



National Commission for Science, Technology and Innovation (NACOSTI)



NACOSTI Plaza

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EDITORIAL

“Science and Technology for Prosperity”



Welcome to the fourth volume of the STIR Bulletin which highlights the activities of the National Commission for Science, Technology and Innovation (NACOSTI) over the last few months. NACOSTI is mandated to regulate and assure quality in the research, science, and technology and innovation sector and advise the Government in matters related thereto. The Commission

Regulates, Coordinates, Advises and promotes Science, Technology, Innovation and Research activities in the country.

This volume brings out the Commission's STI Mainstreaming activities, which seeks to make Science, Technology and Innovation part of everyday business for our partners. NACOSTI's activities to support STI Mainstreaming is brought out in the bulletin through highlights of the commission's engagements which include workshops, conferences and meetings.

The role of STI in the attainment of Kenya Vision 2030 cannot be over-emphasized. As we strive towards knowledge-based economy, research is needed to inform the policymaking process, facilitate better understanding and furthering of best practices for all those working in various research fields. One of the mandates of NACOSTI is to advice the government on research priorities for the country. To this end, the Commission developed

the National Research Priorities in consultation with the relevant arms of Government, the Private Sector and other major stakeholders. This bulletin shares the efforts to have players in the research sector focus on the National Research Priorities in the design and execution of their research programmes.

I wish you happy reading as you interact with this issue of the NACOSTI STIR Bulletin.

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 STIR Bulletin, Volume 4, 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.

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 other 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
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.

STI CONFERENCE SPEAKERS CALL FOR INCREASED FUNDING TOWARDS SCIENTIFIC RESEARCH AND INNOVATION



Figure 1: Chief Guest (Dr. Sarah Ruto), Principal Secretary (Amb. Simon Nabukwesi), Members of the High Level Panel on STI, and Director General (Prof. Walter Oyawa) during the Multisectoral Conference on STI

Scholars and speakers at the recently concluded National Multi-Sectoral Science, Technology and Innovation (STI) Conference have called for increment of funding allocated towards STI research activities in Kenya saying this will go a long way in bringing about a positive resultant effect returns on investment in the national GDP.

NACOSTI Director General Prof. Walter Oyawa strongly articulated the institution's mandate to oversee higher education scientific research saying the constitution of Kenya is very clear on the role of the agency as the scientific research and innovation regulator. "As per the Science, Technology and Innovation Act Section 12, NACOSTI is mandated to approve all scientific research in Kenya and the Legal Notice No. 108 provides mechanisms for licensing research", said the NACOSTI Director General.

The August 2021 STI conference was the first of its kind convened by the National Commission for Research and Innovation (NACOSTI). National Research Fund Acting CEO Dr Jemimah Onsare called for increment of funding allocation towards STI research. She emphasized that increased research funding is key to achievement of national economic goals. Dr. Onsare called for increment of funding allocation towards scientific research, urging that increased research funding is key to achievement of national economic goals. Research funding currently constitutes 0.8% of national GDP.

Education CS Prof. George Magoha commended the first national multi-sectoral Science, Technology and Innovation Convention. "Grade 4 and 5 children are already being introduced to Robotics in the new curriculum. NACOSTI, Universities & Research institutions are encouraged to work in synergy to come up with scientific solutions to Covid-19," said the CS.



Figure 2: Physical Participants for the Conference Proceedings

Higher Education PS Amb. Simon Nabukwesi assured that the Ministry of Education is actively looking into the issue and will engage political stakeholders and policy makers towards ensuring the 2% threshold is achieved. “We preach a lot about achieving 2% GDP being allocated towards funding scientific research, technology and innovation but there has been very little action forthcoming, and this is why we are now actively engaging with the political leadership and policy making stakeholders to realize this,” said Amb. Nabukwesi.

Prof. Oyawa confirmed that NACOSTI and the science community in Kenya in the era of the Covid-19 pandemic, needs to promote

technology, innovations, tools and systems to save lives and maintain a socio-economic fabric in an era of great disruption.

“While the pandemic is tragic with so many lives having been lost, on the other side it has presented us scientists with so many opportunities for the country and institutions to prospect and increase investments in science, technology and innovation. During this pandemic, it has been well captured that those countries that have always strategically and judiciously invested

Kenya currently boasts immense potential to grow and expand in Science Technology and Innovation (STI) research, with NACOSTI revealing that the country presently has more institutions registered to undertake research in agricultural and natural resources (11 in total), in line with President Uhuru Kenyatta’s Food Security pillar of The Big 4 Agenda. Research in earth and space science however still holds a huge potential with no institution registered yet,” says Prof Oyawa.

According to University of Eldoret Don Prof. David Some, the country stands to gain more return on investment if significant strategic funding is pumped into STI Research “For every 1 % investment of funding in research, you get a return of 7 times in research output/impact. There should be an increase in research funding to 2% of GDP and a possible merger of the funding bodies to ease the research funding process.”

TRIBUTE TO NACOSTI BOARD

PIONEER 1ST BOARD, 7TH APRIL 2014 – 6TH APRIL 2017



Prof. Elizabeth Njeri Wamae



Prof. Collette A. Suda,
PhD, FKNAS, CBS.



(Late) Dr. Titus
Pirishon Lanyasunya
PhD, OGW



Prof. Eucharika Kenya



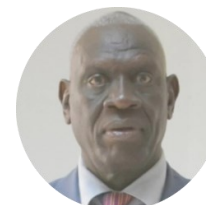
Prof. Elijah I.
Omwenga, PhD



Eng. Julius Riungu



Mr. Jerome Ochieng



Dr. Moses Rugutt
PhD, OGW

The 1st Board was Chaired by Prof. Njeri Wamae who is an accomplished scientist and Professor with a background in Tropical Medicine.

The First Board of the Commission was appointed on 7th April 2014 for a period of three (3) years. The members were:

1. Prof. Njeri Wamae, S5(1) (a)
2. Prof. Eucharika Kenya, S5(1) (f)
3. Prof. Elijah Omwenga, S5(1) (f)
4. Dr. Titus Lanyasunya, S5(1) (f)
5. Eng. Julius Riungu, S5(1) (g), Representing the Private Sector
6. Prof Collette Suda, PS, State Department of University Education, S5(1) (b)
7. Mr. Jerome Ochieng, Representing the CS, The National Treasury, S5(1) (c)

8. Dr. Moses Rugutt PhD, OGW. Secretary to the Board

The term of the Board expired on 6th April 2017.

KEY ACHIEVEMENTS OF THE BOARD

The major achievement of the Board are summarised as follows:

- a) Developed and ensured approval of key Human Resource instruments which included Human Resource Policy, Organisational Structure and Staffing Levels, Career Progression Plan for Technical Staff
- b) Development of the 2014-2018 Strategic Plan
- c) Recruitment of the Director General (2014-2020)
- d) Recruitment of the Directors (2016-2021) and subsequent operationalization of the Directorates
- e) Successful Transition of the institution from NCST to

- NACOSTI and in particular, of the Technical Staff
- f) Recruitment of Senior Administrative Staff
 - g) Successful oversight of the building of the NACOSTI Headquarters and the subsequent handing over of the completed building
 - h) Successful implementation of the Performance Targets over the three (3) year period
 - i) Oversaw the launch of NACOSTI/IDRC University Research Chair Programme, which was the first Kenyan University Research Chairs Programme.
 - j) Guided on the initiation and development of the following policies:
 - i. National Nanotechnology Policy
 - ii. National Research and Development Policy
 - iii. Finalize National Research and Development Agenda
 - iv. Biosciences Policy
 - v. Innovation Promotion Strategy
 - vi. National Science, Technology and Innovation Policy
 - vii. Led the Consolidation of the various draft policies for Science, Technology and Innovation into an overarching National ST&I Policy
 - viii. Reviewed the Legal, Regulatory and Administrative Framework for Science, Technology and Innovation sub-sector to ensure harmony, coherence and efficient service delivery to the sub-sector
 - ix. Ensured NACOSTI's participation as the Focal Point in the following international commitments:
 - a) The Biological (Bacteriological) and Toxin Weapons Convention (BWC)
 - b) The International Atomic Energy Agency (IAEA);
 - c) The Comprehensive Test Ban Treaty Organization (CTBTO)
 - d) The International Center for Genetic Engineering and Biotechnology (ICGEB)
 - e) East African Science and Technology Commission (EASTECO)
 - f) The African Union New Partnerships for Africa Development (NEPAD)
 - g) African Regional Cooperative Agreement for research development and training related to nuclear science and technology (AFRA)
 - x. Strengthened the Commission's participation in the following:
 - a) The United Nations Educational, Scientific and Cultural Organization (UNESCO)
 - b) The United Nations Office on Outer Space (UNOOS)
 - xi. Organized National Science, Technology and Innovation Week during the period
 - xii. Held various sensitization meetings/workshops for research institutions (private and public), international Research Institutions and

- universities on ST&I Act 2013 and the ST&I Guidelines 2014, for registration and accreditation of research institutions
- xiii. Established and operationalized the Vetting Committee as envisaged in the ST&I Regulations 2014
 - xiv. Ensured processing of research licenses/permits and generation of over 24,000,000 in form A-in-A
 - xv. Received and processed applications for registration of research institutions. Two of the institutions namely; Kenya Marine and Fisheries Institute and Kenya Forest Research Institute were granted their Certificates of Registration by the Cabinet Secretary in May, 2016.
 - xvi. Ensured Monitoring and Evaluation of over two hundred Research Endowment funded projects. over two hundred projects.
 - xvii. Reviewed Guidelines for accreditation of Institutional Ethics Committee (IERC)
 - xviii. Ensured implementation of ISO Quality Management Systems and the successful transition and Implementation of ISO 9001:2015 Quality Management Systems
 - xix. Ensured timely budget preparation and managed the expenses to within the budget limits
 - xx. Approved various internal policies and strategies



Figure 3: Pioneer 1st NACOSTI Board Members lead by the chairperson, Prof Njeri Wamue and the PS state dep. of Science and Technology, MoEST, Prof. Colleta Suda and the CEO Dr. Moses Rugutt

TRANSFORMATIONAL 2ND BOARD, 6TH DECEMBER 2017 – 5TH DECEMBER 2020



Prof. Peter Migun
Ogada



Ms. Rachel Shibalira



Prof. Francis W.
Muregi, PhD



Dr. Jemimah Onsare
PhD



Dr. Nicholas Kibiwott
Letting



Dr. Tonny Omwansa
PhD



Dr. Salome Guchu



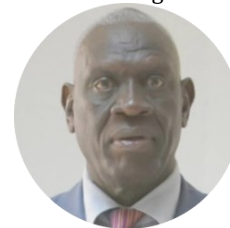
(Late) Mr. Lawrence
Omondi Okudo



Mr. Dan Mesis



Mr. Jacob Njagih



Dr. Moses Rugutt
PhD, OGW



Prof. Walter O. Oyawa
PhD.

The 2nd Board was Chaired by Prof. Tom Peter, Migun Ogada, who is an accomplished scientist and Professor with a background in Chemical and Mechanical Engineering.

The second Board of the Commission was appointed on 6th December 2017 for a period of three (3) years. The Board under review consisted of seven (8) members appointed as follows:

1. Prof. Tom Peter Migun Ogada, Chairperson S5(1) (a)
2. Prof. Francis Muregi Wakakima, S5(1) (f)
3. Dr Nicholas Kibiwott Letting, S5(1) (f)
4. Ms. Rachel Shibalira, S5(1) (f)
5. Mr. Jacob Njagih, Rep. PS, State Department of University Education and Research, S5(1) (b) (14th July 2020 to 5th December 2020)
6. Dr. Tonny Omwansa, Director of the Kenya National Innovation Agency, S5(1) (d) (September 2020 to 5th December 2020)

7. Dr. Salome Guchu, Ag. Director of the Kenya National Innovation Agency, S5(1) (d) (6th December 2020 to 5th September 2020)
8. Dr. Jemimah Onsare Ag. Director of the National Research Fund, S5(1) (e)
9. Mr. Dan Mesis (28th January 2019 to 26th May 2020)
10. (Late) Mr. Lawrence Omondi Okudo in Attendance (Inspectorate of State Corporations) (14th July 2020 to November 2020)
11. Dr. Moses Rugutt PhD, OGW, Secretary to the Board (3rd Dec 2014 to April 2020)
12. Prof. Walter O. Oyawa PhD, Secretary to the Board (1st May 2020 to Date)

KEY ACHIEVEMENTS OF THE BOARD

The major achievement of the Board are summarised as follows:

- i. Reviewed key Human Resource instruments
- ii. Developed and launched the 1st National Research Priorities
- iii. Advertised and competitively recruited the Director General
- iv. Successfully Transitioned the Technical Staff from the former National Council for Science and Technology (NCST) to NACOSTI, established NACOSTI Umbrella Pension Scheme and finalized the issues related to the seconded staff.

- v. Commissioned the Enterprise Resource Planning (ERP) System which has automated most key operations of the Commission especially the key areas including Finance, Procurement, HR, and e-Board Modules.
- vi. Guided on the following policy instruments:
 - a) Development and implementation of NACOSTI Strategic Plan for the 2018-2023.
 - b) Reviewed the draft Science, Technology and Innovation Policy (STI) for the period 2020-2030.
 - c) STI Policy Implementation Framework
 - d) Kenya's Science, Technology and Innovation Indicators
 - e) The Kenya STI for Sustainable Development Goals (SDGs) Roadmap;
 - f) Development and Successful launch of the National Research Priorities (2018-2023).
 - g) STI Response Strategy to COVID-19 Pandemic
 - h) NACOSTI response to covid 19 pandemic
 - i) A Policy Brief on Mobilizing Science, Technology, and Innovation in Response to COVID-19 Pandemic
 - j) Science, Technology, Innovation and Research Network
- vii. Strengthened the implementation of the 1st University Research Chair Programme (URCP) in Kenya.
- viii. Oversaw the review of forty-nine (49) applications for consideration of registration by research institutions out of which twenty-four (24) were granted Certificates of Registration.

- ix. Facilitated the establishment of the Institute of Private Research (IPR) as an independent research institution under the STI Act.
- x. During the three year period, the Commission accredited thirty-one (31) Institutional Ethics Review Committees (IERCs).
- xi. Successfully organized the Annual National Science Week for the 2018 and 2019
- xii. The Board oversaw the development and publication of the following documents to ensure quality assurance in research:
 - a) Guidelines for Material Transfer Agreement (MTA)
 - b) Guidelines for Ethical Conduct of Biomedical Research Involving Human Subjects in Kenya
 - c) National Guidelines for the Care and Use of Animals in Research and Education in Kenya
 - d) Curriculum for Training IE RC Members and Proposal Reviewers
 - e) A tool for Monitoring and Evaluation of Institutional Ethics Review Committees (IERCs)
 - f) Guidelines for Accreditation of IERCs
 - g) Guidelines for Registration of Research Institutions in Kenya, and
 - h) Guidelines for affiliation of researchers in Kenya
- xiii. During the period, the number of licensed research projects rose from 4241 in 2017/2018 to 6015 in 2018/2019 before declining to 5575 2019/2020 against a target of 7,000 (Table 1). This was about 80% of the target. The shortfall could be attributed to COVID 19 Pandemic which limited undertaking of research activities.
- xiv. Review of Legal Notices No. 106, 107 and 108. These legal instruments were reviewed and have been forwarded to the Ministry of Education for Gazettement.
- xv. During the period, NACOSTI strengthened the following international and regional collaborations and partnerships:
 - a) The Biological, Toxins Weapons Convention (BTWC)
 - b) The International Atomic Energy Agency (IAEA);
 - c) The Comprehensive Test Ban Treaty Organization (CTBTO)
 - d) The International Center for Genetic Engineering and Biotechnology (ICGEB);
 - e) The United Nations Educational, Scientific and Cultural Organization (UNESCO);
 - f) The United Nations Office on Outer Space (UNOOS);
 - g) East African Science and Technology Commission (EASTECO);
 - h) The African Union New Partnerships for Africa Development (NEPAD);
 - i) African Regional Cooperative Agreement for research development and training related to nuclear science and technology (AFRA).
- xvi. Successful implementation of the Performance Targets over the three (3) year period (2017/2018; 2018/2019 and 2019/2020)

- xvii. Successfully undertook Board Evaluation over the three (3) year period.
- xviii. Successfully negotiated with six (6) sub-contractors for payment for works done wherein the sub-contractors forfeited the interests and associated claims
- xix. Oversaw the successful lease out of the extra office space at NACOSTI Headquarters
- xx. NACOSTI has developed the following ICT systems to support its programmes and activities
 - a) Enterprise Resources Planning (ERP)
 - b) Research Information Management System (RIMS)
 - c) Kenya National Research Information System (KENRIS)



Figure 4: The 2nd Board with NACOSTI staff and stakeholders during the launch of the Commission's latest strategic plan and national research priorities as well as the unveiling of the ISO 9001:2015 certificate awarded by the Kenya Bureau of Standards.

NACOSTI VOTED BEST STATE CHAMPION OF GENDER FAIRNESS



Figure 5: NACOSTI Team during Team Building Exercise

The National Commission for Science, Technology and Innovation (NACOSTI) has been rated the best government institution in advancing gender equity.

The commission scored 98 per cent in an evaluation done by the State Department of Gender and National Gender and Equality Commission (NGEC) on gender mainstreaming in government departments for the 2020/2021 financial year.

In the State corporation category, Konza Technopolis Development Authority came in second with 93 per cent, followed by Retirement Benefits Authority (91 per cent), Public Procurement Regulatory Authority (87 per cent), Nyayo tea

Zones (84 per cent) and National Irrigation Authority at 81 per cent.

The National Health Insurance Fund (NHIF) and National Youth Service also performed well scoring 89 and 82 per cent respectively.

Lake Basin Development Authority scored 18 per cent while Kenya Forest Service, Kenya National Highways Authority, Kenya Industrial Estate, Kenya Accreditation Service and National Transport and Safety Authority scoring 31,36,37 and 38 per cent respectively.

The Ministry of Foreign Affairs topped the ministries category with 93 per cent followed by the Ministry of Energy (92 per cent) and National Treasury at 78 per cent.



Figure 6 : Group Photo

Universities

The ranking lists the Ministry of Environment and Forestry as the worst at 26 per cent.

Jaramogi Oginga Odinga University led the universities category with 93 per cent followed by Moi and Murang'a University of Technology at 93 per cent each.

Jomo Kenyatta University of Science and Agriculture and University of Kabianga also posted impressive results scoring 92 and 92 per cent respectively.

Garissa University was named the worst performing at 17 per cent with Rongo University following closely at 25 per cent.

In the colleges' category, Kenya Education Management Institute emerged the winner with 93 per cent with Nachu and Eldama Ravine technical and Vocational Institutes registering the lowest points at 31 per cent each.

The ranking was pegged on the existence of a gender mainstreaming structure, development, review and implementation of the gender mainstreaming policy in the various government departments.

Another indicator used was development, review of a workplace policy on gender-based violence and the implementation of a GBV policy.

The assessors also looked at whether respective government departments trained their board members, senior management and committee members on gender mainstreaming and

sensitised the staff on gender mainstreaming in the reporting period.

Source: <https://nation.africa/kenya/gender/nacosti-voted-best-state-champion-of-gender-fairness-3553664>

KNAS TEAM PAID A COURTESY CALL ON THE DIRECTOR GENERAL, NACOSTI



Figure 7: Group Photo

The Kenya National Academy of Sciences (KNAS), led by Prof. Raphael M. Munavu, (FKNA) – Chairman and Prof. Ratemo Michieka, (FKNA) – Hon. Secretary on Wednesday, 22nd July 2021, paid a courtesy call on the Director General, NACOSTI, Prof. Walter O. Oyawa. The purpose of the visit was to foster collaboration between the two institutions.

The Kenya National Academy of Sciences (KNAS) is a learned, non-political, non-sectarian and non-profit making body founded on 2nd November 1983, and registered with the Attorney General Chambers of the government of Kenya. The academy traces its roots to the Easter Africa Academy of sciences founded in 1963. Its fundamental aim is to cooperate and collaborate with the Government of Kenya, other scientific organizations and the general public in the mobilization of the scientific community in Kenya for the promotion of the scholarly application of all aspects of science and technology for national development.

Established under the auspices of the National Commission for Science, Technology and Innovation (NACOSTI), a government organization responsible for advising the government of Kenya on all matters related to science and technology, KNAS therefore derives its authority from the government through the science and technology act, Cap 250 Laws of Kenya, with the president of the republic of Kenya as its patron.

A CONSULTATIVE MEETING BETWEEN NACADA AND NACOSTI



Figure 8: Group Photo

Prof. Walter Oyawa – Director General, National Commission for Science, Technology and Innovation (NACOSTI) held a meeting with Prof. Mable Imbuga, EBS, Chairperson, NACADA and Mr. Victor Okioma, EBS, CEO, NACADA on Tuesday, 13th July 2021. In attendance was Mr. Boniface Wanyama – Ag. Director of Research Accreditation and Quality Assurance, Dr. David Njubi – Ag. Director for Scheduled Sciences, Mr. Godfrey Kalerwa – Chief Research Quality Assurance Officer and Ms. Margaret Muthee – Chief Analyst, Humanities and Social Sciences

Prof. Oyawa welcomed the team to the meeting whose aim was to discuss ways to collaborate in the realization of respective

institutional mandates briefly explained NACOSTI's establishment, mandate and functions as provided in the Science, Technology and Innovation Act No. 28 of 2013. He broadly highlighted the functions as provided in Section 6 of the STI Act namely, regulation, promotion, coordination, advisory and awareness creation on STI. The Chairperson of NACADA thanked the DG and NACOSTI's team for arranging the meeting noting that research is an important aspect in NACADA's programmes. It is only through research that the institution can develop and implemented well informed programmes to address the growing alcohol and drug abuse (ADA) menace which has rendered many youth unproductive, with some losing their lives at an early age. She invited the CEO to provide a brief description of NACADA's mandate and programmes. Prof. Imbuga highlighted that it has a directorate to deal with research on various aspects of ADA for the provision of accurate and timely data and information to inform internal and external policies as well interventions to address the growing Alcohol and Drug Abuse (ADA) problem. Some of the priority research areas highlighted during the meeting are;

1. National survey carried out every 5 years to assess the prevalence of ADA in the country.
2. Prospects for indigenous/alternative treatment to drug addiction – this is informed by the high cost and over-reliance on the existing medication for addiction management (Methadone), yet there could be other readily available options and cheaper options which have not been explored; and emerging substances of abuse, a practice that is driven by availability and misuse of industrial chemicals.

The two institutions discussed opportunities for collaboration and partnership. Based on the areas of research identified, it was agreed that there several ways in which the two institutions can collaborate to ensure research on Alcohol and Drug Abuse (ADA) remains a priority. These include:

- i. NACADA's involvement in review of research license applications related to ADA to provide advisory opinions on grant of research licenses to researchers
- ii. Establishment and support of a research chairs program in universities- this requires seed funding and seeking additional funds from philanthropists
- iii. Working together with NACOSTI and NRF to guide the development and operations of a research consortia on ADA to support research in the area as well as dissemination of research findings and recommendations to guide policy
- iv. Engaging universities to encourage Masters and PhD students to undertake research on ADA
- v. Establishing collaboration county governments to ensure they set aside funds to support research on ADA
- vi. Sharing expertise to support the planned national survey on ADA prevalence
- vii. Allocate seed money to support research on alternative treatment for drugs addiction

The meeting agreed to:

1. Develop and sign a memorandum of understanding to formalize NACADA and NACOSTI's engagement

2. Establish a joint team to immediately commence implementation of the action areas identified. The team proposed comprises the following: Dr. David Njubi, NACOSTI, Mr. Boniface Wanyama – NACOSTI, Prof. John Muteti – NACADA, Mr. Daniel Konyago – NACADA



Figure 9: Pictures of the Meeting

It was agreed that the MoU will be signed by the end of July 2021

NACOSTI TEAM LEAD'S KENYA'S DELEGATION TO THE BIOLOGICAL AND TOXINS WEAPONS CONVENTION (BWC) IN GENEVA, SWITZERLAND

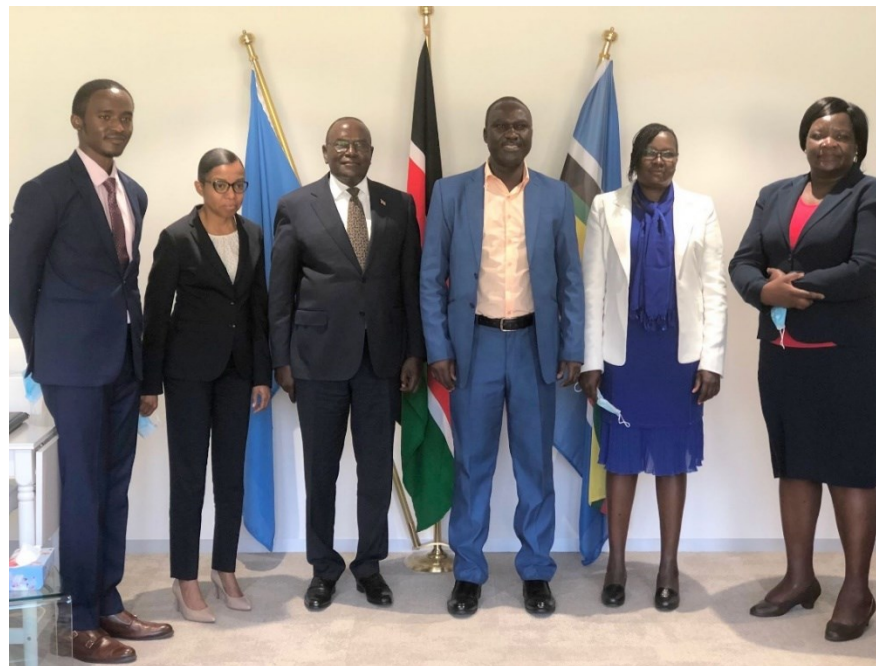


Figure 10: Dr. Roselida Owour (Deputy Director Ministry of education), Dr. Mary Onsarigo (Senior Analyst, NACOSTI), Prof. Walter Oyawa (Director General, NACOSTI, and BWC National Focal Point) Ms Salome Kagosha (Deputy Director, MFA), Ms. Ann Keah (Counsellor 1, Kenya Mission, Geneva) Mr. Kevin Munene (Third Secretary, MFA).

Kenya is a member of BWC since 7th January 1976. The objectives of BWC to States Parties are to completely prohibit any acquisition or retention of biological or toxin weapons with no exceptions; Prohibit assisting or encouraging others to acquire Biological Weapon; institute national implementation measures;

safeguard the rights to exchange equipment, materials, and scientific and technological information for peaceful purposes to avoid hampering their economic and technological development.

The Meeting of experts of States parties was held in Geneva, Switzerland as from 30th August to 8th September 2021. Kenya participated in the Convention and was represented by a delegation comprising H.E Amb. Cleopsa Mailu (Kenya's Permanent Representative), as the Alternate Leader of Delegation.



Figure 11: Prof. Walter Oyawa (Director General, NACOSTI Presenting Gifts

Highlights of the convention include Kenya's position paper that dwelt on the Full and Comprehensive implantation of all provisions of Article X, review of Developments in the Fields of Science and Technology Related to the Convention, Strengthening National Implementation, Assistance, Response and Preparedness and Institutional Strengthening of the Convention. Under the referred Agendas, Kenya acknowledged assistance received which included:

- I. Strengthening biosafety laboratories in the Ministry of Health and the Ministry of Agriculture and Livestock.
- II. Procurement of buffer stocks of personal protective equipment and other medical supplies.
- III. Capacity building of contact points from the relevant institutions to facilitate information sharing for confidence building measures.
- IV. Continuous capacity building of medical personnel, researchers and students on biosafety and biosecurity.

Kenya also informed the Meetings of Experts the steps she is taking in institutionalization and strengthening of the convention that included:

- I. The Constitution of National Biosecurity Policy Committee with membership drawn from relevant Ministries, Departments and Agencies.
- II. Finalization of Proposed Biosecurity Bill and Draft National Biosecurity Policy
- III. Scheduled sensitization of the Policy Makers on Proposed Biosecurity Bill and Draft National Biosecurity Policy.
- IV. Training Contact persons from relevant institutions for purpose of coordinating preparation and submission of CBMs.
- V. Continuous submission of CBMs and
- VI. Accreditation of institutional Review Bioethics Committee

Kenya acknowledged that the relevance of the Biological Weapon Convention (BWC) in the wake of the Covid-19 pandemic has undoubtedly enhanced the impetus for greater Cooperation and

Assistance under Article X. Like all countries across the globe, Kenya has also not been spared from the raving impacts of the Covid-19 pandemic. In addition to COVNID-19, Kenya continues to experience sporadic outbreak of other infectious diseases such as cholera, aflatoxicosis among others. This coupled with the high burden of communicable diseases like malaria and HIV/AIDS. The Kenyan delegation was also able to organize for side events that included bilateral meetings with the BWC Implementation Support Unit (ISU) and the US Delegation. The Bilateral meetings resulted in joint pronouncements covering the need for capacity building in BWC, institutionalization of BWC curricula, promotion of BWC among the youth, enhancement of relevant infrastructure development, completion of Biosecurity bill and regulations, universalization of BWC, among others.

SENSITIZATION ON STI MAINSTREAMING PERFORMANCE CONTRACT INDICATOR - FY 2021/2021



Figure 12: STI Mainstreaming Committee coordinating the virtual sensitization at Lake Naivasha Resort (Focal Point), Naivasha, Kenya

The role of STI in Kenya's development discourse is acknowledged by the Kenyan Government as is depicted in the 10th Edition of the Performance Contracting (PC) Guidelines for the FY 2013/2014, where MDAs were expected to report on research and development (R&D). In FY 2021/2022 the Ministry of Public Service and Gender accepted NACOSTI's request to STI Mainstreaming as an Indicator in the 18th PC Cycle. To enhance

the capacity of the MDAs to effectively implement and report on the indicator, NACOSTI organized sensitization fora for the lead persons (Focal Point Persons and Champions) within the various Government Ministries, Departments and Agencies (MDAs). The specific objectives of the sensitization were; to highlight STI Legal and Institutional Framework, STI Policies and Priorities; to provide an overview of STI Mainstreaming Indicator; to introduce the participants to the development of Institutional STI Strategy; and to provide an overview of the STI Reporting Framework.

The Sensitization was led by NACOSTI's STI Mainstreaming Committee and was conducted virtually over a five-day period between 13th and 17th September 2021. Each day targeted a specific category of Institutions where the Director General of NACOSTI graced the sessions by welcoming the participants and making a presentation on STI as the Anchor to Humanity in a Disrupted and Volatile World. Day 1 targeted Focal Point persons and Champions from the Research Institutions, Regulating Agencies and Ministries and State Departments where 48 Participants attended; Day 2 targeted those from the Universities, University Colleges and other Colleges where 146 Participants attended; Day 3 targeted those from the Technical and Vocational Education and Training (TVET) Institutions (Polytechnics, Technical Institutes and Institutes of Technology) where 169 Participants attended; and Day 4 and 5 targeted MDAs with distinct Research and Technology Development Centres/Units/Activities/Budget where 306 Participants attended. In Total 669 Participants were sensitized on STI Mainstreaming PC Indicator for the FY2021/2022. The participants will be issued with Certificates of Participation.

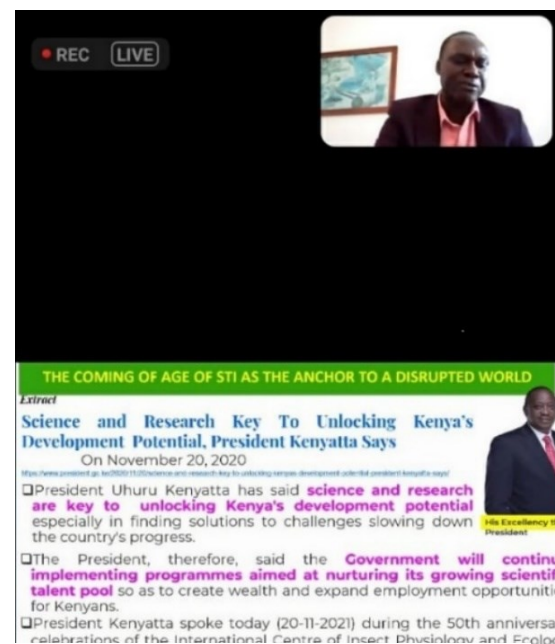


Figure 13: Virtual proceedings of the STI Mainstreaming

The Sensitization achieved its objectives while the attendance surpassed the expected numbers. NACOSTI appreciates and congratulates the MDAs for participating in the activity and equipping themselves with the necessary information for successful implementation and reporting on the STI Mainstreaming PC Indicator for the FY2021/2022.

SCHOLARS CALL FOR ACADEMIC INTEGRITY AT FIRST INTERNATIONAL CONFERENCE ON RESEARCH ETHICS



Figure 14: Group Photo during the First International Conference on Research Ethics

Daystar University vice-chancellor has stressed the need to give emphasis to ethics, integrity and quality in research.

Prof Laban Ayiro and other scholars emphasised the need for academic honesty, saying it was critical for education to make an impact.

“Total lack of ethics will carry itself with you as you walk around telling people that you have a PhD, yet you know that the ethical standards of your PhD are false,” said Prof Ayiro.

Prof Walter Oyawa, the director-general of the National Commission for Science, Technology and Innovation (Nacosti), said his agency had been created for the benefit of all

stakeholders. “We need to build a culture whereby when one stands and gives a lecture on his area of expertise, he or she can be heard,” he said.

“Science is dependent on people having faith in what scientists do. When you mistrust science, you undermine the support given to science,” added David Ewoldsen of Michigan State University.

They spoke this week at the inaugural International Conference on Research Process and Research Ethics at Daystar University, Valley Road Campus. The conference was jointly hosted by the university, Nacosti and the Daystar University ethics review board.



Figure 15: Panel Discussion during the First International Conference on Research Ethics

Simon Nabukwesi, the Principal Secretary for University Education and Research, said the government was determined to strengthen the private sector’s involvement in research, science and technology, to fuel the growth of the economy. He lauded Daystar for prioritising research in its 2020-2025 strategic plan.

ASSESSMENT OF THE PREPAREDNESS OF PROPOSED ST. PAUL'S UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE



Figure 16: Group Photo

The National Commission for Science, Technology and Innovation on 17th August 2021 assessed the Research Directorate's readiness to institutionalize St. Paul's University's Ethical Review Committee. This is a great milestone for the directorate as it will simplify review and approval of scholars' work.

A CONSULTATIVE MEETING WITH KENYA DEFENCE FORCES ON THE ESTABLISHMENT OF MEDICAL RESEARCH AND ETHICAL BODY



Figure 17: Group Photo

Prof. Walter Oyawa Director General, National Commission for Science, Technology and Innovation (NACOSTI) held a consultative meeting with Kenya Defence Forces team on the establishment of medical research and ethical body on Friday 30th July 2021 at NACOSTI Headquarters

MULTI-SECTORAL CONFERENCE PICTORIALS





KEMRI, ILRI AND UNIVERSITY OF NAIROBI TAKE THE LEAD IN KENYA IN THE SCIMAGO GLOBAL RANKING OF RESEARCH AND INNOVATION INSTITUTIONS



SCIMAGO INSTITUTIONS RANKINGS

The SCImago Institutions Rankings (SIR) is a classification of academic and research-related institutions ranked by a composite indicator that combines three different sets of indicators based on research performance, innovation outputs and societal impact measured by their web visibility.

It provides an interface allowing the visualization of any customized ranking from the combination of these three sets of indicators. Additionally, it is possible to compare the trends for individual indicators of up to six institutions. For each large sector it is also possible to obtain distribution charts of the different indicators.

The SCImago Institutions Rankings are produced by the Scimago Lab and analyse data relevant to scientific and online reputation. In addition to conventional metrics related to research they also

measure innovation and societal influence. There are separate rankings for universities and other institutions.

This ranking classifies institutions that are directly associated with research. It ranks them using a composite indicator that combines a set of variables relating to three main areas: research, innovation and societal impact. Societal impact is measured by considering the visibility of institutions' websites. The 2021 edition is the first that SIR publishes results related to a large list of fields and subfields in addition to the institutional level.

The overall 2022 are led by the Chinese Academy of Sciences. The rest of the top twenty is dominated by non-university institutions including the Chinese Ministry of Education, the US Department of Health and Human Sciences, Facebook, Google and Microsoft.

Within both the **Research** Sector and **Innovation** rankings, the top five overall are:

1. Chinese Academy of Sciences
 2. Centre National de la Recherche Scientifique
 3. Ministry of Education of the People's Republic of China
 4. Harvard University
 5. Harvard Medical School
- Ranking of Research and Innovation Institutions in Kenya by SCIMAGO is currently as follows:

Ranking of Research and Innovation Institutions in Kenya by SCIMAGO is currently as follows:

Position in Kenya	Institution in Kenya	Position in Africa	Position in Kenya
1.	Kenya Medical Research Institute (KEMRI)	8	1
2.	International Livestock Research Institute Kenya (ILRI)	15	2
3.	University of Nairobi (UoN)	27	3
4.	Egerton University	45	4
5.	Aga Khan University Hospital, Nairobi	46	5
6.	International Centre of Insect Physiology and Ecology (ICIPE)	47	6
7.	Jomo Kenyatta University of Agriculture and Technology (JKUAT)	53	7
8.	Moi University	67	8
9.	Kenyatta University (KU)	76	9

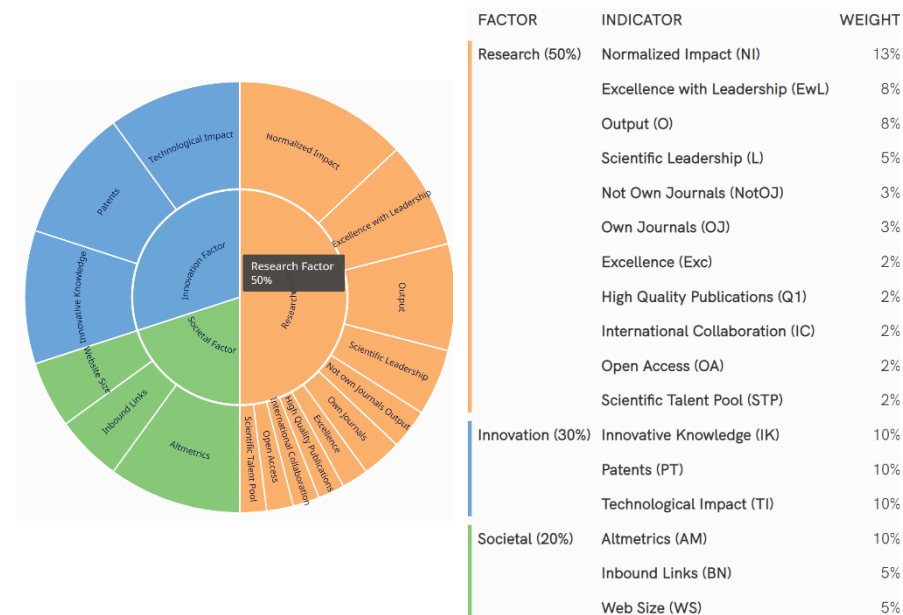
Methodology by SCIMAGO

SCImago Standardization: In order to achieve the highest level of precision for the different indicators, an extensive manual process of disambiguation of the institution's names has been carried out. The development of an assessment tool for bibliometric analysis aimed to characterize research institutions involves large amounts of data processing task related to the identification and disambiguation of institutions through the institutional affiliation of documents included in Scopus. The objective of SCImago, in this respect, is twofold:

1. Definition and unique identification of institutions:
2. Attribution of publications and citations to each institution.

For the ranking purposes, the calculation is generated each year from the results obtained over a period of five year ending two years before the edition of the ranking. The inclusion criterion is that the institutions had published at least 100 works included in the SCOPUS database during the last year of the selected time period.

Score Indicators



Source: <https://www.scimagoir.com/rankings.php>

KENYANS NAMED SECOND MOST INNOVATIVE PEOPLE IN AFRICA



According to a report by the World Intellectual Property Organization, Kenya came second after South Africa on the continent.

The ranking was done based on an index dubbed the Global Innovation Index (GII) 2021 which looks at the investments in innovation.

The report revealed that despite the effects of the global pandemic, countries continued investing heavily in innovation.



Figure 18: Some of the USB Cables Manufactured by TOTSCI Company.FACEBOOK

“Many sectors have shown remarkable resilience – especially those that have embraced digitalization, technology and innovation”, said WIPO Director General Daren Tang.

In the global ranking, countries that ranked highest are those invested in scientific output, research and development and intellectual property. In Africa, the top three were South Africa, Kenya and Tanzania.

The three countries were ranked in positions 61, 85 and 90 globally. They were followed by Namibia (100), Rwanda (102), Madagascar (110), Zimbabwe (113) and Burkina Faso (115).

Of the African countries, only Kenya and Tanzania have maintained their position in the top 100 while at the same time improving their performance over time.

Mauritius leads in venture capital deals while South Africa leads in market capitalization.

Kenya has held the record for the out-performer of the continent for 11 consecutive years.

Globally, the top five countries were Switzerland, Sweden, the United States of America, the United Kingdom and the Republic of Korea respectively.

Africa is the continent with the highest number of overperforming economies on innovation.

Tang added that innovation is integral to overcoming the common challenges that people face.

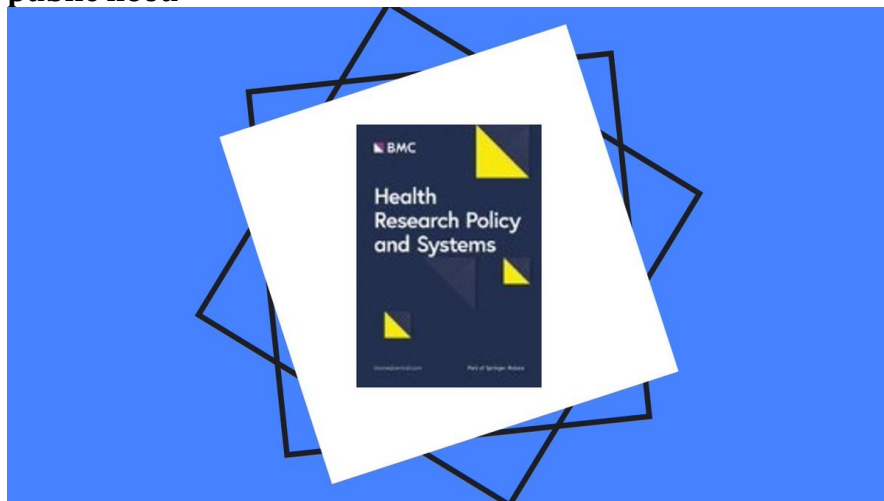


Figure 19: Jua Kali ICU beds procured from three young innovators to be distributed in the counties across the country. TWITTER

Source: <https://www.kenyans.co.ke/>

RETHINKING APPROACHES OF STI IN HEALTHCARE DURING THE COVID-19 PANDEMIC

The challenge of translating knowledge infrastructures to public need



The coronavirus disease 2019 (COVID-19) outbreak made it clear that despite the potential of science, technology, and innovation (ST&I) to positively impact healthcare systems worldwide, as shown by the rapid development of SARS-CoV-2 test diagnostics and new mRNA vaccines, healthcare stakeholders have faced significant challenges in responding to the crisis through well-integrated ST&I-oriented health initiatives and policies. Therefore, the pandemic has mobilized experts, industry, and governments to evaluate alternative trajectories to promote a more efficient dialogue between ST&I and public health. This article presents a critical thinking about the contemporary asymmetries in the technical and political infrastructures available for particular approaches in ST&I in health, such as

precision medicine, and for public health systems worldwide, uncovering a persistent gap in the translation of knowledge and technologies to adequately coordinated responses to the pandemic. We stimulate the understanding of this process as a matter of translation between platforms of knowledge and policy rationales shaped by different institutionalized frames of organizational practices and agendas. We draw attention to the need to strengthen governance tools for the promotion of ST&I as a strategic component of the post-pandemic agenda in public health, to prepare societies to respond efficiently to future emergencies.

COVID-19 RESEARCH BOOSTS UNIVERSITIES' GLOBAL RANKING



The United Kingdom's University of Oxford – which led the way in the global search for a COVID-19 vaccine – has topped the

Times Higher Education (THE) World University Rankings for the sixth year running.

It was followed by California Institute of Technology and Harvard University, both joint second, Stanford University and the University of Cambridge.

The top 10 is dominated by the United States with eight spots and the UK with two and comprises the same top 10 institutions as last year, although a few have changed places.

In a year dominated by the ongoing COVID-19 pandemic, the rankings, which were released on 1 September, reflect the vital role of universities in understanding and managing the crisis.

A number of institutions saw significant boosts in their citation scores – which examine universities' research influence and look at their role in spreading new knowledge and ideas – from COVID-19 focused research. A number of medical universities moved up the table since last year following COVID-19 research. These include mainland China's Capital Medical University (501-600), Taiwan's Asia University, Taiwan (501-600), Saudi Arabia's Umm Al-Qura University (601-800) and Estonia's Tallinn University of Technology (601-800). They all moved up at least one ranking band as a result.

Baty said: "In the coming years it will be interesting to see whether the US, UK and other world-leading higher education systems can respond to the challenges of COVID-19, including attracting international academic and student talent, and a possibly serious impact on already stretched funding, to hold onto their positions at the very top of the table."

A record 1,662 universities from 999 countries and regions were ranked by the THE World University Rankings 2022, 136 more than last year. An explanation of the methodology used can be found [here](#).

Africa sees record representation in the rankings, as nine debutants take its total to 71 institutions. Ghana's University of Cape Coast (301-350) and Ethiopia's Addis Ababa University (401-500) rank for the first time, and both achieve positions in the top 500. South Africa's University of Cape Town (joint 183rd) remains Africa's top performing university, and is Africa's only representative in the top 200.

Source:

<https://www.universityworldnews.com/post.php?story=20210903092722774>

TOP RESEARCH PUBLICATIONS BY SCIENTISTS IN KENYA

Kenya has a higher proportion of researchers per million of population in comparison to several African nations. The government spends 0.8% of its GDP on research and development (R&D) However, this is shy of its own ideal 2% target. Kenya's research system is deficient but not undeveloped. The country has a large number of established international players with existing long-standing relationships with local stakeholders, ranging from non-governmental organisations such as the African Academy of Sciences (AAS) to intergovernmental organisations like the African Development Bank (ADB).

According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO), Open Science is the movement to make scientific research and data accessible to all. It has great potential for advancing science. For scientific research to flourish, all the stakeholders need to be involved. Some of these stakeholders include the government, research funders, academic and research institutions, researchers, libraries, ICT specialists, and the general public who use research outputs.

Among research institutions in Kenya, the International Livestock Research Institution (ILRI) has a research data management policy and an open access policy that requires researchers to publish high-quality and reproducible science and published in peer-reviewed open access journals (International Livestock Research Institution, 2015). Among the universities, University of Nairobi has an open access policy that requires all the University stakeholders to deposit their research work into the University's open repository (University of Nairobi, 2013). Jomo Kenyatta University of Agriculture and Technology has an open research data policy that promotes high research data management standards for reproducibility and sharing.

A lot of the Scientific Research conducted by Kenyan researchers is peer reviewed, open access, inter- and multidisciplinary in nature.

Some of the most reputable science publications that Kenyan Scientists have published can be found in platforms such as: Research gate, Google scholar, Publons. Elsevier, Scopus Journals, Jstor, Sage, and others.

NACOSTI BIDS FAREWELL TO STAFF



Dr. Edwardina Ndhine



Ms. Esther Mbula

The following employees have left service since July 2021 to date.

1. Dr. Edwardina Ndhine - Chief Analyst, Earth and Space Science, retired from service.
2. Ms. Esther Mbula - (Senior Human Resource Officer) left the service for a different opportunity.

NACOSTI wishes them all the very best in their future endeavors and the next season of their lives.

NACOSTI STAFF PHD GRADUATE IN 2021



Figure 20: Figure 17: Dr, David Ngigi, Principal Analyst

The Commission wishes to congratulate Dr. David Ngigi for attaining his PhD Degree in Entomology from University of Eldoret. The Commission recognizes that this achievement is a result of hard work and commitment to acquiring new skills and knowledge to serve better. The Commission has high expectation that Dr. Ngigi will bring new ideas in the execution of this Institution programmes.

The Commission wishes Dr. Ngigi even more success in his career in public service.

RESOLUTIONS OF THE 1ST MULTISECTORAL CONFERENCE ON STI



Figure 21: Prof. Walter O. Oyawa, DG NACOSTI Communicating the Multi-Sectoral Conference Resolutions/Recommendations

Participants of the 1st Multisectoral Conference on STI held as from 4th to 6th August, 2021 committed and made observations and resolutions as below.

1.0 Institutionalization of the Multisectoral Conference

The multisectoral conference provided a unique forum for stakeholders to engage on the current status of science, technology and innovation in the country

and its infusion in the Country's Development Agenda for inclusive and sustainable growth. In order to strengthen collaborations and partnerships among institutions in the STI ecosystem it is **resolved** as follows:

- (i) Taking cognizance of NACOSTI's role as a cross-cutting and multi-sectoral regulator on matters Research, Science, Technology and Innovation, NACOSTI to institutionalise a Multisectoral STI Conference and exhibitions to be held on an annual basis that brings together the diverse stakeholders; and
- (ii) Key stakeholders including Universities, University Colleges, Research Institutions, TVET Institutions, relevant regulatory agencies, STI-based institutions, and the private sector to support and participate in upcoming Multisectoral STI Conferences and exhibitions. In this regard, a leading industrialist and Chancellor of Egerton University, Dr. Narendra Raval who in his capacity as the

Chief Guest on the last day of the Conference and hence gave a Keynote Presentation, committed himself that the next Multisectoral STI conference be held at Egerton University, if NACOSTI will allow, and all the industrialists will be invited and requested to commit support for the STI Sector starting with himself with the ultimate aim of deploying STI to change the lives of Kenyans for the better. He guided that the multisectoral conference on STI be organized on an annual basis.

2.0 Response to COVID-19 Pandemic

COVID-19 Pandemic presents immense risks to the economy and to key dimensions of national institutions. Advances in science, technology and innovation hold a key to mitigating against the widespread effects of the COVID19 pandemic and other future emergencies. Accordingly, it is **resolved** that;

- (i) There is urgent need for more investments in science, technology and innovation to enable the

- country secure national security and public safety;
- (ii) Institutions and stakeholders in the STI Sector including Universities, University Colleges, Research Institutions, TVET Institutions, STI-based regulatory institutions, STI-based Ministries, Departments and Agencies, and the Private Sector should make deliberate efforts by investing in R&D; and
 - (iii) The industry should initiate, develop and market innovations that will provide solutions to mitigate the adverse effects of COVID-19 on the Kenyan populace.

3.0 Funding of Research, Science, Technology and Innovation

The STI Act 2013 (Rev. 2014) under section 32(2)(a) provides for a sum of money amounting to two per cent of the country's GDP to be provided by the Treasury every financial year. According to the STI Act the object of the Fund shall be to facilitate research for the advancement of science, technology and innovation. Research and Development

(R&D) activities allow scientists and researchers to develop new knowledge, technologies and innovations that spur economic growth. It was noted that the current level of funding for R&D was about 0.8 per cent. Taking cognizance of the fact that research is an investment, it was **resolved** that:

- (i) The three-funding bodies provided for under the various Acts, namely the National Research Fund under the STI Act, the Universities Funding Board under the Universities Act, and the TVET Funding Board under the TVET Act be strengthened to ensure adequate resources for the sector.
- (ii) The operational documents establishing the three funds should be reviewed by the relevant Government Agencies.
- (iii) The Government be urged to fully implement Differentiated Unit Cost (DUC) in funding programmes at the university level.
- (iv) It was strongly urged that the Government and private sector investors should invest 2% of GDP

in research, science, technology and innovation, subdivided among the three key thrusts of the STI Sector, namely, Universities, Research Institutions, and TVET Institutions. The use or allocation of the 2% of GDP investment on national priority projects be guided by the corresponding regulatory bodies. The meeting emphasized that the 2% of GDP is an investment that is likely to manifest seven-fold into the lives of Kenyans.

- (v) NACOSTI and NRF should engage key institutions including the National Treasury and Parliament with a view to increasing the funding for STI. In this regard, there is need to develop capacity among scientists/researchers/STI leaders for advocacy and lobbying.
- (vi) The Government should incentivise private sector for example through tax exemptions to financially support research. In this regard, NACOSTI to develop a framework that attracts industry to collaborate

- on matters Research, Science, Technology and Innovation
- (vii) Innovative financing mechanisms be enhanced by bringing on-board venture and angel capital and other players in the financial sector
 - (viii) NACOSTI to advocate for tax-free Research Equipment to facilitate the national research agenda, and effective sharing of equipment realized through collaborations
 - (ix) The STI Sector makes optimal utilization of the available limited resources in accomplishing the deliverables for the STI goals.
 - (x) NACOSTI to document and disseminate available R&D Infrastructure/Equipment in various institutions so as to encourage optimal use of available R&D Infrastructure/Equipment, and minimize unnecessary duplication of the same.

4.0 Research Chair Programmes, and Centres of Excellence

Taking note of ongoing implementation of the National Research priorities

framework that is anchored on Research Consortia approach, Institutions in the STI Sector, Counties, and the Private sector are encouraged to support the establishment of Research Chair Programmes, and Centres of Excellence to fasttrack the realization of the Big Four Agenda. In this regard, a leading industrialist and Chancellor of Egerton University, Dr. N. Raval committed that he will consult his colleagues in the industry if they can assist in the formation of the industrybased research chair programme geared towards benefiting the STI sector including Universities and Research Institutions. The research chair programmes will be competitive and coordinated by NACOSTI.

5.0 Promote and encourage Private Sector involvement in STI development

Private sector involvement in STI is relatively low hence resulting in low creation/development and uptake of technologies. In view of this it is **resolved** that:

- (i) The role of the private sector should be encouraged in the spirit of public and private participation. In this regard, a leading industrialist and Chancellor of Egerton University, Dr. N. Raval has pronounced that he is willing to be the lead person for the facilitation of the direct linkage between the industry, academia, and government in collaboration with NACOSTI and the Ministry of Education. He requested that the resolutions that emerge from the STI multisectoral conference be sent to him so that he can share the same with his private-sector colleagues.
- (ii) NACOSTI in consultation with stakeholders formulate and implement an STI Sector - Private Sector Strategy and implementation Framework.
- (iii) NACOSTI and partners to lobby government to introduce appropriate tax incentives and/or tax relief aimed at encouraging R&D activities by the private sector.

6.0 Collaboration and Partnerships

It is recognized globally that collaborations and partnerships have become a very important mechanism of business interaction, and market and technology access. The country could benefit immensely if there was synergy among the existing STI institutions. Further, there is need to develop and strengthen strategic partnerships with STI institutions and organizations at international level. NACOSTI is a focal point of various international organizations and institutions implementing treaties and conventions including: The Biological Weapons Convention (BWC) that outlaws biological arms; International Centre for Genetic Engineering and Biotechnology (ICGEB); the African Regional Cooperative Agreement for Research, Development and Training related to Nuclear Science and Technology (AFRA); and The Comprehensive Nuclear-Test-Ban Treaty (CTBT). Accordingly, it is **resolved** that:

- (i) NACOSTI to undertake more engagements with other agencies in the STI ecosystem including

public universities and the Commission for University Education (CUE) in the areas of research and development.

- (ii) There is need to strengthen the role of universities, TVETs and research institutions in fostering integration and infusion of STI in economic activities.
- (iii) There is need to promote country, regional and international collaborations and partnerships between the public and private sectors in existing and emerging STI areas. In this regard, institutions should take advantage of existing opportunities available in Kenya's International treaties and obligations.
- (iv) There is need to enhance institutional, national, regional and international collaborations and partnerships to increase investments in STI. The collaborations should evolve innovations that improve the lives of Kenyans, and minimize

importation of products that can be made in Kenya.

7.0 Recognition of Scientists/ Researchers and Champions of STI

Kenya boasts of outstanding scientists, scholars and researchers some of whom have been recognized globally for their various contribution in their field of expertise. There is need to recognise and award some of the renowned scientists, scholars and researchers who have contributed their services with a passion, dedication and commitment for the development and competitiveness of the country, and mankind at large. Accordingly, it is **resolved** that:

- (i) NACOSTI to develop a framework for identification/assessment and recognition of STI contributions by Kenyan scientists.
- (ii) There is need to develop a framework for recognition of Professor Emeritus within the universities given the wealth of knowledge and expertise that they have.

8.0 Strengthen Mechanisms of Performance Management for the STI Sector

Taking note of NACOSTI's cross-cutting and Multi-sectoral regulatory framework and authority, it is **resolved** that NACOSTI:

- (i) Should prioritize and develop, in consultation with other 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.
- (ii) Together with partners, should institute measures to ensure the comprehensive realization of the provisions stipulated in the STI Act in tune with prevailing circumstances in a disrupted world.
- (iii) Should ensure co-ordination, co-operation and collaboration between the various STI institutions and agencies involved in science, technology and innovation.

- (iv) Should undertake an STI baseline survey, including a skills inventory for Kenyans in the country and in the diaspora, as well as status of the current STI infrastructure.

9.0 Strengthen the Teaching of Science, Analytics and Technology Education at all levels

Science, Technology, Engineering and Mathematics (STEM) education equips young people with requisite skills that make them more practical, analytical, employable and ready to meet the current labor demand. STEM education should include improving STEM instruction and learning, increasing and sustaining youth and public engagement in STEM, enhancing the STEM experience of undergraduate students, providing STEM learning opportunities to groups historically underrepresented in STEM fields, designing graduate education for tomorrow's STEM workforce, and enhancing the STEM experience and value proposition through digital tutors, learning analytics, simulations, games, and embedded assessment. Unfortunately, there is relatively low

participation of learners in STEM education at the higher education levels. Accordingly, it is **resolved** that:

- (i) NACOSTI should strengthen its advisory role on science education and innovation at both basic and advanced levels and in light of the implementation of Competency Based Curriculum (CBC).
- (ii) NACOSTI, in partnership with the key players in STEM, should develop and implement the National Strategy for STEM Education that will ensure that all citizens have lifelong access to high quality STEM education leading to enhanced STEM literacy, innovation, and employment
- (iii) At the university level, Problem Based Learning (PBL) should be advocated and adopted as learners transit implement CBC
- (iv) Stakeholders should strengthen and align science, technology and innovation systems and industrial policies, building digital skills among students and the workforce, and closing digital divides

- (v) Education institutions should ensure STEM education and training incorporates the 21st-century soft skills of communication, collaboration, critical thinking, and creativity so as to create a tech society that is able to diffuse what is learned into society.

10.0 Sensitize, Review and Strengthen Research and STI Regulatory and Institutional Framework

The STI Act established the National Commission for Science, Technology and Innovation; the Kenya National Innovation Agency; and the National Research Fund as the institutional frameworks for the governance of the national research and innovation system. There are also other Acts under different ministries whose mandates involve regulation of different aspects of research. There is need to have the different Acts harmonized. Accordingly, it is **resolved** that:

- (i) NACOSTI to periodically sensitize each of the various diverse groups

of key stakeholders on current provisions in the STI Act and its accompanying Legal Notices, regulations and guidelines. In this regard, stakeholders are expected to familiarize themselves with the prevailing regulatory and institutional framework for Kenya's Research Systems (viz. Research, Science, Technology and Innovation), and to promptly provide written suggestions and recommendations on draft documents pertaining to the same.

- (ii) Taking cognizance of the various regulatory instruments in various sectors of the economy, there is need to review and harmonize relevant legislation and governance structures where applicable, in consultation with each of the diverse groups of stakeholders. The Ministry of Education and NACOSTI to spearhead the activity.
- (iii) NACOSTI to periodically review its functions with a view to delegating some of them to competent agencies such as the Kenya

National Academy of Sciences, while maintaining the overall oversight of the delegated functions.

- (iv) Members of the High Level Advisory Panel on STI should play a key role in the sensitization, advocacy and stakeholder engagement programmes of Kenya's Research Systems
- (v) The Ministry of Education, NACOSTI and partners should engage more with the relevant Parliamentary Committees as part of lobbying and advocacy with a view to fast-tracking the review of relevant STI legislations, where applicable, as well as seeking enhanced investment in STI.

11.0 Technology Transfer, Innovation and Commercialization

Technology transfer, which is the process of transmission of results of basic and applied research to the design, development, production and commercialization of new and improved products, services, or processes is

relatively low in Kenya. Accordingly, agencies should promote innovation and commercialization from R&D investments, as well as advocate for uptake of Research outputs. Consequently, it is resolved that:

- (i) There is need for KENIA to spearhead the development of a framework for technology transfer and Commercialization in consultation with stakeholders
- (ii) There is need for institutions to establish Science and Technology Parks, Centres of excellence, Innovation hubs, and Incubation hubs and accelerators in the Universities, Research Institutions, and counties in tune with priorities in scientific, technological and innovation activities identified by NACOSTI.
- (iii) There is need to develop a framework to facilitate harnessing of traditional, local and indigenous knowledge to control diseases in humans and animals in the communities. This may be part of the National Research Priorities.

(iv) There is need to create mechanisms of linking innovators with the market and the industries for those with prototypes. KENIA to spearhead such efforts.

- (v) There is need to collectively institute mechanisms to improve Kenya's Global Innovation Index (GII) as well as improve global ranking of research institutions/agencies so as to enhance the overall Kenya's global competitiveness based on internationally recognized STI indicators.

12.0 Drug and Substance Abuse

Taking note of the extreme threat posed by substance abuse especially during the COVID-19 pandemic, NACOSTI should collaborate with NACADA and other relevant institutions on enhancing and promoting Research on Alcohol and Drug Abuse, and its impacts on Mental Health.

13.0 Refocussing of University Education and Training in tune with global trends

(i) Universities should redefine their core mandate and transform themselves into 5.0 Model that focusses on: Research, Teaching, Community service, Innovation and industrialization.

- (ii) The University-Industry-GoK-Community/Civil Society collaboration should highly and urgently be encouraged to establish high level collaborations to produce innovations and technologies through joint research and consultations to speed up their uptake for economic growth and development. (iii) Universities in the 21st century should transform themselves into entrepreneurial universities where the focus is on creation of spin-off companies or licensing of intellectual property assets.

14.0 2.14 Leadership Training for Scientists, Researchers and STI Leaders

As part of efforts to develop world-class researchers as well as scientific,

technological, and innovation leaders in the region and in the world, there is need to initiate collaborative training and mentorship programmes to enhance research, research management, grant-seeking/resource mobilization and leadership skills amongst scientists, researchers and STI Leaders. The programmes will enhance the capacity to publish, patent and lead relevant and high-quality research and innovations that have positive impact on inclusive sustainable development of the region. In this regard, NACOSTI is called upon to coordinate the development of such programmes, and to create a framework to educate, train and mentor Scientists, Researchers, and STI leaders.

15.0 Strengthen engagement of TVET with Micro, Small and Medium Enterprises (MSMEs)

TVET affords practical avenue for acquiring employable skills for the world of work and preparing trainees for a specific profession by providing them with appropriate skills required by the labour market or for self-employment. It increases the chances of trainees gaining employment quickly, or setting up their

own enterprises, creating a vibrant labour market and contributing to economic growth. In this regard it is resolved that: (i) There is need to strengthen engagement of TVET with Micro, Small and Medium Enterprises (MSMEs) (ii) There is need to increase investment in TVET to create a flourishing manufacturing and agro-processing industries in agriculture and other informal sectors.

16.0 Next Generation STI Workforce

The next generation workforce will be taken up by those that will seize on opportunities provided by Frontier Technologies/Digital Technologies in capacity building on health, agriculture, housing, manufacturing, and environmental issues at community level. Accordingly, training and mentoring a technologysavvy workforce will require a collaborative effort between training institutions and the industry aimed at exposing the next generation STI workforce on underlying principles of technology development as well as ethical implications of frontier technologies such as artificial intelligence, quantum computing, 5G,

machine learning and cybersecurity. It is thus **resolved** that:

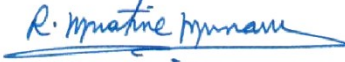

- (i) Priority should be given to investments in STI capacity building and technology development/adaptation that address the challenges of, and tap into the opportunities afforded by Frontier Technologies such as the Big Data revolution, artificial intelligence (AI), Blockchain, Robotics, Internet of Things (IoT), Cloud computing, Synthetic Biology, Nano, 3-D printing, Digital Systems, Cybersecurity and Biosecurity.
- (ii) Universities and Research Institutions should seek deliberate funding or investments to develop and support interdisciplinary programs that facilitate faculty, researchers, trainees, and students to apply their technical knowledge to real-world problems. This may form part of Problem Based Learning (PBL) under the Competency Based Curriculum (CBC) approach.

- (iii) There should be more deliberate investments in advanced communications, networking, and broadband access to ensure that citizens can continue to work and access education and medical services remotely.
- (iv) NACOSTI to promote and spearhead Kenya's uptake and adaptation of Frontier Technologies to mitigate the effects of a disrupted world and to enhance Kenya's regional and global competitiveness.



Figure 22: Participant following the proceedings during the Multi-Sectoral Conference on STI

Endorsement:

Conference/HLAP Chairman:	Prof. Raphael Munavu	
	Name	Signature: 6th Aug. 2021
Director General, NACOSTI:	Prof. Walter O. Oyawa	
	Name	Signature: 6th Aug. 2021



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

Upper Kabete, Off Waiyaki Way, P.O. Box 30623 – 00100, Nairobi, Kenya

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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	Reviewed
1)	Kenya Citizens: Diploma/Undergraduate	Ksh. 1,000
2)	EAC Citizens: Diploma/Undergraduate	Ksh. 1,000
3)	Kenya Citizens: MA/MSc	Ksh. 5,000
	EAC Citizens: MA/MSc	Ksh. 5,000
	Kenya Citizens: PhD	Ksh. 5,000
	EAC Citizens: PhD	Ksh. 5,000
	Kenya Citizens: Individual/Postdoc	Ksh. 20,000
	EAC Citizens: Individual/Postdoc	Ksh. 20,000
4)	Public Institutions	Ksh. 20,000
5)	Private Institutions	Ksh. 20,000
	Non-Africans: Diploma/Undergraduate	US\$ 400
	Non-Africans: MA/MSc	US\$ 400
	Non-Africans: PhD	US\$ 400
	Non-Africans: Individual/Postdoc/Non-academic	US\$ 400
6)	Non-EAC but from an African Country	US\$ 400

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	275,000
2)	Accreditation of Research Programmes	275,000
3)	Inspection, Monitoring and Evaluation of Research Institutions	A basic fee of 275,000 be levied in addition to any costs that will 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



*Prof. Walter O. Oyawa, PhD
Director General/CEO*



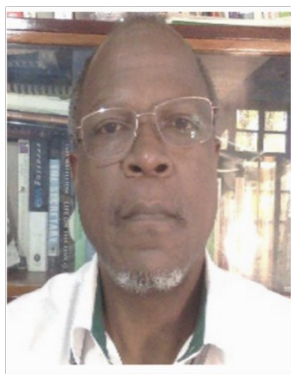
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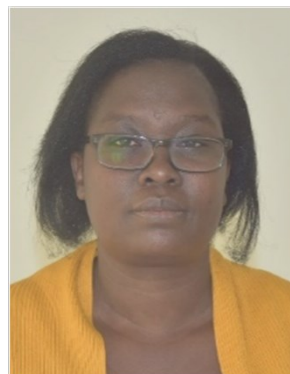
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*Mr. James Otuga
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Officer*



*Mr. Rollex Opondo
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Officer*



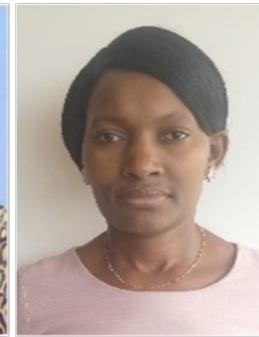
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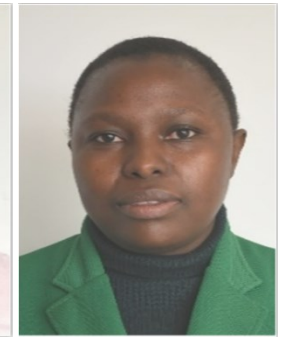
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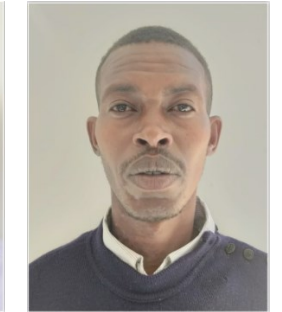
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*Mr. Paul Anuro
Senior Driver*



*Mr. Pius Samoei
Senior Driver*



*Mr. Abdi Ibrahim
Senior Driver*

KENYA'S NATIONAL ANTHEM

Kiswahili

1

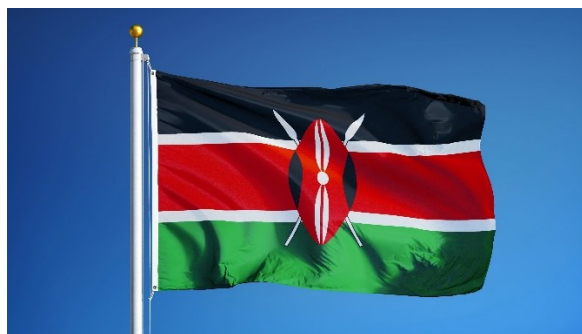
Ee Mungu nguvu yetu
Ilete baraka kwetu
Haki iwe ngao na mlinzi
Natukae na undugu
Amani na uhuru
Raha tupate na ustawi.

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.



NACOSTI HOTEL AND CONFERENCE

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