# ESTI (Education, Science, Technology and Innovation), a lever for African Development

**Mahama Ouedraogo**
Former Director of Education, Science, Technology and Innovation at the African Union
mahamao_strc@yahoo.com

*Interrogé par*

**Mame-Penda Ba**
Professor of Political Science, Senegal
Editor-in-Chief, *Global Africa*
mame-penda.ba@ugb.edu.sn

**How to cite this paper:**
Ouedraogo, M., (2023). ESTI (Education, Science, Technology and Innovation), a lever for African Development. *Global Africa*, (3), pp. 161-169.
https://doi.org/10.57832/py02-sq98



Ba: Hello Dr Ouédraogo, thank you for agreeing to be interviewed for this *Global Africa* journal feature on "Pan-Africanism and African Research". It's a great pleasure to be able to talk to you. Alongside other Commissioners, you were in charge of the Education, Science, Technology and Innovation Department of the African Union (AU). Could you tell us a little about your department?

Dr Ouédraogo: It's a pleasure to be able to talk to you about these issues. Historically speaking, they are important for the AU. Indeed, they were already being discussed at independence and when the Organization of African Unity (OAU) was created in 1963, the founding fathers made them one of the priorities for Africa.

The Commission for Technical Cooperation South of the Sahara (CCTA), set up in 1950 by the colonial powers, notably France, Great Britain and Belgium aimed to coordinate development initiatives in Africa and forge links with Europe. It was absorbed by the OAU through the Scientific, Technical and Research Commission (CSTR) in 1964, which I had the privilege of leading between 2009 and 2012. Since its creation, following several reorganizations, the CSTR has implemented the AU's priority programs in science and technology through the organization of training courses, seminars, colloquia, workshops, technical meetings, etc., and the

coordination of the activities of various sub-committees of inter-African experts in specific fields such as African pharmacopoeia. The CSTR had two permanent bodies: the Inter-African Soil Bureau (BIS) and the Inter-African Phytosanitary Council (AU-IAPSC[1]). They were moved respectively from Paris to Bangui, Central African Republic, and from London to Yaoundé, Cameroon. The BIS was then transferred to the CSTR office in Lagos. The CSTR also coordinated, among others, the activities of the Inter-African Bureau for Animal Resources (BIRA) and the African Union for Semi-Arid Foodgrains Research and Development (AU-Safgrad) created to provide sustainable solutions to food security following the droughts of the 1970s.

In line with the Lagos Plan 1980[2] and the Maputo Decision 2003[3], many sub-regional institutions have been set up for research in specific fields, including the Center for Linguistic and Historical Studies in Oral Tradition (CELHTO) in Niamey (Niger), the African Academy of Languages (ACALAN) in Bamako (Mali), the International Center for Girls' and Women's Education in Africa (CIEFFA) in Ouagadougou (Burkina Faso), the Pan-African Institute of Education for Development (IPED) (formerly the African Bureau of Educational Sciences - Base) in Kinshasa (Democratic Republic of the Congo), the Pan-African University in Yaoundé (Cameroon), and the African Observatory for Science, Technology and Innovation (OASTI) to name but a few.

In 2014, the member states created the African Council for Scientific Research and Innovation (CARSI) whose secretariat is the CSTR office currently based in Abuja (Nigeria).

With the advent of the AU, the Maputo decision in 2003 also led to the creation of the Department of Human Resources, Science and Technology (RHST), the structure to which the CSTR reports. From then on, the mission of the RHST was to coordinate policies of member states in the fields of education, science and technology and to this end, it had technical branches, including the CSTR and the office in charge of science and technology for the New Partnership for Africa's Development (NEPAD). The department was also responsible for youth issues, youth development, youth empowerment and the inclusive contribution of youth to African development. Several programs and strategies were created, including the Consolidated Plan of Action (CPA) for science and technology, then most recently the African Strategy for Science, Technology and Innovation (Stisa-2024), the Continental Strategy for Education in Africa (Cesa 16-25), the African Space Strategy and Policy. The current reform of the AU, begun in 2016 and still in progress, has renamed the department: "Education, Science, Technology and Innovation Department". For the sake of coherence and the appropriate distribution of tasks, this department has been tasked with developing and harmonizing policies and programs in the fields of education, science, technology, space and innovation in order to promote inclusive growth and sustainable development in Africa, with a view to achieving the objectives of the AU and Agenda 2063 and thus contributing to the Global Agenda. Its main functions are: to spearhead the development of high-quality, relevant and harmonized education and training systems that meet Africa's

1 Inter-African Phytosanitary Council. https://auiapsc.org/fr/
2 Lagos action plan to implement the Monrovia strategy for Africa's economic development.
3 Report of the 3rd ordinary session of the Executive Council on the structure, human resources requirements and conditions of service of the staff of the AU Commission and its financial implications. This Council was held from July 4-8, 2003 in Maputo, Mozambique.

social and human development needs; to promote and strengthen the continent's capacities in space, science, technology and innovation; to coordinate and develop AU landmark projects and initiatives such as the Pan-African University (PAU) and the African Virtual University, and the African Outer Space Strategy.

Ba: The AU is the pan-African institution par excellence. How do the issues you deal with contribute to the pan-African project? We are referring not only to the political construction of pan-Africanism, but also to the economic and social goals of the project.

Dr Ouédraogo: During my time at the AU, I was in charge of a number of thematic programs that were approved by member states for their implementation.

These programs generally derive from the various African strategies, notably Stisa-2024, Cesa 16-25, the African space policy and strategy. They form the backbone of Agenda 2063 in the fields of education, science and technology. They contribute to the integration of the continent, to its socio-economic development through science and technology and to solving key challenges with trained human capital. Education, science and technology were cross-cutting issues that would contribute to the implementation of the seven aspirations of Agenda 2063. We therefore collaborated with all departments of the AU Commission to achieve the goals of an integrated, peaceful and prosperous Africa. The UPA added to its program, for example, the teaching of general African history. The African diaspora was involved in the development of strategies and programs, as well as in sector-based ministerial meetings.

Ba: A lot has been achieved since the creation of the OAU in 1963. Can you give us some examples of success stories, of strategies in favor of science (Stim[4] and SHS[5]) that have transformed the pan-African research and education space?

Dr Ouédraogo: Generally speaking, science and education play a major role in the implementation of the first ten years of Agenda 2063. Stisa-2024 was the first in a series of five strategies. Its main aim is to accelerate Africa's transition to an economy based on innovation and knowledge. The African Space Policy and Strategy is one of the first eight landmark projects of Agenda 2063. These strategies and policies are only of value if the players involved work together to deploy them on the ground for the benefit of the people.

In the field of agriculture, an example of action that has made a significant contribution to food security is the research and popularization of early and extra-early varieties of maize, cowpea and small millet in West and Central Africa, thanks to the action of AU-Safgrad in collaboration with international agricultural research centers[6]. Bira's activities have contributed to the eradication of rinderpest in Africa and to the protection and development of the continent's animal resources in general.

The AU in collaboration with the European Union (EU), has set up the Kwame Nkrumah Prize for excellence in the sciences and more recently the Teacher's Prize

4 Science, technology, engineering and mathematics.
5 Humanities and social sciences.
6 The International Institute of Tropical Agriculture (IITA), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the International Maize and Wheat Improvement Center (CIMMYT).

was created to promote good practice in these fields. Research grants awarded by the AU and its partners have enabled the networking of several thousand African researchers to tackle issues of great importance to the continent, such as food security and renewable energies. These best practices are implemented in collaboration with the Regional Economic Communities (RECs) which are encouraged to adopt and promote them at country level too.

The establishment of the UPA and the African Virtual University has boosted the training of master's and doctoral students in the Stim and SHS fields on the continent. Over 1,000 students have already been trained. Research has been carried out on African themes and students have registered patents with intellectual property organizations. Inter-African academic mobility has helped to increase enrolment of African students in African universities through scholarships and fellowships, and thus prevent the brain drain to Western countries.

The thesis that the AU can do better is unquestionable, but it must also be recognized that the AU has had many initiatives and success stories that are little known to the general public, either through lack of publicity or misappropriation.

### Ba: What about cooperation with RECs and research and training organizations like CODESRIA[7] and CAMES[8]?

Dr Ouédraogo: The RECs serve as the foundation of the AU. A tacit cooperation therefore exists between these institutions and the commission for the organization of meetings whose aim is to harmonize the policies of the different countries and regions. The implementation plan for the first ten years of Agenda 2063, in line with the AU reform, implies a division of actions and activities at three levels: national, regional and continental. A coordination meeting between the AU and the RECs is held once a year to monitor Agenda 2063 and coordinate the activities of the various AU components. With regard to research organizations, the AU signs Memoranda of Understanding (MoUs) with these organizations according to their areas of competence and their research capacity for the development of strategies and programs. For example, the African Academy of Sciences is working with the AU to implement Stisa-2024 through delegation. The Forum for Agricultural Research in Africa (FARA) and RUFORUM[9] are working together to implement Pillar 1 of Stisa-2024 on the eradication of hunger through research and training in agriculture. As for CODESRIA, the Commissioner in charge of economic affairs and I attended one of their conferences in Ghana in 2019, a think tank on the social sciences that is very useful for the continent. I can see an underlying cooperation with the UPA, especially with the Institute of Governance and the SHS, on the follow-up to Agenda 2063. The issue of making curricula more relevant to the needs of the job market calls on the commission to collaborate with CAMES. In 2015, we worked together on quality assurance in higher education as a prelude to setting up a pan-African framework on this topic. But it has to be said, the collaboration could be deeper. The commission has also been working with UNESCO on the recognition of studies, certificates, degrees and other higher education qualifications in African countries. This is vital for the integration of the continent and the mobility of teachers and students.

7 Council for the Development of Social Science Research in Africa.
8 African and Malagasy Council for Higher Education.
9 Regional Universities Forum for Capacity Building in Agriculture.

Ba: We'd like to come back to CELHTO and ACALAN, and their importance for Africa and the world. These organizations are little known to Africans.

Dr Ouédraogo: Indeed, many of the AU's specialized offices, important in terms of their mandate and the work they do, remain little known. These include CELHTO and ACALAN, which report to the Department of Health, Humanitarian Affairs and Social Development, OASTI and IPED. They have published many important works for Africa and are well placed to promote pan-Africanism and the continent's historic contribution to humanity. The question of African languages was an identity issue raised in the early days of the OAU and remains relevant today. These institutions deserve much more support in terms of updating their mandates, adequate staffing and resources, all of which can be reviewed as part of the reform of the AU's specialized technical offices, but which is long overdue.

Ba: What do African space policy and strategy consist of?

Dr Ouédraogo: In 2012, there were very few African ministerial councils on the issue of space in Africa, including ministers in charge of information and culture, infrastructure and energy, meteorology, and science and technology. The latter asked the AU Commission to set up a participatory working group of African experts to study the implementation of an African space strategy and policy. The aim was to mobilize African resources for the harmonious development of the continent. This was in Brazzaville during the AMCOST[10] 11th session in 2012. This ministerial directive led to the adoption of statutory documents for these strategies as well as those relating to the African space agency responsible for implementing the programs arising from these policies. Essentially steered by African experts, this strategy has laid the foundations for the coordinated development of space technologies for peaceful purposes for African development.

The main objectives of this policy are to use space science and technology to derive optimal socio-economic benefits, improve the quality of life of Africans and create wealth. This requires the development of local infrastructure, human capital and capabilities to serve an African market that is responsive to geospatial and spatial information needs. The African Space Strategy provides a platform for all African public and private players to develop initiatives, with a collective long-term vision. It has laid the foundations for the development and coordination of the following technologies: Earth observation; satellite communication, navigation, positioning and timing; astronomy and space sciences.

With these master documents, the AU has provided itself with a tool to promote space technology in a context of sustainable development.

Ba: The African world is not always present when it comes to solving the crucial problems of our time. As we know, environmental and health issues, democracy, international peace and the material well-being of populations are also local problems. African governments have understood the need to fund African research to the tune of 1% of the continent's GDP. How do you assess this commitment? Why has no country yet managed to reach this target?

Dr Ouédraogo: We can't hide the fact that Africa is not very involved in resolving these issues. Indeed, we have become accustomed to calling on others to find

10 African Ministerial Council on Science and Technology.

solutions to our own challenges. As far back as Lagos in 1980, heads of state were talking about the African paradox: a rich continent with poor citizens. Despite the various advances made, in 2017 the Executive Board held an extraordinary meeting in Nairobi to come up with appropriate solutions. Good will and the best texts exist within the AU but their application leaves much to be desired. For example, the 1% decision initially taken in the Lagos action plan, and reiterated in the Khartoum decision in 2006, has not been as successful as expected.

According to Stisa-2024 and NEPAD's 2019 African Innovation Outlook report, the decision calls on African countries to increase the gross domestic expenditure needed to strengthen Africa's technical skills, improve infrastructure for research, innovation capacity and entrepreneurship, and create an enabling policy environment to accelerate "Africa's transition to an innovation-driven knowledge economy[11]". Thus, the African Observatory for Science, Technology and Innovation (AOSTI) and the African Initiative on Science, Technology and Innovation (AISTI) indicators provide support to African countries to collect data on Science, Technology and Innovation (STI) indicators and generate new ones, in order to monitor the implementation of decisions relating to STI performance in our countries. The champions of its application are Rwanda and South Africa who came close to the 1% rate in a single year. There's a tendency to believe that we make decisions without assessing the costs and consequences of implementing them. As a result, most strategies are not financially evaluated, let alone adequately budgeted for. The reality is that investments in research and education do not yield the immediate results that managers want, and they tend to opt for short-term projects, and to spread their budgets thinly.

But the horizon is brightening, and the African awakening is taking place slowly but surely. It's a long-term process like all continental histories. There are many more educated Africans today thanks to the Sustainable Development Goals (SDGs) and the Millennium Development Goals (MDGs) which contribute to global development, although the results of these global plans are not as good for the continent. But Africa's dynamic and enlightened youth are increasingly aware of the need for a paradigm shift to transform Africa into an "eldorado". I believe that this march to transform the continent is irreversible.

Ba: Like the question of funding, the disconnect between the worlds of research, business and public policy is one of the major weaknesses of African countries. How are you helping to bridge this gap, so that the public and private sectors can put research findings into practice?

Dr Ouédraogo: Innovation requires the active participation of decision-makers, researchers and the private sector. This complicity seems natural in developed countries whereas in Africa, challenges remain. At the AU Commission (AUC), our actions were essentially concerned with the various community policies and the private sector was involved in drawing up these policies. In the field of education, the private sector is now essential for managing the flow of learners. Similarly, the setting up of incubation centers at the UPA is designed to make the partnership between research, the public sector and the private sector a win-win situation.

Productive expert meetings were held to reflect on harmonious development. African lawmakers have been trained to break down the barrier between these

11 https://au.int/sites/default/files/documents/37448-doc-stisa-2024_french.pdf

three sectors that negatively influence research funding and bring its results into disrepute. In 2014, the AU created the African Forum for Research and Innovation (Fari) in Brazzaville. It aims to connect research, policy and users of research results. Similar forums have been set up in most countries, for example the Scientific Research and Technological Innovation Forum (FRSIT) in Burkina Faso.

Ba: Today's research calls for the decoloniality of knowledge. As a pan-African institution, you're certainly thinking about the need to place the focus on Africa. What is the place of endogenous sciences such as traditional medicines, local environmental knowledge, etc.?

Dr Ouédraogo: The Lagos Action Plan calls for cooperation between African countries in preserving, protecting and improving the natural environment. The issue of traditional medicine has been taken into account by the Inter-African Committee on Traditional Medicine and Medicinal Plants. Thanks to the efforts of African experts, the AU has published the African Pharmacopoeia version 1 and 2. During the Covid-19 pandemic in 2020, there was a resurgence of research into the use of traditional medicine and medicinal plants for its treatment. Practically all African countries have research centers for this medicine, albeit at different levels. Given the high cost of modern medicine, traditional medicine is a solution for many people, especially the poorest. The AU has launched programs for the documentation, conservation and use of traditional know-how, culture and folklore, with the creation of the Pan-African Intellectual Property Organization (OPAPI) to be based in Tunis.

It is important that we continue to document this knowledge of herbal medicine and carry out the necessary assessments, defining a protocol that is accepted by the majority. Detecting the gaps will enable us to define areas of research to fill this gap. The protection of traditional knowledge, its governance at continental level and its use for innovation and improving the livelihoods of Africans are important areas not to be neglected. Hope is pinned on Africa's growing youth.

Ba: Although the African Continental Free Trade Area (ZLECAF) is a step forward in economic terms, the free movement of people is extremely problematic on the continent. There is still no African passport, and visa fees are the highest in the world, even though research is synonymous with mobility. What role should the AU play in this process?

Dr Ouédraogo: When it was launched, the 2063 Agenda promulgated eight landmark projects, including ZLECAF, the African passport and the free movement of people. The aim of this project was to do away with borders by issuing visas in order to improve the free movement of citizens in all African countries by 2018. ZLECAF benefited from the mobilization of Niger's former president Mahamadou Issoufou who, along with his peers, worked hard for its implementation. The project for a free-trade zone had been in the hearts of the founding fathers of the OAU since 1963. They wanted an Africa that, in the aftermath of independence, would train its children in fields such as science, technology and governance so that they could take over from the colonists but also (????) so that the countries of the continent would have an interdependent economy.

Aspiration 2[12] of Agenda 2063 envisions "an integrated continent, politically united and based on the ideals of the African renaissance". By 2063, Africa should

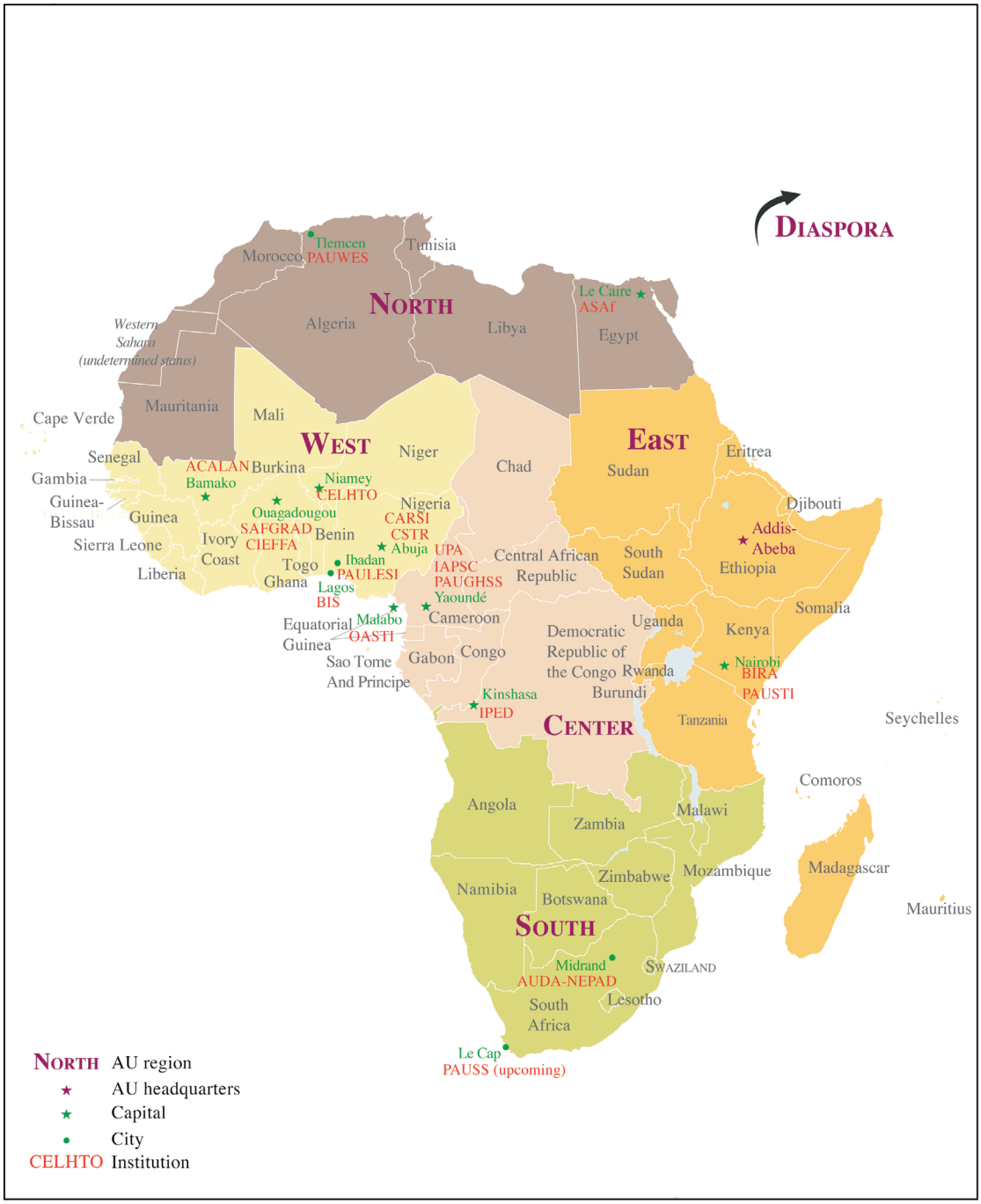
12 https://au.int/fr/agenda2063/aspirations

be a continent of homogeneous borders, with cross-border resources managed through dialogue. A continent where the free movement of people, capital, goods and services will result in a significant increase in trade and investment between African countries, strengthening Africa's place in world trade.

It should be noted that the African passport does exist but is currently limited to AU staff and heads of state and is not accepted outside the continent. Worse still, some African countries require a visa for the passport before crossing their borders. The AU Commission is working with the International Civil Aviation Organization (ICAO) and the International Organization for Migration (IOM) to provide technical support to member states in issuing African passports to citizens.

The first continental report on the implementation of Agenda 2063, published in 2020, notes that the Protocol to the Treaty Establishing the African Economic Community on the Free Movement of Persons, the Right of Residence and the Right of Establishment was adopted in January 2018. Popularization of the protocol on the free movement of persons has been undertaken - involving member states and RECs with a view to obtaining the fifteen ratifications required for its coming into effect. Better still, 32 member states have signed the protocol but only one member state, Rwanda, has ratified and implemented it. Ethiopia had also begun issuing visas but the country's internal situation in 2021 weakened this decision.

The AU's vision and the objectives of Agenda 2063 are not out of reach for the continent, given its wealth, growing population and dynamic, enterprising youth. I therefore dare to believe that African development, the Africa we want, is achievable; our future is in our own hands.




PAULESI: Pan African University Institute of Life and Earth Sciences (including Health and Agriculture) ; PAUGHSS: PAU Institute for Governance, Humanities and Social Sciences ; PAUSTI: Pan African University Institute for Basic Sciences, technology and Innovation ; PAUSS: Pan African University Institute for Space Sciences ; PAUWES: Pan African University Institute of Water and Energy Science (including climate change).

Headquarters of African Union institutions in the field of ESTI