Royaume du Maroc
Académie Hassan II des Sciences et Techniques

African Union
Scientific Technical Research Commission

African Scientific
Research and
Innovation Council

2ND ASRIC Congress

FREEING AFRICA FROM POVERTY, HUNGER AND DISEASES

20-23 November 2019
Académie Hassan II
des Sciences et
Techniques
Rabat, Morocco

Concept Paper

I. BACKGROUND

1. In recognition of the role of science, technology and innovation, as essential tools for socio-economic transformation of Africa, and the necessary institutional setting for the implementation of Africa Science, Technology and Innovation Agenda, the Executive Council of AU Member States adopted the Decision Ex.CL/Dec.747 (XXII) and Decision Ex/CL/Dec.216 (VII) on the establishment of the African Scientific, Research and Innovation Council (ASRIC).

   Hence, the ASRIC had its Official Launch and First Congress from 27th to 29th November, 2018, in Abuja, Nigeria, which set the ASRIC in full operationalization, where the ASRIC Bureau was officially constituted and mandated to oversee and execute the decisions of the Congress amongst others. In addition, the African Union Scientific, Technical and Research Commission (AU-STRC) in Abuja, Nigeria was named the Secretariat of the ASRIC.

2. To effectively carry-out the ASRIC mandate, there is need for a systemic analysis of Africa's challenges as they cut across the various countries and a clearly-defined and strategic plan of action for all stakeholders in the ASRIC. This is in full consideration of the crucial opportunity for ASRIC to promote scientific research and innovation to address these challenges. Africa's prevalent challenges can be classified into fundamental and consequential, where sustainable resolution of Africa's fundamental challenges will bring far-reaching positive solutions to the consequential needs. For instance, the effective application of science and technology in addressing Africa's challenges of poverty, hunger and disease as fundamental needs, will improve the quality of life of African citizens, produce a healthier population, reduce mortality and disease outbreak, thereby enhancing economic growth which is a consequential challenge.

3. To this end, the ASRIC is organising its Second Congress scheduled to take place from 20th to 23rd November, 2019 at the Hassan II Académie des Sciences in Rabat, Morocco. The Congress will be a gathering of selected members and representatives of member institutions from AU Member States as stipulated in the ASRIC Statute. The theme of this year's Congress is: **FREEING AFRICA FROM POVERTY, HUNGER AND DISEASES.**

RATIONALE

4. Africa is confronted with a myriad of well-known development challenges across her various countries, where some of the challenges are multifaceted, interlinked and transcend national boundaries. Despite that African countries are at different development levels, with differentiated capacities - financial, human capital, scientific and technological, there is a need for a problem-analysis according to level of necessity and scope of impact as fundamental and unavoidable challenges have far-reaching consequences on the entire continent in different ways. Bringing about effective solutions to these fundamental challenges will improve the quality of life of African citizens and have a ripple positive effect in alleviating other problems. Notably, the various policies and strategies developed by African leadership towards Africa's development such as the Science Technology and Innovation Strategy for Africa (STISA-2024) lay strong emphasis on the essential nature of these fundamental and longstanding problems of poverty, food shortage and ill-health.

5. The STISA-2024 Priority Area 1: ***Eradication of Hunger and Achieving Food Security*** highlights Africa's urgent need to deal with emerging challenges in food security, such as low commodity yields, climate change and variability, water and land management, and increasing price volatility in global markets which could undermine efforts to eradicate hunger and achieve food security and nutrition. It also mentions the Comprehensive Africa Agriculture Development Programme (CAADP) amongst other instruments being deployed to end hunger in Africa. Food shortage and malnutrition has severe effects on all demographic groups. It practically incapacitates the people and economy at large; as societies with significant percentage of undernourished or malnourished population are unable to produce a healthy and vibrant workforce which is necessary for economic growth. Also, maternal malnutrition increases the risk of poor pregnancy outcomes including obstructed labour, premature or low-birth-weight babies and postpartum haemorrhage. Low-birth-weight is a significant contributor to infant mortality, and low birth-weight babies who survive are likely to suffer growth retardation and illness throughout their childhood, adolescence and into adulthood. Growth-retarded adult women are likely to carry on the vicious cycle of malnutrition by giving birth to low birth-weight babies.

   Undernourishment and/or malnourishment causes a lot of underdevelopment in children's brain capacities, their physical stature and overall abilities as they grow into adulthood. Scientific evidence shows that beyond the age of 2-3 years, the effects of chronic malnutrition are irreversible. Sadly, this means that about 60 million children in Africa will grow into adulthood with irreversible

health defects internally and externally in the long-term including less physical capacity for work and lower IQs. This also impacts on education attainment and expression of intelligence, all of which spells a bleak future for the overall development of African citizens.

6. Poverty in Africa is a major cause of hunger and disease with about 40% of Africans living under the World Bank International Poverty Line of US$1.90 per day. Africans living in abject poverty are unavailable to afford the barest minimum of basic human needs - food, clothing and shelter. The root of the problem bears from centuries of Africa's exploitation pre-independence with little or no development achieved, to post-independence, where Africa has been largely unable to catch-up with the industrial age in terms of the rapidly changing economies. Most African countries have a high deficit in their import-export balance due to lack of efficient production systems needed for exportation. In this age of technology and innovation, many Small and Medium Scale Enterprises (SMEs) are starting up in various African countries, however, with continuous population increase and lack of enabling infrastructure such as power and efficient transportation systems, these SMEs are unable to grow at the same rate as the population and are having very little effect in poverty reduction. In addition, the overconcentration of the available imported technology in Africa's urban cities has neglected the teeming rural population who are mostly responsible for national livelihood through agriculture and food production. Rural farmers struggle to cultivate food items with outdated tools and farming practices while suffering from effects of severe weather and climatic conditions without the right mitigation techniques. Yearly, agricultural yield suffers from lack of efficient cultivation, harvesting and storage techniques; as well as severe natural hazards like drought or flooding in certain areas. No doubt processing, conservation and distribution of food items requires concerted intervention of STI professionals.

7. Finally, chronic hunger and poverty are major determinants for sicknesses and facilitate quick spread of diseases. Yearly, Africa records huge numbers of preventable deaths from treatable illnesses like malaria, tuberculosis and yellow fever. According to the World Health Organisation (WHO), 50% of children under five who die of pneumonia, diarrhoea, measles, HIV, tuberculosis and malaria are in Africa. African populations are also prone to recurring epidemics of cholera, meningitis, measles and more recently, Ebola virus, where children and pregnant women are the extremely vulnerable sector of the population. In the area of healthcare and treatment of diseases, absence of equipment and medication; substandard-quality treatments; shortage of healthcare staff; availability of counterfeit medication and lack of funding for

health sector in general are significant barriers to improving healthcare in Africa. The traditional medicine sector (trado-medicine) presents a viable alternative to expensive imported medication but this sector is largely overlooked by African leadership and health sector managers thereby grossly lacking funding and regulation necessary to create a thriving trado-medical system.

In this age of 'knowledge economy', even the knowledge that is available and relevant for appropriation by the masses of the rural population in Africa to enable them to become knowledgeable to extricate themselves from the pangs of hunger, disease, ignorance and want is not **accessible** to the majority because of issues of language and medium of communication and challenges of governance and socio-economic development. The elucidation and solution of these issues are envisaged as concomitant to the Science Technology and Innovation Strategic Agenda in the African Union's aspirations of the *Africa we want.*

In light of the above, the 2nd ASRIC Congress shall be a unique potpourri with scientific sessions and paper presentations by eminent scientists and professionals with the aim of enhancing the application of Science, Technology, Research and Innovation to address these challenges. The Congress also seeks to encourage African scientists to expand and widen their spread of research in these development sectors.

II. OBJECTIVES

The objectives of the 2nd Congress are namely:

(i) To gather notable African scientists and industry leaders to deliberate on Africa's challenges of poverty, food security and disease.

(ii) To create an encouraging platform ecosystem for research and research collaborations aimed at developing innovative solutions to Africa's challenges of poverty, food security and disease.

(iii) To promote and increase awareness of existing STI solutions to tackling poverty, food security and disease.

(iv) To hold strategic meetings of ASRIC Sub-committees and report presentation to the ASRIC Congress.

(v) To hold a Continental gathering of scientists, academics, inventors, partners and innovators in order to promote consultation/dialogue on the prevalent challenges.

(vi) To enable network and cluster creation and linkage between African Scientists in the Diaspora to home-based scientists and encourage them to take part in Africa's socioeconomic development together.

(vii) To inform about ASRIC and strategic partners funding possibilities for boosting RDI in Africa

III. EXPECTED OUTCOMES

The expected outcomes of the congress are:

(a) Successful meetings and presentation of reports of ASRIC Sub-committees
(b) Renewed zeal and inspiration in African scientists and researchers to create innovative and inclusive solutions to the prevalent challenges.
(c) Strengthening existing relationships and collaboration in research and STI across the continent
(d) Greatly advancing the fight against poverty, food security and disease by increasing knowledge sharing in the fields of health sciences; water, environment and energy; governance and economic growth.

IV. PARTICIPATION

About 300 hundred participants are expected to take part in this meeting. Expected participants are from the following:

- National Academies of Sciences
- National Research Councils or other similar Institutions in the AU Member States;
- Regional Economic Communities;
- Scientific Committee;
- African STI Institutions;
- Financial institutions
- Laureates of the African Union Kwame Nkrumah Scientific Awardees;
- African Diaspora;
- African STI Civil society;
- Industry frontiers, (Public and Private Sectors);
- International STI Institutions.
- Etc.

V. AGENDA

Theme: **FREEING AFRICA FROM POVERTY, HUNGER AND DISEASES**

Sub-Themes:

1. Health Sciences
2. Agriculture, Forestry and Fisheries
3. Water, Energy and Environment
4. Governance, Sociology, Business and Economics

Under each sub-theme, the Congress will have papers presented on a number of disciplines. The presentations are to be selected via an open call for papers.

Structure of the Congress:

Furthermore, the conference will be divided into two (2) parts:

Part 1: Parallel meeting sessions of the Scientific and Innovation; Communication and Resource Mobilisation Committees

Day 1	Meeting of the Committees of ASRIC
Day 2 AM	Continuation of Day 1 Meetings
Day 2 PM	ASRIC Congress with presentation and consideration of reports from the Committees

Part 2: Scientific Sessions

Day 3 AM	Official Opening Ceremony of the Congress
Day 3 PM	Scientific Sessions (Health Sciences; Agriculture, Forestry and Fisheries; Water, Energy and Environment AND Governance, Sociology, Business and Economics)
Day 4	Continuation of Scientific Sessions and Closing Ceremony

VI. DATE & VENUE

The conference is scheduled to hold at the Hassan II Académie des Sciences in Rabat, Morocco from 20th to 23rd November 2019.

VII. CALL FOR SCIENTIFIC PAPERS

A Call for Scientific Papers is being launched by the ASRIC Secretariat to be presented during the Congress. The areas of focus are the Congress sub-themes and the topics under each sub-theme are detailed as follows:

Sub-Themes:

1. Health Sciences

- Infectious disease epidemiology and prevention
- Non-communicable diseases in Africa
- Public health systems in Africa
- Reproductive, maternal and child health
- Preventive health
- Emergency medicine
- Alternative medicine
- Rural & indigenous healthcare
- Digital health and health technology
- Laboratory medicine
- Medical infrastructure in Africa

- Public-private sector partnership in healthcare
- Disruptive technologies in African healthcare
- Food security and nutrition in Africa
- Malnutrition, child growth failure and stunting in Africa

2. Agriculture, Forestry and Fisheries

- Sustainable agriculture
- Mitigation and adaptation to climate change effects
- Agribusiness in Africa
- Basic infrastructure for small-scale rural agriculture
- Mixed farming systems for sustainability and maximum productivity
- Enhancing sustainable agricultural productivity
- Reducing post-harvest loss in Africa
- Food loss and waste: Creating sustainable food systems in Africa
- Improving food supply to the base of the pyramid
- Strengthening environmental resilience to climate change
- Desertification and deforestation in Africa
- Wildlife conservation capacities in Africa
- Nature conservation policies
- Forest and climate change
- Forestlands and agricultural commodities
- Transnational and decentralised forest governance
- Forest concessions, ecotourism and forest recreation
- Natural forest management in Sub-Saharan Africa
- Fisheries systematics
- Freshwater ecology
- Aquatic conservation and food security
- Maritime security and ocean pollution along African coastal lines
- Microplastics in fisheries and aquaculture
- Achieving Blue economy growth and vibrant aquaculture in Africa

3. Water, Energy and Environment

- Water governance and water security for growth, adaptation and climate resilience
- Advanced water technologies (irrigation, water supply and sanitation, desalination, demineralisation, treatment and recycling for water reuse)
- Water-Energy-Food-Health-Education Nexus
- Water in and for Soil, Droughts and desertification
- Saltwater Intrusion and Degraded Land Valorization

- Water Related Hazards
- Global climate change & Adaptation strategies
- Integrated coastal zone management (ICZM)
- Water information, knowledge and decision systems
- Forecasting and Warning Systems
- Sustainable energy solutions for African communities
- Green energy in Africa: Present and future
- Public-private partnership on energy solutions in Africa
- Harnessing renewable & alternative energies in Africa
- Unlocking Solar Capital in Africa
- Off-grid energy options for African communities
- Bridging the infrastructure gap in African energy sector
- Energy efficiency and storage in Africa
- Inclusive and Community-based innovation in energy sector
- Wind energy and solar energy in Africa
- Hydroelectric energy and wave and tidal energy
- Geothermal energy in Africa
- Climate change and renewable energy in Africa
- Green processing and solar energy in Africa
- Environmental research for Africa's development
- Natural hazards and mitigation in Africa

4. Governance, Sociology, Business and Economics

- African free continental trade agreement and its impact on STI SMEs and Science Park future
- SME and start-ups in Africa: Growth driver/engine for continental development
- SME navigating Africa's murky business waters
- Enhancing SME access to capital and capacity
- STI enabling environment "Governance, institutions and development"
- Corporate governance and public sector development in Africa
- STI alternative source of fund
- Political action and strategy for overall national development
- Human capital, skill formation and migration
- Population, development and labour economics
- Economic development, innovation, governance and institutions
- Consumer landscape and market systems in Africa
- Encouraging Corporate Social Responsibility (CSR) in African business sector towards funding STI

- Capacity building for entrepreneurial development in Africa
- Social entrepreneurship as a tool for development in Africa
- Sustainable development and social transitions
- Inclusive innovation and community-based innovation driving force and management
- Innovations of methodology, training and new skills for the future
- Africa's emerging digital transformation in trade and business

For further information, visit our website at www.asric.africa