

CONFERENCE PROGRAMME



SCIENCE TECHNOLOGY AND INNOVATION CONFERENCE



6th- 8th March 2024
NAIROBI, KENYA

Venue: Sarova Panafric Hotel

The 3rd EAC Regional Science Technology & Innovation Conference

**Theme: "Accelerating development and diffusion of
STI solutions for a resilient East Africa"**

The 3rd EAC Regional STI Conference is organised by East African Science and Technology Commission (EASTECO) and the Inter-University Council for East Africa (IUCEA) in collaboration with various STI stakeholders in the region and globally as an avenue for diffusion of new development in STI and for sharing experiences and results within the knowledge and technology generation, translation and transfer chain, applications of STI outputs, strengthening collaborations, facilitating regional integration and sustainable development.

PROGRAMME

DAY 1: WEDNESDAY, MARCH 6, 2024

09:00 – 11:00 EAT - Opening Session

Session Moderator: Fortunate Muyambi, DES/EASTECO
& Prof. Idris Rai, DES/IUCEA

Kenya National Anthem

EAC Anthem

Entertainment – Traditional Performance

Prof. Gaspard Banyankimba, Executive Secretary, IUCEA

Dr. Sylvance Okoth, Executive Secretary, EASTECO

Björn Richter, EAC GIZ Cluster Coordinator

Ms Hendrina Doroba Chalwe, African Development Bank

Hon. Dr. Peter Mathuki, Secretary General, East African Community

Dr. Beatrice Muganda Inyangala, Principal Secretary, State

Department for Higher Education and Research, Kenya

Official Opening by Guest of Honour:

Hon. Ezekiel Machogu, CBS

Cabinet Secretary, Ministry of Education, Kenya

Launch of EAC Regional Policies

11:00 - 11:30 EAT - Photo / Health Break / Exhibition Tour

11:30 - 13:00 EAT - Plenary Session 1: Keynote & Panel Discussion

Theme: *Agricultural productivity, resilience, and food security*

Agriculture is a vital sector in the economies of East Africa Countries. The sector plays a significant role in the livelihoods of citizens in the East Africa Community (EAC). More than 70% of the industries in the EAC region are agro-based and dependent on agriculture as the main source of raw materials. However, the productivity of agriculture in the EAC region is alarmingly decreasing mainly because of the mounting pressures of climate change concerns, diminishing resources, limited application of modern technologies as well as changing demographic trends. The challenge of low agricultural productivity has thus been a major cause of increased hunger, malnutrition and poverty in the EAC countries. It is therefore pertinent for all players to focus and put in place deliberate efforts to enhance agricultural productivity, resilience and food security in East Africa.

Session Moderator: Dr. Joseph Ssemakula, Uganda Martyrs University

Rapporteur: Milton Melingasuk

Keynote Presentation: (25 minutes)

“Leveraging Science, Technology, and Innovation in the enhancement of agricultural productivity, resilience, and food security in East Africa” by Prof. Richard O. Oduor, Registrar, Research, Innovation and Product Development, Kenyatta University.

Panelists Session (40 Minutes)

- Panelist 1: Prof. Joyce Kinabo, Professor of Human Nutrition, Sokoine University, United Republic of Tanzania
- Panelist 2: Dr. Roy Mugiira, CEO, National Biosafety Authority, Kenya
- Panelist 3: Dr. Richard Edema, Centre Director, Makerere University Regional Centre for Crop Improvement (MaRCCI), Uganda
- Panelist 4: Prof George Owuor, Centre Leader, Centre of Excellence in Sustainable Agriculture & Agribusiness Management (CESAAM), Egerton University, Kenya

Discussion/ Q&A (25 minutes)

13:00 - 14:00 EAT - Lunch Break, Exhibition and Poster Session

14:00-17:00 EAT - Plenary Session 2: Keynote, Panel Discussion & Co-creation Session

Theme: *Stimulating digital entrepreneurship*

The East Africa region has exhibited a strong entrepreneurial mindset with a growing number of digital entrepreneurial intermediaries. However, the existing digital entrepreneurial potential in the region has not translated into a vibrant digital entrepreneurial ecosystem, with commercial digital hubs that can generate talent and ventures to compete at the highest global level. There is a need therefore for the EAC Region to strategically design and implement customized interventions to strengthen the entrepreneurship ecosystem of mutually reinforcing components that include a digital knowledge base and ICT market; a digital business-friendly environment; access to finance; digital skills and e-leadership; and an entrepreneurial culture.

Session Moderator: Mercy Kimalat, CEO, ASSEK

Rapporteur: Dr. Samuel Obino Mokaya

Keynote Presentation: (25 minutes)

“Building innovation & entrepreneurship ecosystems by nurturing digital skills and talents” by David Cheboryot - Director, E4Impact Entrepreneurship Centers.

Panelists Session (40 Minutes)

- Panelist 1: Pascal Nyiringango - Head of Business Development and Commercialization, Center of Energy- ACE-ESD, University of Rwanda
- Panelist 2: Denis Denaya - Executive Director, Koneta Hub – South Sudan (Virtual)
- Panelist 3: Dr. Amos Nungu – Director General-COSTECH, United Republic of Tanzania
- Panelist 4: Dr. Joyce Ngure – Assistant Director of Research, State Department for Higher Education and Research, Ministry of Education

Discussion/ Q&A (25 minutes)

Co-creation Session (1hr 15 minutes)

“A deep dive into the strategic pillars to support the regional initiative on IP Policy, Capacity Building of innovators, Early-stage investment and strategic linkage of higher education institutions with entrepreneurship Support Organisations.”

17:00- 18:00 Eat – Networking Cocktail & End Of Day One

DAY 2: THURSDAY, MARCH 7, 2024

09:00 – 10:30 EAT - Plenary Session 3: Keynote & Panel Discussion

Theme: *Open Science and Science Diplomacy: Bridging Borders for Global Impact*

This conference theme aims to explore the dynamic relationship between open science principles and the practice of science diplomacy. Open science emphasizes transparency, accessibility, and collaboration in research, while science diplomacy focuses on building international partnerships to address global challenges. The intersection of these two concepts creates a powerful synergy that can foster innovation, address shared global issues, and promote mutual understanding.

Session Moderator: Dr. Shubi Kaijage

Rapporteur: Dr. Lizzy Mwamburi

Keynote Presentation: (20 minutes)

“Identifying challenges in implementing open science and science diplomacy and exploring opportunities for overcoming barriers to collaboration” by

Ms. Joy Owango, Executive Director, Training Centre in Communication

Panelists Session (40 Minutes)

- Panelist 1: Dr Richard Glover- UNESCO Consultant
- Panelist 2: Prof Meoli Kershorda - Executive Secretary - Kenya Education Network
- Panelist 3: Prof Muliaro Wafula -Lead Scientist - Africa Open Science Platform (AOSP) EA Node
- Panelist 4: Mr. Steven Ssebale - Head of policy, Uganda National Council for Science and Technology

Discussion/ Q&A (10 minutes)

10:30 -11:00 EAT - Health Break/Exhibition Tour

11:00 - 13:00 EAT - Parallel Sessions 1: Paper Presentations

<p>11:00 - 12:00 EAT</p>	<p>Parallel Session 1A: Precision Agriculture Technologies, and Data Science in Agriculture Moderator: Dr. Joshua Ogendo Rapporteur: Dr. Charles Masembe</p>	<p>Parallel Session 1B: Water Resources and Waste Management Moderator: Dr. Charles Niwagaba Rapporteur: Dr. Lughano Kusiluka</p>	<p>Parallel Session 1C: Biomedical Engineering and E-Health Moderator: Prof Bruno Sunguya Rapporteur: Dr. Bunani Samuel</p>
<p>(Each Presenter 10 Minutes then Q&A: 20 Minutes at the end of presentations)</p>	<ol style="list-style-type: none"> Using Normalized Difference Vegetation Index to Predict Potato (<i>Solanum Tuberosum</i> L.) Apical Rooted Cuttings Yields in Njoro, Kenya by Winnie Chebet Wambugu Climate Smart Agricultural Technologies (TIMPS) as a Resilience Strategy for Semi-Arid Agroecosystems Production in Kenya by Hellen W. Kamiri Development and evaluation of Reverse transcription loop-mediated isothermal amplification (RT-LAMP) for rapid typing of serotype 'O' foot-and-mouth disease virus in endemic regions of Tanzania by Sarah M. Njeru Exploring the Integration of Emerging Technologies in Agriculture 4.0 to Enhance Food Security in Sub-Saharan Africa: A Comprehensive Review by Harriet RATEMO 	<ol style="list-style-type: none"> The Impact of High Turbidity Feed Water on The Performance of Gravity-Driven Membrane Modules by Mutenyo Mercy Study on the evolution of physicochemical parameters indicators of water quality in the pelagic zone of the northern Lake Tanganyika basin by Stanislas Ndayishimiye Waste Reduction, Biomass Conversion and Growth Performance of Black Soldier Fly Larvae Using Organic Waste by Desta Mulu Implications of adopting insects for recycling organic waste on household recycling income by Perpetual Galena 	<ol style="list-style-type: none"> A GIS-Based Method for Analyzing the Impact Of Physical Planning In The Spread Of COVID-19 in Kampala City by Nagula Brenda Sterilized Malaria Vector, <i>Anopheles Funestus</i> Can Auto-disseminate Sufficient Pyriproxyfen to The Breeding Habitat Under Semi-Field Settings by HAMISI Kunambi Factors Associated with Menstrual Hygiene Management Among Adolescent Girls in Primary School by Kibingo Pascal Co-Administration of Artesunate and Coenzyme Q10 Enhanced Treatment Outcomes During Experimental Cerebral Malaria By Ameliorating Lethal Inflammatory And Oxidative Mediators by Nyariki James Nyabuga
<p>12:00-13:00 EAT</p>	<p>Parallel Session 1D: Biodiversity and Forestry and agroforestry Moderator: Dr. Bernard Barasa Rapporteur: Dr. Ndikumana Theophile</p>	<p>Parallel Session 1E: Climate Change Mitigation, Bioeconomy and Environmental Health Moderator: Dr. Athanase Nkunzimana Rapporteur: Dr. Hamimana Sylvestre</p>	<p>Parallel Session 1F: Nutrition and Environmental Health Moderator: Dr. Andrea Pembe Rapporteur: Dr. Vivian Levi Enoke</p>
	<ol style="list-style-type: none"> Assessing the Impacts of Invasive Weed <i>Parthenium hysterophorus</i> (Ragweed) to Plant Diversity in Baringo Lowlands Kenya by Sally Patricia Asiyu The effect of different growing media on seed germination and seedling growth of <i>Telfairia pedata</i> by Philippina Shayo Scaling hermetic storage bags through access to finance: lessons from Tanzania by Dieudonne Baributsa Impact of physical infrastructures on agricultural production in Burundi by Bonaventure Minani 	<ol style="list-style-type: none"> Factors Influencing Farmers' Choice of Agrometeorological Information Pathways by Godfrey Obwina Atsiaya Wood Diversity, Carbon Stocks and Land-Use Dynamics of the Lwampango Relict Forest in the Kaziba Chiefdom, Eastern Dr Congo by Ndeko Mubembe Performance Evaluation of a Bioethanol Stove in Domestic Setting: Implications on Cost, Time and User Perception by Mambo Wilson Evaluating Effectiveness of the Blend of <i>Moringa oleifera</i> Lam and Synthetic Coagulants in Coagulation/Flocculation of Wastewater from Wastepaper Recycling Mill by Nyambura Janerose Wambui 	<ol style="list-style-type: none"> Determination of The Prevalence of Gastrointestinal Parasites In Zanzibar Red Colobus Monkey In Jozan National Park by Dr. James Nyabuga Ambient air pollution exposure and child birthweight in East African countries by Valérian Baharane Imake Food Dryer by Joseph Nyeko Churchill Stretching limits of ecosystem service provision by black soldier fly (<i>Hermetia illucens</i>) larvae beyond the horizons of food, feed, and fertilizer for cleaner cities by Kabi F, Kaweesi G,G and Lutakome P

13:00 - 14:00 EAT - Lunch Break, Exhibition and Poster Session

14:00-15:30 EAT - Plenary Session 4: Keynote & Panel Discussion

Theme: *ICT emerging technologies in driving digital transformation in industrialization in East Africa*

In East Africa, the role of Information and Communication Technology (ICT) emerging technologies has been significant in driving digital transformation across key industries. There is a need to harness digital technologies and innovation to transform East African societies and economies to promote integration, generate inclusive economic growth, stimulate job creation, break the digital divide, and eradicate poverty for the region's socio-economic development and ensure East Africa's ownership of modern tools of digital management.

Session Moderator: Dr Annabella Basaza

Rapporteur: Dr. John Nyiro Mwero

Keynote Presentation: (25 minutes)

“Role of ICT emerging technologies in driving digital transformation in industrialization in East Africa” by Eng. Murenzi Daniel- PITO East African Community.

Panelists Session (40 Minutes)

- Panelist 1: Prof. Oyawa, Director General, NACOSTI Kenya
- Panelist 2: Dr. Martin Ongol, Executive Secretary, NCST Uganda
- Panelist 3: Prof. Charles Kwesiga, Director - Uganda Research Institute
- Panelist 4: Dr. Tony Omwansa - Kenya National Innovation Agency

Discussion/ Q&A (10 minutes)

15:30 – 17:30 EAT - Parallel Sessions 2: Paper Presentations

15:30 - 16:30 EAT	Parallel Session 2A: Soil Sciences Moderator: Dr. Niyonzima Francois Rapporteur: Prof Kiri Andrew	Parallel Session 2B: Food Systems and Agribusiness Moderator: Dr. Chrispin Kowenje Rapporteur : Dr. Namulawa Victoria	Parallel Session 2C: IOT, Data Analytics & ICT for e-Government Moderator: Dr. Alphose Nkurunziza Rapporteur: Dr. Gabriel Shirima
(Each Presenter 10 Minutes then 20 minutes of Q&A at the end of presentations)	<ol style="list-style-type: none"> 1. Effects of sowing density and different fertilizer sources on maize agronomic performance and soil properties in central Benin by Tobi Moriaque 2. Determination of liming material requirements to correct soil acidity and improve soil chemical properties in Ngoma District, Rwanda by Giramata Joie Claire & Bazimenyera Jean De Dieu 3. Bio Fertilizers for Environmentally Sustainable Soil Health Management by Chrispo Mutebi 	<ol style="list-style-type: none"> 1. Scaling hermetic storage bags through access to finance: lessons from Tanzania by Dieudonne Baributsa 2. Characterization of Organic Waste Producers and Collectors and Evaluating their Willingness to Add Value to Segregated Organic Waste for Insect Products by Teresia Wamwondwe 3. The determinants and impacts of agriculture loan on maize yield among maize farmers in Tanzania by Happiness Kilombele 	<ol style="list-style-type: none"> 1. Data-Driven Decision Making: A Case Study of Tertiary Institutions in Uganda by Fredrick Edward Kitoogo 2. Smart IoT and Machine learning Based Irrigation system by Wayne Steven Okello 3. Learner behavior model for a learning management system by Charles Lwande, Lawrence Muchemi, Robert Oboko 4. Use of Earth Observation in disentangling the contribution of woody and herbaceous biomass for forage, fuelwood and carbon mapping in Eastern Africa by Kahiu Njoki et al

17:30 EAT – SNACK & END OF DAY TWO

DAY 3: FRIDAY, MARCH 8, 2024

09:00-10:30 EAT - Plenary Session 5: Keynote & Panel Discussion

Theme: *Natural Resources Management*

Natural resources are impacted by human exploitation, climate change, and natural disaster risks that require interventions for better management.

Harnessing the power of science, technology, and innovation, natural resource management can become more efficient, sustainable, and aligned with conservation goals. These applications contribute to the responsible utilization of resources, biodiversity conservation, and the overall resilience of ecosystems. By leveraging these STI applications, natural resources management can become more efficient, sustainable, and aligned with conservation goals, ultimately contributing to the resilience and health of ecosystems. The integration of these technologies is essential for addressing the complex challenges associated with resource management in a rapidly changing world and helps to monitor, preserve, and sustainably use resources

Session Moderator: Dr. Francis Mugisha

Rapporteur: Dr. John Nduko

Keynote Presentation: (25 minutes)

“Leveraging Science, Technology, and Innovation (STI) advancements in shaping and advancing the bioeconomy” by Dr. Phillip Osano Director, East African Centre SEI, Nairobi, Kenya

Panelists Session (40 Minutes)

- Panelist 1: Dr. Julius Ecuru-icipi/BioInnovate African Programme-Kenya
- Panelist 2: Prof. Masharabu Tatién, Permanent Executive Secretary NCSTI - Burundi
- Panelist 3: Rael Adhiambo, NACOSTI, Nairobi, Kenya
- Panelist 4: Brenda Nakazibwe, Team Leader, Pathogen Economy, Science, Technology and Innovation, Secretariat, Office of the President-Uganda

Discussion/ Q&A (25 minutes)

10:30-11:00 EAT - Health Break, Exhibition and Poster Session

11:00 - 13:00 EAT - Plenary Session 6: Keynote & Panel Discussion

Theme: *Information Communication Technology and Digital Economy*

Information Communication Technology is the broader framework encompassing various technologies, while the Digital Economy specifically focuses on the economic activities enabled by digital technologies.

Together, they shape the way societies, businesses, and individuals interact and conduct transactions in the modern world. Leveraging digital technologies to enhance and streamline Digital Financial Services (DFS) is crucial for improving accessibility, efficiency, and inclusivity in financial systems. By integrating these digital technologies, financial service providers can enhance the efficiency, accessibility, and security of digital financial services, ultimately contributing to financial inclusion and economic development. Additionally, collaboration between industry stakeholders, governments, and regulators is crucial to creating a supportive ecosystem for the adoption of digital financial technologies.

Moderator: Dr. Noel NTAWUHORAKOMEYE

Rapporteur: Prof. Jean Uwamahoro

Keynote Presentation: (25 minutes)

“Leveraging digital technologies to enhance and streamline Digital Financial Services” by Tamara Cook - Chief executive Officer- Financial Sector Deepening Kenya (FSD Kenya).

Panelists Session (40 Minutes)

- Panelist 1: Dr Dickson Andala CEO - National Research Fund-Kenya
- Panelist 2: Joe Kanyua - Head of Digital Transformation- Safaricom
- Panelist 3: Patrick Mugisha - Innovent Labs Africa- Kampala Uganda
- Panelist 4: Richard Ndahiro, Technical Advisory, United Nations Capital Development Fund, Kampala, Uganda.

Discussion/ Q&A (25 minutes)

13:00 - 14:00 EAT - Lunch Break, Exhibition and Poster Session

14:00-16:00 EAT - Ministerial Session (Panel Discussion)

Ministerial dialogue on how to Accelerate development and diffusion of science, technology and innovation solutions for a resilient East Africa

Accelerating the development and diffusion of Science, Technology, and Innovation (STI) solutions for a resilient East Africa involves the intentional efforts and strategies aimed at fostering the rapid growth, application, and widespread adoption of scientific, technological, and innovative solutions in the East African region. It aims at enhancing the region's capacity to respond effectively to challenges and shocks, building resilience across various sectors such as healthcare, agriculture, infrastructure, energy and the environment.

Session Moderator: Fortunate Muyambi, DES/EASTEKO & Prof. Idris Rai, DES/IUCEA

Rapporteur: Moses Ndahiro

Presentation of Ministerial Resolutions Implementation from the 2nd Science, Technology and Innovation Conference

*Fortunate Muyambi, Deputy Executive Secretary, EASTECO
Presentation on recommendations from the Plenary Sessions
by Rapporteur General*

Discussion on Resolutions by Permanent State Ministers

Launch of EAC Regional Strategies

16:00 - 16:30 EAT - Closing Remarks

*Executive Secretary, EASTECO
Executive Secretary, IUCEA
Secretary General, EAC*

Hon. Peninah Malonza, EGH

Cabinet Secretary, Ministry of East African Community,
the ASALs and Regional Development

17:00 EAT - END OF THE CONFERENCE

ORGANISERS, PARTNERS AND SPONSORS

