African Union
Scientific Technical Research Commission

Mid - Term implementation report of Science, Technology and Innovation Strategy for Africa 2014 - 2024

STISA-2024

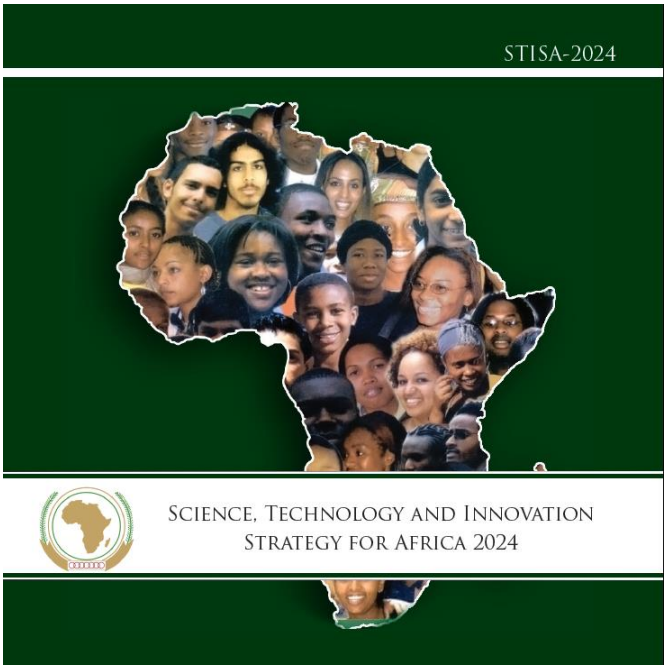
By

African Union, Scientific, Technical and Research Commission (AU-STRC)

2019

African Union
Scientific Technical Research Commission

MID-TERM IMPLEMENTATION REPORT OF SCIENCE, TECHNOLOGY AND INNOVATION STRATEGY FOR AFRICA 2014 – 2024 (STISA-2024)



Report on the STISA- 2024 Implementation

By

African Union, Scientific, Technical and Research Commission (AU-STRC)

2019

This report is developed by African Union, Scientific, Technical and Research Commission (AU-STRC) and it covers **only** the Programmatic, Projects and Activities of the AU-STRC on the 1st implementation term of the Science, Technology and Innovation Strategy (**mid-term report**).

LIST OF ABBREVIATIONS

ACTS	African Centre for Technology Studies
AES	African Environmental Society
AMCOST	African Ministerial Conference on Science and Technology
ASRIC	African Scientific Research and Innovation Council
AU	African Union
AUC	African Union Commission
AUNS	African Union Network of Sciences
CDM	Clean Development Mechanism
CPA	Consolidated Plan of Action
FAEO	Federation of African Engineering Organization
GCF	Green Climate Fund
GIF	Green Innovation Framework
NDCs	Nationally Determined Contributions
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organisations
RECs	Regional Economic Communities
STI	Science, Technology and Innovation
STISA	Science Technology and Innovation Strategy for Africa
UNFCC	United Nation Framework Convention on Climate Change
UNICEF	United Nations Children's Fund

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EXECUTIVE SUMMARY

The African Union, Scientific, Technical and Research Commission (AU-STRC) as a specialized institution of the African Union have been at the vanguard of promoting science and technology in the continent for the past 6 decades and have seen a lot of strategies, frameworks, and policies within the spheres of science and technology in the continent. However, the Science Technology and Innovation Strategy for Africa 2014 – 2024 (STISA-2024) has seen a renewed effort in transforming the continent from commodity based to knowledge-based economy. There are several institutions, agencies, are implementing the STISA-2024 such as AUC, NEPAD agency, the Department of Human Resources Science and Technology, UNECA, UNESCO etc. The AU-STRC being one of the key stakeholders and implementing institutions developed several projects and programmes that are being implemented in accordance with the STISA-2024 pillars and priorities.

In order to guide the implementation and to identify the needed interventions, to achieve the STISA-2024 goals and objectives, the AU-STRC conducted a policy analysis titled 'African Economy Driven by Innovation: Science, Technology and Innovation Strategy for African 2024'. This policy analysis resulted in identifying the gaps, needs and the requisite policies and institutional arrangements that to accomplish full implementation of STISA-2024. As of the reporting period several projects are being implemented by the AU-STRC under two pillars of the STISA 2024. Institutional strengthening and development was also dealt with during the mid-term implementation of the STISA-2024 as well as studies on science and technology business incubation and science and technology for post conflict recovery by integrating young arm back to the society.

The critical component of success which is the funding has been a major impediment for AU-STRC in the course of implementation of the STISA-2024. However this was managed and overcome despite no budgetary allocation from the African Union Commission. The other components are the international and intra-Africa cooperation that depends on successful communication and outreach.

All the activities, programmes, projects the AU-STRC has conducted over this period are document in this report. Further information and details on these programmes and the projects is available at the website of AU-STRC at www.austrc.org.

I. Introduction

The African Union Scientific, Technical and Research commission (AU-STRC) is a specialized institution of the African Union with a long history founded in 1954, the AU-STRC has been at the vanguard of promotion of science and technology in the past 6 decades at continental level. The AU-STRC was integrated into the Department of Human Resources Science and Technology (HRST) which sets forth the roles of its relevant divisions whose mandate covers Science and Technology promotion as per the Maputo Declaration. The AU-STRC was integrated into the HRST Department as one of its technical arms and its programmes and projects are guided by the Science, Technology and Innovation Strategy for Africa 2014 -2024 (STISA-2024).

In June 2014, the 23rdOrdinary Session of the African Union Heads of State and Government Summit adopted a 10 years Science, Technology and Innovation Strategy for Africa 2014 -2024 (STISA-2024). The (STISA-2024) is developed to facilitate continental transition from commodity-based economy to innovation-led and knowledge-based economy. The strategy is part of the long-term people centred AU Agenda 2063 that recognizes Science, Technology and Innovation (STI) as multi-functional tools and as an enabler for achieving its development aspirations and objectives.

It was widely recognised that Science, Technology and Innovation is critical to Africa's development. The vast majority of countries and Regional Economic Communities have developed their own STI agendas and strategies, with varying reference to STISA-2024. There has been a general increase in STI related activities on the continent over the past several years. A lot of this activity is happening in the name of STISA-2024.

The STISA-2024 differs from its predecessor the Consolidated Plan of Action (CPA), in that the latter was a programmatic based approached while the STISA-2024 is a thematic based approach within its four pillars and six priority areas.

II. Transition Period 2012 – 2013

The Consolidated plan of Action (CPA) consolidated the science and technology programmes of the AUC and NEPAD; it was also the instrument for the implementation of the decisions of the African Ministerial Conference on Science and Technology (AMCOST). The transition period between the end of the CPA and the birth of STISA-2024 is a grace period in which some projects that lingered from the CPA were implemented. During which a High-Level Panel was constituted by the AUC to develop the STISA-2024.

In terms of the projects during this period the AU-STRC successfully developed the **2nd edition of the African Pharmacopeia** with an updated data on the plants identified under the 1st edition, not only that 100 plant species had been added to the book along with a photo gallery. The book is presently a reference material and hundreds of copies were distributed to Member States and Institutions and are trending on different websites. In the same transition period the **African Union Science and Technology**

Framework for Detection, Identification and Monitoring of Infectious Diseases of Humans, Animals and Plants was developed by the AU-STRC. The framework was developed focusing on the one health concept, and addressing the need to harnessing innovation in Science and Technology to improve Africa's capacity to detect, identify and monitor Infectious Diseases of Humans, Animals, Plants as well as the ecosystem, in order to better manage the risk from them. While, it addresses the need to build an evidence based response to the infectious diseases through network of Centres of Excellences. Finally, this framework was one of among other guiding strategic documentations and actions that leaded to the establishment of the African Centre for Diseases Control.

III. STISA-2024

The STISA-2024 has been developed during a crucial period when the African Union is implementing an African Union 2063 Agenda. The STISA-2024 is the first of the ten-year incremental phasing strategies to respond to the demand for science, technology and innovation from various impact sectors including agriculture, health, infrastructure development, mining, security, water, energy, and environment among others. The strategy is anchored on six distinct priority areas that contribute to the achievement of the AU vision. These priority areas are: **Eradication of Hunger and Achieving Food Security; Prevention and Control of Diseases; Communication (Physical and Intellectual Mobility); Protection of our Space; Live Together- Build the Society; and Wealth Creation.**

1. AU Agenda 2063 and STISA-2024

The AU Agenda 2063 recognizes Science, Technology and Innovation (STI) as multi-functional tools and an enabler for achieving continental development goals. The Agenda, further, emphasizes that Africa's sustained growth, competitiveness and economic transformation requires sustained investment in new technologies and continuous innovation in areas such as agriculture, clean energy, education and health among others. The Agenda has a concrete and implementable framework with a clear vision, it has 7 aspirations, 20 goals, 39 priority areas, where Science, Technology and Innovation was considered as multi-functional tools and an enabler for achieving the continent's development, as of the fact that STI has a significant role to play in all Africa's development sector.

The STISA-2024 was developed on the bases that it should contribute to the achievement of the AU Vision (Figure 1). Due to the cross-cutting nature of STI, STISA-2024 is designed to meet the knowledge, technology and innovation demands in various AU economic and social sector development frameworks. STISA-2024 has a leading role to play in increasing efficiency (and eliminating duplication of effort) in the design and implementation of national, regional and African Union policies on STI.

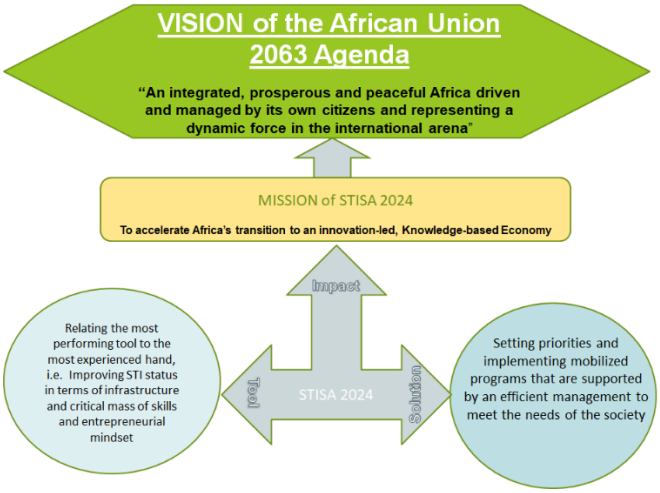

Figure 1: Vision of the African Union

2. STISA-2024 Pillars and Priority Areas

The critical components of STISA-2024 and its four pillars are; physical infrastructure; technical competencies; innovation and entrepreneurship; and enabling environment. It is built upon a strategic orientation based upon six priority areas Figures 2 and 3.

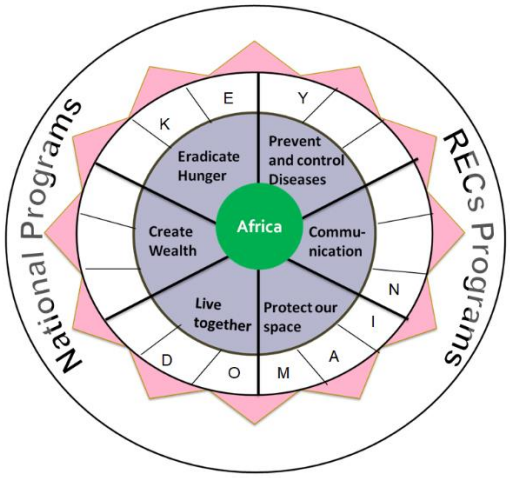

Figure 2: STISA 2024 Priority Areas

	Priorities	Research and/or innovation areas
1	Eradicate Hunger and ensure Food and Nutrition Security	- Agriculture/Agronomy in terms of cultivation technique, seeds, soil and climate - Industrial chain in terms of conservation and/or transformation and distribution infrastructure and techniques
2	Prevent and Control Diseases and ensure Well-being	- Better understanding of endemic diseases - HIV/AIDS, Malaria Hemoglobinopathie - Maternal and Child Health - Traditional Medicine
3	Communication (Physical & Intellectual Mobility)	- Physical communication in terms of land, air, river and maritime routes equipment and infrastructure and energy - Promoting local materials - Intellectual communications in terms of ICT
4	Protect our Space	- Environmental Protection including climate change studies - Biodiversity and Atmospheric Physics - Space technologies, maritime and sub-maritime exploration - Knowledge of the water cycle and river systems as well as river basin management
5	Live Together – Build the Society	- Citizenship, History and Shared values - Pan Africanism and Regional integration - Governance and Democracy, City Management, Mobility - Urban Hydrology and Hydraulics - Urban waste management
6	Create Wealth	- Education and Human Resource Development - Exploitation and management of mineral resources, forests, aquatics, marines etc - Management of water resources

Figure 3: STISA 2024 Priority Areas

The priority areas are cross cutting and not based on specific field of discipline, as one field of discipline for example Water can fall under 5 and 6 of the priority areas (Figure 3a). This brings a new approach to problem solving and multi-disciplinary dimension in the implementation of STISA-2024.

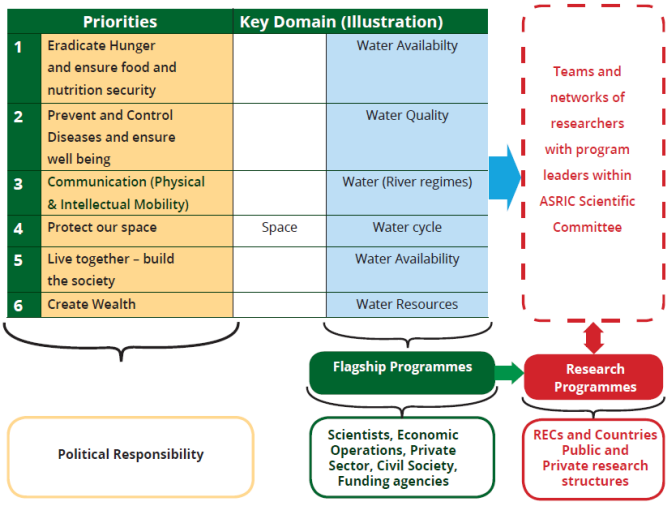

Figure 3a: Fields of Disciplines Cross Cutting across the STISA Priority Areas

IV. AU-STRC Guiding Principles on STISA-2024 implementation

Towards the end of 2014, the STRC engaged in the development of a policy analysis for the STISA-2024 to ensure its smooth implementation. The analysis was developed within the considerations of STIs for economic development in Africa. Against this backdrop, the STISA-2024 was subjected to critical analysis considering present, past and future based

on the needs and gaps that yielded all the pre-requisite and required systems and mechanisms including policies and institutions needed were identified. The analysis was made to ensure that Member States and RECs are informed on the systems needed for the domestication and implementation of the strategy in one hand while on the other to determine the STRC strategic role and plans in the implementation of the STISA-2024.

The output of the study was organized in two parts. Part 1, Identifying Policies and Institutions for the STISA-2024 Implementation, where the pillars of STISA were analyzed using the Finite Element Analysis and the Problem Tree Methodology to identify the policy gaps and institutional arrangements that may or may not exist in the majority of our Member States and/or RECs. Part 2, Defining Policies and Institutions for the STISA-2024 Implementation, clarifies on the possible predefined 13 policies and 7 institutions needed for the STISA-2024 implementation, and also provides a guideline and common understanding and approach to AUC and its Specialized Institutions, Member States, RECs and Partners. This output was published 2014 (figure 4).

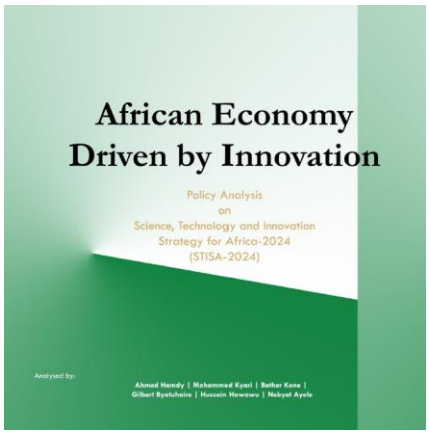

Figure 4: African Economy Driven by Innovation: STISA 2024

V. AU-STRC Report on STISA-2024 Implementation

Guided by the STISA-2024 Policy analysis and noting that the successful implementation of the STISA-2024 requires minimum set of requisite Policies, Systems, and Mechanisms which are to be combined with strong capacity building programme to ensure that Africa has the human/ institutional capacity for the achievement of innovation led knowledge economy and ultimately its aspirations as guided by the AU Agenda 2063.

SECTION A: Policies Developed

The AU-STRC developed the following frameworks, policies and strategic guide lines that addressing the four pillars of STISA-2024:

1. Women Participation in Science Programme

The programme in its 1st phase is to analysis the low/weak participation of women in Science with the aim to advice policy/decision makers and the public at large on the causes for this situation and the ways to improve it. That in this regards AU-STRC with the support of UNESCO and Merck commenced a desk study and public consultation with over 200 young and mid-career female Scientists whereby the findings and the outcome was published on “Towards Women Participation in Scientific Research in Africa” (Figure. 5).

Figure 5: Towards Women Participation in Scientific Research in Africa

This study is structured into two parts. **The first part** is a review of the GER of Male and Female cutting across Primary, Lower Secondary, Upper Secondary and Tertiary Institutions; from gender disparity to gender equality bringing about a paradigm shift in support for women in science. **The second part** is a strategic analysis conducted on a focus group that identifies the root cause and effects of less participation of women in scientific research which also portrays the methodology and analysis of the problem, with an overall objective of “enhancing technical and professional competencies to accelerate Africa’s transition to innovation led knowledge-based economy”. This overall objective is the second pillar of STISA-2024 for “building a critical mass of technical and professional competencies”. The analysis shows that there is need to carry out key activities that will spearhead a paradigm shift in women participation in scientific research. Finally, the study **identified intervention mechanisms** to be put in place for the enhancement of women participation in science these mechanisms can be summarized as follows:

a. Increase the number of Sensitization /Capacity Building Programme for Female Scientists; and
b. More political commitment to female participation in science.

2. Africa's STI Challenges, Climate Change

This analyzed the Africa's challenges on climate change impact. Considering science and technology cut across all realms of live just like the climate change and in accordance with the STISA-2024 priority of "live together-build the society". The AU-STRC commissioned a study "**Climate Change Impact in Africa challenges and opportunities within the Realms of Science, Technology and Innovation**" in order to proffer solutions to climate change challenges (Figure. 6).

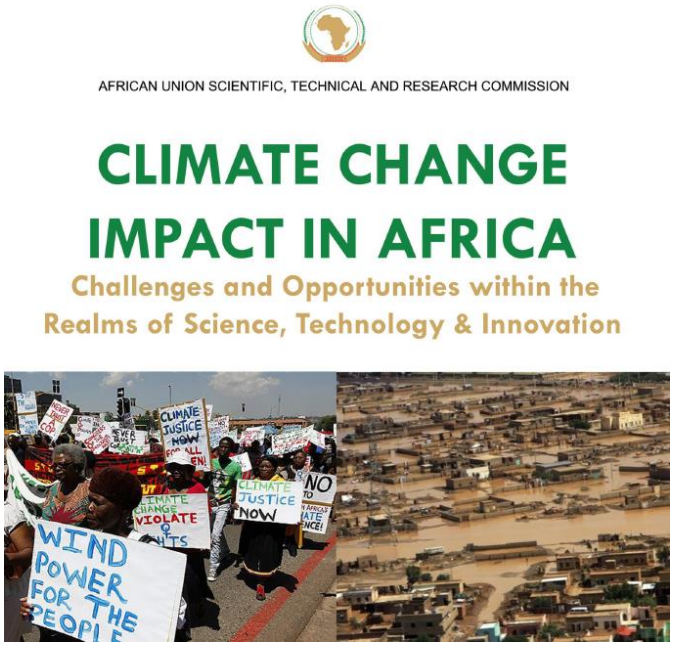

Figure 6: AU-STRC Publication on Climate Change Impact in Africa

The study showed that the **Africa's contribution of greenhouse gas emission** is less than 4% of total global emission but its impacts are complex and dynamic on several sectors and the risk as follows; ***Water***: By 2020, a population of between 75 and 250 million while the number is projected to be between 350-600 million by 2050, are projected to be exposed to increased water stress due to climate change; ***Ecosystem***: Between 25 and 40% of mammal species in national preservation parks in sub-Saharan Africa will become endangered; ***Agriculture***: By 2020, in some countries, yields from rain-fed agriculture could be reduced by up to 50%. Agricultural production, including access to food, in many African countries is projected to be severely compromised; ***Droughts***: By 2080, an increase of 5 to 8% of arid and semi-arid land in Africa is projected under a range of climate scenarios. Droughts have become more common, especially in the tropics and subtropics, since the 1970s; ***Human Health***: already compromised by a range of factors, could be further negatively impacted by climate

change and climate variability, e.g., malaria in southern Africa and the East African highlands. Ebola in West Africa is classical case; ***Energy***: Access to energy is severely constrained in sub-Saharan Africa, according to (Energy Outlook Special Report 2014) that More than 620 million people in the region (two-thirds of the population) live without electricity, and nearly 730 million people rely on dangerous, inefficient forms of cooking; ***Sea-level Rise***: Africa has close to 320 coastal cities (with more than 10,000 people), and an estimated population of 56 million people (2005 estimate) living in low elevation (<10m) coastal zones; Economy: The cost of adaptation could amount to at least 5 to 10% of Gross Domestic Product (GDP).

The study highlighted the **existing initiatives** that responsed to climate challenges both at policy level and physical projects. The burners among the policy are the African Climate Change Strategy, STISA-2024, the Programme for Infrastructure Development in Africa, AU Member recognition "signatory" to international treaties on environment and climate. While on the project level the study highlighted the following programmes and projects on the AU level: African Union Research Grant, GMES Africa and MESA, Africa Great Green Wall and lot others.

Issues related to accessing **finding opportunities and channellings** within the Clean Development Mechanism (CDM) and the Green Climate Fund (GCF) was discussed in the study and the Africa's challenges in this aspect was highlighted too; this was resulted in development of a Capacity building programme to access such funds.

The study recommended to **the African Scientific Community** to focus on building the required capacity to confront myriad of challenges of the impact of the climate change that will encompass development of research plans and proposals that targets mainly the improvement of our seeds to be resistant to drought; pest and disease; salinity and vagaries of climate to ensure that the African Seed Bank is full of such varieties. The African scientific community needs also to map water resources in the continent and to introduce effective research work to develop irrigation, water supplies and rain water harvest systems among others to find a sustainable means for better utilization of our resources. While on the level of the **AU and its Member States** the following was recommended to:

1. take the lead in the GMES Africa process and to develop local climate models for better understanding of the effects and the impact of climate change;
2. link their centers of excellences to address common challenges and to exchange experiences and knowledge in different thematic areas of STI and Climate Change.

It is also imperative to functionalize the concept of community-based research and to ensure that the national research centers/universities are linked to their communities. AU is to foster the development of the Green Innovation Policy and advocate for carbon friendly technologies and practices.

3. Research Translation from Bench to Bedside in Africa

AU-STRC published a book titled “Research Translation from Bench to Bedside” based on the inventory on the Health Research and Research Translation in Africa (Figure 7). The book is organized into ten thematic sections packaged within three parts. The book focuses on the common concepts used to describe varieties of research translation from the bench to the bedside including research translation, clinical research practice, and clinical ethics.

Part one of this book is addressing the Research translation in Africa where its **1st section** is devoted to the **understanding of research translation and clinical research**. It also highlights the translation models; the clinical trial phases; the stakeholders and the level of their involvement/interest. In ***Section two of Part one***, the authors give a **history and evolution of Science and Technology in the continent**. It is a retrospective on the African Union Commission Science, Technology and Innovation milestones and achievements realized.

Section three of part one mentions the **health challenges that Africa faces** and their linkages to poverty, food insecurity and malnutrition. And **Section four** addresses the methodology that was sued for the study of the problem “**Weak Research Translation and Pathways in Africa**” based on two main approaches by conducting a wider consultation “ face to face consultation and e-survey” with health practitioners and health research professionals.

Part two was focused on **strategic analysis to achieve research translation from the bench to the bed side in Africa.** ***Section one of Part two*** addresses the **strategies to achieve effective research translation from bench to bedside**. These strategies identified interventions to be considered “four pillars and three cross cutting pillars” to enhance stakeholder interventions. Each intervention identified is interlinked with the other and has some commonalities that aim at achieving a comprehensive system for research translation in Africa, through proposed solutions to obtain desirable and achievable outcomes for each pillar to attain to the ultimate goal. ***Section two of Part two*** focuses on the creation of **mechanisms to support research translation**.

Part three addresses **Guideline for improved harmonized good clinical research practice for AU Member States**. ***Section one of Part three*** underlines the **guidelines for improved harmonized good clinical research practice** for AU Member States. ***Section two of Part three*** describes the constitution and composition of the **Independent Ethics Committee**. It also describes the terms of reference and educational requirements of the Independent Ethics Committee members.

Section three of Part three explains the **Standard Operating Procedures** (SOPs) that are important to ensure standardized best practices for health research, compliance with national and international ethical and regulatory requirements. ***Section four of Part three*** is addressing **data handling protocols** and focuses on the procedures for

sampling, handling and record keeping as well as the why and how these should be in compliance with regulatory standards.

Figure 7. The Publication on Research Translation from Bench to Bedside

4. AU Green Innovation Framework

Under the programme of the AU Green Innovation Framework a desk survey carried out by the AU-STRC on the AU Member States on the subject shows that very few of the Member State have policies and some of the Member States have it embedded in their Science and Technology policies while the majority does not have such policies. The AU-GIF is intended to guide African Union Member States towards a path of economic prosperity through sustainable technological, industrial and system innovations (Figure 8). The Framework aims to galvanize the efforts of and between African countries to enhance societal and economic resilience to environmental pressures, promote a greater efficient use of natural resources and to achieve ultimately the aspirations of Agenda 2063.

The AU-GIF is developed considering the following four principles:

- The first, stresses the need to link Africa's Green Innovation systems with the Science, Technology and Innovation Strategy for Africa, STISA-2024;
- Secondly, the AU-GIF is anchored on the National Innovation Systems (NIS) of AU member states, many of which have already invested to certain degrees in developing national science, technology and innovation roadmaps.

- Thirdly, the Framework is premised on the principle that Africa's green innovation approach must be targeted at meeting Africa's development challenges such as Agenda 2063 and SDGs. African's green innovation approach must also be agile, adaptable and far-sighted. While being responsive to current challenges and trends, there is a need for futuristic thinking and long-term approaches to cushion the continent from sluggish development in a rapidly changing world.
- Fourth, moving from emergency, short-term, reactive approaches towards long-term systematic approaches underpinned by a clear vision, strong processes and a commitment to continual improvement.

Figure 8. The AU-Green Innovation Framework

SECTION B: Building Technical and Professional Competencies

To improve African competitiveness in global research and innovation enhanced technical competencies is vital, several programmes and workshops have been carried out by the AU-STRC to build African practitioners' capacities with support of AU-STRC partners. These programmes and workshops cover capacity building in fields of: Health and Medical Sciences; Engineering Sciences; entrepreneurship; funding opportunities; and natural hazard management. AU-STRC has carried out the following:

1. Africa Health and Medical Sciences Capacity Building

This lies within one of the priorities areas of prevention and control of diseases where several partnerships with different organization were signed and programme and projects are being implemented.

a. India Africa Health Research Collaboration

Guided by the Assembly Decisions on posting South-South cooperation and guided by the India Africa Partnership, a Memorandum of Understanding was signed between the AU-STRC and the Indian Council of Medical Research ICMR on 27th March, 2019 in India (Figure 9 and 9a).

Figure 9. Exchange of the signed of the MoU between the ICMR and AU–STRC

Figure 9a. Participants of the Health Capacity Building Programme

This MoU is designed to focus on the mutual benefit of Africa and India and has the following these priority areas: Training and Capacity Building of Health and Medical practitioners; Health Sciences Research; and Pharmaceutical Trade and Manufacturing.

Under priority area one “Training and Capacity Building of Health and Medical practitioners” a call for application for ICMR-AU-STRC Capacity Building Scheme; training courses were conducted in June, 2019 for the following courses and duration:

Training Course	Number of applications	Number of selected Candidate	Number of training days
Basic molecular biology techniques relevant to cancer research	79	15	5
Cervical cancer screening for pathologist	12	10	3
Research methodology and biostatics analysis	65	15	4
Nutritional anaemias	38	6	10
Biostatics and health research	74	25	10
Epidemiologic data analysis & inference	70	25	10
Principles& practice of epidemiology	90	25	10
Total number of applicants	**428**	**-**	**-**
Total number Selected Candidate		**121**	**-**
Total number of training Days			**52**

As of the reporting period a total number of 121 scientists have been trained. A total of 428 applications were received and 25 successful applicants were selected for the courses while a second batch of the Call for the capacity building training is coming up in December 2019.

For the year 2020 the programme has evolved and will have new courses set in place. The call will be launched before the end of 2019. The following table shows the intended capacity building programme/ courses to be launched.

Institute	Courses	Duration	Number of trainees
National Institute for Research in Reproductive Health	Emerging technologies for the Diagnosis of Sexually Transmitted Infections/Reproductive Tract Infections	2 weeks once/year	15 candidates
National Institute for Research in Tuberculosis	"Manage TB" – an online course for doctors	Online course is for 8 weeks	Open Number
National Institute Virology	Biosafety and Biosecurity in Biomedical Laboratories	5 days	10 candidates for 2 sessions with total number is 40/ year
National Institute Virology	Laboratory animal technician's training	5 days	10 candidates for 2 sessions with total number 20/ year
National Institute Virology	Training on Bio-risk management in Urban and Rural Hospital Setting.	5 days	10 candidates for 4 sessions with total number 40/ year
National Institute Virology	Training program for Virus Research and Diagnostic Laboratories (VRDLs).	10 days	10 candidates for 4 sessions with total number 40/ year
National Institute of Nutrition	PG Certificate Course in Nutrition	11 weeks	4 candidates
National Institute of Nutrition	Annual Certificate Course in Endocrinological Techniques and their Application	7 weeks	6 candidates

National Institute of Nutrition	Annual Training Course on Assessment of Nutritional anaemias	10 days	6 candidates
National Institute of Nutrition	Laboratory Animal Technicians Course	6 weeks	6 candidates
National Institute of Epidemiology	Online course -Health Research Fundamentals	22 modules to be completed in 8 weeks	Open Number
National Institute of Epidemiology	Biostatistics for health research	10 modules 5 days	25 candidates
National Institute of Epidemiology	Principles and practice of epidemiology, public health surveillance, outbreak investigation and response	10 modules 5 days	25 candidates
National Institute of Epidemiology	Epidemiologic data analysis and inference	10 modules 5 days	25 candidates
National Institute of Cancer Prevention and Research	Basic Molecular Biology Techniques relevant to Cancer Research – Hands on Training	5 days	5 candidates
National Institute of Cancer Prevention and Research	Training in basic molecular biology techniques (cloning, sequencing, expression, micro array etc.)	6 months	5 candidates
National Institute of Cancer Prevention and Research	molecular biology techniques Hand on training (Generalized) in Molecular Biology	12 weeks	6 candidates
National Institute of Cancer Prevention and Research	molecular biology techniques advanced application topics	10 months	2 candidates
National Institute of Cancer Prevention and Research	Hands-on workshop on Cervical cancer screening for pathologists	3 days	5 candidates for 3 sessions with total number 15/ year
National Institute of Cancer Prevention and Research	Short term training course for Cytotechnologists in cancer screening	8 weeks	5 candidates for 2 sessions with total number 10/ year
National Institute of Cancer Prevention and Research	Application of Statistical Software's In Medical Research	3 days	5 candidates for 3 sessions with total number 15/ year
National Institute of Cancer Prevention and Research	Hands on training course on Research Methodology &Biostatistical Analysis	4 days	5 candidates for 3sessions with total number 15/ year
National Institute of Cancer Prevention and Research	Certificate course in SLT control at WHO FCTC Global Knowledge Hub on Smokeless Tobacco	12 weeks	3 Candidates
National Institute of Cancer Prevention and Research	NICPR-ECHO Online Certificate Course in Cancer Screening for Beginners	Online course. Once a week for 20 weeks	25 candidates for 3 sessions with total number 75/ year
National Institute of Cancer Prevention and Research	Virtual Certificate Program in Advanced Cervical and Breast Cancer Screening Training Program	Once a week for 14 weeks	20 candidates for 3 sessions with total number 60/ year

Under priority area Two “Health Sciences Research” a grant scheme with an envelope of 6 Million USD was set in place and the priority area was identified to address: Tuberculosis, Cancer, HIV, the first call for the research grant in health sciences will be made in the 2020.

Under priority area Three “Pharmaceutical Trade and Manufacturing” is under development and will focus on training of African drug regulators on regulatory standards, procedures; control; testing; documentary needs; management; licensing of drugs; biologicals and manufacturing; Intellectual Property Rights concepts, rules and procedures; training on best practices in clinical trial approvals and conduct to help Harmonization in clinical trials between India and Africa; and Joint Exhibition (SOUK) and pharma-week.

b. Capacity Building Training Workshop on Viral Hepatitis for AU Member States & African Liver Patients Association (ALPA)

Viral hepatitis affects over 70 million Africans (60 million with Hepatitis B and 10 million with Hepatitis C). The disease affects the most youthful and productive Africans causing disastrous financial liability in the treatment of advanced liver cancer which further increases the growing non-communicable disease burden. The AU-STRC with the technical support of the African Liver Patients Association (ALPA) “whose aim is improving care and treatment of people suffering from hepatitis through the cooperation of its members and stakeholders” organized a Capacity building workshop on Viral Hepatitis for African Union Member States (Figure 10).

Figure 10. Cross section of participants during the workshop 18-20 November, 2018

The workshop attracted the participation of 98 participants from 30 AU Member States professionals, Practitioners, researchers, drug regulators, parliamentarians, pharmaceutical companies and etc. (Figure 9). The participants were trained on the following modules: Situational analyses of viral Hepatitis in Africa; Assessing the viral Hepatitis in Africa; Egyptian Model in the management to Combat viral Hepatitis; Village

free of hepatitis model; importance of good polices in combating epidemics in Africa; and Human Health and Rights.

c. AU-STRC, UNESCO, MERCK MARS Summit

The AU-STRC co-organizes with UNESCO and Merck international, the “UNESCO-Merck Africa research Summit”, the summit is designed for the development of female STEM capacity in Africa. The Summit is an annual event since 2015 and has been conducted for three successive and consecutive years. The Summit attracts over 200 scientists annually from different AU Member States. It is an opportunity for young career Scientists to present their research and research findings to internationally recognized scientists and researchers who are drawn from world leading universities such as Cambridge and Nobel Laureates Scientists. On the other hand, the summit attracted policy makers from different levels such as Ministers, and Head of States where the young Scientists were in position to discuss and address their challenges to the decision makers (Figure 11).

Figure 11. Cross-section of the three Summits conducted

2. Africa Engineering Science Capacity Building

The AU-STRC, the Egyptian Engineering Syndicate, and Schneider Electric Egypt developed a Capacity Building programme for Young African Electrical Engineers that includes laboratory practical, industrial visits and theory lessons. The programme had its first batch of training in 2017 as of the reporting period the programme has trained 60 Engineers from three Member States “Tanzania, Rwanda, and Uganda”, each training session is four weeks long (Figure 12 and 12a).

The programme was fully supported by the Egyptian Engineering Syndicate however, as of today the programme is facing financial challenges that limit its extension to other AU Member States. As of that, the Syndicate and the AU-STRC are working together to mobilize resources to benefit more young African Engineers.

Figure 12. Cross section of the 2nd batch graduation cermony 1-29 September, 2018

Figure 12a. Executive Director AU-STRC delivers Presentation at a graduation cermony of Electical Engineers on March, 2019

3. Innovation Capacity Building

Here the innovation is viewed in a multi-disciplinary and multi-sectoral approach to innovate product and services that are essential to the achievement and sustainability of a knowledge-based economy. Considering that Africa has a comparative advantage in addressing the demand of the base of the consumer pyramid the AU-STRC focusses its capacity building programme to addressing Inclusive /Community-Based Innovation.

The **capacity building initiative on inclusive /community-based innovation for AU Member States** has been designed in response to the growing necessity for building competence and capacity of Member States' in STI to enhance efficiency of enterprise and entrepreneurship of African researchers and innovators to produce marketable products, on the other hand, the Capacity Building Initiative on Inclusive/Community-Based Innovation for AU Member States" has been developed to bring together various stakeholders from Member States to enhance their professionalism and equip them with

requisite skills to boost Africa's competitive advantage both locally and in the global market (Figure 13 and 13a).

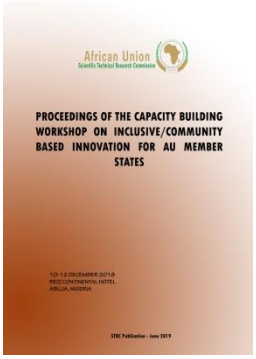

Figure 13. Cross Section of Participants at the CBI Workshop

Figure 13a. Cross Section of Participants at the CBI Workshop

The workshop took place on 2018 and brought together 80 scientists from 17 Member States including Universities, Academies and Ministries, and Industries were participated. The training modules address the following:

- STI Contribution to National GDP in the AU Member States;
- Linking Industry Science and Technology: EABC Perspective of GDP in African Countries (Fastest Growing Economies in Africa)
- Inclusive Innovation as a Driving Force for Africa's Growth and Economic Prosperity;
- Eco-Innovation Approaches towards a Sustainable Economy – Bridging the Gaps between Academia and Industry in Africa
- Financial Mechanisms and Instruments for Inclusive and Community-Based Innovation;

- Success Stories on Inclusive and Community-based Innovation in Africa in Agriculture, Energy, Water and Sanitation, Information Technology, and Financial technology.

The success stories were presented by some of the participants and published by the AU-STRC to inform more the African Scientific community on the need to direct our research to address Inclusive /Community Innovations.

4. Capacity Building Workshop for AU Member States on Accessing Green Climate Fund (GCF)

There are many initiatives on funding climate change mitigation and adaptation programmes and projects in the past and presently. Within the United Nation Framework Convention on Climate Change (UNFCCC) policy instruments, the Clean Development Mechanism (CDM), Paris Agreement, the Green Climate Fund GCF, the Post-2015 Sustainable Development Goals (SDGs) among others presents a breath of opportunities for attracting fund however, there is insufficient technical and institutional capabilities to attract funds in accordance with best practices and standard requirements in design, execution and monitoring of projects. This is was confirmed by the AU-STRC publication on "Climate Change Impact in Africa challenges and opportunities within the Realms of Science, Technology and Innovation" which shows that AU member States has weak to low access to climate financial mechanisms that including the promising Green Climate Fund.

Against this, the AU-STRC with the technical support of African Centre for Technology Studies (ACTS) organized a capacity building workshop for AU Member States on Accessing Green Climate Fund in 2018. The aim is to equip the participant from Member States with the requisite knowledge and competencies on the operations of the GCF, and how to develop competitive and fundable GCF project proposals supportive to the implementation of NDCs, in various sectors and contexts. The workshop attracted over 80 participants from within Africa (Figure 14 and 14a).

Figure 14. Cross section of participants during the workshop 28-30 August, 2018

Figure 14a. Participants during the Green ClimateFund workshop 28-30 August, 2018

The training modules address the following:

- Africa's Climate change policy landscape and linkage to national processes;
- Climate change and funding opportunities;
- GCF operational procedures in line with Parise agreement;
- GCF project cycle-identfying vetting GCF Project ideas;
- Develop of GCF projects ideas into proposals and implementation plan;
- GCF proposal layout, presentation and style;
- Managing GCF projects
- Sharing experiences from AU Member States that have accessed GCF.

5. Capacity Building Workshop on Mitigating the Impact of Natural Hazards in Africa

This workshop comes against the backdrop of recurrent natural disasters that has been recorded over time in Africa which, is undoubtedly getting on the increase with areas that have never recorded any form of natural disasters, experiencing tremors of Earthquakes, in other areas Floods, Drought, Volcanoes, Fires, landslides, and untold hazards resulting from Climate Change. The programme is aimed at mapping, analyzing the threat and development of scenarios not only that but also to advice the decision makers on the natural hazards' issues.

The AU-STRC is implementing a programme on mitigating the impact of natural hazards with the participation of two working groups that encompass scientists from Africa; Diaspora; EU and Japan Scientific institutions; and Japan International

Cooperation Agency (JICA) EU the two working groups set out are focusing on Seismic and volcanic hazard; climate change mitigation and adaptation.

The capacity building workshop on the Mitigating the Impact of Natural Risks in Africa was conducted on 2017 and was organized by AU-STRC, UNESCO and National Research Institute of Astronomy and Geophysics of Egypt where over 80 participants from 15 AU Member States attended the workshop (Figure 15 and 15a).

Figure 15. Members of the High Table during the 1st capacity building workshop on the Mitigating the Impact of Natural Risks in Africa and Ninth UNESCO-IPRED Annual Session

Figure 15a. A cross section of the participants at the Capacity Building Workshop on the Mitigating the Impact of Natural Risks in Africa

The training modules address the following:

- Scientific methodology for Disaster risk reduction
- Crisis and management systems (Egyptian show case)
- Mitigation of natural risks in Africa
- Seismicity and Seismic hazard

- Seismic risk and Engineering Seismology
- Seismo-tectonic map in Africa as key for Seismic hazard and risk assessment
- Climate change and its impact on Africa
- Regional climate modelling over Africa
- Funding opportunities for natural hazard
- Mitigating the impact of natural risk in Africa

In conclusion, the AU-STRC recognizes the need to further build the capacity of African professionals. The current report shows a high demand in all the fields for Africa's profession capacity to be built, notwithstanding, the limitation of weak financial resources. The capacity building by sector and participant percentage to the overall number of individuals who participated in the AU-STRC capacity building scheme are presented in the figure 16.

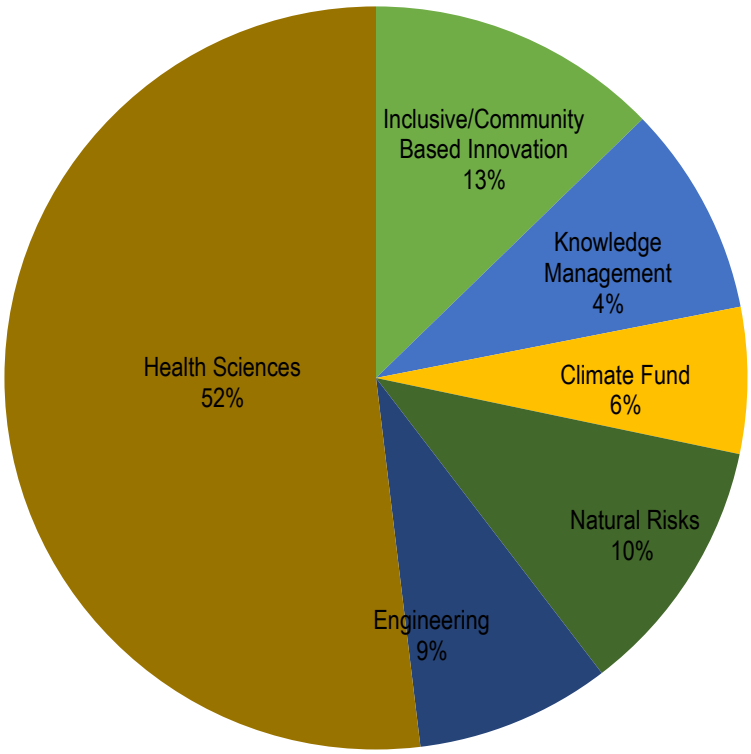

Figure 16. Distribution of Participants at Capacity Building Workshop

SECTION C: Building Africa Institutional Capacity

For Africa to achieve its aspirations by utilizing Science, Technology and Innovation a set of virtual and physical infrastructure should be in place to ensure knowledge creation, sharing, and managements. That in this regards the AU-STRC take the lead in developing the a virtual network for Scientists named as the African Union Network of Sciences as platform where African Scientists, Engineers, technology developers, innovators and inventors will be able to interact, cooperate, exchange information/knowledge and complement one another in research and academic work.

On the other hand, the AU-STRC launched the African Scientific Research and Innovation Council (ASRIC) as the Africa think tank for STI.

Guided and motived by the role of Non-Governmental organizations (NGOs) in Africa's development, the AU-STRC has worked in close cooperation with its partners to strengthen existing professional bodies and to establish those needed by the continent.

1- African Union Network of Sciences (AUNS)

The African Union Network of Sciences (AUNS) is a virtual platform that gives comprehensive interaction within the knowledge society and posts the African Research and Innovation output/library. It also uplifts the intra Africa cooperation in Science, Technology and Research to improve the quality and the application of science, technology and innovation by promoting and sharing experiences/knowledge. AUNS is an innovative way to enhance brain circulation and bridge the African based Scientists and those in the Diaspora to address Africa's Challenges.

Presently the work is in the second phase that requires the development of the Network portal, modules, data base and digital library. The preliminary modules of the AUNS (prototype) have been developed as shown below in Figure 17. While the development of the data base of scientists is a continuing process and has grown to over 10,000 scientists, from across the five geopolitical zones of the African Union.

The process of continuation of the second phase was halted for over 10 months due to challenges experienced in the procurement of the services of a reputable company to continue the work. However, the AU-STRC was able to identify a service provider and the AUNS portal will be fully function by end of 2019.

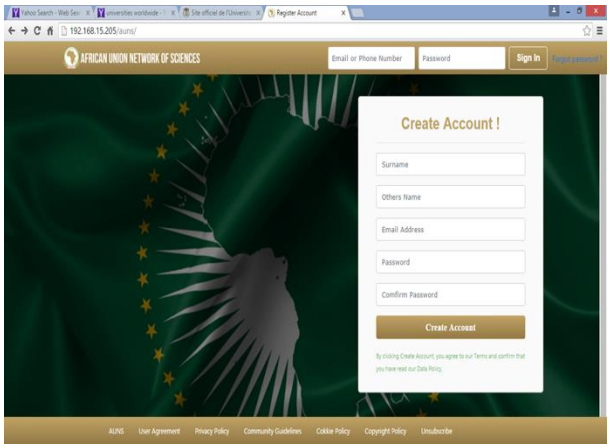

Figure 17. AUNS Prototype Homepage

The AU-STRC in its effort to publicize the African Union Network of Sciences, has developed a publicity action plan that is pillared on a face to face advocacy with African led learning and research institutions; adverts at well recognized media gateways (newspapers, Television channels, internet and website homepages); and by participating in relevant exhibitions, conferences and meetings. The publicity campaign kicked off at the AU-STRC Headquarters, Abuja, Nigeria on June 2018 with the hosting 35 Vice Chancellors from different Nigerian Universities for the 1st Information day on the AUNS pre-launching activities (Figure 18 and 18a). Furthermore, this face to face publicity will continues in other Member States.

Figure 18. H.E. Chairperson of the African Union as Champion of the AUNS

Figure 18a. Vice Chancellors at the 1st Information Day for the AUNS

The 2nd AUNS information day took place on September, 2018 and hosted 30 Ambassadors from the African Diplomatic Corps who are based in Nigeria. The meeting explained the importance of knowledge sharing and exchange and the need for the participants to advocate the network within their respective Member States and its Institutions.

2- African Scientific Research and Innovation Council (ASRIC)

The African Scientific Research and Innovation Council (ASRIC) is a continental platform to mobilize African research excellence, innovation and provide a platform for dialogue and voice of the scientific community in building and sustaining continental research-policy nexus with the aim of addressing Africa's socio-economic development challenges. The ASRIC is one of the flagship programmes of STISA-2024 in itself but on the establishment, it acts an advisory body for the AU. Its stated objective is "to promote scientific research and innovation in order to address the challenges of Africa's socio-economic development and is critical for the STISA architectures. ASRIC will produce several flagship programmes and projects for the STISA which are in pipeline. ASRIC was launched in November, 2018 in Abuja, Nigeria with the Election of its 1st Bureau since then the ASRIC is fully functional and the Bureau conducted two meeting (Figure 19 and 19a).

Figure 19. Workshop participants at the ASRIC Congress

Figure 19a. A cross section of the participants at the Launching of the ASRIC

As of today, the ASRIC is consulting within its members on the modalities to launch the ASRIC scientific Journals with the following Scientific/thematic areas: ASRIC Journal of Health Sciences; ASRIC Journal of Agriculture, forestry, and fisheries Sciences; ASRIC Journal of Water, energy and environment Sciences; and ASRIC Journal of Social and Humanities Science. Each of these Journals is designed to be published biannual. The ASRIC has the vision for these Journals to be Africa's highest quality journals, attracting African scientific excellence within the continent and the Diaspora.

The 2nd Congress of ASRIC is to take place by the last week of November 2019. It is organized to be conducted in two sessions the 1st is the organizational and governance session while its Scientific session is to attract more than 100 Scientists where the participants will present their scientific findings (papers) on the congress theme which is "Freeing Africa from poverty, Hunger and Disease".

On the organizational and governance session the congress will discuss the modalities of identifying the flagship projects; Science research Clusters (virtual Labs); resource Mobilization approaches and strategy among other.

For further information, visit the ASRIC website on www.asric.africa

3- Strengthen/Establishing African Professionals' Scientific Associations

Realizing the need to uplift the professionalism of African Practitioners and that the African Science related associations and foundations that responds fully to Africa's STI development challenges the AU-STRC joint force with Federation of African Engineering Organization (FAEO) to improve its status by advocating for more participation of relevant bodies on the AU member States to the organization. On the

mean time the AU-STRC approach the Nigerian Environmental Society to work together on the establishment of the African Environmental Society.

a. Federation of African Engineering Organization (FAEO)

A Memorandum of Understanding (MoU) signed between the AU-STRC and Federation of African Engineering Organizations (FAEO) and work is ongoing with FAEO to improve its structure and to develop guideline to assist Member States to establish their own engineering associations/ organization by developing national guide lines and Statutes. The FAEO and the AU-STRC had several meetings and discussions on the following: the reform of the FAEO; develop guideline for the establishment of national bodies; and development of financial and management control system for the FAEO. The need to have a common/ harmonized Engineering Standards in Africa is among the top of the actions need to be taken in the near future.

The cooperation is going thorough rough time whoever the AU-STRC is trying its best to bridge the gap and to overcome the obstacles that hinder the successful implementation of the MoU.

b. Africa Environmental society (AES)

In order to facilitate the implementation of the policies / strategies that addresses Africa's vulnerability to the climate change and other environmental challenges, the AU-STRC in collaboration with the Nigerian Environmental Society has set the pace for the formation of The African Environmental Society (AES).

AES when established will be the continental ombudsman and shepherd of the environment. There are many inhumane behavior committed against Africa's environment by foreigners, African nationals and/or both. The role of the civil society in the protection and management of the environment cannot be over emphasized here.

The AES shall be a continental scientific body which aims to build a robust network of Experts and Agencies on Environment, providing sound and independent information on the environment. The AES is involved in developing, adopting, implementing and evaluating environmental policies in Africa to be in accordance with the overall frame work of the AU Agenda 2063. The AES will develop an environment information observatory network in partnership with AU Member States. The AES shall be responsible for developing the network and coordinating its activities. To achieve this, the AES will work closely together with national focal points and typically national environment agencies or ministries of environment.

The AU-STRC has developed a data base of over 200 societies in Africa and developed the draft Statute of the AES. The draft Statute was sent out to the 200 societies in Africa with a commitment letter to seek for their acceptance and willingness to be member of the AES.

SECTION D: Studies Carried Out by AU-STRC

The AU-STRC developed in addition to the above mentioned programmes two studies that to address live together-build society and wealth creation: the projects named as follow “Science, Technology and Innovation for Post-Conflict Recovery in Africa: Integrating Young Arms to Their Societies” and “STI Business Incubators”. These projects were presented to several partners and they could be considered as in resource mobilization stage, highlights of these projects are in what follow is presented.

1- Science, Technology and Innovation for Post-Conflict Recovery in Africa: Integrating Young Arms to their Societies

A study and analysis was made by the AU-STRC on arm conflict in the continent and stated that conflict remains the greatest challenge in most of the African Union Member States and has caused devastation in livelihoods, loss of lives, property and health. The cumulative effect of conflict has hindered economic prosperity in most of these countries. The youth have particularly been caught in the web of consequences of wars and post-wars. Their importance as both victims and agents is not far-fetched. It is estimated that over 300,000 children under the age of 18 are involved in more than 30 conflicts worldwide (UNICEF Fact sheet). In Uganda more than 60,000 children have been kidnaped by both the armed forces and rebel factions. Similarly, it is estimated that 15,000 to 20,000 children served as child soldiers during the Liberian civil war. In Sierra Leone, about 5,400 children were abducted between 1992 and 1996 and forced to fight on both sides.

Youth in STI for Post-Conflict recovery in Africa is to build the capacities of youth in post-conflict countries in Africa through the use of STI for self-development and community prosperity. The programme will establish micro businesses, and/or similar institutions that are based on technology transfer, adoption, and diffusion in the post conflict areas as stipulated in the STISA-2024 priority areas ‘Live Together-Build the Society’ and ‘Wealth Creation’. It will also expose communities to environmental friendly technologies that address their daily challenges such as Water and Sanitation, Healthcare, Energy, Food, Agriculture & Environment, Housing and Construction, Waste & Recycling, and ICT.

This was carried out by the AU-STRC and proposal was developed to be partnered with willing institutions/organizations and investors or development partners.

2- STI Business Incubators

The AU-STRC observed the business sphere of the continent and realized that there are quite a number of interconnected and overlapping root causes behind extreme poverty in Africa, one of which is the inefficiency of industrial development. Over the last 30 years, worldwide absolute poverty has fallen sharply (from about 40% to under 20%), however, in most African countries, the percentage has barely fallen. An analysis by the World Bank depicts, that extreme/absolute poverty in Africa refers to people whose income is less than $1.25 a day. (Our Africa Poverty 2017)

Today, 40% of people living in sub-Saharan Africa live in abject poverty. Though African countries have unique history, and may face unique challenges, the fundamental, however, remains that the increasing chasm between the minority rich and the majority poor; and the predominantly low living standards and quality of life are as a result of the inability of most African countries to develop their economies and create wealth needed for better living.

Against this backdrop the African Union endorsed the Accelerated Industrial Development for Africa (AIDA) as the strategy for implementation to bring about industrial development in Member States. Ten years later, in 2018, the Department of Trade and Industry created a Round Table Session to enhance awareness of AIDA and to strengthen the implementation of the programme. AIDA is one of many strategic initiatives co-opted under the AU Agenda-2063 (the strategic framework for the socio-economic transformation of the continent in 50 years). Furthermore, the Science, Technology and Innovation Strategy for Africa (STISA-2024), a policy framework of the AU Agenda-2063, highlight the role of Science, Technology and Innovation (STI) in this transition.

In response to challenges, AU-STRC Business Incubator intends to provide strategic support for Startup SMEs and Scientists creating inclusive solutions to African challenges. In consonance with the STISA-2024 priority areas of “Wealth Creation” and “Live together - Build the Society”, the programme will furnish them with resources to move their ideas and prototypes to products that would achieve maturity, relevance, impact and permanence in the market.

By addressing community-based challenges, the program will solve challenges, create jobs, thereby improving the standard of living of the poorest of the people in African

communities. In addition, the resultant development would help Member States achieve the baseline of the SDGs and ultimately the AU Agenda-2063 aspirations.

The Business Incubator also intends to select, build capacity and fund inventors and scientists with innovative ideas in creating affordable and sustainable solutions to the dearth of access to needed technology, power in smaller/rural communities, boosting agricultural productivity and increase accessibility to clean water; all of which respond to the SDGs: " Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All", "Promote Inclusive and Sustainable Economic Growth and Decent Work for All" and "Access to Water and Sanitation for All".

These studies are carried out by the AU-STRC and fundable proposals are developed based on this and several partners are being approached as to implement the project jointly.

SECTION E: International and Intra-Africa Cooperation

The AU-STRC exploited this aspect extensively in that most of the projects are implemented along this path. Considering that intra-African trade and industrialisation are crucial to the future inclusive prosperity of the continent as outlined in Agenda 2063. Science Technology and Innovation is a crucial driver of industrialisation, and hence trade. In the implementation of STISA a close collaboration with partners were made both within and outside Africa. It was realized from the need to better coordination and cross-linkages between the 'governance' agencies involved in this process in an inclusive manner to clearly define roles.

The AU-STRC has a Memorandum of Understanding with the following and Organizations such as the Indian Council of Medical Research, and Federation of African Engineering Organization (FAEO). It was also having Memorandum of Understanding with The Center de Coopration Internationale en Recherche Agronomique pour le Development (CIRAD) which was not disclosed for reasons beyond the aim of this report.

On the other hand, there is great cooperation and many success stories that have been achieved with agencies and institutions such as Egyptian Syndicate of Engineers (ESE); Nigerian Environmental Society; Nigerian Academy of Sciences; Egyptian National Research Institute of Astronomy and Geophysics; African Centre for Technology Studies and others

The AU-STRC participated in several projects and programmes as member or chair of its steering committees such as Africa Catalyst funded by the Royal Academy of Engineers; Recirculate that funded by the research council of UK; and others.

There are many UN agencies and other international organization that the AU-STRC working with and that have worked with. However, the challenge experienced is that of

a mind-set and mentality where there is a degree of internal competition between the governing bodies and in some cases, competition for funds between these agencies and the institutions on the ground that they are supposed to be supporting.

SECTION F: STISA-2024 Communication and Outreach

The popularization of STISA-2024 among the critical stakeholders required to implement STISA-2024 and to more broadly promote STI across the continent. The AU-STRC gives a special emphasis on advocacy by presenting STISA-2024 on all its programmes, activities and in all the meetings where our officials are invited. On the other hand, several information days were conducted in its HQ focussing on the STISA-2024 where UN Agencies Africa's partners and Ambassadors were called for the meetings.

SECTION G: Fund Allocation 2012 – 2019

A number of Financing Tools for Science Technology and Innovation in Africa are discussed during the development of STISA-2024 and its implementation, and to date it is an ongoing issue. Among issue the African ownership and financing of STISA-2024 became prominent just to get rid of the development partners funding of projects and programmes. Just like funding of other AU bodies, AU-STRC funding has been notoriety with limited funding and deficiency of professional staff. **This needs to be addressed urgently and effectively**.

Great Ideas

Great People

Great

This report is developed by African Union, Scientific, Technical and Research Commission (AU-STRC) and it covers only the Programmatic, Projects and Activities of the AU-STRC on the 1st implementation term of the Science, Technology and Innovation Strategy (mid-term report).

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