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**DEPARTMENT OF HUMAN RESOURCES, SCIENCE AND TECHNOLOGY**

**SECOND SESSION OF THE BUREAU OF THE  
CONFERENCE OF MINISTERS OF EDUCATION OF  
THE AFRICAN UNION (COMEDAF III)  
18<sup>th</sup> NOVEMBER TO 20<sup>th</sup> NOVEMBER 2008  
ADDIS ABABA, ETHIOPIA**

**AU/HRST/ED/BUREAU/EPAU (IX)**

**ESTABLISHING  
PAN AFRICAN UNIVERSITIES  
IN THE SECOND DECADE OF EDUCATION FOR AFRICA**

**CONCEPT PAPER**

**DRAFT2  
AUGUST 2008**

## **I. INTRODUCTION**

The African Union (AU) is deeply aware of the importance of education in the attainment of its vision of an integrated, peaceful and prosperous Africa. The AU has underscored the centrality and importance of education in the development of Africa. Education is broadly defined as the organized and sustained communication designed to bring learning. In fact, it provides many social and individual benefits. Furthermore, education contributes to the development of interrelated and interdependent sets of human capacity to think, to know and to act by honing social consciousness or awareness, values and skills. Therefore, any investment in the promotion of social capital, which combines with material resources and other non-material phenomena to produce goods and services as well as favourable spiritual environment for human development and sustenance is a productive activity.

Education is a cornerstone for sustainable development, as it is the tool for producing and managing all human resources, and for inculcating appropriate values for forging the common bond of humanity in a globalised existence. It is the tool for laying the foundation for scientific research and innovation. As such, it will be an input in every development sector, to engender change and to develop and popularise new systems. Increasing Africa's visibility and influence in the global arena requires systems and packages of education and research that are in tune with local needs and aspirations, as well as global views and imperatives.

If the contribution to economic growth of education in general is significant, that of higher education and research is even more remarkable. The dysfunctional nature of higher education and its dire conditions have been impediments for a meaningful contribution to the development of Africa. The structural deficiency of the system coupled with inadequate funding levels, shortage of qualified university lecturers, explosion of enrolments, obsolescence of infrastructures, equipment and instructional materials hinder higher education ability to fulfil its original mission in many African countries. As a cornerstone, higher education and research in Africa must begin to address current and emerging issues, in order to build human capacity for Africa to take charge of her development and participation on equal footing in the global competition so characteristic of the knowledge economy.

Africa needs to organise its education and research capital into high quality, world-class hubs for exemplifying the production and nurturing of inventors and inventions, innovators and innovations, taking charge of positive contribution to human and social development as well as industrialisation in Africa. This will be possible and successful through collaborative pan African efforts, where resources are pooled and harnessed rationally for mutual good. The Pan African University (PAU) specifically focused on the teaching and learning of as well as advanced research on science and technology may be the solution to this array of issues that have always bewildered Africa for a long time.

## **II. CONCEPTUAL FRAMEWORK OF THE PAN AFRICAN UNIVERSITY OF SCIENCE AND TECHNOLOGY**

The concept of university goes back as far as the 12<sup>th</sup> century in Europe and has dramatically evolved over time. In Africa, the universities emerged a couple of centuries earlier. The oldest university on the continent is believed to be the University of Sankoré in the ancient city of Timbuktu (Mali) that was established around 989 and in this respect, is two centuries and a half older than the Sorbonne University at Paris. It was the intellectual magnet where pious scholars were drawn from all over the Muslim world. The nature, structure, mission and scope of the university have drastically changed over time. Several factors including the social, political and cultural environment have been determining in the change undergone by the university. The scientific and technological revolution has also played a key role in this process of transformation and reform of the university system around the world.

The university is an integral part of the higher education system. Higher education is interchangeably used with tertiary education in this document. It is, therefore, a sub-sector of the educational system that covers both theoretically based programmes intended to provide sufficient qualifications for gaining entry to advanced research programmes and professions with high skills requirements as well as programmes that are generally more practical, technical and/or occupationally specific. The university is an institution of higher education and research, which grants academic degrees at all levels (associate, bachelor, master, and doctorate) in a variety of subjects. The university provides both undergraduate education and postgraduate education through a triple mission of teaching, research and public service.

The African university is a legacy of the colonial system that has, in numerous African countries, been predominantly patterned after the model of the former colonial powers in terms of nature, structure, mission, and funding. Obviously, in many African countries, this type of university has proven to be ineffective and inefficient and in disconnect with the local social, cultural, political and developmental realities. It has produced very limited results and contributed in a very limited way to the attainment of the national development objectives. The revitalization of African higher education proposed by the AU goes necessarily through a profound rethinking of the entire university system on the African continent and a drastic assessment of its achievements and contributions to the African development priorities that are in congruence with the tenets of the African renaissance. This situation warrants the establishment of the Pan African University.

### **1. The Pan African University**

The concept of Pan African University is not new on the African continent but its materialization has encountered hurdles that could not easily be overcome. During the pre-independence period, the colonial powers established in specific locations sub-regional and regional universities to fulfil their own

interests. The independence era experienced the proliferation of national micro universities confronted with serious difficulties that hamper their performance. More recently, in 2003, Senegal launched the idea of the African Future University (AFU) that was meant to be a continental virtual university connected by internet to a foreign institution for each course taught. By design, the PAU is to be a continental flagship institution of higher education (IHE) predominantly offering advanced graduate and research programmes in key fields of science, technology and engineering to the cream of the crop body of African students from all over the continent. It is to be a reference university constituted by a main campus linked to a network of satellite campuses scattered across a particular region of Africa. The key mission of the institution is to link up economic development with scientific and technological research.

## **2. Science and Technology**

The main focus of the PAU is science, technology and engineering. The distinction between science, technology and engineering is not always clear. This shows in the various definitions that have been given of these concepts. Science has been defined as the reasoned investigation or study of phenomena, aimed at discovering enduring principles among elements of the phenomenal world by employing formal techniques such as scientific method. As for technology it can broadly be defined as the entities both material and immaterial, created by the application of the mental and physical effort in order to achieve some value. In this stage, technology refers to tools and machines that may be used to solve real-world problems. Therefore, technology may be seen as a consequence of science and engineering, although as a human activity it precedes the two.

## **III. PARADIGM SHIFT**

There is definite appreciation of the growing role of knowledge in developing economies, and the need for Africa to diversify its range of commodities and add value, as well as raise the quality of its human resources in order to enhance productivity in every sense. In view of the small size of many countries, and limited resources, regionally coordinated interventions in higher education and research are increasingly attractive. A number of worthy initiatives on the continent such as the regional centres of excellence set up through inter-university collaboration and donor support have been active in building capacity and promoting research. Examples of such centres abound in Africa, i.e., the International Centre for Insect Physiology and Ecology (ICIPE) based in Nairobi in Kenya which initiated the African regional postgraduate program on insect sciences; the Water Resource Engineering postgraduate program at the University of Dar es Salaam in Tanzania, and the University Science, Humanities and Engineering Partnerships in Africa (USHEPiA) based in Cape Town.

Under its new Core Program, the Association of African Universities (AAU) has also developed a Masters Program on Conflict Prevention, Management and Resolution for the African Great Lakes Universities Network. A similar

program is to be launched in Ghana for West African universities under the project West African Universities Conflict Studies Network.

Some African governments especially South Africa and Nigeria in collaboration with UNESCO have also been promoting regional collaboration for building research capacity and mobilizing financial resources to support activities in science and technology in Africa, through an endowment fund whose seed money was provided by Nigeria in the amount of 5 Million USD.

Even more substantially, the AU 'Science and Technology Consolidated Plan of Action' proposes the establishment of consortia of universities for post-graduate training, building the infrastructure of leading universities and research centres to strengthen their research capacity in specific areas of science and technology, funding support for S&T research projects, and facilitating information sharing and mobility of scientists within the continent.

In spite of these regional initiatives, the condition of research at the institutional level will not be radically improved without a substantial allocation of resources. These networks are very useful in strengthening regional cooperation; building the human resource capacity of sister institutions; improving quality by ensuring relevance of content, participation in research, avoiding the huge cost of either launching an expensive solo program or sending trainees abroad; and harmonization of curricula and promotion of brain circulation within the continent thereby stemming the tide of brain drain.

These efforts need to be rationalised, by capitalizing on existing initiatives, and by empowering existing structures and mechanisms to become better able to serve the cause of the renovation of higher education and research in Africa. This leads to the proposal to establish the Pan African University.

#### **IV. STATEMENT OF THE CHALLENGE**

Much as African governments appreciate the core value of tertiary education and research, the reality in terms of public investment, general allocation of resources and policy focus seems to belie this appreciation. In general, the system is under-funded all over the continent.

Widespread university education in Africa is essentially a post-colonial phenomenon. The curricula of these universities were modelled on those of the metropolitan ones of the colonial powers and some were even under their direct tutelage. They were elite institutions with a manageable size of students and assured state support. The role of the pre-colonial university was geared towards supporting satellite needs of colonial nations, and little was done to orient them towards long-term aspirations and needs of the country or the continent.

The universities of post-independence Africa were faced with the burden of producing skilled human resources for providing public services, managing the economy and improving the livelihood of their people, while still perpetrating colonial models, curricula and paradigms for research.

The African University soon faced new pressures of relevance while African states were subjected to conflicting demands of imposed structural adjustment programmes and neo-liberal economic ideology. Unable to finance University research and teaching, many African governments have abandoned them to the devices of the 'market'. Over four decades into independence, the African University is yet to firmly take the lead in charting new paths for Africa's self sustenance and development.

Well-developed systems for research and generation of knowledge are of increasing importance within the emerging knowledge economy, allowing a country not only to generate new knowledge, but also to engage in scholarly and scientific commerce with other nations. However, the quantity and the quality of research activities carried out in African universities are generally rated very poorly globally. The reasons include inadequate institutional research policies, shortage of resources allocated to research, deterioration of research laboratories and library resources, lack of a critical mass of the researchers, the limited number of postgraduate programmes, especially at the Ph.D. level, low postgraduate enrolments and the general weakening of the graduate programmes.

Globalisation and a competitive world economic order characterized by rapid knowledge generation and technological innovation constitutes for Africa, in equal measure, threats of marginalisation as well as opportunities for benefiting and catching up. Never the less, the inability of the state to provide the necessary resources and support has undermined the capacity of the education sector to make the required critical input into development processes. Africa continues to rely on strategic thinking contrived and directed by international agencies that do not necessarily share Africa's vision, nor seek to support a genuine African renaissance. Africa's intellectual capacity has not been harnessed efficiently and effectively to provide African alternatives to failed solutions in every sector. The PAU can be the solution to these burning issues.

## **V. RATIONALE FOR THE PAN AFRICAN UNIVERSITY**

The Constitutive Act establishing the African Union calls upon the development of the continent by promoting research in all fields especially in science and technology. In this respect, the first conference of African Ministers for Science and Technology, in November 2003, recommended the integration of Africa's science and technology programmes particularly AUC and NEPAD ones into a consolidated and well coordinated policy and programme framework for Africa in order to direct the socio-economic development of the continent through science and technology. The vehicle of achieving such a policy is through the establishment of the Pan African University for Science and Technology.

Furthermore, the AU is deeply aware of the importance of Universities in the attainment of its vision of peace, integration, prosperity and peerage in the global economy, through its New Partnership for Africa's Development

(NEPAD) philosophy. This importance is underscored in its Second Decade of Education for Africa Action Plan through the revitalization of the current African Universities as one of the thematic priorities of the higher education component of the Plan. In addition, its consolidated Action Plan of Science and Technology also underscores the development of such institutions.

The recognition of the relevance of transforming the African University into “development university” of excellence, that responds to local needs while also pushing the frontiers of knowledge as a peer in the global knowledge economy, positioning it as a partner and a resource for regional cooperation and integration of Africa is legitimate. Mobilizing stakeholders in a concerted effort to share responsibilities and create synergies in the renewal of the African universities is vital. The establishment of the PAU, a new generation of university mainly focused on Science and Technology is required in order to reinforce Africa’s potential in the area of scientific and technological research that can boost the continent’s development initiatives.

That “Knowledge is power” is a well-known adage in many languages. This is why the recognition in the “Areas of Focus” in the *AU Second Decade Plan of Action* of the need to promote “original knowledge production” and research in tertiary education is very crucial. Equally important is the commitment “to promote networks of specialised teaching and research institutions” in the objectives for bridging the “education gap” in Africa under NEPAD.

With the right interventions, Africa may restore the linkage between science and development in order to enhance the relevance of our education systems and strengthen Africa’s position as a generator and not only a consumer of global knowledge and culture; knowledge produced in Universities and research institutes will be used to enhance quality and update the substance and content of education and research and innovation programmes. Higher education and research in Africa therefore need to be resuscitated, rehabilitated and strengthened. It is proposed that one way of achieving such rationalisation is through a network of differentiated Pan African Universities.

## **VI. PROPOSAL FOR ESTABLISHING THE PAN AFRICAN UNIVERSITY**

If Africa wants to be a credible partner in the knowledge economy, there is need to ensure that current universities on the continent are fully functional, adequately managed and resourced (human, financial and material). This state of affairs does not preclude the establishment of new universities that complement the current ones in domains of teaching and research where their weaknesses are proven and in areas of strength that interface with Africa’s development strategies and are guided by her collective vision.

### **4. 1. Nature and Legal Status**

The PAU will be a public reference institution whose key mission will be:

- Teaching and research at the post-graduate level in selected areas of sciences and technology and governance;

- Providing support and leadership in articulating Africa's vision, and proposing ways and means of entrenching a culture of peace, integration, innovation and entrepreneurship among the African population;
- Providing exemplars for research methodology and higher education, as well as a repository and fount of knowledge and skill needed in an identified set of fields key to the attainment of Africa's vision;
- Stimulating internationally competitive, leading-edge fundamental and applied research in areas critical to African technical, economic and social development;
- 
- Developing and retaining world-class researchers in areas essential to Africa's productivity as well as its technical and economic growth and,
- Accelerating the exchange of research results within the network and the use of this knowledge within Africa by organizations that can harness it for Africa technical, economic and social development.

The PAU will exemplify circumstances that enhance retention of qualified and skilled personnel, attract the Diaspora intellectual capability, and enhance regional integration and mutual support in Africa.

#### **4.2 Thematic areas of focus of the PAU**

In relation to the overall development objective adopted by the AU, the PAU will be comprised of the five thematic areas of focus selected based on their relevance, importance, usefulness as well as the gap accumulated by Africa in these fields of study over time. Each of the five geographic regions of the continent may be the location of a satellite campus of the institution. Indeed, these areas of study can be organized into the thematic priority areas as follows:

1. Science, Technology and Innovations
2. Water and Energy
3. Life and Earth Sciences
4. Space Sciences
5. Governance and related issues

A number of other questions also need to be answered: For example, how shall we ensure that the PAU remains responsive to Africa's needs and aspirations of the African people? In what areas of enquiry should the PAU provide leadership? How do we ensure that existing worthy initiatives are taken into account, and avoid developing parallel competing initiatives? How are the outputs to be harnessed for the peoples of Africa and for the development sectors? What is the process of developing systems of validation of knowledge that are not oppressive and discriminatory? How will performance of the institutions be measured? What will be the rationale for collaboration with institutions outside Africa?

Clearly, there is an urgent need to invest in knowledge production and management to meet Africa's needs and address its persistent as well as emerging challenges. In this regard, issues such as the governing body of the

institution, its financing and staffing are key points that need to be carefully addressed for the institution to be viable and in a better position to fulfil its mission and goals.

### **4.3 Governing Structure**

The Board of Supervisors (BOS) is the key governing body of the PAU. It is constitutionally vested with the governance of the PAU. Within its authority is the governance of the administration and management of the University. The BOS is composed of ten Africans who are experts in one of the above-mentioned thematic priority areas of the institution. The BOS members are appointed by the heads of state and government summit of the AU with the advice and consent of the AUC Chairperson for a term of five years. The Faculty Senate shall be the governing board for each satellite campus. Its members are also selected for a five-year term of office among African experts on the thematic area of the institution. Besides, other structures of the PAU, another structure shall be the Permanent Secretariat based at the AUC that will play the function of a coordinating unit between the different entities of the institution.

### **4.4 Financing**

The sourcing of the initial start up financial capital is critical, as is ensuring the financial sustainability of the institution. It will be important and significant that core funding be provided by African sources. Therefore, the following sources should be explored:

1. Commitment from host country and region
2. Membership and other fees from beneficiary countries
3. Remittances from Diaspora
4. Establishment of an African Educational Fund by the African Union
5. Resource mobilisation from interested and involved partners
6. Private Sector
7. Tuition and fees, etc.

### **4.5 Staffing**

One of the reasons numerous African universities have been unable to achieve their mission and goal is the drastic shortage of qualified personnel (of all categories) especially the teaching corps. Given the fact that higher education is labour intensive, staffing and personnel issues should be given all the consideration they deserve. The approach is to make use of existing structures and attract African intellectual capital; core researchers and managers for an effective operation of the PAU:

1. Existing capacities within participating institutions
2. Competitive sourcing from academic and corporate sector in Member States
3. Attractive legal status for the academic personnel, administration and support staff including the conditions of service and career track
4. Attractive incentives and career ladders for all categories of personnel.

## **VI. WAY FORWARD**

As a whole, UNESCO has agreed to meet the costs of a consultant whom it will contract to draft an implementation strategy based on the Terms of Reference (ToR) developed by the AUC Department of Human Resources, Science and Technology. The scope of work of the consultant that is spelt out in the (ToR) includes the following:

- Provide an understanding of the current debates in the area, by answering the questions raised above, and other pertinent ones;
- Identify strategic common areas of focus;
- Identify activities that can be immediately implemented; and identify issues that need further investigation;
- Draft criteria for the Pan African University;
- Draft TOR for small Project Management Unit for the Pan African University, to be located in Addis Ababa.

The consultant will address the establishment and assurance of the following and other criteria of good governance of the Pan African University:

- Institutional charter
- Accountability to Member States
- Academic freedom
- Shared governance and ownership
- Financial sustainability
- Monitoring and evaluation

The draft strategy would then be peer reviewed in an experts' workshop, and discussed among key stakeholders before finalisation, and subsequent implementation.

At the conclusion of the general consultancy to look into all the above aspects related to the establishment of the PAU, another consultant will be hired to work on the specifics of the establishment of the individual regional campuses of the PAU across the African continent.