte Serem	University of Eldoret	Omebix
2.	Peter Karitha and Faith Jepkorir	Eldoret National Polytechnic	Pre-paid Water Metering System
3.	Dr. Richard Ochieng and Loyara Ekai	University of Eldoret	Smart Connect

### 6.3.4 The 1<sup>st</sup> Innovation Challenge for Students at the University of Eldoret

The Innovation Week reflected the University’s commitment to addressing pressing environmental challenges through innovation. Apart from the exhibition of innovations from students’ staff and partner organizations throughout the week, 5 student teams pitched their ideas on ‘*innovative solutions for sustainable solid waste management in Kenyan urban centres*’ in an Innovation Challenge on 1 November 2023.

The students were evaluated by a 5-judge panel on the quality of the presentations and the audience also made their choices in a live poll after the pitching. The student innovators also showcased their innovation prototypes for the judges to evaluate. The best innovations and winners of the Innovation Challenge were recognized and awarded during the Closing Ceremony on 3 November 2023.

**Table 11: List of Winners of the 1<sup>st</sup> University of Eldoret Innovation Challenge**

Position	Names	Innovation	Summary of Innovation
1.	Gloria Chemutai, Mercy Jepchumba, Emmanuel Ngetich	Green Fibre Gardens	using paper waste to create plant growth substrate
2.	Elphas Rotich, Nelson Mandela, Valary Nekesa, Shila Chemurgor	Platile Production	Mixing plastics with sand and wire gauze to make cheap plastic tiles
3.	Wacira Peter, Valerie Adisah, Fidelis Macharia, MacBrian Epodo, Meshack Olola	Plasti-gutters	recycling plastic container wastes by making gutters and pipes hence reducing the cost of purchasing expensive PVC pipes and gutters.

### 6.3.5 Patent Applications and Registrations

Following the 2-day patent drafting workshop from 14<sup>th</sup> to 15<sup>th</sup> November 2023, the trainees were requested to finalize and submit their completed patent/utility model drafts to the IPMO for onward processing and submission to the Kenya Industrial Property Institute (KIPI).





Plate 33: E-posters/Leaflets to popularize innovations

Table 12: Progress of Patent Applications/Drafting

No.	Title of Innovation	Name(s) of innovators	Progress/ Status
1.	Deployment of a brooder to minimize ammonia gas emission	Eng. Solomon Mulindi	Draft complete
2.	Solar cabinet omena drier		Under drafting
3.	Development of crude palm oil clarifier		Under drafting
4.	Variable pitch potato grader		Under drafting
5.	Nutrient-Dense and Sensory-Enhanced Sorghum-Based Stiff Porridge (Ugali) for Children	Dr. Charlotte Serem	Draft complete
6.	Wheat-Sorghum Biscuits Fortified with Omena (Rastrineobola) for alleviation of Malnutrition in Young Children	Ms. Esther Ateka	Draft complete
7.	Seed pelleting machine	Eng. Muhamed Swaleh	Draft complete
8.	Novel umbrella plastic parts		Draft complete
9.	Bean threshing machine	Mr. David Masara	Draft complete
10.	Production of biofuel from sisal	Mr. Kipkogei Chemitei	Under drafting
11.	Medicinal uses of Ximenia americana L	Mr. Charles Rotich	Under drafting

### 6.3.6 Development of E-Posters/Leaflets to Popularize Innovations

Objective 1 of 2023/2024 IPMO Workplan was to develop capacity for innovation and commercialization, one of the activities concerning the creation of awareness requires the creation of leaflets to popularize innovation among students and researchers. In line with this, the IPMO developed an e-fliers/posters for circulation

to staff and students. E-leaflet is as per the link <https://www.uoeld.ac.ke/research/innovations-and-intellectual-properties-management-e-leaflet>

### 6.3.7 Exhibition of Innovations at the 2024 Agricultural Society of Kenya Show - Eldoret

The 2024 ASK Show Eldoret took place from 14<sup>th</sup> to 16<sup>th</sup> March 2024 at the ASK show grounds. The University team participated in the Agricultural Show to share experiences, research findings and innovations with other stakeholders. The 2024 Show theme was Promoting Climate Smart Agriculture and Trade Initiatives for Economic Growth. During the show, a number of innovations were exhibited such as; Climate-smart indigenous vegetable solar drier, Climate-smart poultry feed utilizing locally available materials, Climate-smart crop varieties - Irish potato varieties of Eldo Amani and Eldo Fanaka, Climate-smart rapid multiplication of pyrethrum seedlings, Food products developed from & climate-smart crops with high fibre and nutrition: multi-nutrient flours targeting school children's nutrition, sorghum biscuits, cookies and cakes, Preservation techniques for tomatoes, Climate-smart organic fertilizer (pelleted and fortified agroforestry-based organic fertilizer, Climate-smart Oasis vegetable gardening, Climate-smart jiko utilizing sugar bagasse briquettes, Umbrella from recycled plastic waste, Assorted aesthetic hotel products from recycled plastic agricultural packaging materials, Assorted products from recycled timber waste, Climate-smart water purification system using Moringa seeds as a coagulant and antibacterial, and Climate-smart aquaculture. A total of 31 innovations were exhibited.



Plate 34: Universty VC Prof. Thomas Cheruiyot during the ASK-2024 Show



Plate 35: Uasin Gishu County Governor Hon. Dr. Jonathan Chelilim at the University Innovation stand during the ASK-2024 Show



## RESEARCH PROGRAMMES, TRAININGS AND ACTIVITIES

### 7.1 Programmes, Training and Activities 2021/2022 FY

#### 7.1.1 Orange Knowledge Programme Tailor-Made Training on Drought and Flood Risks

HKV & IHE Delft, in collaboration with the University of Eldoret, School of Environmental Studies, carried out face-to-face training on drought and flood risks at the University of Eldoret from 22<sup>nd</sup> November to 26<sup>th</sup> November 2021. The consortium has been conducting a hybrid online training on drought and flood risks targeting graduate students and the staff of the Universities of Eldoret and Egerton; relevant staff from two targeted counties of Kisumu and Baringo. A total of 30 trainees participated with a total of 164 attendees for the 4 days of training. The training involves the use of the google earth engine in analysis systems conducted the training; a Netherlands-based organization provides research, training, and consultancy in water and safety.

#### 7.1.2 Joint Sensitization for Research and Resource Mobilization Workshop

The Directorate of Research and Innovation hosted a Joint Research Sensitization and Resource Mobilization Workshop on October 19, 2021. The workshop's primary objective was to sensitize and train staff on resource mobilization and grant writing. Dr. Doreen Orawo began the meeting with a word of prayer, followed by remarks from the Director, Research and Innovation. The Director began by stating that, per the school's Research and Innovation policy, the Research Committees should foster collaborative research across departments and disciplines. He also informed members that the Department of Intellectual Property Management was formed to foster innovation and patents. He further informed them that the department plans to host the 3rd Innovation Week from November 17<sup>th</sup> to November 19<sup>th</sup>, 2021. The winning innovation will be chosen to be showcased during National Innovation Week in December 2021. Finally, he invited Prof. Kiyapi, Director, Resource Mobilization and Strategic Initiatives, to deliver his presentation on resource mobilization.

#### Prof. Kiyapi highlighted the following key points

Resource mobilization is a process, which will identify new resources essential for the development, implementation, and continuation of work for achieving the organization's mission. In real terms, Resource Mobilization means the expansion of relations with Resource Providers, skills, knowledge, and capacity for the proper use of resources. It means looking for NEW money as well as maximizing existing resources.

#### Context

We live in an environment where reliance on public funding is no longer tenable. Exchequer resources to higher education – especially universities have declined steadily in the recent past. Brutal **COMPETITION** for resources among public and PRIVATE universities, and of course other public sectors, and high **PUBLIC DEBT** – a situation likely to persist in coming years. Stiff **COMPETITION** for student enrollment across the board – programs offered at UoE, found in virtually all universities – niche differentiation does not exist. Hence, need to **DIVERSIFY** and **EXPAND** Resources for the Sustainability of the Organizations and programs AND Maximize Revenues, Use, and human capital.

The University of Eldoret can Diversify and Expand its Resources through increased student enrollment and a conducive learning environment. Lobby GOK and Bilateral Partners, build partnerships, collaborations, and networks, deploy the PPP framework, optimize internal resources and revenue generation, engage philanthropy, alumni, and friends of the University, and increased faculty productivity in research, and consultancy.

Research Key Features include; Emphasis on evidence, soundness, and rigor, multidisciplinary, transdisciplinary, and interdisciplinary, student supervision and mentorship, publications and improved web metrics, academic audience and influence public policy.

Key Features during Development Research; Strong on justification /rationale, sustainability, the potential for impact and scalability, technology transfer, incubation hubs, capacity development – training, workshops, niche specialization infrastructure, and regional outreach.





Plate 36: The Kenya Innovation Week (KIW) held on 6-8 December 2022 in Nairobi under the theme “Connecting Innovation Globally

Consultancy is non-academic, professional writing. You need to demonstrate expertise and command of specific fields & experience, harness networks, mentorship –team up with experienced consultants, and rapid responsiveness and timelines. Don’t oversell or undersell yourself! Develop concise concepts and scope (TORs) – never full proposal Exploit Consultancy policy, University Consultancy teams, or consortiums. Understand consultancy cycle – concept, price negotiation (logistics and fees), contract, briefing, fieldwork, debriefing notes or inception report, draft report, and FINAL Report.

The UoE Endowment Fund consists of monies or assets donated to or raised by the University to invest in perpetuity to yield an inflation-adjusted principal amount and provide a permanent source of income for the institution. To spur quality education, open new frontiers of innovations, and ensure sustainable growth. This was an initiative of the University Chancellor – and seeks to develop a home-grown solution and deepen the culture of resource sustainability, and advance a vibrant academic environment. Although the concept of the endowment is not new, UOE

must endeavor to become a successful and enduring model of higher education investment in sub-Saharan Africa and showcase best international practices in terms of administration and governance. The aim includes; Providing scholarships, Support research, innovation, and invention, supporting the professional growth of faculty and staff, responding to societal challenges and building linkages with industry, engaging in policy advocacy, Strengthening community outreach, fostering regional and international collaboration, and Support the development of the University.

Endowment funds are unique models of resource mobilization and are built on principles of voluntarism and solidarity, sustainability and perpetuity, inclusivity, and diversity, gender equity, transparency and accountability, and responsibility and trust.

Endowment Fund will catalyze: Access and social inclusion to higher education, models of community interactions, and advance sustainable climate-smart production systems. quality research at the postgraduate and inspire a shift in cultural

mindsets, Mentorship of a new breed of professionals, academics/researchers for industry and niche markets, Capacities and harness areas of comparative advantage, African /Kenyan philanthropy, and entrenching the practice in the region.

### Types of endowments

The Fund Trustees develop specific procedures for each of the following endowments: Restricted: The donor restricts the distribution to certain uses (e.g., scholarships, bursaries, research centers). Term: when the donor specifies that the endowment shall terminate following a particular date or event. Designated or quasi: Where the distribution is decided by the Board of Trustees, usually at the time of bequest. Unrestricted: When there is no restriction and the distribution to certain uses, usually at the time of the bequest.

The University of Eldoret Council shall establish and register UoE Endowment Fund Trust to manage all endowed funds on behalf of the University. Endowed funds will be managed in perpetuity and interest paid to support the objectives of the Fund and other operations of the University through the Council. The University Council will appoint a Board of Trustees who shall not exceed nine (7) from key stakeholders of the University and prominent individuals in society. The trustees shall in turn appoint a Fund Manager on a competitive basis.

The endowment spending for a particular year is driven by a formula under-investment above. There are varied ways that the spending formulae can be designed including:

- i. A % of the market value of assets under management at the end of the previous year; say 5%
- ii. An average of the last 3- or 5 years of spending
- iii. A % of the average of the last 3 or 5 years' assets under management
- iv. A combination of the above
- v. An inflation-linked or adjusted amount based on the previous year's earnings

Most endowments worldwide target a spend of the assets under management of between 5% and 7.5% to ensure that the spend does not deplete the capital in the long run. The spending will need to be closely monitored to ensure that the value of the fund is not eroded despite the market movements that are bound to happen.

The Board of Trustees should from time (or as necessary) furnish some or any of the following reports University Council and may be required to provide reports which include but are not limited to:



Plate 37: Prof. Kiyiapi giving his presentation

- i. Endowment annual report
- ii. Budget reports
- iii. Spending reports
- iv. Investment reports
- v. Management reports and accounts
- vi. Annual financial statements
- vii. Investment briefs
- viii. Investment policy reports and reviews
- ix. Asset allocation reports and new ventures.

**Prof. Julias Ochuodho highlighted the following key points on grant writing.**

### Research Proposal

Problem identification-identify the problem, justification (importance), and methodology. Conceptualize the problem, justify the problem and how do we solve the problem- what do you do to solve the problem, including the budget? From the concept (a page), produce the concept note (3-5 pages) and finally the proposal- as required.

Call for proposal- area, and themes given, a template given. The area and the theme- these are normally broad and it's for you to find your niche. Read thoroughly to

understand what the funder wants and read other suggested documents. In doing this you identify phrases, words, and ideas the funder is fond of or wants. The template given some words specified or the budget proportions given do not supersede.

### Capacity building proposal

Explain the need and the extent of the problem, and show where you are and where you expect to be after the project. Research today is multidisciplinary and transdisciplinary. Bankable proposals are key coz they involve solid financial, economic, and technical plans with risk allocation schemes appropriate for the nature of the project.

The following are some of the challenges members faced during the grant writing and submission process.

- Since lecturers have significant teaching and administrative responsibilities, their contribution to the project is limited.
- The required documentation is not provided, for example, the most recent audited financial statements are not readily accessible.
- The university does not have any Memorandums of Understanding (MoUs) with other relevant institutions.
- The university provides only minimal assistance with grant writing.
- Certain staff members are unmotivated and unaware of how to locate calls.

### Recommendation

- Ascertain that necessary documentation is accessible on a timely basis
- Organize a write shop training session
- Provide facilitation during the grant writing process
- Choose one research team leader from each school to be responsible for receiving proposal calls and forming application teams.

## PRESENTATIONS MADE BY SCHOOLS

### School of Natural Resources

1. Intra-Africa Academic Mobility and Collaborative Training in Aquaculture (COTRA)
  - i. Funded by the EU, 3 Yr.: 1 Ph.D., 5 MSc students supported from UoE
  - ii. Consortium, African Universities for Research & Training in Aquaculture
    - University of Eldoret -LEAD/Host
    - Makerere (Uganda)

- Mzuzu (Malawi)
- Bahir Dar (Ethiopia)
- Abomey Calavi (Benin)
- OU-Bukavu (DRC)
- Rhodes (SA)

2. Austrian Partnership Programme in Higher Education and Research for Development- APPEAR (STRECAFISH)
  - 1st Phase: 2015-2020 2 PhDs, 6 MSc students supported
  - Funded by the Austrian Development Corporation
  - Regional, Multi-Institutional
  - Makerere -LEAD/Host
  - UoE
  - University of Natural & Life Sciences-Boku, Vienna
  - Bahir Dar (Ethiopia)
  - KMFRI, NAFIRI, ERI
  - 2nd Phase has been accepted
3. African Center of Excellence in Aquaculture and Fisheries (ACE/AQUAFISH)
  - Funded by the World Bank (2018-2023), supporting Research & Training for Higher-end in Aquaculture & Fisheries in Africa
  - Regional, Multi-Institutional:
  - Lilongwe University of Agriculture & Natural Resources (Luanar)-Malawi-LEAD
  - UoE, Kenya
  - Rhodes (SA)
  - Infrastructure development, Refurbishing, Staff exchange, Short courses, Conferences
4. RUFORUM
  - Supporting Training of Ph.D. students from Africa in Aquaculture
  - Currently hosting 2 Ph.D. students in Aquaculture from West Africa
    - i. National Biomonitoring Protocol and Assessment of the Ecological Status of Riverine Ecosystems in Kenya: The Kenya Invertebrates Scoring System (KISS)
      - Multi-disciplinary Research Project: Research and Training
      - Funded by NRF- Kshs. 11 M, 3yr: 2018-2021
      - UoE LEAD/Host
      - Egerton
      - NMK
    - ii. Fish Genetics and Genomics Research and Training Laboratory



### School of Environmental Studies

- i. Ecosystem health/Habitat condition assessment -Forest health assessment of remnant indigenous forest patches in Kaptagat (active)
- ii. The effect of dodder (*Cuscuta spp*) on tea yield in Nandi tea estates, Kenya (Active)
- iii. Macrophytes' parameters as bioindicators of impacts of climate variability in King'wal riverine wetland (Active)
- iv. Assessing environmental arsenic and radon risk factors in lowering the socio-economic burden of cancer in Kakamega County, Western Kenya (Active-UoE-ARG)
- v. Human health risks to potentially toxic elements exposure in artisanal small-scale gold mining in Kenya (Active)
- vi. The nutritional content of formulated feeds and in situ-based aquaculture feeds (Active)
- vii. Environmental drivers of school attendance in conflict-prone ASAL regions (Completed)
- viii. Assessing the availability of potable water within the Chepkoilel sub-catchment in Uasin Gishu County (Active -UoE ARG)
- ix. The Potential Use of Kilibwoni Bubbling Spring Water in Nandi County (Completed-UoE ARG)
- x. Planning for SMART Transport Systems in Eldoret Municipality, Kenya (Active UoE-ARG)
- xi. Exploring the Status of Urban Green Spaces in Kenya: The Case of Eldoret and Kisumu Towns (Active)
- xii. Planning for Smart Transportation Systems in Eldoret Municipality, Kenya (Active)

### School of Agriculture and Biotechnology

- i. Scifsa
- ii. Enable agri-business incubation training
- iii. Macknight

### School of Engineering

- i. Project funded by Africa Development Bank
- ii. IGDelt Project

### School of Science

- i. Leishmaniasis in Mt. Elgon Focus: Vector(s) Species, Reservoir Host(s) Species and their Innovative Control
- ii. KCSAP Adaptive collaborative project funded by NRF

### iii. School of Education

- iv. Consultancy
- v. Centre for Teacher Education
- vi. Access to University Education
- vii. Ministry of Education

### 7.1.2 Public Lecture

The Public lecture on Friday 19 November titled '*Innovating for Advancement and Sustainability*' by the CEO of the Kenya National Innovation Agency (KeNIA) Dr. Tonny Omwansa was attended by the Vice-Chancellor, DVC PRE, DVC ASA, and DVC A&F. The speaker highlighted on the role of KeNIA ongoing initiatives in supporting the commercialization of innovations from individuals, TVETs, Universities, and Research centers. He emphasized to develop successful incubation hubs, UoE should adopt the 5.0 model by adding Innovation and Industrialization to Teaching, Research, and Community development. He mentioned the measures Kenya National Innovation Agency have put in place in promoting the commercialization of innovations by having initiatives like an innovation academy, innovation hub coordination framework, angel investor network support, innovation fund design, and start-up summit. KeNIA 5-year.

## 7.2 Programmes, Training and Activities 2022/2023 FY

### 7.2.1 Agroforestry Partnership Meeting

Agroforestry is a Swedish Development Organization working with local communities in fighting poverty and climate change through Agroforestry. The organization has been working in East Africa since 1983. The organization offers outstanding expertise in Agroforestry practices, climate change mitigation, adaptation and resilience, biodiversity conservation, and promoting innovative well-proven sustainable land management practices based on Scientific research in a manner that supports livelihood for smallholder farmers with special consideration for women and youth.

Agroforestry delivers its mandate by partnering with three categories of partners, notably, core partners and strategic partners. University of Eldoret's presentation was jointly presented by Dr. Catherine Sang (PI) and Dr. Job K. Ngetich (Research Team Member).

A Strategic Plan for VI Agroforestry was shared which focuses on supporting

the organizational capacity of member-based farmer organizations, ASAL Land Management; nature-based value chains, innovation for youth in agribusiness, food and nutrition security, and climate change resilience among others.

Their new program, ASILI B, is to be implemented in the 2023-2027 period and the main objective is to sustainably improve smallholder farmer livelihoods in Sub-Saharan Africa. Some of their approaches include a human rights-based approach, gender transformative, leaving no one behind, and multi-stakeholder engagement. Their activities focus on the realization of five SDGs i.e., no poverty, zero hunger, gender equality, climate action, and life on land.

In conclusion, the University of Eldoret can come in as a strategic partner in the training, and capacity building of VI Agroforestry and their associated core partners.

### 7.2.2 Higher Education Institutional Needs Assessment

The University of Eldoret in Collaboration with the National Commission for Science, Technology, and Innovation (NACOSTI) held a workshop on Intellectual Property (IP) facilitated by Consultants from the World Intellectual Property Organization (WIPO). The Higher Education Institutional Needs Assessment workshop was held on 3rd October 2022 and was officially opened by the Deputy Vice-Chancellor (PRE) Prof. Phillip Raburu. In his remarks, Prof. Raburu thanked the consultants for helping the University in matters of IP towards recognition and commercialization.

The lead consultant Ms. Caroline Muchiri and her colleague Ms. Christine Olando explained that the needs assessment was necessary to help the selected institutions understand and commercialize their intellectual properties. They pointed out major challenges that institutions handling IP faced in the process of IP commercialization.

These included inadequate funds that limit commercialization, limited research staff that cause excess workload to researchers, and limited institutional research mandate. Further discussions revealed that the University has several IPs including soil testing services, the sale of fingerlings, timber treatment services, EIA consultancy services, and innovations from research projects by students and staff.

To streamline commercialization, the University was advised to focus on 5 key areas: the identification of IP assets, screening innovations, establishing commercialization avenues, identifying technology transfer and information-sharing avenues, and IP capacity-building initiatives.

The consultants also recommended that the institution should develop business

plans for all UOE initiatives. On the way forward, the consultants agreed to review the University's IP Policy, identify any gaps, and make the necessary recommendations that would be communicated to the University for further action.

The event was organized by Head IPMO Prof. Lizzy Mwamburi and in attendance were the Deans of Schools, Directors, School Research Chairs, Corporate Affairs, and Marketing Manager.

### 7.2.3 Commercialisation And Entrepreneurial Institutions Leaders Summit

The Commercialisation and Entrepreneurial Institutions Leaders (CEIL) Summit held on 1 – 2 December 2022, Mombasa, is an Initiative of Kenya National Innovation Agency (KeNIA) and targets various institutional leaders from key sectors to advance the national commercialization infrastructure.

The summit aimed at strengthening the commercialization processes at national, institutional, and individual levels, by articulating the business case for commercialization, providing evidence, and empowering the leadership to influence efforts, initiatives, and outcomes of commercialization in Kenya.

The summit was officially opened by the Principal Secretary in the State Department of Youth Affairs and hosted speakers from key organizations including KeNIA, NRF, Lemelson Foundation, Universities Fund, Villgro Africa, Asheshi University College, The Education Collaboration Hub, Viktoria Ventures, Bioinnovate ICIPE, Commission for University Education, Association of Startup and SMEs Enablers of Kenya, Research and Innovation Systems of Africa, UK Foreign, Commonwealth and Development UK Foreign, Commonwealth and Development Office (FCDO), Higher Education, British Council and heads of tertiary institutions from Kenya and abroad.

The key purpose was to:

- Share commercialization success and challenges, and the different business models that could be used to enhance commercialization in Universities and Research centers.
- Bring together and strengthen linkages between leaders of key sectors that influence the commercialization of Innovations and research.
- Disseminate national commercialization guidelines, report on the contribution of universities to national innovation system, national innovation outlook being firmed up by KeNIA
- Articulate various KeNIA initiatives relevant to commercialization

particularly the innovation bridge, Research to Commercialization (R2C), and Kenya Innovation Week (KIW) commercialisation summit

- Link the R2C graduates and similar projects to potential funders and investors
- Engage in the progress of institutional support mechanisms championed by KeNIA
- Discuss how best to influence policy and regulation to fast-track commercialization.

### Recommendations

Map key industries with the potential to collaborate with universities in producing innovative solutions to societal problems to unlock more resources in research for commercialization,

- The University of Eldoret should therefore prioritize qualitative research;
- That addresses key problems
- Solves specific societal problems
- Addresses social and economic challenges
- Creates knowledge for sustainable development
- Increases the number of partners with whom we do research
- Strengthen existing partnerships
- Form research teams, hubs, and centers that include students and lecturers
- Reinvest additional funds for research and recognize outstanding research

### 7.2.4 Nacosti NRF Monitoring and Evaluation Exercise

The exercise was held on 18th November at Forestry Building led by Prof. Willis J. Ambusso accompanied by Dr. Musotsi T. Eliud, Ms. Grace N. Otunga, and Mr. Tonny Rasugu. The NRF beneficiaries who presented the progress report of their research projects were:

- Ms. Grace Nelima with a project titled; Sub-acute oral toxicity of transformer mineral oil in Wistar rats which was awarded Ksh. 326,550.
- Dr. Frank Masese with the project title; Development of a National Biomonitoring Protocol and Assessment of the Ecological Status of Riverine Ecosystems in Kenya was awarded Ksh.11.9 million.
- Ms. Grace Otunga enlightened them on visiting the NRF Website for calls for funding Ph.D. projects. Prof. Willis also emphasized adequate and timely submission of project progress reports to NRF Research Grants Management.



Plate 38: UOE Workshop on Intellectual Property (IP) facilitated by Consultants from the World Intellectual Property Organization (WIPO).



Plate 39: Nacosti NRF Monitoring And Evaluation Exercise





Plate 40: The Commercialization and Entrepreneurial Institutions Leaders (CEIL) Summit held on 1 – 2 December 2022, Mombasa

### 7.2.5 Venture4change Bootcamp And Idea Competition

The Venture4Change under the Making More Health (MMH) initiative is a program for students of different universities in Kenya to conceive, develop and implement innovative ideas to foster hygiene, food safety, and health in slums and rural areas. The Venture for Change 2022 Program (V4C 2022) culminated in the Boot Camp and Idea competition held at the University of Eldoret (UoE) between the 18<sup>th</sup> and 19<sup>th</sup> of October 2022.

This was the 2<sup>nd</sup> Edition of the Western Kenya Venture4Change Training and Idea competition, with the first being held in 2021. The 2022 version of the program addressed the problem of waste management under the theme 'Innovative Waste Management for Sustainable Development'. The program ran for five months since May 2022 when a call was put forth for interested students to apply.

Successful students from participating universities were taken through (both online and face to face) six modules (Ideation, Market Research, Business Development, Product Development & Prototyping, Launching & Scaling, and Presentation Skills) and three field visits made to the target community-Kimilili Municipality.

On 18<sup>th</sup> October 2022, all the teams participated in a Boot Camp where they could



Plate 41: The 2<sup>nd</sup> Edition of the Western Kenya Venture4Change Training and Idea competition

present their ideas to lecturers and colleagues from other universities and get feedback on how to improve them before the final presentation to the Jury the following day. In a fiercely contested competition, Moi University took the first two positions with UoE-Team Revivers scooping the second runners up. Prices for the winners are in the form of financial support to the tune of 3000 euro for the winner and 1000 euro each for the first and second runners-up to develop their ideas further for possible startups.

The event was officially opened by Prof. G. Simiyu, Ag. Deputy Vice Chancellor, Planning Research and Extension, and closed by Prof. Vincent Sudoi, Director, Research and Innovation. Also in attendance were Ms. Hilke Rooskamp (Boehringer Ingelheim – Germany) and Mr. Cleophas Chesoli (Making More Health, Kenya).

### 7.2.6 University Celebrates World Wetlands Day

The University of Eldoret in collaboration with other stakeholders celebrated World Wetlands Day 2023 on 2nd February 2023 at the Pavilion Grounds. The theme of this year's event was "Wetlands Restoration" and the aim was to raise awareness and increase people's understanding of the critical importance of wetlands. Wetlands support 40% of the ecosystem and biodiversity of all plants and animal species that

live or breed in wetlands. The event commenced on 1st February with a clean-up of the river Sosiani where several stakeholders participated. These included University of Eldoret staff and students (Environmental Club), Uasin Gishu County staff, School of Public Health, Moi University, and KEMSA among others. Pyramid Company donated the bin bags that were used to collect and dispose of debris retrieved from the river and surrounding environment. The clean-up activity was followed by a Symposium at the University. Several partnering stakeholders participated in the panel discussion with various presentations focusing on wetlands restoration. These proceedings can be found on the University of Eldoret YouTube Channel.

The official celebration was at the University Pavilion. The Chief Guest was H.E. Johnathan Bii Chelilim who was represented by the CECM Water, Sanitation, Energy, Environment Natural Resources and Climate Change, Dr. Abraham Serem. In his speech, Dr. Serem said that there was a need to actively engage all the stakeholders within the County and leverage efforts to restore the wetlands which were being degraded at an alarming rate. He reiterated that the County Government is ready to work with the University in matters of environment for mutual benefit. The Deputy Vice-Chancellor (PRE), Prof. Phillip Raburu, representing the Vice-Chancellor welcomed the attendees to this year's World Wetlands Day celebrated all over the



Plate 42: University Celebrates World Wetlands Day 2023



world. In his remarks, he thanked all entities for supporting and participating in the celebrations. He further stated that Kenya is a signatory to the Ramsar Convention on Wetlands of international importance, and therefore all need to participate reflecting on what is affecting wetlands and what can be done to ensure wetlands are conserved and sustainably utilized.

The guests paid a courtesy call at the Vice Chancellor's office and thereafter planted ceremonial trees at the Marura wetlands to commemorate the day. More trees will be planted at the onset of the planting season. The Chief Guest was accompanied by the Ag. Chief Officer Water, Sanitation, Energy, Environment Natural Resources and Climate Change, Mr. Stephen Barno; UG County Secretary, Mr. Edwin Bett among other officials. Other guests present at the celebrations included; Mr. Odidi Otieno representing the County Commissioner; Director, NEMA Ms. Sally Kiboss; Manager, Water Resources Authority (WRA); Chief Conservator, Kenya Forest Service (KFS) Joseph King'ori. Other organizations represented included; the International Cranes Fund (ICF), Moi Teaching and Referral Hospital, and Moi University School of Public Health among others. M The University was represented by members of UMB, DVC (AF) Prof. Wilson Ng'etich, Registrar Planning Dr. Bem Mwasi. Deputy Registrar Mr. Benjamin Rono, Chair of the Stainability Environmental Committee

Dr. Thomas Munyao, Director Research and Innovation Prof. Lizzy Mwamburi, Corporate Affairs and Marketing Manager, Dr. Wambui Ng'ang'a among others.

### 7.2.7 Nacosti Research Ethics Sensitization Training Exercise

The University of Eldoret, through the Office of the Directorate of Research and Innovation, organized a Research Ethics Sensitization Training exercise that was held between 13-17 February 2023. This was done in preparation for the establishment of the University's Institutional Ethics Review Committee (IERC). The training exercise was facilitated by 2 experts (Ms. Joan Chepleting and Ms. Teresia Nyawira) from NACOSTI. Based on the theme Enhancing Ethical Research Conduct, the training targeted the University's academic staff (Deans, Heads of Departments, Lecturers, and researchers) and postgraduate students. The training was carried out over five days in the following manner:

- **Day 1** - Academic staff from the School of Education and the School of Arts and Human Development.
- **Day 2** - Academic staff from the School of Engineering and the School of Business Management and Economics



Plate 43: Nacosti Research Ethics Sensitization Training Exercise School of Science





Plate 44: Nacosti Research Ethics Sensitization Training Exercise Postgraduate Students

- **Day 3** - Academic staff from the School of Agriculture & Biotechnology and the School of Environmental Science & Natural Resources Management
- **Day 4** - Academic staff from the School of Science
- **Day 5** - Current postgraduate students from all UoE Schools

The participants were sensitized and educated on the evolution of research ethics, principles of research ethics, and prior informed consent regarding research. The facilitators also emphasized the importance of obtaining research permits, having a research proposal reviewed by a Scientific Ethics Review Committee, and obtaining consent from research participants. In addition, they highlighted the various laws and regulations informing research ethics. A total of 328 academic staff and postgraduate students (52 on day one, 84 on day two, 50 on day three, 56 on day four, and 86 on day five) were sensitized during the exercise. Furthermore, the facilitators discussed the composition of IERCs and their functions in academic/research institutions. It was, therefore, concluded that the University, through the Directorate of Research and Innovation, will maintain constant communication with NACOSTI to ensure a successful establishment of IERC in the institution.

### 7.2.8 Public Lecture

The Public Lecture Session was held on 20 March 2023 in the afternoon. The session was graced by guest speakers from Life University, USA; Dr. John Downes and Dr. Hussein Elsangak. The guest speakers gave a lecture on *Life University as a Leading Vitalistic Institute for Health And Wellness*. The session recorded an attendance of 130 participants including the University management was led by the Former Vice Chancellor Prof. Teresa Akenga who was accompanied by the University Management including Prof. Wilson Ng'etich (Deputy Vice-Chancellor -AF), Prof. Philip Raburu (Deputy Vice-Chancellor -PRE), Prof. Lizzy A. Mwamburi (Director, Research, and Innovation), and CPA Francis Ikapel (Ag. Registrar Administration) among others.

## ANNEXURES

### Annexure 1: 2021/2022FY Publication List

No.	AUTHOR(S)	TITLE	JOURNAL/LINK
1.	Aluoch, J. R. J., Kiplagat, H., & Wosyanju, C. (2021)	The relevance of TVET education in preparing graduates for the labor market in Kenya	<i>International Journal of Advance Research, Ideas, and Innovations in Technology</i> , 7(6), 231-235. ISSN 2454-132X <a href="https://www.ijariit.com">https://www.ijariit.com</a>
	High-grade agarose powder		
2.	Keter, P. K., Simiyu, J. & Mubichakani, J. (2021)	Effect of Mind Mapping Teaching Strategy on 8 Mathematics Achievement among Secondary School 9 Students in Nandi County, Kenya	<i>Journal of Research Innovation and Implication in Education</i> , 5(4), 164-172. ISSN 2520-7504 (Online)
3.	Dr. Priscillah Omagwa	Challenges Facing the Utilization of Constituency Development Fund in Human Capital Development in Kisii County-Kenya	<i>IJARKE Business &amp; Management Journal</i>
4.	M/s.Rosemary Muange	Effects of Chief Executive Officer Duality on Firm Performance Among Firms Listed in Nairobi Securities Exchange, Kenya	<i>Global Scientific Journals</i>
5.	Clement Kiprotich Kiptum, Jason Maina Chege, Mary Ogweni, Anna Ingaita Muganda	Assessment of Various Quarry Dust Concrete Mixes	<i>Journal of Chemical, Biological, and Physical Sciences</i>
6.	Kipbichii Chebor, Osano Odipo, Isaboke Job, and Ng'wena Magak	Comparing day 0 and day 28, Hematological and Biochemical parameter changes, on Male white <i>Rattus norvegicus</i> exposed to <i>Urtica dioica</i> leaves & stem Ethanolic Extracts; a herb used in the management of <i>Diabetes mellitus</i> by the Tugen Community-Kenya.	<i>Greener Journal of Biomedical and Health Sciences</i> Vol. 5(1), pp. 1-8, 2021 ISSN: 2672-4529 <a href="https://www.gjournals.org/2021/11/06/092621093-kipbichii-et-al/">https://www.gjournals.org/2021/11/06/092621093-kipbichii-et-al/</a>
7.	Kiplagat, A. K., Koech, J. K., Ng'etich, J. K., Lagat, M. J., Khazenzi, J. A., & Odhiambo, K. O. (2021)	Urban green space characteristics, visitation patterns, and Influence of Visitors' socio-economic attributes on Visitation in Kisumu City and Eldoret Municipality, Kenya.	<i>Trees, Forests and People</i> , 100175.

No.	AUTHOR(S)	TITLE	JOURNAL/LINK
8.	Mark Kiptui	The Philosophy, culture & Resources Sharing Systems among Pastoral Communities	<i>Utafiti foundation</i>
9.	Lubanga, H. L., Manyala, J. O., Sitati, A., Yegon, M. J., & Masese, F. O.	Spatial variability in water quality and macroinvertebrate assemblages across a disturbance gradient in the Mara River Basin, Kenya.	<i>Ecohydrology &amp; Hydrobiology</i> . Access it through via: <a href="https://www.sciencedirect.com/science/article/abs/pii/S1642359321000288">https://www.sciencedirect.com/science/article/abs/pii/S1642359321000288</a>
10.	Nakangu, N. F., Masese, F. O., Barasa, J. E., Matolla, G. K., Riziki, J. W., & Mbalassa, M. (2021)	Influence of the changing environment on food composition and condition factor in <i>Labeo victorinus</i> (Boulenger, 1901) in rivers of Lake Victoria Basin, Kenya.	<i>Aquaculture and Fisheries</i> . Access it through <a href="https://www.sciencedirect.com/science/article/pii/S2468550X21001210">https://www.sciencedirect.com/science/article/pii/S2468550X21001210</a>
11.	Walumona, J. R., Kaunda, Arara, B., Odoli Ogombe, C., Murakaru, J. M., Raburu, P., Muvundja Amisi, F., ... & Kondowe, B. N. (2021).	Effects of lake level changes on water quality and fisheries production of Lake Baringo, Kenya. <i>Ecohydrology</i> , e2368.	<i>Ecohydrology</i> , e2368. <a href="https://doi.org/10.1002/eco.2368">https://doi.org/10.1002/eco.2368</a>
12.	Hyangya, B. L., Riziki, J. W., Masilya, P. M., Zabene, F. Z., Alunga, G. L., Kaningini, B. M., & Kankonda, A. B. (2021).	Physico chemical characterization of littoral water of Lake Kivu (Southern basin, Central Africa) and use of water quality index to assess their anthropogenic disturbances.	<i>World Water Policy</i> . <a href="https://doi.org/10.1002/wwp2.12059">https://doi.org/10.1002/wwp2.12059</a>
13.	Grace, M.K., Akçakaya, H.R., Bennett, E.L., Brooks, T.M., Heath, A., Hedges, S., Hilton Taylor, C., Hoffmann, M., Hochkirch, A., Jenkins, R. and Keith, Boaz Kaunda-Arara D.A., 2021.	Testing a global standard for quantifying species recovery and assessing conservation impact.	<i>Conservation Biology</i> , 35(6), pp.1833-1849.
14.	Frauendorf, T. C., Subalusky, A. L., Dutton, C. L., Hamilton, S. K., Masese, F. O., Rosi, E. J., ... & Post, D. M.	Animal legacies are lost and found in river ecosystems.	<i>Environmental Research Letters</i> , 16(11), 115011.
15.	Liu, F., Yongo, E., Liang, Z., Fu, Q., Huang, B., Cai, X. W., & Guo, Z. (2021).	Age, growth, reproductive biology and mortality of <i>Cranoglanis multiracials</i> , a threatened freshwater fish in Hainan Island, China.	<i>Journal of Applied Ichthyology</i> <a href="https://onlinelibrary.wiley.com/doi/epdf/10.1111/jai.14291">https://onlinelibrary.wiley.com/doi/epdf/10.1111/jai.14291</a>
16.	Masese, F. O., Arimoro, F. O., & O'Brien, G. C.	Advances in Biomonitoring for the Sustainability of Vulnerable African Riverine Ecosystems.	<i>Frontiers in Water</i> , 169.



No.	AUTHOR(S)	TITLE	JOURNAL/LINK
17.	Joseph K Chepkwony, Peter G Mwitari, Pixley K Kipsumbai, Christine C Bii, Vivian C Tuei*	The anti-dermatophytic activity of <i>Salvia nilotica</i> methanolic crude leaf extract against <i>Trichophyton mentagrophytes</i>	<i>The Journal of Phytopharmacology</i> 2021; 10(6):433-438 <a href="http://www.phytopharmajournal.com/">http://www.phytopharmajournal.com/</a>
18.	Kadeka, E. C., Masese, F. O., Lusega, D. M., Sitati, A., Kondowe, B. N., & Chirwa, E. R.	No Difference in Instream Decomposition Among Upland Agricultural and Forested Streams in Kenya.	<i>Frontiers in Environmental Science</i> , 610.
19.	Mutethya, E., & Yongo, E.	A comprehensive review of invasion and ecological impacts of introduced common carp ( <i>Cyprinus carpio</i> ) in Lake Naivasha, Kenya.	<i>Lakes &amp; Reservoirs: Research &amp; Management</i> , 26(4), e12386.
20.	Aloo, B. N., Mbega, E. R., Tumuhairwe, J. B., & Makumba, B. A. (2021).	Advancement and practical applications of rhizobacterial biofertilizers for sustainable crop production in sub-Saharan Africa.	<i>Agriculture &amp; Food Security</i> , 10(1), 1-12.
21.	K'oreje, K., Okoth, M., Van Langenhove, H., & Demeestere, K.	Occurrence and point-of-use treatment of contaminants of emerging concern in groundwater of the Nzoia River basin, Kenya.	<i>Environmental Pollution</i> , 118725.
22.	Wanjiku, C.M., Melly, B., Kilach, C., Lotodo, T.C., Binz, K., Rosenberg, B.E., Dow, L. and LeBlanc, T.W., 2021	Acute Myeloid Leukemia in Western Kenya: A Snapshot.	<i>Blood</i> , 138, p.1223. <a href="https://www.sciencedirect.com/science/article/abs/pii/S000649712103202X">https://www.sciencedirect.com/science/article/abs/pii/S000649712103202X</a>
23.	Wanjiku, C.M., Njuguna, F., Greist, A., Ayaye, E., Kilach, C.J., Njuguna, C., Kirui, J. and Strouse, J.J.,	Sickle Cell Screening in Children in a Resource Constrained Environment: Diagnosis and Follow up.	<i>Blood</i> , 138, p.4068. <a href="https://www.sciencedirect.com/science/article/abs/pii/S0006497121059826">https://www.sciencedirect.com/science/article/abs/pii/S0006497121059826</a>
24.	Bosire, E. N., Kamau, L. W., Bosire, V. K., & Mendenhall, E.	Social Risks, economic dynamics, and the local politics of COVID-19 Prevention in Eldoret Town, Kenya	<i>Global Public Health</i> , 1-16. <a href="https://doi.org/10.1080/17441692.2021.2020320">https://doi.org/10.1080/17441692.2021.2020320</a>
25.	Mutio, J., Njoroge, R., Kebeney, S., Ng'etich, W., Churu, H., Alkamoi, B., & Wamalwa, F.	Dynamics of Terrace Adoption, Propagation, Benefits & Challenges among Dryland Agro-Pastoralist Communities of West Pokot.	<a href="https://europepmc.org/article/ppr/ppr436295">https://europepmc.org/article/ppr/ppr436295</a>
26.	Nashon, S. M., Anderson, D., & Okemwa, P.	Teacher Change and Mathematics/Science Teaching in Kenya: Transformative Attributes in Student Learning. In	<i>Mathematics Teaching and Professional Learning in sub-Sahara Africa</i> (pp. 263-275). Springer, Cham. DOI: 10.1007/978-3-030-82723-6_17 <a href="https://link.springer.com/chapter/10.1007/978-3-030-82723-6_17">https://link.springer.com/chapter/10.1007/978-3-030-82723-6_17</a>

No.	AUTHOR(S)	TITLE	JOURNAL/LINK
27.	Humphrey, O. S., Osano, O., Aura, C. M., Marriott, A. L., Dowell, S. M., Blake, W. H., & Watts, M. J.	Evaluating spatiotemporal soil erosion dynamics in the Winam Gulf catchment, Kenya for enhanced decision-making in the land-lake interface.	<i>Science of The Total Environment</i> , 151975. <a href="https://www.sciencedirect.com/science/article/abs/pii/S0048969721070510">https://www.sciencedirect.com/science/article/abs/pii/S0048969721070510</a>
28.	Steve Omari Ngodhe, Emmy Kerich*, and Kiptoo Kipkorir	Effects of Parasitism on The Production and Productivity of Caged <i>Oreochromis niloticus</i> In Winam Gulf Of L. Victoria	<i>African Journal of Environment and Natural Science Research</i> ISSN: 2689-9434 Volume 4, Issue 4, 2021 (pp. 99-108)

### Annexure 2: 2022/2023 FY Publication List

No.	AUTHOR(S)	TITLE	JOURNAL/LINK
1.	Kisilu Kitainge, Lydia Kipkoech, Alice Limo, Erastus Muchimuti	The Adequacy of Stem Curriculum Offered on Meeting Industry Needs in Kenya	10.36349/easjehl.2022.v05i07.00X
2.	Kazungu ML, Wekesa NA , Balozi KB, Manyala OJ, Maghanga KJ and Etiégni L.	Defluoridation of water by the Homa method, a co-precipitation technique using wood ash leachate and alum	<a href="https://orcid.org/0000-0001-5618-4740">https://orcid.org/0000-0001-5618-4740</a>
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10.	Bouraima, M. B., Kiprotich Kiptum , C., Maraka Ndiema, K., Qiu, Y., & Tanackov, I.	Prioritization Road Safety Strategies Towards Zero Road Traffic Injury Using Ordinal Priority Approach.	<a href="https://doi.org/10.31181/oresta190822150b">https://doi.org/10.31181/oresta190822150b</a>
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75.	Achieng, A. O., Arhonditsis, G. B., Mandrack, N. E., Febria, C. M., Opaa, B., Coffey, T. J., ... & Kaunda-Arara, B.	Monitoring biodiversity loss in rapidly changing Afrotropical ecosystems: An emerging imperative for governance and research. arXiv preprint arXiv:2303.13984.	<a href="https://doi.org/10.48550/arXiv.2303.13984">https://doi.org/10.48550/arXiv.2303.13984</a>
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78.	Shitote, Z., Munala, N. O., & Maremwa, J. S.	Feasibility for cage farming in Africa: The case of the Kenyan part of Lake Victoria. Aquatic Ecosystem Health & Management, 25(4), 22-27.	<a href="https://doi.org/10.14321/ae hm.025.04.22">https://doi.org/10.14321/ae hm.025.04.22</a>
79.	Wanjiku, A., Mwamburi, L., Ngeiywa, M., & Obala, A.	Variation in Progesterone Levels and Urinary Tract Infections in Pregnant Women Attending Moi Teaching and Referral Hospital, Eldoret, Kenya. Open Journal of Medical Microbiology, 13(1), 125-135.	<a href="https://doi.org/10.4236/ojmm.2023.131011">https://doi.org/10.4236/ojmm.2023.131011</a>
80.	Wangila, C., & Oseko, A.	Review on Psychological Disorder among Adolescent Students and Proposed Intervention Strategies in Kenya. African Journal of Education, Science and Technology, 7(3), Pg 258-265	<a href="https://doi.org/10.2022/ajest.v7i3.844">https://doi.org/10.2022/ajest.v7i3.844</a>

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81.	Kiptoo, T., Ole Kiyapi, J., Sang, F., Odhiambo, K., & Wanjohi, B.	Environmental Conditions and the Growth Patterns of <i>Acacia melanoxylon</i> in Highland Humid Forests in North Tinderet Forest Block (Kenya). African Journal of Education, Science and Technology, 7(3), Pg 13-30.	<a href="https://doi.org/10.2022/ajest.v7i3.882">https://doi.org/10.2022/ajest.v7i3.882</a>
82.	Kipkorir, K., Wanjohi, B., Ndegwa, J., & Maina, M.	Antimicrobial Properties of Medicinal Plants Against <i>Staphylococcus aureus</i> , <i>Escherichia coli</i> and <i>Candida albicans</i> Bacteria. African Journal of Education, Science and Technology, 7(3), Pg 31-39.	<a href="https://doi.org/10.2022/ajest.v7i3.831">https://doi.org/10.2022/ajest.v7i3.831</a>
83.	Isaboke, J., Odipo, O., Humphrey, O., Dowell, S., & Watts, M.	The Nutritional Quality of Forage Grass Changes Due to Changing Soil Chemistry Resulting from Different Land-Use Management in the Oroba Valley, Kenya. African Journal of Education, Science and Technology, 7(3), Pg 40-54.	<a href="https://doi.org/10.2022/ajest.v7i3.878">https://doi.org/10.2022/ajest.v7i3.878</a>
84.	Biwott, G., Kiplagat, A., Ngetich, J., & Kipkorir, E.	Rural Water Supply in the Era of Climate Change in Kenya; The Case of Kapseret Sub County, Uasin Gishu County. African Journal of Education, Science and Technology, 7(3), Pg 55-64.	<a href="https://doi.org/10.2022/ajest.v7i3.832">https://doi.org/10.2022/ajest.v7i3.832</a>
85.	Tarus, S., Kituyi, J., & Segor, F.	Heavy Metals and Pathways of Incorporation in the Soil, Sediments and Water Matrices of River Nzoia, Kenya. African Journal of Education, Science and Technology, 7(3), Pg 76-86.	<a href="https://doi.org/10.2022/ajest.v7i3.834">https://doi.org/10.2022/ajest.v7i3.834</a>
86.	Lutta, S., & Kituyi, L.	Clean Water Initiative for Health and Nutrition. A Case Study of Bungoma County. African Journal of Education, Science and Technology, 7(3), Pg 128-137.	<a href="https://doi.org/10.2022/ajest.v7i3.867">https://doi.org/10.2022/ajest.v7i3.867</a>
87.	Werunga, M., Mwaniki, D., & Wanjala, F.	The Rodent Pest Species Infesting Maize ( <i>Zea mays</i> L) and Wheat ( <i>Triticum aestivum</i> L) Farms at University of Eldoret, Uasin Gishu County, Kenya. African Journal of Education, Science and Technology, 7(3), Pg 138-153.	<a href="https://doi.org/10.2022/ajest.v7i3.835">https://doi.org/10.2022/ajest.v7i3.835</a>
88.	Souadou Diop, M., Ochuodho, J., Maina, F., & Rop, N.	Seed Quality of Velvet Bean Seeds ( <i>Mucuna pruriens</i> L. Dc) in Western Kenya. African Journal of Education, Science and Technology, 7(3), Pg 154-165.	<a href="https://doi.org/10.2022/ajest.v7i3.836">https://doi.org/10.2022/ajest.v7i3.836</a>
89.	Nyamwamu, C., & Jeruto, P.	Assessment of Weed Species Traits, Germination to Flowering duration and Crops Affected on Farms in Kisii Central Sub County, Kisii County, Kenya. African Journal of Education, Science and Technology, 7(3), Pg 166-173.	<a href="https://doi.org/10.2022/ajest.v7i3.837">https://doi.org/10.2022/ajest.v7i3.837</a>



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90.	Kipchumba, A., Odwori, P., & Kebeney, S.	Influence of Planting Materials and Land tenure system on Mango Production in Endo Ward, Elgeyo Marakwet County, Kenya. African Journal of Education, Science and Technology, 7(3), Pg 207-213.	<a href="https://doi.org/10.2022/ajest.v7i3.870">https://doi.org/10.2022/ajest.v7i3.870</a>
91.	Turyatamba, E., Kiplagat, H., & Wanami, S.	The Role of TVET Managers in the Implementation of Real-Life Project-Based Learning for Competence Development of TVET Trainees in Uganda. African Journal of Education, Science and Technology, 7(3), Pg 390-400.	<a href="https://doi.org/10.2022/ajest.v7i3.848">https://doi.org/10.2022/ajest.v7i3.848</a>
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93.	Melly, R., Okari, F., & Oseko, A.	Testing Speaking Skills Through Writing and Learners' Speaking Competence in Selected Secondary Schools in Wareng' Sub- County Uasin Gishu County, Kenya. African Journal of Education, Science and Technology, 7(3), Pg 421-427.	<a href="https://doi.org/10.2022/ajest.v7i3.861">https://doi.org/10.2022/ajest.v7i3.861</a>
94.	Kafu A., P.	Research Proposal and Thesis/Dissertation Writing Course in Modern Higher Education, an Emerging Issue in Sustainable Development in the Modern World. African Journal of Education, Science and Technology, 7(3), Pg 450-457.	<a href="https://doi.org/10.2022/ajest.v7i3.853">https://doi.org/10.2022/ajest.v7i3.853</a>
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96.	P., M., & Kitainge, K.	Availability of Competence-Based Teaching/ Learning Materials, Tools, and Equipment at Kenya's Coastal Region TVET Institutions. African Journal of Education, Science and Technology, 7(3), Pg 479-488.	<a href="https://doi.org/10.2022/ajest.v7i3.856">https://doi.org/10.2022/ajest.v7i3.856</a>
97.	Chepkorir, S., Kafu, P., & Lusweti, K.	Efficacy of Teaching Chemistry with Computer-Based Laboratory Simulations (CBLs) as Opposed to Traditional Methods in Acquisition of Scientific Inquiry Skills in Bomet County. African Journal of Education, Science and Technology, 7(3), Pg 521-533.	<a href="https://doi.org/10.2022/ajest.v7i3.865">https://doi.org/10.2022/ajest.v7i3.865</a>

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98.	Meera Rai,Gaurav Pant,Kumund Pant, Becky N. Aloo,Gaurav Kumar,Harikesh Bahadur Singh & Vishal Tripathi.	Microplastic Pollution in Terrestrial Ecosystems and Its Interaction with Other Soil Pollutants: A Potential Threat to Soil Ecosystem Sustainability	<a href="https://doi.org/10.3390/resources12060067">https://doi.org/10.3390/resources12060067</a>
99.	Habtemariam , H., Wanjohi , L., Agan , L., & Samoei , D.	Evaluation of Natural-Based Coagulants Efficacy in Removal of Cyanobacteria from Huruma Wastewater Samples, Eldoret, Kenya. Journal of Aquatic Terrestrial Ecosystems, 1(1), Pg 11–21.	<a href="https://blueprintacademicpublishers.com/index.php/JATEMS/article/view/26">https://blueprintacademicpublishers.com/index.php/JATEMS/article/view/26</a>
100.	Emmy Chepkoech, Felix Rotich and Bonface Alkamoi	Evaluation of Constraints Limiting Passion Fruit ( <i>Passiflora edulis Sims</i> ) Production in Uasin-Gishu County, Kenya	<a href="https://www.sdiarticle5.com/review-history/98319">https://www.sdiarticle5.com/review-history/98319</a>
101.	A. O. Achieng, G. B. Arhonditsis, N. Mandrak, C. Febria, B. Opaa, T.J. Coffey, F. O. Masese, K. Irvine, Z.M. Ajode, K. Obiero, J. E. Barasa & B. Kaunda-Arara	Monitoring biodiversity loss in rapidly changing Afrotropical ecosystems: an emerging imperative for governance and research	<a href="https://doi.org/10.1098/rstb.2022.0271">https://doi.org/10.1098/rstb.2022.0271</a>
102.	Jacob Abwa, Domitila Kyule, Joseph O. Junga, James E. Barasa, Dorcus A. Sigana	On-farm growth performance of different strains of tilapia, <i>Oreochromis niloticus</i> reared in earthen ponds	<a href="https://doi.org/10.1002/aff2.114">https://doi.org/10.1002/aff2.114</a>
103.	Marriott, A.L., Osano, O.F., Coffey, T.J., Watts, M. J., Aura, C. M.	Considerations for environmental biogeochemistry and food security for aquaculture around Lake Victoria, Kenya. Environ Geochem Health (2023).	<a href="https://doi.org/10.1007/s10653-023-01585-w">https://doi.org/10.1007/s10653-023-01585-w</a>
104.	Mercyline Chepkemboi, Dr. Julius Kipkemboi Kollongei, Prof. Eng. David Kimutai Some	Development of an extractor for processing honey from indigenous hives and natural colonies	
105.	Dowell, S.M., Humphrey, O.S., Blake, W.H.	Ultra-Trace Analysis of Fallout Plutonium Isotopes in Soil: Emerging Trends and Future Perspectives. Chemistry Africa	<a href="https://doi.org/10.1007/s42250-023-00659-7">https://doi.org/10.1007/s42250-023-00659-7</a>
106.	Samuel Ndichu, Sylvester McOyowo, Henry Okoyo, Cyrus Wekesa	Detecting Remote Access Network Attacks Using Supervised Machine Learning Methods", International Journal of Computer Network and Information Security(IJCNIS).	DOI:10.5815/ijcnis.2023.02.04
107.	Kobingi, N., Gichana , Z., Nyamora, J., Kipkorir, K., Kerich , E., & Angima , M.	Some Aspects of Fish Biology and Ecology of River Perkerra in Lake Baringo Basin, Kenya. Journal of Aquatic Terrestrial Ecosystems, 1(1), 1–10.	<a href="https://blueprintacademicpublishers.com/index.php/JATEMS/article/view/21">https://blueprintacademicpublishers.com/index.php/JATEMS/article/view/21</a>
108.	Yongo E, Jin F, Mutethya E, Wu D, Zhang P, Guo Z.	Sediment Heavy Metal Pollution Assessment in Changwang and Wuyuan Rivers in Hainan Island, China. Water. 2023; 15(8):1580.	<a href="https://doi.org/10.3390/w15081580">https://doi.org/10.3390/w15081580</a>

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109.	Pascaline Jeruto, & Charles, N. N.	Contributions of Climatic Smart Agricultural Practises on Adaptation to Climate Change among Small holder farmers in Nyaribari Chache Sub-County, Kisii County. International Journal of Life Science and Agriculture Research, 2(6), 102–108.	<a href="https://doi.org/10.55677/ijlsar/V02I06Y2023-03">https://doi.org/10.55677/ijlsar/V02I06Y2023-03</a>
110.	Were, K.; Kebeney, S.; Churu, H.; Mutio, J.M.; Njoroge, R.; Mugaa, D.; Alkamoi, B.; Ng'etich, W.; Singh, B.R.	Spatial Prediction and Mapping of Gully Erosion Susceptibility Using Machine Learning Techniques in a Degraded Semi-Arid Region of Kenya. Land 2023, 12, 890.	<a href="https://doi.org/10.3390/land12040890">https://doi.org/10.3390/land12040890</a>
111.	Obara, I., Makori, P., Sibeko, K.P.	Conservation and variation in the region of the <i>Theileria parva</i> p104 antigen coding gene used for PCR surveillance of the parasite. Parasitol Res 122, 1381–1390 (2023).	<a href="https://doi.org/10.1007/s00436-023-07838-y">https://doi.org/10.1007/s00436-023-07838-y</a>
112.	Guy-Pacome T. Touré, Jacob Nandjui, Anicet E. T. Ebou , Adolphe Zézé, Abigael N. Otinga, Seydou Tiho & Assoumane A. Maïga	Changes in arbuscular mycorrhizal fungal communities, mycorrhizal soil infectivity, and phosphorus availability under <i>Chromolaena odorata</i> (Asteraceae) invasions in a West-African forest-savanna ecotone. Mycorrhiza (2023).	<a href="https://doi.org/10.1007/s00572-023-01113-9">https://doi.org/10.1007/s00572-023-01113-9</a>
113.	Tarus , S., Kituyi, L., & Segor , F.	Pesticide Residue Levels in Nzoia River Catchment Area. Journal of Aquatic Terrestrial Ecosystems,	<a href="https://blueprintacademicpublishers.com/index.php/JATEMS/article/view/27">https://blueprintacademicpublishers.com/index.php/JATEMS/article/view/27</a>
114.	Kisasati Wekesa Jacob , Owino Emily Achieng , Mburu Rose Nunga , Omar Salim Makumba , Ann Muganda , Clement K. Kiptum	An Excel Application for Analysis and Design of RC Low-Rise Structural Elements using British Standards and European Codes	<a href="http://www.ijlret.com">www.ijlret.com</a>
115.	S Sam Okemwa, Kelvin Kiprono, DR. Eng. Peter Matuku, DR. Eng. Clement Kiptum, & Prof. Eng. Emmanuel Kipkorir.	Synthesis: Smart Rainwater Harvesting, Storage and Distribution to Enhance Water Security. International Journal of Civil and Structural Engineering Research.	<a href="https://doi.org/10.5281/zenodo.7898522">https://doi.org/10.5281/zenodo.7898522</a>
116.	Benson Kamau Ndung'u Wangai , Clement Kiprotich Kiptum , Samuel Kuria Maina , Waithira Alex Njoroge , Kevin Maraka Ndiema	A Comprehensive Study on Pavement and Geometric Design of Dispensary-Kerio-Gate B (University of Eldoret, Kenya) Road and Upande-Kimumu-Peris Road	<a href="http://www.ijert.org">http://www.ijert.org</a> ISSN: 2278-0181 IJERTV12IS040286



**Annexure 3: 2023/2024FY Publications list**

No.	AUTHOR(S)	TITLE	LINK
1.	Ototo, G. O., & Vlosky, R. P.	Deconstructing innovation in the wood furniture industry in Kenya. Journal of Forest Business Research, 2(2), 1-32.	<a href="http://forest-journal.com/index.php/JFBR/article/view/innovation-wood-furniture-industry-kenya">http://forest-journal.com/index.php/JFBR/article/view/innovation-wood-furniture-industry-kenya</a>
2.	Andrew Rutto Kiptum	Public participation as socio-incentive tool in the conservation of forest: insights from uasin gishu county, kenya, ISAR Journal of Economics and Business Management	<a href="https://isarpublisher.com/journal/isarjebm">https://isarpublisher.com/journal/isarjebm</a>
3.	Mutebi, R., & Ferej, A.	A Review of TVET Quality Assurance Practice in Uganda. East African Journal of Interdisciplinary Studies, 6(1), 182-196.	<a href="https://doi.org/10.37284/eajis.6.1.1327">https://doi.org/10.37284/eajis.6.1.1327</a>
4.	Lubembe, S., Okoth, S., Turyasingura, B., Oyugi, T., Ibarasa, H., Moenga, K., Chavula, P., & Tumushabe, J.	Water Hyacinth, an Invasive Species in Africa: A Literature Review. East African Journal of Environment and Natural Resources, 6(1), 243-261	<a href="https://doi.org/10.37284/eajenr.6.1.1293">https://doi.org/10.37284/eajenr.6.1.1293</a>
5.	Nabibya G.k, Dimo H, & keter J.	Influence of Monitoring and Evaluation of Stakeholder Participation on Implementation of Infrastructure projects in Public Secondary School in Kakamega County, Kenya. Elixir Social Science, Elixir International Journal 180(2023)56987_56993.	<a href="http://erepository.uoeld.ac.ke/handle/123456789/1974">http://erepository.uoeld.ac.ke/handle/123456789/1974</a>
		Influence of Monitoring and Evaluation of Financial Resources on Implementation of Infrastructure projects in Public Secondary School in Kakamega County, Kenya. Global Scientific Journals GSI 11(8) Online: ISS N 2320_9186.	
6.	Salome Chepkorir	Influence of Computer-Based Laboratory Simulations (CBLS) as a Teaching Method on Secondary Schools Students' Attitudes and Performance towards Chemistry in Bomet County Journal of Research in Education and Technology (JORET)	
7.	Miyawa, C.J., Ferej, A.K., & Muyaka, J.M.	Effect of Trainer Pedagogical Competences ON Students' Academic Performance in Diploma SET Courses: A Case of National Polytechnics in Western Kenya, Asian Journal of Education and Social Studies, 48(1), 15-27, 2023; Article no.AJESS.103190 ISSN: 2581-6268	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2002">http://erepository.uoeld.ac.ke/handle/123456789/2002</a>
8.	Jane Wahu	Effects of Food Prices on Dietar Intake of Pre-Primary Children in Low Income Peri-Urban Households in Uasin Gishu County, Kenya	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2071">http://erepository.uoeld.ac.ke/handle/123456789/2071</a>
9.	Kiptoo , T. K., & Ole Kiyiapi , J. L.	Impacts of Invasive Species on Commercial Forest Plantations in Africa- A Review. Journal of Aquatic Terrestrial Ecosystems, 1(1), Pg 56-65.	<a href="http://blueprintacademicpublishers.com/index.php/JATEMS/article/view/44">http://blueprintacademicpublishers.com/index.php/JATEMS/article/view/44</a>

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10.	Ronoh, I. C.	Chronic Fluoride Toxicity Effects on Thyroid Iodine Metabolism in <i>Xenopus laevis</i> Tadpoles. Journal of Aquatic Terrestrial Ecosystems, 1(1), Pg 66–72.	<a href="http://blueprintacademicpublishers.com/index.php/JATEMS/article/view/45">http://blueprintacademicpublishers.com/index.php/JATEMS/article/view/45</a>
11.	Lemeitaron Njenga Peter	Anti-Bacterial Activities of Green Synthesized ZnO and CuO Nanoparticles from Lead Extracts of <i>Warburgia ugandensis</i> .	<a href="http://erepository.uoeld.ac.ke/xmlui/handle/123456789/1984?locale-attribute=fr">http://erepository.uoeld.ac.ke/xmlui/handle/123456789/1984?locale-attribute=fr</a>
12.	Mose, P., Kiplagat, H. & Kibiwott, P.	Trainers' and Trainees' Attitude towards Remote Learning in Technical and Vocational Education and Training institutions in Bungoma County, Kenya. International Journal of Innovative Science and Research Technology, 8(7): 2388-2394. <a href="https://doi.org/10.5281/zenodo.8224463">https://doi.org/10.5281/zenodo.8224463</a> ISSN No:-2456-	<a href="http://erepository.uoeld.ac.ke/xmlui/handle/123456789/1991">http://erepository.uoeld.ac.ke/xmlui/handle/123456789/1991</a>
13.	Maina E J., Limo A & Keter J.	Effects of socio-political and economic marginalization on education management in Kerio valley region of Marakwet East sub-county Elgeyo-Marakwet County. Journal of Research in Education and technology, 2023.	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2045">http://erepository.uoeld.ac.ke/handle/123456789/2045</a>
14.	Munguti JM, Obiero KO, Iteba JO, Kirimi JG, Kyule DN, Orina PS, Githukia CM, Outa N, Ogello EO, Mboya JB, Ouko KO, Liti D, Yossa R and Tanga CM	Role of multilateral development organizations, public and private investments in aquaculture subsector in Kenya., Researchgate	<a href="https://doi.org/10.3389/fsufs.2023.1208918">https://doi.org/10.3389/fsufs.2023.1208918</a>
15.	Bouraima, M. B., Qiu, Y., Kiprotich Kiptum, C. ., & Maraka Ndiema, K. .	Evaluation of Factors Affecting Road Maintenance in Kenyan Counties Using the Ordinal Priority Approach. Journal of Computational and Cognitive Engineering, 2(3), 260–265.	<a href="https://doi.org/10.47852/bonviewJCCE2202272">https://doi.org/10.47852/bonviewJCCE2202272</a>
16.	Bouraima, M.B., Gore, A., Ayyildiz, Kiprotich Kiptum, C.	Assessing of causes of accidents based on a novel integrated interval-valued Fermatean fuzzy methodology: towards a sustainable construction site. Neural Comput & Applic 35, 21725–21750 (2023)	<a href="https://doi.org/10.1007/s00521-023-08948-5">https://doi.org/10.1007/s00521-023-08948-5</a>
17.	Sophia M. Dowell, Thomas S. Barlow, Simon R. Chenery, Odipo Osano, Michael J. Watts, Job Isaboke	Optimization of plutonium separations using TEVA cartridges and ICP-MS/MS analysis for applicability to large-scale studies in tropical soils†	
18.	Mutebi, R., Kerre, B., & Mubichakani, J	Challenges of an Online Pedagogy as a Method for TVET Practical Skills Training Delivery and Assessment. East African Journal of Education Studies, 6(2), 396-405.	<a href="https://doi.org/10.37284/eajes.6.2.1383">https://doi.org/10.37284/eajes.6.2.1383</a>
19.	Mang'eni, G. N., Waswa, P. & Samikwo, D.	Can Learners Taught through Problem-Based Learning Strategy Demonstrate an Obligation to Conveying Positive Motivation towards Physics Enhanced Enrolment? Journal of Research Innovation and Implications in Education, 7(3), 191 – 200.	<a href="https://doi.org/10.59765/zirh0217">https://doi.org/10.59765/zirh0217</a>

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20.	Kulu, D. M., Waswa, P., & Kitainge, K.	Effects of Computer Simulation on Learners' Participation in Physics in Selected Secondary Schools in Kangundo Sub- County. <i>Journal of Advances in Education and Philosophy</i> , 7(8): 302-309	<a href="http://erepository.uoeld.ac.ke/handle/123456789/1962">http://erepository.uoeld.ac.ke/handle/123456789/1962</a>
21.	Kulu Dorcas Mutheu, Peter Waswa, Kisilu Kitainge	Effects of Computer Simulation on Learners' Participation in Physics in Selected Secondary Schools in Kangundo Sub-County. <i>J Adv Educ Philos</i> , 7(8): 302-309.	<a href="https://10.36348/jaep.2023.v07i08.008">https://10.36348/jaep.2023.v07i08.008</a>
22.	Sisimwo Faith Maiba, Hoseah Kiplagat, Richard Ochieng	Influence of Infrastructure on Implementation of E-Learning in Technical Vocational Education and Training Institutions in Uasin Gishu County, Kenya. <i>J Adv Educ Philos</i> , 7(8): 296-301	<a href="https://10.36348/jaep.2023.v07i08.007">https://10.36348/jaep.2023.v07i08.007</a>
23.	Ronald Mutebi, Bonaventure Wanjala Kerre, Joseph Mubichakani	Efficacy of an Online Pedagogy on TVET Practical Skills Training Delivery: A Quasi-Experimental Study. <i>International Journal of Vocational Education and Training Research</i> . Vol. 9, No. 2, 2023, pp. 41-51.	<a href="https://10.11648/j.ijvetr.20230902.13">https://10.11648/j.ijvetr.20230902.13</a>
24.	Odhiambo O. Douglas, Kyalo, N.M, & Ferej K. Ahme	Influence of Non-Academic Factors on Career Adaptability of Technology Education Graduates Working in Kenyan Technical and Vocational Institutions. <i>Journal of Research in Education and Technology</i>	<a href="https://orcid.org/0000-0002-1295-1028">https://orcid.org/0000-0002-1295-1028</a>
25.	Muthuri, A. K., Kiplagat, H. & Kutto, N.	The Influence of Trainer Factors on Implementation of Competency-Based Education and Training in Technical and Vocational Training Institutions in Meru County, Kenya. <i>International Journal of Engineering, Science</i> , 12(8), ISSN: 2320-0294 Impact Factor: 6.765 e	<a href="http://erepository.uoeld.ac.ke/handle/123456789/1985">http://erepository.uoeld.ac.ke/handle/123456789/1985</a>
26.	Emmanuel Momolu Pope, Wilson Opile, Lucas Ngode and Emmy Chepkoech	Effect of Water Stress Duration on the Growth Characteristics and Yield Components of Upland Rice Varieties in Kenya. <i>sian J. Res. Crop Sci</i> 8.4 (2023): 273-286.	<a href="https://researchgate.net">researchgate.net</a>
27.	Raphael Mwasi Chola, Hoseah Kiplagat, Joseph Mubichakani	Influence of Parents' Expectations on Course Choice in Vocational Training Centres in Taita Taveta County, Kenya. <i>Journal of Advances in Education and Philosophy</i> 7.8 (2023): 317-322.	<a href="https://10.36348/jaep.2023.v07i08.010">https://10.36348/jaep.2023.v07i08.010</a>
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29.	Kibet Koskei Buigut	Institutional Ownership And Dividend Payout Policy In Kenya. <i>Journal of Business and Management Review</i> 4.8 (2023): 598-625.	<a href="https://doi.org/10.47153/jbmr48.6342023">https://doi.org/10.47153/jbmr48.6342023</a>
30.	Tanui Samuel Kipkogei	In-Vitro Evaluation of Three <i>Trichoderma</i> spp. Isolates Against Grey Blight Disease ( <i>Pestalotiopsis theae</i> ) of Tea.	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2005">http://erepository.uoeld.ac.ke/handle/123456789/2005</a>
31.	Miriam Sitienei, Ayubu Anapapa, and Argwings Otieno	Application of XGBoost Regression in Maize Yield Prediction	<a href="https://10.9734/AJPAS/2023/v24i1513">https://10.9734/AJPAS/2023/v24i1513</a>



No.	AUTHOR(S)	TITLE	LINK
32.	Odhiambo O. D., Kyalo N. M., & Ferej K. A.	Influence of Non-Academic Factors on Career Adaptability of Technology Education Graduates Working in Kenyan Technical and Vocational Institutions	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2020">http://erepository.uoeld.ac.ke/handle/123456789/2020</a>
33.	Jepkosgei P., Mubichakani J. & Ochieng R.	Impact of Laboratory Method on Students' Motivation of Mathematics in Secondary Schools of Kapseret Sub County Kenya.	<a href="http://erepository.uoeld.ac.ke/handle/123456789/1999">http://erepository.uoeld.ac.ke/handle/123456789/1999</a>
34.	Chola, R. M., Kiplagat, H. & Mubichakani, J.	Influence of Parents' Expectations on Course Choice in Vocational Training Centres in Taita Taveta County,	<a href="http://erepository.uoeld.ac.ke/xmlui/handle/123456789/2017">http://erepository.uoeld.ac.ke/xmlui/handle/123456789/2017</a>
35.	Mutebi, R., Kerre B. & Mubichakani, J.	Challenges of an Online Pedagogy as a Method for TVET Practical Skills Training Delivery and Assessment.	<a href="http://erepository.uoeld.ac.ke/handle/123456789/1951">http://erepository.uoeld.ac.ke/handle/123456789/1951</a>
		Efficacy of an Online Pedagogy on TVET Practical Skills Training Delivery: A Quasi-Experimental Study.	
36.	Ogechi Benneton Ondengi	Influence of Anthropogenic Activities on Nyangongo Wetland Ecosystem in Nyaribari Chache Sub-County, Kisii County, Kenya	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2031">http://erepository.uoeld.ac.ke/handle/123456789/2031</a>
37.	Sisimwo, F. M., Kiplagat, H. & Ochieng, R.	Influence of Infrastructure on Implementation of E-Learning in Technical Vocational Education and Training Institutions in Uasin Gishu County, Kenya	<a href="http://erepository.uoeld.ac.ke/handle/123456789/1972">http://erepository.uoeld.ac.ke/handle/123456789/1972</a>
38.	Jepkemboi , E., Koitilio, B., Pkania, K., Chepkoech , E., & Churu, H.	Morphological Characterization of Selected Pumpkin ( <i>Cucurbita Pepo</i> L.) Accessions in Baringo County, Kenya. Journal of Crops, Livestock, and Pest Management, 1(1), Pg 54–64. Retrieved from	<a href="https://blueprintacademicpublishers.com/index.php/JOCLIPM/article/view/50">https://blueprintacademicpublishers.com/index.php/JOCLIPM/article/view/50</a>
39.	Vitalis O.Ayieko; Peter Okemwa; Dr.Kyalo Muthoka	Enhancing TVET Institutions through Robust Partnerships and Industrial Collaborations in Kakamega County, Kenya. International Journal of Innovative Science and Research Technology(ijsrt), 8(9), 566-571, DOI: <a href="https://doi.org/10.5281/zenodo.8366698">https://doi.org/10.5281/zenodo.8366698</a>	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2083">http://erepository.uoeld.ac.ke/handle/123456789/2083</a>
40.	Mang'eni, G. N., Waswa, P. & Samikwo, D.	Teaching within the Lens: The Use of Problem-Based Learning Strategy for Learner's Attainment of Critical Thinking Skills in Public Secondary Schools in Kenya. Journal of Research Innovation and Implications in Education, 7(4), 130 – 142	<a href="https://doi.org/10.59765/34utfgth">https://doi.org/10.59765/34utfgth</a>
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42.	Mmbone , S., Wanjala , F. . F. M., & Gohole , L..	Exploring Desert Locust ( <i>S. gregaria</i> ) Frass as an Organic Fertilizer for the Growth of Kales ( <i>Brassica oleracea</i> L.) under Open Field Conditions. Journal of Crops, Livestock and Pest Management, 1(1), Pg 65-71.	<a href="https://blueprintacademicpublishers.com/index.php/JOCLIPM/article/view/54">https://blueprintacademicpublishers.com/index.php/JOCLIPM/article/view/54</a>
43.	Sang, I. C., Samikwo D., Korir B.,	Student's Gender and Attitude towards Biology Practical Work affects Academic Performance: A Case Study of Turbo Sub-County, Kenya. International Journal Of Engineering, Science and Maths, 12(09) ISSN: 2320-0294 Impact Factor: 6.765 <a href="http://www.ijmra.us">http://www.ijmra.us</a>	<a href="https://doi.org/10.59765/zirh0217">https://doi.org/10.59765/zirh0217</a> .
44.	Nyambura , J. W., Orori , B. O., & Simiyu , G. M.	Efficacy of Treating Wastewater from Wastepaper Recycling Mill by Blending Moringa Oleifera with Synthetic Coagulants. Journal of Aquatic Terrestrial Ecosystems, 1(1), Pg 82-90.	<a href="http://blueprintacademicpublishers.com/index.php/JATEMS/article/view/53">http://blueprintacademicpublishers.com/index.php/JATEMS/article/view/53</a>
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47.	Ngososei Tecla, Alice Limo, Lydia Kipkoech	Determining the Influence of Communication Interactive Strategies on Students' Discipline in Secondary Schools in Urban Areas in Uasin Gishu County, Kenya.	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2073">http://erepository.uoeld.ac.ke/handle/123456789/2073</a>
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		Critical Thinking Skills: The Extent to which they are Taught in Physics Lessons in Secondary Schools of Trans Nzoia County	<a href="http://erepository.uoeld.ac.ke/handle/123456789/1997">http://erepository.uoeld.ac.ke/handle/123456789/1997</a>

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53.	Dickson Kimeli Rutto, Simon Wanami, Peter Waswa	Critical Thinking Skills: The Extent to which they are Taught in Physics Lessons in Secondary Schools of Trans Nzoia County, Kenya.	<a href="https://dx.doi.org/10.47772/IJRIS.2023.70913">https://dx.doi.org/10.47772/IJRIS.2023.70913</a>
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55.	Melly, R., Okari, F., & Oseko, A.	Testing Speaking Skills Through Writing and Learners' Speaking Competence in Selected Secondary Schools in Wareng' Sub- County Uasin Gishu County, Kenya.	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2060">http://erepository.uoeld.ac.ke/handle/123456789/2060</a>
56.	Olung'ati, E., Gudu, S., Joseph, M., Ouma, E., Ochuodho, J., Kiplagat, O., & Kiplagat, K. (2023).	Tolerance, Heritability, and Heterosis for Aluminium Toxicity Tolerance for ALXMSV Maize Single Crosses. East African Journal of Agriculture and Biotechnology, 6(1), 359-368.	<a href="https://doi.org/10.37284/eajab.6.1.1471">https://doi.org/10.37284/eajab.6.1.1471</a>
57.	Mwongula, A. W., Siamba, D. N., Mwamburi, L. A., & Mailu, M.	Concurrent Infections Among Pyretic Children Seeking Treatment at Alupe Sub County Hospital, Busia County, Kenya. European Journal of Applied Sciences, Vol - 11(5). 38-45	<a href="http://dx.doi.org/10.14738/aivp.115.15370">http://dx.doi.org/10.14738/aivp.115.15370</a>
58.	Sylvia Mmbone, Linnet Gohole, F. M. Fredrick Wanjala,	Current Knowledge and Perception of Edible Grasshopper/ Locusts' Consumption in Western Kenya", Psyche: A Journal of Entomology, vol. 2023, Article ID 7034224, 16 pages, 2023.	<a href="https://doi.org/10.1155/2023/7034224">https://doi.org/10.1155/2023/7034224</a>
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60.	Tanui , M., Too , E. . J., Binott , J. J., Dangasuk , O. G., & Kipsumbai , P. K.	Morphological and Yield Characteristics Diversity among Pumpkin Accessions in Kenya. Journal of Crops, Livestock and Pest Management, 1(2), Pg 29-48.	<a href="https://blueprintacademicpublishers.com/index.php/JOCLIPM/article/view/79">https://blueprintacademicpublishers.com/index.php/JOCLIPM/article/view/79</a>
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		Review on Psychological Disorder among Adolescent Students and Proposed Intervention Strategies in Kenya. African Journal of Education, Science and Technology, 7(3), 258-265.	
62.	Tanui Samuel Kipkogei	In-Vitro Evaluation of Three <i>Trichoderma</i> spp. Isolates Against Grey Blight Disease ( <i>Pestalotiopsis theae</i> ) of Tea.	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2005">http://erepository.uoeld.ac.ke/handle/123456789/2005</a>



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63.	Monau , B. P., Ochoudho , J. O., Obura , M., Maina , F. N. W., & Rop , N.	Effect of Leaf Harvesting on Yield Parameters and Seed Quality of Kenaf ( <i>Hibiscus cannabinus</i> L.). Journal of Crops, Livestock and Pest Management, 1(2), Pg 19–28.	<a href="https://blueprintacademicpublishers.com/index.php/JOCLIPM/article/view/77">https://blueprintacademicpublishers.com/index.php/JOCLIPM/article/view/77</a>
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65.	Arusei, Geoffrey, Makau, N., Amolo, G., & Mirriam, C.	The Mechanical and Elastic Properties of Selected 211 MAX Phases: A Density Functional Theory Study. Kabarak Journal of Research & Innovation, 13(4), 46-63.	<a href="http://ojs.kabarak.ac.ke/index.php/kjri/article/view/604">http://ojs.kabarak.ac.ke/index.php/kjri/article/view/604</a>
66.	Kimutai C, Ndlovu N, Chaikam V, Ertiro BT, Das B, Beyene Y, Kiplagat O, Spillane C, Prasanna BM and Gowda M	Discovery of genomic regions associated with grain yield and agronomic traits in Bi-parental populations of maize ( <i>Zea mays</i> . L) Under optimum and low nitrogen conditions.	
67.	Emmaculate Jepkosgei Maina, Alice Limo, Joshua Keter.	The Prevalence of Pastoral Conflicts and its Effect on Education Management in Public Primary Schools in Kerio Valley Region of Marakwet East Sub-County, Elgeyo Marakwet County. J Adv Educ Philos, 7(10): 422-429	
68.	Tecla, N., & Kipkoech, L. Alice Limo	Determining the Influence of Social Skill Development Interactive Strategies on Students’ Discipline in Secondary Schools in Urban Areas in Uasin Gishu County, Kenya. J Adv Educ Philos, 7(10), 430-437.	<a href="https://10.36348/jaep.2023.v07i10.009">https://10.36348/jaep.2023.v07i10.009</a>
69.	Ngeno K. Benard	Antidiabetic Properties of <i>Tarchonanthus camporatus</i> in Fructose-Induced Diabetic Wistar Rats.	<a href="http://erepository.uoeld.ac.ke/handle/123456789/2033">http://erepository.uoeld.ac.ke/handle/123456789/2033</a>
70.	Sylvia Mmbone, Linnet Gohole, F. M. Fredrick Wanjala,	Current Knowledge and Perception of Edible Grasshopper/ Locusts’ Consumption in Western Kenya Psyche: A Journal of Entomology, vol. 2023, Article ID 7034224, 16 pages, 2023.	<a href="https://doi.org/10.1155/2023/7034224">https://doi.org/10.1155/2023/7034224</a>
71.	Diana Barasa Wakasa	The Impact of Collaborative Peer Supervisory Competencies on Enhancing Instructional Supervision for English Teachers in Public Secondary Schools in Kakamega County, Kenya	<a href="https://orcid.org/0000-0002-3330-1841">https://orcid.org/0000-0002-3330-1841</a>
72.	Zhang, P., Yongo, E., Liu, F., Pan, S., Sun, A., Zhou, L., ... & Ke, C.	Effects of substrate on burrowing behavior, feeding physiology, and energy budget of undulated surf clam <i>Paphia undulata</i> . Journal of Oceanology and Limnology, 41(5), 1795-1808.	
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75.	B. J., A., Were, B. A., & Binnot, J.	Identification of Drought Tolerant Kenyan <i>Brachiaria</i> Ecotypes Using Drought Tolerance Indices. East African Agricultural and Forestry Journal, 87(3&4), 11.	<a href="https://www.kalro.org/www.eaafj.or.ke/index.php/path/article/view/645">https://www.kalro.org/www.eaafj.or.ke/index.php/path/article/view/645</a>
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79.	Marakis, J.	Education for Kenyan Girls in the Post Covid-19 ERA: Mitigating Strategies for Future Pandemics. East African Journal of Education Studies, 6(3), 489-499.	<a href="https://doi.org/10.37284/eajes.6.3.1652">https://doi.org/10.37284/eajes.6.3.1652</a>
80.	Bouraima, M.B., Oyaro, J., Ayyildiz & Ndiema Kevin Makara	An integrated decision support model for effective institutional coordination framework in planning for public transportation. Soft Comput (2023).	<a href="https://doi.org/10.1007/s00500-023-09425-w">https://doi.org/10.1007/s00500-023-09425-w</a>
81.	Kafu, P. A., & Zigama, J. C.	Education, Development and Creation of The Desired Society in Modern World: The Failed Kenyan Attempt. Journal of Research in Education and Technology, 1(2), 76-90.	
82.	Chepkonga, M.	Training Needs by Head Teachers in the Implementation of Competency-Based Curriculum in Kenya's Primary Schools: A Study of Marakwet East Sub County. East African Journal of Education Studies, 6(3), 526-535.	<a href="https://doi.org/10.37284/eajes.6.3.1666">https://doi.org/10.37284/eajes.6.3.1666</a>

**Annexure 4: List of paper and presenters during the 8IIC Conference**

No.	Presenters	Paper
1.	Natade, J.L, Murunga, J.W. & Kabesa, S.	Ethical Issues in Educational Research: Exploring the Required Standards in Data Collection for Postgraduate Students in Kenya
2.	Chola, R.M, Kiplagat, H & Mubichakani, J.	Influence of job opportunities on the Choice of Course in Vocational Training Centres in Taita Taveta County, Kenya
3.	Kimaru, M.J., Sempele, C. & Karei, R	Perceptions towards the Influence of Instructional Resources on the Quality of Training in Hospitality Management; A Comparative study of University of Eldoret and Kenya Utalii College, Kenya
4.	Kinoti, M. A., Kiplagat, H. & Kutto, N.	The Influence of institutional Factors on Implementation of Competency-Based Education and Training in Meru County, Kenya
5.	Carazone, S. N. & Samikwo, D.	Effectiveness Of Lecture Versus Laboratory Methods In Teaching Biological Science Module One Students At The Eldoret National Polytechnic, Kenya
6.	Adijah, C. & Murunga, J. W.	Influence Of Selected Factors On Low Enrolment In Technical Training Institutes In Kericho County
7.	Gudu, O. B.	Overcoming Girl Child Educational Challenges in Suba District Primary Schools in Kenya
8.	Isaac, K. Arogo, P. & Kirwa, N.	Family Property Inheritance and Wealth Creation amongst Women in Kenya, as a Drive to Attainment of Sustainable Development Goals.
9.	Ngugi, M. & Nyaura, E.	Mental Health Conversations with Lecturers in the Educational Institutions: A Case of Selected Universities in Eldoret Town
10.	Kipchilat, C. W. Oseko, M. A. & Kipkirui, K. D.	The Concept of Inclusive Education: Towards Disability-Inclusive Schools
11.	Yasir, M & Majid, A.	Problems and Prospects of Decent Work for Women Domestic Workers in Pakistan: A Focused Ethnographic Study
12.	Majid, A. & Yasir, M.	The Role of Social & Family Support and Career Orientation to Promote Decent Work Among Transgender Persons in Pakistan: Mediation of Career Initiatives
13.	Barsulai, S. C.	Enhancing Guest Satisfaction in Home-stays through Indigenous Menu Offering in Nandi County, Kenya
14.	Ipara, H. & Amisi, N.	Indigenous knowledge for biodiversity conservation
15.	Otieno, H. & Ngari, C.	Target Costing application and its Impact on Financial Performance of manufacturing Companies in the North Rift Economic Block, Kenya
16.	Oloo, A. O., Osoro, A. & Mwangi, P. N.	Influence of Corporate Governance on Supply Chain Leverage of Sugar Manufacturing Firms in Kenya
17.	Ogembo, P. O. & Wanjara, A. O.	Impact of e-leadership on service delivery in Kenya: The Case of Public Universities
18.	Korir, C. J., Kemboi, A. & Kimwolo, A.	Psychological Capital on Employee Performance at Uasin Gishu County Hospital, Kenya



No.	Presenters	Paper
19.	Oloo, A. O., Osoro, A. & Mwangi, P.	Influence Of Corporate Governance On Supply Chain Leverage Of Sugar Manufacturing Firms In Kenya
20.	Koki, K. F., Ariya, G. & Sempele, C.	Customers' Spa Visit Characteristics. A Case Study in Eldoret Town, Kenya
21.	Chemuchuk, S. & Chelimo, K.	Analysis of Emotional Intelligence And Worklife Balance in Job Stress Among Employees at Ukulima Sacco in Nairobi, Kenya
22.	Ikapel, F. & Kering, A.	Intellectual Capital And Performance Of Commercial Banks In Kenya: An Application Of The Value Added Intellectual Coefficient (Vaictm) Model
23.	Swaleh, M., Masara, D. & Wanyeki, E.	Design and development of a biogas cleaning unit
24.	Wangila, C. & Oseko, A.	Sustaining Human Development in an Emerging Digital Era.
25.	Keli, M. M.	Drinking Water Quality Assessment Challenges: A Solution Through Gis Technology
26.	Chirchir, V. J.	Science in the Home: Digitized diffusion of scientific principles and practices
27.	Ochieng' R.	Reevaluating Darwin's Theory: Examining its Role in Promoting Racism and Atheism in Africa and the Place of the Theory of Intelligent Design
28.	Mureithi, G., Dzinekou, J. Y. & Nkhata, E.	University Support in Developing and Strengthening Underdog Entrepreneurship. A Study of Huruma Slums Underdog Entrepreneurs
29.	Muange, R. M.	Relationship Between Organisational Ambidexterity, Learning Orientation and Performance of Supermarkets In Kenya
30.	Kirui, P. K. & Wanyonyi, H. S.	Emerging Coups in former French West Africa and the Challenge of African Democracy in the 21st Century
31.	Nelima, C.	Effect Of Infrastructure Financing On Financial Performance Of Aquaculture Enterprises In The Lake Region Economic Bloc In Kenya.
32.	Chepkemoi, Y. F.	Analysis of Factors Affecting Competitive Advantage and Performance of Small-Scale Potato Enterprises in Molo Sub County, Nakuru County, Kenya
33.	Indangasi, B.	Revolutionising Agriculture and Food Systems: Navigating Human Development in the Emerging Digital Era
34.	Kosgei, S., Were, G., Serem, C. & Ayua, E.	Prevalence of Iron Deficiency Anaemia Among Pre-School Aged Children in Uasin Gishu County, Kenya
35.	Mutai, C. C., Mwamburi, L. A. & Kipsumbai, P. K.	Effects of Organic and Inorganic Fertilizers on the Population Dynamics of Soil Microorganisms in Tea Rhizosphere
36.	Muga, M. & Ochuodho, J. O.	Influence of Seed Pelleting on Seed Quality of Spider Plant ( <i>Cleome gynandra</i> L.) During Storage.
37.	Mwaura, M. D. K. & Maina, F. N. W.	Enhancing profitability of Maize Beans Enterprise among Small Scale Farmers in Mbooni West Subcounty, Makueni County.

No.	Presenters	Paper
38.	Sang, C. C. & Olago, D. O.	Assessing Future Water Security: Impacts of Climate Change and Socio-economic Development in Mbagathi-Stony Athi River Catchments, SGR Corridor, Kenya
39.	Rotich, K. L.	Potential Impacts of Climate Change on Wildlife Protected Areas, A Case Study of Maasai Mara National Game Reserve
40.	Mutheu, V.	Sports Communication in Climate Change Mitigation: A Literature Review
41.	Ogembo, P. O. & Wanjara, A. O.	Impact of climate change on food production in Kenya
42.	Kipsang, R. Cherus, D. K. & Tonui, J. K	Status of the Growth of Electric Vehicles (EVs) as a Means of Greening Transportation Sector in Kenya
43.	Akech, O. D. & Ipara, H.	Strategies For Enhancing Sustainable Management Of Community Forests For Biodiversity Conservation And Improved Livelihoods
44.	Ogembo, P. O. & Wanjara, A. O.	The proposed model new model of funding higher education in Kenya: Challenges and Opportunities
45.	Ogembo, P. O.	Impacts of global network/Partnerships on Higher Education implementation in Kenya: The case of Public Universities

#### Annexure 5: List of paper and presenters during the 8IIC Conference

No.	Presenters	Paper
1.	Ezekiel Mbitha Mwenzwa	Food Policy Framework and its Implications on Dryland Food Security in Kenya
2.	Ayua, Emmanuel, Mugalavai, Violet, K., Oyalo, Josiah and Onkware, Augustino, O.	Assessment of consumer preferences in Sorghum Composite Flours in Western Kenya
3.	Victor Musitia, Emmanuel Ayua, Miriam Kinyua and Heka Kamau	Characterisation of Physicochemical and Functional Properties of Irish Potato Varieties Developed Through Gamma Irradiation
4.	Kitilit, K. Jackson	Association between Aflatoxin, Hypothalamus, Pituitary Gland-Gonadal Tissue Changes vis-a-vis Hormones Levels in Rabbits Fed Diets Containing Aflatoxin
5.	Mwaura, F.M., Ngigi, M. and Obare, G.	Determinants of Self-Sufficiency in Staple Food among Subsistence Farmers in Sub-Saharan Africa: Case of Western Kenya
6.	Valentine Chebitok, Heka Kamau, Miriam Kinyua, Emmanuel Ayua	Evaluation of Physicochemical and Sensory Characteristics of Selected Improved Cassava Varieties Developed Through Gamma Irradiation

No.	Presenters	Paper
7.	Kiptui, Brenda Jemutai, Harold Anindo Rachuonyo, Eunice Akello Mewa, Beatrice Ang'iyu Were, Benson Nyongesa and Samuel Gudu	Growth of Improved Indigenous Chicken Reared on Sorghum-Based Formulations under Three Production Systems in Uasin Gishu County, Kenya
8.	Chirchir, K. Emmanuel, Okango A. Ayubu and Betty Korir	Application of Mixture Experiment in the Optimization of Cabbage ( <i>Brassica Oleracea</i> L.) Yield Using Selected Organic Manure, in Turbo, Uasin Gishu County
9.	Sergon, P.C., Rachuonyo, H.A., Wanga, J.O., Nandwa, A.N. and Chemoiwa, E.J.	Evaluation of carcass and meat quality traits among domesticated rabbit breeds crosses in North-Rift and Western Kenya
10.	Mabonga, G.N. and Ogallo, L. J.	Factors Influencing Financial Literacy Levels Among Smallholder Farmers in Kapseret Sub-County, Uasin Gishu County, Kenya
11.	Anne N. Wasike, Agnes Oseko, John Simiyu	Psychosocial Intervention Strategies for Stress Management among Student Mothers in Kenyan Public Secondary Schools in Kimilili Sub-County, Bungoma County, Kenya
12.	Okumu N.A*, Rono S., Chemoiwa E. J. and Wanjala F. M. E	Datura stramonium: Evaluation of its Potential as a Biocide For Mosquito causing Malaria
13.	Chirchir Cheruiyot Amos, Jacob Bitok, Albert Bii and Titus Rotich	Mathematical Modeling of the Co-Infection of TB and Malaria in the Context of Interference Treatments and Vaccination Resistance
14.	Festus Napokol Lolimo, Kenneth Opiyo Odhiambo and Benard Orori Ondeng'i	Allelopathic Effect of <i>Vachellia tortilis</i> , <i>Vachellia nubica</i> and <i>Hyphaene compressa</i> on Germination of <i>Prosopis juliflora</i>
15.	P.K. Langat, E.W. Njenga, P. Jeruto, and C. W. Lukhoba	Molecular phylogeny of Kenyan populations of <i>Dodonaea viscosa</i> (Sapindaceae) from Baringo, Elgeyo Marakwet, Uasin Gishu and Kwale Counties using ITS1 region of nrDNA
16.	John Olives Chibayi, Argwings Otieno Ranyimbo and Ayub Anapapa Akang'o	Modeling Risk Factors of Miscarriage using Cure Model
17.	Charles Rotich, Moses Ngeiywa, Judith Makwali and Martin Wetungu	Medicinal uses and Pharmacological Activity of <i>Ximenia Americana</i> - A Systematic Review
18.	Mwaura, F.M., Ngigi, M. W and Obare, G	Developing and Testing Methodologies for Greenhouse Gases Emissions and Removal among Smallholders Involved in Maize Production in Western Kenya
19.	Margaret Mwikali Keli	Enhancing Environmental Health and Livelihoods Through GIS Technology and Water Sample Analysis
20.	Marjorie Truphosa Amunga, Argwings Otieno and Julius Koech	Mathematical Modeling of HIV/AIDS Epidemic in The Presence of Leaky-Type Vaccine in Kenya
21.	Willie Mercy Kavila, Julius Koech and Victor Kimeli	Physical Inactivity among University of Eldoret Staff, Kenya
22.	Muga Moses and Ruth Njoroge	Applied Seed Technologies in <i>Cleome gynandra</i> L. Seed.



No.	Presenters	Paper
23.	Johnson Bulowa and Erastus Muchimuti	Leadership Influence on Academic Performance: Evidence From Public Secondary Schools in Trans Nzoia County, Kenya
24.	Pamella Jemutai Toroitich and Agnes Oseko	Psychosocial Intervention to School Refusal Behavior among Pupils in Public Primary Schools in Keiyo North Sub-County, Elgeyo Marakwet County, Kenya
25.	John K. Kiptembur, Robert Otuya and Wambui Ng'ang'a	Effects of Endorsements on Performance of Para-Athletes in Kenya
26.	Kirarei Ezra K., Kipsumbai Pixley K., Kiprop Ezekiel K. and Pascaline Jeruto	The Trends in the Taxonomy, Diversity and Virulence Characterization of <i>Xanthomonas Axonopodis</i> P.v. <i>Vignicola</i> : Review
27.	Lucy Jerop Ngetich	Modelling Geometry Interruption Via Poiseuille Equation for Blood Flow in Carotid Artery During Accidents
28.	Ogeisia Jared Mong'are and Didymus Ibrahim	Assessing the Impact of Socio-Emotional Learning (SEL) Interventions on Children's Lives, Focusing on Academic Performance, School Involvement, and Future Prospects during their Transition from Rehabilitation and Vocational Centers to Mainstream Education or Job Opportunities.
29.	George Kirumba, George Thumbi, John Mwangi and John Mbugua	Comparison of Sewage Treatment Performance of a Two-Stage Floating-Wetland System with Kibendera Waste Stabilization Ponds
30.	S. Kibaara and M. Tsuma	Techno-Economic Modelling Tool for Small Scale Utility Solar PV Technology for Quantifying Environmental Impacts
31.	Naomi Kutto and Ruth Andambi	Integrating ICT in the CBC Learning Curriculum to Enhance Learning in Rural Schools in Kenya
32.	Kathare Alfred, Argwings Otieno Ranyimbo and Victor Kimutai Kimeli	Comparison of Binary Diagnostic Predictors Using Entropy
33.	Denis N. King'ang'i, Fancy Nyabate, Sammy W. Musundi	On Classification of Permutations Graphs
34.	Chepkoskei Silvia, Kirarei Ezra, Kosgei Brian, Chemoiwa Emily J., Khan Mehwish, Farhat Hiam, Eltolth Mahmoud, Mkrtchyan Hermine, Cole Jennifer, Rono Salinah J.	Postharvest Microbial Contamination Sources and Potential Pathogens in Kenyan Aquaculture Systems – A Review
35.	Samikwo Dinah and Jepkurui Tarus	Effectiveness of Existing Interventions on Food Security and Livelihoods in Baringo County Kenya
36.	Miriam Sitienei, Argwings R. Otieno, Ayubu Anapapa	Application of Machine Learning in Maize Yield Prediction
37.	Ogweyo Peter Ogalo and Ernest Safari	Enhancing Sustainable Tourism Development in Selected African Countries: A Case Study of Policy Implementation, International Coordination, and Stakeholder Engagement
38.	Winnie Awuor Odhiambo, John Simiyu and Esther Nyabuto	Prevalence of Suicide Ideation Among University Students: A Case Of Nyanza Region, Kenya

No.	Presenters	Paper
39.	Agan Leonard, Judith Khazenzi, Noba Kandioura and Odipo Osano	Lead and Cadmium Pollution: Implications for Health in Artisanal Gold Mining in Senegal and Kenya
40.	Adan T. Jillo, Ali Shee and Aloice O. Ogwenso	Silver Nanoparticles for Reductive Dehalogenation of Emerging Organohalide Aquatic Pollutants
41.	Calvince Anino, Eric Mibei, Joel Wanzala, Collins Kirui	The Role of Health Education in Covid 19 Vaccine Hesitancy Among Outpatients in Kericho County, Kenya. An Institution Based Cross-Sectional survey
42.	Douglas Ouma Otero, Victor A.O. Odenyo1, Paul Omondi and Fatuma Daudi	Improving Community Participation in the Preparation of Yala Wetland Indigenous Community Conservation Areas Management Plan in Kenya using the Yala Hub Framework
43.	Kirarei Ezra, Chepkoskei Silvia, Kosgei Brian, Chemoiwa Emily J., Eltolth Mahmoud, Mkrtychyan Hermine, Cole Jennifer, Rono Salinah J.	Microbial Pathogens Dynamics in Lake Victoria: Challenges, Implications, and Strategies for Mitigation
44.	O. K. Chibole, V. A. O. Odenyo, S. Mwasi1, E. K. Ucakuwun1 and L. Ngode	Linking Environmental Security, Water Security and Food Security for Sustainable Management of Chepkoilel-Sergoit Water Catchment
45.	Koech Alex	The Moderating Effect of Technological Innovation on the Relationship between Mobile Banking Accessibility and Financial Performance of SMEs in Kajiado County, Kenya
46.	Mukendwa Hosticks Ndozi, Linnet Gohole, Isaac Mapaure and Frederick Wanjala	Species Composition of Dung Beetles ( <i>Coleoptera: scarabaeidae: Scarabaeinae</i> ) in Wildlife and Wildlife-livestock Ecosystems in Namibia
47.	Philip K. Mwendwa	Climate Change and Water Scarcity Coping Strategies in Arid and Semi-Arid lands
48.	Kiptoo-Tarus Prisca	Psychology of Climate change and Biodiversity Conservation

### Annexure 6: List of Students who participated in the Mobile Apps Development Workshop

Name of App	Name of Student	Reg. No.	School	Brief Description of App
Carbocalc	Ekisa Joseph	BIT/050/22	Science	This app calculates the amount of carbon that tree species sequester and quantifies it in terms of money. It has formulas that can give the exact amount of carbon a tree can sequester and give its value in terms of money. We derived this from the global market that is dealing with carbon credit. The main aim of the application is to create awareness to people about carbon credit.
	Ashanet Atieno	FO/055/16	Environmental Sciences and NRM	
	Baya Jaji	FO/1006/22	Environmental Sciences and NRM	
	Kariuki Waitherero	FO/1005/22	Environmental Sciences and NRM	
	Magara Joseph	WRM/002/22	Environmental Sciences and NRM	
Ustawinest	Patrick Murimi	COM/012/21	Science	App developed in response to the alarming surge in Gender-Based Violence, Domestic Violence and mental health issues. Users can access mental health resources, connect seamlessly with therapists, and report cases of GBV, domestic violence, and child abuse to relevant authorities and loved ones effortlessly.
	Kimberly Amira	AST/002/21	Science	
	Branton Wekesa	ACS/067/23	Science	
	Geff Gitonga	ACS/010/21	Science	
	Sospeter Imuka	TED/149/23	Education	
Jengacost	Gerald Munene	CSE/017/19	Engineering	The app aims to revolutionize the conventional landscape of construction cost estimation. It aims at preventing fraud in the construction industry, time wastage in the estimation of construction costs, and complexity of construction cost estimation. Users input various parameters such as dimensions, material costs, and labor costs, and the app calculates the total cost of the construction project.
	Abigael Komen	TED/135/23	Education	
	Chelatan Martino	CSE/020/19	Engineering	
	Isaac Chirchir	CSE/013/23	Engineering	
	Keith Etyang	ACS/048/21	Science	
Streetkids	Ngolo James	ACS/073/23	Science	This app offers essential services like education, healthcare, and shelter, aiming to uplift the lives of vulnerable youth. Through user-friendly features, the app facilitates access to educational resources, connects users with healthcare professionals, and assists in finding safe shelters.
	Faith Ndululu	TED/010/23	Education	
	Justus Rotich	ESS/001/20	Environmental Sciences and NRM	
	Caroli Ikeling	BHO/041/22	Business, Economics and Management Sciences	
	David Moseti	ACS/028/23	Science	



Name of App	Name of Student	Reg. No.	School	Brief Description of App
LivinAI	Isaac Ondieki	BIT/023/16	Science	The app provides accessible, personalized wellness guidance and mental health support. It contributes to SDG 16 by ensuring trust in healthcare systems, connecting individuals with expert advice, and serving as a mediator for crime prevention. It also aligns with SDG 3 by ensuring access to healthcare, offering tools for health tracking, and providing personalized rehabilitation modules for substance abuse.
	Mackline Chepkirui	ACS/029/23	Science	
	Brain Kellyngstone	CSE/009/16	Engineering	
	Simon Kimeu	BIT/007/19	Science	
	Francis Ondieki	TED/018/23	Education	

## Wimbo wa Taifa

Ee Mungu nguvu yetu  
Ilete baraka kwetu  
Haki iwe ngao na mlinzi  
Natukae na undugu  
Amani na uhuru  
Raha tupate na ustawi.

Amkeni ndugu zetu  
Tufanye zote bidii  
Nasi tujitoe kwa nguvu  
Nchi yetu ya Kenya  
Tunayoipenda  
Tuwe tayari kuilinda

Natujenge taifa letu  
Ee, ndio wajibu wetu  
Kenya istahili heshima  
Tuungane mikono  
Pamoja kazini  
Kila siku tuwe na shukrani

## National Anthem

Oh God of all creation  
Bless this our land and nation  
Justice be our shield and defender  
May we dwell in unity  
Peace and liberty  
Plenty be found within our borders.

Let one and all arise  
With hearts both strong and true  
Service be our earnest endeavour  
And our homeland of Kenya  
Heritage of splendour  
Firm may we stand to defend

Let all with one accord  
In common bond united  
Build this our nation together  
And the glory of Kenya  
The fruit of our labor  
Fill every heart with thanksgiving.

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Office of the Deputy Vice-Chancellor (PRE),  
University of Eldoret  
P.O. Box 1125-30100, Eldoret, Kenya  
+254 788 232 004, +254 740 354 966  
info@uoeld.ac.ke

