



ARUA

African Research
Universities Alliance

The Concept

AFRICAN RESEARCH UNIVERSITIES ALLIANCE (ARUA)

THE CONCEPT¹

1. INTRODUCTION

The *African Research Universities Alliance* (ARUA) was inaugurated in Dakar in March 2015, bringing together fifteen (15) of the region's leading universities. It is a network of universities from different countries and different historical backgrounds, but with a common vision. The network is generally about expanding and enhancing significantly the quality of research done in Africa by African researchers. This new network, from inception, was intended to be different from any other regional university networks. The difference was to come largely from the approach to be employed, namely bringing together a number of peer African institutions that were willing to work together by pooling their own limited resources, with a view to generating a critical mass that could more effectively support their limited, but growing numbers of researchers. Underlying this was the conviction that they could thereby leverage this effectively for additional resources from outside.

ARUA has generally been very well received in Africa and outside of Africa. The inauguration was performed by the Chair of the African Union Commission, Dr Nkosazana Dlamini-Zuma, who had inspired the formation of ARUA with earlier comments on the urgent need to strengthen African research and universities. ARUA is basically, therefore, a response to a strongly felt need in the region for capable and engaged research universities working to solve the development challenges of the region.

Africa's development challenges are very well known and quite well-documented. The over-arching problems of poverty and inequality can be associated with the absence of effective policies and institutional interventions for dealing with them in all countries. In the absence of such interventions, people respond in ways that may bring personal immediate satisfaction without regard for the long term common good. For instance, in the absence of economic transformation, migration becomes a way of life, the consequences of which are not always easy to determine. As poor farming households struggle to deal with the declining productivity of soil everywhere, they may adopt farming practices that lead to significant environmental issues and contribute to climate change. Again, as a result of globalisation, many African countries have become exposed to new technologies that could contribute significantly to production and productivity, but the full effect of these technologies has not been realised as a result of poorly prepared host environments, including poor education of large numbers of potential users.

In the face of these challenges confronting African economies and societies, many universities have often been called upon to undertake research that could provide the policy answers as well as the necessary interventions. At the same time, they come under severe pressure to prepare the growing numbers of young people for job markets that are shrinking in size for many different reasons. They have responded to the calls for greater effectiveness in many different ways, including increasing the

¹ This Concept Note is intended to give an overview of what ARUA is about and introduce the Alliance to a broader audience.

amount of research being done, even if this has generally not been adequate. The question is “what is the way forward?”

2. THE CHALLENGES OF AFRICAN HIGHER EDUCATION AND THE PLACE OF RESEARCH

Most of the leading African universities were set up either in the early post-independence period in the 1960s or in the decade prior to that². They were principally to focus on the production of human resources to manage mainly public institutions. They were thus structured as under-graduate training institutions, often with some linkage to a UK or other European university that took care of their graduate training needs. Research was not a major part of their programmes and hardly any incentives were assigned to that. In South Africa, the history is a little bit more nuanced, reflecting social divisions.

When African governments in the post-independence era saw the need for research to support their development ideals they sometimes set up independent research institutes and centres, usually away from their universities. In Ghana, for example, the establishment in 1958 of what later became the Council for Scientific and Industrial Research was the first indication that the government had interest in research to support development. Nigeria has had a much larger network of publicly established research institutes, operating outside of the universities. On the other hand, an example of a research initiative that has thrived for years is the *International Institute for Tropical Agriculture* at Ibadan that has relied on international support and coordinated well with universities in the region. The involvement of the state and other actors in supporting and promoting research, especially university-based research, has been very limited.

In South Africa, again, the experience is quite different as the State has for many years supported some research at different levels through a number of funding arrangements, all of which were merged in 1993 into the National Research Foundation.

As a consequence of the muted research interest, African research accounts for only 1% of the world’s research output. Most of this comes from South Africa. It may be observed that, following recent marginal improvements in the funding of research in the region, especially from international funding agencies, some improvements have taken place. Thus, the research output of African researchers (excluding South Africa) increased from 0.44% of the global total in 2003 to 0.72% in 2012. Despite pledges that governments and other funders make to support scientific research, Science, Technology, Engineering and Mathematics (STEM) research accounts for only 29% of Africa’s total research output, compared to an average of 68% for Malaysia.

Apart from the low numbers of research undertaken in the region there have sometimes been questions about quality. Mutula (2009) expressed a general concern about the absence of rigour in a lot of research undertaken in the region. He considers some of the work done overly descriptive and lacking in analytical content. This applies to both STEM research and other work in the social sciences and humanities. This is a view that has been expressed by other people in many universities.

² The exception here would be the leading South African universities that were created much earlier.

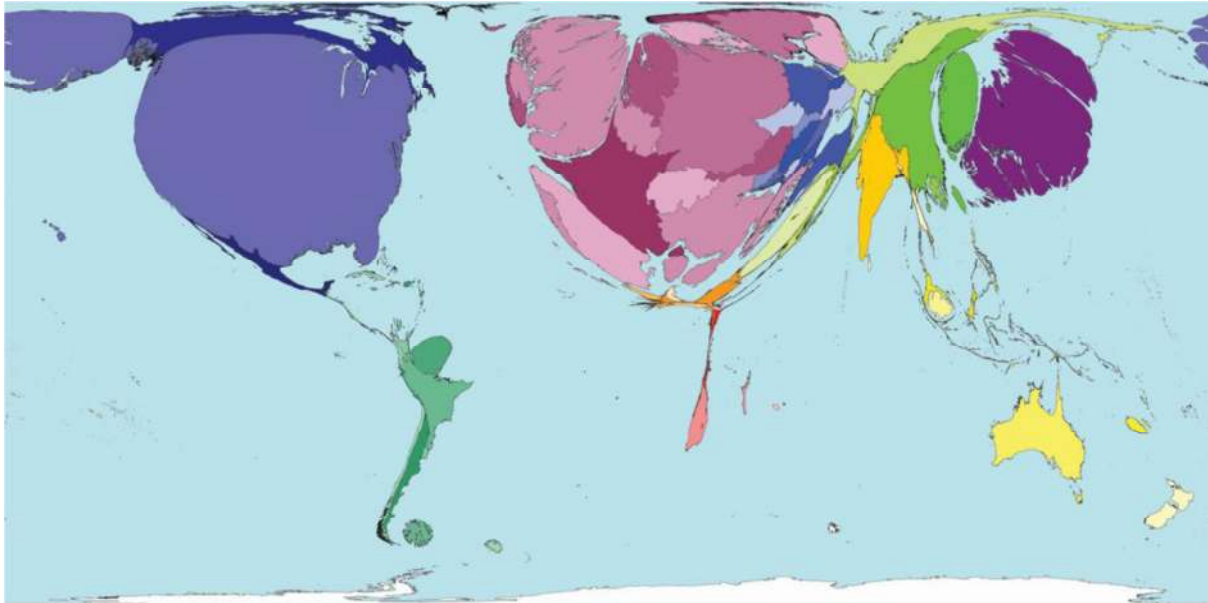


Figure 1: Distribution of Science Research in the World; Number of Publications per Million People³

Source: www.worldmapper.org

A number of explanations have been generally provided for the current situation. These include the following:

- Absence of policies to increase the quantity and quality of teaching of STEM at all levels in Africa’s educational system;
- Low levels of investment in research and development in African countries (average of less than 0.25% of GDP);
- Limited intra-African collaborations in STEM and other disciplines (0.9% in West and Central Africa, 2% of East African research output, 2.9% in Southern Africa);
- Low research collaboration and knowledge exchange between academia and industry in Africa
- Research in STEM and other areas insufficient to meet the needs of rapidly growing economies;
- Outdated laboratory equipment;
- Ageing scientists;
- Brain drain syndrome

It is observed here, however, that a number of African countries are currently beginning to develop initiatives to counter the challenges faced in the conduct of research. An example is the new effort being made in Ghana to develop a National Tertiary Education Research Fund which will provide resources and set the tone for prioritization for research in different disciplines involving several

³ The original map is based on 2001 data, but more recent data (2015) does not lead to any changes in the pictorial presentation.

different types of institutions. The idea of supporting research universities⁴ is also under discussion in a number of countries, drawing largely from the growing international experiences.

3. THE ARUA MOTIVATION

ARUA is an institutional arrangement to counter the challenges facing African universities as they seek to enlarge their research portfolios. It is understood that research universities are essential to the transformation of any economy. Research universities are required to generate and adapt the knowledge that is needed to improve production systems and social cohesion. This is because only they have the capacity to bring together a critical mass of people interested in and capable of finding the solutions to the several challenges associated with production and distribution, as well as the enhancement of the welfare of people⁵. ARUA is motivated principally by the fact that hardly any university in the region is in a strong enough position to make the desired impact on the region on its own. This motivation was expressed by the originators of ARUA as follows⁶:

- The complex economic, social and development problems of the era cannot be addressed by institutions working in isolation;
- Africa and its (sub)-regions need to boost their internal research capacity to address transnational public policy and developmental strategies;
- In the increasingly globalised knowledge economy, Africa's success depends on competing in the innovation and technology stakes driven by research institutions and PhD graduates trained locally;
- The need to develop first rate higher education institutions for postgraduate training that will offer the best and brightest young minds the opportunities to fulfil their potential without being lost to the institutions of the Global North;
- The need to recognise that in all countries, but even more so in Africa, we do not have the human academic resources, nor the luxury of duplicated high-cost research facilities, nor the funds required to properly support more than a few dozen globally competitive research universities on the continent.

This initiative recognizes the fact that partnerships and networking have become essential arrangements for universities throughout the world to leverage their resources for greater impact. There are several examples of universities with similar ideals and complementary endowments

⁴ Research universities are tertiary institutions that focus primarily on the conduct of research by their faculties and graduate students. The prime mission of research universities is to generate research and produce graduate students (Berdahl, 2014; Altbach, 2013). In this regard, they may be less oriented towards undergraduate teaching, but they can still provide excellent experiences for students who are willing and able to seek out the myriad resources they offer.

⁵ Olsson and Cooke (2013:18) have noted that "Top research universities in industrialized countries (often referred to as the Super RUs) usually dominate the global ranking tables. In contrast, their counterparts in middle and low-income countries have, if anything, more important missions because they are the engines of local and regional knowledge development and natural leaders of their own evolving academic systems. As these systems become increasingly complex and the need to nurture knowledge networks for research grows ever more essential, the success of these institutions becomes even more crucial for national development policy."

⁶ See ARUA proposal to Kresge Foundation, 2015

working together to achieve greater outcomes, and these include the Russell Group of the United Kingdom. It is a group that brings 24 of the leading UK universities together and they “are committed to maintaining the very best research, an outstanding teaching and learning experience and unrivalled links with business and the public sector”. Like the Russell Group, a major motivation for ARUA is to play a key role in the intellectual life of African countries, be it social, economic or cultural.

ARUA is intended to develop local research excellence through collaboration to help find solutions to the problems of Africa. It is set to become a pan-African network for bringing research and academic excellence to the fore throughout the region by developing strong and viable research universities⁷.

4. THE ARUA UNIVERSITIES

ARUA is currently made up of 16 universities, including the 15 founding universities, namely

1. University of Lagos, Nigeria
2. University of Ibadan, Nigeria
3. Obafemi Awolowo University Ile-Ife, Nigeria
4. University of Ghana, Ghana
5. University of Dar es Salaam, Tanzania
6. University of Nairobi, Kenya
7. University of Cape Town, South Africa
8. University of the Witwatersrand, South Africa
9. University of Rwanda
10. University Cheikh Anta Diop, Senegal
11. Makerere University, Uganda
12. University of Stellenbosch, South Africa
13. University of Pretoria, South Africa
14. Rhodes University, South Africa
15. University of Kwa-Zulu Natal, South Africa

⁷ Research universities are a relatively small percentage of the higher education sector. In the US, the ratio is about 5% (220 research universities in a system of more than 4000 post-secondary institutions). In the UK, the ratio is about 25% (25 research universities among 100 universities) and in China its 3% (100 research universities out of more than 3000 institutions countrywide). In many smaller developing countries in Africa, there is often only one Research University, and many countries have none (Altbach, 2013).

16. Addis Ababa University, Ethiopia

The current membership reflects a number of considerations, including largely acknowledged excellence and leadership roles in their countries. They are universities from the southern, eastern and western parts of Africa. In their respective countries they are the leading universities that have shown considerable interest in research growth and have responded the most to changing global circumstances. While the South African universities are obviously mostly better endowed than the remaining universities, many of the others have shown recent high performance in global rankings. It is agreed that the potential for each university in the network would be much better enhanced as they make use of their comparative advantage. It is intended to bring in some of the leading universities from North Africa and additional francophone countries as soon as possible. The Board of ARUA has decided that the maximum number of member universities cannot exceed 25 for the time being. ARUA intends to develop eligibility criteria to be used for considering membership in future. The intention is to make membership as competitive as possible.

It needs to be noted that ARUA universities will work closely with other universities, both in Africa and outside of Africa. They will collaborate with other university networks elsewhere in the pursuit of the mission of ARUA

5. A VISION AND MISSION FOR ARUA

ARUA's vision is to make African researchers and institutions globally competitive while contributing to the generation of knowledge for socio-economic transformation in Africa.

ARUA is on a mission to strengthen African universities through effective capacity-building that comes from working together as leading institutions for the task of increasing significantly their research output.

The vision and mission reflect what Africa needs at the moment from its leading universities.

6. GOVERNANCE AND MANAGEMENT OF ARUA

ARUA is currently governed through a Board of Directors⁸ which is made up of the 16 Vice Chancellors of member universities. The Board is expected to meet annually and to be concerned with general policy and oversight of programmes and operations, while leading the development of strategic objectives.

Six of the members of the Board constitute an Executive Committee, which is scheduled to meet quarterly. The Committee is required to take responsibility for carrying out the oversight responsibilities of the Board on a more regular and frequent basis. Apart from the Chair and Co-Chair of the Board, the remaining four members of the Executive Committee represent the different sub-regions that are reflected by ARUA universities.

⁸ The current Board Chair is Dr. Max Price, Vice Chancellor of University of Cape Town. Professor Adam Habib, Vice Chancellor of the Witwatersrand University is the Co-Chair.

Managing the affairs of ARUA on a day-to-day basis is the Secretary-General of the *Alliance*. The Secretary-General reports to the Board through the Executive Committee. He is assisted by a Secretariat currently located at the University of the Witwatersrand. By the initial support provided for the start-up of ARUA from the Kresge Foundation and Carnegie Corporation of New York, the Witwatersrand University manages the financial resources of ARUA and accounts for these to the funding agencies.

It is proposed to set up another small secretariat at University of Ghana for the management of the programmes and activities of ARUA for the next two years.

7. STRATEGIC OBJECTIVES

To achieve the vision and mission set, ARUA has assigned itself the following strategic objectives:

- To increase Africa's contribution to global cutting edge research output to 5 percent from 1 percent over a 10-year period
- To increase the number of African universities in the top 200 universities of the world to at least 10 from 1 over a 10-year period
- To ensure that a minimum of 75 percent instead of 45 percent of the faculty of member universities have PhDs over a 10-year period
- To contribute significantly to developing good quality PhD graduates for other African universities
- To develop strong links between research universities and industry and other productive sectors
- To become a strong and effective advocate for funding research in Africa by national governments and international agencies

The strategic objectives have been set with a view to charting a direct path towards the realisation of the vision and mission of ARUA. The objectives are deliberately ambitious, but attainable within the time frame provided.

8. CURRENT PRIORITY THEMATIC AREAS OF ARUA

ARUA currently pushes its agenda in four areas, namely

- Collaborative research
- Training and support for PhDs
- Capacity building for research management
- Research Advocacy

Collaborative Research

Under collaborative research, the Alliance will pursue a number of large multi-university projects in both the natural sciences and social sciences/humanities. For the collaborative projects in the sciences, areas under consideration include the following:

Natural Sciences

1. Climate change
2. Food security
3. Non-communicable diseases
4. Materials development and nanotechnology
5. Energy
6. Water conservation

Social Sciences/Humanities

1. Mobility and migration
2. Poverty and inequality
3. Unemployment and skills development
4. Notions of identity
5. Good governance
6. Post-conflict societies
7. Urbanisation and habitable cities

PhD Training

Under training and support for PhD, ARUA has strong interest in providing significantly improved infrastructure and human resources. The initiatives under consideration include the following⁹:

- an audit of research laboratories and facilities in order to determine how these resources can be shared and accessed by postgraduate students of member institutions
- harmonization of quality standards for the award of doctoral degrees
- co-supervision of doctoral students across the *Alliance*
- a student exchange programme
- joint postgraduate programmes
- a doctoral academy for training in research methodology, ethics and proposal writing
- doctoral seminars on thematic areas, with experts in their respective fields.

ARUA will primarily focus on regional doctoral and postdoctoral initiatives in line with the African Union's science and technology regional development strategy. This might involve bringing in a number of universities that may not necessarily be members of the *Alliance*.

Capacity Building for Research Management

One of the major bottlenecks to mobilising resources for research in Africa is the poor capacity to manage the resources as well as the research projects adequately. For a long time, the management of universities did not consider the management of research as a professional activity that required

⁹ See ARUA proposal to Kresge Foundation 2015

time and resources. A number of universities have begun correcting this anomaly, but the full effect of this initiative is yet to be felt in a number of places. ARUA believes that the effort at enhancing research management needs to be supported in a very structured way. ARUA will therefore do the following:

- Conduct a review of current research management database systems nationally and regionally, including a consideration of how to synchronise these for increased access.
- Conduct skills training workshops for research management officers and principal investigators.
- Engage in research management staff exchanges to enhance the capacity of all.

Research Advocacy

An explanation for the rather limited support from African governments, inter-governmental institutions and the private sector towards the conduct of research at all levels is the supposed absence of evidence that research in Africa can yield significant positive returns. It is therefore important to show that supporting research in Africa can be a worthy investment, while strengthening research uptake. The Alliance will engage with international foundations, with multi-lateral funding agencies, with the African Union and with the New Partnership for Africa's Development (NEPAD), as well as the regional Science initiatives and individual African country governments to lobby for policies and strategies that will strengthen research on the continent. These should also be policies that strengthen the research universities of the continent, recognising the need for a differentiated higher education system. The Alliance will develop policy proposals and an advocacy function focusing on ways to strengthen research and doctoral training on the continent.

9. THE ARUA APPROACH TO CAPACITY BUILDING

The plan is to mobilise additional resources and use these to support expanded and rigorous collaborative research and graduate training. The **resource mobilisation strategy** will work as follows:

1. Self-reliance

ARUA member universities have pledged to dedicate a significant amount from their annual budgets to research. These amounts will be ring-fenced by each institution for the use of its researchers as they engage in different research activities.

ARUA member universities have also pledged to contribute a minimum of US\$10,000 annually towards the work of the Secretariat.

2. Engagement with regional bodies

ARUA will work closely with such regional bodies as the African Union (AU), African Development Bank (AfDB) and the United Nations Economic Commission for Africa (UNECA) in the development of

research and training projects that reflect the aspirations of the regional bodies with respect to the economic transformation of Africa. The engagement with the regional bodies will take the shape of advocacy initiatives as well as the collaborative development of research and training projects.

3. Engagement with governments

A major thrust of the ARUA approach will be advocacy work through dialogue with the governments of member universities. ARUA will work with its member universities to encourage their governments to make significant budgetary allocations to research and to support the idea of developing research universities. Effort will be made to get all African governments to develop competitive research budgets. The intention will be to demonstrate to governments that research universities need to be treated differently from other universities in order to draw the most out of them. This will be done through a show of international best practices. Member universities will, in turn, work with national governments, the local private sector and civil society to determine national research priorities.

4. Engagement with international funding agencies

A major problem that many African universities have faced in raising funds from international funding agencies, including multilateral and bilateral cooperation agencies, as well as the foundations, is the difficulty in the preparation of adequate research proposals that satisfy all the requirements of such agencies. Increasingly funders are placing more and more emphasis on multi-country initiatives for many of the academic disciplines, if not all. Multi-country studies permit significant benefits from economies of scale. ARUA helps its member universities to overcome this challenge. In addition, ARUA allows member universities to draw on the expertise of one another in the preparation of grant proposals, and this should enhance the quality of applications submitted for funding.

5. Engagement with the Private Sector

The private sector in Africa has been largely missing in the research enterprise. This is largely due to the fact of limited numbers of large scale operations which warrant significant outlays on research. It is only in South Africa that a meaningful private sector with modern large enterprises can be found in good numbers. For many of the large multinationals in the region, however, the research and development initiatives happen at the parent institution, usually based in Europe or elsewhere outside of Africa. As African firms grow, they will inevitably require research support to facilitate their continued growth. ARUA will coordinate engagement with the private sector, focusing especially on South African firms doing business in the countries of member institutions.

The **capacity-building initiatives** for enhanced training will take several forms, but with a general approach of self-reliance. The proposed initiatives will include the following:

1. Building on the USHEPiA model

At the instance of University of Cape Town, the Universities Science, Humanities, Law and Engineering Partnerships in Africa (USHEPiA), was launched in 1996 “for the purpose of building

institutional and human capacity in African universities”.¹⁰ It began with funds raised by “UCT from the international community for post-graduate fellowships available to academic staff at the partner universities, in the form of split-site PhD (and a few Masters) degrees, where Fellows work on topics of local or regional concern jointly supervised by academics at their home university and UCT”.

Among the partners are University of Dar es Salaam, Tanzania; University of Cape Town, South Africa; University of Ghana, Ghana; Makerere University, Uganda; University of Nairobi, Kenya; University of Zambia, Zambia. After donor funding ended in 2010, the Vice Chancellors of the participating universities agreed to fund it themselves. Each institution therefore commits to pay the costs of their students selected for inclusion. The advantage to them is that supporting graduate work in the region is far less expensive than sending students to Europe or North America. Also, the likelihood of brain drain is significantly reduced. ARUA will build on this model and expand the scope significantly to cover more disciplines and bring in many more students.

2. Development of Regional Centres of Excellence

ARUA will undertake a detailed and thorough assessment of the potential of its partner universities with a view to identifying areas in which some of them may be developed into regional Centres of Excellence for particular disciplines or sub-disciplines. A university that is selected to be a Centre of Excellence in a particular discipline or sub-discipline will be supported to attract students and visiting faculty from other member universities. For example, a Centre for Climate Change Study should attract the best climate change students and faculty from the *Alliance*. The same principle could apply to a Centre for Nanotechnology in another university. Depending on their capacity, universities may take the lead in more than one discipline or sub-discipline.

3. Developing Short Courses for University Teaching and Research Management

ARUA will seek to consolidate the several on-going programmes for the development of early career academics and university administrators. There are a number of initiatives in most universities, some with support from various funding agencies, for post-doctoral fellows as they prepare for careers in academia. These have had varied degrees of success, but in many places they have not been seen to be sustainable. The initiatives have covered only a fraction of the eligible staff and have been quite expensive. To make these sustainable, they need to be made part of the internal package for staff development and therefore be provided for in regular university budgets and produced to scale. On the other hand, there are hardly any support programmes in place for assisting research managers to appreciate fully the requirements for managing research projects alongside the researchers. ARUA universities will make a commitment to contribute to a fund to be used for running regular short courses in university teaching and research management. Through collaboration, these courses will be provided at several universities for the different parts of the region. The collaborative effort is intended to ensure that course delivery will be done at the highest level in the region.

The strategy for expanding **collaborative research** will build on the graduate training experiences.

1. The main approach will be to **develop research teams** (around Centres of Excellence) from different universities in the region for each of the chosen thematic areas, so long as the theme is of interest to the university and it has capacity for it. Each team will develop a research grant proposal for multi-country studies and work closely with the ARUA Secretariat to seek funding for the project. Under each theme, there can be several research projects, provided there are enough competent researchers to undertake them. The benefit of this approach is that it provides an opportunity for

¹⁰ <http://www.ushepia.uct.ac.za/ushepia/about>

stronger universities in the network to augment the capacity of less endowed universities to obtain the resources needed for their growth and development. The collaborative effort is much more likely to lead to stronger research proposals from the region. Each research team will have its own Coordinator or Principal Investigator with responsibility across institutions for the project.

2. Another approach will be the development of a **small grants scheme** for early career researchers. These will be grants that will allow them to undertake small studies in-country over short periods to allow them to gain the necessary experience in organising research projects and managing them. It is expected that that recipients of these grants will be able to compete for places later in the larger multi-country studies.

Towards the **enhancement of the profile of African research institutions globally**, the strategy will be to expose the work of African research universities more widely, using modern communications technologies as well as events that showcase African research. A number of activities are envisaged under the strategy, such as the following:

1. Revamping academic journals with potential, and supporting relevant national journals to develop an international outlook;
2. Expanding the scope of writing workshops to improve the writing skills of researchers;
3. Supporting African researchers to compete for places in international journals through mentorship and partnership arrangements with external collaborators;
4. Organising an annual international conference on specific themes that show the strength of ARUA;
5. Organising small, highly competitive international workshops and seminars on specific themes;
6. Developing a vibrant website with useful and relevant information about research in Africa;
7. Undertaking advocacy and publicity engagements with African governments and regional organisations.

10. FUNDING ARUA ACTIVITIES

Funding will be required for three areas of engagement, namely (a) management and administration of Alliance, (b) research projects, and (c) training and advocacy programmes

For (a) management and administration, ARUA will be funded through the following channels:

1. Contributions by member universities;
2. Contributions from regional bodies;
3. Contributions from international funding agencies
4. Overheads from project grants

For (b) research projects, funding is expected to come largely from the following sources:

1. Research grants from international research funding agencies
2. Grants from the corporate sector to support specific projects
3. Contributions from member universities from internal sources to support small grants scheme
4. Grants from regional organisations to support specific projects
5. Grants from national governments to member universities to support collaborative research

For (c) training, publicity and advocacy initiatives, the following sources will be the focus:

1. Fees paid by member universities and individuals towards graduate programmes organized collaboratively
2. Grants from international funding agencies to support capacity building and publications
3. Grants from regional and international agencies to support annual conference
4. Contributions from national governments towards hosting annual international conference

11. SUMMARY AND CONCLUSION

The *African Research Universities Alliance* (ARUA) is poised to make a big difference to how research is organised in the region and how its outcomes are disseminated globally. It will work in the area of expanding the number and quality of research undertakings, while improving significantly the management of research projects. It will strengthen the production of graduate students, especially at the PhD level. ARUA will also help to publicise African research as much as possible and encourage its use for the development of policies and development interventions. Its strength is drawn from the fact that a number of very good universities have agreed to work together in a manner and on a scale not seen before. ARUA represents a new approach to the academic enterprise in Africa, recognising that strength lies in working collaboratively.

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