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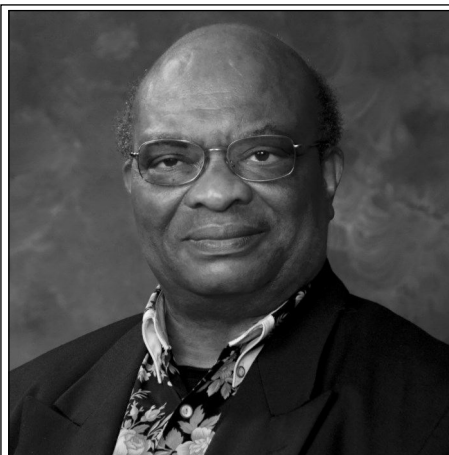
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Message from the President



Aderemi Kuku, AAS President

It is indeed a great honour and pleasure for me to write my message as President of AAS for this particular issue of SPA that is coming out at this auspicious moment of our 10th General Assembly in Kasane.

It is also a matter of great joy to announce that His Excellency, Lt. General Stretse Khama Ian Khama, President of the Republic of Botswana has graciously agreed to declare the General Assembly open. Moreover, it is my great honour and privilege to announce that the 32nd AAS Governing Council meeting of October 29-30, 2015 decided to elect His Excellency into the Honorary Fellowship of AAS, reserved exclusively for people of eminence who have made significant contributions to the objectives of the AAS. Indeed, the election is a befitting tribute to His Excellency's exemplary and extraordinary leadership particularly focusing on development of Science, Technology and Innovation for rapid development of Botswana as well as propelling Botswana into one of the fastest growing economies in the world. So, on behalf of the AAS Management Committee, (MC), the Governing Council (GC) and the entire membership of the AAS, I congratulate His Excellency most heartily for this honour.

Some highlights of the activities at the GA include the inauguration by His Excellency President Ian Khama the Botswana Academy of Sciences, and I

seize this opportunity to congratulate very heartily the new Academy, its Officers and the entire membership and wish the Academy resounding success for its future activities. Other highlights include the delivery of seven scientific lectures --two of which are memorial lectures to be given by 1) Prof Catherine Odora-hoppers titled 'Modernity's "other" and the transformation of the Academy towards a restorative paradigm' -- in honour of Prof Ali Mazrui, an AAS Fellow who died in October 2014 at the age of 81; 2) Prof Ben-Erik Van Wyk, titled 'The rich African flora as a source of inspiration for scientific, cultural and commercial innovation' in honour of AAS Fellow Prof Paulus Gerdes who died in November 2014 at the age of 62. Other scientific lectures will be given by Prof Collin Masimirembwa on 'Genomic medicine in Africa'; Prof Quarraisha Abdool-Karim titled "HIV prevention in women -- an imperative for Africa; Prof Nelson Torto on " Exploring the nano-technology advantage for growth", and Dr Fredros Okumu on "Inside the belly of Africa". The Olusegun Obasanjo Prize for 2015 will be awarded in Kasane to Profe Philippe Rasoanaivo, a Phytochemist from Madagascar for using traditional medicine to improve the efficacy of existing drugs for brain disorders and treating sexual dysfunction among men. He will also give a lecture on his discovery. I seize this opportunity to congratulate him on this great achievement. The GA will also feature two panel discussion on 1) "Using Science to achieve sustainable development goals", and 2) "Promoting intra-African collaboration".

The last three AAS News letters have been reporting on AESA (Alliance for Excellence in Science in Africa) and its associated platforms like DELTAS (Developing Excellence in leadership, Training and Science) and GCA (Grand challenges Africa) and it was observed that the launching of DELTAS coincided with the award of big grants to seven leaders of scientific research in Africa in

such diverse fields as virus research, mental health, malaria elimination, tuberculosis, and HIV. I am happy to report that since then, four more big grants have been awarded to Professors Oumar Gaye, Université Cheik Anta Diop, Senegal, for Malaria research capacity development; Alex Ezech of APHRC (African Population and Health Research Centre), Kenya, for the consortium for Advanced Research Training in Africa (CARTA); Nelson Sewakambo of Makerere University, Uganda, for training Health Researchers into vocational excellence in East Africa; and Bassirou Bonfor of CSRS (Centre Sussie de Recherches Scientifique) in Coted'Ivoire for the African Science Partnership for Intervention Research Excellence. I heartily congratulate all the four research leaders in Africa.

Also associated with AESA is the GFGP (Good Financial Grant Practice) programme that is meant to develop and publish a new pan-African standard of best practice in the management of funds received as grants from Donors. The report on this programme in this newsletter is worth reading.

The second Bilateral AAS - KAST (Korean Academy of Science and Technology) Symposium took place in Seoul, South Korea, April 20-21, 2016, on the theme "Bio-Natural Resources and their Utilization". The Symposium speakers representing AAS were Professors Awuah, Babalola, Dakora, Mshigeni and Titanji. The bilateral symposium constitutes an important part of an MoU between KAST and AAS where each Academy contributes five speakers at the annual symposium. The first such symposium took place last year in July in Nairobi. Also, In connection with the recent visit of the President of South Korea to Kenya, there was an MoU signed between the AAS and STEPI (Science and Technology Policy Institute of South Korea) on May 31, 2016.

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On 21-22 June, the African Academy of Sciences will hold its 10th General Assembly in Botswana, under the theme “**Academies as the voice of science.**” This is a befitting theme, coming 10 months after governments adopted the 2030 Agenda for Sustainable Development underpinned by 17 [SDGs](#), which include ending poverty, promoting equality and equitable access to global resources and tackling climate change.

African governments have committed to achieving the SDGs and this is important if the continent is to consolidate gains and close the gaps from the Millennium Development Goals. But it's not a journey that governments can make alone. They will need evidence to make sound policies, a gap that science academies must fill. Science academies are reservoirs of knowledge that governments can and should tap into to find solutions to challenges facing their countries.

Both governments and scientific communities must reach out to each other. Science academies will be effective voices of science by proactively producing knowledge that meets the needs of society and dialoguing with policy makers to ensure uptake of research findings to inform decision making. This requires funding which most academies lack. A relationship with governments that doesn't compromise the independence of scientists is necessary to ensure ready collaboration between scientists and policy makers and ensure academies are actively involved in government's activities to improve the lives of their citizens. As governments seek pursue the SDGs, it will be impossible if scientific knowledge is not made priority.

Science academies must proactively engage their governments by speaking in language that governments understand to successfully engage them. Governments must also realise that the success of their policies hinges on sound evidence.

Academies must innovate in finding different funding models to ensure that they efficiently deliver on their mandates. By engaging different partners, the AAS is getting enabling resources and is committed to operating efficiently.

As a pan African organisation, the AAS is a strategic partner of the African Union Commission and its technical body, namely the NEPAD Agency. The partnership with the AU enabled the AAS to contribute to the development of the Science Technology and Innovation Strategy for Africa (STISA 2024), the African Union's blueprint for science. Under the NEPAD Agency's leadership, the AAS is also leading efforts to develop an African health research strategy for the AU.

The voice of science

Being the voice of science also means recognising scientific excellence. In Kasane, Botswana, AAS will welcome its first cohort of affiliates and also induct 2014 and 2015 AAS Fellows. The academy will also be honouring two late Fellows who contributed to the development of their respective fields:

- Ali Mazrui, a political scientists; and
- Paulus Gerdes, an ethno-mathematician.

The Academy will also be announcing the winner of the Olusegun Obasanjo Prize for Scientific Discovery and/or Technological Innovation.

The AAS [Affiliates](#) programme is testimony to the Academy's commitment to invest in the future generation of African scientists by mentoring young researchers into research leaders. AAS is providing an opportunity for early career researchers to be mentored by seniors



Berhanu Abegaz, Executive Director, AAS

in their respective fields. Mentorship provides opportunities for both mentors and mentees, and in my opinion, beneficial to both. It allows for experience-based knowledge to pass to the younger generation and for continuity in the creation of an evidence base for

solving Africa's developmental challenges. This also ensures continuity in Africa's skills base and in providing a voice for science.

African science academies have a key role to play in ensuring that young people are mentored and trained so the continent has the skilled base it needs to use science to develop. Academies need to speak and listen to the heart beat of the continent. They need to be speaking louder. They need to be speaking and listening to their governments and communities. They need to be innovative in finding funding and making their voices heard.

Now is not the time to be silent! Not when Africa needs to continue its economic progress and not when governments are seeking for ways to improve the lives of their people. Science has the solutions and academies must ensure solutions are delivered at the right time to governments and communities.

HE Lieutenant General Dr Seretse Khama Ian Khama to open AAS 10th General Assembly

His Excellency Lieutenant General Dr Seretse Khama Ian Kham, President of the republic of Botswana, will open the African Academy of Sciences' 10th General Assembly (GA) taking place in Botswana, 21-22 June 2016. The AAS is jointly organising the event with the Botswana Institute for Technology Research and Innovation (BITRI) and the Botswana International University of Science and Technology (BIUST). The GA is a gathering of AAS Fellows held every three years.

Over 120 scientists from across Africa and the world will attend the event which is themed **"Academies as the voice of science in Africa"**. Participants will discuss how science academies in Africa can help governments to use research to make better policies. President Khama will also inaugurate the Botswana Academy of Sciences (BAS) created in 2015.

Sixty-six AAS Fellows elected during 2014 and 2015 will be inducted while certificates will be issued to the 15 early career scientists who comprise the first cohort of AAS Affiliates, a programme for mentoring and developing eminent young professionals into research leaders.

Six AAS Fellows, including winner of the 2015 Olusegun Obasanjo Prize for scientific discovery and/or technological innovation, and one Affiliate and the will give scientific lectures at the GA.

The speakers are:

1. Prof Nelson Torto will give a lecture titled: **"Exploring the nano-technology-advantage for growth"**. Prof Torto is the Chief Executive Officer of the Botswana Institute for Technology Research and Innovation. He holds a PhD in Analytical Chemistry from Lund University in Sweden. He started his career as a method development chemist at the BCL Mine in Selebi Phikwe.



HE Lieutenant General Dr Seretse Khama Ian Kham
President of Botswana

2. Prof Catherine Odora-Hoppers will give the Ali Mazrui Memorial Lecture titled **"Modernity's 'other' and the transformation of the Academy: towards a restorative paradigm"**. Prof Odora-Hoppers, a scholar and policy specialist on international development, education, North-South questions, disarmament, peace, and human security, will give her lecture in honour of former AAS Fellow Prof Ali Mazrui who died in October 2014, aged 81.

3. Prof Quarraisha Abdool-Karim will present **"HIV prevention in women- an imperative for Africa"**. Prof Abdool-Karim is the Associate Scientific Director of CAPRISA (Centre for the AIDS Programme of Research in South Africa). Her research has focused on understanding the evolving HIV epidemic in South Africa and globally; factors influencing acquisition of HIV infection in adolescent girls and young women; and sustainable strategies to introduce ART in resource-constrained settings.

4. Prof Ben-Erik van Wyk is the keynote speaker for the Paulus Gerdes Memorial Lecture. His lecture is titled **"The rich African flora as a source of inspiration for scientific, cultural and commercial innovations"**. Prof van Wyk is a professor of

botany and prolific writer and publisher of books in his field will talk. His lecture is in honour of the late AAS Fellow Paulus Gerdes who died in November 2014 aged 62. Gerdes was a distinguished mathematician who served as a senior advisers to several Ministers of Education in Mozambique during his career.

5. Prof Collen Masimirembwa will speak on **"Genomic medicine in Africa"**. Collen Masimirembwa is a biochemical pharmacologist with a DPhil in Biochemistry from the University of Zimbabwe and a PhD in Pharmacogenetics from Karolinska Institute in Sweden. He established the African Institute of Biomedical Science and Technology (AiBST) in Zimbabwe with the aim of promoting the sciences and technologies of drug discovery and development in Africa.

6. Prof Philippe Rasoanaivo, winner of the 2015 Olusegun Obasanjo Prize for scientific discovery and/or technological innovation will give a lecture on **"Natural and semi-synthetic phragmalin limonoids - a class of compounds with surprising potent and diverse neuro-pharmacological actions"**. He is a professor of pharmacognosy at the School of Polytechnics, University of Antananarivo, and Research Director at the Institut Malgache de Recherches Appliquees (IMRA).

7. Dr Fredros Okumu, AAS Affiliate, will give a talk titled **"Inside the belly of Africa"**. Dr Okumu is a Research Scientist at Ifakara Health Institute in Tanzania where he is also Head of Environmental Health and Ecological Sciences Department.

The 10th AAS General Assembly will also feature two panel discussions on using science to achieve Sustainable Development Goals and promoting intra-African collaboration.

Time for increased collaboration among African researchers - Tom Kariuki



In 2009, Bassirou Bonfoh, Director of the Centre Suisse de Recherches Scientifique in Côte d'Ivoire, joined forces with ten other African institutions. Their plan was to collaborate on research into infections that pass between animals and humans. Many of these infections such as Ebola, Zika and HIV are of huge concerns globally.

Bonfoh, by joining this consortium of institutions, was able to access data from Tanzania - the other side of the continent - and extend his remit to study Rift Valley Fever (RVF), a fever-causing viral disease, commonly observed in domestic animals, first detected in 1931, with the ability to cause illness in humans as well.

The absence of collaboration of the type mentioned above forces countries to set up duplicating research in respective countries, and requiring scientists in similar fields working on similar problems, working in silos, competing for a small pool of grants with the reduced chance of success to get funding. This situation is a real drawback to plan effective response for many African countries who face similar health and development challenges.

A 2010 report by Thomson Reuters revealed that of the Continent's six stronger research nations – Algeria, Egypt, Kenya, Nigeria, South Africa and Tunisia – did not have collaborators from other African country among its top five collaborating institutions.

Why is collaboration so crucial?

Bonfoh's experience shows that it enables more scientists to be trained across regions and leads to generation of knowledge that can feed into the policy making processes. Bonfoh's group has, since 2010, trained 12 post-doctoral fellows and 45 Masters and PhD students.

Though Bonfoh's collaborative work is

outstanding, it is, unfortunately, not a common situation in the continent. There are a number of barriers to intra-African collaboration that need to be reduced or totally eliminated.

Barriers to collaboration

Geographical and political barriers prevent African researchers from working together. For instance, when Bonfoh organized a scientific meeting in 2013 he had to make a special dispensation with his government to get visa issued on arrival for his participants from countries without Ivorian embassies. Such visa challenges, even for scientists and researchers, are encountered all over the continent. Networking is the foundation for collaboration, yet many Government policies do not allow free movement of researchers. This is in contrast to diseases and development challenges which do not recognize political boundaries and their spread has come at tremendous cost, including human lives, to the continent. The Ebola outbreak of 2014 and 2015 provides a good example. It caused an estimated loss of \$2.2bn to the already hard hit economies of Guinea, Liberia and Sierra Leone. The outbreak wasn't new to Africa: there had previously been similar ones in Uganda and the Democratic Republic of the Congo. But the absence of intra-Africa collaboration meant lessons could not easily be shared so the human and economic loss could not be avoided.

It's time to change how things are done. Pooling human resources and providing developing scientists with career opportunities is important. Good supervision of PhD trainees is a scarce skill in Africa and institutions must pull together these skills to train future scientists. If not, Africa will continue losing thousands of professionals every year to developed countries. African scientists who leave are often frustrated by lack of infrastructure and mentors. As such programmes funding research

in Africa must be deliberate about promoting collaboration across the continent. An example of a programme that is getting this right is DELTAS (Developing Excellence in Leadership, Training and Science Africa) initiative. It is supporting large networks and consortiums – 11 programmes spanning 21 countries with 40 lead and partner institutions all collaborating to address emerging, infectious as well as non-communicable diseases.

Another example is the Heredity and Health in Africa Consortium, funded by the Wellcome Trust and the US National Institutes of Health. This involves 24 collaborative projects conducting genomics research at institutions across the continent. There's also the Climate Impact Research Capacity and Leadership Enhancement (CIRCLE) programme being implemented by the African Academy of Sciences and the Association of Commonwealth Universities. It offers fellowships to post-Master's and postdoctoral researchers to spend a year in institutions outside their own studying the impact of climate change on the continent with the aim of facilitating intra-African collaboration and building competence in climate impacts research.

It's also important to overcome language barriers that have left researchers oblivious of each other's work. Researchers in Francophone Africa do not always read African research published in English especially if it is not translated into French. Unfortunately this means researchers working in the same field of research don't know each other. Intra-regional collaboration provides a platform for scientists from Anglo and Francophone Africa to share their work.

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Message from the President

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Also, there was a 3-week AAS activity, namely, “AAS/AMU Symposium on Current Research Trends in the Mathematical Sciences and their Applications, May 17-20” and a “Pre-symposium School”, May 3-16, 2016, for which quite a number of AAS Fellows were invited as well as symposium speakers and School lecturers. The pre-symposium School provided advanced courses for young mathematicians, Post-Docs and Graduate Students in several areas of mathematics, namely, Algebra and its ramifications in other areas of mathematics, Analysis on Manifolds, Mathematical Physics and Financial Mathematics. This was an AAS initiative and activity meant to address the lack of enough focus in Africa by Science Academies, AAS included, on STEM disciplines and was carried out in collaboration with the African Mathematical Union.

I seize this opportunity to congratulate the new AAS Fellows who will be inducted in Kasane. We look forward to your immense contributions to further progress of AAS. I also congratulate most heartily Prof Philippe Rasoanaivo for being the winner of the 2015 Olusegun Obasanjo Prize. We feel very grateful to His Excellency. Lt Gen Khama Ian Khama, President of Botswana for gracing our GA with his august presence. I also express our gratitude to BITRI (Botswana Institute for Technology Research) and BIUST (Botswana International University of Science and Technology) for co-organising the Kasane GA with AAS. In this direction I feel particularly grateful to Prof Torto, the CEO of BITRI for his immense contributions towards the success of the Kasane GA.

Four additional initiatives funded under DELTAS Africa programme

Four leading African researchers in Ivory Coast, Kenya, Senegal and Uganda have been allocated £21M to conduct cutting edge health research and train a future generation of scientists to improve the continent's health outcomes.

This brings to 11 the number of African research teams funded through the Developing Excellence in Leadership, Training and Science (DELTAS Africa) Initiative and £60 million (approximately \$100 million US dollars) the amount awarded for the initiative over an initial five year period (2015-2020).

The four additional grantees are:

Prof Oumar Gaye



Prof Gaye is from the Université Cheikh Anta Diop is awarded £5.25 million for the Malaria Research Capacity Development in West and Central Africa (MACARD), an initiative to provide PhD, early and senior post-doctoral fellowships in areas of research relevant to malaria elimination with a special focus on supporting women in research.

Prof Alex Ezeh



Prof Ezeh is the Executive Director of African Population and Health Research Centre (APHRC) in Kenya. Together with Professor Sharon Fonn at the University of the Witwatersrand in South Africa, they are awarded £5.25 million for the Consortium for Advanced Research Training in Africa+ (CARTA+). The initiative has been running since 2007 and seeks to train and produce postgraduates to lead world-class multidisciplinary research that makes a positive impact on public and population health.

Prof Nelson Sewankambo



Prof Sewankambo is professor of Medicine at Makerere University, College of Health Sciences in Uganda. He is awarded £5.25 million for the Training Health Researchers into Vocational Excellence in East Africa (THRIVE-2) partnership. The initiative seeks to transform East African universities into world class research hubs for infectious diseases, neglected tropical diseases, neonatal and reproductive health and non-communicable diseases.

Prof Bassirou Bonfoh



Prof Bonfoh, Director of the Centre Suisse de Recherches Scientifique (CSRS) in Cote d'Ivoire is awarded £5.25 million for the African Science Partnership for Intervention Research Excellence (Afrique One-ASPIRE). The centre will focus on the 'One Health' concept – that the health of animals, human and the environment is interconnected - as an approach to tackle major challenges in ecosystem health.

Alongside DELTAS Africa awards, Prof Imelda Bates at Liverpool School of Tropical Medicine will lead the Learning Research Programme (LRP), supported with £800,000. The aim of the project is to produce research-based learning from the DELTAS Africa initiative about how to train and develop world-class researchers, foster their careers and collaborations, and promote research uptake.

Time for increased collaboration among African researchers

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Power of the collective

Lastly, collaboration will help to mobilise political support for research. Projects that have wide continental relevance are more likely to be adopted at African Union and the NEPAD agency level than those that are focused on only one country.

And there is power in speaking collectively. Researchers in Africa need the support of the African Union to advocate for more government funding and improve Africa's spend on research and development. This is currently just 1.3% of the total global spend. Increased investment should provide the surveillance systems and other resources to enable Africa to address its problems before they spiral out of control and result in huge financial losses or spread globally.

Bonfoh's programme is already demonstrating the impact of collaboration. His network shows that the solutions to the most urgent health problems can come from within the continent, not outside it.

Walking together

Africa must take the initiative to lead its science and developmental agenda even as it receives global support. Collaboration will amalgamate different voices and ideas to promote and conduct research relevant to the continent's needs. As the African saying goes: *If you want to go fast walk alone, and if you want to go far walk together.*

Editor's Note:

This article originally appeared on the Financial Times' blog "beyondbrics" under the title "[Intra-African collaboration is key to global health and local well-being](#)"

About the author

Tom Kariuki is Director of the Alliance for Accelerating Excellence in Science in Africa (AESA), a new funding platform for research jointly created by the African Academy of Sciences and the New Partnership for African Development Agency. Kariuki is a Fellow of the AAS and a graduate of UK's University of York where he undertook his PhD studies in immunology. He previously served as the Director of the Institute of Primate Research/National Museums of Kenya. His research interests have spanned the immunology of infectious diseases and he has been fully involved in global research efforts to develop vaccines, drugs and diagnostics for infectious diseases of poverty.

Good Financial Grant Practice (GFGP)

An International Financial Governance Consortium (IFGC) was founded in January 2012 by some major funders of medical research and international aid in Africa, namely the Medical Research Council (MRC, UK), the European & Developing Countries Clinical Trials Partnership (EDCTP), the Wellcome Trust (WT) and the Swedish Development Agency (Sida). The consortium subsequently expanded to include many European and US funders of research and not-for-profit development programmes in Africa. The objectives of the IFGC were to identify, and agree ways for funders to have a more integrated approach for addressing the financial management challenges faced by both funders and fund recipients in Africa.

Consequently the Good Financial Grant Practice (GFGP) programme is started at the African Academy of Sciences with financial support from the Wellcome Trust and the Medical Research Council (UK) to develop and publish a new pan African standard of best practice in the management of funds received as grants from donors. A key principle adopted by the programme has been to ask both the funders and fund recipients what they perceive as best practice and hence what should be included in the breadth and depth of the "Good Financial Grant Practice" standard.

Assisted by PwC Kenya as GFGP advisors, a series of meetings and workshops have been held across Africa, Europe and the USA to canvass the views and opinions of funders and fund recipients. The fund recipient workshops held in Nairobi and Dakar were attended by a total of 53 senior financial officers from institutes in 22 African countries.



Meeting of GFGP stakeholders in Dakar, Senegal

To assist, guide and peer review the GFGP Programme activities, a Technical Working Group has been convened from funders, NGO's, accountancy and audit firms. The group consists of representatives from the Wellcome Trust, the Medical Research Council (UK), the European and Developing Countries Clinical Trials Partnership, the Swedish International Development Cooperation Agency, US Agency for International Development, the Bill & Melinda Gates Foundation, the Ford Foundation, the International Rescue Corporation, InsideNGO, Mango, Clark Nuber, and the Chartered Institute of Management Accountants. The concept of creating an international standard for Good Financial Grant Practice has captured the imagination, interest and support of a wide range of significant international aid funders.

The GFGP programme is in the process of appointing a supplier to write the first technical draft of the GFGP standard. This will then be submitted to the African Organisation for Standardisation for review by their Technical Review Committees. GFGP is also raising more funds for the programme as more partners get interested and realise the potential benefits having such a standard to both grant providers and recipients

A Final Draft African GFGP Standard will be published and ready for adoption on a pan-African basis towards the end of 2017

From Achim Steiner's Policy Statement

Four decades can seem a very long time or a very short time, depending on the point of view. Long for those desperate to arrive at solutions for problems virtually everyone wants solved. But short for those who recognize the unprecedented advances we have made in that time toward a better world.

We live on a planet of over seven billion people and almost 200 countries of enormously varied cultures, traditions and geographies. A better world for all does not arrive overnight and it can only arrive by agreement, not division. We now have that agreement.

This great agreement, this great realization, which the world came to over the last 40 years, underpins the 2030 Agenda for Sustainable Development, the Paris Agreement on Climate Change and the Sendai Framework for Disaster Risk Reduction. This agreement is that the environment is at the heart of everything. Poverty, hunger, disease, inequity – all the scourges of Maurice Strong's appeal for action – the world has come to understand their deep and indivisible relationship with an ailing environment.

The converse is naturally also true. Economies and societies are healthier when the environment is healthier. We have a greater understanding of this fact than ever before.

This "declaration of interdependence" cannot be underestimated in both its exceptionality in human history and its importance to our collective future. From this point of view, 1972 can feel like yesterday. We will not change the world overnight, even with such a realization. But it is deceptively easy to fall into the trap of focusing on all of the obstacles, the challenges and the indi-



vidual problems that increase by an order of magnitude until they create fear rather than progress.

Transforming every sector in the next three to four decades will take us all into uncharted territory, but there has never been a better time to be an 'environmentalist', whether you are a policy maker, a legislator, a scientist or a citizen.

"Our purpose here is to reconcile man's legitimate, immediate ambitions with the rights of others, with respect for all life supporting systems, and with the rights of generations yet unborn. Our purpose is the enrichment of mankind in every sense of that phrase. We wish to advance – not recklessly, ignorantly, selfishly and perilously as we have done in the past – but with greater understanding, wisdom and vision. We are anxious, and rightly so, to eliminate poverty, hunger, disease, racial prejudice and the glaring economic inequalities between human beings."

- Maurice Strong

We have the understanding. In the seminal agreements of 2015, we have the aspiration. We now need to leverage the force of both to bring about implementation.

Much remains to be done in this respect, but we can already take stock of a growing list of examples of where the environment has taken prominence in policy and become much more integrated into social and economic problem-solving.

Learn from the progress already delivered by science, policy and legislation

We have already seen a growing number international instruments and over a hundred national constitutions now refer to the right to a healthy environment. When science highlights a danger and policy acts on it, the ability to enforce the rule of law is essential for national, regional and global results.

The impact is already visible in many areas of daily lives. For example, in 1973, the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) marked a turning point in the regulation or ban in trading at-risk species. In 1982, the Montevideo Programme set priorities

for global lawmaking and led to the Basel, Rotterdam and Stockholm Conventions governing chemical and hazardous waste management. In 1987, the Montreal Protocol responded to what science identified as the "ozone hole" and the depletion of ozone layer from chemicals that were reaching the stratosphere. And in 2010 the Intergovernmental Science-Policy Platform on Biodiversity Ecosystem Services (IPBES) helped focus efforts by bridging the gap between science and policy.

However, the most important thing about such agreements is not the careful wording or our ability to recite the number of signatories; it is the benefits already being delivered on the ground. For example, lead in paint is regulated in 59 countries and lead in vehicle fuel has been eliminated in all but three countries, preventing around a million premature deaths and saving some \$2.45 trillion per year.

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From Achim Steiner's Policy Statement

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"If you do not change direction, you may end up where you are heading"

- Lao Tzu

Likewise, reductions in short-lived climate pollutants, like black carbon and methane, are helping to reduce global warming by 0.5°C by 2050 and to save some 2.4 million lives per year from air pollution by 2030

The growing use of clean, renewable energy and energy efficiency will improve these figures even further. Already, 2015 set new records, with more than half of new investment in power generation capacity now coming from renewables. This increased electricity capacity worldwide to just over ten per cent and prevented 1.5 gigatonnes of CO₂ emissions. It also reflects an increasing shift in the markets, where 360 leading financial organizations in the Global Investor Statement on Climate Change are pushing for a controlled move away from fossil fuels towards renewable technologies and the Portfolio Decarbonisation Coalition, a group of pension funds and insurers have committed to shifting \$600 billion of their funds to greener stocks – a ten-fold increase in just the last year. This goes hand in hand with efforts to increase the energy efficiency and decrease the energy consumption of the energy needed for growth across the globe.

These shifts in energy also cut demand for wood as a fuel, helping to slow the rate of deforestation in some areas. In the last five years, Africa reported the highest annual increase in the area of forest for conservation while 13 per-

cent of global forest cover is now designated primarily for biodiversity conservation. This progress feeds into wider efforts on ecosystem based climate adaptation in over 40 countries and the work of the UN REDD programme, which is now addressing forest loss and degradation in 64 countries.

But of course, reducing deforestation reduces soil degradation and run-off into our rivers and oceans. This supports wider efforts, such as the growing number of areas covered by the 143 countries working with the Regional Seas Programme to protect the marine environment, which we all share, but still know too little about.

"The world has enough for everyone's needs, but not everyone's greed."

- Mahatma Gandhi

We also have much to learn about zoonotic diseases, but the rapid containment of SARS in 2003 is one of the biggest public health successes in recent years. From the WHO alerting the world to an unknown severe respiratory syndrome, to diagnosis, treatment and stopping the spread took just six months. That experience will serve us well, especially in tackling the ongoing threats from increased antibiotic resistance and the diseases that have been more difficult to bring under control like Ebola, Zika and yellow fever, which are not only major risks for health in developed and developing nations alike, but also for global security and the economy.

Because, as Margaret Chan, Director-General of the World Health Organisation said: "Many people have asked me why the outbreak of Ebola

virus disease in West Africa is so large, so severe and so difficult to contain. These questions can be answered with a single word: poverty."

That is why the extraordinary progress already made in the transition towards an inclusive green economy is so important in breaking the poverty cycle. Having matured rapidly from the Economics of Ecosystems and Biodiversity concept during the past ten years, the inclusive green economy is now driven as much by the finance, insurance and manufacturing sectors as it is by the policy makers, is embedded in discussions at the G20 and the Financial Stability Board, and underpins the delivery of the Addis Ababa Action Agenda on financing for development, the Paris Agreement and the entire 2030 Agenda.

And of course, these landmark agreements have secured public and private sector backing that was unimaginable when we gathered in Nairobi for the Climate Change COP in 2006. This confirms that the tide of opinion has turned in favour of stewarding, rather than liquidating natural assets, focusing on what the majority need rather than what a privileged few want; in other words, when it comes to promoting sustainability, it is time to lean forward, not back.

"This world's not going to change unless we're willing to change ourselves."

- Rigoberta Menchú

This is culled from "Policy Statement" delivered by Achim Steiner, United Nations Under-Secretary-General and UNEP Executive Director at the opening of the High Level Segment of the United Nations Environment Assembly of UNEP Nairobi, 26 May 2016

Supporting the development of climate-resilient societies

Climate variability and change pose a huge risk to all of us, impacting on all aspects of life, and many African countries are likely to feel those effects, soonest and hardest. The resulting challenges may be devastating to peoples, communities and whole countries involved: responding to them requires a mature, integrated, interdisciplinary approach.

The Walker Institute at the University of Reading has been driving productive solution-oriented collaboration on the ground in diverse parts of Africa for ten years. Under the leadership of its new Director, Professor Ros Cornforth, work undertaken within the Institute is refocused to support the development of climate-resilient societies. The interdisciplinary research addresses some of the most fundamental questions currently facing development – encompassing social, economic, technological, and political strategies at all scales of society alongside risks and threats including climate change, ecological degradation, state fragility, conflict, rapid population growth and social inequality. The long-term stability and success of societies depends upon understanding these issues along with the complex connections and interdependence of communities, the economy and the environment. Doing so requires new thinking and new knowledge, very often found in the middle ground between traditional academic disciplines.

Many of these statements and initiatives are of course particularly relevant to ongoing policy and development initiatives within Africa. Professor Cornforth makes clear that the work of the Institute encompasses actions as well as words, to turn bold statements into deliverables on the ground to improve people's lives.

Two recent activities by Walker Institute researchers demonstrate these points;

- I. Hannah Parker, a PhD student at the University of Reading, recently visited Senegal. Hannah's work looks at probabilistic event attribution (PEA) science, investigating how climate change has impacted particular extreme events, with a focus on Africa. During her stay, she conducted 'ground truth' interviews on the impact of extreme precipitation events in Senegal, presented a seminar on precipitation in the West Sahel region at the Université Cheikh Anta Diop (UCAD) in Dakar, ran a participatory workshop for stakeholders involved in national climate adaptation planning in Senegal, and visited the forecasting office of ANACIM, the Senegal Met Service. Hannah also visited one of the Dakar suburbs, where she was able to see first-hand some of the efforts that have been made to try to alleviate the impacts of flooding: doing so left her with a much clearer understanding of the need to address social and political issues alongside climate.
- I. Peter Hill, a post-doctoral researcher at the University, recently published a well-read blog on 'How do emissions in Abidjan affect the price of chocolate in the UK?', a story which was covered by the UK media. Peter's research explained the clear link between regional rainfall in southern West Africa and the volume of cocoa bean crop, used to satisfy the world's ever-increasing demand for chocolate. West African precipitation depends heavily on the West African monsoon; south-westerly winds during the northern hemisphere summer advect moist air from the Gulf of Guinea, resulting in the regional wet season. However, the timing and magnitude of monsoon rainfall is very variable and difficult to predict, and thus crop forecasts and produce prices vary widely from season to season. Population growth, economic growth and urbanisation have led to big increases in anthropogenic CO₂ and aerosol emissions in Abidjan and other cities of southern West Africa, which in turn affect the strength of the monsoon. The EU-funded DACCIIWA project (Dynamics-Aerosols-Chemistry-Cloud Interaction in West Africa) will shortly bring together scientists from Europe and West Africa to study the effects of anthropogenic emissions in southern West Africa, as part of an extensive field campaign using aircraft and surface instruments during the summer 2016 monsoon season: the ultimate aim is to understand how emissions affect the West African monsoon and through that, regional crop production.

More information on the Walker Institute and its projects, community and vision, can be found at <http://www.walker.ac.uk>



Professor Rosalind Cornforth
Director, Walker Institute

"The overarching aim of the Walker Institute is to use research to support the development of climate-resilient societies, which are able to adapt in an uncertain, changing world. Key to this is our contribution to a new knowledge base that disregards academic discipline and improves understanding of the real-world issues surrounding climate-resilience.

Bottom line - we want to make a meaningful difference in peoples' real lives – to carry out risk-taking, innovative and novel research that can tackle the complexity of the global challenges now facing society."

Walker
INSTITUTE

DFID's Chief Scientific Adviser visits AAS



Prof Charlotte Watts (fourth from right) in a picture after the meeting at AAS

Professor Charlotte Watts, DFID's Chief Scientific Adviser visited DFID Kenya, Somalia and Uganda from 4-7 April.

Charlotte visited the African Academy of Sciences (AAS) to understand DFID's support in partnership with the Wellcome Trust and Bill and Melinda Gates Foundation to the "Alliance for Accelerating Excellence in Science in Africa" (AESAI), a new platform to promote scientific excellence and research leadership in Africa. The initiative is led by the AAS in partnership with NEPAD.

Mbow moves to START



START (global change System for Analysis, Research and Training) International, Inc. has announced the appointment of Dr. Cheikh Mbow (photo left) as new Executive Director of START International Inc. Dr. Mbow comes to START from a long and illustrious career with the World Agroforestry Centre (ICRAF) where he currently serves as the Senior Scientist on climate change and development. He also is an Adjunct Professor at Michigan State University and on the Science Committee for Future Earth.

Dr Mbow will be replacing Dr Hassan Virji who has been with START since its inception in 1990. Dr Virji will join the Board of Directors of START International Inc. as Emeritus Director upon his retirement on 31 July 2016.

"Challenges and opportunities for chemistry in Africa" - COMMENTARY



Prof Berhanu Abegaz

"Chemistry education and research in Africa is challenging — a fact that is clearly reflected by publication metrics. Yet this is far from the full story on a continent that has youth on its side, a cultural link to chemistry through its strong interest in plants and indigenous medicine, and an increasing number of ways forward" - Berhanu Abegaz

Executive Director of AAS, Berhanu Abegaz, has published an intriguing commentary on "Challenges and Opportunities for Chemistry in Africa" in June 2016 issue of NATURE CHEMISTRY. The full article can be accessed at <http://www.nature.com/nchem/journal/v8/n6/full/nchem.2533.html>

"Africa in transition: the case of malaria"



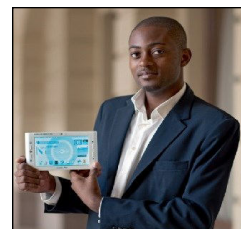
Prof Kevin Marsh

Prof Kevin Marsh, Senior Adviser at the African Academy of Sciences and a Professor of Tropical Medicine at the University of Oxford has published a new article on malaria in Africa. According to Prof Marsh, one of the most dramatic ongoing transitions in health in Africa is what is happening with malaria. At the turn of the century, malaria was out of control, to a large part driven by rapidly worsening resistance to chloroquine, the mainstay of a control approach which did not really merit the designation of strategy.

Read the article at: <http://inthehealth.oxfordjournals.org/content/8/3/155.full.pdf+html?sid=19275537-223b-4882-8e0d-eb6e4c123400>

Cardiopad inventor wins African engineering award

Cameroonian inventor Arthur Zang has won a £25,000 prize for his device that does heart examinations. The Cardiopad is a tablet computer that takes a reading and sends the results from the Cardiopad to a cardiologist via a mobile network and can be interpreted within 20 minutes. Cardiopads are distributed to hospitals and clinics in Cameroon free of charge, and patients pay \$29 (£20) yearly subscriptions.



Arthur Zang with the cardiopad

Mr Zang's invention was awarded the Africa Prize for Engineering Innovation by the UK's Royal Academy of Engineering at a ceremony in the Tanzanian city of Dar es Salaam. Last year's winner of the award was Tanzanian chemical engineer and AAS Affiliate Askwar Hilonga who invented a sand-based water filter that absorbs anything from copper and fluoride to bacteria.



Prioritizing Integrated Soil Fertility Management for Increased Agricultural Productivity in Ghana

Summary: While substantially good results have been achieved in crop improvement, pest and disease control, low use of fertilizers to maintain and/or replenish agricultural soils and, therefore, declining soil fertility still remains a major concern. Declining soil fertility and low use of fertilizers in Ghana explains the low agriculture production and requires a solution. A relatively new practice - Integrated Soil Fertility Management (ISFM) has been introduced as a stop-gap measure. Studies on ISFM in Ghana, indicate that cropping improved maize variety with combined fertilizer (inorganic and organic) resulted in yields higher than that obtained by applying fertilizers (organic or inorganic) alone. In spite of this, only a handful of farmers are employing the technology. The need to improve research and delivery of this new practice for quicker adoption by smallholder farmers is crucial for the country. A deliberate effort by government and other stakeholders are required to improve research and advocacy on ISFM to help attain the green revolution that some countries attained in Asia.

Introduction

Recent research in agronomy and soil science suggests that the trending poor agricultural production and productivity in sub-Saharan Africa, including Ghana, are a result of declining soil fertility. This may be due to physical loss of soils nutrients resulting from erosion, leaching and nutrient mining, from continuous cropping. This usually leads to loss of soil organic carbon, which may be fixed by applying a combination of inorganic and organic fertilizers. Generally, poorly managed soils undermines the ability of many agricultural households to produce enough food which could lead to food insecurity and persistent widespread poverty in many parts of rural farming communities.

The use of Integrated Soil Fertility Management (ISFM) is being advocated to help maintain and improve soil fertility. While this has been observed to impart greatly on crop growth and yield, farmers' response to the practice is not encouraging; in Ghana, it has been usually low and incomplete. This is in spite of its food security, farm income and environmental protection benefits. While this response has been attributed to low awareness, limited access to agricultural information, non-availability and non-affordability of fertilizers has also played a role. Limited funding has also hindered research and extension to support adoption of ISFM. Local investment in production of fertilizer is also a challenge. Combination of these challenges means yield of staple crops has remained far below the attainable yield (see Table 1) compared with Table 2 which shows achievable yields of selected crops in Ghana. The average yields in 2010 shows most crops are produced at a range of 20%-60% of their achievable yields. ISFM intervention is likely to increase yield levels of these crops.

Table 1: Yield of selected staple food crops in Ghana (2005-2010)

CROP	YIELD (Mt ha ⁻¹)					
	2005	2006	2007	2008	2009	2010
Maize	1.31	1.24	1.25	1.25	1.28	1.65
Rice	1.11	1.12	1.15	1.08	1.23	2.74
Cassava	9.95	9.51	9.86	10.2	10.62	15.33
Yam	9.83	9.8	10.27	10.58	11.73	13.94
Cocoyam	6.79	6.53	6.26	6.45	6.39	6.36
Plantain	9.38	9.45	9.67	10.1	10.28	9.93
Cowpea	0	0	0	0	0	0.58
Groundnut	0	0	0	0	0	1.42

(SRID, MOFA, 2011)

Table 2. Average Yield of Selected Food Crops Under Rain-fed Conditions in Ghana

Crop	Avg yield Mt ha ⁻¹)	Achievable Yield Mt ha ⁻¹)
Cassava	1.28	1.65
Plantain	1.23	2.74
Cocoyam	10.62	15.33
Rice (paddy)	11.73	13.94
Cowpea	6.39	6.36
Groundnut	10.28	9.93
Tomatoe	0	0.58
Pepper	0	1.42

(SRID, MOFA, 2011)

Note: Achievable yields indicate cases where more effective extension and use of recommended technologies and practices such as ISFM have been used. Data on achievable yields have been revised in line with findings by the CSIR-Crop Research Institute

Under ISFM, not only will the achievable be produced but also sustained for longer period of cultivation without necessarily shifting to new fields. Field trials and experiments conducted on different soil fertility restoring practices have shown that a combination of inorganic and organic fertilization lead to substantial increases in crop yields, especially when appropriate proportions of fertilizers and other agronomic practices are adhered to.

This article, therefore, presents some benefits likely to be accrued to farmers and other stakeholders, if ISFM which involves use of inorganic fertilizer combined with organic manure and an improved variety of a crop in a locally specific environment is wholly adopted and implemented.

Evidence from the field

Some recent studies in Ghana on soil fertility and productivity of crops provide evidences that a combination of inorganic fertilizer and organic manure as soil nutrient amendment is able to increase yield of improved germplasms. This is especially so when the . . .

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Continued from page 12

right amounts of the fertilizers is combined with local knowledge on how to adapt the practice to a particular environment. For example, Yeboah's (2010) study on soil fertility amendments on selected crops in a suburb of Kumasi in the Ashanti Region of Ghana confirmed that a combination of inorganic and organic fertilizers applied on an improved maize germplasm (mamaba) influenced maize crop yield significantly. The study showed that a higher application rate of 4 t C ha⁻¹ without inorganic N fertilizer resulted in higher yield maize grain; and applications of cattle manure resulted in 27% more maize grain yield at the higher application rate of 4 t C ha⁻¹. While the results differed based on soil fertility amendments, results of the field trial showed a general improvement in crop yield with use of combined fertilizers (inorganic and organic) as opposed to use of only inorganic fertilizer.

Another study to characterize poultry manure and two composted materials (household waste plus poultry manure, market waste and faecal sludge) was conducted at the Soil Research Institute of CSIR in Kumasi. The purpose of this study was to evaluate influence of organic and inorganic fertilizers and their combination on the growth and yield of maize (Fening *et al* 2005). The results confirmed superior performance of organic matter inclusion in crop production. The study revealed that combined treatments of organic and inorganic fertilizers gave higher yield values in the range of 8.9 tons ha⁻¹. The evaluation showed there was no significant difference employing sole treatment of inorganic or organic fertilizers. The results (8.9 tons/ha) was based on a poultry manure application rate of 60 kg ha⁻¹ and inorganic NPK rate of 60-40-40 kg ha⁻¹. The combined treatments had significantly higher nutrient uptake values than the sole organic and inorganic fertilizers alone. The superior maize yields obtained from the application of organic materials, irrespective of quality, demonstrate potential of organic materials to support maize grain yields.

These and other evidence from research fields suggest that combining organic and inorganic fertilizers in right proportions has potential to improve crop yield significantly, while maximizing plant nutrient use efficiency and soil sustainability. The right conditions of the crops should be provided for a maximum yield attainment. In Ghana, where waste management has become a problem, such waste could easily be turned into organic matter and used in farms in combination with inorganic fertilizer. Among other benefits, this practice has potential for reducing costs of production thereby improving farmers' levels of income and reducing poverty in the long term. Although this may create some challenges for some farmers, particularly those in areas where the manure will have to be transported over long distances to farms, the practice cannot be discounted as it holds a good promise for farmers and job creation.

Conclusions

ISFM reduces the amount of inorganic fertilizers to apply but does not necessarily reduce cost of fertilizer application of production due to cost of organic manure production. Yet, ISFM has added benefits of improved soil retention ability and increase in crop yield comparing with yield from application of inorganic fertilizers only. Reduction in use of inorganic fertilizer would translate into reduced costs of subsidies on inorganic fertilizers. This win-win situation brings benefits to the agricultural sector in particular and the national economy in general. Additional benefits of acceptance and use of ISFM are creation of jobs along the organic fertilizer value chain.

Recommendations

1. Awareness creation among farmers on need to adopt Integrated Soil Fertility Management (ISFM) as a way of conserving soil moisture and increasing the residual effects on the soil.
2. Building technical capacity of agricultural extension service staff to train farmers is ISFM.
3. Incentivising the private sector to invest in conversion of the huge urban waste, which has become a challenge for government, into organics fertilizers.
4. Policies on subsidizing inorganic fertilizers should include organic fertilizers.

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Rural youth and bee-farming

University of Fort Hare researcher and CIRCLE Visiting Fellow (CVF) Amon Taruvinga has been awarded a grant from the National Research Foundation to research and map beekeeping practices in the Eastern Cape province of South Africa and, critically, to train local farmers in optimum commercial beekeeping.

Amon Taruvinga was part of the cohort I of the **CIRCLE** (Climate Impacts Research Capacity and Leadership Enhancement) and researched various strategies Eastern Cape (South Africa) farmers are using to adapt to climate change, including switching to drought resistant crops and indigenous livestock breeds, which are more tolerant to water stress.

During his CIRCLE fellowship, he identified emerging interest by rural farmers to consider beekeeping due to their region's supportive vegetation biomes and optimum foraging temperatures. However, farmers who had ventured in beekeeping were found using out-dated traditional methods such as using log-hives and harvesting the honey by burning the bees with fire. A one hundred thousand Rand (R100 000) grant from the Agricultural and Rural Development Research Institute has allowed Taruvinga to establish three pilot apiaries, each with 15 trained unemployed youth, acquired 30 Kenyan Top Bar (KTB) hives, five sets of protective clothing and three smokers.

"The whole idea is to transform research outputs and findings into prototypes for pilot testing and possible up-scaling; moving research outputs from academic journals and libraries to positively influence livelihoods of communities," Taruvinga says.

Research Uptake

Taruvinga and his colleagues at the University of Fort Hare are determined



not to let their research end at publishing in scientific journals without much involvement of the beneficiaries. The research team, in the spirit of research uptake, developed two prototypes for pilot testing and possible up-scaling based on their research findings;

1. Beekeeping as a climate SMART livelihood strategy for rural youth
2. Indigenous fruits and vegetables as a climate SMART food source for rural households

The research team have been successful at securing two research grants to test their first prototype. To-date, three pilot apiaries have been established each with 15 trained unemployed youth, 30 Kenyan Top Bar (KTB) hives, five sets of protective clothing and three smokers.

Given that not all areas support commercial beekeeping, and not much is known about honey value addition initiatives that can be pursued by smallholder bee-farmers, the research team has collaborated with, Nkonkobe farmers association (industry partner), Walter Sisulu University (technical partner) forestry and GIS experts to explore the following areas;

- i. Mapping the potential of various

- local municipalities within Amathole District Municipality to commercially support beekeeping.
- ii. Conducting a baseline survey on the status of beekeeping focusing on perceptions, gender dynamics, current practices, awareness and needs assessment analysis.
- iii. Exploring honey value addition initiatives and potential to find local, regional and international markets for the farmers.

These issues emerged as critical areas worth understanding to enhance uptake of commercial beekeeping by rural communities during the pilot phase.

Regarding their second prototype (i.e., Indigenous fruits and vegetables as a climate SMART food source for rural households), the research team is currently seeking funding for pilot testing and possible up-scaling.

The research team's objective is to use research outputs normally "locked in academic journals and libraries" to inspire developmental programs that have an impact on communities, industry and policy.



Established pilot apiaries; Amon Taruvinga shown in the second picture on the right

Amid high spirits and a sense of accomplishment, RISE, the Regional Initiative in Science and Education in Africa, held the capstone meeting of its inaugural 8-year phase on April 19-22 in Nairobi. Some 80 doctoral and master's degree recipients and students, joined by academic leaders, gathered to share experiences, learn from one another, and imagine their futures as the architects of Africa's development.

Since 2008, RISE has been supporting PhD- and MSc-level scientists and engineers in sub-Saharan Africa through five competitively selected, university-based research and teaching networks in locally relevant science and engineering disciplines. With funding from Carnegie Corporation of New York and a secretariat based at the Science Initiative Group (SIG) at the Institute for Advanced Study in Princeton, New Jersey, USA, RISE has been instrumental in nurturing a new generation of African scientists. To date, the RISE networks have trained a total of 180 emerging scientists hailing from 17 African countries.

The April meeting was a celebration and showcase; a networking opportunity where inter-university partnerships were reinforced and research collaborations established; and a forum to plan the next phase of RISE.

Dr. [Nelson Odume](#), Director of the Unilever Centre for Environmental Water Quality at Rhodes University in South Africa, earned both his master's degree and his doctorate at Rhodes through RISE's water resources network. *"Being part of RISE is a rare privilege to engage with some of the best scientific minds on the continent and to undertake groundbreaking research projects. Thanks to my positive experience as a part of the RISE community, I wake up each day looking forward to contributing to the socioeconomic development of Africa by doing research that meets the needs of the continent."*

Prof Berhanu Abegaz, a leader in the field of natural products chemistry, had participated in early discussions that led to the creation of RISE. Now Executive Director of the African Academy of

Sciences, he remarked at the April meeting that RISE had *"contributed greatly to capacity development on the continent,"* notably in promoting greater participation by women, young scientists, and local leaders.

Prof Tade Aina, formerly of Carnegie Corporation, acknowledged RISE as an institution that is *"a model for African governments."*

Winners of the Competitive Fund for RISE PhD graduates for the creation or expansion of university-based research groups were also announced at the conference. Seed grants of \$25,000 each were awarded to [Benjamin Kumwenda](#) for a bioinformatics research group at the University of Malawi; [Majuto Manyilizu](#) for a computation and modelling research group at the University of Dodoma, Tanzania; [Dr Jane Namukobe](#) for a natural products research group at Makerere University, Uganda; [Dr Adenike Olaseinde](#) for a materials science research group at the Federal University of Technology in Akure, Nigeria; and [Jane Tanner](#) for a surface water/groundwater interaction research group at Rhodes University, South Africa.



Winners of Competitive Fund for RISE PhD graduates for the creation or expansion of university-based research groups.

Dr. Tanner reflected on RISE's role throughout her career: *"It was a stimulating experience to be a student during the foundational phase of RISE, and it's even more exciting to be able to contribute, as a graduate, to building the next phase of the project. I am encouraged to see that respected organizations like the AAS acknowledge the achievements of RISE and recognize its potential to*

significantly impact the African scientific landscape going forward."

When RISE was created in 2008, the intention was to see it through its first phase with the help of the SIG secretariat in the US, and then transfer full ownership to the African continent. That transition is beginning. [The Alliance for Accelerating Excellence in Science in Africa \(AESA\) of AAS](#), a platform for developing science strategies and supporting the development of sciences in Africa, is keen to lead the future of RISE and continue the great work of Prof Phillip Griffiths and the team at SIG. AESA was established by AAS and the New Partnership for Africa's Development (NEPAD) with support from the Wellcome Trust, the Bill & Melinda Gates Foundation, and the UK Department for International Development. AESA's mission is focused on supporting the best minds in Africa, working in conducive research environments, to implement programs that produce quality, relevant data, and innovations that have the potential to impact developmental challenges on the continent and globally.

The meeting witnessed lively and optimistic discussions about future possibilities for RISE – in particular, an iteration that would support top RISE graduates and other African scholars to pursue postdoctoral fellowships.

The words of [Dorothy Nampanzira](#), who earned her PhD from Makerere University through the natural products network, capture the spirit that animates so many RISE scientists: *"If you are given the opportunity to help your people, it is not only science; you put in an emotional part. You remember your grandmother, or uncle, or cousin, who died because of a certain problem, so when you're doing [science], you're doing it with passion."*

SIG and its African partners continue to work hard toward the sustainability and continued vitality of what is widely regarded as one of Africa's pioneering programs in science and education.

Written by: Sarah Rich, Arlen Hastings, and Alan Anderson; [SIG](#).



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Opportunities

MSc./Ph.D scholarship at University of Cape Town

The Climate Systems Analysis Group (CSAG) is currently seeking a motivated person with a passion for exploring the interaction of climate and agricultural systems in southern Africa. To apply: Submit information requests and applications by email to climapp@csag.uct.ac.za (use the reference ‘SASSCAL application’ in the subject line). Include a letter of motivation outlining your interests, research questions you would like to address, reasons for your application, a full CV (no certificates), and the names, email and telephone details of 3 referees.

Deadline: Application is open-ended, with the intent to start the MSc./Ph.D as early as July 2016 and no later than January 2017.

Seeding Labs: Applications for Instrumental Access

Seeding Labs, a US-based nonprofit organization dedicated to helping talented scientists in the developing world conduct life-changing research, is now accepting applications for its Instrumental Access program.

Through Instrumental Access, Seeding Labs connects universities in low- and middle-income countries with high-quality surplus laboratory equipment provided by our donors. Participants are selected through a competitive application process. Participants choose equipment from our available inventory to meet their research and teaching needs. Seeding Labs ships the equipment to the nearest or most convenient port.

We expect Instrumental Access participants to use this equipment for research projects, graduate student theses or dissertations, classroom teaching, or other research and educational activities. We encourage efforts to create or enhance a shared facility or resource that will be used by other departments or institutions.

Participation in Instrumental Access is economical, but not free. Participating universities pay a fee that helps to defray some of the costs of procuring, storing, handling, and shipping equipment, as well as administering the program.

Eligibility: Applicants must be degree-granting institutions of higher education located in a low- or middle-income country (LMIC) as defined by the World Bank. Departments must have a need for equipment typically used by biology or chemistry labs. Individuals may not apply on their own. We are unable to accept applications from Afghanistan, Burma, Central African Republic, Cuba, Ethiopia, Iran, Iraq, North Korea, Somalia, South Sudan, Sudan, Syria, and Yemen.

Please see the Request for Applications at <http://seedinglabs.org/rfa2016> for full program and application details. **The deadline to apply is 29 July 2016.**

11th International Conference of ARSE

The African Association of Remote Sensing of the Environment (ARSE) announces its 11th International Conference under the theme, “Our Earth, Our Heritage: Harnessing Geospatial Technologies for Sustainable Development”. Deadline for Abstract submission is 30 June 2016.

For more information, contact info@aarse2016.org; bamutaze@caes.mak.ac.ug; 41 agidudu@tech.mak.ac.ug; or visit www.aarse2016.org