

Science Education Programme

In 2005, NASAC launched the Science Education Programme (SEP) by holding a symposium on the theme ***“Regional Programme for the Teaching of Science and Technology in Africa”***. This symposium was held in Dakar, Senegal on 9-11 March 2005 and was generously sponsored by the Inter Academy Panel (IAP). The SEP programme aimed to improve quality of science education in Africa. It guaranteed a continuous supply of scientists to academies in Africa. In April 2007, one of the activities of the NASAC-SEP programme undertook was the Training of trainers’ workshop, which tackled the challenge of implementing Inquiry Based Science Education (IBSE) in Africa. The training enabled teachers to acquire knowledge on IBSE and subsequently train other science educators in their respective countries at primary school level. Thereafter, the SEP Focal Points from different countries were able to exchange progress and they exchanged ideas of how science academies could lobby IBSE. In 2014, it was agreed that a survey on the status of IBSE in Africa would be undertaken.

After a long time of lull, in 2017, given the significance of education in Africa’s development, NASAC established SEP Working Group from among its membership constituting of individuals actively involved in curriculum development and education policies. The Working Group serve as the advisory body to the NASAC Board on science education matters. The Group also provides country-specific science education case-studies with the aim of making a case for IBSE considerations in the science curriculum in Africa. The NASAC SEP Working Group will be involved in science education initiatives and dialogues that influence how science is taught and learnt in Africa. Inter Academy Partnership (IAP) remains the main funder of the NASAC-SEP initiative.

The development and compilation of NASAC baseline survey on country-specific science education case studies has continued to be of critical focus. It is indeed important to take stock of the continent’s science education pedagogy in order to promote retention of students pursuing careers in science. The plan is to use the survey tool to eventually generate a policy paper around the best approaches and showcase successful case-studies for science education in Africa. With this, NASAC members will be equipped to review and identify best practices on SEP in their countries in order to promote a culture of science and popularize it regionally. Additionally, it is anticipated that to support the promotion of IBSE, pilot schools will be identified for more longterm engagement with NASAC.

In 2020, close collaboration with initiatives and organizations that support science education will be sought. Specifically, NASAC intends to sign two Memoranda of Understanding. One with the Education Relief Foundation (ERF) to champion balance and inclusive education, and another with the African European Mediterranean Academies for Science Education (AEMASE) in support of teacher professional development. Additionally, initiatives that support deliberate utilization of artificial intelligence will also be pursued. This is because NASAC believes that science education is pertinent in economic and social development in as far as sustainable utilization of resources is concerned.

From the President



I want to start by wishing you, your family and loved ones, a very wonderful new year full of happiness, health, prosperity, and wisdom. 2020 will be a year to move towards the realization of our shared objectives through our joint efforts. We definitely have the capacity to succeed in that regard.

Addressing grand challenges of this century, which are defined within the framework of international agendas (2030 Agenda, 2063 African Union Agenda, Paris Agreement, Sendai Framework, etc.), undoubtedly requires science-based responses towards sustainable solutions. Our Academies must be active players in local, national, and regional efforts, while IAP, together with its four regional networks in Africa, the Americas, Asia and Europe, provides a platform for Academies to collaborate and amplify their role for providing evidence-based advice.

Engaging children and youth through science education and the SDGs needs time. Yet time is running out for the World. Our Academy networks together with other organizations and institutions like UNESCO must lead the World in solving the pressing problem of declining enrollment in STEM in schools globally. As advocates of STEM education, we are convinced that Inquiry Based Science Education (IBSE) is the learning methodology that stimulates inborn curiosity of children rather than rote, dogmatic and book learning.

Our Academies should incorporate IBSE in their activities. Moreover, the growing world population lacks enough understanding of the vital contributions that STEM can make in mitigating many challenges. Science literacy therefore must become an integral part of science education. STEM extends the knowledge and understanding of concepts and processes to society at large (for decision making, participation in civic and cultural affairs, and economic productivity). We must bridge this gap by providing a basis for ability to engage with STEM-related issues and innovative ideas. All this explains the decision made by NASAC to define Science Education as the cornerstone of its programmes.

This also explains NASAC support to the AEMASE project of establishing intercontinental multilingual Centres for Education in Science in the Africa, Mediterranean and Europe (CESAMEs) and to all other similar science education initiatives.

In our science education programme, Academies have to highlight and prioritize the importance of digital transformation in the overall national, and regional strategy of socio-economic development of our countries. The spin-off effects and benefits will not solely be visible in the areas of technology, but in every aspect of our societies from education, healthcare, agriculture, habitations to how large corporations and small businesses operate on a daily basis. Nowadays, it is simply unrealistic to attain any such realizations unless a strategy is underpinned by a strong ICT sector and investment in human capital development.

NASAC member Academies have endeavored to advise policymakers in striving towards the vision to build nations with a competitive knowledge economy, fueled by local innovation equally based on local knowledge and know-

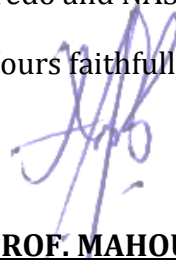
hows. The first unavoidable step in this regard is to advise massive investment in the countries' connectivity with the world, through improving Internet speeds and quality. This will positively impact health, education and fin-tech, all socio-economic and governmental sectors. The ICT sector will help develop our countries' human capital through specialized learning opportunities and creating attractive work environments to nurture technological innovation of our societies.

Most importantly, our Academies need to help our countries develop and align artificial intelligence strategies with the United Nations and African Union Agendas to address socio-economic challenges, resting on two main pillars, human resources development and applied research. As recently said by Dr Amr Talaat, the Egypt's Minister of Communication and Information Technology, I cite, *"...build capacities to drive innovation in progressive technologies", and with more than 50% of the population below the age of 25, "...utilize abundant tech-sway cadres to serve its sustainable development aspirations"*.

Rapid digital transformation, based on a united effort, underpinned by leadership, cooperation, innovation and a clear strategy will see connectivity become available in every corner of our countries, and develop new initiatives for digital training in order to be able to meet the demands and requirements of the labour markets in our countries.

We do not have to miss the fourth industrial revolution dominated by Artificial Intelligence and knowledge democratization. I believe there is nothing better than our Academies to drive such ambitions in the advice they provide to policymakers, and to stimulate the interest of children and youth in STEM integrating ethics and morals. That is my credo, that should be our credo and NASAC member Academy credo!

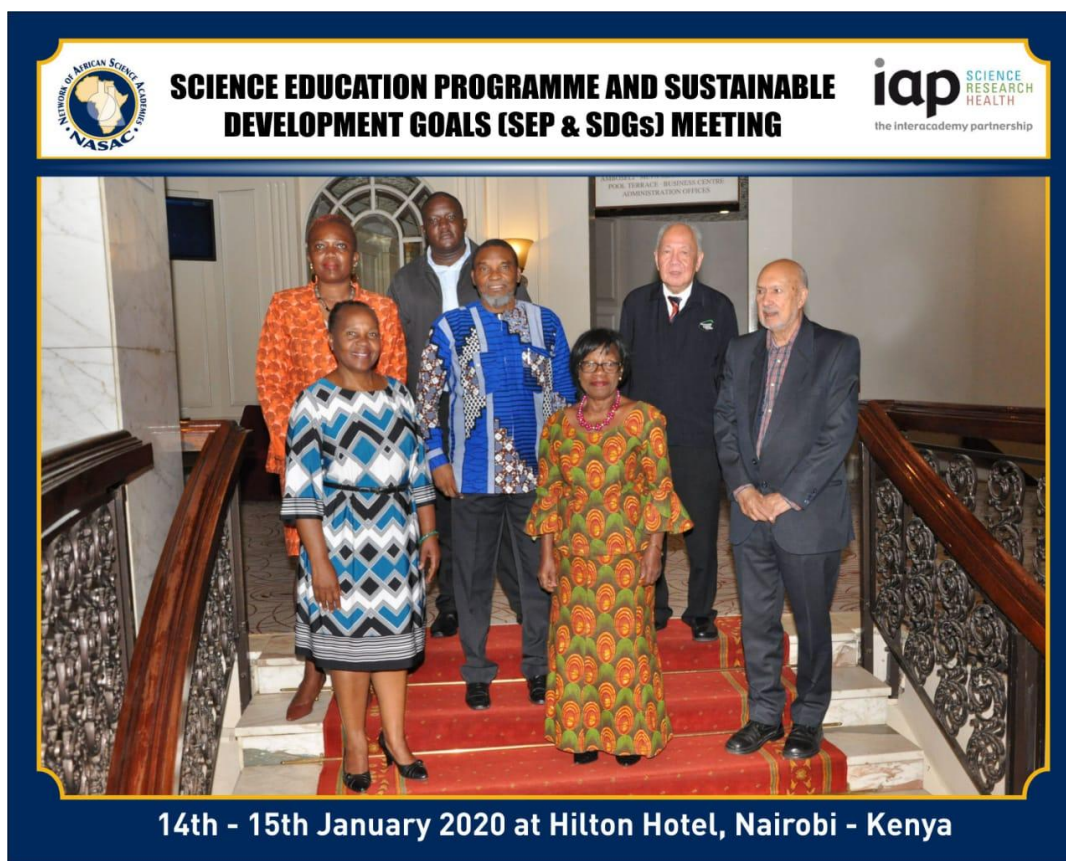
Yours faithfully,



PROF. MAHOUTON NORBERT HOUNKONNOU

NASAC President and Chair of the Board

Recent Activities and Events



On 14-15 January 2020, NASAC held the Science Education Programme and Sustainable Development Goals meeting (SEP & SDGs) in Nairobi, Kenya.

The main aim of the meeting was to revamp the Science Education Working Group and to come up with science education activities that NASAC would embark on in the coming years. The meeting was attended by the NASAC SEP Working Group Members. The IAP SEP Global Council Chairman 2014-2019, Prof. Dato Lee Yee Cheong also attended the meeting and gave key note remarks.

Prof. Dato Lee Yee Cheong started the meeting off by giving a key note address titled “STEM (Science, Technology Engineering and Mathematics) Education and the InterAcademy Partnership (IAP) in 21st Century”. Prof. Cheong made reference to the September 3, 2019 UNESCO International Science Technology Innovation Centre for South – South Cooperation (ISTIC) Biennial “Return Home to UNESCO” Forum themed “**Responding to the Unique Challenges of Climate Change through Climate Education**”. One conclusion of the forum was: “*To engage children and youth through climate education needs time, but time is running out for the world!*”. In his key note address, Prof. Cheong also stated that another unexpected

conclusion of the forum: **“UNESCO must lead the world in solving the pressing problem of declining enrolment in STEM stream in schools throughout the world”**. Prof Cheong suggested that the global scientific and engineering community of IAP should also lead the world in solving this global crisis.

The meeting also shared information on the two-priority agenda items of the Inter-Academy Partnership Science Education Programme (IAP SEP) which are: (i) Science Advice to Governments and (ii) Science Education and Science Literacy.

The following IAP SEP programmes were shared:

- i. Climate Change Education
- ii. Fusion of One Belt One Road Civilizations Curriculum
- iii. Belt and Road International Science Education Coordinating Committee
- iv. Virtual Science Museums/Centres
- v. STEM Education for Global Development Goals
- vi. World Bank Africa Digital Infrastructure Moonshot Project through UN Broadband Commission

The NASAC SEP Working Group will adopt these programmes and utilize them to develop its work plan. It was agreed that this work-plan would be led regionally by academies based on geographical representation. In 2020, NASAC science education programme will pursue and focus on the following five areas:

- i. Making a contribution to the World Bank Digital Infrastructure moonshot project through UN Broadband Commission
- ii. STEM education for global or sustainable development goals
- iii. Survey on the state of science education in Africa
- iv. Contextualize existing SEP modules in collaboration with the US Smithsonian Institution
- v. Sign MoUs with relevant institutions that support science education in Africa.

Member Announcements and Appointments

ASSAf Recognises Outstanding Achievement

The Academy of Science of South Africa (ASSAf) recognised one of South Africa's foremost scholars with a gold medal at its prestigious Annual Awards Ceremony held in Pretoria.



ASSAf annually awards up to two ASSAf Science-for-Society Gold Medals for outstanding achievement in scientific thinking to the benefit of society. The 2019 award was presented to South African professor of psychology at Stellenbosch University, Professor Leslie Swartz.

Professor Leslie Swartz has played a leading role in developing the field of disability studies in South Africa and his path-breaking work on disability assessment processes was fundamental in developments in the field.

Alongside his scholarly contributions, he has a long and sustained track record of meaningful capacity building, of contributing to diversifying the academy, and to producing work which improves the lives of vulnerable and excluded people. Central to Swartz's approach is the development of research capacity in people previously excluded from the academy and to making principles of scientific engagement accessible to the broader community.

As part of his work on care, illness and disablement issues, Swartz has provided free consultation services and he is also supervising the first ever study of mental health issues amongst deaf children conducted on the African continent. Swartz has a keen interest in access to services for people who are excluded in various ways.

Condolence Message

It is with great sadness that we announce the passing on of Prof. Abdoulaye SAMB (Académie Nationale des Sciences et Techniques du Sénégal). Prof. Samb was a member of the NASAC Science Education Programme Working Group and his term of service had just begun when he was called to eternity in 2018 December.

On behalf of the NASAC Board and the NASAC members, we extend our deepest condolences to ANSTS and the family of Prof. Samb.



Provisional Member Announcement

The 7th Cairo International Exhibition of Innovation 2020

The Cairo International Exhibition for Innovation 2020 will be held in October 2020 at the Egypt Center for International Exhibitions and Conferences, covering an area of 10080 square meters. More than 1500 distinguished ideas and innovations from Egypt, the Arab world, Africa, Asia and some other countries will participate in the exhibition.

For more information please visit www.asrt.sci.eg, Tel: +202-27921285 Fax +202-27921270



أكاديمية البحث العلمي والتكنولوجيا
Academy of Scientific Research
and Technology

Cairo International Exhibition of Innovation is a forum for innovators, inventors, businessmen, investors, banks, donors, civil society organizations and the media to disseminate a culture of innovation and invention; highlighting the role of innovation in economic development and giving new perspectives to innovation based SMEs. It aims to stimulate scientific innovation, connects innovators to enablers and key stakeholders, and allows national and international innovators to exhibit and commercialize their inventions.

It networks innovators, inventors, technology transfer centers, universities, institutes, research centers, university students, pre-university education, and emerging technology companies, enabling them to showcase their innovations to visitors from businessmen, industry, investment, media, innovation and funding agencies, national and international.

Young African Researchers Awards 2020

The Egypt Academy of Scientific Research and Technology (ASRT) launched a call for the Young African Researchers Awards 2020. The Young African Research Awards are allocated by the Arab Republic of Egypt's Academy of Scientific Research and Technology to young (non-Egyptian) researchers from the African continent. The Awards which comprises of three prizes awarded to three African researchers, in the areas of (i) Agriculture and Food Sciences (ii) Health and Pharmaceutical Sciences (iii) Water, Energy and Environmental Sciences.

The value of each award is 15,000 US dollars, or the equivalent in local currency with recognition a Shield and Appreciation Certificate. Nominations for the award are accepted from universities, academy of sciences and research centers. Individuals can also directly submit their scientific work for the award.

The date for receiving the award application is January the 1st to March 30th 2020. The nominee's age should not exceed 45 years and s/he should have at least a Ph.D. degree.

The scientific work presented for the award should be original, innovative and previously published during the last five years in a specialized scientific journal (or as a patent) and should not previously have received any other award or academic degree (e.g. M.Sc., Ph.D.). The Scientific production provided in the field of agriculture and food science should achieve the objectives of sustainable development.

Application forms are to be sent to: prizes@asrt.sci.eg. Three hard copies (and soft copies if possible) of the scientific work and documents should also be sent by prepaid DHL to: Academy of Scientific Research and Technology Awards Management, 101 Kasr Al-Aini Street, Cairo, Egypt ZIP: 11516.

On the Spotlight

NASAC's Leading Integrated Research for Agenda 2030 in Africa (LIRA2030)



Project Title: Co-creating an Urban Framework for Localised Norms on Sustainable Energy

(PI – Kareem Buyana, Kampala, Uganda)

The project being on track has recorded success and several milestones. The project has enabled the local community, specifically Kasubi Local Community Development (including Kalocode and Luchacose) to engage with Kampala Capital City Authority, National Planning Authority, Makerere University's Urban Action Lab and University of Nairobi to co-create the "Community's Interpretation of the SDGs". The SDG's are prioritized in orders of SDG 1, 2, 6, 7, 9, 10, 5, 11, 12, 13, 14, 15 and 17 presented in a pictorial format. SDG1 - No Poverty - is the topmost priority for the community, while SDG 5 on Gender is placed at the centre of the chart because it is perceived as a cross-cutting issue. The project is committed to translating this SDG chart into local language.

With the application of transdisciplinary research methods, the local community's awareness and contextualization of the global goals has been possible. The result of which is the empowerment of the community through education and training specifically on entrepreneurship (duck rearing and briquettes production). The personalization of the SDGs and tangible results leading to local entrepreneurship activities can be attributed to the project.

Member-Academy's Feature

A Member of Benin National Academy of Sciences, Arts and Letters awarded for his contribution to the Improvement Of Anesthesiology in the Developing Countries



Professor Philippe BAELE and Professor Martin CHOBLI

The Mayo Clinic Alumni Association, University of Rochester, Minnesota, USA awarded its 2019 Humanitarian Award to Professor Martin CHOBLI (at right on photograph), an academician from Benin Republic, West Africa and his colleague Professor Philippe BAELE, from Catholic University of Louvain, Belgium, recognizing their tireless efforts in teaching anesthesia and intensive cares in Africa. They were the firsts non-American to receive this award. In 1992 World Federation of Societies of Anesthesia (W F S A), noticed that Sub-Saharan Africa is the only region in the world with a decreasing number of anesthesiologists. Surgical and failed patient management are devastatingly high in this region. Morbidity and mortality related with anesthesia are big public health problem.

In 1994 Belgian universities decide to support the University of Benin to start its residency program open to MDs from all countries with a preoccupant shortage of manpower in anesthesia of this region. In 1996 Professor Martin CHOBLI, Professor of anesthesia and intensive cares, School of Medicine, University of Cotonou, and Professor Philippe

BAELE established a four years anesthesiology training program for African Sub-Saharan French speaking countries. The school has enrolled more than 200 physician trainees from 15 countries (Benin, Burkina Faso, Cameroun, Congo

Brazzaville, Congo Kinshasa, Centrafrique, Chad, Comoros, Djibouti, Gabon, Guinea, Madagascar, Mali, Niger, Togo). 143 have been graduated and most of them are today active in teaching anesthesia in their home countries. Actually, there are about 60 physicians in training in the school. This snowball effect has resulted in the creation of nurse anesthetists schools in Benin, Mali, Togo, Guinea, Chad, Burkina Faso, Gabon and, Soon, Niger. This program has revolutionized the demography of physician anesthetists in the region and offered safety in anesthesia and perioperative medicine to people of these countries. Professors CHOBLI and BAELE are also major supporters of the life box Foundation, a nongovernmental organization dedicated to improving the safety of anesthesia and surgery in low-resource countries. Despite a certain brain-drain to Europe after graduation (about nine physicians) this successful program has deserved credit to provide solution to the important problem of manpower and safety in the great field of anesthesia.

About NASAC

The Network of African Science Academies (NASAC) was established on 13th December 2001 in Nairobi, Kenya and is currently the affiliate Network for InterAcademy Partnership (IAP) for Africa.

NASAC is a consortium of merit-based science academies in Africa and aspires to make the “voice of science” heard by policy and decision makers within and outside the continent. NASAC is dedicated to enhancing the capacity of existing national science academies and champions in the cause for creation of new academies where none exist.

The Secretariat

Mrs. Jacqueline Kado
Executive Director



Mr. Philbert Okello
Finance Officer



Ms. Rahab Gitahi
Programme Officer



Ms. Fatuma Achieng
Administrative and Programmes Assistant

As at November 2019, NASAC comprised of the following twenty-eight members:

- **African Academy of Sciences (AAS)**
- **Algerian Academy of Science and Technology (AAST)**
- Académie Nationale des Sciences, Arts et Lettres du **Bénin** (ANSALB)
- **Botswana Academy of Sciences (BAS)**
- Académie Nationale des Sciences du **Burkina** (ANSB)
- **Burundi Academy of Sciences and Technology (BAST)**
- **Cameroon Academy of Sciences (CAS)**
- Académie Nationale des Sciences et Technologies du **Congo** (ANSTC)
- Académie des sciences, des arts, des cultures d’Afrique et des diasporas africaines, **Cote d’Ivoire** (ASCAD)
- Academy of Scientific Research and Technology, **Egypt** (ASRT)
- **Ethiopian Academy of Science (EAS)**
- **Ghana Academy of Arts and Sciences (GAAS)**
- **Kenya National Academy of Sciences (KNAS)**
- **Madagascar’s National Academy of Arts Letters and Sciences**
- **Mauritius Academy of Science and Technology (MAST)**
- Hassan II Academy of Science and Technology in **Morocco**
- Academy of Sciences of **Mozambique** (ASM)
- **Nigerian Academy of Science (NAS)**
- **Rwanda Academy of Sciences (RAS)**
- Académie des Sciences et Techniques du **Sénégal** (ANSTS)
- Academy of **Science of South Africa** (ASSAf)
- **Sudanese National Academy of Science (SNAS)**
- **Tanzania Academy of Sciences (TAS)**
- Académie Nationale Des Sciences, Arts Et Lettres Du **Togo** (ANSALT)
- **Tunisia Academy of Sciences Arts and Letters**
- **Uganda National Academy of Sciences (UNAS)**
- **Zambia Academy of Sciences (ZaAS)**
- **Zimbabwe Academy of Sciences (ZAS)**

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