# University Fundamental Statements

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<th>The Vision of Kenyatta University is to be a dynamic, inclusive and competitive centre of excellence in teaching, learning, research and service to humanity.</th>
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<td>Mission Statement</td>
<td>The Mission of Kenyatta University is to provide quality education and training, promote scholarship, service, innovation and creativity and inculcate moral values for sustainable individual and societal development.</td>
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<td>Identity Statement</td>
<td>Kenyatta University is a community of scholars committed to the generation and dissemination of knowledge and cultivation of wisdom for the welfare of society.</td>
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<td>Core Values</td>
<td>Truth, Creativity, Excellence, Self Reliance, Innovation, Equal Opportunity, Corporate Governance, Institutional Culture, Competitiveness, Academic Freedom and Respect for Diversity</td>
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This is the 4th issue of the Kenyatta University Research Bulletin – The Research and Innovation News! This publication is meant to celebrate the efforts, achievements and success stories by the Kenyatta University Management, Members of Faculty, Staff, Students as well as other key stakeholders in the research ecosystem. In this issue the Vice-Chancellor gives his vision about the future of research at Kenyatta University. In this publication, the Deputy Vice-Chancellor Research, Innovation and Outreach (RIO) highlight some of the key achievements we have made in research in the last 5 years.

The publication also covers a wide range of research activities, outputs and stories including but not limited to funded research and development programs, scholarly publication, dissemination of research findings and community engagements, incubations and visiting scholars.

We congratulate all of you for your support, efforts and achievements which are true to the Vision, Mission and Identity of Kenyatta University.
Strengthening the research and innovation ecosystem at Kenyatta University: A leap into the future

Q. What would you consider the future of Research at Kenyatta University?
   A. Research, as one of the core functions of the University, provides the basis for knowledge creation and preservation, ideation, invention and innovation leading to knowledge transfer. The University Management has continuously strived to create a thriving research environment that fosters innovation and attracts funding from international bodies. This has put KU at the forefront of attracting international funding and collaboration. The future of research leans towards increased collaborative research which not only leverages the resources available but also creates an impact across the entire ecosystem.

Q. What infrastructure has been put in place to support Research and Innovation in Kenyatta University?
   A. In the recent past, the research structure in the University has been streamlined by the establishment of support units such as the Research Support Office and the Chandaria Innovation, Incubation and University Industry - Linkages Directorate whose mandate is to collectively offer support to researchers seeking to understand specific issues relating to research, as well as to facilitate processes necessary for achievement and growth. This has been done with a view to enhancing the capacity of our researchers and students alike as well as to encourage innovation into the future.

Q. What would you say about the levels of research collaboration at Kenyatta University?
   A. Research collaborations are a key component to researchers as they enhance their skills and expand their networks. The ability to work with a team of people from diverse backgrounds, including different cultures sometimes, is in itself a good experience. On the other hand, collaborative research has become increasingly challenging because of the ever changing research environment. The need for interdisciplinary and multi-contextual research is on the rise, which demands that researchers and institutions be alert and prepare themselves for the requirements of these new and complex situations. Researchers who are already engaged in some of these arrangements understand the hurdles, while those who are planning to enter into collaborative research should prepare themselves adequately to avoid misunderstandings later on.
We have a very high level of research collaboration in all our disciplines and KU researchers are becoming more focused about the kind of collaboration they are getting into. We have improved our systems to process our collaboration agreements faster, with the result that more local and international organizations and institutions are seeking to collaborate with our researchers.

Q. How does Kenyatta University rank nationally in terms of Research?
A. Kenyatta University has consistently excelled in the annual webometrics rankings and is at the top in terms of academic research and innovation. And in moving forward our researchers are aligning their research agenda to the Big Four Agenda to maximize impact and relevance.

The ranking confirms the scholarly competitive edge the Kenyatta University has steadily maintained in the country, in Africa and the entire world. Over the years, it has established itself as a worldclass university offering programmes in diverse fields of specialization, and committed to scholarly excellence.

Q. What role does memberships in international Associations such as AAU, IAU, IUC play in the advancement of research and funding opportunities?
A. International memberships uniquely position the University faculty to collaborate and form partnerships with many organizations from the extensive global network. For scientists working in classified areas, collaboration with university programs and researchers provides opportunities to expand their career opportunities and strengthen their science through the conduct of peer-reviewed, open literature research. However the central theme is that such memberships enhance the quality of research.

Q. How does the University plan to tackle the challenge of Research Uptake?
A. There is no doubt that the University engages in high quality research, but there is little evidence that the research we do is effectively communicated to stakeholders to inform policy and decision making for impact at the local and national levels. To ensure that we are more impactful, we plan to improve our research communication strategies, adopt several communication mediums to ensure we reach all the key stakeholders in the research chain. We also intend to strengthen our networks as well as establish new ones to facilitate sharing of research results; encourage early and continuous stakeholder engagement during the lifecycle of the research and finally we shall continue to capacity build our researchers on aspects of research dissemination and uptake.

Q. What is your advice for early career researchers seeking to improve their chances of success in finding funding opportunities?
A. It is important to know the funding sources, the key people in these organizations, and upcoming opportunities and programme areas. This knowledge helps to build relationships and networks with the funding bodies. In addition, they need to expose themselves by working with senior colleagues to help build their portfolios, and enhance their ability to write competitive proposals. I encourage them to take advantage of the resources and structures in place such as the vibrant research webpage that always has up-to-date funding opportunities.

PROF. PAUL K. WAINAINA, Ph.D
VICE CHANCELLOR, KENYATTA UNIVERSITY
Q. In the 5 years that you have headed the Division of Research Innovation and Outreach, what would you consider to be your greatest milestones?

A. The past 5 years have seen tremendous growth in terms of establishment of important institutional policies, structures and systems with the aim of ensuring efficiency, effectiveness and accountability in conducting research among faculty, staff and students at Kenyatta University. With the support of the University Management and the Council, the Division has been able to put in place several policies and guidelines including but not limited to:

- Research and innovation policy
- Policy on development and operationalization of school research journals
- Policy on motivating staff to conduct research
- Policy on guidelines for preparation and presentation of inaugural lectures
- Guidelines on the Vice Chancellor’s Research grant

In addition, we have been able to establish and operationalize key offices to provide necessary support to members of the university community and beyond. These include:

- Directorate of Research Support and Dissemination
- Directorate of Innovation, Incubation and University-Industry Linkages
- University Ethics Review Committee

Q. What are some of the challenges that the Division faced especially that it had only been newly established?

A. The grant management process needed clear guidelines to streamline the pre and post grant administrative process. For a long time, focus has been on incubation of innovations, we are now focusing on commercialization of products for wealth creation. Dissemination and uptake of research output was initially slow but we have now addressed this matter and we are seeing the fruits of our work.
Q. What is the top priority of the Division of Research Innovation and Outreach?
A. Encourage and support Schools and Departments to prod their students to go beyond skills to development of prototypes towards commercialization of innovative products and services as well as emphasize the need for enhanced research uptake and dissemination. Capacity building in various areas of the research cycle is also a main focus in the Division.

Q. What strategies has the Division put in place to sensitize/inform researchers about available research and innovation funding opportunities?
A. An interactive research webpage was developed and is continuously updated with the latest information on research funding opportunities as well as other relevant information. In addition, there is regular communication to all faculty, staff and students to inform them of any new opportunities as they emerge.

Q. What would you say is the current level of research collaboration at Kenyatta University?
A. There is evidence of increased research collaboration between researchers from Kenyatta University and their counterparts in other institutions. This is not limited to the country and region but this collaboration is also global. Over this short span of time, we have seen an increase in the number of research collaboration agreements aimed at catalysing and facilitative research partnerships.

Q. Moving forward what are your future plans?
A. The Division with the support of the University Management and the Council is planning a number of things including but not limited to the following:

• Ensuring that each and every School and Department develops partner mapping and signs MoUs with them;
• Organizing the Kenyatta University biennial research and innovation conference in October 2019;
• Catalyzing preparation and presentation of inaugural lectures by full professors promoted at Kenyatta University;
• Organizing a research and innovation exhibition fair in 2019;
• Focusing on commercialization of innovative products and services

Prof. F. Q. Gravenir
Deputy Vice Chancellor (Research, Innovation and Outreach)
Selected Kenyatta University Research, Innovation and Outreach output: 2017/2018

- **Scholarly Publications - 2017/2018**
- **Research Uptake - 2017/2018**
- **Funded Proposals - 2017/2018**
- **Conferences Attendance by Faculty - 2017/2018**
RESEARCH NEWS
Kenyatta University researcher has teamed up with the University of the Witwatersrand (WITs) to improve power conversion efficiency of solar cells by advanced nanomaterials research. This follows award of a joint research grant worth R109,000, Ksh. 792,940 by the African Laser Centre (ALC). The 3 year project is being led by Professor Martin Ntwaeaborwa (PI) of the School of Physics at WITs and Dr. Raphael Nyenge of the Department of Physics at KU.

The project aims at synthesizing advanced luminescent nanomaterials that can be used in conventional Silicon Photovoltaic (PV) cells and organic solar cells to improve the photovoltaic properties and hence the general performance of the PV cells. This will be achieved by evaluating the down-conversion and up-conversion nanophosphors to improve the power conversion efficiency of conventional PV cells; assessing nanomaterials as electron extraction and hole blocking layers to improve the efficiency of organic solar cells and developing a model to predict the rate of photo-degradation in organic solar cell devices.

The use of nanomaterials is a concept that requires a multidisciplinary approach including synthesis and characterization of nanomaterials, modelling and device fabrication and testing. Dr. Nyenge visited Wits between 20th August and 3rd September to plan and familiarize with the equipment to be used. Apart from the provision of a clean source of energy, the project will also contribute in human capital development by facilitating exchange of students and staff from the two institutions.
Dr. Richard Oduor of the Department of Biochemistry, Microbiology and Biotechnology has partnered with researchers from University of Leicester and University of Birmingham, United Kingdom to launch a collaborative pilot study on Forensic DNA analyses. This follows a grant award by the International Research Development Fund for their project entitled, “Supporting Sexual Violence Investigation In Kenya Through Forensic DNA Reference Database’.

The project seeks to research on innovative approaches to investigating and prosecuting sexual and gender-based violence (SGBV) which is endemic not only in Kenya but in many other developing countries. A key issue that the project aims at addressing is the lack of access to DNA-based technologies that are routinely used in developed countries. Securing DNA evidence and the project’s innovation of self-sampling kits and male-specific profiling will greatly assist in addressing and resolving such SGBV crimes. In addition, the project aims at supporting investigations, prosecutions particularly in rising crimes of sexual violence, where determination of such cases requires rigorous DNA analyses and interpretations.

Early in the year Dr. Oduor who is the principal investigator of this project and a honorary visiting fellow at the University of Leicester until 2019, had a 2-week visit to Leicester where he was trained in human DNA extraction and male-specific DNA profiling for forensic application. In turn KU recently hosted a team of seven forensic scientists from University of Leicester and University of Birmingham, United Kingdom during which discussions on the broader aims and benefits of the project to the University and the country were held.
Designing solutions to quick and accurate diagnosis of cancer and its treatment taken on by KU scholars

Cancer continues to torment its victims unabated and has remained a mystery to the human mind and even to the science, causing conflicts about whether it is biological (hereditary), a medical or a chemical problem that requires a similar intervention. Increasing fatalities, overstretched health facilities and resources require a quick and less invasive diagnosis and treatment of cancer. After many years of research, new thinking suggests a paradigm shift that explores electrical anomalies exhibited by cancer cells for diagnosis, correcting functional disturbances and resistance.

Reports of characteristic differences between normal and cancer cells are a suggestion that electrical abnormalities could be indicators of the underlying mechanisms causing cancer. This is triggering an unprecedented research frontier, theories and ideas about the possible causes and lines of treatment for cancer. The possibility of how electrical characteristic of cells can inform diagnosis and treatment has reignited interest that Dr. Lawrence Ochoo of the Department of Physics and his team are keen to investigate. Their research involves designing and fabricating a pulse electromagnetic field based profiler that emits digital signals that can help in profiling a cancerous from a normal tissues thus significantly improving cancer diagnosis and monitoring of treatment progress.
Kenyatta University in partnership with University of Geneva and UNHCR recently hosted the 2018 Geneva Summer School. This is the first time such an event is being hosted outside University of Geneva and Europe. The University of Geneva annually hosts a summer school under the banner, “Geneva Summer Schools”. The main aim of the summer school is to foster an exchange of ideas and collaboration between faculty from different universities and students drawn from educational and professional organizations. The summer school is organized around thematic areas of global significance. The theme for the 2018 summer school focused on: “Higher Education In Crises And Emergencies, Prejudice, And Discrimination”. Learners covered 5 modules including:

1. International Law and Policies
2. Foundations of Digital Learning
3. Programme Design and Implementation
4. Research on Higher Education in Emergencies (HEiE) and Monitoring and Evaluation
5. Simulation and Capstone Projects

The Geneva Summer Schools use innovative learning approaches to facilitate knowledge sharing between professionals and faculty in whichever area of interest. Over the years Kenyatta University has been actively involved in the summer school on Higher Education in Emergencies. Several academic members of staff from Kenyatta University have benefitted from the summer school training. It is against this background that Kenyatta University was given the honor to co-host the summer school on Higher Education in Emergencies with United Nations Office Nairobi (UNON). The Summer schools which run for two weeks had its first week agenda held at KU from 10th to 16th September 2018 and was officially flagged off by the Vice Chancellor Prof. Paul K. Wainana. The summer school attracted participants from International Organizations, NGOs, UNHCR and faculty from several universities across the globe and will be held in two parts.
Kenyatta University is putting great emphasis on collaborations with industry to ensure relevance and impactful academic and research activities. One of the collaborative projects is with Osho Chemical Industries Limited (OCIL) on “Bioprospecting for potential biocontrol agents in Kenya and capacity building in crop protection”. The project is currently supporting 7 MSc students who are conducting research aimed at identifying fungal and bacterial organisms and plant extracts that have high potential for use in biological control of the multiple diseases and pests attacking crops of major economic and food security importance in Kenya and other countries in the region. The potential impact of this project is significant, with a footprint across 13 of 47 counties in Kenya (27%) and targeting diverse crops and multiple pests.

The university is excited about this mutually beneficial collaborative project and has put in place the necessary mechanisms to strengthen and sustain such partnerships. The KU- Osho project is implemented at the School of Agriculture and Enterprise Development and is coordinated by Prof. Waceke Wanjohi.
The Japanese dodder (cuscuta japonica) is master of deceit, at a glance it presents itself as an enviable canopy that most people want to have around their homestead. Unknown to most the pleasant looking plant is a destructive weed that presents itself as a yellow vine with no leaves or roots for nourishment. The weed winds around the stem and branches of the host plant and spreads rapidly covering the whole plant with a mass of vines and giving a spectacular yellow canopy to the host plant prior to strangling it to death.

The plant has a wide host range and infects many plant families but is mostly seen on yellow oleander trees – which are used as hedges in rural homesteads or bougainvillea – used in urban landscaping before it invades the farm crop. The weed goes by many aliases namely the strangle weed, devil’s hair, hail weed, witches’ shoe laces among other others. Locally the weed is referred to as: “thena” or “kieha” in Gikuyu which directly translates to problem or grief respectively. The Akamba people also call it “kyeva” which also mean grief while in the western region some farmers are calling it the “HIV of plants.”

Dodder latest threat to food security, KU’s researchers investigate
The weed is fast becoming a threat and a cause of concern to farmers across the country. Its rapid spread has been facilitated largely by its stunning appearance, lack of knowledge among farmers and shortage of scientific control mechanisms. Dr. Steven Runo, a senior lecturer at the department of Biochemistry, Microbiology and Biotechnology who leads a research group that studies various parasitic plants such as Striga that trouble farmers around the country has picked up on the dodder menace. The group is currently studying dodder with the aim of determining factors and patterns of its spread, its genetic diversity and source of introduction in the country as well as its potential to spread into crops of economic importance such as tea, coffee and fruit trees. The ultimate objective of the group is to contribute in providing scientific control mechanisms of eliminating the threat before it becomes an epidemic. Dr. Runo compares the dodder to the dreaded striga ‘witchweed’.

The study on dodder was started with an undergraduate student (Beatrice Njoki Mwangi) at the KU’s Plant Transformation Laboratory (PTL) in a research project unit in Biotechnology. Beatrice studied the various species of dodder by looking at the floral structures as well as the mechanisms with which the parasite is able to obtain food and nutrients from other plants. After her work, PhD students at PTL (Joel Masanga and Willy Kibet) are now studying dodder’s genetic relatedness as well as factors that favor its spread.

Dr. Runo’s team echoes other researchers that concerted effort is required to help sensitize farmers on ways of managing the invasive weed as it is largely spread by human and animal activity as most people propagate the weed thinking it is a flower. Currently the sole mitigating strategy of dealing with the potentially disastrous plant is physical removal of the weed and burning them as well as discouraging the picking of vines from areas where the weed exists to prevent its spread.

The invasive plant giving farmers sleepless nights

SATURDAY NOVEMBER 3 2018

Kenyatta University biotechnologist, Willy Kibet examines a plant infested with the Japanese dodder. The Kenya Plant Health Inspectorate (Kephis) terms Japanese dodder as the most destructive weed, with researchers saying it is heightening apprehension among farmers as it attacks and kills both trees and crops. PHOTO | PIUS MAUNDU | NMG
Collaborative learning in biodiversity a two-way North-South mobility

The Department of Plant Sciences, Kenyatta University under the leadership of Dr. Emily Wabuyele, in collaboration with University of Oslo, Norway, Addis Ababa University, Ethiopia, Makerere University, University of Zimbabwe and Ethiopian Biodiversity Institute under a project funded through the Norwegian Partnership Programme for Global Academic Cooperation (NOPART) are implementing a project titled: ‘Collaborative learning in Biodiversity, Excellence in Education through Two-way North-South Mobility.

The project seeks to significantly improve the quality of plant biodiversity education at University of Oslo (UIO) and partner institutions outside Norway, this will be achieved through establishment of new courses and improvement of existing ones as well as exchange of experiences in teaching; establishment of a joint course in plant conservation, with ECTS credit transfer for participating students; to enhance mobility of MSc and PhD students from partner countries to Norway and partner countries, respectively and internationalization at home for non-mobile students through invited lecturers, and taking joint classes with mobility students. Kenyatta University has established an MOU & MOA with the University of Oslo, Norway to guide the activities of this partnership.

In May 2018, lecturers and students of Kenyatta University and the University of Oslo undertook a two weeks joint intensive field course in the Taita Hills, Kenya. Kenyatta University students (MSc & PhD) on the NORPART scholarship will be funded for their field work and subsequently two to six months stay in Norway to pursue courses of interest as well as laboratory analysis of their samples for research work.

Standing: Dr. ShakkieKativu (University of Zimbabwe); Prof Brita Stedje (University of Olso, Norway); Prof. SebsebeDemissew (Addis Ababa University, Ethiopia); Dr. ClemenceZimudzi (University of Zimbabwe); Dr. OmwoyoOmbori (Kenyatta University, Kenya);
In front: Dr. TigistWondimu (Addis Ababa University, Ethiopia); Dr. Charlotte S. Bjorå (University of Olso, Norway); Dr. Emily Wabuyele (Kenyatta University, Kenya); Dr. Hugo de Boer (University of Olso, Norway).

Students and researchers from University of Oslo, Norway & Kenyatta University during a two weeks joint field course in the Taita Hills, Kenya.

Students and researchers from University of Oslo, Norway & Kenyatta University during a two weeks joint field course in the Taita Hills, Kenya.
Kenyatta University is part of a Global educational exchange program for students in health disciplines called, the Educational Commission for Foreign Medical Graduates (ECFMG) which is a private, not-for-profit organization with a mission and vision to improve world health through excellence in medical education in the context of ECFMG’s core values of collaboration, professionalism and accountability. ECFMG’s mission is realized through its foundation – the Foundation for Advancement of International Medical Education and Research - FAIMER®. ECFMG extends its mission through its service program GEMx, by offering medical elective exchanges to students in medicine and the health professions.

The KU programme is headed by Dr. Titus M.Kahiga who is a lecturer in the school of pharmacy. An experience as told by Prudence Baliach one of the two students that were selected to join an elective program in Ireland.

“My trip to Limerick, Ireland was one of the most fulfilling journeys I’ve been on. The beautiful, serene environment and the wonderful Irish people will forever be engraved in my memory.

I got selected as one of three winners worldwide to attend a medical exchange elective at the University of Limerick facilitated by the Student Network Organization (SNO) and the Global Educational Exchange in Medicine and the Health Professions (GEMx) from 30th July to 14th August at the University Hospital Limerick. My experience there was remarkable and I acquired extensive and practical knowledge. I was on a renal rotation with a medical team that was very supportive, interacted with patients thus actively taking part in their recovery process.
I visited the hospital’s main pharmacy and learnt about their prescribing patterns, drug therapy monitoring, and the preparation of antineoplastic formulations for cancer patients. I got a chance to visit the dialysis units (peritoneal and hemodialysis) and attended a few multidisciplinary clinical cases discussions.

After the elective, I attended the Towards Unity for Health Conference with the theme: “Community Empowerment for Health: A multi-sector approach” that was held on 16th to 20th August 2018 at the University of Limerick. I was able to develop global networks with many health professions and students from different medical fields and this created a platform to learn about how other countries have solved certain problems in their healthcare system. I attended the plenary sessions and workshops that were facilitated by very learned and experienced people and this gave me so much knowledge and ideas on how to conduct community outreach programs and few strategies my country could use to improve its healthcare system. From one of the workshops, we came up with an organization known as the World Interdisciplinary forum for healthcare (WIFH) that comprises of student leaders from different countries and various medical disciplines committed to engaging in the community.

I also got a feel of Ireland’s serene and laid-back culture, fascinating history and the spectacular landscapes.

This to me was a very significant experience that had me engaged and inspired. I believe that I gained maximally from this elective and I’m definitely looking forward to having and sharing with my colleagues—such life-changing opportunities.”

**Prudence Chepngen Baliach.**
4th Year Pharmacy Student, Kenyatta University

Prudence Baliach enjoying the scenery and history of Ireland
KU students win travel grants to the FOSS4G summit 2018

Three Kenyatta University 4th year students (Ondieki Kerubo Vivian, Aol Anne and Magige Mwita) from the Department of Environmental Planning and Management received travel grants to attend the Free Open Source Software for Geospatial (FOSS4G) HOT Summit 2018 held in Dar-es-Salaam, Tanzania from 25th August 2018 to 2nd September 2018. The 3 students who are the founders of Kenyatta University GIS Club (KUGISC). The students made presentations on the following research topics:

- Mapping forest cover using remote sensing and mobile GIS: A case study of Kenyatta University (James Magige)
- Agricultural drought monitoring in Kenya and its implications on the maize yield productivity: Case Study of Trans-Nzoia County (Vivian Kerubo).
- Assessment of floods impact on community livelihoods in Kisumu County (Anne Aol).

The annual FOSS4G conference is the largest global gathering focused on open source geospatial software and draws participants from over 40 countries bringing together developers, users and decision-makers. The programme recognizes exemplary works of current undergraduate and graduate students majoring in disciplines that leverage on open source geospatial tools and technology. The students worked under the guidance of the KUGISC Patron Prof. Simon Onywere.

From Left: Ondieki Kerubo Vivian, Magige Mwita and Aol Anne
A key focus area of the KU Strategic and Vision plan is to develop skills of staff and postgraduate students to enhance capacity for research excellence. The Division of Research, Innovation and Outreach is currently rolling out a capacity building and training plan which is being implemented through the Directorate of Research Support and Dissemination (RS & D). The training aims at addressing gaps in diverse skill areas including grant proposal writing, projects management, research dissemination, partnerships coordination, research supervision and mentorship, among others. To fulfil this mandate the Directorate of RS&D organized trainings on “Designing Effective Power Point Presentations” on 15th October 2018 and “Preparing scientific posters” on 16th October 2018.

The first seminar addressed guidelines on packaging and order of information on slides, integration of tables and selection of visually captivating graphics, oral delivery skills, e.g. stance, voice, gestures etc. Seminar two addressed poster design software, formatting, printing options, and poster presentation skills. A total of 178 participants attended seminar 1 and 95 attended seminar 2. The workshops were facilitated by Prof. Joy Obando of Geography Department and Dr. Fridah Kanana of Department of Literature, Languages and Linguistics were delivered through practical and interactive sessions where participants worked in groups to develop slides and posters that were presented and critiqued in plenary. The skills acquired will enable KU researchers to more effectively disseminate and share research findings to a broader range of target audiences. The Directorate is working with schools and departments to provide a variety of research skills development courses and encourages KU researchers to look out for upcoming training opportunities.
Restructuring for improved efficiency and accountability in the Division of Research, Innovation and Outreach

The Directorate of Research Support and Dissemination core mandate includes:

- Source for and provide information on funding sources and requirements.
- Organize and conduct proposal writing workshops.
- Coordinate the development of large, multi-disciplinary university research proposals.
- Coordinate internal review of grant applications in response to funding announcements.
- Oversee reporting of research progress and funder satisfaction on project completion.
- Coordinate the establishment of university research skills and capacity inventories.
- Organize training to update staff knowledge and skills on research methods.
- Building research capacity of academic staff to enhance teaching and supervision of postgraduate students.
- Develop and strengthen research partnerships nationally and internationally.
- Work closely with directorates, departments, schools & colleges to enhance research in KU.
- Support researchers in framing their research problem and aligning it with evidence base.
- Strengthen the capacity of researchers to engage in demand-driven research that responds to, and supports the need of the public and the private sector in their daily work.
- Build the capacity of researchers in collaborating with the public and the private sector to generate essential information and to encourage active sharing, and identify pressing priorities.
- Support researchers in creating targeted messaging (e.g. policy briefs, press releases) emphasizing the role of research evidence in contributing to better programmes and improved interventions.
- Turn research evidence into compelling stories, that have the likelihood of influencing decision-making.
- Support researchers to pursue personal contacts with practitioners and built trust from personal relationships, thus connecting research and practice.
- Dissemination of research findings and research outputs.

Directorate of Research Support and Dissemination

Dr. Maina Mwangi
Director, Research Support and Dissemination
The directorate of Innovation, Incubation and University-Industry Linkages is mandated to stimulate innovation among our students, staff and the public: pursue collaborations between the University and various industries for purposes of skill development, innovation and technology transfer and to spearhead protection of different forms of Intellectual property generated at the University. Specific mandates include:

- Ensure compliance of the Intellectual Property Policy within Kenyatta University’s campuses and in all collaborative Research and Development arrangements with other partners
- Create awareness within the University community on IPR issues, including the importance of protection where relevant.
- Receive and evaluate innovation disclosures and, where possible seek appropriate protection either, within Kenya, the African continent and beyond.
- Liaise with relevant bodies to steer the incubation of protected innovations towards viable commercial entities and, when and where appropriate, nurture local entrepreneurs to spearhead production and marketing of the products.
- Blend academic training and research with entrepreneurship
- Motivate Kenyatta University’s staff, students and others towards being innovative and entrepreneurial
- Utilize Public-Private-Partnerships (PPP) in achieving the mission of the university
- Provide high level professional mentorship to incubates
- Provide adequate and excellent facilities for the incubates to develop their ideas
- Seek funding to support incubation activities
- Provide a model business and innovation incubator reputable locally and internationally.
- Strengthen the link between University and the private section locally and internationally
- Coordinate good will activities between the University and Industry
- Explore sources for motivational awards and the corporate sector.
- Spearhead the process of starting and developing Industrial/Technology Research Parks at the University
- Ensure product support research once products, technologies and innovations are in the market
- Liaise with industries to provide Excellence Awards to our excelling students
- Ensure the development of Science and Technology programmes by liaising with relevant Chairman of Departments and Deans of Schools.
The Kenyatta University Ethics Review Committee (KUERC accredited by the National Commission for Science, Technology and Innovation (NACOSTI) is tasked to conduct ethics review of protocols in Biomedical, Environmental Sciences, Social and Physical. The committee recently revamped its secretariat to enhance service delivery and facilitate ethical compliance among researchers.

The objective of the KUERC is to safeguard the dignity, safety, wellbeing and rights of the research participants. The roles of the committee include:

- Review and clear proposed research before commencement
- Provide independent and timely review of the ethics of the proposed research
- Review the adequacy of the informed consent documents particularly the description of the risks and benefits
- Act in the interest of potential research participants and concerned communities
- Ensure regular evaluation of the ethics of ongoing studies
- Evaluate reports for unanticipated problems, possible noncompliance and other information and or incidents that might affect approval of a protocol

Prof. Judith Kimiywe
Chairperson, Ethics Review Committee
A dan Mohammed an innovator at the Chandaria Business Innovation and Incubation Centre was feted once again at the latest edition of the African Entrepreneurship Award for his innovation that entails recycling kitchen waste to produce chicken feed, fish meal and organic fertilizer. The 12 winners were from nine African countries, Mr. Mohammed's enterprise Ecodudu, which produces two products; Dudumeal, an insect-protein based animal feed and, with the remaining biomass, Dudusoil, a 100% organic fertilizer and soil conditioner was selected among four others in the environment category.

Winners were picked based on the impact of their sustainable projects, which were based on education, environment and unchartered fields categories. Ecodudu prevents the dumping of biomass into landfills and incentivizes more efficient collection. They recycle biomass before it finds its way to landfills, thus helping to reduce methane emissions additionally, fish which serves as a major source of animal feed, results to drastic over-fishing on Kenya's lakes.

Ecodudu provides a more sustainable solution for both problems. This wisdom in providing solutions that result in production of high quality protein for animal feeds, 100% organic fertilizers, while protecting the environment was lauded by the Presidential Jury in addition to the affordability of the products

With the $100,000 from the African Entrepreneurship Award, Ecodudu has scaled his collection of biomass and increased his larvae production, as well as create more employment opportunities.
The interactive virtual mentor: Help! The Mother is bleeding

The interactive virtual mentor is an Innovation by a team led by Dr. Antony Wanyoro of the Department of Obstetrics/Gynaecology which aims at empowering frontline health workers to optimize patient care through voice-activated decision support tools. The focus of the innovation is on the care of women during obstetric emergencies such as post-partum hemorrhage which is the commonest cause of direct maternal deaths accounting for more than 300,000 deaths every year or 800 per day. The innovation which is geared towards helping contribute to the Government's Big Four Agenda and Sustainable Development Goals (SDG) especially SDG 3 aims at ensuring that mothers who have complications during delivery receive early intervention with the correct first-line actions immediately after diagnosis.

The virtual mentor idea was mooted upon realization by the team that health workers need decision support to implement the most up-to-date, evidence- and place-based treatment protocols, especially during emergencies such as when women start bleeding after delivery when every second counts.

The team is in the tech development phase and has received seed grant support from Johnson & Johnson Gen H Challenge from the USA to develop the prototype and from Saving Life’s at Birth (SLAB) towards improving the prototype and field testing. Once functional the virtual mentor will provide real-time computer decision support to frontline health workers via voice-activated, AI-supported Chatbots to guide health workers through the correct actions to take during an obstetric emergency.

The Team

Anthony Wanyoro, an obstetrician - gynecologist & senior lecturer at KU passionate about reducing maternal mortality in Kenya, starting with improved management of postpartum hemorrhage
Tony Maitz

Dilys Walker is an obstetrician-gynecologist and professor at University of California, San Francisco (UCSF) Institute for Global Health Sciences.

Hannah Park

Hannah Park is deputy director of the Maternal-Newborn-Child Health Cooperative at UCSF Institute for Global Health Sciences and supports strategy and operations.

Tiffany Lundeen

Tiffany Lundeen is a certified nurse-midwife with frontline health experience of the frontline health & is committed to standardization of best patient care protocols to broaden each health worker’s scope of practice while improving patient safety.

Tony Maitz

Tony Maitz is a product designer at ThoughtWorks, Inc., an international software consultancy; committed to improved maternal-child health care access for all.

SAVING MOTHERS’ LIVES during child birth

“Post-partum hemorrhage is the commonest cause of direct maternal deaths accounting for more than 300,000 deaths every year globally”
Kenyatta University partners with the Kenya National Innovation Agency (KENIA) to catalyze impactful innovations

Kenyatta University has partnered with the Kenya National Innovation Agency (KENIA) to provide incubation services to grant award recipients/start-ups. The five innovators will receive a total of KShs. 33 Million to enable them commercialize their innovation they include Auto truck East Africa Limited.

- Savika Biojiko: An institutional cook stove designed to use pellets or briquettes made of bio-waste
- Pediatric Hip Spica Table with Extension Traction
- Tambu App: A mobile application solution to detect counterfeits.
- Auto-Truck E. A. Ltd: A Motorized Battery Powered Electrical Handcarts Plus Farm Agribusiness

Savika Biojiko

Hip Spica Table with Extension Traction

A Motorized Battery Powered Electrical Handcarts
Mr. Zacharia Kimengich a beneficiary of the Kenya National Innovation Agency (KENIA) Programme who is currently being hosted at the Chandaria Business Innovation and Incubation has developed a Hip Spica Table with Double extension Traction that was born out of intense research on orthopedic and trauma fracture management among the children of 6 years and below. Mr. Kimengich and Dr. Kamau Njoroge together with their colleagues at the Orthopaedic department of Kenyatta National Hospital had a great challenge on the management of fractures especially with children with hip, femur (thigh bone) and tibia injuries, because they lacked better equipment to handle such injuries.

Prior to the innovation they used archaic and outdated equipment that was very hectic to handle and contributed to increased pain and discomfort on the patients. The Hip Spica table with double extension traction provides counter traction and it is adjustable and movable to suit the size of the body of the patient. The adjustable extension traction holds the foot firmly thus providing the counter traction for optimal bone alignment. The Hip Spica table was launched during the Kenyatta University Industry Conference held on 1st November 2018 at Safari Park Hotel & Casino.

After Innovation - Benefits
- Optimal bone alignment on 99% of patients -No more shortening of limbs
- Reduced turnaround time on fixing the fracture on one patient
- Managed to reduce the cost of fracture health care cost
- Reduced admissions to the wards for femur & tibia fractures

Prior to Innovation –Challenges
- Shortening of the limb among the injured children
- Increased health care cost
- Deformity of the bones due to poor bone alignment
- Permanent Disabilities
- High patient admission
The Directorate of Innovation Incubation and University - Industry continues to support innovators obtain Intellectual Property (IP) and commercialize the same as well as work with KU to produce cutting-edge innovations. Other new innovations that are registered at the Kenya Industrial Property Institute as utility models include:

- Smart Token Electric Meter-KE/UM/2018/001017
- Portable Ultrasound Machine with Learning App - KE/UM/2017/777
KU Scholars
win research and development grants

Prof. Grace Wamue Ngare

prof. Grace Wamue - Ngare (pictured Left) of the Department of Sociology, Gender and Development Studies and Ms. Mary Mwangi of the Department of Biochemistry, Microbiology and Biotechnology are part of a consortium that has won a 730,000 Euros (Approximately Ksh. 85,352,757) research grant under the 2017 LEAP-Agri competitive call for a project titled: Phenotyping the Banana Biodiversity to identify Climate Smart Varieties with Optimal Market Potential in Africa - CLISMABAN.

CLISMABAN aims to exploit the existing genetic resources of banana to select climate smart varieties that can be resilient to drought and other banana production constraints. The consortium also aims to strengthen the partnership between scientists, gender-integrated banana farmers, consumers and in general all stakeholders of the banana value chain in order to facilitate the different stages of the product development.

The other consortium partners include Belgium (University of Ghent, International Plant Biotechnology Outreach (VIB, Ghent University), Liège University, University of KU Leuven, Uganda National Agricultural Research Laboratories (NARO) and Instituto Canario de Investigaciones Agrarias ICIA (Canary Islands, Spain).
Dr Lucy Kiruri

Dr. Lucy Kiruri, (pictured) a Lecturer of Physical and Computational Chemistry in the School of Pure and Applied Sciences (SPAS), and also a Regular Associate of the International Center of Theoretical Physics (ICTP) has received an ICTP grant of €20,000 to host a School on Biophysical Approaches to Macromolecules and Cells: Integrated Tools for Life Sciences and Medicine (SMR 3323) from 9th to 20th September 2019 at Kenyatta University. The initiative is part of the broader Kenyatta University – ICTP relationship. ICTP has a long tradition of scientific capacity building in developing countries and has for many years supported numerous activities including training programmes, networks, and the establishment of affiliate centres.

The other co-principals of the grant, Prof. Ali Hassan Ali (ICTP), Prof. Silvia Onesti (Elettra-Sincrotrone), and Prof. Loreada Casalis (Elettra-Sincrotrone) will together lead this activity. The aim of the school is to introduce graduate students to the latest developments in the fields of molecular biophysics, structural biology, nano-biophysics, nano-medicine, and single molecule approaches, which are having a revolutionary impact in biotechnology, pharmacology, drug delivery and early diagnostics of wide spread diseases.

The school will be spearheaded by a team of academicians and researchers who are experts in the above-mentioned research areas. They will provide a two-week intensive lectures and hands-on sessions to young scientists mainly from Kenyatta University and Africa at large. The team is keen to make these activities an annual event with the aim of establishing and sustaining linkages/collaborative research and exchange programs.
Dr. Ezekiel Mugendi Njeru of the Department of Biochemistry, Microbiology and Biotechnology, recently received a state-of–the-art, Leica DM 1000 digital Microscope valued at about Kshs. 750,000 from The World Academy of Sciences (TWAS), Research grant programme in basic sciences. The TWAS funded project is titled *Management and conservation of arbuscular mycorrhizal fungi for improved soil fertility and crop production in Kenya*. The microscope will be of great benefit to members of staff and postgraduate students, working on research areas that require high quality photomicrographs.

Dr. Kenneth Ngure of the department of Literature, Languages and Linguistics was a beneficiary of the Association of Commonwealth Universities (ACU) Early Career Academic Grant, 2018. The annual grant is designed to support early career professionals working at ACU member institutions by enabling them to participate in a conference held in a commonwealth country other than their own. The Grant facilitated Dr. Ngure’s participation at the 12th Conference on Hunting and Gathering Societies in Penang, Malaysia where he presented a paper titled: *A Rose by any Name would not do; Grappling with Change of Ethnonym among the Waata of Northern Kenya*. 

The Association of Commonwealth Universities

Early Career Academic Grants

Dr. Ezekiel Mugendi Njeru

Dr. Kenneth Ngure
Dr. Mary Makokha of the Department of Geography secured a grant of USD 12,000 from the International Foundation of Science (IFS) in support of the project titled Evaluating The Effect Of Produced Water On The Water Quality In Oil Production Fields: A Case Study Of Lokichar Oil Fields, Northern Kenya.

During oil extraction water is produced as a by-product which normally contains many pollutants including heavy metals. With the extraction of oil being of primary concern little attention if any is being given to the toxicity levels of the water resulting from the oil extraction and this produced water often ends up in the temporary water ways that experience flash floods in the rainy season. At the moment no monitoring data on the toxicity level is available. The research project will cater for this gap and seek to characterize produced water and assess its impact on the quality of water resources using laboratory and socio-economic methods. This is a crucial activity more so in generating baseline data for planning, managing, monitoring and maintaining the Lokichar basin. The project will run for 3 years to 2020.

Prof. Chris Shisanya of the Department of Geography is representing Kenyatta University through the SLEEK Secretariat in the Consortium that consists of Ministry of Environment and Natural Resources, Climate Change Directorate, Vital Signs Programme and The Green House Gas Management Institute as implementing agencies to a project titled Strengthening National Capacity In Kenya To Meet The Transparency Requirements Of The Paris Agreement And Supporting The Coordination Of National, Regional And Global Transparency-Related Activities In Kenya. The project has secured funding totalling to USD 2,154,500 from the Global Environmental Facility (GEF), Conservation International (CI), Government of Kenya (GoK), and The Greenhouse Gas Management Institute. The project seeks to enhance the SLEEK system in Kenya to ensure compliance with the Paris Agreement Transparency Requirements. The project outcomes include:

• Strengthened national institutions in Kenya for transparency-related activities in line with Kenya’s national priorities
• The System for Land-Based Emission Estimation in Kenya (SLEEK) strengthened and to assist with improvement of transparency over time
• The coordination between national, regional and global transparency related activities in Kenya enhanced
Dr. James Kilika
Lecturer & Researcher in Management
Department of Business Administration

The Danida Fellowship Center has accepted a proposal for funding of the GECKO Project. The project investigates Green Circular innovation and business development among 34 Kenyan manufacturing companies based in the Ruaraka Industrial Zone in Nairobi County. The project has attracted a research grant of DKK 174,400 (Kshs 2.7M) for KU through the department of Business Administration represented by Dr. James M.Kilika as the lead researcher on business symbiosis case at both the firm and interfirm levels. GECKO is collaboration among several institutions: Technical University of Denmark (DTU), Kenyatta University, University of Nairobi (UoN), Kenya Industrial Research Institute (KIRDI), Ruaraka Business Community (RUBICOM) and Aquaporin. The other researchers in the project are Prof. Maj Munch Andersen, Prof. Nick Ogunge and Dr. Kevin Khisa of DTU, UoN and KIRDI respectively. It is a two year project that seeks to investigate green and circular business development at the firm and interfirm levels, circular governance analyses at local and central levels, testing feasibility studies of selected circular technical innovation at the firm and interfirm levels among the 33 manufacturing companies in Ruaraka.

The expected outcomes of this project include developing a customized green circular screening tool, clarification of circular symbiotic business cases from a developing country context, identification of natural, local and ecopark level efficient governance systems, development of an algorithm for designing efficient symbiotic based production systems for overall resource efficiency and publishing several scientific papers. The project feeds into the Strategic Sector Cooperation (SSC) Program on Green Growth in the manufacturing sector in Kenya initiated by the Royal Danish Embassy in Kenya that seeks to promote sustainable clean production in partnership with the Ministries of Environment and Industrialization.
Dr. Joseph Wasonga (pictured) from the department of Diplomacy and International Relation, has been awarded a grant by the Knowledge Management Fund for his project titled **International Academic Conference: 20 years since the Rome Statute - The Status of International Rule of Law and Access to International Criminal Justice**.

Further, the project will seek to enrich academic dialogue between academics and practitioners based in African Institutions and organizations with their counterparts from other parts of the world, strengthen dissemination of evidenced based research papers as well as sustain partnerships on conducting joint research and mentorship.

**Justice in Africa.** The projects overarching objective is to contribute towards the development of effective, accountable and transparent rule of law institutions at national and international levels such as equal access to justice.

The action proposed under this fund is to organize a two day International Conference under the theme ‘20 years since the Rome Statute: The Statute of International Rule of Law and Democratic Governance in Africa’. This conference will create a platform to enrich the on-going dialogue on the challenges and future of the international criminal court particularly the dialogue between those who view themselves as pro and against international criminal justice.
Kenyatta University has been competitively awarded a USD 100,000 grant by the MISK Grand Challenges in its first round. There were approximately 3,000 Misk Grand Challenges proposals submitted in Round 1, with 15 awards made, one of which was to the project led by Dr. Lucy Kathuri-Ogola entitled **Enhancing Community Food Security in Urban and Rural Areas through Outreach Youth Champions (EFSOYC)**. The project Co-Principal Investigator is Dr. Joan Kabaria-Muriithi. The two dons are from the department of Population Reproductive Health and Community Resource Management.

In pursuit of SDG 2, the Kenya Government Big Four agenda on Food Security and the Science, Technology and Innovation Strategy for Africa (STISA-2024) priority area on Eradication of Hunger and Achieving Food Security, the project adopts an innovative and participatory approach to contribute to enhancement of food security. The pilot project will leverage on the potential of youth drawn from Kenyatta University to drive food security efforts in their local communities by using an Outreach Youth Champions (OYC) model and existing community structures.

The project will build a network of youth leaders and change agents as champions in promoting best agribusiness practices and food security initiatives in urban and rural communities. Consequently, the project intends to achieve dual outcome: One being enhancing food security for urban and rural communities and creating a network of youth leaders driving food security efforts in their communities. The second, is development and utilization of a Mobile phone app and an online platform for training, knowledge sharing and follow up for OYC and project participants. Upon successful implementation of the pilot it is envisaged that the OYC model will be scaled up to other universities and technical colleges during the next phase. The total grant funding is US$ 100,000.
VISITING SCHOLARS
The Department of Microbiology recently hosted a senior researcher, Prof. T. S. Suryanarayanan from VINSTROM, RKM Vidyapith, Chennai, India, courtesy of TWAS visiting fellowship. Prof. Sury is a renowned researcher working on fungal endophytes which are known for their metabolites biotechnological potential in industrial application. Fungal endophytes are an ecological group of fungi that reside in the aerial tissues and roots of plants without inducing any visual symptoms of their presence.

Their biotechnological potential has in the recent years sparked intense study more so in protecting plants against diseases, being a rich source of a wide range of bioactive compounds, the endophytes can be used for application pharmaceutical application in industries. The faculty and students from the school of Pure and Applied Sciences were taken through a two weeks training on endophytes, in both practical isolation and screening for metabolites. All the participants were challenged to venture into this exciting area of research that has had little attention so far, in spite of its potential in developing a wide range of bioactive compounds and enzymes which will be of importance in industrial, agricultural and pharmaceutical fields.

From this new collaboration in the department, it was agreed that there is need to initiate research on endophytic fungi especially in our set up as a tropical country where the plant diversity is known to be high. It is expected that endophytes from such geographic locations would be housing many novel genes which could be exploited for different applications; an effort if expanded to the rest of the tropical countries could enhance the bioeconomy of these countries.
Prof. Smucker is a geographer who specializes in the interactions between the environment and social development in East Africa. At Ohio University, he teaches courses in human and human-environment geography, including Human Geography, Global Issues in Environmental Geography, Geography of Hunger and Food Security, and Theories of Development. His recent research has examined livelihood diversification and food security, household and community strategies for coping with drought, and the implications for social development in pastoralist and agro-pastoralist communities. From 2010-2015, he served as PI of the NSF-funded Local Knowledge and Climate Change Adaptation Project (LKCCAP), a collaboration of Tanzanian and US scholars that examined geographical inequality and interdependence in adaptive capacity to climate change along four altitudinal gradients in northern Tanzania.

During the 2018/19 academic year, Prof. Smucker is pleased to join his colleagues at the Department of Geography as a Visiting Researcher. During his time at KU, he will be engaged in several activities. He will undertake new research on barriers and bridges to greater integration among drought risk reduction, climate change adaptation, and land restoration capacities at county level in Kenya and district level in Tanzania. Secondly, he will provide research advising on postgraduate student research projects in his area of specialization. Lastly, Prof. Smucker will explore possibilities for furthering research and teaching collaborations between Kenyatta University and Ohio University faculty.
Dr. Harrison T. Muturi, Senior Research Scientist, Ohio University, USA a visiting Scholar was hosted by Dr. James O. Ogutu, Chairman, Department of Pathology, Kenyatta University-scholar under the Carnegie African Diaspora Fellows Program (CADFP). This follows the competitive selection of their collaborative research project titled: Role of CEACAM-1 in Type 2 Diabetes, Cardiovascular Complications and Non-alcoholic Fatty Liver Disease (NAFLD) and Strengthening of Metabolic Medicine in the Medical Curriculum.

During his 60 days visit at the department of pathology Dr. Muturi helped initiate the research on type-2 diabetes mellitus and related metabolic complications. The research which is expected to cover many aspects of metabolic syndrome is currently focusing on the role of CEACAM-1 protein in pathogenesis of these metabolic conditions. Dr. Muturi was instrumental in the initial optimization of experimental protocols and machines and in the training of technical staff and graduate students on the implementation of the laboratory experiments plan.

Another aspect of the project undertaken was the review and strengthening of metabolic medicine content in the current medical curriculum. Dr. Muturi led in the discussions and meetings with important stakeholders where many actionable suggestions and recommendations for improvement were documented. Dr. Muturi also took part in the Departmental Seminar attended by medical students and staff where he presented a talk entitled “The role of liver tissue dysfunction in the pathogenesis of metabolic syndrome”.

Dr. James O. Ogutu, Chairman, Department of Pathology (L) and Dr. Harrison T. Muturi, Carnegie African Diaspora Fellow and Senior Research Scientist, Ohio University, USA (R) conducting an ELISA analysis in the Histopathology laboratory.

Dr. Harrison T. Muturi (R) (Senior Research Scientist, Ohio University, USA) training technical staff on molecular aspects of the experiments.
Shortly before Dr. Muturi’s arrival, the Department of Pathology received a consignment of reagents costing over USD 3,000. The shipment included a donation from Dr. Muturi’s lab at Ohio University as well as reagents donated by his research associate in Germany; this was in addition to reagents worth USD 1,500 funded by CADFP.

The implementation of the project has cemented and expanded the teams’ research collaboration to include distinguished research partners in Germany. Preliminary data from this work is being compiled into a research manuscript and will also be used in applications to both local and international agencies for further funding. Upon the conclusion of his visit Dr. Muturi indicated his keenness to mentor students from the department of Pathology as well as host some faculty members in his research as part of capacity development. Samples for molecular analysis will also be shipped to his lab at Ohio University for further experiments.
Dr. Jane Mugwe of the Department of Agricultural Resource Management served as a visiting scholar at University of Embu during her sabbatical leave from September 2017 to May 2018. In the course of her visit Dr. Mugwe engaged in a number of activities that included, teaching of units, curriculum review, research projects, joint participation in workshops and conferences to share scientific knowledge, students’ supervision and publishing participated among other activities that enriched her experience.

“My interaction with UoEm, allowed me to learn many things, key among them, emphasis on publishing in postgraduate training specifically, no graduation before publishing, monitoring of teaching and examination processes. I was able to build professional networks for future collaboration and partnerships”.

Key achievements attained at the end of the visit included i) supervision of six undergraduate students ii) development of marking schemes for oral presentations and marking of reports (proposal and project reports) iii) organization of two seminars for the research project unit iv) development of guidelines for report writing. Secondly, three (3) multi-disciplinary/multi-institutional proposals were submitted for consideration to PEER Women in Science Mentoring Program (USAID), VLIR UOS-Call for Team, South Initiative and IDRC Call on Climate Smart Technologies respectively. Dr. Mugwe also led in the publication of four manuscripts as well as an Agricultural manual which has been customized to address specific techniques and approaches in agricultural research making it easy for students taking agricultural sciences to understand the concepts and approaches. The manual will have address the following four major topics, i) Introduction to research ii) The research process iii) Scientific Communication and iv) Monitoring and Evaluation Research.

Dr. Mugwe also contributed to the improvement of the library catalogue by donating the following books in soil science

1. AGRA (2016). Going beyond demos to transform African Agriculture. The journey to AGRA’s soil Health programme. Alliance for a Green Revolution in Africa(5 copies)

2. Optimizing Fertilizer Recommendations in Africa (OFRA) (10 copies)

3. AGRA and IIRR (2014).Investing in Soil: Cases and lessons from AGRA’s Soil Health Programme. Alliance for a Green Revolution in Africa and International Institute of Rural Construction (5 copies)
Prof. Grace Wamue-Ngare

Prof Grace Wamue-Ngare won the 2018 Leicester Institute for Advanced Studies Visiting Fellowship. LIAS Fellowships offer University of Leicester research groups and individuals the opportunity to host high-calibre Fellows who enrich the interdisciplinary research environment at the University. Through this Fellowship scheme, visiting researchers work with colleagues across disciplinary boundaries to explore new approaches to complex issues leading to ambitious research outcomes and outputs. Prof Ngare’s three months’ programme (split in one-month block each in the 2018/2019 academic year was fully-funded by the University of Leicester and her residential academic host was Prof Teela Sanders, based in the Department of Criminology.

During the last one month Summer Fellowship [8th June to 8th July), Prof Ngare, with other colleagues in the UK worked on three proposals, key among them one titled: Phenomenal Change Stories from Gikuyu Heroes and Heroines Who said No to Female Genital Mutilation (FGM in Post-Colonial Kenya). This entails examining and documenting models of social transformation that helped the Gikuyu overcome FGM without much resistance. By so doing, oral histories of those recipients of change [girls, now women], who did not go through FGM from the early 70s and the crucial change agents who facilitated or supported that process will be documented. This will be done through responding to questions like: What replaced the crucial rite among the Gikuyu people? What parameters define womanhood among the Gikuyu people today? What was the convention shift that facilitated FGM’s abandonment among the Gikuyu in Post-Colonial Kenya, and is such a model adaptable by other communities with FGM prevalence in Africa?

The LIAS Summer Fellowship offered Prof. Ngare an opportunity to interact with other professors in related disciplines, opened avenues for further collaboration in research, publications, and faculty/student exchange within the School of Humanities and Social Sciences.
Dr. Eunice Njogu of Department of Food, Nutrition and Dietetics Kenyatta University, was granted a nine month Sabbatical leave from October 2018 to June 2019. During which she will be a Visiting Scholar at the African Population and Health Research Center APHRC Campus, Kitisuru, Nairobi. The main objective of the visit is to collaborate with APHRC team in Nutrition and Food Security projects so as to build a strong partnership between African Population and Health Research Center (APHRC) and Kenyatta University with regards to nutrition research that would last even beyond the visit to APHRC.
In collaboration with Britain - Nigeria Educational Trust (BNET), the Association of Commonwealth Universities (ACU) awarded Dr. Purity Muthima a titular fellowship tenable at Bayero University, Kano (BUK). Dr. Muthima a Lecturer in the Department of Educational Management Policy and Curriculum Studies, School of Education. The fellowship involves three annual (2018-2020) three-week visits to the Faculty of Education with the dates of the first visit being 6th-27th October 2018. As a fellow, she is supposed to: act as an external examiner for courses in the Faculty of Education; deliver a seminar or lecture on a topic to be discussed with the faculty; take part in other collaborative meetings and discussions to be determined between the faculty and herself and also explore possibilities for research collaboration between Bayero University Kano and Kenyatta University.
RESEARCH DISSEMINATION & UPTAKE
A team of researchers from both KU and two Universities in Finland have published the first ever photographic food atlas for Kenyan adolescents. The atlas is meant to an aid in evaluating Kenyan adolescents’ standard food portion sizes. The photographic food atlas includes the most commonly consumed foods by Kenyan adolescents aged 9-14 years living in an urban setting. The food atlas was informed by data collected in Nairobi County in the sub-counties of Lang’ata (Nairobi West) and Embakasi Central (Kayole) representing a variety of families from low to middle income socio-economic backgrounds. The food portion sizes in the photographic food atlas are based on weighed meals of the Kenyan adolescents in their households. A variety of food stuff have been included in the atlas for it to be useful in various contexts.

For purposes of wider use, names of foods in the atlas are presented both in English and Kiswahili. The atlas is the first of its kind to be produced in Kenya and will serve as a resource for researchers, dietitians, nutritionists and sociologists among other users involved in collecting information on food consumption and working with adolescents. The photographic food atlas can also be used as a tool to quantify food intake, facilitate dietary recall, educate and counsel on appropriate food portions, as well as achieve healthy changes in eating habits. This can be accomplished by using the photographic food atlas together with the Kenyan food composition tables to estimate nutrient intake.

The photographic food atlas has been developed in collaboration between researchers from Kenyatta University- Kenya and University of Helsinki-Finland as one of the outputs of the Kenya-Finland Education and Research Alliance (KENFIN - EDURA) Project funded by the Ministry for Foreign Affairs of Finland and supported by the Higher Education Institutions Institutional Cooperation Instrument (HEI ICI) Programme. The HEI ICI supports cooperation projects between higher education institutions in Finland and the developing world that are designed to enhance higher education provision in these countries.
Food provides the critical fuel that we all need to lead healthy and balanced lives, as one ages nutritional needs change but no matter how old you are, eating a well-balanced diet is always an important way to stay healthy. It helps one maintain a healthy weight, stay energized, and get the nutrients they need. It also lowers the risk of developing chronic health conditions, such as heart disease and diabetes more so as you age.

A majority of the elderly suffer from many problems which come about as a result of the aging process. As they age their entire physiological systems break down leading to reduced immunity and poor health. Malnutrition is one of the challenges that the elderly face, this ranges from under-nutrition, obesity, micronutrients deficiencies, nutrition in transition to secondary malnutrition. The book serves as a timely and much needed resource on nutrition and aging, nutritional problems, requirements, nutrition status, functionality and nutrition recommendations for those aged 60 years and above.

It has been realized that a sizeable proportion of the Kenyan population are at this stage of life or are approaching this age group yet paucity of information exists on the elderly. The book has filled this gap as it provides statistics and testimonies that highlight the extent of the problems that impair the elderly population as well as empowers by raising awareness of the appropriate diet. Also profiled is one stage of aging among women rarely documented namely menopause. It gives recommendations of how to cope with the various symptoms that do come with this stage, demonstrating that with good nutrition and care the elderly persons can live healthy and longer lives.

During the book launch ceremony held on Wednesday 17th October the Vice-Chancellor Prof. Paul Wainana reiterated that research findings should be packaged as a well-documented and accessible resource that address the various problems and challenges the society face. He commended the authors Prof. Judith N. Waudo of the department of Food, Nutrition and Dietetics and Ms. Susan W. Wairegi of the Department of Human Nutrition and Dietetics, Technical University of Kenya on their publication saying it will go a long way in addressing the nutritional concerns of the elderly population as well as serve as a great reference for university students in the field of nutrition, medicine, public health and nursing, other stakeholders such as the Ministry of Health, NGOs dealing with the elderly, caregivers and an informative resource for the general readership of the elderly persons themselves.
‘Re-Weaving education to meet the demands of 21St Century’

The Department of Educational Management, Policy and Curriculum Studies held its 3rd International Conference on Education at the Kenyatta University Conference Centre between 19th - 21st September, 2018.

The conference was officially opened by the Vice-Chancellor of Kenyatta University, who was represented by the DVC (Academic) Prof. John Okumu. The highlight of the conference was the keynote address by the Chairman of the Commission for University Education, Prof. Chacha Nyaigoti Chacha, who spoke on educational reforms in Kenya, and made insightful observations on quality assurance in higher education. The second Keynote address was delivered by Dr. Eliya Zulu, Director of the African Institute for Development Policy who spoke on research and policy. He emphasized that Universities need to take their place as think tanks and advise government on pertinent policy issues. The third keynote speaker, Dr. Helmut Blumbach, Director, DAAD Regional Office made a presentation on internationalization of education. He underscored the need for universities to make internationalization a key strategic priority. The conference also attracted other senior officers from the East African community, TVET CDACC, Uwezo Kenya, and KICD for the panel discussion sessions.

This highly interactive event that attracted both local and international participants from countries such as Nigeria, Ghana, Rwanda and Zambia, provided a platform for stakeholders to share knowledge and information on the issues currently affecting education and to interrogate recent and ongoing reforms in education in Africa.
Kenyatta hosted the sixth African Higher Education Week and RUFORUM Biennial Conference from 22nd – 28th October 2018 at the KICC in Nairobi. The Biennial Conference is RUFORUM’s most comprehensive meeting for the diversity of stakeholders in both agriculture and higher education sectors. The overall theme of the Conference was “Aligning African Universities to accelerate attainment of Africa’s Agenda 2063”. Kenyatta University was one of the conference co-hosts alongside other universities in Kenya.

Members of the staff and postgraduate students presented several papers during the conference. The university also showcased its teaching and research output during the conference by participating in exhibitions spearheaded by various Departments including the Departments of Plant Sciences; Microbiology, Biochemistry and Biotechnology; Food as well as Nutrition and Dietetics. There were also exhibitions from the University Innovation, Incubation and University Industry Linkages Centre.

The Vice Chancellor, Paul K. Wainaina accompanied by members of management graced the opening ceremony of the conference which was presided over by the Cabinet Secretary, Education, Dr. Amina Mohamed on behalf of the President of the Republic of Kenya, Hon. Uhuru Kenyatta. The event was also attended by H.E Janet Museveni, the First Lady of Uganda who is also the Cabinet Minister of Education and Sports in the Ugandan.

Prof. Waceke Wanjoji(4th L) with the KU Scholars under the OSHO project showcasing their posters during the RUFORUM Conference
Kenya, Germany and Japan co-hosted the Sustainable Blue Economy Conference from 26th – 28th November at the KICC in Nairobi. The Conference was the first global conference on sustainable blue economy attracting over 18,000 delegates drawn from over 170 countries. The main theme of the Conference was “The blue economy and the 2030 Agenda for Sustainable Development.”

A Sustainable blue economy seeks to promote economic growth, responsible production and consumption, social inclusion and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of the ocean and coastal areas, through the circular economy. Sustainable global development greatly depends on the strength of our blue economy. The 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) outline this prominent connection and ways to achieve sustainability by 2030.

Kenyatta University participated in the conference by showcasing its teaching and research outputs related to blue economy. The university also participated in the exhibitions through the following departments:

- Departments of Geography
- Departments of Music and Dance
- Departments of Fine art and Design
- Departments of Zoological Sciences
- Departments of Environmental Studies and Community Development
- Departments of Hospitality and Tourism
- Departments of Food, Nutrition and Dietetics.

The Vice Chancellor, Prof. Paul K. Wainainagraced the opening ceremony of the conference which was presided over by the President of the Republic of Kenya, H.E Uhuru Kenyatta. The conference was also attended by other heads of states and Governments.
Kenyatta University hosted the 3rd international conference on Water Security and Climate Change from 3rd - 5th December 2018 at Kenya School of Monetary Studies. The conference was organized by Kenyatta University and DAAD funded Excellence Centers; Centre for Water Management in Developing Countries (SWINDON) (Technische Universität-Braunschweig), Centre for Natural Resources and Development (CNRD) TechnischeHochschule Köln), and Centre for Food Security (FSC) (UniversitätHohenheim).

The conference put a spotlight on the key role that universities can play in the achievement of the seventeen Sustainable Development Goals. Over 147 oral presentations and 53 posters were presented by both researchers and postgraduate students. The papers mainly targeted SDGs number 2 of ending hunger, number 6, pertaining to universal access to water and sanitation and number 13 of taking urgent action to combat climate change and its impacts.

The conference marked an important phase in the creation of an alliance of universities, research institutions, non government organizations and policy makers in identifying common solutions to overcoming challenges facing water and food security related issues in the face of climate change.
Exploring value addition opportunities and benefits among small scale bee-keeping farmers in Marigat

Marigat is one of the high potential beekeeping areas within Baringo County and the Country as it has large tracts of arid and semi-arid area with sufficient bee forage and vegetation suitable for bee keeping. However, this potential has not been realized as most bee keepers still rely on traditional practices which have minimal value addition such as the use of the log hives (insert, artisan working on a log hive) which hold small amounts of honey. Additionally bee farmers struggle to find a market for the high quality honey produced.

Beekeeping is among the top economic activities next to rearing livestock and general agriculture in Baringo County, however, erratic climatic conditions characterized by frequent and prolonged drought have greatly affected agro-based means of leaving beekeeping as the main viable means of livelihoods. The prospects and benefits of value addition on beekeeping products have not been given priority by relevant stakeholders in Marigat. Farmers sell their wares in forms that deny them the opportunity to get maximum value for their investments. Inadequate information on new and improved beekeeping practices and technologies, marketing and pricing are among the hindrances of realizing the full potential of the beekeeping industry.

It is against this backdrop that KU researchers Mr. Wilson Nyaoro and Charles Mongare of the department of Environmental Planning and Management to champion value addition opportunities among bee farmers in Marigat in order to sustain rural livelihoods.

Mr. Wilson Nyaoro (left) with his research assistant observing and administering questionnaires to a traditional beehive artisan (centre)
Author guidelines for abstracts, papers and posters available at: www.ku.ac.ke/kibidc

Conference e-mail: kibidc@kuscc.org
Mobile No: 0743256758/8/9. Fax No: 07030206
Division of Research, Innovation & Graduate Studies
Kenya University

CONFERENCE FEES TO BE PAID BY BANKERS CHEQUE/DINER CASH DEPOSITS ONLY

<table>
<thead>
<tr>
<th>Category</th>
<th>Early Bird Registration</th>
<th>Regular Registration</th>
<th>31st May’2019</th>
<th>30th June’2019</th>
<th>31st August’2019</th>
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IMPORTANT DATES

- 31st August 2019: Deadline for early bird registration
- 30th June 2019: Provision of abstracts for full paper presentation and oral presentation
- Submission deadline for abstracts

CALL FOR SUBMISSION OF ABSTRACTS, PAPERS AND POSTERS

Venue: Kenyatta University (Main Campus)

DATE: 22ND – 24TH OCTOBER 2019

SUSTAINABLE DEVELOPMENT GOALS AND KENYA’S BIG FOUR AGENDA

THEME: Research and Innovation for the Achievement of Sustainable Development Goals and Kenya’s Big Four Agenda

BIENNIAL RESEARCH AND INNOVATION CONFERENCE

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