CONCEPT NOTE

ANNUAL MEETING OF AFRICAN SCIENCE ACADEMIES (AMASA) 2022

CONFERENCE THEME: ***STRENGTHENING CAPACITY FOR SUSTAINABLE AGRICULTURE AND FOOD SYSTEMS IN AFRICA***

1.0 Introduction

African Science Academies Development Initiative (ASADI) was borne out of a partnership between African Sciences Academies and the U.S. National Academies with the aim of strengthening and supporting science academies in developing countries in Africa. Since inception with the first conference in Nairobi in 2005, ASADI has continually engaged African Academies of Science in building their capacity to provide independent, evidence-based advice to their governments on matters of health, agriculture, water, environment, energy, biotechnology, and other emerging issues. During the eighth annual meeting in Nigeria, ASADI was renamed Annual Meeting of African Science Academies (AMASA) so as to create a voice for African academies focusing on evidence-based research that would help policymakers put science, technology and innovation in the front burner of national and continental development. The themes of the past AMASA meetings have evolved with time, informed by the global social-economic, cultural, and scientific realities.

AMASA 2022 conference will be held in Nairobi hosted by the Kenya National Academy of Sciences in collaboration with the Network of African Science Academies (NASAC) and in partnership with Population and Health Research Center (APHRC), International Service for the Acquisition of Agri-biotech Applications (ISAAA) AfriCenter and International Network for Government Science Advice (INGSA). The conference brings together the representatives drawn from African Science Academies, Governments, African Union, private sector, development organizations, academic and research institutions, etc., across Africa and the world to discuss the latest ideas and appropriate solutions and technologies that will promote sustainable agriculture in Africa. The outcome of the AMASA 2022 conference will boost Africa's capacity to sustainably meet the food and nutrition security for the growing population enabling the continent to trade better within itself and into the regional and international markets. The specific sub-themes of the conference include:

- Science and emerging technologies in agriculture
- Climate change, environmental matters and agriculture
- Science diplomacy, communication, policy analysis and food security

- Capacity building ST&I and research product commercialization in agriculture
- Research capacities of Africa's universities and research institutes

The meeting will provide the opportunity for participants to discuss the challenges facing agricultural development and make recommendations for 'Sustainable Agriculture and Food Systems for Africa'. This will be achieved through thematic keynote speeches and selected technical presentations from experts and panel discussions to provide the delegates the opportunity to identify key lessons from the presentations.

2.0 Sustainable Agriculture for Africa

Agriculture is the backbone of the economy of most African countries contributing directly to their Gross Domestic Product (GDP), export earnings and indirectly through links with manufacturing, distribution, and service-related sectors. Also, the achievement of food and nutrition security of the people in the continent depends on the agricultural sector, especially during this period of increased demand for food due to the growing world population. A huge population in Africa is food and nutrition insecure due to declined agricultural productivity in the rural areas where a large population lives. This problem is further exacerbated by stagnation of food production, climate change, unfavorable economic environment and wide spread poverty.

2.1 Agricultural Productivity in Africa: Agricultural production is an important indicator of economic performance of most African countries; with increased productivity and competitiveness enabling countries to export more of their agricultural output to earn foreign exchange and create employment. Raising agricultural productivity and reducing the yield gap of agricultural enterprises require use of modernized technology led interventions that include biotechnology. The need and opportunity to improve agricultural productivity will require synergy with other related investments particularly setting an enabling policy environment, capacity building and communication. The science academies and institutions in the continent will endeavor to promote technology-led investments in agriculture by strengthening integrated skills development and entrepreneurial capacity to stimulate commercial financing in agriculture.

The promotion of agricultural growth must nevertheless be done in a manner that limits environmental damage. Unfortunately, increased population growth in African countries is potentially harmful to the environment due to excessive land degradation caused by increased farming activities. Additionally, with Africa's agriculture being mainly rain-fed, it is increasingly vulnerable to erratic and extreme weather including prolonged droughts and flooding which are increasing in frequency and intensity with the climate change. This will require promoting climate smart agriculture (CSA) in order to achieve the following: (i) sustainably increasing agricultural productivity and farm incomes; (ii) adopting agricultural systems and building

resilience to climate change; and (iii) reducing greenhouse gases (GHS) emissions in agricultural systems.

3.0 Science Academies in Africa

The transformation of agricultural research and delivery of services to improve productivity, risk management and investment decisions (at multiple scales) in the Africa's farming systems require scientific research input. This transformation will be achieved through the following interventions: (i) application of location-specific predictive crop and livestock management by 'last-mile' service providers informed by crop and livestock and farming system management/ decision support tools; (ii) science communication to the public and (iii) capacity building of younger scientists in innovative agricultural systems to institutionalize change. To successfully achieve sustainable agriculture and food systems in the continent the science academies in Africa should be encouraged to promote agricultural productivity to improve the livelihoods of the farming communities and improve their food and nutrition security. This will require a transformative change on how the research outputs are shared, delivered and communicated.

4.0 The AMASA 2022 Conference

The AMASA 2022 conference will have a broad focus on 'Strengthening the Capacity for Sustainable Agriculture and Food Systems in Africa' with keynote speeches and technical presentations revolving around the following conference sub-themes**:**

(a) Gene Editing and Biotechnology Approaches to Sustain Food Security and Nutrition

Gene Editing: Gene editing is a method of selective breeding, a practice as old as our need to grow our own food. Farmers have always bred crops and animals to draw out traits that make them more wholesome and sustainable. In addition to improving food quality, gene editing technology can help farmers control pests and diseases and adaption to changing environmental conditions.

Biotechnology*:* The use of biotechnology can enhance production of more food on less land, by reducing the amount of crops lost to disease and pests. The application of biotechnology, including embracing use of genetically modified organisms (GMO) can reduce CO_2 emissions from the farming process, the quantity of pesticides used to produce foods, and in the future, the amount of water needed to grow crops. 'Modern Biotechnology' is helpful in enhancing taste, yield, shell life and nutritive values (bio-fortification) of crops.

(b) Climate Change and Agriculture

A growing global population and changing diets is driving up the demand for food. Agricultural production is struggling to keep up as crop yields level off in many parts of the world, ocean health decline, and natural resources (including soils, water, and biodiversity) are stretched to dangerously thin levels. The food security and nutrition challenge will only become more

difficult, as the world will need to produce about 70 percent more food by 2050 to feed an estimated 10 billion people. This will require use of '***climate-smart agriculture'***, an integrated approach in managing landscapes—cropland, livestock, forests and fisheries—that address the interlinked challenges of food security and accelerating climate change.

(c) Science Diplomacy, Communication, Policy Analyses and Food Security in Africa

A new era of civilization has ushered in a global village where nations are intrinsically linked in their shared prosperity and adversity. Challenges such as climate change, food and nutrition security, poverty reduction, biodiversity loss and pandemics are global and therefore require concerted efforts from the global community in tackling them. Although efforts are continually being made by the international community in tackling these challenges, the desired results are yet to be achieved. The practice of science diplomacy aims at bridging science and policy in international spheres in favor of national, inter-state or global interest. It seeks to promote scientific collaboration through international partnerships, inform foreign policy objectives and facilitate international cooperation and investments.

(d) Capacity Building, Science Technology and Innovation (STI), and Communication for Sustainable Agriculture and Food Systems in Africa

Capacity building and scientific communication is central to guarantee that agriculture performs along the value chain and ultimately has a positive impact on livelihoods. The progress in ensuring a sustainable and equitable food supply chain will be determined by how coherently the persistent challenges are tackled and solutions communicated to the beneficiaries. In recent years, a renewed focus on agriculture has been evident in the policy and development agendas across the African continent. Yet, little knowledge has been generated on the inter-linkages of research and development, agricultural production, and markets, as well as the potential for developing them. Despite the establishment of many agricultural training colleges and faculties of Agriculture in many African universities, there is still big disconnect between capacity building and agricultural productivity in the continent.

(e) Research Capacities of Africa's Universities and Research Institutes

Africa needs to fully embrace and scale up implementation of research (IR) as an integral concept to better link research and practice to accelerate the development and delivery of public goods and services such as improved agriculture and health outcomes. Implementation of research involves the creation and application of knowledge to improve the implementation of policies, programs and practices. Adoption of IR will ensure that research outputs are more relevant to policymaking. Africa faces the most pressing human development needs and requires increase in the number of women involved in implementation research. Also increasing the number of African universities and research institutes that capably test and adopt evidence and innovations generated from agriculture, health, economics research as global public goods to achieve

agriculture and health impact. This will result in strengthened ecosystem for implementation research in Africa anchored on a network of highly capacitated academic and research institutions on the continent.

5.0 AMASA 2022 – Resources Support

AMASA 2022 conference will be supported with the financial and technical resources from the following partnering institutions:

5.1 Kenya National Academy of Sciences (KNAS): The KNAS will the local host for the conference by providing the venue and logistics for the conference. The academy will promote the conference through resource mobilization from Kenya Government and local institutions to support the various activities during the conference.

5.2 Network of African Science Academies (NASAC): NASAC will promote the activities of the AMASA 22 to the African Academies and international organizations. NASAC will also mobilize resources and funding for travel for a few delegates from the participating African academies.

5.3 African Population and Health Research Center (APHRC): APHRC will provide financial and technical support in the activities of science diplomacy, communication and research capacity of African universities and research institutions.

5.4 ISAAA AfriCenter: ISAAA will provide financial and technical support in capacity building and science communication.

5.5 INGSA-Africa Chapter: INGSA will provide the conference with financial resources and technical support in science capacity building for Africa.

6.0 Expected outcomes

6.1 Evidence on the shortcomings of current agriculture and food systems technologies

6.2 Policy successes and gaps; research success and failures and best practices in Agriculture

6.3 Analysis on capacity building at the African Universities and possible role of the Diaspora

6.4 Develop policy briefs

6.5 Report on the conference and proceedings

7.0 AMASA 2022 - Organizing Committee

Prof. Norbert Hounkonnou –President NASAC

Prof. Ratemo Michieka – Chairman KNAS

Prof. Seck Pape Ablaye – ANSTS Senegal

Dr. Moctar Toure – ANSTS Senegal

Prof. Sunita Facknath – University of Mauritius/MAST

Prof. Florence Wambugu – Africa Harvest, Kenya

Dr. James Odero/Dr. Kirimi Sindi – APHRC, Kenya

Dr. Margaret Karembu – ISAAA AfriCenter, Kenya

African Union Commission – (*TBC*)

Prof. Paul Baki – Hon. Secretary KNAS

Prof. Vasey Mwaja –Hon. Editor-in-Chief KNAS

Prof. Josephine Ngaira –Hon. Treasurer KNAS

Secretariat

Mrs. Noel Abuodha - KNAS

Mr. Edward Ayienda, KNAS

Mrs. Jackie Kado – NASAC

Ms. Fatuma Achieng – NASAC

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