

MENTORING WOMEN IN SCIENCE

Young and early career scientists have a great deal of potential to impact the future in terms of their talent, knowledge and potential for innovation. However, there is a vital resource that is absolutely needed as they prepare for leadership positions: a mentor.

A mentor is that knowledgeable, skilled and experienced person, who is open to offer advice and guidance to a less experienced colleague, the protégé. An experienced mentor has already gone through the ropes and hurdles in the field. She knows where the obstacles are and understands how to overcome them. A mentor takes a personal interest in the protégé and helps by serving as a role model, coach, and confidante.

Before selecting a mentor, it is important to determine one's own goals. For example, if the protégé is lacking abilities in writing articles and publishing, she should be matched with a mentor who has mastered and proven those skills. The protégé ought to openly discuss the mentoring relationship and goals with the potential mentor. It is important to note that these relationships are driven by the protégé. The relationship can only be successful if the protégé is pro-active and seeks the mentor.

Mentoring should be directed towards the whole person, that is the woman, the daughter, the wife, the scientist, the mother. As a mentor, I show the protégés how, with a great deal of planning and coordination, I manage to balance family, children, profession, church and other activities. Basically, I show them how all these aspects of my life come together and enable me to contribute my best as a scientist.

I really encourage experienced scientists to open up to mentoring as they also can reap rewards. Protégés often offer new information and perspectives. And, much can be said for the pleasure we receive in helping someone else. Mentors are respected and appreciated by fellow scientists. They also earn the gratitude of their protégés.

For young women scientists, mentoring is imperative as they face different challenges from their male counterparts. Young women scientists are less likely to reach leadership positions and more likely to stagnate or leave their career path. In higher education, there are more female lecturers at the bottom of the career ladder but this number considerably slims down going up and becomes a pyramid. Studies show that women with mentors have more publications in peer-review journals, spend more time on research, and have greater career satisfaction (Levinson, Kaufman, Clark, & Tolle, 1991). Since women scientists tend to have slower academic promotion rates and leave the academic path more frequently than men, they can only benefit from a good relationship with a mentor.

After my 2011 African Union Scientific award for women, I took on the mission to help young women to go into and have a sustainable scientific career. In 2014, a group of women researchers got together and formed the HIGHER Institute for Growth in Health Research for Women, HIGHER Women Cameroon. I led the HIGHER Women consortium in securing grants from WHO/TDR and IDRC for a mentoring and research career development program. Since then, we have matched about 70 mentor-protégé couples. In 2015-2016, we organized two workshops with about 80 early career women where we focused on building skills in grant writing, research methodology, leadership, management, ethics in biomedical research, time management among others. Additional information can be found on the consortium website (www.higherwomencam.org). We have also been featured on the WHO/TDR and IDRC websites.

One of the most acclaimed activities of the workshops was the "Fireside conversations", mimicking an old African tradition where the young children gathered around a fire in the evenings and listened to the matriarchs and patriarchs. For our "fireside conversations", the mentors discussed the obstacles faced in their career journey and how they were able to overcome them while the protégés shared their ambitions and aspirations. Sitting and talking around the fire created an intimate, trusting environment fostering open exchange.

Mentoring should be promoted by universities, research organizations and government institutions by implementing formal mentorship programs and rewarding experienced professionals for participating. They ought to bring senior scientists to see the value of the road they traveled and the importance of sharing lessons learned with their junior colleagues.

Recently, I was profiled in TRENDS IN PARASITOLOGY (Leke, 2016) where I spoke about how I was motivated to be a mentor, strategies for setting up a mentoring relationship and how women can best confront the hurdles encountered as they are building their scientific career.

The bottom line is that we live in the best of times for women scientists. The younger women scientists are now presented with opportunities that were not available 30 or 40 years ago. Thus, they need to acquire skills, tools and guidance to grab onto prospects that are now reachable.

Prof. Rose Gana Fomban Leke



From the President



Prof. Mostapha Bousmina

In 2017 going forward, we reflect on yet another eventful year for NASAC in 2016. Having been re-elected to serve in the NASAC board for the second term, I take this opportunity to thank the members for giving me another opportunity to serve the Network. We have overcome challenges and seized opportunities to realize achievements that would not have been possible without the support of the NASAC Board members.

I also take this opportunity to congratulate the members who were (re-)elected to serve in the NASAC Board for the next term 2017-2020 during the 12th General Assembly meeting that was held on 9 November 2016 in Johannesburg, South Africa.

During the last 3 years, NASAC has achieved tremendous growth and some of the key achievements that I would like to highlight are: (i) Implementation of the NASAC Strategic plan for 2011-2015; (ii) Increase of the NASAC Membership from 16 to 24 science academies; (iii) NASAC became an affiliate of IAP and also serves on the IAP Board and various committees; and (iv) NASAC maintained relationships with key partners such as: IANAS, UNESCO, Leopoldina, KNAW, EASAC, ICSU and developed new partnerships with French Academy of Sciences and Elephant Vert; (v) NASAC participated in the COP21 Conference that was held in France and the COP22 that was held in Morocco; and (vi) NASAC partnered with ICSU, ICSU-ROA and ISSC to launch a 5 year project with EUR5 million financial support from *Sida* for the programme on Leading Integrated Research for Agenda (LIRA) 2030 in Africa, specifically targeting early career researchers.

NASAC also continued to enhance its track record for providing science-policy advice through developing the four policymakers' booklets on Health, Water, Climate Change Adaptation and Agricultural Biotechnology. The 5th Policymakers' booklet on Food and Nutrition Security

and Agriculture is also undergoing peer-review processes and will be published soon.

The NASAC strategic plan 2016-2020 is also finalized and we envision significant growth for NASAC in the coming years. The NASAC Board will continue to find means and avenues to make NASAC *the voice of Science* in Africa, and the *go-to* Science Advisor in the continent. NASAC will continue to strengthen existing Science Academies by providing them with capacity building grants and training opportunities. In countries that do not have science academies, NASAC will continue to champion and facilitate the creation of new academies especially in the Northern Africa region, where there is a glaring need. NASAC will seek to engage international and continental institutions like the AU and the UN and explore new partnerships in the MENA and EU regions.

Being *the voice of science in Africa* also demands that we take the responsibility of ensuring that scientific information is accessible to all researchers. We shall purpose to promote Open Access and Open Science so as to ensure that scientific information is available and accessible to all. As President of NASAC, it still remains a great priority for me to pursue avenues to mobilize additional contribution for the NASAC Endowment Fund and to enhance the financial stability of NASAC. This commitment stands for the coming years under my leadership.

Once again and on behalf of the NASAC Board, I take this opportunity to thank the members of NASAC, other affiliate Networks, our stakeholders and partners for the continued support and for contributing to the flourishing of science, technology and innovation in Africa.

Sincerely,

A handwritten signature in blue ink, appearing to read 'M. Bousmina', written over a light blue horizontal line.

PROF. MOSTAPHA BOUSMINA

President and Chair of the NASAC Board

Activities and Events

Communication Event for the Climate Change and Adaptation Policymakers' booklet

The launch event for the Climate Change Policy booklet entitled: *Climate Change Adaptation and Resilience in Africa-Recommendations to Policymakers* was hosted by the Mauritius Academy of Science and Technology (MAST) on 4th and 5th July 2016 in Mauritius. This event which was held at Hennessy Park Hotel, Ebene Cybercity, Mauritius was funded by the InterAcademy Partnership (IAP) and the German Academy of Sciences Leopoldina. It was held in collaboration with NASAC, the Academy of Science of South Africa (ASSAf) and Gender in Science, innovation, technology and engineering (GenderInSITE).

The communication event on Climate Change Adaptation endeavored to communicate the booklet's key messages to policymakers and deliberate on various climate change aspects. The workshop brought together scientists to communicate the booklet's key messages to policymakers and deliberate on various climate change aspects. A total of 61 participants from a number of countries were represented at the event; these included Botswana, Kenya, Malawi, Mauritius, Mozambique, Nigeria, South Africa, Zambia and Zimbabwe. Prof. Jacqueline McGlade, the Chief Scientist of United Nations Environment Programme (UNEP) participated and delivered the Key note address. The themes of the event discussions focused on the following aspects:

- Youth lens and climate change
- Gender and climate change
- Health and climate change
- Water and climate change

Women for Science (Wfs) Working Group Meeting

NASAC, with funding support from the IAP-Science hosted the Women for Science Working Group (Wfs-WG) workshop on 4th and 5th August 2016 in Nairobi, Kenya. This was the first meeting of the Working Group. Women Scientists represented their academies from 19 African countries.

The objectives of the meeting were to:

1. Inform participants about NASAC and the objectives and activities for the Women for Science Working Group (Wfs WG).
2. Discuss the roles of Women Scientists in various science academies in the continent to share experiences and propose ways to enhance their participation and visibility in academy framework.
3. Share information on the project for "Publication on a volume on Inspiring Stories of Women Scientists in

Africa" so as to identify the selection criteria and process for implementation under the leadership and guidance of the Wfs WG.

4. Identify specific synergies that can be pursued by the NASAC Wfs WG in partnership with OWSD – Organization of Women Scientists in Developing World and GenderInSITE – Gender in Science, Innovation, Technology and Engineering.
5. Chart the way forward on other programmatic activities that the NASAC Wfs WG can undertake in Africa so as to fulfill the Group's mandate.

At this meeting the members elected Cameroon Academy of Sciences (*Prof. Rose Leke*) as the Working Group's Chair. Mauritius Academy of Science and Technology (*Prof. Romeela Mohee*) was nominated as the Vice-Chair while Kenya National Academy of Sciences (*Dr. Pacificah Okemwah*) as the Secretary. The main purpose of the Wfs WG workshop was to revamp the Group, which had last held its meeting in 2011, and to discuss the project for publication of a volume on inspiring stories of women scientists in Africa.



Strategic Planning Committee Meeting

NASAC finalized the drafting process of its strategic plan for the next 5 years, 2016-2020. The Strategic Planning Committee, nominated by the 2015 General Assembly Meeting, and comprising of eight members met in Nairobi, Kenya on 18-19 August 2016 and reviewed the initial draft, providing inputs for the Board's and General Assembly's consideration. The members included:

1. Dr. Yousuf Maudarbocus (Chair) - Mauritius Academy of Science and Technology
2. Prof. Muntaser Ibrahim - Sudan National Academy of Sciences

3. Prof. Raphael Munavu - Kenya National Academy of Sciences
4. Prof. Bernard Aduda - Kenya National Academy of Sciences
5. Prof. Nelson Sewankambo - Uganda National Academy of Sciences
6. Dr. Oladoyin Odubanjo - Nigerian Academy of Science & ASADA Implementation Task Team
7. Ms Phyllis Kalele - Academy of Science of South Africa & ASADA Implementation Task Team
8. Mr. Christian Acemah - Uganda National Academy of Sciences & ASADA Implementation Task Team

The draft was finally endorsed by the Board and General Assembly meetings held in Johannesburg, South Africa on 9th November 2016.



Leading Integrated Research for Agenda 2030 in Africa - Training Event on Transdisciplinary Research



As part of the 5-year "Leading Integrated Research for Agenda (LIRA) 2030 in Africa" programme, ICSU-NASAC-ISSC launched a call for pre-proposals on the "Understanding the Energy - Health - Natural Disasters nexus



in the urban context in Africa". Following the call, 35 pre-proposals were selected to attend a training event on integrated research, and this took place on 3-7 October 2016 in Nairobi, Kenya.

The transdisciplinary research (TDR) training workshop was designed for the early career scientists whose pre-proposals were selected for the LIRA 2030 Africa programme. The aim was to develop a team of early career researchers from different communities of practice with experience in and who wish to develop experience in sustainability research within a transdisciplinary, action-oriented and reflexive learning paradigm. The training workshop presented theories, methods, and examples of TDR within the context of integrated science. The objective was to transmit the principles of TDR and the various steps to follow; introduce the most frequent methods used; teach case studies; include a virtual field visit, and introduce available resources. The workshop enabled the trainees to work on their pre-proposals in order to refine their overall proposal using integrated approach and TD methodology.



COP22-UNFCCC EVENT IN MARRAKECH, MOROCCO

The participation of the African academies' delegation at the 21st Conference of Parties (COP22) enabled NASAC to contribute in building strategies that reinforce capacities of African countries for adaptation and resilience against climate change disasters. COP 22 was hosted by the Moroccan Authorities from 7th to 18th November 2016. It was recommended that NASAC should pursue continued engagement within COP processes and offer leadership in science-policy dialogue for climate change adaptation and resilience in Africa. NASAC through the Hassan II Academy of Science and Technology in Morocco developed a concept note to UNFCCC and discussed it during the side-event held on 13-15 November 2016. A joint statement on "Actions to tackle the issue of Climate Change and its Impact" was also developed and signed by NASAC member-academies and Rectors/Presidents of more than 100 African Universities.

AMASA 12 – Twelfth Annual Meeting of African Science Academies

The 12th Annual Meeting of African Science Academies (AMASA-12) was hosted by the Academy of Science of South Africa (ASSAf) in Johannesburg, South Africa. The conference took place from 4-8 November 2016 on the theme “Poverty Reduction”.



The challenges faced by Africa due to extreme poverty were discussed at the event, which was jointly hosted by the Academy of Science of South Africa (ASSAf), the Department of Science and Technology (DST) and NASAC. Poverty eradication was identified as the first Sustainable Development Goal as it remains one of the greatest challenges facing humanity. Globally, more than 800 million people are lacking access to adequate food, clean drinking water and sanitation.

Although economic growth in countries such as China and India has contributed to the alleviation of poverty, progress has been slow in regions such as South Asia and sub-Saharan

Africa. The conference noted that sub-Saharan Africa accounts for 80% of people living in extreme poverty. Women are also more likely to be subjected to poverty than men due to unequal access to paid work, education and property. Besides poverty, Africa faces the additional threats of climate change, conflict and food insecurity.

11th General Assembly Meeting in South Africa

The General Assembly meeting was held on 9 November 2016 in Johannesburg South Africa, back to back the AMASA 12 Conference, and therefore was also hosted by ASSAf.

At this meeting, members congratulated the President, Prof. Mostapha Bousmina, for the various achievements of NASAC for the past three years during his tenure. The General Assembly members re-elected him to continue serving as the President of NASAC and Chair of the board for a second term. They also commended his efforts to initiate the establishment of the NASAC Endowment fund, to which he would continue to rally additional support during his second term in office.

Members were presented with the activity progress reports by the Executive Director. The NASAC audits, finances and the budget for 2017 were also presented and these were approved. Members also endorsed the membership applications received from the *Algerian Academy of Science and Technology (AAST)*, the *Academy of Sciences of Ivory Coast* and *Botswana Academy of Sciences (BAS)* increasing the membership of NASAC to 24.



Participants at the AMASA-12 Conference that was held in Johannesburg, South Africa from 6-8 November 2016

Announcements and Appointments

New NASAC members

NASAC is committed to enhancing capacity of existing science academies and encouraging the creation of new academies in countries where none exist in Africa. NASAC is hence proud to announce the creation of three additional national academies increasing the NASAC membership to 24.

Algerian Academy of Science and Technology (AAST), Botswana Academy of Sciences (BAS) and the Academy of Sciences of Ivory Coast submitted their applications, which were reviewed by both the board and the General Assembly. Having met the requirements for membership, the General Assembly endorsed their applications to join NASAC.

The new members have since been notified and are engaging with the secretariat to actively participate in NASAC activities and events.

Profiling Women Scientists in Africa - A Publication on Inspiring Stories

Profiling Women Scientists in Africa - A Publication on Inspiring Stories is a one-year activity undertaken by NASAC to inspire girls and women to pursue scientific careers and succeed against all odds. Its overall objective is to help inspire younger girls to pursue careers in science as well as to help build the gender capacity within African science academies. The publication aims to build the gender capacity within African science academies by showcasing stories of African Women Scientists who have progressed and succeeded against all odds.

Therefore, the publication will:

- Serve as an inspiration to young women and women scientists in general.
- Motivate younger people to pursue science as a career.
- Profile women in science across Africa who have progressed and succeeded against all odds.

- Promote the art of storytelling to popularize science in Africa.

Women Scientists are encouraged to apply to be profiled in this and future publications that will be considered on Women Scientists in Africa. More information can be found on [this](#) link.

Chairperson of the NASAC Women for Science Working Group - Prof. Rose Leke



During the NASAC Women for Science Working Group meeting that was held in Nairobi, Kenya from 4-5 August 2016, Prof. Rose Leke was elected as the Chairperson for the Working Group.

Prof. Leke is a fellow of the Cameroon Academy of Sciences and is a renowned researcher in tropical medicine. Her research interest is in parasitic infections, particularly Malaria.

On the Spotlight

NASAC Board Members: 2017–2020

The NASAC's General Assembly (GA) held its 12th meeting in Johannesburg, South Africa on 9 November 2016. During this meeting, the GA elected the Board comprising of the following members:



President

PROF. MOSTAPHA BOUSMINA

Hassan II Academy of Science
and Technology of Morocco



Vice-President

PROF. YOUSUF MAUDARBOCUS

Mauritius Academy of Science and
Technology



Vice-President

PROF. NELSON SEWANKAMBO

Uganda National Academy of
Sciences



Vice-President

PROF. OYEWALE TOMORI

Nigerian Academy of Science



Treasurer

PROF. BENARD ADUDA

Kenya National Academy of
Sciences



Secretary General

PROF. BARNEY PITYANA

Academy of Science of South Africa

Member-Academy's Feature

Sudanese National Academy of Sciences (SNAS)

Promoting excellence in research and education for sustainable development

SNAS is an autonomous, independent, non-governmental, non-political and merit-based organization founded in August 2005 by a distinguished group of scientists from Sudan. SNAS overall objective is to promote scientific excellence in the Country for the benefit of the Sudanese society.

The main mission of SNAS is to mobilize and unite the most accomplished scientists in the country to address the critical sustainability challenges facing society. The specific objectives of the Academy are outlined below.

The Academy is an honorific society whose membership is drawn from the most distinguished Sudanese scientists working and living in Sudan and abroad. Currently the Academy has over 70 members and expected to increase substantially within the coming few years.

A Council, elected by Academy Members every three years at the General Assembly meeting, provides oversight and guidance for the Academy's activities. SNAS current Executive Committee is made up of the President (Prof. Mohamed Hag Ali Hassan), the Vice-President (Prof. Muntasir Eltayeb Ibrahim), the Secretary General (Dr. El Tayeb Mustafa) and the Treasurer (Prof. Suad M. Sulaiman) is responsible for the supervision of the Secretariat and the implementation of the programs.

SNAS Achievements:

With limited financial resources, largely provided by global and regional networks of Academies, SNAS has been able to implement a number of activities to fulfill some of its objectives. These include:

- Organization of a series of Public Lectures, delivered by members of the Academy, on important topics such as the Meroetic Language; Music and Medicine; Human body in space; E-learning; the Jongoli Canal. The Lectures were also published in SNAS Newsletter and distributed widely in the country and abroad. In addition, SNAS members published in the local press a number of articles and interviews on topical issues such as brain drain and science journalism.
- Supporting young scientists SNAS played a major role in the establishment of the Sudan Academy of Young Scientists (SAYS) (January 2007). The main goal is to bring together young scientists from different disciplines and backgrounds in a forum that addresses issues of basic and applied sciences.
- The Sudanese Women in Science Organization (SWSO) is registered separately as an NGO (2013) and SNAS members are mentoring young women researchers who seek assistance.

Promoting Science Education

- In collaboration with the Future University and with funds provided by the Inter Academy Panel (IAP), the Academy organized for the first time in Sudan a regional workshop on " Inquiry-Based Science Education (IBSE)" , involving over 150 school teachers and education experts from Sudan, Ethiopia and other Arab and African countries.
- More recently SNAS and the Ethiopian Academy of Sciences succeeded in obtaining funds from IAP to support a joint program on Science Education to be implemented in 2016.

Addressing Environmental Problems

- In collaboration with the Academy of Sciences of South Africa (ASSAf), SNAS organized in Khartoum (Sept. 2014) Khartoum a highly successful workshop addressing the impact of mining activities, especially artisanal gold mining on the environment and health, in Sudan and Africa.
- In collaboration with the UNESCO Chair for Environment, Future University, SNAS organized a local workshop (March 2016) to address the problems of electronic and electrical waste in Khartoum. A survey to assess the extent of the problem was conducted and several dumping areas and academic institutions were surveyed. A regional workshop is planned to follow the results and recommendations and execute plans for collection and recycling.

Participation in international meetings and forums:

Members of SNAS council attend most of the gatherings held in Africa and outside. Other members are also nominated to attend meetings relevant to their specializations.

Collaboration with other Academies:

SNAS has signed memoranda of understanding with Academy of Science of South Africa (ASSAf), Swiss Academy of Natural Sciences (SCNAT) and the Turkish Academy of Sciences (TÜBA).

Financial resources:

SNAS, being registered as an NGO since establishment, was not supported or recognized by the government. SNAS activities were mostly conducted with external funding through NASAC. Due to the political sanctions imposed on the country since 1997, direct funding from agencies was very much reduced and money transfer through the banking system became very complicated and impossible.

To fulfill its ambitious objectives, SNAS must seek and explore funding opportunities at home and abroad to cover the operational costs of the secretariat and implement the programs.

The Network of African Science Academies (NASAC) was established on 13th December 2001 in Nairobi, Kenya, under the auspices of the African Academy of Sciences (AAS) and the InterAcademy Panel (IAP)

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 Africa and worldwide. 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.

As at November 2016, NASAC comprised of the following twenty four members:

- Académie des Sciences et Techniques du Sénégal (ANSTS)
- Académie Nationale des Sciences du Burkina (ANSB)
- Académie Nationale des Sciences et Technologies du Congo (ANSTC)
- Académie Nationale des Sciences, Arts et Lettres du Benin (ANSALB)
- Académie Nationale Des Sciences, Arts Et Lettres Du Togo (ANSALT)
- Academy of Science of South Africa (ASSAf)
- Academy of Sciences of Mozambique (ASM)
- African Academy of Sciences (AAS)
- Algerian Academy of Science and Technology (AASST)
- Botswana Academy of Sciences (BAS)
- Cameroon Academy of Sciences (CAS)
- Ethiopian Academy of Science (EAS)
- Ghana Academy of Arts and Sciences (GAAS)
- Hassan II Academy of Science and Technology in Morocco
- Kenya National Academy of Sciences (KNAS)
- Madagascar's National Academy of Arts Letters and Sciences
- Mauritius Academy of Science and Technology (MAST)
- National Academy for Cote d'Ivoire
- Nigerian Academy of Science (NAS)
- Sudanese National Academy of Science (SNAS)
- Tanzania Academy of Sciences (TAS)
- The Uganda National Academy of Sciences (UNAS)
- Zambia Academy of Sciences (ZaAS)
- Zimbabwe Academy of Sciences (ZAS)

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