



National Commission for Science, Technology and Innovation (NACOSTI)



NACOSTI Plaza

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EDITORIAL

“Science and Technology for Prosperity”



The period April to June 2023 marked the final quarter of a busy Financial Year 2022/2023. The highlight of the was the Second Multisectoral Conference on Science, Technology, and Innovation (MS-COSTI) themed ‘Harnessing Science, Technology and Innovation (STI) for Food Security and Public Good in a Transformational Digitized Economy’ from 23rd to 26th sMay, 2023 at Safari

Park Hotel, Nairobi. The Conference was organized by NACOSTI in partnership with the National Research Fund, and the Konza Technopolis Development Authority and was aimed at facilitating multifaceted forum of national discourse to chart Kenya’s technology-driven and innovation-led inclusive sustainable development agenda.

The Conference created a platform for collaboration and knowledge exchange to drive Kenya's development agenda through science, technology, and innovation. The conference also anchored on the partnerships in the Research, Science, Technology and Innovation (RSTI) ecosystem locally and internationally. As part of promoting international linkages in RSTI, a parallel workshop entitled “Strengthening Advanced Biotechnologies in Agricultural Research in East and Central Africa through Regional Research Centres (RRC)” took place in the same venue and was organized by NACOSTI in partnership with the International Centre for Genetic Engineering and

Biotechnology (ICGEB). We are glad to share parts of the discussions and interactions during the Conference in this Bulletin.

This Bulletin also highlights topical issues in RSTI within and outside the country. Amongst these are strides made by Kenyan researchers in various spheres of science and the strides made by Kenyan innovators who have come up world class products and services.

In other cross-cutting matters, NACOSTI has actively joined the National Tree Growing Restoration Campaign, the Kenya Government initiative to plant 15 billion trees by 2032. As a contribution, the Commission engaged in a tree planting exercise at Loresho primary school and Kabete Vet Lab primary school. The Commission also opened the NACOSTI Cafeteria in April 2023, and we have shared some pictorials of the Cafeteria in this Bulletin and welcome our stakeholders to visit and enjoy the hospitality.

As we wish you a happy reading of this issue of the NACOSTI STIR Bulletin, we also thank you for walking the journey with us in the FY 2022/2023 and look forward to your continued support in the FY 2023/2024.

Mr. Gideon Kirui
Bulletin Committee Chairman

REMARKS FROM THE DIRECTOR GENERAL/CEO

“Science and Technology for Prosperity”



I take this opportunity to welcome you to read the 2nd Edition of the STIR Bulletin of 2023, a publication of the National Commission for Science, Technology and Innovation (NACOSTI). STIR Bulletin captures the latest news and featured articles from the Science, Technology and Innovation (STI) sector, and is therefore the voice of stakeholders in the STI

Ecosystem as communicated by the STI Regulator, NACOSTI. It serves as part of the avenues through which we endeavor to reach a wider network of our stakeholders. In the recent past, we have interacted with stakeholder in the STI ecosystem through hosting and participating in conference, seminars and meetings both physically and virtually. This has enabled NACOSTI to share ideas with local and international experts and stakeholders cutting across various science fields and as a result enriched our capacity to execute our mandate.

NACOSTI is established under the Science, Technology and Innovation Act, 2013 (Rev. 2014) with a unique mandate of regulating and assuring quality in the research, science, technology and innovation sector, and advising the Government in matters related thereto. In so doing, the Commission shall Regulate, Coordinate, Advise and Promote Science, Technology, Innovation and Research activities in the country.

Among others, the functions of NACOSTI include; developing priorities in scientific, technological and innovation activities in Kenya, Registering and Accrediting Research Institutions, Licensing of Research and assuring relevance and quality of research programmes in research institutions, coordinating and evaluating activities relating to scientific research and technology development, annually reviewing the progress in scientific systems, and promoting the adoption and application of scientific and technological knowledge in attaining national development.

Further, the Science, Technology and Innovation (STI), Legal Notice No. 108 (Research Licensing) Regulations, 2014 obligates all persons intending to undertake scientific research in Kenya to obtain a license in accordance with the Act. In this regard, we have made this process easy and convenient for you all by making it available online.

I trust that you will enjoy interacting with the information presented herein. Feel free to contact us through our telephone numbers, email and all our social media platforms. Prof. Walter O. Oyawa, PhD

Prof. Walter O. Oyawa, PhD
National Commission for Science, Technology and Innovation (NACOSTI)

NACOSTI MANDATE, VISION, MISSION, CORE VALUES, & FUNCTIONS

Mandate

The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

Vision

Accelerate the Transformation of Kenya as a knowledge-based economy.

Mission

To facilitate quality in the research, science, technology and innovation sector through regulation, promotion and provision of advisory services.

Core Values

The Commission upholds Integrity, Customer Focus, Professionalism, Teamwork and Leadership in the discharge of its mandate.

Functions

- a) Develop, in consultation with stakeholders, the priorities in scientific, technological and innovation activities in Kenya in relation to the economic and social policies of the Government, and the country's international commitments.
- b) Lead inter-agency efforts to implement sound policies and budgets, working in collaboration with the county governments, and organizations involved in science and technology and innovation within Kenya and outside Kenya.
- c) Advise the national and county governments on the science, technology and innovation policy, including general planning and assessment of the necessary financial resources.
- d) Liaise with the National Innovation Agency and the National Research Fund to ensure funding and implementation of prioritized research programmes.
- e) Ensure co-ordination and co-operation between the various agencies involved in science, technology and innovation.
- f) Accredite research institutes and approve all Scientific research in Kenya.
- g) Assure relevance and quality of science, technology and innovation programmers in research institutes.
- h) Advise on science education and innovation at both basic and advanced levels.
- i) In consultation with the National Research Fund Trustees, sponsor national scientific and academic conferences it considers appropriate.
- j) Advise the Government on policies and any issue relating to scientific research systems.
- k) Promote increased awareness, knowledge and information of research system.
- l) Co-ordinate, monitor and evaluate, as appropriate, activities relating to scientific research and technology development.
- m) Promote and encourage private sector involvement in scientific research and innovation and development.
- n) Annually, review the progress in scientific research systems and submit a report of its findings and recommendations to the Cabinet Secretary.
- o) Promote the adoption and application of scientific and technological knowledge and information necessary in
- p) Develop and enforce codes, guidelines, and regulations in accordance with the policy determined under this Act for the governance, management and maintenance of standards and quality in research systems.
- q) Undertake, or cause to be undertaken, regular inspections, monitoring and evaluation of research institutions to ensure compliance with set standards and guidelines.

NACOSTI HELD ITS 2ND MULTISECTORAL CONFERENCE ON SCIENCE, TECHNOLOGY AND INNOVATION



Figure 1: Delegates following the proceeding during the 2nd Multisectoral Conference on Science, Technology and Innovation in Nairobi.

The National Commission for Science, Technology, and Innovation (NACOSTI) in partnership with the National Research Fund, and the Konza Technopolis Development Authority held its second Multisectoral Conference on Science, Technology, and Innovation (MS-COSTI) themed 'Harnessing Science, Technology

and Innovation (STI) for Food Security and Public Good in a Transformational Digitized Economy' from 23rd to 26th May ,2023, Safari Park Hotel, Nairobi, Kenya.



Figure 2: H.E. Amb. Willy K. Bett, Kenya's Ambassador to India, sharing his talk on "Enhancing Collaborations and Partnerships through academic exchange programmes" during the 2nd Multisectoral Conference.

The conference comprised several components to address different aspects of STI. These included: **1. Inter-ministerial High-Level Dialogue:** This session focused on the infusion of STI into national production and security systems. The objective was to discuss how STI can be integrated into various sectors to drive development and address national challenges. **2. Scientific and Technological Discourse:** This session explored the role of STI in leadership, advocacy, and diplomacy within the context of a transformational digital economy. It aimed to highlight the importance of STI in shaping policies, decision-making, and international collaborations. **3. STI Exhibitions:** The conference featured exhibitions that showcased practical solutions to

current global challenges. These exhibitions provided a platform for organizations and individuals to present their innovative projects and technologies addressing issues related to STI. and **4. Science and Technology Education Week:** This component focused on fostering interest and awareness of STI among the next generation workforce. It aimed to inspire and engage students in science and technology-related fields through educational activities and programs.



Figure 3: Mr. Fredrick Ndambuki, Secretary Administration, Ministry of Education, Cabinet Secretary Hon. Ezekiel Machogu Representative visiting one of the exhibitions during the 2nd Multisectoral Conference on Science, Technology and Innovation

Overall, the 2nd MS-COSTI created a platform for collaboration and knowledge exchange to drive Kenya's development agenda through science, technology, and innovation.

PICTORIAL



INNOVATION KEY TO SUCCESS OF OUR AGENDA, CS SAYS



Figure 4: Mr. Fredrick Ndambuki, Secretary Administration, Ministry of Education, Cabinet Secretary Hon. Ezekiel Machogu Representative delivery the Speech during the 2nd Multisectoral Conference

Researchers attending the second multi-sectoral conference on Science, Technology and Innovation had asked the Ministry of Education to explain why it had consistently underfunded research.

The researchers, who lecture in public universities, said students carry out research projects in deplorable conditions using dilapidated and outdated infrastructure.

“Government of Kenya is committed to fostering the science, technology and innovation industry as a key sector in the bottom-up economic transformation agenda,” Education Cabinet Secretary Ezekiel Machogu told delegates in a state

ment that was read by Chief Administrative Secretary in the ministry Fredrick Ndambuki.

Machogu said the government had established a presidential advisory council which, when fully operational, will guide on how technology can be used to address challenges in critical areas, including national security, public safety, health and climate change mitigation.

“This will contribute towards transforming our country into a globally competitive digital nation,” he said.

At the ministerial level, Machogu said they recently constituted national research, technology and innovation committee which will enable the ministry to create full partnership with local and international stakeholders.

“That committee has covered a lot of ground since inception which was officiated by the Cabinet Secretary (Machogu) by identifying stakeholders in this sector. When the engagement begins, we hope to close the technological gap between Kenya and the developed countries,” he added.

The CS told the delegates that his ministry had tapped into the potential of the youth to participate fully in the digital transformation.

One of the flagship projects of the Kenya Kwanza administration is the establishment of Open University of Kenya which is going to make university education accessible and affordable to Kenyans.

The four-day conference, which is organised by National Commission for Science, Technology, and Innovation (NACOSTI), aims to facilitate a multifaceted forum of national discourse to chart Kenya’s technology-driven and innovation-led inclusive sustainable development agenda.

It will also provide an international platform for sharing best practices and networking in areas of science technology and innovation-based public safety, climate change mitigation, environmental preservation, among others.



Innovation key to success of our agenda, CS says

Machogu says the government is committed to funding programmes that will promote bottom-up model

by Samuel Kariuki
@PeopleDailyKe

The government has revealed that it will allocate two per cent of the Gross Domestic Product (GDP) to support all programmes under research, science and technology.

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PROGRAMMES

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CS MINISTRY OF EDUCATION EZEKIEL MACHOGU HAS URGED KENYANS TO HARNESS SCIENCE, TECHNOLOGY AND INNOVATION (ST&I) FOR FOOD SECURITY AND PUBLIC GOOD FOR A TRANSFORMATIONAL DIGITIZED ECONOMY



Figure 6: Delegates during the NACOSTI-ICGEB Workshop on 'Strengthening Advanced Biotechnologies in Agricultural Research in East and Central Africa through Regional Research Centres' Nairobi, Kenya – May 2023

Source: <https://www.pd.co.ke/news/innovation-key-to-success-of-our-agenda-cs-says-181863/#:~:text=The%20government%20has%20revealed%20that,under%20research%2C%20science%20and%20technology.>

In a speech delivered on his behalf on Tuesday, May 23rd 2023 by Mr. Fredrick Ndambuki – Secretary, Administration, Ministry of Education at the 2nd Multisectoral Conference on Science, Technology and Innovation in Nairobi, the CS noted that the move

will complement the government's agenda to transform the economy and Kenyan lives at large.



Figure 7: Mr. Fredrick Ndambuki – Secretary, Administration, Ministry of Education (center) during the 2nd Multisectoral Conference

CS Machogu officially launched the four days conference which is co-organised by National Commission for Science, Technology & Innovation (NACOSTI), National Research Fund (NRF) and Konza Technopolis Development Authority (KoTDA). He noted that the event was timely and vital in bolstering the development of the sector.

“The government of Kenya is taking bold steps to bolster the science, technology and innovation sector as a key sector for the

Bottom-up Economic Transformation Agenda (BETA).” said the CS.

“We must continue to demonstrate the power of research, science, technology and innovation as a solution to challenges faced nationally and globally, taking cognizance that Science, technology, and innovation are at the core of National and global Security, public safety, and inclusive sustainable development. Let us all unite in this noble undertaking for humanity.” said the CS Machogu.

Recently, CS Education appointed the National Research, Technology and Innovation Committee (NARTIC) to build synergies in the STI sector and create fruitful partnerships both locally and globally.

On his part, Prof. Walter Oyawa – Director General, NACOSTI, lauded the stakeholders for various initiatives in improving the sector and noted that partnerships are the future strategy for the sector.

He said; “The STI sector has an impact on National Security, Public Safety and Inclusive Sustainable Development – this is an area we are committed to promote through our multi-sectorial approach as one of the leaders in Science, Technology & Innovation.”



Figure 8: Prof. Dickson Andala, CEO of National Research Fund

Speaking at the Conference, Prof. Dickson Andala, CEO of National Research Fund noted that NRF has made tremendous progress towards sustainable development as evidenced by the research outputs that are now addressing Kenya's pressing challenges.

"Investing in STI and research allows the government to understand better the most pressing challenges faced by Kenya and the continent including poverty, hunger, and disease – and develop new technologies and solutions that can help us achieve food security, improve healthcare, and increase access to education.

" He called on all stakeholders to take a multisectoral approach, build strong partnerships, and commit to social and environmental sustainability if we have to achieve sustainable development.

On his end, John Okwiri, CEO of KoTDA, through a speech delivered by Josephine Ndambuki, Chief Manager, Business Development & Innovation noted that Konza Technopolis is committed to advance the development of the STI sector by putting in place requisite infrastructure, programs and linkages with Government, academia, industry, and development players.

He highlighted catalytic projects such as Kenya Advanced Institute of science and Technology, the National Data Center, Digital Media city, Konza Conferencing Facility. He also highlighted Jitume program a program aimed to accelerate the country's efforts towards a Global Technology talent hub.

The 2nd Multisectoral Conference on Science, Technology and Innovation, happening from 23rd to 26th May 2023, aims to facilitate a multifaceted forum of national discourse to chart Kenya's technology-driven and innovation-led inclusive sustainable development agenda.

The Conference will also provide an international platform for sharing best practices and networking in areas of STI-based Public Safety, Climate Change mitigation, and Environmental preservation, among others.

Source:

<https://www.capitalfm.co.ke/business/2023/05/education-cs-urges-kenyans-to-harness-science-tech-and-innovation-for-food-security/>

AGRICULTURAL BIOTECH & KENYA REGIONAL RESEARCH CENTRE WORKSHOP



Figure 9: NACOSTI- ICGEB Workshop on 'Strengthening Advanced Biotechnologies in Agricultural Research in East and Central Africa through Regional Research Centres' Nairobi, Kenya – May 2023

From 23 – 25 May 2023, the ICGEB Workshop organised by the Kenyan National Commission for Science Technology and Innovation (NACOSTI) takes place.

The workshop entitled “Strengthening Advanced Biotechnologies in Agricultural Research in East and Central Africa through Regional Research Centres (RRC)” took place concurrently with

the 2nd Kenyan Multisectoral Conference on Science, Technology and Innovation at Nairobi, Kenya.



The ICGEB delegation led by Director General Dr Lawrence Banks, included Dr. Ramesh Sonti, Director ICGEB New Delhi, India, Dr Luiz Zerbini, Acting Director ICGEB Cape Town, South Africa, Dr. Vittorio Venturi, Scientific Coordinator ICGEB Trieste, Italy and Ms Claudia Russo, Communications and Outreach, ICGEB Cape Town, South Africa.

Addressing the Opening Session of the Multisectoral Conference on the 23rd of May, Dr Banks expressed the ICGEB's tremendous enthusiasm in working together with Kenya in establishing the RRC & making a difference to the population of East and Central Africa.

The ICGEB Workshop, covering topics on advancements in agricultural research; new and emerging technologies for global food security as well as challenges facing agricultural development in the region, also focused on the RRC, including a discussion on the roadmap for its establishment, a regional needs assessment and discussions on technology developments.

ICGEB Programme beneficiaries presented on their ICGEB funded research projects and key findings, with the Workshop providing an excellent opportunity to meet with the ICGEB delegation and engage further.

Next steps for the RRC include finalised plans for the way forward in it's establishment and continued discussions with NACOSTI and Egerton University



Figure 10: Group Photo

Source: <https://www.icgeb.org/icgeb-visits-kenya-agricultural-biotech-kenya-regional-research-centre-workshop/>

PICTORIAL



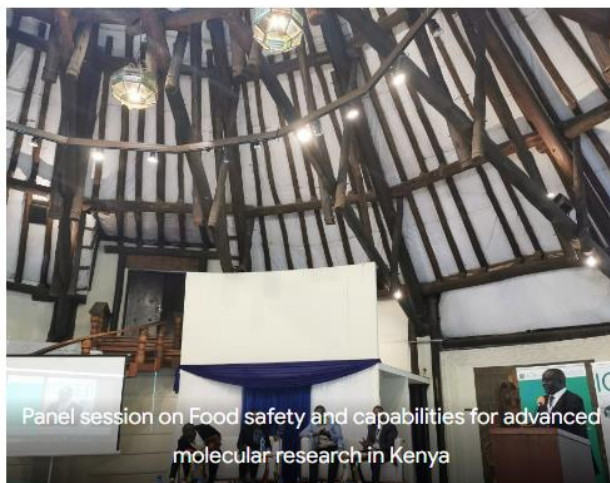
Workshop session



ICGEB Funding Programme Beneficiaries



Opening of 2nd Multisectoral Conference on Science, Technology and Innovation



Panel session on Food safety and capabilities for advanced molecular research in Kenya



Future Kenyan scientist - Mark Keige Njenga, Grade 7, Juja St Peter's School





Networking

INAUGURAL DISTINGUISHED PUBLIC LECTURE SERIES ON THE WHOLE GOVERNMENT APPROACH VIZ, INDUSTRY-PUBLIC SECTOR-LOCAL COMMUNITIES -UNIVERSITIES/ RESEARCH INSTITUTIONS TRANSFORMATIONAL ENGAGEMENT FOR BOTTOM-UP ECONOMIC TRANSFORMATION AGENDA (BETA)



Figure 11: Group Photo

NACOSTI in collaboration with Konza Technopolis and National Research Fund Kenya held its Inaugural Distinguished Public Lecture Series on " The Whole Government approach viz, Industry-public sector-local communities -universities/research institutions transformational engagement for Bottom-up Economic Transformation Agenda (BETA)





National Commission for Science, Technology and Innovation

The National Commission for Science, Technology and Innovation (NACOSTI) invites you to its

Inaugural Distinguished Public Lecture Series on
" The Whole Government approach viz, Industry-public sector-local communities -universities/research institutions transformational engagement for Bottom up Economic Transformation Agenda (BETA)"

KEYNOTE SPEAKER - DR. KEVIT DESAI



Dr. Kevit Desai is currently the Managing Director/CEO Centurion Systems Limited and former Principal Secretary (PS) State Department of East Africa Community in the Ministry of East Africa Community and Regional Development. Previously he worked as PS in the Ministry of Education, State Department of Vocational and Technical Education.

He holds a PhD in Robotics Systems Engineering and a Master Degree in Automation and Drives Technologies.


In addition to being the founder of Centurion Systems Limited, he is also the founding Chairman of Linking Industry with Academia (LIWA). He has also been the Council Chairman of Technical University of Mombasa (TUM) and Chairman of The Board of Governors – Karen Technical Training Institute for the Deaf, Chairman of the Board of Young Scientists Kenya and the Chairman of Board of Trustees at the United States International University Africa (USIU).

He is a member of the Steering Committee in JICA Master's degree and internship program of the Africa Business Education (ABE) initiative for the youths.


He served as a Governor, Director and C.E.O of Kenya Private Sector Alliance and a former Commissioner of the Commission for Higher Education. As a Taskforce member of the Ministry of Higher Education, Science and Technology, Dr. Desai was responsible for the development of the University Act; Science, Technology and Innovation Act; and Technical, Vocational Education and Training (TVET) Act of Parliament. This was a culmination of 15 years of his involvement in all the sessional papers, policy documents and strategies for skills, education and research.

Registration link: https://us06web.zoom.us/webinar/register/WN_Cnu_p6CUS0el-sW0Y8W6uQ


Moderators



Prof. Walter Oyawa
Director General/CEO,
NACOSTI



Prof. Dickson Andala
CEO, NRF and NACOSTI
Board Member




John Paul Okwiri,
CEO, KOTDA


You are also invited to the 2nd Multisectoral Conference on Science, Technology and Innovation (ST&I), a Megafest of the Research, Science, Technology, and Innovation Sector.

Registration is done via below link:
<https://ms-costi.nacosti.go.ke/>


Secretariat




Dr. David Njiru
Director, NACOSTI



Dr. David Ngugi
Deputy Director, NACOSTI



Mr. Cyrus Njiru
Deputy Director, NACOSTI



Ms. Evelyn Mbatia
Principal Analyst,
NACOSTI

PICTORIAL



U.S. PRINCIPAL DEPUTY ASSISTANT SECRETARY BUREAU OF ARMS CONTROL, VERIFICATION, AND COMPLIANCE PAYS COURTESY CALL ON NACOSTI DIRECTOR GENERAL



Figure 12: Group Photo

The U.S. Principal Deputy Assistant Secretary, Bureau of Arms Control, Verification and Compliance (AVC), Mr. Paul Sean, paid a courtesy call to the Director General for the National Commission for Science, Technology, and Innovation (NACOSTI), Prof. Walter Oyawa to discuss issues on emerging technologies as well as share on the U.S. policy on that front on 5th May 2023 at the Commission's headquarters. Mr. Paul Sean was accompanied by US State Department colleagues Aaron Miles and John Bravaco, as well as Mr. Francesco Barbacci, who oversees the External

Political section at the US Embassy in Nairobi. Dr. David Njubi (Ag. Director, Advisory, Standards, and Licensing), Ms. Evelyn Mbaabu (Principal Scientist- Humanity and Social Sciences), Dr. Mary Onsarigo (Senior Scientist- Biological and Health Sciences), and Mr. Denis Yegon (ICT) accompanied the DG of NACOSTI.

The meeting acknowledged that the use of new and emerging technologies such as Artificial Intelligence, Quantum Computing, Machine Learning and use of Satellites, and space are on the rise especially due to their dual -use nature by militaries. Therefore, there is need to develop rules/principles/framework that will ensure countries apply these technologies responsibly without deterring developments in science and technology as well as ensuring global security. NACOSTI was informed that AVC have already developed a document which they are willing to share with Partner countries for improvement and build consensus for adoptability by other states. The document will have broad principles which countries can improve depending on their specific needs but remain accountable and responsible in the use of these emerging technologies. They identified and appreciated that Kenya is a strategic country that they would like to have as one of the key stakeholders contributing to the framework and they are seeking to build consensus with key partners like Kenya through NACOSTI which is a key stakeholder of the government in regulatory matters of Science Technology and Innovation. Responsible use of the emerging technologies such AI will build confidence among governments, which in turn will deter conflict, promote transparency, and enhance strategic stability.



On the other hand, the DG NACOSTI highlighted on the pertinent emerging issues related to security and health hazards such as Aflatoxins in the staple food (Maize flour), Invasive species (Propolis, juliflora) affecting the livelihood of many and pandemics. He admitted that developments in science and technologies including the emerging technologies should offer solutions to these problems as witnessed during COVID-19. He also confirmed that the government of Kenya is very keen on developments in science and technology given that the president has established a presidential advisory committee on Science, Technology and Innovation.



As a way forward, both teams concurred to work together in coordinating and bringing other relevant stakeholders on-board for a dialogue on this topic. They agreed on further engagement to bring on board the relevant institutions to discuss on programs that can be implemented by both countries.

COURTESY CALL BY THE JSPS DIRECTOR AND THE JAPAN STUDY ABROAD COORDINATOR TO THE DIRECTOR GENERAL OF NACOSTI



Figure 13: Group Photo

The Study Abroad Coordinator Prof. Daimon Midori who was accompanied by the JSPS Director paid a courtesy call to the Director General for the National Commission for Science, Technology, and Innovation (NACOSTI), Prof. Walter Oyawa on 24th April 2023 at the Commission's headquarters.

Prof. Maidon from Hokkaido University is the coordinator of the Study in Japan Global Network Project representing Kenya and the Sub-Saharan Africa. Her visit was a follow-up meeting by the team from JSPS that visited NACOSTI to revive JSPS-NACOSTI MoU with the aim to accelerate linkages in joint research and seminar programs.

AREAS OF COLLABORATION

The key objective of NACOSTI is to regulate and assure quality in the science, technology and innovation sector and advise the government hence NACOSTI is partnering with institutions from Japan such as Japan Society for the Promotion of Science (JSPS), Japan International Cooperation Agency (JICA), Japan Science and Technology Agency (JST) and the Hokkaido University for scientific development in the country. These are highly ranked institutions that promotes science, technology and innovation with highly renowned scholars and Nobel Laureates.

Japan Society for the Promotion of Science (JSPS)

JSPS is the leading research funding agency in Japan that provides support for a wide range of scientific research and promotes international collaboration through various programs and fellowships. The funding offered by JSPS covers all science areas including social sciences, humanities, and natural sciences. The mission of JSPS is to contribute to the advancement of science, technology, and innovation, and to promote the development of a vibrant research community in Japan and around the world. The programs offered by JSPS include fostering next generation of researchers, supporting research initiatives, enhancing education and research functions of universities, international collaborations, strengthening linkages and offering awards of recognition.

Japan International Cooperation Agency (JICA)

JICA is a governmental agency of that coordinates the country's international development efforts. JICA provides various forms of assistance to developing countries, including technical cooperation, grant aid, and loans with a mission to promote sustainable development and poverty reduction in developing countries by supporting their efforts to achieve economic growth, social development, and environmental sustainability. Other programs offered at JICA include development in urban and regional areas, private sector, social security and disability, transportation, rural agriculture, nutrition, sports, gender, digital space, education, energy and mining, health, climate change, water resources and supply, disaster/risk reduction and natural environmental conservation (a JICA clean city initiative).

Japan Science and Technology Agency (JST)

JST is an independent administrative agency of the Japanese government that promotes scientific and technological research and development. The agency aims to promote innovation and contribute to the development of society by supporting research in various fields, including life sciences, materials science, information technology, and energy. JST also provides funding for research projects, operates research facilities, and supports international collaboration in research, and scientific conferences.

Hokkaido University

Hokkaido university is one of the oldest, largest, and most prestigious national university in Japan that was founded in 1876. The university offers undergraduate and graduate programs in a wide range of fields, including natural sciences, engineering, medicine, agriculture, humanities, and social sciences while its research focuses on a wide range of topics, including Arctic studies, environmental science, renewable energy, and interdisciplinary research. The university was commissioned by the Ministry of Education, Culture, Sports, Science and Technology (MEXT)-Japan in 2014 to implement Study in Japan Global Network Project. The project was initiated to encourage eligible population in the key countries and regions to study in Japan. The programs are operated by Study-in-Japan coordinators who implement promotion activities in collaboration with local agencies and institutions in Sub-Saharan Africa. The university's Sub-Saharan Africa regional office is based in Lusaka Zambia and the Kenyan office hosted at the JSPS premises in Karen. With the aim to attract foreign students, the universities in Japan have adopted offering courses in English language. In the Sub-Saharan Africa, 70% of students studying in Japan are male while the female population stands at 30%. According to Japan Student Services Organization (JASSO), the number of Kenyan students studying in Japan from 2018-2022 totals to 798. Graduate school has the highest number while professional training college has the least.

The key areas of collaboration on national priorities include having the JSPS alumni program that will be used to coordinate

key areas of government priorities, request for funds for various forums that the alumni program will be holding and advise students through the alumni program on research programs available.

Kenya through NACOSTI will strive to collaborate with Japanese institution to promote the government agenda in science, technology and innovation (STI) matters for scientific and economic growth.

For more information regarding Japanese study programs see the links below.

Website: <https://www.studyinjapanforafrica.com/>

Facebook:

<https://web.facebook.com/STUDYinJAPANforAFRICA/>

Twitter: https://twitter.com/StudyJPN_africa

US STATE DEPARTMENT PARTNERS WITH NACOSTI TO CONDUCT A SPECIALIZED CYBER SECURITY TRAINING COURSE



Figure 14: Group Photo

The U.S. Department of State partnered with NACOSTI to conduct a two-day specialized training course on Developing and Implementing Cybersecurity Risk Management Programs in High Containment Laboratories in Sub-Saharan Africa and Southeast Asia on 23rd and 26th April 2023 in Mombasa, Kenya. The training course was attended by four countries: Kenya (host), South Africa, Gabon, and Sierra Leone.

Prof. Walter O. Oyawa, DG NACOSTI, stated in his opening remarks that 'The world is going through unprecedented times dictated by pandemics, climate change, regional conflicts, overflow of migrants seeking greener pastures, and emerging

frontier technologies that have brought to the forefront issues of dual use technologies.

“As we transit into the fifth industrial revolution where more and more of our physical world gets connected to and controlled by the virtual/digital world, and more of our business and personal information goes digital format, cyber risks become increasingly more complex”

“Accordingly, managing cyber risk across an organization is now becoming harder than ever before. The desire to keep our systems secure and compliant requires more resources, more updating of skills, and vigilance.”

In her statement, Dr. Julia Scordo of the US Department of State’s Office of Cooperative Threat Reduction stated, “President Biden has pledged continued commitment of the United States to work in partnerships with governments and institutions in Africa to build stronger health systems and strengthen global health security.”

“As global health security is evolving and becoming more advanced, we need to expand our partnership and common goals to include cyber-biosecurity, the intersection between laboratory biosecurity and cybersecurity. ”

The training provided participants with the knowledge and skills needed to assess cyber risk, implement critical cybersecurity mitigations in their own laboratories, and promote cyber risk management capability regionally and globally.

The program ultimately seeks to develop global leaders in addressing cybersecurity risks in biological laboratories by developing consistent cyber risk assessment methods and risk mitigation approaches relevant to life sciences laboratories, especially in the aftermath of COVID 19 Pandemic.

COURTESY CALL BY JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE



Figure 15: Group Photo

The Japan Society for the Promotion of Science (JSPS) representatives led by the Director, Dr. Yumi Yamane paid a courtesy call to the Director General for the National Commission for Science Technology and Innovation (NACOSTI), Prof. Walter Oyawa on the 14th of April 2023 at the headquarters of the commission. The meeting was also graced by senior colleagues from NACOSTI. The meeting’s agenda was to look for possible

ways of collaborations with Japanese institutes led by JSPS and to revive the JSPS-NACOSTI MoU to accelerate linkages especially in joint research projects and seminars. The JSPS team was pleased to learn of the upcoming STI Multisectoral Conference in May 2023 and pledged to be part of the conference by doing exhibitions. They also requested to be given a platform for a speaker's session during the conference.

As part of the MoU, the following was suggested:

- NACOSTI be part of the team coordinating the collaboration between institutions in Japan like JICA and JSPS among others and the institutions in Kenya.
- Revive old programs like the Science Week that will help in the promotion of science at basic levels such the CBC programs and programs on communication.
- Building the next generation of experts.
- STI for SDG to improve on the SDG index in the country.
- Investing and financing of STI.

- Visiting Japanese team of experts to learn more on advanced technologies.
- JSPS to help identify experts that will speak to Kenyan students on science subjects with the aim to promote STEM.

On the Way Forward, the team agreed to:

- Jointly develop an annual membership of international seminars.
- JSPS to form an alumni association in Kenya and across Africa and research priority to be given to the alumni.
- JSPS to advise NACOSTI on the exact number of research scientists from Japan present in Kenya and for easier collaboration some of these scientists to be placed at NACOSTI. This will encourage Kenyans to collaborate with these researchers and learn a lot from them. Japan is currently number two (2) worldwide in Nobel Prize winners after the USA.



Figure 16: DG, NACOSTI giving gift hampers to the visitors

NEWLY ACCREDITED ISERCs IN KENYA



NACOSTI regulates and assures quality in Science, Technology and Innovation Sector and advises the Government in matters related thereto. In fulfilling its mandate of assuring quality in matters of research, the Commission receives, and reviews all submitted research proposals before issuance of research licenses. However, there are proposals that require ethical review before consideration of an application for a research license.






NACOSTI has assigned the task of ethical clearance of research proposals to Institutional Scientific and Ethics Review Committees (ISERCs). These Committees are accredited by NACOSTI on the recommendation of the National Scientific and Ethics Committee (NSEC) which is established as per the provisions of section 27 of the STI Act, 2013. ISERCs are established as per paragraph 7(2) of STI (Relevance and Quality Assurance) Regulations 2014.

Currently, there are thirty-nine (39) accredited ISERCs. Sixty seven percent (26) of the committees are domiciled in

universities, 18% (7) in hospitals, 8% (3) in research institutions, 5% (2) jointly by a university and a hospital and lastly, 2% (1) in a Non-Governmental Organization (NGO).

This financial year 2022/2023, NACOSTI has accredited five (5) new ISERCs. The table below shows the newly accredited ISERCs.

Institutions who undertake research are encouraged to host an ISERC as this aids their stakeholders to receive ethical review for their research proposals expeditiously.

S/N	INSTITUTION	AREA ACCREDITED	INSTITUTIONAL LOGO
1.	St. Paul's University	Social and Health Sciences	
2.	Kisii Teaching and Referral Hospital	Social, Biomedical and Health Sciences	
3.	Adventist University of Africa	Public Health and Social Sciences	
4.	Meru University of Science and Technology	Health Sciences, Agriculture, Animal Science, Social Science, Biomedical Science and Environmental Sciences	
5.	Tangaza University College	Humanities and Social Sciences	

NACOSTI NEW RESTAURANT OPENS



Figure 17: Group Photo

The doors at the NACOSTI Conference and Hostel Complex officially swung open. The much-anticipated move saw the grand opening of the Kipevu restaurant – based at the ground floor of the NACOSTI Conference and Hostel Complex. The Commission has leased the cafeteria section to Kipevu restaurant, which is a popular food outlet across Nairobi town.

The complex comprises forty-eight rooms and an equipped gym which will soon be fully operational after the final touches being put in place. Kipevu will serve not only NACOSTI staff but also staff from the sister agencies within the NACOSTI Plaza such as National Research Fund, Kenya National Innovation Agency, University Fund Board, Kenya National Qualifications Authority and National Biosafety Authority. The restaurant is also open to

staff from neighboring institutions such as Sugar Directorate, Kenya Dairy Board and other private entities in the neighborhood.



Figure 18: Mr. Gideon Kirui – Deputy Director – Finance, NACOSTI and Mr. Albert Cheboi – Director, Kipevu Restaurants cut the ribbon

This move seeks to improve the staff welfare and consequently increase productivity of all these staff. Previously they had to seek meals from far or forfeit altogether while on duty. Speaking during the event, Mr. Gideon Kirui – Deputy Director – Finance, NACOSTI indicated that the CEOs led by NACOSTI Director General – Prof. Oyawa, would from time to time sponsor joint luncheons and utilize this venue to bring their staff together as a way of building synergies among the institutions. The restaurant will offer a variety of snacks and meals, mostly of Kenyan and African cuisine and a variety of drinks and beverages.

NACOSTI TAKES PART IN TREE PLANTING TO SUPPORT THE CAMPAIGN FOR NATIONAL TREE GROWING RESTORATION



Figure 19: Group Photo

The National Commission for Science, Technology, and Innovation (NACOSTI) has actively joined the National Tree Growing Restoration Campaign by engaging in a tree planting initiative at Loresho primary school and Kabete Vet Lab primary school to plant a diverse range of tree species native to our region.. The Kenya Government initiated planting of 15 billion trees by 2032, a move aimed at: reducing greenhouse emissions, stopping and reversing deforestation and, restoring 5.1 million hectares of deforested and degraded landscapes through the African Landscape Restoration Initiative which was launched on 22nd December 2022. By participating in this campaign, NACOSTI aims to contribute to the restoration and protection of our natural resources while fostering a culture of environmental stewardship

PICTORIAL



NACOSTI is committed to promoting sustainable development through research, innovation, and collaboration. By actively engaging in tree planting initiatives, we demonstrate our dedication to fostering a greener and more sustainable future for all.

NACOSTI STAFF ENGAGE MANAGEMENT DURING DG'S CHAT AND TEA FORUM WITH STAFF



Figure 20

The Director-General, NACOSTI, Prof Walter Oyawa hosted a Chat and Tea Forum with the staff on Friday, June 30, 2023 at NACOSTI Ground floor Boardroom. The forum provided an opportunity for informal discussions, team-building, and a chance to enjoy a cup of tea together with the aim of fostering a stronger sense of community within the organization and encourage cross-departmental interactions.

During the Forum, the Director-General encouraged staff to bring forth any topics or questions they may have, whether related to work or general matters and have a candid conversation on the same. In addition, the Director-General thanked staff for their support that has resulted in the enhanced prominence of NACOSTI in recent times. Senior Management Team shared some exciting updates on Commission projects and programs. The outcomes achieved through this projects/programmes will

undoubtedly have a positive impact on our stakeholders and upcoming activities.



Figure 21: Pictorial

Staff members had the opportunity to raise issues of interest to them, and also share their thoughts freely. The Management listened and responded to a number of issues raised by staff, and also took advice from staff on certain matters. Staff were encouraged to come up with tangible proposals on how to enhance staff welfare, benchmarked with best practice in other state corporations. Management assured the staff that their feedback would be taken into consideration. To this end, the Director-General expressed a commitment to fostering a culture of professional development and growth within the organization taking note that the role of NACOSTI had escalated tremendously at national and international fronts. He highlighted the significant investment made by NACOSTI on staff training and capacity building, and requested staff to prepare adequately to take-up opportunities and positions that arise

KENYA'S FIRST SATELLITE TAIFA-1 LAUNCHES TO SPACE AFTER THREE ATTEMPTS



Taifa-1, Kenya's first operational earth observation satellite, launches to space aboard a SpaceX Falcon 9 rocket from Vandenberg Space Force Base in California, US.

US-based Space-X, which manufactures and launches the world's most advanced rockets and spacecraft, had earlier cancelled the lift off of the Falcon 9 rocket three times due to bad weather.

The initial launch was slated for Monday but was delayed by 24 hours to Tuesday due to bad weather.

On Tuesday, the mission was again delayed to Friday 9:48 EAT in the hope that by then there would be improved weather conditions but at attempt to launch in the midst of the bad weather was stopped by the director of the mission who called it to a hold slightly before lift off as the weather conditions could not permit the mission.

The launch was thus postponed again by 24 hours to Saturday morning 9:48 EAT when the rocket blasted off into space and approximately nine minutes later, returned to earth touching down on Space X's Landing Zone 4.

The 70 metres tall rocket is a smallsat rideshare rocket that also launched 50 other satellites into the orbit including cubesats, microsats and payloads amongst them Turkey's 800kgs high resolution Earth Observation Satellite, the heaviest payload at the top of the stack in what Space-X in the Transporter 7 mission.

The satellites will be used to collect greenhouse emission data, hyperspectral images and data for research.

Taifa one, is a 3U earth observation satellite developed and designed by Kenyans but manufactured at Endurosat in Bulgaria all in a span of two years at a cost of Sh50 million.

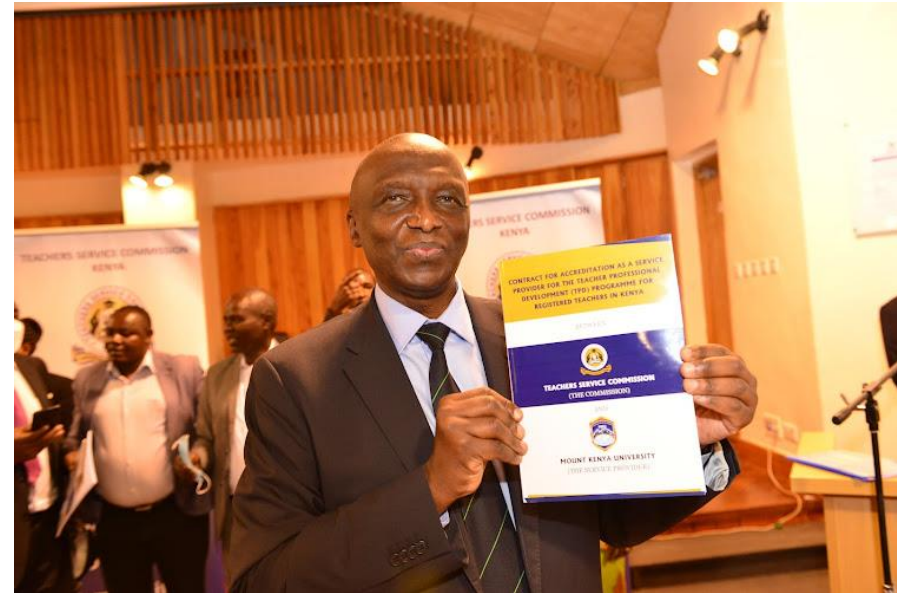
It is insured by Marsh Limited, a Space and Satellite insurance firm.

There are about six types of artificial satellites in the world which vary in size and attitude deployed depending on purpose. The largest is the International Space Station that serves as a habitable space lab.

An earth observation satellite is used to capture images of the earth; some are flown low to produce more detailed images.

Source: <https://nation.africa/kenya/news/kenya-s-first-satellite-taifa-1-launches-to-space-after-three-attempts-4200068>

MKU VC PICKED TO CHAIR GLOBAL CONSORTIUM OF RESEARCH



Mount Kenya University Vice Chancellor Prof Deogratius Jaganyi was last week selected as the new chair of International Inter-universities Consortium after the university hosted.

This was during the eighth Interdisciplinary and Inter-universities research conference that was held at the university's main campus in Thika.

Jaganyi said he would be looking at deepening relations among African universities, noting that partnerships and collaborations

among varsities on the continent would forge synergistic frontiers.

He added that joint efforts between various African universities and their partners in academia locally and abroad, governments, domestic and international private sector players will go a long way in boosting the uptake of science and technology in institutions of higher learning in the region.

“Globally, partnerships for development are a key strategy in all realms of human lives,” Jaganyi said.

He was speaking during the conference held at MKU’s Mwai Kibaki Convention Centre.

The three-day event saw delegates engage on diverse multidisciplinary issues ranging from the need to focus on Science Technology and Innovation (STI) as the driving discussion for attaining Vision 2030 and Africa Union Agenda 2063 objectives.

The conference brought together stakeholders from academia, public and private sectors to discuss strategies to entrench problem-based research and innovation for socio-economic development.

Director general at the National Commission for Science, Technology, and Innovation (NACOSTI) Prof Walter Oyawa noted that developments such as the Covid-19 pandemic have affirmed science has a key role to play in socio-economic development.

Humanity is living through unprecedented times simultaneously defined by; Rapid change in technology, new conflicts or wars, violent and hateful ideologies, risks of global pandemics and disease, climate change and loss of biodiversity, scientific advance and ethical dilemma, social change, economic growth and widening economic gap,” he said.

He added that global challenges are becoming increasingly complex, interconnected and interdependent.

“Science, technology and innovation (STI) are key drivers of economic and social development and are hence a critical means of implementation for National Agenda.

“Covid-19 pandemic has reaffirmed the vital role of Research, Science, Technology and Innovation (Research Systems) as a Global Public Good, for strengthened National Security, enhanced Public Safety/Health, and Inclusive Sustainable Development.”

The other keynote speaker at the conference was Dr George Njoroge, a globally renowned researcher and innovator with a passion for Africa Renaissance through medical research and innovation.

He is well known for the discovery of Victrelis the first oral protease inhibitor for the treatment of the deadly Hepatitis C virus.

Dr. Njoroge is the Founder and Chairman of Center of Africa’s Life Sciences (C.O.A.L.S), an institution for research and development of new medicines that is based in Naivasha, Kenya.

He is a recipient of tens of global awards and recognitions which among many others include, the Heroes of Chemistry Award by the American Chemical Society in August 2012, the Pioneer Award for Impact in Science and Medicine by Face2Face Africa Organization in New York on July 14 2018.

He was also awarded the honorary Doctoral Degree in Pharmaceutical Science by Mount Kenya University on July 2014. The three day conference was the eighth conference organisation by the international, interdisciplinary and inter-universities consortium.

Different institutions that are members of the Inter-Disciplinary and Inter-universities Consortium have annually hosted the conference on a rotational basis over the last eight years.

Dr. Jane Nyutu co-founder of MKU noted that the multi-disciplinary approach that the university has taken has seen get global accolades, including being selected to become the hub for reducing inequalities by a United Nations agency.

“The same multi-disciplinary endeavour at MKU through teaching, research and community engagement has led to MKU’s award to serve for three years as the United Nations Academic Impact for SDG No. 10 on Reduced Inequalities,” she said.

“This allows the university to partner with many universities, with the industry, and with practitioners in all areas that are of positive impact on human life; namely, medicine, animal health and production, education, social and physical sciences, and so

on. Thus, in a collaborative effort, communities across the world will very well benefit from the joint activities of our deliberation.

Source: <https://www.the-star.co.ke/news/2023-04-03-mku-vc-picked-to-chair-global-consortium-of-research/>

TOP FIVE INNOVATIONS BY KENYANS IN 2022



Governments, multinational companies, and learning institutions have all focused their efforts towards innovation geared at addressing contemporary problems.

Kenya, too, has made strides in innovation with various innovations to its name. This article summarises some of the notable innovations credited to Kenyans in 2022.



Figure 22: Joseph Nguthiru (left) displaying an award and Charles Kinyua (Right).

Hyacinth converted to plastic

Joseph Nguthiru, an Egerton University graduate caught the attention of the world with his innovation named Hyapak, aimed at converting water hyacinth into biodegradable plastics that can be used by society.

In addition, his innovation offered an alternative to non-biodegradable plastics which risk plunging the world into a menace of plastic waste.

The innovation earned recognition locally and internationally owing to its timeliness at a time when water bodies in Kenya were encroached on by the hyacinth.

Nguthiru won the Presidential Award for Kenya in the East African Youth Innovation Forum in November 2022, owing to his efforts on sustainable solutions to climate change. He also won the TotalEnergies Startup of the Year Challenge, alongside two other students.

Hyapak, which has since been patented, beat 1,012 entries to emerge top in the Best Business Creation Project.

Unga from grass

In the wake of a prolonged drought described as one of the most severe in Kenya's history, four students at Kabarak University in Nakuru came up with a scientific procedure for extracting flour from grass.

The students namely Faith Wandia, Salome Njeri, Innocent Bahati, and Edgar Ruto, laboured to devise a way of converting the cellulose found in grass to edible starch which they noted would help to offer a solution to Kenya's overreliance on maize.

Mukuru Cooking Stove



Figure 23: Charlot Magayi, founder and CEO of Mukuru Clean Stoves

Charlot Magayi, 29, was recognized for her innovation of the Mukuru Cooking stove which aims at reducing air pollution through gasses emitted from conventional sources of energy used in cooking.

The stoves are made from locally sourced recycled waste metal which reduces production costs and makes the products affordable for our target market.

In addition, the stoves are designed to efficiently use fuel, which helps in saving the cost of cooking and is environmentally friendly. Magayi won Ksh50 million in the 2022 edition of the Earth shot competition in the United States.

She was among the five winners who scoop awards in the awards headlined by Prince Phillip of Wales, of the United Kingdom.

Two Boys Who Innovated Smart Fingerprint Ballot Box

Two students from Chala Secondary School, in Taita Taveta County, were recognized for their project of developing a 'smart fingerprint ballot box'.

The two, Diana Wambugha and Brian Mwaghogho, were among the innovators who participated in the Sarit Expo exhibitions in December which brought together different innovators.

According to them, the smart fingerprint ballot box would help to solve the problem of the stray ballot boxes which have proven to be a problem in Kenya's elections.

The machine is designed to detect the colour of the ballot paper and signal to the clerks any disparity where the colour of the ballot paper does not match with the ballot box.

The students won a trip to Ireland where they were slated to participate in a global tech expo.

College Student With a Device Aimed at Detecting Thieves

Against the backdrop of the numerous criminal activities reported in the country, a college student from the Rift Valley Institute of Science and Technology (RVIST) unveiled a device designed to detect intruders in homesteads and other installations.

The device, according to the innovator, has sensors which upon detecting any movement within the premises trigger an alarm. While showcasing the prototype, the RVIST student noted that he charges a fee of between Ksh20,000 and Ksh50,000 to install the detector.



Figure 24: President William Ruto tries out virtual reality headsets at the Jamhuri Tech and Innovation Summit at KICC, Nairobi, on December 11, 2022

Source: <https://www.kenyans.co.ke/news/83319-top-five-innovations-kenyans-2022>

KALRO INTRODUCES NEW IMPROVED CHICKEN BREED



The poultry industry in Western Kenya is to get a boost with the launch of a breeding and multiplication house at the Non-ruminant Research Institute (NRI) in Kakamega County.

The 2,000-bird capacity centre will be producing a new Improved Kenya Agricultural Livestock Research Organisation (Kalro) chicken known as KC3.

The breed is well adapted to tropical climatic conditions and requires less feed than the ordinary or exotic ones.

Kalro says the breed is also resistant to common infections compared to the local birds.

The Sh5 million poultry breeding structure was funded by the European Union and the government through the Agrifi Kenya Climate Smart Agricultural Productivity Project.

The breeding and multiplication house has been constructed to speed up the multiplication of the chickens and increase the availability of day-old chicks to farmers in Western Kenya, North and Central Rift, Nyanza and Kisii counties, where demand for white meat has been on the increase in recent years.

During the launch, Livestock Principal Secretary, Joshua Chepchieng, said the KC3 line was released in response to socio-cultural demands.

“This chicken breed has a plumage and colour that appeal to market demands, particularly in Western Kenya,” Dr Chepchieng said.

“These improved lines grow and produce as many eggs as the local breeds while consuming less feed compared to exotics.”

While the local birds, popularly known as kienyeji, take eight months to reach table weight and point of lay, the Kalro improved one takes only four months, the organisation says.

A KC3 hen can lay up to 230 eggs per year.

The country’s annual production of day-old chicks is 600,000 yet demand is more than two million.

“As demand outstripped supply, and farmers had to wait for three to four months for chicks, a decision was made to increase capacity at NRI Kakamega by building a breeding house and expanding the hatchery,” he said.

With the establishment of the structure in Kakamega, the research institute will be producing and supplying 34,000 day old chicks every month.

“The Kakamega structure can produce 19,000 chicks per month. Together with the other in Naivasha, we will be producing 34,000 chicks in the same period,” Dr Chepchieng said.

Kalro Kakamega Institute Director, Joseph Munyasi, said indigenous chickens account for 78 per cent of poultry in Kenya, adding that it is an integral part of the farming system in many households.

“Chickens are mainly owned by women, young people and landless families as they are an easy source of income. The birds are also credited for their adaptability,” Dr Munyasi added.

Despite accounting for more than two-thirds of the chicken population, the productivity of indigenous breeds is constrained by the high cost of feeds, poor animal quality, diseases, low genetic potential and poor management practices.

“With this in mind, Kalro has maintained a robust chicken programme with four long-term objectives – enhanced sustainable production, highly developed multiplication and

dissemination infrastructure, established conservation and husbandry support schemes,” the director said.

Source: <https://nation.africa/kenya/business/seeds-of-gold/kalro-introduces-new-improved-chicken-breed-4199230>

CASSAVA BIOWASTE COULD BE A GAMECHANGER IN THE DEVELOPMENT OF BIOPLASTICS AS ECO-FRIENDLY PACKAGING MATERIALS



Figure 25: Cassava biowaste. Photo credits: Courtesy of the Technical Centre for Agricultural and Rural Cooperation (CTA).

This year, the World Environment Day was commemorated on 5 June with the theme, “Beat Plastic Pollution”. This theme is a reminder that people’s actions on plastic pollution matters, and governments and businesses can take steps to accelerate a transition to a circular economy.

Plastic is a synthetic material derived from petroleum. It is widely used because of its affordability, convenience, and utility for a variety of applications that include packaging, building and construction, household and sports equipment, healthcare, vehicles, electronics among others. However, the durability of plastic has negative effects on the environment, biodiversity, climate, and health. A 2021 report by the United Nations Environmental Programme (UNEP) estimates that 19 to 23 million tonnes of plastic leak into aquatic ecosystems annually. These harm a wide array of organisms in the rivers, lakes, seas, and on land. The manufacturing processes of plastic and its improper disposal releases carbon dioxide (CO₂) and other greenhouse gas emissions into the atmosphere. These emissions contribute to climate change. Additionally, tiny shards of plastic referred to as microplastics can enter in fish, birds, livestock, and the human body and accumulate in organs to cause health problems. Hence, innovations that eliminate the use of plastic should be encouraged.

Fostering a sustainable bioeconomy is one way to promote green innovations that help to find alternatives for plastic. One such alternative is the possibility of using bioplastics derived from bioresources such as plants, making them biodegradable or compostable to protect the environment. Studies show that

bioplastics that are 100% bio-based are currently produced globally at a scale of 2 million tonnes per year and are considered a part of future circular economies to help achieve some of the United Nations' (UN) Sustainable Development Goals (SDGs), such as by diverting from fossil resources, introducing new recycling or degradation pathways, and using less toxic reagents and solvents in production processes.

BioInnovate Africa is experimenting the possible use of cassava for bioplastics, through one of the projects it is supporting in Uganda, Tanzania, and Rwanda. Cassava is a highly resilient crop that is widely cultivated in the East Africa region. It is mainly grown for food and nutrition security and excess roots are sold to generate income for the farm households. The project will convert cassava biowaste into eco-friendly packaging materials. If it works, this eco-friendly packaging material will provide alternatives to synthetic plastics. Such alternative biodegradable plastic could find uses in pest control during grain storage, and contribute to food security, and jobs in an eco-friendly manner.

Source: <https://bioinnovate-africa.org/cassava-biowaste-could-be-a-gamechanger-in-the-development-of-bioplastics-as-eco-friendly-packaging-materials/>

CALL TO DEVELOP RESEARCH-INTENSIVE UNIVERSITIES IN AFRICA



Figure 26: Professor Sharon Fonn speaking at the University of Ibadan in Nigeria, Image: Consortium for Advanced Research Training in Africa/Facebook

African countries need to participate in the global knowledge economy by increasing investments in research-intensive universities to help develop reliable infrastructure and functional health systems, decrease inequalities, and provide a brighter future for its youthful population, according to Sharon Fonn, professor of public health at the University of the Witwatersrand in South Africa.

In a public lecture at the University of Ibadan in Nigeria on the role of universities in the transformation of society, Fonn said

that universities are in a unique position to provide innovative solutions to challenges facing the continent, but insisted that, if universities are to be the engine of development, research must be approached in a trans-disciplinary manner.

The lecture, titled ‘The role of academia in society – a public health perspective’, delivered on 19 May 2023 was organised by the Consortium for Advanced Research Training in Africa (CARTA) in collaboration with the University of Ibadan.

Poor policies

“If we want to be the engines of development, then we have to be trans-disciplinary in our approach. This does not only involve bringing multiple disciplines to work together but to engage with all stakeholders, including communities who have an interest in the research area to define the problem, design solutions, and then [ensure] the outcomes and benefits are shared. This, then, helps universities contribute to development and fostering equality,” Fonn said.

Fonn, who is the co-director of CARTA, said that erroneous policies have been an impediment to the development of research-intensive universities in Africa. Sub-Saharan Africa is one of the largest regions in the world with a population of over a billion people, she said, but tertiary enrolment is at under 10%. The global average is 38%.

The low enrolment figures, she said, can be traced back to the colonial period when Africa was urged to invest heavily in

primary education, with investment in tertiary education seen as an unnecessary luxury and this has had dire consequences for research and the development of Africa.

She cited that, as a result, in South Africa, public expenditure for tertiary students fell from US\$6,800 per student in 1980 to US\$1,200 in 2002, a decrease of more than 80%. “Many tertiary institutions shut down and were and still are underfunded ... these colleges were shut down at the very time that the HIV/AIDS epidemic was soaring, leading to fewer healthcare workers. Our human resource for health workers in South Africa has not recovered to this day ... this policy was flawed,” she said.

Merit has to count

But, even with faulty policies, Fonn said the culture of giving incompetent people jobs in public and private institutions in Africa coupled with non-functioning systems are the main challenges facing development in Africa.

“We don’t always give the jobs – be it teaching or as heads of institutions – to the best candidates, as appointments are not always based on merit. We need to change this. We have had incompetent and corrupt leaders while the competent have been stuck in dysfunctional systems. We expect people to deliver when they are not surrounded by well-functioning systems.

“To have a good higher education system, you need a well-functioning education system, from pre-school to higher level. But, to be effective in higher education, you need a functional

support system that repurposes rules and regulations, good human resource and information technology systems, and functioning infrastructure.”

Africa can do right

But, despite this, Fonn said there are centres of excellence across Africa, implying that the continent has the ability to do right. She urged African universities to embrace intra-Africa collaboration and promote differentiated teaching, saying it allows countries to meet a variety of national needs and allows them to offer a range of degrees at undergraduate and postgraduate level. These degrees, she said, will help produce graduates who can work in government, NGOs, and in business.

“We also need research-intensive universities to do research and research training. These research-intensive universities produce our PhDs and should be home to African and to international post-doctoral students. Such graduates will be the people who will continue to renew our research-intensive universities. They will also staff all our universities and technical and vocational education and training institutions, besides taking up many other roles in society.

“Every country needs some kind of national research system, a system that comprises universities, public research institutions, governmental and non-governmental research and research investments from the public and private sectors. Without this, a country cannot participate in the global knowledge economy.

Participating in the global knowledge economy is important as well, as illustrated by the COVID-19 pandemic.

“The pandemic revealed that African countries need to urgently manufacture a high range of goods, such as vaccines, locally. That we have to provide social safety to our populations; we have to build reliable infrastructure, functional health systems and we need to reduce inequalities within and between countries and offer the young African population a future in which they can use their time in fulfilling ways. They have to feel that they have a stake here in Africa. That they can want to and make a contribution in Africa.”

The bottom line

According to Fonn, the bottom line is that Africa needs to develop. “And this is why Africa has to participate in the global knowledge economy. There are questions about development that no one else is better placed to answer than Africans in African universities.”

Developed countries have invested heavily in the entire education system, from primary to tertiary. This is essential, because it is the way for individuals to have a better life and for nations to develop, she said.

She argued that, with research-intensive universities, Africa will find solutions to its challenges. For instance, in the health sector, the development of vaccines will help reduce deaths and save the lives of children.

This, however, will work effectively with trans-disciplinary research collaboration. “We need the economists to indicate to governments that, even if it’s costly to invest in vaccines, the benefits outweigh the losses. It matters that we have social scientists and philosophers that can make a link between human rights and access to vaccines. This is the stuff of research-intensive universities.”

Fonn also called for research collaboration that ensures that those in Africa are at the centre of research work to ensure the results are in the context of Africa and promote institutional capacity, such as what CARTA does to support research training.

Source:

https://www.universityworldnews.com/post.php?story=2023060419425545&mc_cid=6012effebf&mc_eid=b717459fdd

TWO UNIVERSITIES IN AFRICA RANKED FIRST IN INDIVIDUAL SDGS



Two universities in Africa are included in the overall top 100 of the Times Higher Education (THE) Impact Rankings 2023, which are geared to assessing institutions’ contribution to the United Nations Sustainable Development Goals (SDGs), and two placed first globally for their contributions to individual SDGs.

In the overall ranking, in which a total of 1,705 institutions were assessed, two South African universities ranked highest in Africa: the University of Johannesburg (UJ) was placed in 46th position and the University of Pretoria (UP) in 69th place.

UJ was also placed first for the work it does in areas related to SDG 1 (no poverty). The Kwame Nkrumah University of Science and Technology (KNUST) reigns first for its contribution to SDG 4 (quality education).

“It is gratifying to see that our university has once again been recognised for its significant contribution to societal impact, sustainability and innovation, through the SDGs. We are very proud of this achievement and excited to see even more outputs from our scholars in the near future.

“This is a testament to the outstanding work and dedication of our staff, postdoctoral fellows, students, research associates, research divisions, centres and institutes,” Professor Letlhokwa Mpedi, UJ’s vice-chancellor and principal, told University World News following the announcement.

According to him the university will continue to emphasise societal impact in what it does, including research on Global Excellence and Stature (GES) and the Fourth Industrial Revolution, “thus, GES 4.0 – for Societal Impact”.

In a media release the Kwame Nkrumah University of Science and Technology said: “Management expresses profound gratitude to the diligent staff and students, invaluable partners, and esteemed stakeholders for their immense contributions leading to this remarkable milestone. This significant achievement stands as a testament to the collective efforts and commitment displayed by everyone at KNUST.”

In addition to UJ and KNUST’s achievement, several other institutions also fared well in the work done in areas related to individual SDGs.

UP was placed 4th globally for SDG 8 (decent work and economic growth), and the University of Cape Town (UCT) 9th for clean water and sanitation.

According to the THE, South Africa has done well on SDG 8 (decent work and economic growth) with two universities in the top 10 – UP and UJ at 6th.

What is measured?

The ranking assesses commitment to sustainability across four broad areas: research, stewardship, outreach, and teaching based on self-submitted data from universities. However, a university’s ranking is based on its performance in SDG 17 – partnerships to achieve the goals – and three other SDGs, rather than across all the SDGs.

The ranking, now in its 5th year, is the world’s only one that specifically measures universities’ contributions to the SDGs although there are other rankings that assess universities’ contribution to sustainability, such as the QS World University Rankings, Globethics.net University Ranking, and UI Green Metric.

Among the global regions, Western Sydney University, Australia (1st) was top overall in the world and Australasia; Queen’s University, Canada (3rd) was the top-ranked institution in North America; the University of Manchester, UK (2nd) came out on top in Europe; Universiti Sains Malaysia (up one place to 4th) was top in Asia; the National Autonomous University of Mexico (32nd) was first in Latin America and UJ in Africa.

The nine countries that participated in the rankings for the first time this year are Brunei, Curaçao, Ethiopia, Mauritius, Mozambique, Panama, Serbia, Syria and Zimbabwe.

Overall results for individual SDGs

Results for each of the 17 SDGs, including a description of the content for the metrics used to score the SDGs:

- **SDG 1 – No poverty** – University of Johannesburg (South Africa): Research on poverty and support for students from poor families.
- **SDG 2 – Zero hunger** – Queen’s University (Canada): Research on hunger, teaching on food sustainability, and commitment to tackling food waste and hunger on campus and locally.
- **SDG 3 – Good health and well-being** – RCSI University of Medicine and Health Sciences (Ireland): Research on key diseases and conditions, support for healthcare professions, and health of students and staff.
- **SDG 4 – Quality education** – Kwame Nkrumah University of Science and Technology (Ghana): Contributions to early years and lifelong learning and commitment to inclusive education.
- **SDG 5 – Gender equality** – Western Sydney University (Australia): Research and policies on gender equality and commitment to recruiting and promoting women.
- **SDG 6 – Clean water and sanitation** – University of Exeter (UK): Research related to water, water usage, and commitment to ensuring good water management in the wider community.
- **SDG 7 – Affordable and clean energy** – Universiti Teknologi Malaysia (Malaysia): Energy research, energy use and policies, and commitment to promoting energy efficiency.
- **SDG 8 – Decent work and economic growth** – IPB University (Indonesia), RMIT University (Australia): Economics research, employment practices, and share of students taking work placements.
- **SDG 9 – Industry, innovation, and infrastructure** – University of Erlangen-Nuremberg (Germany), University of Stuttgart (Germany), Technical University of Munich (Germany) University of Twente (Netherlands): Research on industry and innovation, number of patents and spin-off companies and research income from industry.
- **SDG 10 – Reduced inequalities** – RMIT University (Australia): Research on social inequalities, policies on discrimination, and commitment to recruiting staff and students from underrepresented groups.
- **SDG 11 – Sustainable cities and communities** – Simon Fraser University (Canada): Research on sustainability, role as custodians of arts and heritage, and internal approaches to sustainability.
- **SDG 12 – Responsible consumption and production** – Western Sydney University (Australia): Research on responsible consumption and approach to the sustainable use of resources.
- **SDG 13 – Climate action** – University of Tasmania (Australia): Research on climate change, use of energy, and preparations for dealing with consequences of climate change.

- **SDG 14 – Life below water** – Macquarie University (Australia): Research on life below water and education on and support for aquatic ecosystems.
- **SDG 15 – Life on land** – University of Manchester (UK): Research on life on land and education on and support for land ecosystems.
- **SDG 16 – Peace, justice, and strong institutions** – Universiti Sains Malaysia (Malaysia): Research on peace and justice, participation as advisers for government, and policies on academic freedom.
- **SDG 17 – Partnerships for the goals** – Western Sydney University (Australia): The broader ways in which universities support the SDGs through collaboration with other countries, promotion of best practices, and publication of data.

Broader focus than traditional rankings

Universities in 115 countries were assessed.

Progress was measured for each of the individual 17 SDGs, and across the goals as a whole, which saw 18 universities from 10 countries and regions achieve number one positions.

Phil Baty, THE's chief knowledge officer, said: "It moves away from the traditional and more narrow approach to rankings and looks at far broader issues – examining how universities are improving our world."

To appear in the overall ranking table, universities must have submitted to SDG 17 (partnerships for the goals) and a minimum of three other SDGs. The total score was calculated as follows:

- SDG 17 – 22%
- Top scoring SDG – 26%
- Second best scoring SDG – 26%
- Third best scoring SDG – 26%

In addition, the score for the overall ranking is an average of the last two years' total scores.

According to THE communications manager Ben Miller, this scoring measure was implemented for the first time this year to "increase the stability of the overall ranking, and to recognise the overall ranking's position as a broader assessment of a university's institution-wide commitment to sustainability in general".

Baty said the impact rankings are an "extremely valuable tool" for universities, governments, funders, and policymakers to understand how universities are supporting the drive to meet the UN's SDGs and what must be done to improve their performance even further in this massively important area.

He said that the rankings "are also vital for millions of prospective students who are increasingly demanding to see evidence that the universities they consider for their education are committed to sustainability and to helping them to become sustainably minded citizens".

Source:

https://www.universityworldnews.com/post.php?story=20230601132216289&mc_cid=6012effebf&mc_eid=b717459fdd



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION (NACOSTI)**

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PUBLIC NOTICE

Licensing of Research in Kenya

The National Commission for Science, Technology and Innovation is established by the Science, Technology and Innovation (STI) Act, No. 28 of 2013, Revised in 2014 (the Act) as a State Corporation. The Commission **regulates and assures quality in Science, Technology and Innovation Sector and advises the Government in matters related thereto**. In this regard, the Act stipulates seventeen (17) functions of the Commission. Among the functions of the Commission, Section 6(1)(f) of the STI Act 2014 [2013] specifies that the **Commission shall accredit research institutes and approve all Scientific research in Kenya**.

Consequently, Section 12(3) of the Act requires that **any person undertaking or intending to undertake research in science and technology in the country, or who accesses, handles, or transfers any material or technology or moves it within, from or into the country, shall apply to the Commission for the grant of a licence in accordance with the Act**.

Section 12(5) of the Act further **directs that no licence shall be granted** by the Commission for any research involving activities which;

- (a) may **adversely affect the culture of any community** in Kenya;
- (b) may **adversely affect the environment**;
- (c) may **result in the exploitation of intellectual property rights of communities** to their traditional knowledge.

- (d) may, in the view of the Commission, **adversely affect the lives of Kenyans**.

Section 13(1) of the Act reinforces Section 12(5) by directing that the Commission shall, upon receipt of an application under section 12, evaluate the application, and if **satisfied that the conduct of the research is beneficial to the country, and that the research shall not adversely affect any aspect of the nature, environment or the security of the country**, issue to the applicant a licence in the prescribed form.

Pursuant thereto, members of the public are hereby notified that according to the Science, Technology and Innovation Act 2014 [2013], Scientific Research in Kenya must be approved and licensed by the Commission.

As stipulated in Section 15 of the Act, any person who accesses, handles, transacts, transfers or moves any specified technology or any material necessary for scientific research within, into or from Kenya without a licence issued under this Act; or contravenes the provisions of Section 12 of the Act, **commits an offence** and shall, in addition to any other penalty which may be provided for in this Act or any other written law, be liable on conviction to a fine not exceeding five million shillings or to imprisonment for a term not exceeding four years, or both.

For further clarification kindly contact the Commission, or visit online services at <https://research-portal.nacosti.go.ke/>

PROF. WALTER O. OYAWA, PhD
DIRECTOR GENERAL

NACOSTI is ISO 9001:2015 Certified

SERVICE CHARGES

Fees/Charges for Research Licensing

Table 1: Current fees/charges for Research Licensing

No	Category of Research License	Fees/charges
1)	Kenya Citizens: Diploma / Undergraduate	Ksh. 100
	Kenya Citizens: MA/MSc	Ksh. 1,000
	Kenya Citizens: PhD	Ksh. 2,000
	Kenya Citizens: Individual / Post Doctoral	Ksh. 5,000
	Public Institutions	Ksh. 10,000
	Private Institutions	Ksh. 20,000
2)	EAC Citizens: Diploma / Undergraduate	Ksh. 100
	EAC Citizens: MA/MSc	Ksh. 1,000
	EAC Citizens: PhD	Ksh. 2,000
	EAC Citizens: Individual / Post Doctoral	Ksh. 5,000
3)	Rest of Africa: Diploma / Undergraduate	Ksh. 200
	Rest of Africa: MA/MSc	Ksh. 2,000
	Rest of Africa: PhD	Ksh. 4,000
	Rest of Africa: Individual / Post Doctoral / Non-academic Doctoral	Ksh. 10,000
4)	Non-Africans: Diploma / Undergraduate	US\$ 150
	Non-Africans: MA/MSc	US\$ 350
	Non-Africans: PhD	US\$ 400
	Non-Africans: Individual / Post Doctoral / Non-academic	US\$ 500

Notes:

1. Non-Kenyans in local institutions with work permits and/or Permanent Resident Permits to pay same as Kenya citizens.
2. Students in local institutions of higher learning pay same as citizens.
3. The Supervisor may apply on behalf of a class undertaking Diploma or Degree course, however the service cost will be dependent on the number of students

Fees/Charges pertaining to Research Institutions

Table 2: Current fees/charges for Registration of Research Institutions, Accreditation of Research Programmes, and Monitoring and Evaluation of Research Institutions

No.	Services	Current fee in KES
1)	Registration of Research Institutions	250,000
2)	Accreditation of Research Programmes	250,000
3)	Inspection, Monitoring and Evaluation of Research Institutions	A basic fee of 275,000 will be levied per inspection in addition to any other additional costs that will be related to the inspection

DRAFT GUIDELINES FOR STAKEHOLDER INPUT, COMMENTS, AND RECOMMENDATIONS

The National Commission for Science, Technology and Innovation (NACOSTI) is established by STI Act 2013(Rev. 2014) with the objective of regulating and assuring quality in the science, technology and innovation sector and advise the Government in matters related thereto. Further, Section 6(1)(p) of the STI Act mandates the Commission to develop and enforce codes, guidelines and regulations in accordance with the policy determined under this Act for the governance, management and maintenance of standards and quality in research systems. In this regard, the Commission has developed draft guidelines as listed below, and hereby invites stakeholders for their written input, comments, suggestions and recommendations by September 2021. In this regard, the Commission has developed draft STI Priorities, and Guidelines as listed below, and has circulated the same to stakeholders for their input, comments, suggestions, and recommendations. The Commission therefore reminds stakeholders who have not yet submitted their written input, suggestions and recommendations to the Commission for consideration to do so by latest 30th November, 2021. The documents may be downloaded at NACOSTI Website www.nacosti.go.ke

- **DRAFT “PRIORITIES IN SCIENTIFIC, TECHNOLOGICAL AND INNOVATION ACTIVITIES”**

The Priorities in Scientific, Technological and innovation activities in Kenya are in line with Section 6(1)(a) of the STI Act which stipulates that “the Commission shall develop, in consultation with stakeholders, the priorities in scientific, technological and innovation activities in Kenya in relation to the economic and social policies of the Government, and the country’s international commitments”

- **DRAFT “NATIONAL GUIDELINES FOR REGISTRATION, LICENSING, AND REGULATION OF RESEARCHERS IN KENYA”.**

The Guideline is in line with Section 15 of the Legal Notice 106 of 2014, of the STI Act 2013, titled “STI (Registration and Accreditation of Research Institutions) Regulations, 2014”, which mandates the Commission to register, license and regulate researchers in the Scheduled Science areas.

- **DRAFT “NATIONAL GUIDELINES FOR ACCREDITATION OF ACADEMIC JOURNALS IN KENYA”.**

The Guideline is in line with Section 26 of the STI Act which specifies that “Research findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time”.

CURRENT NACOSTI STAFF



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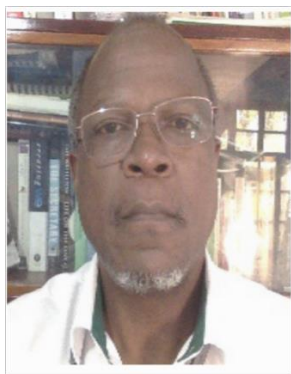
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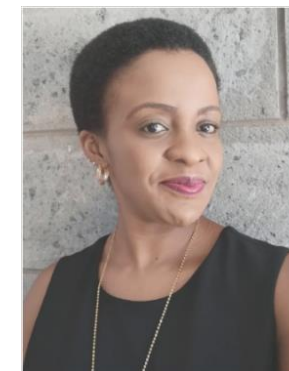
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Senior Driver*



*Mr. Pius Samoei
Senior Driver*



*Mr. Abdi Ibrahim
Senior Driver*

KENYA'S NATIONAL ANTHEM

Kiswahili

1

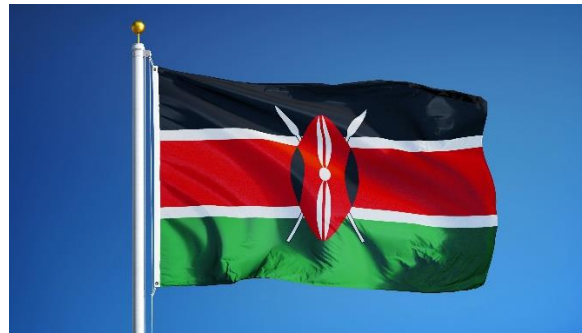
Ee Mungu nguvu yetu
Ilete baraka kwetu
Haki iwe ngao na mlinzi
Natukae na undugu
Amani na uhuru
Raha tupate na ustawi.

2

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

3

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



English

1

O 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.

2

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

3

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

THE EAST AFRICA COMMUNITY ANTHEM



1. Ee Mungu twaomba ulinde
Jumuiya Afrika Mashariki
Tuwezeshe kuishi kwa amani
Tutimize na malengo yetu.

Chorus

*Jumuiya Yetu sote tuilinde
Tuwajibike tuimarike
Umoja wetu ni nguzo yetu
Idumu Jumuiya yetu.*

2. Uzalendo pia mshikamano
Viwe msingi wa Umoja wetu
Natulinde Uhuru na Amani
Mila zetu na desturi zetu.

3. Viwandani na hata mashambani
Tufanye kazi sote kwa makini
Tujitoe kwa hali na mali
Tuijenge Jumuiya bora.



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