



Science Diplomacy in Africa: Building scientific capacities through the Pan African university project



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“We shall accumulate machinery and establish steel works, iron foundries and factories; we shall link the various states of our continent with communications; we shall astound the world with our hydroelectric power; we shall drain marshes and swamps, clear infested areas, feed the undernourished, and rid our people of parasites and disease. It is within the possibility of science and technology to make even the Sahara bloom into a vast field with verdant vegetation for agricultural and industrial developments”.

–President Kwame Nkrumah

First speech at the foundation summit of the Organisation of African Unity, Addis Ababa, 24 May 1963



Hadeef Somia**



PAUWES Class of 2017 celebrates outside the University of Tlemcen Auditorium (Nordic Africa News, October 1, 2017)

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Introduction

The African Union (AU) is a Continental Organisation founded on May 26, 2001 in Addis Ababa, Ethiopia and launched in Durban, South Africa on July 9, 2002. AU comprises fifty-five Member States, and includes several organs (African Union, 2019). To implement its global vision of: **“An integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in global arena”**, the AU adopted in 2013 a strategic framework for the socio-economic transformation of the Continent over the next fifty years called the “Agenda 2063”. Under Agenda 2063, African countries have identified some priority areas and set specific targets, among which is the development of scientific, technological and innovation cooperation among African countries, as a cross-cutting cooperation enabling the achievement of a large part of the objectives of Agenda 2063, and thus the achievement of Sustainable Development Goals (SDGs), as defined in the framework of the United Nations Agenda 2030.

Realising the importance of the development of Science, Technology and Innovation (STI) in African countries and among them for the realisation of the Agenda 2063, the AU adopted in June 2014, after a long process of consultation with experts and a high-level panel of eminent African and diaspora scientists, its “Science, Technology and Innovation Strategy for Africa- (STISA-2024)”.

STISA-2024 outlines the key socio-economic priority areas that Africa has to collectively address through scientific research and development. The implementation of STISA-2024 is taking place at three levels. At national level: Member States incorporate the strategy into their National Development Plans. At regional level: Regional Economic Communities (RECs), regional research institutions, networks and partners leverage the strategy in designing and coordinating initiatives. At continental level: The African Union Commission (AUC), New Partnership for Africa’s Development-NEPAD Agency (through its Science, Technology and Innovation Hub),

and their partners are advocating and creating awareness, mobilising necessary institutional, human and financial resources, tracking progress and monitoring implementation.

At the institutional level, the implementation of the STISA- 2024 is based on the various organs of the AU and its Agencies such as Specialised Technical Committee (STC) in charge of Education, Science and Technology, but also on a variety of bodies under the auspices of the AU Commission, namely: the African Scientific Research and Innovation Council (ASRIC), the African Observatory of Science Technology and Innovation (AOSTI), the Pan African Intellectual Property Organisation (PAIPO), the African Development Bank (ADB) and the Pan-African University (PAU), in addition to Development Partners, Regional and International Research Institutions and the Private Sector.

In this regard, the project of “the Pan African University (PAU)” can be presented as a concrete example of scientific cooperation between African countries contributing to the implementation of this strategy.

The Case of Pan African University (PAU) Project

PAU is an academic network of African institutions operating at the graduate level, it was established by a decision of the Summit of Heads of State and Government of the AU in 2010, with a view to developing institutions of excellence in Science, Technology, Innovation, Social Sciences and Governance, which would constitute the bedrock for an African pool of higher education and research. It strives to stimulate collaborative, internationally competitive and development-oriented research, in areas having a direct bearing on the technical, economic and social development of Africa.

The PAU will greatly boost the population and retention of high-level human resources and quality knowledge outputs and be able to attract the best intellectual capacity from all over the world. This would usher in a new generation of leaders properly trained to take the best advantage

of African human and material resources, imbued with the common vision of a peaceful, prosperous and integrated Africa.

Thematic and Geographic Scope

The PAU comprises five Institutes corresponding to the thematic areas:

PAU Institute	Host country	Host University
Water and Energy (including climate change) -PAUWES	Algeria (for North African region)	University of Tlemcen
Life and Earth Sciences (including Health and Agriculture)- PAULESI	Nigeria (for Western Africa)	University of Ibadan
Basic Sciences, Technology and Innovation- PAUSTI	Kenya (for Eastern Africa)	Jomo Kenyatta University of Agriculture and Technology
Governance, Humanities and Social Sciences- PAUGHSS	Cameroon (for Central Africa)	the University of Yaoundé II
Space Sciences- PAUSS (forthcoming)	South Africa (for Southern Africa)	the Cape Peninsula University of Technology

Source: African Union, 2019.

Affiliated to each Institute, a network of Centres located on the Continent working on similar thematic areas are identified following a competitive process in order to establish partnerships and contacts with the PAU institutes. To carry out its mandate effectively, the PAU can enter into agreements and contracts with Governments, International Organisations or other relevant partners, for pedagogic, research, management and funding purposes. Hosting Agreements shall be signed between the Commission and the host countries of Institutes

and Centres, and Tripartite Agreements between AUC, Host Countries, and Key Thematic Partners.

The PAU is financed through various sources like Settlement of an Endowment Fund, Budgetary resources provided by African Union Council (Scholarships for students, mobility and honorarium for Teaching Staff), Host Countries (Infrastructure and Running Costs. The country can also mobilise this contribution through a Partner), Key Thematic Partners (Support for Equipment, Academic Costs and Research), and self-generated income through teaching and research by Institutes and Centres.

Case of the Pan African University Institute on Water and Energy Sciences

In order to strengthen its cooperation with the African Union as well as with the African countries, Algeria has expressed its willingness to host the Institute on Water and Energy Sciences, including Climate Change of the Pan African University. As a consequence, the Assembly of the African Union in its 17th ordinary session held in Malabo, Equatorial Guinea, from June, 30 to 1st, July 2011, decided to allocate the PAUWES in Algeria, thanks to an agreement reached by the North African region countries. The Abou Bekr Belkaid University of Tlemcen (a city situated in the North West of Algeria, nearly 500 km from Algiers) houses the premises of the PAUWES Institute, and there is a project to construct specific buildings to permit the increasing of its scholar accommodation capacities. The financing of the implementation of the PAUWES Institute required the negotiation and conclusion of a Tripartite Agreement convened for a renewable period of three years. The Agreement was concluded between the Algerian Government, the African Union Commission and the German partner.¹

For the enactment of this Tripartite Agreement the African Union Commission signed in Addis-Ababa on May 12, 2014, a financing Agreement of 20 million Euro amount with the German Government, which led to its opening on October 27, 2014. (GIZ, 2019)

Principal Targets of Scientific Cooperation

PAUWES aims to reach the SDGs' Goal 1: "End Poverty in All its Forms Everywhere" through building African human resources capacities in economic growth, implementing social reforms, reconciling development with ecological aspects and social and ensure cultural participation. It aims in strengthening the resources and effectiveness of the African Union Commission and the UPA Rectorate the Pan African University (UPA and setting up the Pan African University Institute for Water, Energy and Climate Change Sciences (PAUWES); capacity building through international PhD and Master's programs and applied research structures at PAUWES; public and private sector alliances and promotion of scientific cooperation

PAUWES Scholarships' Harvests

Since its opening, the PAUWES received three cohorts, which successfully completed two years of intensive training in the areas of Energy Engineering, Energy policy, Water Engineering, and Water policy. While the first cohort included only 27 students from 12 African countries, the third one was composed by 79 students from 25 African countries, of which 14 were women. The second cohort involved 47 students from 21 African countries.

H.E. Prof. Sarah Anyang Agbor, AU Commissioner for Human Resources, Science and Technology, advised the graduates on October 1st, 2018, at the third graduation Ceremony "make each day (their) masterpiece for the development of our mother land, Africa".

Perspectives of the Indo- African cooperation within the PAU project:

The relations between Africa and India are historically very ancient, they were limited to the coordination and the political dialogue, especially within the framework of the Non- Aligned Countries Movement, before being boosted in the 2000's to cover the commercial, economic, cultural and technical domains. They have been

further strengthened with the establishment of the Africa-India Forum in 2008, in which the two parties identify the priority sectors of their cooperation and the means of its implementation. (Laflamme, 2018)

At the last Africa-India Summit, held in New Delhi in October 2015, discussions focused on economic and sustainable development, mutual cooperation, education and health, placing the development of technologies, the sharing of skills and education at the centre of the African-Indian cooperation for the few next years. In this context, India pledged to mobilise 10 billion US Dollars in concessional loans to finance projects in Africa and 600 million US Dollars in assistance over the five next years.

India is making its partnership with Africa more visible by becoming its first partner in specific areas, including the science, technology and innovation field. participate in building African scientific capacities and implementing the Science, Technology and Innovation Strategy for Africa (STISA-2024). In this context, the PAU represents the ideal cooperation platform to start this partnership.

Several areas of scientific and technological cooperation between the African Union and India can be defined according to the African priorities and the mission of each of the functional institutes of the PAU, and according to Indian excellency in some scientific fields, which include Biomedical and health devises, medical informatics, renewable energy technologies, water purification, waste water treatment, municipal/ industrial/ biohazardous waste treatment, energy efficiency, industrial processes and green building, automobile engineering, nanotechnology, agricultural-biotechnology, food processing, intelligent transport, wireless sensor network, green mobility, clean technology, etc.

The African- Indian cooperation within PAU's Institutes could be implemented into (Mitra, 2019):

Contact building: organising joint workshops/ seminars/ frontiers symposia/ exhibitions, visitations, fellowships and students' internships,

exploratory visits and lectures by eminent Indian and African scientists, fielding young researchers in India and Africa, international meetings between scholars.

Providing support to: joint R&D projects, project-based mobility exchanges, training and advanced schools, access to advanced facilities and participation in mega-science projects.

Facilitating and promoting: joint R&D clusters, virtual R&D networked centers and multi- institutional R&D projects.

Promoting pre-commercial R&D and innovation: Academia- Industry Applied and Industrial R&D projects, innovation and entrepreneurship, facilitating Technology Development, Tech Transfer and joint venture.

Moreover, the Space Sciences Institute (PAUSS) project, offers the possibility of setting up a triangular partnership between South Africa, India and the African Union in the space field, with the aim of making this Institute functional. India's experience in recent years in building and launching satellites, in reducing the costs of space conquest and in recycling costly space equipment, has made this Country a reliable and strategic partner in the space field, including for developed countries. A lot can be shared with Africa in terms of training of African engineers and technicians, providing technical assistance, developing space technologies and technology transfer.

Climate change can be another bearer of Indo-African scientific cooperation. Dr. Malti Goel, Chief Executive and President of the Climate Change Research Institute – CCRI, said in a conference on clean technology, giving in RIS on January 11, 2019: "Alumni of science-policy mechanisms represent a significant international resource of highly qualified, adaptable professionals able to span the science-policy divide and thereby effect solutions for global challenges".

In this respect, a partnership between the CCRI and the PAUWES in the field of climate change and clean technology, may be possible, and partnership between other Indian research Institutes and the five Institutes of the PAU are to be encouraged in the future.

Conclusion

Africa has suffered for a long time, from terrible instability on the security front which has pushed it to put in place a development policy based on a purely security vision. The adoption of the Agenda 2063 is paving way to consider African development from a global and transversal point of view, taking into account all political, economic, environmental, socio-cultural, scientific and technological factors. Indicators suggest that Africa is making gradual progress in developing its capacity for STI, despite numerous challenges. However, African countries have a long way to go in improving capacity development, given that capacity needs are not high on priority.

The challenge for Africa today consists in its ability to adopt long-term approach to human development, improve higher education, foster growth, invest sustainably in building capacities and critical technical skills, and most of all mobilise internal and external human and financial resources in order to implement the STIS-2024. In the near future, Africa's focus shall also be on environmental concerns affecting the planet or many of its regions, including desertification, dwindling water resources, erosion of biodiversity, global warming and pollution in all its forms. In order to achieve the aforementioned agenda, there is a need to develop a science diplomacy plan for partnerships with both developed and developing countries. In the near future, Africa's focus shall also be on environmental concerns affecting the planet or many of its regions, including desertification, dwindling water resources, erosion of biodiversity, global warming and pollution in all its forms.

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Endnote

- 1 According to the following breakdown, Algeria covers the costs of infrastructure, salaries of administrative and technical staff locally recruited, basic salaries of academic staff as well as operating costs; the African Union Commission supports International Staff Salaries, local staff bonuses, registration fees and student grants, While the German partner will ensure the establishment of the laboratories, the rehabilitation of amphitheatres and classrooms made available to PAUWES and the subsidy of training cycles abroad.