Whydah

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WHYDAH?

Whydah (also spelled Whidah, or Wydah), is any of several African weaver birds of the genus Vidua, the male of which grows long, drooping, predominantly black tail feathers during the breeding season. It is also called widow bird. They belong to two subfamilies, Viduinae and Ploceinae, of the family Ploceidae (order Passeriformes). The name is associated with Whydah (Ouidah), a town in Benin where the birds are common. They are very active birds and difficult to breed in captivity because of their brood nature.

The Academy has chosen ***Whydah*** as the name of our newsletter to symbolize our work and dedication to scientific excellence in Africa. All African Scientists should serve the continent and excel in so doing in total freedom with innovation.

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OPEN ACCESS LITERATURE:

EMPOWERING RESEARCHERS FOR AFRICA'S DEVELOPMENT

Georges-Ivo Ekosse

On 30th April 2013, Elsevier coorganised a one day workshop on Open Access (OA) at the African Academy of Sciences secretariat in Karen, Nairobi. The focus of the workshop was to bring together, for the first time on the continent, key opinion leaders to discuss the way African research can be disseminated through the open access platform.

Elsevier has been engaged in OA since 2005 with over 80 journals featuring in its Open Archives. Apart from Elsevier, there are several other publishing houses that disseminate research material through OA. In Africa the main one is the African Journals Online (AJOL), one of the world's largest collection of peer-reviewed online journals with over 130 of them in OA.

Defining Open Access

Open access research literature refers to free online peer-reviewed scholarly materials, generally carrying no licensing restrictions, and technical barriers for use by readers. Erroneously considered as a form of self-publishing, second class materials, OA indeed carries equal scholarly weighting and recognition as traditionally published research materials. The literature available in OA includes journal articles, theses and dissertations, conference and workshop papers, unpublished reports and working papers, books and chapters, multimedia and audio-visual materials, bibliographic references, learning objects, and data sets.

Three forms of delivery of OA materials are currently in use, these are: the green route, the gold route, and the personal/institutional website route. In the green route, the researcher can place copies of articles in an OA Archive or repository. With the gold route, researchers benefit from the green route, and in addition, can publish articles in OA journals. Researchers can place articles on personal and/or institutional websites for ease of accessibility.

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Editorial

A critical survey of the world's development shows that nations that are increasingly becoming wealthy are depending on the generation and application of knowledge rather than the resources they control. Countries that abound in natural resources are not automatically richer than those with fewer natural resources. Rather, countries that are producing and using more knowledge are becoming richer. In summary, "the have" and "the have-nots" have become synonymous with the "knows" and the "know-nots".

Africa recognises the importance of harnessing science and technology in addressing the challenges of the continent. The continent recognises the need to move from a resource-based economy to a knowledge-based economy. From the Monrovia Declaration (1979) through to the "Lagos Plan of Action (LPA) for the Economic Development of Africa, 1980–2000", the Khartoum Decision of, 2006, and the extraordinary conference of ministers of science and technology Addis Ababa in 2007, the importance of investing in research and development has been emphasized. Whether that resolve has been carried out effectively or not is a subject for another day.

But one sure way of arriving at our dream destination of a knowledge-based society is making knowledge freely and easily accessible to all Africans. The 'little' knowledge being produced on the continent currently must be made easily accessible by all. Researchers should not be left in the dark as to what is happening in other parts of the continent. Payment of subscription fees should not be allowed to continue being a barrier to easy and ready access to published research. If good knowledge has been produced, what is the use of that knowledge if it cannot be accessed and used to improve the lives of people?

One of the many vehicles that can drive Africa to a knowledge-based society is "Open Access to Published Research". Researchers and readers should be able to access high quality peer-reviewed scholarly materials; without the restrictions created by subscriptions, licensing fees, pay-per-view fees and permission barriers. This, I believe, is a way forward in moving Africa to a knowledge-based society.

Message from The Executive Director

This is the middle of the year- and as promised the *Whydah* team is ready to roll out the second issue of this important news magazine of AAS.

I notice two major themes in this Newsletter which were inspired by two recent events that took place at AAS.

The first on "Open Access" stems from a workshop that was held at AAS at the end of April in collaboration with Elsevier. It achieved the purposes that it was intended for – to bring into focus the need for open access publishing to promote and foster research and development in Africa. I am pleased to bring to the attention of *Whydah* readership that AAS subscribes to open access and the Governing Council has approved the issuance of the Academy's Open Access Policy, which is available at the AAS website (*http://www.aasciences.org/index.php/2011-12-09-01-47-15/downloads*) The next step is now for AAS to sign the convention.

The second theme of this Newsletter is dealing with Microscience. The Academy provided the venue for a round-table discussion of key policy makers in Kenya's education sector to discuss the introduction of Microscience into the national high school curriculum. Participants of the meeting presented previous efforts made to introduce the concept of Microscience. Although there have been many individual venerable efforts to introduce Microscience experiments on several occasions in Kenya, this was the first time a round table meeting of policy makers was held to review and recommend its adoption nationwide. AAS facilitated the discussion by working together with the NCST in calling the meeting and also bringing experts from the University of Nairobi, the University of Johannesburg and from Millersville University, USA. The experts demonstrated the use of inexpensive kits in biology, chemistry and physics. The one-day round-table discussion was followed by a workshop attended by participants (school principals, quality assurance staff and science teachers) from all the 47 counties of the country. It is expected that the recommendations of the two day meeting will lead to the adoption and phased introduction of Microscience experiments in all the 4000 high schools of the country. I wish to thank all those that assisted AAS in making these meetings a success.

This issue of *Whydah* also announces the rolling out of the AAS Strategic Plan 2013-2018. Climate Change is one of the six programmatic activities identified by AAS in this Strategic Plan and we welcome the decision of DFID to consider AAS as the implementing body for a five-year fellowship program entitled Climate Impact Research capacity and leadership enhancement (CIRCLE). This program, when fully approved will bring considerable funds to allow AAS to implement the CIRCLE project.

What have been most gratifying and exciting have been the overwhelmingly positive expressions that have been received from a large number of AAS Fellows in response to the new AAS Strategic Plan (2013-2018). I want to use this opportunity to call upon AAS Fellows to help us implement the plan.

Let me also use this opportunity to thank each and every one at AAS for the dedication and hard work that has made these achievements possible Well done and keep it up!!!

Prof Berhanu M. Abegaz
Executive Director

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The case for Africa

Though OA had been informally applied, it was not until 22 October 2003 that it was globally recognised through the Berlin Declaration on Open Access in the Sciences and Humanities at the Max Planck Society, Berlin, Germany. Upon its formalization, institutions were called to sign the Berlin Declaration. Twenty eight institutions from 15 African countries have signed the Berlin Declaration.

Ten years after the Berlin Declaration, there have been over 240 presentations on OA at Open Access conferences with the most recent held in South Africa in November, 2012. For each of the ten years, a particular theme is advanced in support of OA. Some of the themes are:

- Steps towards the implementation of the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities
- Progress in implementing the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities
- From Promise to Practice
- From Practice to Impact: Consequences of Knowledge Dissemination
- Changing Scholarly Communication in the Knowledge Society
- Open Access- Reaching Diverse Communities
- Implementation Progress, Best Practices and Future Challenges
- Open Access Conference: the Impact of Open Access in Research and Scholarship

African universities and research organisations with OA policies include Universities of Pretoria and Johannesburg (South Africa); Covenant University (Nigeria); University of Nairobi, Strathmore University and International Livestock Research Institute (Kenya). Other stakeholders working for knowledge dissemination in the continent are the electronic Information for Libraries (elFL) and International Network for the Availability of Scientific Publications (INASP), Irish African Partnership for Capacity Building (IAPCB), International Development Research Centre (IDRC), and Southern African Regional Universities Association (SARUA). These stakeholders are working in Botswana, Malawi, Mauritius, Mozambique, Tanzania, Uganda, and South Africa.

In terms of regulating and enhancing OA publications, the OA Scholarly Publishers Association (OASPA) brings together the open access journal publishers. Its 5th Conference will be held at Latvia in September 2013. The forum upholds ideas that sustain the future of OA publishing. There are other publishing avenues for OA: African Open Access Repository Initiative (AOARI), African Journal Online (AJOL), BiomedCentral, Plos, BioLine, and Scientific Electronic Library Online (SciELO). A lengthy list, the Beall's List, details several potential, possible, probable predatory open access publishers that should be dealt with caution. The criteria for listing groups in the Beall's List dwells on exorbitant fees charged to authors without provision of the appropriate editorial and publishing services.

Arguments in Support of Open Access

Africa is endowed with a wide range of resources including very conducive environments for various types of research to be conducted. Though the continent is endowed with resources, continental research outputs still remain at less than one percent of global output. Lack of physical resources and infrastructure have forced many African researchers and scholars to look for enabling conditions beyond the continent. One of the major complaints given by African researchers and scholars is the difficulty in accessing published materials. With the advent of OA, accessibility to research materials will be easier, faster, and cost-free. As researchers and scholars enjoy the benefits of OA, knowledge propagation, accessibility, and research outputs on the continent will increase, and surpass the current 1%.

Open Access has a high dependability on technology, particularly electricity, and internet services which are not easily and regularly available in several parts of the continent. Tablets, Ipads, and other convenient mobile technological devices are gaining positive growth and usage in accessing research and published materials. Institutional collaborations in sharing published knowledge are becoming the order of the day due to relative affordability of limited bandwidths by several African institutions from the paltry funds available to manage the organisations. Researchers will have to be capacitated in the utilisation of modern day technological devices in accessing OA literature. Intervention schemes should hence be put in place to further foster cheap energy and technological devices for every researcher and scholar on the continent.

Provided the charges are low, OA can be easily sustained. Policy makers should canvass for funding to cover costs for OA usage in Africa from various international agencies. One suggested method is for conditions of grants to be linked with OA policies such that research outcomes are deposited in repositories which are easily accessible. Marketing strategies suitable to the African continent should be employed in encouraging and facilitating the application of OA continent-wide.

Way forward

In order to promote OA and for it to be wholly accepted among the knowledge generators and knowledge disseminators in Africa, coordinated efforts should be put in place by continental leaders. Political organisations, Continental knowledge and funding bodies, and Academies such as the African Union (AU), Economic Community of West African States (ECOWAS), Economic Community of Central African States (ECCAS), Southern African Development Community (SADC), East African Economic Union (EAEU), Association of African Universities (AAU), AAS, Academy of Sciences of South Africa (ASSAF), African Development Bank (ADB), SARUA, National Research Foundation (NRF) of South Africa should take the leadership initiative of working with colleagues of the Berlin Declaration on OA to position Africa as one of the key players of OA.

A call is made to university and research institution leaders, government leaders, and the civic society to be engaged in formulating a continental stand on OA. Open Access is a global initiative which will continue to gain grounds globally with implications to all interested in knowledge generation and dissemination; of which Africa cannot be left out. As part of its strategic plan, AAS will work with credible partners to transform *Discovery & Innovation* (a trans-disciplinary journal of AAS and the academy of sciences for the developing world (TWAS) to an OA journal within the next couple of years. Hopefully, other continental journals are also planning to go the OA way!

Acknowledgments

Materials presented at the 30th April 2013 one day conference on Open Access (OA) in Karen, Nairobi, Kenya were used to develop this informative article for which the author expresses his gratitude to all those who authored (Jacinta Were, Susan Veldsman, Belinda Tudin, Berhanu Abegaz, and Regie Raju) the PowerPoint presentations. The AAS is recognised for its continental leadership role in advancing the implementation of OA in Africa.

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OPEN ACCESS CHANGES, CHALLENGES AND COMMUNICATION:AN AFRICAN PERSPECTIVE

David Tempest

As a publisher, I have never seen so much change to how journals are published as I have in the last five years. When I joined Elsevier 17 years ago, the discussions was about a transition from print to electronic journals and now in 2013 print journals continue to circulate, especially in Africa. However, with Open Access, the changes have been accelerated much more quickly and in the space of five years almost every journal now offers authors choices on how to publish through Open Access mechanisms. This article is intended to provide a commentary of how things have changed, the challenges this raises and what this means for research in Africa.

Open Access enable wide dissemination of research to all, which is good for enabling research and enhancing productivity but also bring challenges to the various stakeholders involved in the process:

- Many funding organisations and governments who provide grants to fund research wish to have this research made Open Access, especially as many of this funding comes from public sources.
- Universities also want to ensure that the research they produce is showcased to the world and their researchers are promoted to bring in new contracts and build their expertise.
- Publishers want to maximize the visibility of their journals and ensure the widest readership possible, but need this to happen in a sustainable way to ensure their journals survive.
- Librarians are now managing both subscription and Open Access content and are a vital point for other stakeholders to consult on the developing journal landscape.
- Finally, and most importantly, the researchers themselves want their research to be available to others and to enable the widest recognition of their work, but they also need to consider all of the policies that the other stakeholders have developed.

Understandably, researchers are finding this difficult and it is the responsibility of the other stakeholders to make this easier. At Elsevier we work with the other stakeholders to build agreements regarding Open Access and develop workflows which enable authors to comply with the wishes of their employers and funders. This also ensures that Open Access is delivered in a sustainable way.

In a recent workshop organised in cooperation with the African Academy of Sciences to discuss the topic of Open Access, I had a fantastic opportunity to hear the experiences and approach of stakeholders in Africa towards Open Access and to learn more of how publishers can assist in the process of enhancing access to African research. I was not surprised to hear that many of the adjustments that we are all facing in an Open Access world are just as prevalent within Africa and that there is still a lot to be done to meet our objective of sustainable access to research content. However, there were some additional considerations for the African continent which are important to discuss further:

The writer (David Tempest) speaks at the Open Access workshop on April 30, 2013

- Firstly, the infrastructure to enable access to research needs to be assessed. I was extremely impressed with the levels of cellphone coverage and wireless availability within Kenya and Professor Abegaz from the African Academy of Sciences also referred to a study from the Economist which showed this trend replicated across the majority of the continent. This is good news and shows that access levels to the technology are available. There now needs to be wider availability of research content engineered to be read on cellphones if this is to be exploited. As an example, Elsevier has developed applications to enable our products, such as ScienceDirect and Scopus to be used on cellphones. This development needs to continue to ensure that access is enhanced.
- Next, many African researchers continue to rely on paper format articles to read their journals and so the transition from print to electronic needs to be assessed in a local environment. My colleague, Belinda Tudin from our Health Sciences team spoke at the conference and described several new Elsevier journals in Africa (including African Journal of Emergency Medicine, International Journal of Africa Nursing Sciences and the developing African Cancer Journal) which will all provide print versions. Of course, Open Access, by its nature, promotes an electronic format and it needs to be assessed how the models can take this into consideration in such a local environment.
- The cost of Open Access (in its Gold form) was also a key discussion. Elsevier has a range of prices for authors to publish Open Access with us, which depend upon the journal, the research field, funding levels and other important factors. It was clearly indicated that African authors, in the majority of cases, do not have the funding to enable Open Access in this way and need a solution. In response to this, many publishers, including Elsevier, offer alternative pricing options to developing countries throughout the world. Indeed countries that are part of the Research4Life programme (see http://www.research4life.org:) can benefit from free to low cost access to subscription journals and in many cases can also benefit from reduced or free Open Access publishing. Philanthropic programmes are a good way to initiate access to journals, but ultimately market-based models (whether gold OA or subscriptions) will be best in ensuring services from publishers are tailored to fit the local needs of funders, institutions and researchers.
- Organisations such as the African Academy of Sciences and the African Union Commission have a definite goal to enhance the profiles of researchers and their outputs and can work alongside other stakeholders to maximize these. A key element of this is the education and support of the research community and Elsevier are happy to work with these organisations to enable it to happen. We run author workshops to assist researcher's understanding of how to publish in journals; to understand the ethical dimensions of publishing; and to understand the emergence of new publishing possibilities, such as Open Access. In the conference I made a commitment to work with the African Academy of Science to make this happen and I see this as an important relationship to develop.

As you can see, we covered a wide range of topics in our conference and have developed a number of different routes to facilitate access to research content in Africa. However, what about the position of Africa in the global research community?

As conference delegates in Kenya, and also previously at the Berlin 10 Open Access Conference in Stellenbosch, South Africa, last year indicated, it is vital that Africa continues to grow its research output and collaborates with international researchers. Open Access is one

Open Access Publishing in Africa:Gains and Challenges

Dr Emmanuel Iyayi UNUABONAH

The Berlin Declaration on Open Access to Knowledge in the Science and Humanities defines open access (OA) as a new mode of scholarly communication, through which the author(s) and right holder(s) of scholarly work grant(s) to all users a free, irrevocable, worldwide right of access to, and a license to copy, use, distribute, transmit, and display the work publicly and to make and distribute derivative works in any digital medium for any responsible purpose, subject to proper attribution of authorship. This implies that a complete version of the work and all supplemental materials, including a copy of the permission to use the materials, should be deposited in at least one online repository using the suitable technical standards to enable open access, unrestricted distribution, and long-term archiving of such works[1,2].

Benefits of Open Access to Africa

From the perspective of Africa, OA publishing has the advantage of exposing findings from African research to the international community, improve the viability of small Journals in Africa and possibly raise their status to that of international Journals. Furthermore, OA publishing could improve the visibility of faculty and institutions in Africa and provide a platform for interdisciplinary research. In my view, OA publishing might even, to a large degree, solve the problem of plagiarism which is plaguing African science because an author or group of authors become wary when they are aware that the work they are about to plagiarize is already freely available to the world including Africa.

Challenges to Open Access Publishing in Africa

In spite of these benefits, OA presently faces numerous challenges that threaten to obscure its benefits. One of such challenge is the fact that most African Journal editors and backroom staff lack technical skills in formatting, layout, typesetting and language editing services necessary to make Journal platforms interoperable with current technical standards. A survey of 48 sub-Saharan African Journals in 2005 carried out on African Journals Online[3] showed that Nigeria and South Africa were the leading countries in terms of OA publishing. The survey pointed out that much of the editing and production work in most OA Journals in sub-Saharan African journals were done by volunteer staff and the Journals were either not indexed or poorly indexed. The survey also indicated that the Journals received most of their articles from African authors.

The problem of transparency in peer-review process is another serious challenge to the benefits of OA publishing in Africa. Most African Journals operating the OA model do not follow strict review process of scientific manuscripts that ensures the quality of such manuscripts when eventually published. Because the slogan of these African Journals operating the OA model is 'pay and be published' and that of most research institutions in Africa is 'publish or perish', some authors may simply throw in sub-standard manuscripts, pay the publishing fees and are published within a few days of submitting their manuscripts. Sometimes, researchers whose areas of research are remotely related to certain fields of research are requested to review manuscripts from such fields.

Other important factors threatening the gains of OA are the prestige and high rating African authors and indeed institutions in Africa attach to established Journals with impact factors, poor ability to pay article processing fee either because of poor research funding on the part of the authors and poor institutional support where most institutions in Africa still struggle to pay Journal subscription fees.

DR UNUABONAH

Addressing the challenges

To properly address these challenges, there is need for Journal editors in Africa and their backroom staff to be trained in current publishing skills and be well remunerated. Journal editors in Africa operating the OA model must ensure that global best practices are followed in peer-reviewing manuscripts and their Journal platforms are sufficiently interactive and interoperable with current technical standards. One way of getting this done is for African governments and research institutions to improve funding to their research institutions and faculty and support OA publishing via dedicated funds. With these in place, the quality of articles from OA Journals in the continent will improve and be at par with internationally established Journals. Indeed these Journals will become the repository of sound knowledge beneficial not only to the African community but the world at large. They will certainly become the continent's pride. Furthermore, the African Government through her regional organs should make concerted efforts to improve on power generation and access to internet facilities and relevant information technology tools to enhance access to these OA Journals else access may be open but still not accessible to faculties in Africa. Finally, research institutions in Africa should begin to recognize and give some priority to articles published in OA Journals in the course of reviewing faculties for academic positions or rewarding them.

Altogether, these, if implemented, will provide the bed-rock for a sustainable revolution in scientific research in Africa.

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Open Access: Changes, Challenges and Communication: An African Perspective

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way to assist in this goal, but it is vital that this is accompanied by a focus on the quality of research, and not just the quantity. Africa has some outstanding researchers and their quality is increasing, but there needs to be a concerted effort to work together and create excellence on a local capacity. Delegates at these conferences all indicated that the barriers that exist between African countries need to be removed if Africa is to emerge as a new powerhouse of research in the future. My conversations tell me that importantly there are already signs that this is happening both on a political and research level. This can only continue to enhance the access of the African community to each other, and hopefully, the collaboration of the continent's researchers can be widened. If that is not about "Open Science" then I don't know what is!

To close I wanted to add that publishers are committed to making a difference by providing the access levels that researchers need throughout the world, and I hope that my initial discussions within Africa will now develop into a long and supportive relationship with the researchers and stakeholders throughout the continent.

About the Author

David Tempest is Director of Access Relations at Elsevier in the UK. His role involves working with funding organisations and academic institutes on the development of agreements and relationships surrounding access initiatives. In addition, David also works on strategy and implementation of Elsevier's Universal Access programme. He has worked at Elsevier for over 16 years, having previously worked in both editorial, marketing and market research positions within the company. David is a frequent presenter at various events around the world. His main subject is speaking about the development of new universal access initiatives and technologies, as well as publishing matters in general – the publishing industry, the development of journals and future technologies.

David has a BSc in Pharmacology from the University of Sunderland and an MBA with distinction from Oxford Brookes University.

Stellenbosch University's AOARI Platforms:

Opening Access to African Scholarly Content

Reggie Raju and Ina Smith

In the current knowledge economy, Africa is relegated to the periphery of knowledge production as it is considered to be more of a 'consumer' of the world's knowledge as opposed to a 'producer'. There is sufficient evidence to show that a significant factor contributing to this low research output is limited access to scholarly content to support research. An influential element to this limited access is the exorbitant cost of information. Exacerbating this status is that research conducted by Africans is not easily accessible to the international audience, as the dissemination of African research content is severely prejudiced by the propensity of international publishers to focus on output from the north which generates larger profit margins. This prejudice relegates Africa further into the status of being a silent and invisible contributor to research production.

Bridging the 'Research Output' Divide

For Africa to move from the periphery to the epicenter of world knowledge production, there has to be a radical improvement in access to information. It is a given that not all of the issues pertaining to improved access can be resolved through the collusion of ubiquity and the web. Be that as it may, this collusion serves as the perfect foil for an alternative mode of distribution of scholarly literature and the radical improvement in access to such literature. This alternate mode, open access (OA), provides researchers with a conduit to make their research findings available to the widest possible audience and improve their research impact and visibility without compromising the integrity and rigour associated with quality academic publishing. There is great anticipation that the growth of the open access movement will radically improve access to the world's scholarly output; it will also serve as the impetus for networking the world of scholarship. One of the significant outcomes of this networking is the capacity to draw the 'south' (the 'developing world') to the epicentre of the world's knowledge production and facilitate the cross pollination of knowledge to and from the 'north' (the 'developed world') and south. OA presents Africa with opportunities to transform from a consumer of knowledge to a contributor to the world's knowledge production.

The Open Access Paradigm

In an era of easy access to open source software, there are sufficient opportunities for libraries to utilize this software to enhance their role in collecting, organizing and disseminating the research output of their respective institutions. Academic institutions in developed countries are exploiting open source software in the development of their repositories. The question that begs an answer is why African academic libraries are not vigorously taking up opportunities that are presented by the open source movement. Further, a new role for the 21st-century academic library is that of engaging in the publishing processes, again, using open source software such as Online Journal Systems.

The benefits of open access through utilising open source software, especially for the developing world, are enormous. However, in recent months there has been a transformation from the philanthropic base to an alternative business model for publishing. In this new and growing business model, the subscriber is exonerated from fees to access research findings. However, huge tolls are levied on authors (through author page fees) to publish in OA journals. These cost barriers leave a larger number of African researchers out in the cold. Uzuegbu (2012) summarizes the new quandary in which African scholars find themselves, when he points out that 'Africans paying to publish in the United Kingdom will contribute in killing science in the region. With author charges sometimes outstripping the salaries of [African] researchers in many cases, researchers may have to balance the need for visibility and survival'. Uzuegbu (2012) goes on to argue that scholars have to decide on funding author page fees at the sacrifice of other research expenses. It must be noted that, in the main, funding for research in Africa is meagre – these new exorbitant author page fees exclude the majority of Africans from publishing (Uzuegbu 2012).

Exorbitant author page fees perpetuate the status quo with limited opportunities for African researchers to publish in international forums that are also easily accessible to fellow Africans.

The African Open Access Repository Initiative (AOARI)

Stellenbosch University, a leading South African research institution, is committed to contributing to changing this status quo through the open access distribution of its own research output. Primary research output by researchers affiliated with the University, are accessible through the institutional research repository. This is commonly referred to as the 'green route' to open access. The University has also adopted the 'gold route' to open access through publishing open access journal titles. In both instances, open source software is used: DSpace (developed by MIT and Hewlett Packard) to manage the institutional repository and Open Journal Systems (developed by PKP) to manage online journals.

Given the expertise Stellenbosch University has built over the past years, and given the challenges that have plagued Africa in developing processes for the distribution of their research, Stellenbosch University has developed the African Open Access Repository Initiative (AOARI). This initiative is aligned with the HOPE Project, through which the University is committed to producing and sharing new knowledge to address African development issues. The AOARI platforms also break down the barrier with regard to the lack of personnel skills and good ICT infrastructure, with the express mandate of supporting efforts to strengthen the culture of research in Africa.

AOARI can be described as a 'hyper' repository for African academic and research institutions to share their scholarly output with the widest audience possible. In keeping with the principle of ''openness", it uses open source software: Ubuntu (latest version 12.04) is used as an operating system and DSpace (version 1.8.2) to manage the repositories. Open Journal Systems (OJS) is used to host open access journals. The AOARI platforms present African researchers with the option of publishing in an open access platform at absolute minimum cost – the window of opportunity is thrown wide open for the widest possible distribution of content without the burden of infrastructural cost and the lack of skills.

The fundamental purpose of the repository is to provide a digital service that collects, preserves, and disseminates research related material in digital format. The primary purpose of the journal publishing platform is to create a forum to facilitate 'self-publishing' without compromising academic publishing rigour; preserving content and radically improving the distribution of the scholarly content. The benefits of using AOARI centre around the core purpose of open access, and that is to make research findings available to the widest possible audience thereby improving visibility, citation count, impact and enhancing the prestige of the author and his/her institution. Limited training has been provided at the Berlin 10 Open Access Conference in November 2012, held in Stellenbosch, South Africa. For AOARI to be a success, the next step would be to market the initiative extensively to ensure that the platforms are exploited en route to Africa becoming a significant contributor to global knowledge production.

Conclusion

There is very little debate that access to scholarly content is essential in the generating of new content. A significant factor debilitating Africa's contribution to the world's knowledge is the lack of access to scholarly content to support a thesis. Open access is considered as one of the mechanism to circumvent the issue of limited access. However, the introduction of open access has also brought with it closed publishing avenues as African authors cannot afford exorbitant page fees. AOARI is option created by Stellenbosch University for the free flow of academically sound research output. It is an option that should be exploited in Africa's transition to a knowledge producer.

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Accessing High Quality, Current Literature for Research in Africa

By Ernest Nti Acheampong

Pursuing a bachelor degree at a university in Ghana almost a decade ago brings back memories of enormous challenges endured in search of current literature for my dissertation. Most of the library materials were outdated and access to both online and paper scholarly journals were severely limited. Most of the scientific journal publications had restricted access, implying articles had to be purchased or subscribed at a fee. The costs of subscription to journals are prohibitively high, putting them well above the means of my university. Unfortunately, I had to make do with the free online information and sometimes outdated publications. Indeed this situation is very common to many universities in African countries. With limited government funding, many universities and higher institutions are unable to afford such exorbitant subscriptions fees charged by online publishing groups. As a result, students and researchers have remained informationally indigent and professionally recluse. The implications are dire as knowledge and research output generated by academics and researchers from less endowed universities have had limited impact on development policies in African countries.

In addition to inability to afford subscription to scholarly journals is the difficulty in integrating African research into the global knowledge pool. Current global publication systems are dominated by publishers from the developed North, and publications almost exclusively contain research from institutions in the North. The existing knowledge gap between highly endowed universities in developed North and less endowed universities in developing South continue to widen in the face of challenges identified earlier.

Many African students, like me, who have had the opportunity of pursuing advanced degrees in universities in developed countries, will attest to the significant difference. The exposure to plethora of scientific literature and journals makes academic life fairly easy for students in their assignments and thesis write-ups. The massive investment in scholarly journal subscriptions by university libraries in developed North ensure the unrestraint flow of knowledge and access to literature for academics and researchers.

The dilemma of subscription cost and access to scholarly journals is highly accentuated in African countries, where even state funded institutions are often unable to meet the rising costs of journal subscriptions. It is very typical to observe quite a sizeable portion of research institutions and universities in African countries with no subscription to current journal except for journals by donor funded subscription or open access. The open access model which emerged alongside the internet in the 1990s is widely regarded as an extraordinary platform to provide fair access to vital research by reducing some of restrictions faced by scientists in less endowed countries.

In Africa, the Open Access model is gradually gaining momentum, with several initiatives already in the process. The Open Access Repositories Capacity Strengthening Programme (OA-IRCSP), a joint initiative of the Association of African Universities (AAU) headquartered in Ghana, and the Royal Tropical Institute (KIT) in the Netherlands seeks to stimulate and strengthen the capacity of establishing intellectual output repositories based on open access principles among African universities. Also notable is the African Open Access Repository Initiative (AOARI),of the Stellenbosch University. Research4Life, the collective name for four programs - Health Inter-Network Access to Research Initiative (HINARI), Access to Global Online Research in Agriculture (AGORA), Online Access to Research in the Environment (OARE) and Access to Research for Development and Innovation (ARDI), together provides developing countries with free or low cost access to academic and professional peer-reviewed content online. The International Network for the Availability of Scientific Publications' Program for the Enhancement of Information (PERii) alone has negotiated access to more than 23,000 full-text journals in all fields, while HINARI counts over 7,500, AGORA 1,900, and OARE more than 2,990. The Directory of Open Access Journals (DOAJ) currently list 8536 open access journals.

In conclusion, I would say that the scale of work by OA programmes and initiatives can be described as remarkable. As open access enters the mainstream as an unprecedented opportunity for extensive research output outreach and unrestricted access to scholarly literature for less endowed institutions in Africa, it will be critical to examine its implications for the global distribution of intellectual property, widespread integration, and economic sustainability.

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DID YOU KNOW?

1. Between 1999 and 2008, Egypt produced nearly 30,000 papers which was about three times the total for Tunisia, its regional neighbour. In west-central Africa, Nigeria's total number of papers produced between 1999 and 2008 was over 10,000, compared to roughly 6,500 for Kenya which is the leading research economy in East Africa. South Africa produced nearly 47,000 papers during 1999-2008, compared to the southern region's next-most-prolific nation, Tanzania, which fielded just over 3,000.
2. Between 2004 and 2008, South Africa produced 1.55% of the total world publications in Plant & Animal Science. South Africa also produced 1.29% of total world publications in Environment/Ecology.
3. In Africa, the leading countries by research output are South Africa, Egypt, Nigeria, Tunisia, Algeria and Kenya. Four of these are also leading countries in terms of GDP (South Africa, Egypt, Nigeria and Algeria).
4. Despite Nigeria's high volume research output, it is not returning as much research as would be expected given the size of its economy. The value of its resources is not yet being felt in its knowledge base. The same research productivity gap between resources and investment applies to several other countries.
5. There is a marked research collaborations between the countries in North Africa which share both language and culture. North Africa does little research with the rest of Africa, however, other than through the Egypt-South Africa link.
6. Nigeria, despite its disappointing level of research investment, nonetheless has an important connecting role. Not only is it a part of the Anglophone collaborative network but it also has significant — albeit weaker — connections with its West African Francophone neighbours, and it connects strongly to South Africa.
7. The USA, UK, France and Germany have authors on almost half the world's research papers recorded on Thomson Reuters databases every year.
8. Nigeria's global reach is marked by its collaboration with China. It is of course well-positioned to extend its links westwards and partner with the emerging Brazilian research base. It could thus serve as a key doorway into the West African and into Anglophone African research base for some of the most exciting research now appearing in Asia and Latin America.
9. Malawi, with one-tenth the annual research output of Nigeria, produces research of a quality that exceeds the world average benchmark while Nigeria hovers around half that impact level.
10. South Africa is the outstanding research leader in Africa, has by far the greatest research output of any country, well ahead of Egypt in second place, and has high impact for much of its research.

Source:

ADAMS, J., KING C, and HOOK, D., 2010. GLOBAL RESEARCH REPORT – AFRICA. EVIDENCE. Thomson Reuters. ISBN: 1-904431-25-9 http://sciencewatch.com/sites/sw/files/sw-article/media/globalresearchreport-africa.pdf

DATA SOURCES

Volume and subject area analyses used the 2008 editions of the Thomson Reuters National Science Indicators. Collaboration analyses were carried out using Research Performance Profiles data in InCites™, the new web-based platform for research evaluation from Thomson Reuters. Database years were used to delineate years, and only article, note and review document types were considered. To analyze performance at a category level the 21 main fields in Thomson Reuters Essential Science Indicators were used. National Science Indicators, Essential Science IndicatorsSM and InCites™ use publication and citation data derived from the citation data found in Web of ScienceSM, also from Thomson Reuters.

Roadmap to Position AAS for Greater Impact in Africa

What AAS Strategic Plan 2013-2018 Offers

Whydah Team

After a rigorous three years that involved consultations within AAS and with her partners, the Academy has finally released its 2013-2018 Strategic Plan. Dubbed "*A Roadmap to Position AAS for Greater Impact in Africa*," the plan seeks to enhance the role of the Academy as a key partner and leader in Africa's sustainable development over the next five years.

The plan is a culmination of a major restructuring process that has been undertaken by the Governing Council and management of the Academy over the last three year. In the three years the Academy's constitution was reviewed, policies governing recruitment of new fellows revised and and internal operation systems strengthened for eficiency.

This plan is finalized three years after its predecessor (Strategic Plan 2005-2010), and outlines the interventions, programmes, activities and projected outcomes of AAS in key priority areas. It will also guide the relationship between AAS and its key stakeholders, who include the Academy's Fellows, partner organizations and policy makers.

The priorities and strategies stipulated in this document are based on an analysis of the internal and external factors that affect the operations of AAS, which have been identified through wide consultations.

Internally, AAS intends to build on its past accomplishments, while strengthening its governance structure, to establish itself as an institution that responds to opportunities and challenges with determination and focus. Inspired by, and in tribute to the vision of the Academy's founding fathers, this Strategic Plan emphasizes the immense importance of creating a community of Africa's finest scientists towards advancing science, and science-led growth in Africa. Therefore, the Plan aims to strengthen the position of AAS as a fully multidisciplinary Academy, which is able to provide policy advice within the realms of natural, physical and social sciences.

Externally, the Strategic Plan is guided by an appreciation of the social, economic and political situation in Africa and beyond. In particular, the action plans outlined in this document are significantly anchored on initiatives instituted by critical stakeholders, for instance the African Union, Regional Economic Communities and other African and global organizations, towards addressing the continent's challenges.

This Plan also sets the basis for future partnerships between AAS and financial institutions, for instance the World Bank, the Eastern and Southern African Trade and Development Bank (commonly known as PTABank) and the African Development Bank (AfDB).

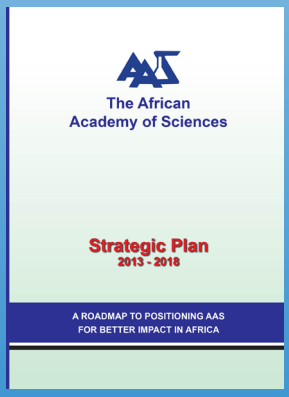
Moreover, this Strategic Plan focuses on building on the time-tested and successful relationship between AAS and TWAS, The World Academy of Sciences. The Plan also outlines strategies for creating new partnerships with national, regional and international academies, towards addressing current and emerging global concerns, especially those affecting the developing world and Africa in particular.

Therefore, the AAS Strategic Plan, 2013 – 2018 is an investment in the Fellowship of AAS, the African scientists and producers of knowledge in general, and the future of the African continent.

The Plan prioritizes five key areas:

1. Ensuring the Vitality and Sustainability of AAS: by improving governance, establishing and enhancing partnerships, widening the Fellowship base, building on the asset base of AAS, and developing an effective communication system.
2. Recognizing Excellence: through the designation of the most exemplary scientists in Africa as Fellows of the Academy and by nurturing emerging African scientific talent, through the newly established Affiliate Membership Programme and mentorship programmes. AAS will also continue and strengthen its awards and prizes to recognize outstanding contribution by scientists working in Africa.
3. Building Capacity in Science and Technology: through capacity-building initiatives that seek to enhance region-specific competences in key topical areas including:
   - Water and Sanitation;
   - Sustainable Energy;
   - Food Security and Nutritional Wellbeing;
   - Health care and Wellbeing;
   - Science, Technology, Engineering and Mathematics and
   - Climate change.
4. Developing Databases of Scientists and Scientific Organizations which will consist of experts, as well as emerging researchers from Africa to make AAS a repository for expertise in areas of research and knowledge production.
5. Engaging Governments and Policy Makers in Africa to Promote Science Technology and Innovation (ST&I) by holding open, top level, continent-wide forums, workshops, conferences and roundtable discussions on science and technology. These meetings will bring together grass-root activists, scientists and policy makers to discuss issues of common concern in settings designed to promote knowledge exchange and outcomes of collaboration.

***Above**: AAS Secretary General Dr. Shem Arungu-Olende addresses a consultative forum comprising AAS Fellows and partners at one of the meetings called to get their input in the 2013-2018 Strategic Plan. Involvement of AAS fellows in the Academy's activities is one of the key priorities outlined in the Strategic Plan.*



To download a full version of the Strategic Plan go to http://www.aasciences.org/index.php/2011-12-09-01-47-15/downloads

Stakeholders Recommend Microscience for Kenya's Schools

Whydah Team

In the photo above stakeholders get a feel of the miniature kits with help from Prof Maria Lycoudi from the RADMASTE Centre

Key stakeholders in Kenya's Education Sector have recommended the introduction of microscience kits in teaching science subjects at all levels of the education system. The recommendation was made at workshop held at AAS secretariat on 15th and 16th May 2013.The workshop was jointly organized by AAS, the National Commission for Science and Technology, and the State Department of Science and Technology. Other partners in the event included the Kenya National Academy of Sciences, International Organization for Chemistry in Development, Centre for Mathematics, Science and Technology Education in Africa (CEMESTEA) and RADMASTE Centre from south Africa.

The two-day workshop, attended my 150 participants, marked the start of activities of the microscience programme, a programme of AAS and IOCD whose objective is to improve the teaching of Science in Africa. The envisaged Africa-wide project is taking off in Kenya with KNAS and NCST as key partners.

In remarks read on his behalf by Dr David Njubi, Prof Abdulrazak Shaukat, Chief Executive of NCST pointed out that science education will play a major role in achieving Kenya's long term development plan outlined in vision 2030 and emphasized the impact microscience can have in improving teaching science in Kenya. He explained that despite the government's commitment to improve science teaching in over 4000 public secondary schools in the country, inadequate resources still left many schools without laboratory facilities; a situation that compromised teaching of biology, chemistry and physics. Prof Shaukat added that the workshop had come at an opportune time and that in his view microsciences provided many advantages; key being that it was affordable, requires no physical laboratory and provides students with an opportunity for hands on practical experience.

Speakers at the event including science teachers selected from a cross-section of the country were in agreement that the system of teaching science in most schools in Kenya was too theoretical and in the process made science lessons very boring and difficult for the learners.

In his presentation, Prof. Shem Wandiga narrated his experience when he ran a project that introduced microscience in a number of schools. Although the project was well received, its adoption was hampered by lack of support from the Kenya National Examinations Council and the public universities. He advised that for successful adoption of the concept, it was essential that the Kenya National Examinations Council be actively involved to ensure that the kits can be used during final practical examination particularly for the Kenya Certificate of Secondary Education (KCPE).

The meeting brought together policy makers from key players in the education sector including the Ministry of Education, The Kenya Institute of Curriculum Development, The Kenya National Examinations Council, the Teachers Service Commission, public and private University representatives, research institutes, the Schools Equipment Production Unit (SEPU) as well as representatives of the private sector. Also represented were heads and science teachers from secondary schools.

The first day of the workshop was largely a meeting of policy makers at which the participants shared at length the concept of microscience through facilitation by the RADMASTE Centre Prof. Moustapha Bousimina of Morocco shared experiences of teaching science in Morocco and explained how the counrty was addressing practical activities using the microsciences concept. The second day of the workshop had participants including quality assurance officers from the 47 counties, school principals as well as science teachers. Through facilitation by the RADMASTE centre, participants were taken through hands on demonstration on how to use some of the kits.

At the end of the two days, consensus was that microscience kits be introduced in Kenya schools to improve science teaching and understanding. Stakeholders recommended immediate engagement with the quality assurance department of the Ministry of Education, Kenya National Examinations Council and the curriculum development agency to roll out the kits beginning with a pilot programme.

A section of the Microscience Workshop participants

TWAS-ROSSA/ AAS Host Two Top Scientists for Public Lectures

The African Academy of Sciences, in the month of May, organised two public lectures delivered by two leading scientists from Africa to highlight key advances in the field of science.

The first lecture was delivered by Prof Moustapha Bousmina, (see photo on the right) a Fellow of AAS from Morocco on 14 May 2013 at the Kenyatta International Conference Centre in Nairobi. The lecture was titled *"Evolution, Recent Advances and some Challenges in Chemistry and Material Science."* In his lecture, Prof Bousmina, a renowned researcher in material chemistry, explained the role of chemistry and some of the recent discoveries in the field. The lecture was organized jointly with the National Council for Science and Technology (NCST) and was held during the Kenya National Science and Innovation week, an annual event organised by NCST, that ran from May 13-17, 2013.

The second lecture was delivered by Dr Bernard Fanaroff (below), a renowned Astrophysicist and Project Director of the South African Square Kilometre Array (SKA) Telescope project on Monday, 27 May 2013. The lecture highlighted major aspects of the Square Kilometre Array (SKA) Radio Project in South Africa. The Lecture under the title "*Building the World's Largest Science Infrastructure in Africa*" gave an overview of the project and its implications for science and capacity development in Africa, the first of its kind on African soil.

Dr Fanaroff's Lecture was organised by the African Academy of Sciences (AAS) in conjunction with the Kenya National Council for Science and Technology (NCST) with support from the academy of sciences for the developing world (TWAS).

Dr Fanaroff emphasised that the SKA Project was good for the continent and asked Africans to own it and be proud of it. He added that the project would give the continent and its scientists an opportunity to venture into and make a contribution to big science. He added that such exciting projects had the potential of generating interest among the youth into science and help keep them in Africa thus reducing brain drain which has been a major problem in most African countries.

The SKA project is estimated to cost billions of dollars with initial estimates for the acquisition cost estimated to be about 400 billion euros. The project will be funded by the SKA organisation made up of ten countries – UK, Canada, Germany, Italy, Netherlands, Sweden, China, South Africa, Australia and New Zealand. Other countries including India, Japan, South Korea, France and the USA have indicated their interest to join at some point in the future. Other African Countries involved in the project are Kenya, Ghana, Botswana, Namibia, Madagascar, Mozambique, Mauritius and Zambia.

The two lectures were very well attended by scientists including Fellows of AAS and KNAS, policy makers, lecturers and students from Kenyan universities, officials from the Ministry of Education Science and Technology, members of the International Foundation for Science (IFS) Scientific Advisory Committee who were holding meetings at AAS, as well as journalists.

AAS Hosts IFS's Scientific Advisory Committee (SAC)'s Meetings

On the left is a group photo of IFS's Scientific Advisory Committee members who held series of eight meetings, along with a workshop on the assessment of proposals within the new IFS strategy. The meeting was hosted at the African Academy of Sciences (AAS) secretariat from 25 May through 2 June 2013 and attended by over 50 people including SAC members, IFS Trustees, Management, Scientific Coordinators and Administrators. The hosting by AAS is part of the growing collaboration between the two organisations which signed a formal MoU in 2012

AAS Treasurer Joseph Massaquoi Departs

The Global Science Community, The African Academy of Sciences and Sierra Leone lost a great son on 25 May 2013. Prof Joseph G. M. Massaquoi passed away on May 25 2013 while receiving treatment at the Agha Khan Hospital in Nairobi, Kenya. Until his demise, Professor Massaquoi was the treasurer of the African Academy of Sciences having been elected to the position in November 2011.

The late Prof Massaquoi speaks at the Open access workshop on April 30th in what would be his last official function for the Academy

The death of Prof. Massaquoi has robbed Africa of a brilliant scientist and a professional who for over 40 years served his country of Sierra Leone and this great continent of Africa with dedication to uplift the lives of its people.

Among the recent positions he held was that of Director of UNESCO Regional Bureau of Science and Technology in Africa during which he was responsible for implementation of UNESCO's Science Programme in sub-Saharan Africa. He was also the UNESCO representative for Kenya, Eritrea, Rwanda, Uganda and Somalia.

Before joining UNESCO professor Massaquoi held various positions rising through the ranks of academia both at the University of Sierra Leonne and several other Universities in Africa and overseas.

Prof Massaquoi is also remembered for his role at ANSTI. As Co-ordinator, he lifted the network from its previous state of inactivity to a vibrant and visible network for the promotion of high-level science and engineering education.

Prof Massaquoi was among the team of Governing Council officials and Management Committee members working to lift the status of AAS and position it for greater impact on the African continent. The Academy will miss his immense and sober leadership.

Massaquoi is survived by a wife and three children and the Academy is with them during this difficult times and beyond. He was 62.

DFID Team Conducts Due Diligence Review of AAS Systems

The AAS Secretariat hosted a team of reviewers from DFID and the Association of Commonwealth Universities for a due diligence review in preparation for the commencement of the Climate Impacts Capacity and Leadership Enhancement (CIRCLE) project. The CIRCLE project is a five year project funded by DFID and which will be implemented jointly by the ACU and AAS in sub-Saharan Africa. The project seeks among other things to strengthen research skills that will help African Scientists conduct research on the impacts of climate change and inform policy.

The team of reviewers was led by Dr Luke Mukubvu of DFID in UK and included Andrew Leslie also of DFID. Ben Prasadam-Halls and Dr John Kirkland, both from the Association of Commonwealth Universities (ACU) were also part of the team. The DFID/ACU team met with the AAS management lead by the Secretary General Dr Arungu- Olende, and included AAS Fellow Prof Shem Wandiga, and Executive Director Prof Berhanu Abegaz and staff at the AAS secretariat.

Photo: A group photo of the team from DFID and AAS management: from right to left Andrew Lesley (DFID), Dr. John Kirkland (ACU), Dr. Luke Mukubvu (DFID), Prof Berhanu Abegaz (AAS) and Dr. Arungu Olende (AAS)

AAS in ASTII Working Group on Policy Briefs

The African Academy of Sciences (AAS) is part of a working group of the African Science Technology & Innovation Indicators (ASTII) Initiative to produce policy briefs informed by STI Indicators on the African continent. The first session of the working group was held in Addis Ababa, Ethiopia, 16-20 May 2013. The AAS is represented on the working group by Dr Benji Gyampoh, Programme Officer of AAS.

The material for the production of the Policy Briefs is drawn among other sources from the first ASTII Report (AIO-2010) which contains STI indicators from 15 AU member States involved with the ASTII Programme from 2007 -2010. The first session of the working group had the objective of producing two policy briefs on the following themes:

1. History, current state in Africa and policy recommendations to African countries to reach 1% GDP contribution towards research and experimental development (R&D) target.
2. Policy recommendations to increase scientific production and visibility of African Union member states.

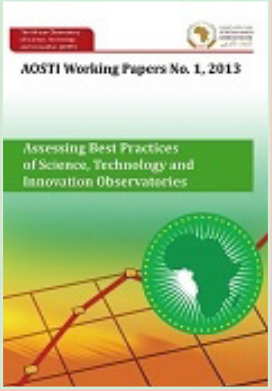
Read more on ASTII: http://www.nepad.org humancapitaldevelopment/astii/about

Can you identify which occassion this was? If you were present, do send to us any pictures you still have

ANNOUNCEMENTS

AOSTI Launches Two Working Papers

1. The African Observatory of Science, Technology and Innovation recently launched two working papers. Working Papers No. 1, 2013: *Assessing Best Practices of Science, Technology and Innovation Observatories.* This Paper is a synthesis of best practices across national, regional and international STI Observatories. It describes both structure and activities, and then provides recommendations for the operation of AOSTI.

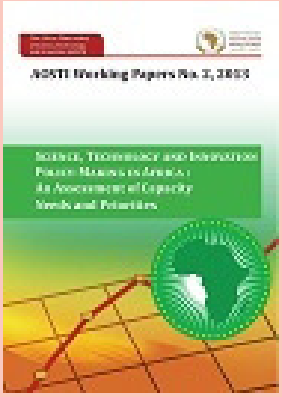


The information in this report was obtained through desk research, supplemented with interviews. The intended audience for this report is the governance board of AOSTI. The recommendations are also be of interest to relevant members of the African Union Commission. The overall goal of this study was to provide a detailed synthesis of best practices among STI observatories to inform AOSTI activities at both the programme and governance levels. The objectives of the study include the following:

- Identify activities and governance structures of national STI observatories across the world;
- Review regional and international structures that could provide insights and serve as models for the AOSTI;
- Provide key observations and recommendations for AOSTI, within the context of the African Union STI system.

For the full text, please contact: Dr Vroh Bi Irie: vrohb@africa-union.org;

2. Working Papers No. 2, 2013: Science, Technology and Innovation Policy-Making in Africa: An Assessment of Capacity Needs and Priorities provides an indicative or preliminary survey of African countries' common capacity needs and priorities for Science, Technology and Innovation (STI) policy development. The survey is intended to generate empirical information on the needs and priorities in order to inform the design a comprehensive programme for STI policy capacity development. It is based on reviews of reports (e.g. proceedings of workshops) on national STI policy development activities, reviews of outcomes of policy development efforts, and interviews with key stakeholders in governments and donor institutions. For the full text, please contact: Dr Almamy Konte: kontea@africa-union.org



AOSTI's vision is to be a continental repository for Science, Technology and Innovation (STI) statistics and a source of policy analysis in support of evidence based policy making in Africa. The mission of the Observatory is to champion evidence-based science, technology and innovation policy-making by backstopping African countries to manage and use statistical information in accordance with the African charter of statistics. Visit the AOSTI website at http://aosti.org/ for more information.

CALL FOR NOMINATIONS

2013 TWAS-ROSSA Prize for Young Scientists: Basic Sciences

The Academy of Sciences for the Developing World - Regional Office for sub-Saharan Africa (TWAS-ROSSA) seeks to honor young scientists who have made outstanding contribution in science by awarding an annual Young Scientists' Prize. It is expected that by recognizing their achievements, the scientists and their institutions will be encouraged to promote scientific research and strive to excel in their endeavors. The award is given in line with TWAS' objective of recognizing, supporting and promoting scientific capacity and excellence in the developing world. The regional office, ROSSA, coordinates activities towards this end in Sub-Saharan Africa.

TWAS-ROSSA will this year award a prize in the Basic Sciences. The prize will be awarded to a young scientist whose research has made significant contribution to knowledge in the basic sciences. Priority will be given to achievements in areas that have direct relevance to problems encountered in Africa such as water, energy, climate change mitigation, food security and health i.e. basic research that has potential for application in countering Africa's challenges.

The Award

The award comprises an award certificate with a citation on the winner's scientific achievement as well as a cash prize of US$3,000. The prize may be awarded to an individual or jointly to two or more scientists.

Eligibility

- The award is open to male and female scientists
- Nominees must be under 45 years of age
- They must be nationals of Africa
- Must have attained at least a Masters Degree
- Have research experience and be affiliated to a university or national research institution in sub-Saharan Africa
- Must have made significant contribution to the development of scientific knowledge in the basic sciences (Physics, Mathematics, Biology, Chemistry, Nanoscience or Computer Science).

Nomination

- Nominations are invited from members of TWAS and the African Academy of Sciences (AAS) as well as science academies, national research councils, universities and scientific institutions in sub-Saharan Africa. Self-nomination will not be accepted.
- Nominations must be made on the designated Nomination Form and must be submitted to TWAS-ROSSA by 24th July 2013.

For more information and to download the nomination form, visit: http://aasciences.org/index.php/news-a-events/338-call-for-nominations-for-2013-twas-regional-office-prize-for-young-scientists