National Commission for Science, Technology and Innovation (NACOSTI)

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STIR Bulletin is a Quarterly Publication of the National Commission for Science, Technology and Innovation (NACOSTI).

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EDITORIAL

"Science and Technology for Prosperity"

The period October to December 2023 covered the second quarter of the Financial Year 2023/2024.

During this period, we activated our implementation of the plans for the new Financial Year. This involved the Commission successfully migrating the service for research licensing to the E-citizen Platform.

The Commission has been engaged in various stakeholder engagements within and outside the Country. Amongst these are the Erasmus+ National Focal point (ENFP) of Kenya, first regional Erasmus+ week in Sub-Saharan Africa, organized by The European Education and Culture Executive Agency (EACEA). Also, the opening ceremony of the Postgraduate Educational Course in Radiation Protection and Safety of Radiation Sources (PGEC) for English-speaking countries at Kenyatta University.

The Commission also was involved in the establishment of a nuclear research reactor, key in research and technical development in the industrial, scientific, and medical sectors in Kenya. This was after IAEA granted its approval.

In a continuous endeavor to foster international linkages in RSTI, the Commission received various delegations who paid courtesy calls on the management to discuss areas of collaboration.

This Bulletin also highlights topical issues in RSTI within and outside the country. Amongst these are strides made by Kenyan researchers and innovators in various spheres of science and technology.

We wish you a happy reading of this issue of the NACOSTI STIR Bulletin, we also thank you for 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 4th Edition of the STIR Bulletin, 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 endeavour 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
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) Accredit 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 HOSTS DELEGATION FROM THE EUROPEAN WORKING GROUP ON HIGHER EDUCATION AND RESEARCH

Figure 1: A group photo of the NACOSTI Team and European Union Working group on Higher Education and Research team.

Prof Walter O. Oyawa, Director General, NACOSTI on October 24, 2023, hosted a team from European Union Working group on Higher Education and Research led by Dr Mathieu Guérin, Attaché for Science and Higher Education, Embassy of France, and Dr. Laurent Bochereau, the EU Science Counselor to the African Union. The Working Group comprised EU Delegation to the

African Union, EU Delegation to Kenya, and representatives of EU Missions/Embassies in Kenya.

To start off the discussions, the representative of the Principal Secretary, State Department for Higher Education and Research, Mr. Fredrick Ndambuki welcomed the delegation and appreciated the fruitful partnerships that Kenya has had with the EU. He looked forward to increased joint ventures. On his part, the Director General NACOSTI, Prof. Walter Oyawa provided insights into the current state of scientific research systems within the country and expressed the need for a whole-of-government approach to fast track the deployment of science, technology and innovation for national prosperity and national good. He also outlined the achievements and advancements made in various research fields, underlining Kenya's commitment to make deliberate investment on science and technology, and innovation. He further informed that the Cabinet Secretary, Ministry of Education, Hon. Ezekiel Machogu, had appointed the National Research, Technology and Innovation Consortium/Committee (NARTIC). The Chief objective of the NARTIC is to directly (or through sub-consortia) prepare, coordinate preparation of, and submit proposals to the Horizon Europe "call for Proposals", and to any other partner/donor funding agencies.

Led by Dr. Mathieu Guerin, the EU representatives presented the existing partnerships, joint initiatives, and ongoing projects aimed at enhancing the quality of education and promoting research excellence in Kenya through EU cooperation. The EU Delegation also elaborated on possible areas of new partnerships, as well as opportunities available in each of the EU Countries including Horizon Europe research grants, Erasmus plus mobility funds, scholarships, support for TVET institutions, among others. The meeting agreed that the EU Delegation will make these opportunities more accessible to Kenyan institutions and researchers. The meeting further agreed to intensify synergies to promote Kenyan applications to Erasmus+ and Horizon Europe programs, and to enhance partnerships on Higher Education and Research. Future meetings will be held at least twice a year.

Figure 2: Dr. Roselida Owour - DRSTI and Prof. Dickson Andala - NRF during the meeting.

PICTORIAL

Dr. BOCHEREAU LAURENT, EU SCIENTIFIC COUNSELLOR TO THE AFRICAN UNION, PAID A VISIT TO NACOSTI DIRECTOR GENERAL

On October 24, 2023, Dr. BOCHEREAU Laurent, EU Scientific Counsellor to the African Union, paid a visit to the Director General Prof. Walter Oyawa at NACOSTI Plaza, where both parties converged to discuss pressing matters in the realm of science, technology, and innovation.

MIGRATION TO E-CITIZEN PLATFORM

The National Commission for Science and Technology (NACOSTI) wishes to inform all stakeholders that, following the Presidential Directive on digitalization of payment for government services, the Commission has migrated the service for research licensing to the E-citizen Platform, effective November 17, 2023. We appreciated your understanding and cooperation during the transition period.

KENYAN SCHOLARS AWARDED THE TOP-MOST HONOUR BY THE INTERNATIONAL SCIENCE COUNCIL AS FELLOWS OF ISC

Three Kenyan scholars have been awarded the prestigious Fellowship of the International Science Council (ISC), the highest honor bestowed by the organization. This recognition places Kenya at the forefront of global scientific advancement and highlights the exceptional contributions of its scientists, researchers, and professionals.

The International Science Council (ISC) is a global organization with a membership from about 140 nations and is dedicated to advancing science as a global public good. ISC and works to catalyse and convene scientific expertise, advice and influence on issues of major concern to both science and society.

The ISC has recognized these outstanding individuals for their significant contributions to the field.

The newly appointed Fellows are:

Amb. Macharia Kamau, a former Permanent Secretary of Foreign Affairs, has been named an Honorary Fellow of the ISC. This prestigious title acknowledges his exceptional dedication to diplomacy and the critical role of science in international relations. The global organization hailed Amb Kamau's contribution to the promotion of science as a public good. Ambassador Kamau is a Commissioner at the International Science Council, ISC, based in Paris, France. He is also a Board Member of the United Nations Secretary General's Peace Building Fund in New York and the Equity Group Foundation in Nairobi, among other advisory and board responsibilities.

Professor Shaukat Abdulrazak, the current Director of the Africa Division of the International Atomic Energy Agency (IAEA) and former Director General of the National Commission for Science, Technology, and Innovation (NCST/NACOSTI), has been honored as a Fellow of the ISC. This recognition reflects his outstanding leadership in the fields of nuclear science and technology. In his capacity as the Director for the Division for Africa at the IAEA Department of

Technical Cooperation, Prof. Shaukat facilitates IAEA technical cooperation support to 49 countries in Africa.

Professor Vasey Mwaja, former Chairman of NCST/NACOSTI, who has also been named a Fellow of the ISC. Prof. Mwaja's contributions to the advancement of science and technology in Kenya have been instrumental in shaping the nation's scientific landscape. He is a consultant in agribusiness management and technology development, development of agricultural policies and strategies, as well as in project development and strategies in Sub-Saharan Africa.

These three distinguished individuals now join Prof. Walter Oyawa, the Director General of NACOSTI, who was awarded the ISC Fellowship in June 2022 in the first cohort. Prof. Oyawa is a Professor of Civil Engineering, and a Registered Professional Engineer. His core area of research embraces Sustainable Construction Materials/Technologies, and Frontier/ Emerging Technologies.

Kenya now boasts a total of four Fellows of the ISC, marking a significant milestone in the country's scientific achievements.
The ISC Fellowship recognizes individuals who have made exceptional contributions to promoting science as a global public good. The Fellows play a vital role in advising the ISC on its programs and initiatives, and in advocating for the importance of science in addressing global challenges such as climate change, poverty, and disease.

The Government of Kenya recognizes science, technology and innovation (STI) as the key enabler of its long-term national plan, Kenya Vision 2030, and is committed to harnessing STI for the achievement of the Sustainable Development Goals (SDGs). Accordingly, the Government of Kenya continues to allocate increased funding to research and development initiatives taking cognizance that we are now living in a new age; an age of science, technology and innovation.

KENYA SET TO DEVELOP A NUCLEAR RESEARCH REACTOR AFTER IAEA REVIEW MISSION GIVES IT A THUMPS UP

Figure 3: The INIR-RR mission and the various stakeholders at Boma Hotel, South C Nairobi.

Kenya recently hosted an INIR-RR mission at the Boma Hotel in Nairobi from 11th to 19th December 2023. The INIR mission was coordinated under TC project RAF1009 "Supporting Embarking Countries in Establishing National Infrastructure for Research Reactors (AFRA)". The National Commission for Science and Technology is the AFRA national coordinator while the Nuclear Power and Energy Agency is coordinating the implementation of the Kenya Nuclear Research Reactor (KNRR) project.

The experts gave their report in which they noted that Kenya had made significant progress in the development of nuclear infrastructure for its first research reactor and could now move to the next stage of a full-fledged program to build a nuclear research reactor. The experts noted that Kenya had done a great job of developing and preparing laws and regulatory documents, actively involving interested stakeholders in the program, and developing human resources of both the future operator and the regulator." And that Kenya had demonstrated a sustained and very professional approach to the development of the research reactor program.

The research reactor is a primary source of neutron for various applications in education and training, research, health, agriculture, and industry and will aid in Radioisotope Production for research and technical development in the industrial, scientific, and medical sectors in Kenya. The research reactor will also be used by the academic community, especially in material structure studies using Neutron scattering techniques and neutron beams in areas like Materials science, Life science, Engineering science, and Earth science and industries (battery, fuel cell, rubber, steel, automobile). And lastly Neutron transmutation doping (NTD) in the Production of high-quality silicon wafers.

NEW BIOTECHNOLOGY ENGINEERING AND RESEARCH CENTER TO START OPERATIONS IN KENYA

Kenya's profile as a research and technology hub is set to receive a major boost as the International Centre for Genetic Engineering and Biotechnology (ICGEB) gears to operationalize its first Regional Research Centre (RRC) in Africa.

The ICGEB Regional Research Centre to be domiciled at Egerton University's main campus in Njoro Sub-County, the second such outfit in the world after the one in China, will specialize in food safety, molecular plant breeding, molecular plant pathology and entomology.

Speaking after inspection of facilities that will host the RRC by a team of officials from ICGEB led by its Director, Prof. Ramesh Venkata Sonti, Egerton University Chancellor Prof. Isaac Kibwage disclosed that the center is set to also foster ongoing and future cutting-edge, research in genetic biofortification, development of molecular diagnostic tools and their applications and Bioprospecting for biopesticides and bioactive compounds.

"The visit primarily focused on inspecting the location of the future RRC, situated at the Physical Science Complex on Egerton University's Main Campus in Njoro. This cutting-edge facility will encompass four high-tech laboratories along with office spaces, providing the ideal environment for groundbreaking research in genetic engineering and biotechnology," stated Professor Kibwage.

The ICGEB board which runs 46 state-of-the-art laboratories, in Trieste, Italy, New Delhi, India and Cape Town, South Africa has also approved the appointment of National Commission for Science, Technology and Innovation (NACOSTI) Director General Professor Walter Oyawa as ICGEB Governor for Kenya.

During the 22nd session of the ICGEB Board of Governors held in Cape Town in 2016, it was decided to explore possibilities of setting up ICGEB- RRC in Africa. Subsequently, during the Annual General Meeting in December 2020, ICGEB Board resolved that Kenya was to host the RRC within its territory. Professor Oyawa was tasked to identify the institution to host the RRC.

Seven universities in Kenya had applied to host the Research Centre and thereafter three were shortlisted for further on-site inspection culminating in the selection of Egerton University.

Also present during the inspection tour was Group Leader, Plant Transcription Regulation at ICGEB Dr Jitendra Thakur.

Prof. Kibwage indicated that since biotechnology development remains a top priority in enhancing food security, evolving more efficient and cleaner industrial manufacturing processes, and reducing negative effects on the environment in Kenya, establishment of the Regional Research Centre in the country comes at an opportune time.

He elaborated, "Evidence shows biotechnology has so far aided in increasing food production as scientists aim at making it beneficial to the environment too. Biotechnology might simply be the solution to Kenya's future and current agricultural problems like adverse climate and weather changes, feeding an ever-growing population and converting the huge bare chunks of land into arable land.

The ICGEB is an intergovernmental and nonprofit research organization. Established on November 25, 1987 as a special project of the United Nations Industrial Development Organization (Unido), it became fully autonomous in 1994 and now incorporates over 65 Member States. A further 22 countries are waiting to become members pending ratification by the Council of Governors.

ICGEB Egerton University Principal Investigator Prof. Josiah Omolo explained that the Center dedicates its resources to advanced research and training in vaccine development, molecular biology and biotechnology and advancing knowledge, applying the latest techniques in the fields of biomedicine, crop improvement, environmental protection/remediation, biopharmaceuticals, biopesticides and biofuel production.

Prof. Omolo said ICGEB which also strengthens the research capability of its members through training and funding programmes and advisory services also promotes research themes associated with infectious diseases, non-communicable diseases and industrial biotechnology.

Prior to the selection of Egerton University as the first ICGEB – RRC in Africa, a review panel comprising of scientists from the USA, Italy, India and South Africa, and experts from other Kenyan institutes led by Dr Lawrence Banks and Professor Oyawa, had visited the institution on February 3, last year for an on-site inspection.

Kenya, Prof. Omolo noted, has a great potential to grow crops bio technically like Africa's top countries namely South Africa, Egypt and Burkina Faso adding that development of Herbicide tolerant crops for instance would save farmers the many hours spent on the farm getting rid of weeds thus invest the time on other productive agricultural activities that will help promote food security.

"Various studies show biotechnology in Kenya can be improvised to help farmers even diagnose crop diseases by incorporating mobile technology," offered the don who teaches Organic Chemistry in the Department of Chemistry, Faculty of Science at Egerton University

Prof. Omolo added, "The first on-site inspection team was impressed by the commitment demonstrated by the University Management, synergies between faculty members, and clear understanding and coherence of the RRC concept by the proposed Project Team. Subsequently the ICGEB Board of Governors during its 28th Session held on 17-18 May, 2022 in Trieste Italy, finally endorsed the Kenya's proposal to host the center,".

Deputy Vice-Chancellor (Administration, Planning and Development), Professor Richard Mulwa indicated that the centre will be instrumental in strengthening research skills, knowledge and capacities of the scientific community while pursuing specific objectives for research, training, and technology transfer to industry.

"This is a landmark achievement by Kenya as a global powerhouse in science, technology and innovation. The ICGEB-RRC will be collaborating with institutions from the Member Countries in the region in scientific research and mentoring the smaller universities in Kenya. Hosting the ICGEB -RRC brings additional advantages, including promoting development and job creation beyond the hosting country, Kenya," the Deputy Vice Chancellor noted.

As an institution involved in research and academic work in the areas of disease biology, vaccine development, diagnostic and therapeutic, Professor Mulwa indicated that the Centre will strive to make its contributions in promoting international collaborative efforts to develop technologies to improve human health globally.

Deputy Vice-Chancellor (Academic Affairs) Professor Bernard Aduda assured that the new ICGEB- RRC in Africa will operate as a Centre of Excellence for research, training and technology transfer to industry to promote sustainable global development. It will, he added provide a scientific environment of top international standard for advanced research and education and for the development of biotechnology products.

After Egerton University made a bid to host an ICGEB RRC in Kenya, acting Deputy Vice Chancellor for Research and Extension at Egerton University Professor Bockline Omedo Bebe appointed a technical team in February 2021, to develop a proposal in response to the submission, which was submitted to NACOSTI in March 2021. The technical team consisted of Professor Omollo who assumed the role of Institutional Principal Investigator, Professor James Owuoche and Professor Liu Gaoxiong.

Others in the team included Dr. Miriam Charimbu, Dr. John Nduko, Dr. Joseph Mafurah, Dr. Pascal Okwiri, Dr Elijah Lelmen, Dr. Kiplagat Ngeno, Dr. Joel Khobondo and Dr. Stephen Indieka.

Presently more than 400 individuals drawn from 38 countries are working in the ICGEB laboratories as research scientists, post-doctoral fellows, PhD students, research technicians and administrative personnel.

Source: https://www.kenyanews.go.ke/new-biotechnology-engineering-and-research-center-to-start-operations-in-kenya/

RADIATION PROTECTION AND SAFETY COURSE LAUNCH

Figure 4: Group Photo

Prof. Walter O. Oyawa, Director General /CEO, NACOSTI attended the opening ceremony of the Postgraduate Educational Course in Radiation Protection and Safety of Radiation Sources (PGEC) for English-speaking countries at Kenyatta. The Training Course is organized within the framework of the regional AFRA project RAF9067 – Sustaining the Establishment of Education and Training in Radiation Safety and Human Resource Development — Phase II of which the DG is the AFRA National Coordinator.


Prof. Walter Oyawa, Director General NACOSTI during the Launch of the Radiation Protection and Safety Course at Kenyatta University


Hon. Mary Muthoni Muriuki, Principal Secretary, State Department for Public Health and Professional Standards during the Launch of the Radiation Protection and Safety Course at Kenyatta University

Kenya is the 2nd country in Africa to host the six (6) month program among the English-speaking countries. The course was officially launched by Hon. Mary Muthoni Muriuki, Principal Secretary, State Department for Public Health and Professional Standards, other speakers included Prof. Shaukat Abdulrazak, Director Division for Africa, Technical Cooperation, IAEA, Mr, Justus Wabuyabo the Ag. CEO Nuclear Power and Energy Agency, Mr. Keter James the Ag. DG Kenya Nuclear Regulatory Authority. The course will be jointly run by Kenya Nuclear Regulatory Authority, Kenyatta University, Kenya Bureau of Standards (KEBS), University of Nairobi, & Multimedia University (MMU). The RDC was approved during our meeting of AFRA National Coordinators in Algeria in June 2023 and is meant build African countries capacity to put in place a robust regulatory safeguard in radiation protection, health physics and nuclear plants.

AFRA PROJECT COUNTERPARTS MEETING

Figure 5: Group Photo

NACOSTI as the AFRA National Coordinator held a meeting for project counterparts at the NACOSTI Headquarters in Nairobi, Kenya on November 28-29, 2023. The meeting brought together AFRA project counterparts and project alternates to discuss progress and updates on various AFRA-funded projects across different thematic areas.

The two-day AFRA counterparts meeting provided a platform for useful exchange on project progress and challenges within different nuclear application domains in Kenya. Crosscutting benefits noted across presentations included upgraded training and research infrastructure, enhanced skills development, and greater awareness nationally of nuclear applications.

However, some hurdles persist, notably insufficient and unpredictable funding restricting activities, lengthy clearance processes delaying equipment imports, inadequate staff and coordination gaps between institutional work plans and project timelines. Addressing these resourcing and policy challenges is vital for consolidating and maximizing the benefits from ongoing and pipeline nuclear science and technology initiatives supporting national development priorities.

The meeting yielded key conclusions and recommendations including enhancing collaborations between institutions implementing nuclear-related initiatives to optimize resource utilization; facilitating annual stakeholder forums to evaluate progress; expanding training opportunities to build wider expertise; and fostering partnerships through networks like KEN-NEST to ensure the availability of knowledge, facilities and specialized equipment for counterparts, as well as reduce duplication and overlap.

Additionally, project counterparts were encouraged to collaborate on grant applications, following the example of their peers across the continent. Working together would increase their likelihood of securing funding and bringing the resultant benefits to Kenya. They were also urged to prioritize Kenya's interests first and foremost when conducting business, for the betterment of the people.

There is also a need to increase awareness of nuclear applications within healthcare professional cadres to boost uptake and ensure qualified practice. Additionally, strengthening orientation for new personnel involved in nuclear projects, identifying synergies across activities through platforms for information exchange, and garnering supplementary funding were highlighted as crucial measures for consolidating current achievements. Implementing these recommendations will greatly support the expansion of the peaceful applications of nuclear science and technology toward achieving national development goals. The two-day event marked a significant milestone, paving the way for a new era of applications in nuclear science across various sectors.

Pictorial

PARTICIPATION OF THE NATIONAL ERASMUS+ FOCAL POINT IN THE INAUGURAL REGIONAL ERASMUS+ WEEK IN SUB-SAHARAN AFRICA- 10, 11 AND 12 OCTOBER 2023, SOUTH AFRICA

Figure 6: Group Photo

Prof. Walter O. Oyawa, the Erasmus+ National Focal point (ENFP) of Kenya, participated in the first regional Erasmus+ week in Sub-Saharan Africa, organized by The European Education and Culture Executive Agency (EACEA) with the collaboration of European Delegation at South Africa.

Erasmus+ National Focal Points (ENFPs) are the representative of countries in Africa, Asia-Pacific, the Middle East and the Americas in the Erasmus+ Programme, which is the EU's programme to support education, training, youth and sport in Europe. It has an estimated budget of €26.2 billion.

The 2021-2027 Erasmus + programme places a strong focus on social inclusion, the green and digital transitions, and promoting young people's participation in social life. Accordingly, Erasmus+ offers mobility and cooperation opportunities in; higher education, vocational education and training, school education, adult education, youth, and sport. Organisations from countries outside the EU can take part in selected actions of the Erasmus+ programme under the designation of "non-associated third countries (Partner Countries)".

Figure 7: Prof. Walter O. Oyawa, the Erasmus+ National Focal point (ENFP) of Kenya, during the first regional Erasmus+ week in Sub-Saharan at South Africa

This Regional Erasmus+ Week represents a significant opportunity for National Focal Points to engage with different stakeholders from Europe and Africa and prepare activities that will benefit potential beneficiaries of the Erasmus+ program in their countries, aimed at enhancing cooperation between Europe and Africa in the field of higher education. By participating in this event, the Programme aims to foster collaboration, share knowledge, and network with peers. This will enable the ENFP to better prepare and implement initiatives that will maximize the benefits of the Erasmus+ program for Kenya.

NACOSTI'S PRODUCTIVITY MAINSTREAMING HALF YEAR PROGRESS

Figure 8: NACOSTI Productivity Mainstreaming Committee with NPCC Team during the workshop.

The integration of productivity enhancement strategies, instruments and practices into various functions of the commission with the aim of improving overall efficiency, effectiveness and output is indispensable. The central focus is to permeate productivity across all the levels and mandate. To entrench productivity in our activities, a holistic approach that involves all staff while encompassing various facets of operations, from individual behaviors and practices to organizational structures and systems is required. Against this backrop, NACOSTI's Board committed to ensure quality service delivery by implementing the productivity mainstreaming indicator as is stipulated in the 20th Performance Contracting Guidelines that aimed at enabling MDAs to measure the efficiency and effectiveness of resources (labour, capital, technology and systems) utilization in converting inputs into quality outputs. This is undertaken under three main broad areas namely: Operational Efficiency; Labour Performance; and Citizen Participation.

In this view, the Commission appointed a Productivity Mainstreaming Committee to spearhead the implementation of the indicator. During the first half of the Financial Year 2023/2024, the committee managed to develop productivity metrics using the Objective Matrix (OMAX) productivity mainstreaming method. This exercise was supported by the National Productivity and Competitiveness Centre (NPCC), state Department for Labour and Skills Development, Ministry of Labour and Social Protection team. The workshop was graced by Dr. Nahashon L. Moitaleel, the Secretary of Productivity, who underscored the significance of measuring productivity within government ministries and agencies (MDAs). His remarks emphasized the pivotal role of productivity assessment in augmenting organizational performance and attaining desired outcomes. Additionally, during the sessions, the committee was equipped with the appropriate knowledge and tools required for efficient management of productivity within their respective departments.

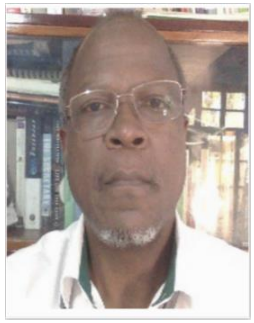
During this period, the commission was able to collect Productivity Measurement Data for the respective Metrics and will be applied during the Computation of the MDAs Productivity Index and further inform the development of the workplace productivity mainstreaming strategy in the forthcoming

quarters. The Commission looks forward into ensuring there is full commitment through sensitization and participation by all staff and leadership to identify clear performance goals, streamlining workflows, leveraging on technological solutions while cultivating a mindset of continuous improvement, where everyone is encouraged to identify inefficiencies, propose solutions, and implement changes to enhance productivity within the organization.

Figure 9: Dr. Nahashon L. Moitaleel, Secretary NPCC, giving his remarks.

NACOSTI STAFF NEWS

NACOSTI BIDS FAREWELL TO STAFF



Dr. David Otwoma
Chief Analyst, Physical & Industrial Sciences

Dr. David Otwoma has since retired from service. Dr. Otwoma had been an invaluable member of the commission as a Chief Analyst, in the Physical & Industrial Sciences department, making significant contributions to the field during his tenure. His retirement marked the end of an era and the beginning of the next stage of his life.

NACOSTI WELCOMES NEW MEMBERS OF STAFF

In a strategic move aimed at expanding staff capacity, the National Commission for Science, Technology, and Innovation (NACOSTI) welcomed new staff members in October 2023. We look forward to utilizing their diverse expertise and fresh perspectives and dynamism to propel NACOSTI to new heights in shaping the country's scientific and technological ecosystem.

Robert Mobisa
Scientist, Agricultural Environment and Natural Resources

Mitchell Gakii
ICT Officer

Ms. Olive Munavu
Scientist Humanities and Social Sciences

Lencer Akoth
Licensing Officer

Ms. Ann Brenda Wangui
Scientist, Physical, Industrial, Computing and Engineering Sciences

Mr. Patrick Omondi
Legal Officer

Mr. Evans Njuguna Kiuna,
Scientist

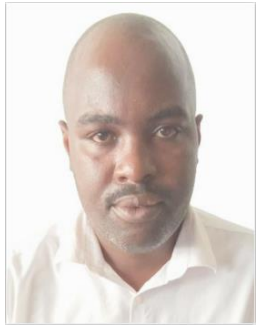
Mr. Kevin Olenyo
Driver

Ms. Adelide Muteitsi
Officer Administrator

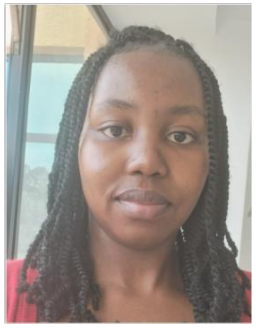
Mr. David Mukhwana
Officer Administrator

Ms. Celina Gacheri
Officer Administrator

Mr. Philemon Oyoo
Driver



Mr. Christopher Opondo
Asst. SCM Officer
Assistant Supply Chain Management Officer



Ms. Faith Mutheu
HR Officer

THE KEY PRINCIPLES FOR SCIENTIFIC PUBLISHING

The US government has outlined some of the issues that the government needs to implement to woo more investments and strengthen the devolved system of governance, even as its ambassador to Kenya, Ms. Meg Whitman, spoke highly of Kenya's investment opportunities, terming it as the best investment destination in Africa.

In 2019, the International Science Council asked its members to identify key contemporary issues for science. Scientific publishing emerged as the most important "policy for science", leading to its adoption as a priority in the ISC Action Plan. An international working group was formed to suggest principles for scientific publishing and assess the need for reform. The group, after substantial work and member consultations, proposed seven key principles, later expanded to eight, aimed at improving scholarly publication in the digital era, which were endorsed by the ISC General Assembly in October 2021.

A second paper "The Case for Reform of Scientific Publishing ", will evaluate the extent to which the principles are attained in practice, thereby identifying issues for reform.

Figure 10: Salvatore Aricò, CEO

There have been major shifts in the publishing landscape over the last decades, with more changes on the horizon. Yet, the broad membership base of the ISC will agree that scientific publishing is still the primary mode of communicating scientific results and the basis of peer review of these results. As part of the ISC's endeavour to map the current and potential future landscape of the science system, we are pleased to present these reports on scientific publishing.

Paper One outlines eight key principles which we hope would be used to chart the course of publishing in a turbulent scientific landscape.

Paper Two, The Case for Reform of Scientific Publishing, presents a narrative of a possible reform of the scientific publishing system. We hope that ISC members will use this paper as a catalyst to present their own views, both as individuals and as Member organizations, and to highlight to ISC how best to support members on this journey.

These principles, first endorsed by ISC Members at their General Assembly in 2021, and the latest discussion paper, are a credit to the work of the ISC's Future of Publishing project steering committee led by ISC Board Member and Fellow, Geoffrey Boulton. They are an example of how ISC Members can coalesce around issues of critical importance that springboard discussions into action for the wider scientific community.

We invite ISC Member organizations and the broader scientific community to share their views on the future of publishing, and any recommendations for action by the ISC, through the survey below.

Salvatore Aricò, CEO

The Eight Principles

1. The rapid and global circulation of ideas is central to the scientific process. There should be universal, prompt open access to the record of science1, both for authors and readers, with no barriers to participation, in particular those based on ability to pay, institutional privilege, language or geography.
2. Scientific publications should have a default position of carrying open licenses that permit reuse and text and data mining.
3. Rigorous, timely and ongoing peer review must continue to play a key role in creating and maintaining the public record of science.
4. The data and observations on which a published truth claim is based should be concurrently accessible to scrutiny and supported by necessary metadata.
5. The record of science should be maintained in such a way as to ensure open access by future generations.
6. Modes of publication and bibliodiversities in different disciplines and regions need to be adapted to relevant needs, but in ways that also to facilitate inter-operability between different disciplines and regions, including procedures for multi-lingual communication.
7. Publication systems should be designed to continually adapt to new opportunities for beneficial change rather than embedding inflexible systems that inhibit change.
8. Governance of the processes of dissemination of scientific knowledge should be accountable to the scientific community.

Figure 11: Geoffrey Boulton ISC Governing Board Member, ISC Fellow, and Chair of the Future of Scientific Publishing project

The advancement of knowledge as a global public good has become essential, not just for its intrinsic cultural value, but increasingly as indispensable in identifying and addressing the manifold problems our societies and the planet face and for the opportunities it offers. This discussion paper represents the outcome of the work of the ISC's Future of Scientific Publishing Steering Group in the aftermath of that General Assembly's endorsement of the Eight Principles. It analyses if, and how, present publishing practices fall short of the ISC's Eight Principles and its vision of science as a global public good, and suggests possible avenues of approach that a subsequent phase of action might take. It is the view of ISC that this vital public good is not well served by current systems and that reform is a vital priority. These are ambitious objectives, but ones that respond to the needs of the times.

We invite the ISC community to contribute their ideas and opinions to the objectives by completing the short feedback survey on Papers One and Two".

Figure 12: Dominque Babini Open Science Advisor at the Latin American Council of Social Sciences (CLACSO), Future of Publishing project Steering Committee member, and ISC Fellow

"The voice for social science is critical for the future of publishing. For CLACSO, the Latin American Council of Social Sciences, it is a rich experience to participate in the ISC project on the future of scientific publications and in the ISC-GYA-IAP partnership on research evaluation.

In both projects, it gives CLACSO the opportunity to share the Latin American experience of two decades of scholar-led and non-profit initiatives to provide visibility and open access, with no fees for readers and authors, with the goal of promoting equity, bibliodiversity and multilingualism in scholarly communications. It contrasts this approach with the negative impact in developing regions of increased commercialization of international scientific publishing and its research assessment indicators.

I particularly encourage specialists from developing regions, who are part of the ISC network, to participate in the ISC calls for engagement to ensure global voices are heard on these important topics".

Source: https://council.science/publications/key-principles-for-scientific-publishing/

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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 the latest 30th November, 2021. The documents may be downloaded at NACOSTI Website www.nacosti.go.ke

- **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".

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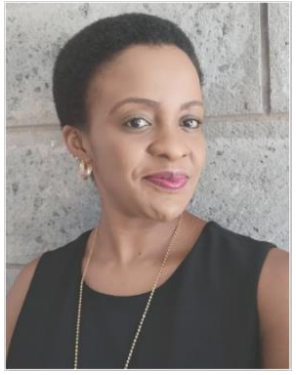

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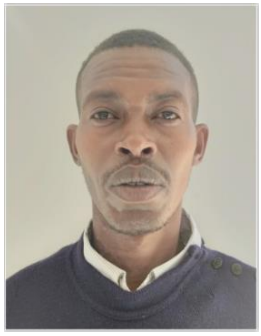

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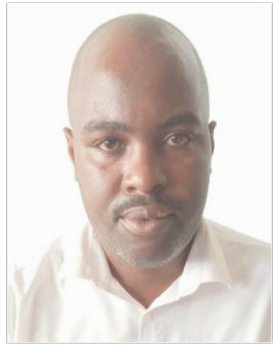

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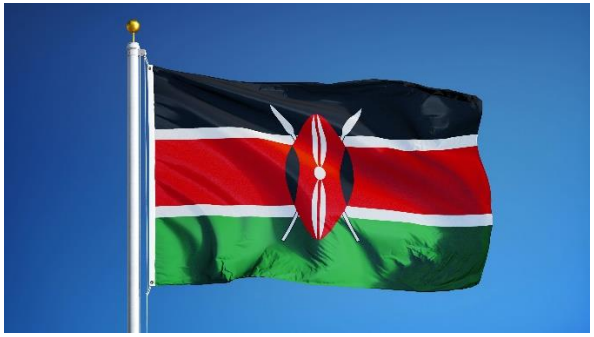
KENYA'S NATIONAL ANTHEM

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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