

Unlocking the power of knowledge

The African Centre for Technology Studies (ACTS) believes that research, capacity building and policy incentives are key drivers of knowledge creation, dissemination and application

Generating new knowledge, enhancing the skills of individuals and organisations, and creating a supportive policy environment that encourages the use of evidence-based solutions can drive progress towards a more sustainable, equitable and prosperous future. By focusing on these three elements, ACTS aims to enable African countries and institutions to harness science, technology and innovation for sustainable and inclusive development.

Research helps to generate new knowledge and insights, which can be used to inform policy decisions and guide the development of new innovations. Capacity building, on the other hand, enables individuals and organisations to acquire the necessary skills and knowledge to apply the insights generated through research. Policy incentives provide a framework for promoting and supporting the development and implementation of new ideas, technologies, and practices. In combination, these three approaches can unlock the power of knowledge by creating a virtuous cycle of innovation and growth - which aligns neatly with ACTS' mandate.

In this edition of the newsletter, we feature a new research initiative for Science Granting Councils, a novel agricultural technology that aims to boost food production in East Africa and how our Blue Empowerment project is using multi-criteria mapping methodology. We also have a new cohort of of AfricaLics visiting fellows: who are they? What are their research focus?

Meanwhile, our AI4D Africa project organised a Summer School which resolved to initiate a new Masters' degree programme on AI and machine learning. We also highlight what transpired in a meeting between ACTS and Ethiopian Minister of Technology; a new strategy for technology transfer in East Africa; and, why ACTS is exploring possibilities of setting up an office at Konza Technopolis. Did I mention that ACTS Press is about to publish a new book on research methods? Yes, we have a sneak preview of it.

Alfred Oduor, Editor

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A new research initiative for Science Granting Councils

ACTS has begun implementing a new programme to support Science Granting Councils (SGCs) in managing research and innovation projects in Africa

The three year programme aims to strengthen the capacities of SGCs to fund and manage research and innovation projects in areas aligned with their national development plans and priorities.

As a lead partner, ACTS is implementing the programme as part of a consortium comprising of the Association of African Universities (AAU) and the University of Cheikh Anta Diop de Dakar (UCAD).

Programme approach

To leverage on available resources and expertise, the Councils will be at the driver’s seat during the implementation of the programme with the consortium playing a supportive role. The consortium will also work closely with other CTAs to build synergies.

Meanwhile, the programme will provide opportunities for the Councils to pilot and deploy some of the tools, templates, and guidelines developed from the Science Granting Councils Initiative (SGCIs). The consortium will work with the Councils to build synergy including joint calls for proposals, workshops and monitoring/ evaluation where possible.

Taking into consideration that Councils fund and manage several projects from different sources, the consortium will work with the Councils to build synergy including joint calls for proposals, workshops and monitoring and evaluation where possible.

The consortium will also make available the existing database of ACTS reviewers in emerging technologies to those Councils that will require them.



Members of the consortium charged with implementing the programme.

Gender considerations

This new programme puts a lot of emphasis on gender equality and inclusivity by ensuring that at least 30% of projects are led by female researchers. In addition, gender and inclusivity will be embedded in the design of research methods, data collection, data analysis, knowledge production and dissemination, and final beneficiaries of project outputs (processes, technologies and innovations); It will also target disadvantaged sectors (e.g informal sector) and researchers (Early Career Academics).

The Councils are currently developing calls for proposals to guide selection of projects to be funded through the programme. A number of Councils have already advertised the calls

Programme objectives

- 01

Refine / adapt a research and innovation framework based on Councils’ needs
- 02

Design and manage high quality research competitions
- 03

Monitor and evaluate research projects
- 04

Mainstream gender equality, inclusivity and ethical considerations in all projects
- 05

Synthesize research results, develop research outputs and disseminate through various media



The ACTS programme team during a meeting with National Research Fund (Kenya).

East Africa leads in adoption of digital agri-technology

According to a recent survey conducted by ACTS, Eastern Africa is leading in the adoption and deployment of digital agricultural technologies in the continent

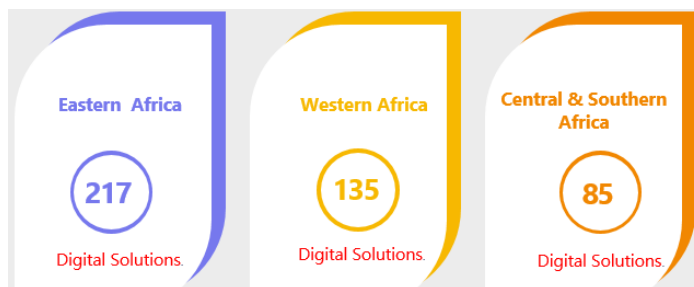
Findings of the survey, which sampled 34 producer organisations across 9 African countries, reveal that East Africa leads with 217 digital solutions compared to 135 in Western Africa and 85 in Central and Southern Africa.

Kenya recorded the highest number of solutions deployed in the region, mainly attributed to good mobile connectivity, high mobile penetration rates as well as robust mobile money services. The survey was commissioned by Fairtrade Africa (FTA) to assess the status of digital innovation integration among its certified producer organizations (POs) in Africa.

Findings indicate that digital advisory services are the most developed and deployed digital solutions, followed by agrifinance, marketing and supply chain. These were mainly delivered through short message services (SMS) and interactive voice response (IVR) to smartphone applications, OBD (outbound voice dialing), helplines and USSD (unstructured supplementary service data).

The study found 39 diverse types of digital technologies and solutions used by the POs. About 51% of the solutions adopted are characterized as basic to above basic, which is a step-up from manual or paper-based operations.

Farmers rated increased productivity, improved farming practices as the most important outcomes resulting from adoption of digital solutions, followed by ease of record



keeping and increased profit. However, they indicated that difficulty in language and user interface and high cost of the technologies were the main barriers towards adopting digital technologies.

Findings also indicate that at least 32.9% of farmers are using one digital technology or service; male farmers were more likely to adopt digital technologies than their female counterparts.

The study recommends connecting Fairtrade certified POs with identified developers of systems, supporting development of other custom solutions for specific needs, promoting digital solutions that builds trust along the target supply chains and developing strategies to close gender disparities in digitization of agricultural solutions.

Strengthening trans-disciplinary research in Africa

ACTS is at the heart of an initiative that seeks to strengthen the capacity for trans-disciplinary research in Africa

Under the umbrella of the Consortium for Trans-disciplinary Futures Research (CTFR), the initiative aims to strengthen collaboration among the African universities, local / indigenous communities, and decision-makers to address emerging and future challenges.

To achieve this goal, the African chapter of the consortium held a webinar on 28th March, 2023, that focused on the future of open research in Africa - leveraging lessons and experiences to explore pathways for scaling up trans-disciplinary futures research in Africa.

The seminar took stock of lessons and experiences from applied trans-disciplinary research model in Africa and other regions. It sought to answer the question: what potential opportunities exist for scaling up trans-disciplinary research in Africa?

Norah Ndege, a Science Policy and Research Fellow at ACTS was one of the panelists in the seminar.

CTFR seeks to strengthen the collaboration among the African universities, local / indigenous communities, and decision-makers in Africa to address emerging and future challenges.

Leveraging grassroots agency, 'informal' spaces, and existing academic research platforms within Africa, the Consortium seeks to consolidate research evidence by opening up the African spaces of research to allow diverse and neglected ways of knowing and doing to thrive and support the decision-making environment.



Norah Ndege, Science Policy and Research Fellow at ACTS.

ACTS staff visit Austria as part of research-university exchange

Dr Joel Onyango, reflects on the trip that aimed to enhance partnerships and staff exchanges within the Africa UniNet network of research institutions and universities in Austria and Africa

By Dr Joel Onyango, Head of Climate Resilient Economies (CRE) Programme, ACTS

The trip was to enhance partnerships and staff exchanges within the Africa UniNet network of research institutions and universities in Austria and Africa. Specifically, the exchange visit focused on developing sustainable partnerships in challenging the dominant narratives in knowledge and learning systems that are continuously characterized by knowledge hegemonies and elitism.

The visit involved BOKU university where the ACTS team (Nora Ndege and Joel Onyango) held a workshop and discussed with the BOKU Cluster for Development Research (CDR) team on the context of decoloniality within the knowledge and learning ecosystems. The workshop included reflections from the CDR team on what decoloniality means for them, and how the decolonial theory and lens can be applied in practice.

The ACTS team also visited the Austrian Foundation for Development Research (OFSE) where concepts on living libraries was discussed in detail after an extensive tour of the OFSE library with diverse literature on Africanacity. The visit included a tour to south of Austria with a walk by the Inn river, and over the Inn's bridge to the mountain top, courtesy of the Institute for Sociology University of Innsbruck.

Through a series of workshop meetings, the ACTS team together with the University of Innsbruck discussed details on the upcoming decoloniality book volume, the 2023 seminar series (building into the seminar series in 2022), and the summer school scheduled for August 14th to 21st in Kwale County Kenya. The



Dr. Joel Onyango

foresighted discussions also explored the potential for future partnerships, and was crowned by delivering a well-attended public lecture on 'hierarchies, hegemonies and elitism in decolonizing learning and knowledge systems.'

The exchange visit was not without fun! The ACTS team explored Austrian pastries and sweets including the Viennese apfelstrudel among other flavored strudels. Under the snow, the ACTS team explored the skating experiences in the Tyrol region, and shared cultural experiences and differences between Kenya and Austria.

Seminars on decolonising knowledge and learning systems

The webinar series that commenced in June 2022 brought together a diverse pool of scholars from all over the world and culminated in a Summer school held in Egerton University from 21st to 27th October, 2022

Decolonising knowledge and learning systems is a process of mainstreaming marginalized perspectives and amplifying diverse voices, while challenging and dismantling existing power structures.

It involves acknowledging and addressing the ways in which traditional educational structures have been shaped by colonialism and imperialism by examining the Eurocentric biases and power dynamics that have influenced what is considered valid knowledge and ways of knowing.

Working closely with the University of Innsbruck and the University on Natural and Life Science (BOKU) Vienna. ACTS has been active in the wider process of decolonizing knowledge and learning systems in the Global South through a series of seminars since 2022. The seminar series explore various themes in the decolonization of knowledge and learning systems in the global South to inform policy decisions and wider academic and political debates.

It focused on among other topics: knowledge production, hegemony in publication practices and dichotomy of knowledge system contexts; pedagogies, teaching practices, and emerging techniques in higher learning systems; contextualizing curricula, learning materials, practices and languages for learning; and decolonization and sustainable development a critical approach.



Participants of Decoloniality Summer School held in October, 2022.

Decoloniality Pathways Summer School 2022/2023

Drawing from the lessons on the webinar series, a Summer School was held in Egerton University in October 2022 to allow participants to explore the various themes to inform policy decisions and wider academic and political debates to enable learning, enrich knowledge, enhance practice and nurture more emancipatory outcomes in the Global South.

The next decoloniality Summer school will be held on 14th - 21st August 2023. You can register [here](#).

Learning consolidation workshop for SGCI held in Ghana

The workshop was meant to provide an opportunity for the Science Granting Councils (SGC), collaborative technical agencies (CTAs) and relevant stakeholders to share experiences and lessons learnt from the activities of SGCI-2

ACTS and Ghana's Ministry of Environment, Science, Technology, and Innovation (MESTI) held a two-day learning and consolidation workshop for the Science Granting Councils Initiative (SGCI) in sub-Saharan Africa. It was held on March 27th - 28th, 2023 in Accra, Ghana.

The event focused on activities across SGCI thematic areas, and countries undertaken from 2018 to February 2023, providing an opportunity for the Initiative to continue discussions started during the 2022 Annual Forum held in Cape Town, South Africa on the SGCI-2 achievements and lessons. It also enabled Councils to further reflect on the key findings and recommendations of the recently concluded SGCI external evaluation.

SGCI is a multilateral initiative established in 2015 to strengthen institutional capacities of public science funding agencies in sub-Saharan Africa with a view to supporting research and evidence-based policies that contribute to economic and social development.

The workshop set out to achieve five key objectives: showcase the achievements made in this second phase of the SGCI by Councils in progressing their mandates and strengthening national STI systems; pause and reflect on what has worked well, what has worked less well; and reflect on efforts to institutionalize and embed the capabilities and capacities that have been built under the SGCI.

In addition, the workshop was meant to provide an opportunity for the Councils, CTAs, and other relevant stakeholders to share experiences and lessons learnt from the activities of SGCI-2 and co-produce a series of recommendations that can be used to guide development of new work plans for activities post-February 2023 between Councils and CTAs.

While opening the workshop, ACTS Executive Director, Prof. Tom Ogada, called for the restructuring of the current research and development (R&D) funding approach which puts more emphasis on research and little on uptake of research outputs.



A panel discussion during the learning consolidation workshop for the Science Granting Council Initiative (SGCI) held in Accra, Ghana, on March 27th- 28th, 2023.

“There is an urgent need to direct more resources to technology transfer and commercialization of existing innovation and/or to create stand-alone innovation funds. This will include investment in entrepreneurship, creation of new start-ups, and strengthening the establishment, coordination, and management of the rapidly increasing innovation hubs in the continent,” said Prof. Ogada.

The SGCI was launched in March 2015 initially as a partnership of the UK's Foreign, Commonwealth and Development Office (FCDO), Canada's International Development Research Centre (IDRC) and South Africa's National Research Foundation (NRF). SGCI-1 strengthened the abilities of Councils from 15 countries to manage research, design and monitor research programmes.

The second phase began in June 2018 through additional investments by the Swedish Development Cooperation Agency (Sida), IDRC and NRF. The German Research Foundation (DFG) joined in November 2019 while Norwegian Agency for Development Cooperation joined in 2022.

A new cohort of AfricaLics PhD visiting fellows on board

The 2023 cohort will get the opportunity to participate in a one-year fellowship programme combining online activities with a study period of 3 months at the University of Johannesburg, South Africa

Six PhD students - four female and two male - have been selected to take part in this year's AfricaLics Visiting Fellowship Programme (VFP).

The successful candidates were selected from a pool of 72 applicants by a distinguished committee comprising of members of the AfricaLics Scientific Board and the Secretariat. They represent a diverse range of African countries (Cameroon, Nigeria, Ethiopia, Ghana and Kenya).

The 2023 cohort will get the opportunity to participate in a one-year fellowship programme combining online pre- and post-activities with a study period of 3 months at the University of Johannesburg, South Africa.

Mentoring will be provided by a range of African and international scholars in innovation and development studies who are research active in AfricaLics and Globelics.

The aim of the programme and the scholarships is to help African PhD students working in the field of innovation and development to strengthen their academic/research qualifications, improve the quality of their dissertations and prepare for a career in innovation and development either within academia or outside (e.g. in the private sector or in government/policy making).

The programme does this by increasing the mobility and level of exposure of the PhD students to international knowledge in the field of innovation and development. It forms part of the efforts by AfricaLics to contribute to the development of a vibrant research community in Africa in this emerging and highly multidisciplinary field.

During phase I and II of the Research Capacity Development Programme (2011-16 and 2017-22 respectively), the visiting fellows had the opportunity to visit Aalborg University as part of the programme. However, from 2022, the VFP fellows have been hosted by African universities. The 2022 cohort was hosted by Jaramogi Oginga Odinga University of Science and Technology (JOOUST) in Kenya.

The Swedish International Development Agency, Sida (Stockholm), has so far provided funding for the visiting scholarships as part of the project Enhancing research capacity on Innovation and Development in Africa.

The AfricaLics secretariat (hosted by ACTS) is responsible for the project with the AfricaLics Scientific Board providing advice on scientific matters and issues of strategic importance.

Adeduntan Oluwaseyitan Segun-Olasanmi from Obafemi Awolowo University, Nigeria.

PhD Research Title: Dynamics of Gender and Technology in the Cashew Nut Value; Chain in Southwestern Nigeria at Obafemi Awolowo University.



Natnael Sharecho from University of Gondar, Ethiopia.

PhD Research Title: Business model innovation and firm performance: Moderating role of environmental dynamism at University of Gondar.

Paule Melissa Atangana from University of Yaounde, Cameroon.

PhD Research Title: The macroeconomic effects of financial development on sources of innovation in Africa at University of Yaounde.



Rosalyne Baddoo from University of Ghana.

PhD Research Title: Commercializing agri-innovations in Ghanaian Universities for sustainable Agribusinesses at University of Ghana.

Ann Numi from Jaramogi Oginga Odinga University of Science and Technology in Kenya.

PhD Research Title: An Agricultural Biotechnology Technological Innovation System (ABTIS): Build-up, Actors & Dynamics.



Mbeo Calvince Ogeya from Jaramogi Oginga Odinga University of Science and Technology in Kenya.

PhD Research Title: Transformative Innovation: Investigating the coevolution of grid and off-grid electricity system.

AfricaLics holds 5th conference for early career researchers

The conference provided a platform for early career researchers to develop their presentation and networking skills while building collaborative relationships with other researchers



A group photo of participants who attended the 5th AfricaLics conference held in Yaounde, Cameroun, December 2022.

The impact of COVID coupled with undesirable environmental and social effects - including climate change and excessive socio-economic inequalities - have challenged the traditional narrow focused innovation models of growth.

This means that debates around the role of science, technology and innovation (STI) in shaping the future of African countries will inevitably shift, post COVID. Such debates are crucial for the African region that hosts more than half of the least developed countries in the world; and which will - according to the UN - see its population doubling to 2.4 billion people by 2050.

In this context, the University of Yaoundé II, in partnership with the Pan-African University Institute for Governance, Humanities, and Social Sciences hosted the 5th AfricaLics Research Conference themed “National Innovation System for Resilience and Sustainable Development in Africa.” It was held on 9th-11th November 2022.

The conference was designed to create space for researchers to present their work and learn about new methods and theories. It provided a platform for early career researchers to develop their presentation and networking skills while building collaborative relationships.

It brought together Ph.D. students, early career researchers, and established scholars from various fields to enhance the quality of innovation studies related to development and growth in Africa.

A key discussion point was the need to develop capabilities to help foster sustainable industrialization and development in a manner that respects the planetary boundaries.

It also raises key questions around: How can the innovation and development community help to further develop concepts and strategies that deal with external shocks while keeping the focus on SDGs?

The AfricaLics network - hosted by ACTS - is an academic research and capacity building network that focuses on how innovation (the process through which new or improved products, processes, organizational forms, ways of working and acting are introduced into new environments) occurs and the relationship this has with economic and social development in African countries.

For more information log onto <https://conference.africalics.org/>

Training solar dryer fabricators to reduce post-harvest losses

ACTS is leading a consortium that aims to fabricate 500 low cost dryers over 5 years intended to reach over 40,000 smallholder farmers

Solar dryers can significantly reduce post-harvest losses by providing a low-cost, energy-efficient method for preserving crops, fruits, vegetables, and other agricultural products.

For this reason, ACTS is leading a consortium that aims to fabricate 500 low cost dryers over 5 years intended to reach over 40,000 smallholder farmers.

The consortium held a 2 day training at the Kenya Industrial Research and Development Institute (KIRDI) Kisumu Centre on 4th and 5th April 2023.

The fabricators were taken through intensive sessions on hybrid solar drying technology including; principles and design considerations, safety protocols and regulations, basic fabrication skills such as metal works, welding and soldering; assembling and installation of the biomass component and operation and maintenance procedures.

The purpose of the training was to support solar dryer fabricators to deliver high technology hybrid solar designs.

Present in the training was Dr. Fred Ogutu, Eng. Jackis Aukah and Winstone Nyaguti from KIRDI, James Abaya (Savannah Circuit Technical Limited), Teddy Mweu (EBAgroPamoja Africa Limited), James Nyamai (Bioafriq Energy LTD), Patrick Muriiti (Africa Natural Products), Erastus Matete & Christian Odhiambo Abonyo (Grekkon Limited), Solomon Mutia (Luthekam Solutions) Dr. Catherine Kilelu and Isaiah Omolo (African Centre for Technology Studies ACTS).

The training culminated in a walkshop around the centre where participants viewed various solutions developed by KIRDI in addition to the solar dryer and interacting with fellow fabricators with whom they could exchange thoughts and ideas.



A group photo of participants who attended the training of solar dryer fabricators in Kisumu.

One of the participants at the training, James Nyamai from Bioafriq Energy Limited, said the knowledge gained from the training will help improve the quality of their solar dryers.

“This training has really been helpful in terms of getting to understand more about the hybrid dehydrators, how best to calculate some of the parameters scientifically and how to improve the hybrid dehydrators so that we can offer a better product to customers at a low cost”, said James Nyamai.



A solar dryer at the Kenya Industrial Research and Development Institute (KIRDI), Kisumu.

ACTS was part of a consortium awarded a grant to scale-up solar dryers to reduce post-harvest losses (PHL) in Kenya. The grant was awarded by the Institute of Food Technologists (IFT) through the Seeding The Future Global Food System Challenge. Other members of the consortium implementing the project include the United Nations Environmental programme (UNEP) and the Kenya Industrial Research and Development Institute (KIRDI).

The project seeks to scale and commercialize the proof-of-concept of climate action solutions of low-cost solar drying technology enterprises to cut PHLs and drive the realization of multiple Sustainable Development Goals (SDGs), leveraging lessons from the UNEP Ecosystem Based Adaptation for Food Security (EBAFOSA) initiative advancing this concept.

AI4D Africa project holds Summer School in Mombasa

ACTS Executive Director, Prof. Tom Ogada, implored AI4D Africa scholars to focus on completion of their PhD studies and strive to generate new knowledge on AI and ML to address key socio-economic challenges facing the continent



A group photo of PhD/Masters' students, supervisors and partners under the AI4D Africa Scholarship project and ACTS staff who attended the Summer school in Mombasa, December 2022.

The AI4D Africa Scholarship project held a successful Summer school in Mombasa, Kenya, bringing together more than 75 participants – PhD/Masters' students, supervisors and partners – from 22 universities in 18 African countries.

Under the stewardship of ACTS, students, supervisors and partners under the project got an opportunity to explore ways of strengthening, mainstreaming and expanding capacity building programs to enable wider access to emerging scholars in artificial intelligence(AI) and machine learning (ML) in Africa.

Participants were taken through in-depth presentations on various aspects of AI and ML including intellectual property, commercialization of research outputs, artificial intelligence research and ethics, understanding responsible AI development and deployment, strengthening machine learning skills, gender and AI in African context, artificial intelligence and research policy and resource mobilization

The presentations were followed by insightful discussions and sharing of experiences by participants on different issues relating to AI and ML. While at it, supervisors, students and

partners were urged to align their research projects with existing ethical standards and human rights components.

ACTS Executive Director, Prof. Tom Ogada, implored AI4D Africa scholars to focus on completion of PhD studies, generate knowledge on AI and ML to address key socio-economic challenges facing the continent and devise effective strategies to strengthen and sustain the network.

In addition, the short courses offered to beneficiaries should be mainstreamed and made available not only to the beneficiaries but to a wider group so as to enhance the capacity of scholars in AI and ML in the continent.

The AI4D Africa Scholarship intends to transform into a continental network that will blaze the trail of AI and ML in Africa through awareness and training.

The network gained more impetus during the meeting as students, supervisors and partners got to deepen knowledge on their research fields, take stock and strategize on the next steps.

Meanwhile, AI4D Africa Scholarship beneficiaries should interrogate their research concepts or outputs with a view to identifying what can be patented by examining whether the idea is useful to industry and whether it is novel.

Apart from ACTS, other partners that form the AI4D Africa Scholarship network include Université Cheikh Anta Diop de Dakar (UCAD), Institute of Humanities (University of Cape Town), University of California; Research ICT Africa (RIA); and University of Linköping (LiU), Sweden.

Multi-criteria mapping for the Blue Empowerment project

Multi-criteria mapping involves comparing and analyzing different options based on a set of pre-defined criteria, which could include cost, time, quality, risks, resources and stakeholder preferences



Participants of the multi-criteria mapping workshop under the Blue Empowerment project pose for a group photo during the workshop held in Kwale County.

Multi-criteria mapping is a methodological approach that helps to prioritize and evaluate various project options or alternatives based on a number of pre-determined criteria or factors simultaneously.

The ACTS-led Blue Empowerment project employed this methodology to assess and establish the priorities for technology, policy, and governance options that address community needs and fits well into the gender responsive integrated aquaculture system.

The project aims to tackle barriers for the empowerment of fisher women in Kenya's coastal region through adoption of climate-smart Integrated multi-trophic aquaculture (IMTA) technology of seaweeds and fish production for improved livelihoods and resilience.

This technique involves comparing and analyzing different options based on a set of predefined criteria, which could include factors such as cost, time, quality, risks, resources, and stakeholder preferences. It is one of the most effective tools for ensuring meaningful stakeholder engagement, especially for projects that work closely with communities.

Essentially, it is a structured process of identifying and mapping relevant ways of setting priorities and making decisions. Once a criteria for decision-making has been identified, it is defined, mapped, weighted and preferences made for each criterion.

This critical exercise was conducted during a workshop held between 27th February to 1st March 2023 in Kwale County. It was attended by representatives from the County Government of Kwale and Kilifi, including the Ministry of Fisheries and Ministry of Youth and Gender officials, Council of Governors (COG).

During the two-and-a-half day workshop, participants explored policy, technology, governance and inclusive business options, based on weighted criteria, to identify pathways that would be best suited in promoting uptake of IMTA technology.

Mr. Tei Usi-Bahari Chair of the Bahari CBO Network, a key partner in the Blue Empowerment project, emphasized the need for community inclusion during project implementation.

“NGOs, county governments, and government departments should avoid excluding the community from projects, as they play a critical role in seeing successful implementation of projects,” he said.

His sentiments were echoed by community members who expressed their views regarding the project.

“This technology that incorporates fish and sea weed farming is something very new and something that can be beneficial to us. I want to encourage my fellow farmers to embrace this new technologies that are helping us move from what we know as ‘analogue’ to ‘digital’. We should also be careful to address the risks that might come with it.” Sea weed farmer, Bahari CBO Member

Other partners implementing the project include Kenyatta University (KU), Kenya Marine and Fisheries Research Institute (KMFRI), Kenya Industrial Research and Development Institute (KIRDI) and Sea Moss Corporation.

Promoting a new agricultural technology in East Africa

ACTS in collaboration with the Centre for Research in Energy and Energy Conservation (CREEC) is promoting adoption of a relatively new agricultural technology – Agrivoltaics

Agrivoltaics, also known as agrophotovoltaics, is a method of combining agriculture and solar energy production on the same land. This innovative approach involves installing solar panels above or alongside crops in agricultural fields.

Under the umbrella of the Agrivoltaics Systems project, ACTS and CREEC have been holding a series of seminars to enhance adoption of this unique agricultural technology in Kenya, Uganda and Tanzania.

The goal of agrivoltaics is to maximize land use efficiency by producing both food and energy on the same land, while also providing benefits such as increased crop yields, reduced water usage, and improved soil health. The solar panels provide shade for the crops, which can help to reduce water evaporation and prevent heat stress on the plants.

ACTS and partners have been organizing webinar series aimed to create awareness of the innovation and inform policy to improve accessibility and rate of adoption at the community level.

Speaking during one of the Webinars, Dr. Anthony Kimaro, from ICRAF Tanzania highlighted various reasons why the AVS should be adopted.

“The good thing is that we are not starting from scratch, we have energy systems, crop production systems that have principles of which agrivoltaics system builds on and the integration is the innovation part. I think we should not be deterred by whatever numbers and challenges but should move forward to pursue this technology.”- Dr. Anthony Kimaro (ICRAF) Tanzania.

Lack of public participation and limited access to fiscal data are major challenges in the adoption of AVS policies in East Africa. Therefore, the government should be more involved in educating the public about AVS and promoting their use in order to create more opportunities and increase sense of responsibility.

The Agrivoltaics project - funded by the Global Challenges Research Fund (GCRF) and the University of Sheffield aims at using land for farming and for collecting solar energy. Project partners include The University of Sheffield, World Agroforestry Centre, University of York, Stockholm Environment Institute (SEI), Centre for Research in Energy and Energy Conservation (CREEC), Africa Centre for Technology Studies (ACTS), Teesside University, The University of Arizona, Latia, Sustainable Agriculture Tanzania (SAT) and Chloride Exide.

Master's degree on AI and machine learning

A committee has already been constituted to coordinate the process of developing a curriculum and put in place the necessary structures to actualise the idea

The AI4D Africa Scholarship network has started the process of launching a new Master's degree programme on artificial intelligence and machine learning. Initially, the programme will be offered in a few universities affiliated to the AI4D Africa project.

The decision was reached during the AI4D Africa PhD Summer school held in December 2022 in Mombasa, Kenya. It brought together supervisors and students from 22 universities drawn from 18 African countries.

A committee has already been constituted to coordinate the process of developing the curriculum and put in place the necessary structures to actualize the idea. The committee is chaired by Prof. Fasikaw Zimale from Bahir Dar University in Ethiopia. He will be deputised by Dr. Sonia Semedo from the University of Cape Verde. Each university in the network is represented in the committee.

The committee has been meeting virtually on Wednesday since January 2023. So far, the work group has reviewed curricula from 6 universities and they resolved to adopt the curriculum from Nelson Mandela African Institution of Science and Technology (NMIST) as it was found to be the most comprehensive out of the samples reviewed.

Through a document sharing platform, each member of the workgroup has been assigned a section to work on; progress is discussed and monitored on a weekly basis.

Although AI and ML has a steep learning curve, it would be important to create a training programme for ML for students who have graduated in other fields to be equipped with knowledge and skills on machine learning

This would help achieve the goal of creating 500 scholars on AI and ML every year for ten years that will be sufficient to develop solutions in these areas to drive sustainable development in Africa.

A decision will be made on whether the course will be offered virtually or in-person. The courses will also be offered in modular form that allows for flexibility and will have a strong private-sector collaboration component.

Ethiopian Minister of Technology meets ACTS team

ACTS was represented by the Executive Director, Prof. Tom Ogada and the head of the Science, Technology & Innovation, Knowledge and Society (STIKS) programme, Dr Agnes Lutomiah



Ethiopia's Minister of Technology and Innovation, Dr Belete Molla (left) when they met with ACTS Executive Director, Prof. Tom Ogada and head of STIKS programme, Dr Agnes Lutomiah, on March 30, 2023 at the Ministry offices in Addis Ababa.

The Ethiopian Minister of Innovation and Technology, Dr. Belete Molla, met with the ACTS team to discuss and understand the vision and operations of the newly established research Council. The meeting was held on March 30, 2023 in Addis Ababa, Ethiopia.



Dr Agnes Lutomiah, Head of STIKS programme, ACTS.

Discussions focused on modalities of how ACTS will work not only with the Ministry but also with the Bio and Emerging Technology Institute (BETin) formerly known as Ethiopian Biotechnology Institute (EBTi). The two parties discussed plans for implementation of the STI policy in the country and roadmaps for intellectual property and technology transfers. To set the collaboration framework in motion, the team also agreed to co-develop the concept note for the IDRC/FCDO funded programme on funding and managing research and innovation projects, which will be driven by national research Councils. The goal of the programme is to strengthen the capacities of Science Granting Councils (SGCs) to fund and manage research and innovation projects.

To ensure structural collaboration, a memorandum of understanding (MOU) will be drafted between ACTS and the Ethiopian Biotechnology Institute



ACTS Executive Director, Prof Tom Ogada (left) with the Minister, Dr Belete Molla.

A project on water resource management kicks off

ACTS is among three Kenyan organizations selected to implement the Trans-Path project on learning and management of water resources

The new project sets out to establish an international network of academics, postgraduate researchers, policy makers, activists, and water stewards for participatory action research on different sites; while also fostering learning across disciplines and locations.

The initiative - **Trans-Path-Plan: Water Transformation Pathways Planning** - aims to develop science-based tools that support inclusive, pro-active, adaptive transformation pathways towards better management of water resources.

It will build the capacity of policymakers to use more inclusive, transparent, participatory and adaptive planning tools; and support water users in different parts of the world to participate meaningfully in policymaking, planning and management of water resources.

In addition, the project will strive to develop the capacity of water scientists to conduct high-quality trans-disciplinary research to support long-term planning and approaches on water resources and create accountable, transparent and effective institutions and policies that will ensure transformative actions on water resources are inclusive and sustainable, through appropriate policies.

Apart from ACTS, other institutions from Kenya who are part of the project include Egerton University and Kaimosi Friends University. In Kenya, the project will focus on Kingwal wetland and Yala basin. It will aim to transform unsustainable cultivation and pollution into sustainable wetlands for local livelihoods; and also improve water quality through participatory research and T-Lab approach.

ACTS will use its vast experience and networks to host a Summer school on water transformation pathways

It is also anticipated that several junior or early career researchers are supported, with a good representation of female staff in this, each one hosted by one of the research partners and with supervision and guidance from senior staff.

A learning component has been embedded in the project to enable participants to receive training; this will be delivered by the different partners and researchers, sharing their particular expertise and experience with the network. This will mainly be done through online courses and webinars.

However, the project recognizes that transformative adaptation will not put an end to the continuous dynamics that characterize complex social-ecological systems given the fact that the transformation process has many components with different types of outcomes and will continuously evolve.

Regional innovation and Tech transfer strategy in the offing

ACTS is spearheading development of a new regional strategy on innovation and technology transfer for the East African Community (EAC).

The strategy will guide the region to exploit existing opportunities within the innovation ecosystem and with a view to harnessing, developing, and applying science, technology, and innovation for socio-economic development. It will also help and address the gaps within the ecosystem.

Eventually, the strategy will help catalyse industrial innovation and related outputs, strengthen technology and knowledge transfer, enhance knowledge creation, build effective partnerships, and improve technology management and protection in the East Africa.

Development of the strategy was undertaken through a six-step process: documenting the status of innovation and technology transfer in the region, mapping key stakeholders in the Innovation ecosystem, data collection, preparation of a draft strategy, holding a regional workshop and preparing a comprehensive implementation plan

The results of both the desk review and field data collection were used to prepare the draft regional innovation and technology transfer strategy.

In the process of collecting data for the strategy, it emerged that, whereas the five countries are at different stages in terms of policy and legislative framework. Specifically, all the countries do not have standalone policies on innovation, technology transfer and commercialization of R&D.

Therefore, the technology transfer strategy will give encouragement and provide a framework to the EAC member states develop national policies and strategies on innovation and technology transfer.

Regarding the characteristics of innovators and start-ups in the region, it emerged that the current level of commercialization among research organisations in the region is still minimal with little impact to the economy.

The key challenges for commercialization include lack of requisite skills for technology transfer and commercialization of innovations; inadequate funding to support more innovators and start-ups and low prioritization of technology transfer.

ACTS explores setting up office at Konza hub

As a research, policy and technology-oriented organization, Konza Technopolis provides an ideal location for ACTS to actualize its mission of strengthening the capacity of African countries and institutions to harness science, technology and innovation for sustainable and inclusive development



Members of the ACTS Governing Council (GC) and Secretariat after holding a meeting with senior Managers of Konza Technopolis.

ACTS is exploring possibilities of setting up an office at Konza Technopolis - an upcoming innovation and technology hub focusing on information technology, business process outsourcing and research development.

In February 2023, ACTS Governing Council (GC) visited the facility and met with the top leadership to appraise and evaluate its value proposition and make a decision on the next steps.

During the visit, GC chair, Prof. Alfred Oteng-Yeboah, said the organization needed a place to call home and Konza was the most ideal location.

“ACTS has always been occupying space in different parts of Nairobi since its establishment 34 years ago and it has dawned in us that it is probably better to find a place that we can call home. Konza is a place that relates very well with our mandate and strategic direction” - ACTS GC Chair, Prof. Oteng-Yeboah

ACTS Executive Director, Prof. Tom Ogada, was impressed by the pace of infrastructural development of the facility adding that ACTS was ready to be part of the journey towards exploiting the power of science, technology and innovation for sustainable development in Africa.

“We are very excited to be part of this journey and look forward to working closely with Konza to promote the agenda of harnessing the power of science, technology and innovation for sustainable development for Kenya and the entire continent of Africa” said Prof. Ogada.

On his part, Konza Technopolis acting Chief Executive Officer, John Paul Okwiri, was excited at the prospect of ACTS taking up space at the hub.

“We are glad the partnership started a few years ago and we will do everything in our power to ensure you settle. We want to work together with you especially on the digitalization aspect. We consider ACTS as our anchor tenant in the technology band,” he said.

Preliminary indications point to ACTS having a satellite office at Konza; discussions are currently underway between the two parties with a view to agreeing on critical administrative protocols. The GC also held discussions with ACTS staff who were generally open to setting up a satellite office at Konza.

Whereas the move to Konza will be gradual, it is expected that the Digital, Innovation and Knowledge Economy (DIKE) programme will be the first to relocate.

ACTS Press to publish a new book on research methods

The book covers research approaches used in major disciplines such as natural sciences, humanities, education and economics

A new book on research methods and scientific communication will soon roll off the ACTS Press. The book, *Research Methods and Scientific Communication: A Problem-Based Learner-Centred Approach*, takes a practical, learner-centred and problem-based approach to impart in students key learning skills.

This approach is consistent with the paradigm shift in education that advocates for competency-based approach and knowledge discovery by the student, hence the learner-centred approach to learning.

More important, it draws its content entirely from the author's practical experience in teaching research methods to a new generation of undergraduates.

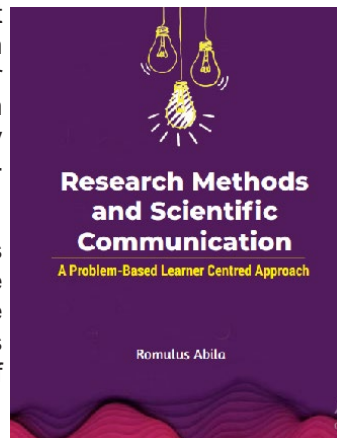
The author, Prof. Romulus Abila, a Professor of environmental biology at Maasai Mara University, explains that the book is more of a "doing book" that primes learners to search for and analyse, evaluate and synthesize information.

"It is an interactive tool in knowledge acquisition and is consistent with the new paradigm shift in education globally that makes the learner central in knowledge acquisition, he said.

Through case studies, student activities, scenarios and end of chapter questions and assignments, this book is an interactive tool and a primer in learning how to conceive a research idea, formulate research questions, develop a viable research proposal, collect and analyse data and present research findings through various dissemination outlets.

In addition, the book covers research approaches used in major disciplines such as natural sciences, humanities, education and economics. It is therefore appropriate to students across all research disciplines.

Prof. Abila has several years of experience in teaching ecology and conservation biology. He has taught at Maseno University, Kenya, University of Bolton, UK and South Eastern Kenya University, Kenya.



Coming Soon: Book on decolonising knowledge and learning systems in the Global South

ACTS is coordinating publication of a new book on decolonising knowledge and learning systems in the Global South.

This book will explore knowledge and learning systems and the current efforts to decolonize these systems in the Global South and beyond. The book calls for a re-focus on how knowledge production occurs arguing for resistance of eurocentrism that pervades academics, theory and the development of concepts, deconstruction of what is considered as 'true knowledge'; a diversification of knowledge particularly by focusing on the producers of this knowledge prioritising Global South knowledge and content to feed global learnings; embracing of different methodologies for knowledge production to inform policy decisions and wider political debates to enable learning, enhance practice and nurture more emancipative outcomes in the Global South.

With current struggles to decolonise education, the book re-examines and reorients the language of knowledge production and consumption, curricula design and delivery and lastly explores new and alternative approaches emerging to support learning in a 'context-sensitive' way.

Blogs

1. [Reflections on the TransCIIT project matchmaking event](#)
2. [Overview of TransCIIT Matched Projects under-way](#)
3. [Reflections on the entrepreneur survey](#)
4. [Reflections on TransCIIT Matched Project Outcomes](#)
5. [Reflections on the TransCIIT Showcase Event](#)
6. [A road less travelled? Reflections on a journey with climate innovation entrepreneurs and students](#)
7. [Professional match-making: an opportunity to advance students' and entrepreneurs' trajectories](#)
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