

REPUBLIC OF SENEGAL



Un Peuple – Un But – Une Foi

**MINISTRY OF HIGHER
EDUCATION, RESEARCH
AND INNOVATION**

 United Nations
Economic Commission for Africa

**Report on the
Senior Experts Dialogue on science, technology and innovation
and the African transformation agenda 2017**

THEME

**Higher education, science, technology and innovation and the African
integration and development agenda**

December 2017

Introduction

The fourth Senior Experts Dialogue (SED) on science, technology and innovation and the African transformation programme on higher education and science, technology and innovation was held in Dakar from 28 to 30 November 2017. A number of African countries participated in the event, including: Angola, Congo, Ethiopia, Kenya, Mali, Morocco, Namibia, South Africa, Tunisia, Zambia and Zimbabwe.

Owing to the simultaneous engagement of the Minister responsible for higher education, research and innovation at the National Assembly to defend his budget, the opening ceremony took place in the afternoon. Consequently, there was a minor change in the programme and the Senior Experts Dialogue began with session 2.

Day one

Session 2: Higher education, science, technology and innovation and the African integration and development agenda

Higher education and science, technology and innovation (STI) have featured prominently in key policy papers of the African Union (and even the erstwhile Organization of African Unity (OAU)) and regional economic communities. This is amply illustrated by the Lagos Plan of Action and New Partnership for Africa's Development (NEPAD). The organizational structure of the regional integration institutions also reflects the pivotal role of higher education and science, technology and development. For example, among the main departments of the African Union Commission is the human resources, science and technology section.

Nonetheless, the objectives set for higher education and STI are yet to be attained. This session dealt with the policy documents of the regional integration institutions across the continent as well as the role of higher education and STI in the work of those institutions.

Moderator

Professor Yaye Kène Gassama, representative of the President of the National Academy of Science and Technology, Senegal

Panellists

Dr. Youssouf Ouattara, regional representative, United Nations Educational, Scientific and Cultural Organization (UNESCO), Dakar

Dr. Moses Rugutt, Director General of the National Committee on Science, Technology and Innovation, Kenya

Dr. Kasirim Nwuke, Chief of the New Technologies and Innovation Section, Economic Commission for Africa (ECA)

Discussion points

It was noted that the various regional and subregional protocols and policies set science and technology at the heart of development strategies. Such policies often sought to locate gross domestic expenditure on research and development (GDERD) at a minimum of 1 per cent of gross domestic product (GDP). At present, the robust performance of Africa in the economic sphere is due mainly to exports of natural resources, increased production levels and improved prices in the global marketplace rather than efficiency gains on value added. In terms of financing, few countries managed to attain even the gross domestic expenditure on research and development target of at least 1 per cent of gross domestic product despite renewed calls reiterated since the Lagos Plan of Action. Such a level of investment in research and development is key to ensuring a steady level of sustained growth buttressed by STI. Some countries such as Kenya, Mali and the Sudan have developed consolidated financing mechanisms for research and development with varying financing flows for specific research projects or programmes and have seen their budgetary allocations to research and development increase by over 100 per cent in five years.

It was also noted that the universities could play a greater role in boosting the competitiveness of African economies, but faced many challenges such as student and staff strikes, funding constraints, lack of financial autonomy, inadequate infrastructure and insufficient number of researchers. Most of the universities rely on foreign funding to meet their research costs, a fact that may impinge on research quality.

These problems have to be effectively addressed for African universities to contribute more fully to development and enable countries to benefit from the efforts under way towards enhancing the size of the market, such as the Continental Free Trade Area (CFTA). It has been observed that market size has an impact on the technology needed for competitiveness. Accordingly, STI, and industrial and trade policies should be adopted or strengthened in order to fully benefit from the Continental Free Trade Area.

So far, only the East African Community (EAC) is endowed with an independent agency entrusted to promote and coordinate STI initiatives at the subregional level. All their other regional economic communities, even where they have an STI office, have no independent entity working on a permanent basis on STI issues. Unsurprisingly therefore, the existing trade and industrial policies across the region do not adequately accommodate the role of STI.

Other problems identified are: ill-conceived national development plans; absence of linkages between academia and the industrial sector; low research capabilities; poor utilization of limited financing; inadequate infrastructure to support the development of trade; inadequate policy implementation; distorted international cooperation models that favoured the developed countries; and limited comprehension of the higher education and STI systems in Africa.

Recommendations

- Regional integration programmes should include industrial, higher education and STI policies;
- Regional economic communities are encouraged to establish independent agencies on STI and the African Union and its partners should endeavour to provide a platform that can oversee STI;

- Centres of excellence in Africa should endeavour to improve the efficient utilization of the limited funding to meet the challenge of development;
- Institutional stability at the country level is essential for STI to promote development;
- Individual countries should formulate national development plans and policies identifying suitable priorities, targets and mechanisms to facilitate linkages between academia and industry;
- Countries should establish research funding agencies in order to minimize duplication of efforts and improve the effective utilization of resources by means of competitive interventions;
- Encourage States to collaborate in the financing of infrastructure to support the development of trade;
- Countries should continuously monitor the existing higher education and STI systems in order to boost development strategies for higher education and STI;
- Countries should target global markets in the domain of innovative policies and strategies;
- African countries should also finance and support applied and basic research in view of the importance of basic research for generating new expertise, publications, inventions and economic growth.

Precautions

- Countries should prudently envisage de-linking STI and institutions of higher education;
- Performance is poor across the continent in information technology, engineering and mathematics. It is imperative for countries to envisage the promotion of science subjects in secondary education and in technical colleges.

Session 3: The state of higher education in Africa

It is generally acknowledged that scientific research and education are the foundation of the innovation process. Thus, analyses of technology and innovation capabilities in any country invariably start with an assessment of higher education, including research productivity, publications in the leading scientific journals, as well as inventions and technology transfer. This session will focus on the visibility of higher education in those sectors and will offer suggestions towards filling in the gaps identified, in order to revitalize higher education in Africa.

Moderator

Professor Amadou Thierno Gaye, Director General for Research and Innovation, Senegal

Panellists

Ms. Helena Gaspar, Minister of Science and Technology, Angola

Dr. Perkins Muredzi, Dean, Institute of Technology, Zimbabwe

Professor Aminata Sall Diallo, Technical Adviser, MESRI

Discussion points

It was stressed that States should formulate a theoretical framework for the development of higher education, as well as quality control and merit-based approaches. This would encompass the need to develop a matrix for measuring the performance of higher education institutions. There will concomitantly be the need to establish business colleges designed to boost higher learning with a focus on solutions to address development challenges.

The quality of higher learning in Africa was no doubt inadequately classified by a spectrum of classifying agencies. Clearly, part of the challenge derived from the fact that education in Africa were and continued to be designed to produce a highly skilled workforce rather than nurturing innovators and entrepreneurs able to devise solutions to local challenges (for example, women have to cover long distances on foot in search of water and firewood like their forebears had done centuries ago).

Fears have been expressed that the rapid growth of institutions of higher learning and the expansion of academic programmes in Africa over the past three decades could jeopardize limited resources, compromise quality and heighten dependency on foreign agencies for learning purposes. It is worrying to note that a huge portion of the expansion in these programmes and institutions were not founded on a solid vision of growth in terms of sustainability, labour market needs and priorities across various sectors.

Recommendations

- States should develop matrices for measuring the performance and the impact of institutions of higher learning in Africa;
- States should establish institutions that can work with academia to tackle national development challenges;
- Regional economic communities should promote collaboration between their institutions of higher education in dealing with common development challenges (such as renewable sources of energy) and work with multinationals operating in their respective countries;
- States and regional economic communities should support regional universities such as the Pan-African University and the Mandela Institute which enrol students from every African Union member State to develop and expand;
- States should provide incentives (such as bursaries) to encourage students to pursue science technology, engineering and mathematics (STEM) courses in their final year of secondary school.

Session 4: Status of research, development and innovation in Africa

The session focused on the present status and emerging trends in research and development systems across the continent in both the public and the private sectors – as well as the innovation scorecard in Africa's private sector. The session also examined the relations, interactions and implications of research and development systems on the innovation track record of firms and at the country level. It examined the linkages and the imbalance between the various sectors and the areas of specific interest for research and development (for example agriculture and health) as well as those where innovation is necessary for the attainment of development objectives. It proposed alternative mechanisms and means to improve research and development and innovation.

Moderator

Professor Mamadou Sy, Director of Planning and Research Strategy, MESRI

Panellists

Ms. Mandry Ntshani, Co-Director, Multilateral Cooperation for Africa, Science and Technology Department, South Africa

Professor Mboyne Manasse, Executive Secretary, National Council for Science and Technology (NCST), Rwanda

Professor Amadou Thierno Gaye, Director General of Research and Innovation, Senegal

Discussion points

This session elicited outstanding details on efforts at the country level in regard to the progress of higher education and STI in Africa. It was noted that South Africa had identified key sectors in its STI strategy and had devised mechanisms for linking up with industry, based on regular research and development and innovation surveys at the national level. One of the conclusions was that industry and government accounted for the lion's share of research and development funding, whereas only 12 per cent came from international sources and a negligible portion from other sources. However, the problem of brain drain was a drawback to innovation systems whereby some of the best technicians and engineers trained at great expense, leave for other countries.

In an effort to address this problem, South Africa has been offering incentives to specific firms with outstanding research and development profiles, and to firms operating research and development that employ young people. The main objective is to encourage research and development and the retention of a highly-skilled workforce. Furthermore, South Africa is integrating the Southern African Development Community (SADC) industrialization strategy into the STI programme implementation process. Lithium – ion batteries are an example of value-added as a form of partnership between the universities and industry, as is the recently launched wheat selection platform, also the result of partnership between academia and industry. In addition, the government is implementing education programmes designed to promote science, technology, engineering and mathematics and innovation. For instance, students must have project or work experience to be able to obtain a diploma, and the

Government provides sponsorship to students taking Technical and Vocational Education and Training (TVET) as part of their research programmes.

Rwanda, for example, is addressing a set of interconnected challenges to deal with development issues. These include: low research capabilities; limited linkages between industry and academia; scanty knowledge of the needs and requirements of industry and the universities; and lack of an industrial foundation. It was noted that Rwanda for example has to take into consideration the unemployment rate among educated young adults. To meet some of these challenges, a new system has been devised under which students carry out research in groups of three; participate in international exhibitions and are financially supported in order to promote the spirit of enterprise. In the case of Senegal, measures are in place to utilize public and private markets as a mechanism for promoting innovation in education and boosting the quality of research and development outputs. It should be noted that the government is a major consumer of services in many African countries. Some of these mechanisms have been integrated into national policies and strategies.

Recommendations

- Promote business know-how in institutions of higher education;
- Improve working conditions in the universities;
- States are urged to promote scientific diplomacy as a means to innovation and collaboration in areas of interest;
- States are urged to formulate their respective research programmes in order to minimize the influence of foreign funding in the process of setting national priorities;
- States should formulate oversight mechanisms for research funding.

Opening ceremony

The guest of honour at the opening ceremony was the Minister for Higher Education, Research and Innovation, while the opening address was delivered by Dr. Kasirim Nwuke, Chief of the New Technologies and Innovation Section, ECA.

After the usual introductory remarks, Mr. Nwuke, on behalf of the Executive Secretary, ECA, thanked the Minister for hosting the fourth edition of the Senior Experts Dialogue and welcomed all participants coming from other countries. He touched on the origin of the Senior Experts Dialogue, which was an arena for the exchange of opinions, ideas, experiences and articulation of policies on possible approaches by African countries to STI utilization in buttressing the Agenda 2063 for the transformation of Africa and attainment of the Sustainable Development Goals. This Dialogue was launched by the African Union and the African Strategy on STI(ASTI-2024).

He dwelt on the choice of themes addressed at previous meetings which had been the result of inclusive consultation bringing together the host country, NEPAD and ECA. The theme for 2017 was aimed at examining the link between higher education and STI as well as ways in which policies in both spheres could contribute to development and integration in

Africa. The theme of the Senior Experts Dialogue 2017 was all the more important in that it would enable African countries to fully benefit from a knowledge-based economy. He then dwelt on the ecosystem of higher education and STI in Africa, which was lagging behind other education and innovation systems. He highlighted the challenges facing higher education and STI generally in Africa. These related in the main to lack of financing and inadequate investment in technology. He specifically mentioned the low level of women's participation in science-related occupations. In conclusion, he expressed the wish that the Senior Experts Dialogue 2017, like the preceding editions, would produce robust recommendations on the innovative financing for higher education, incentives for promoting technology transfer in the universities, boosting funding for science, technology, engineering and mathematics subjects, and on the community-wide free trade area encompassing all African States.

It was then the turn of the Minister for Higher Education, Research and Innovation, Professor Mary Teuw Niane to make a speech. He extended greetings to all participants and welcomed the guests from other countries to Senegal. He stated that Senegal was honoured to host the fourth edition of the Senior Experts Dialogue after Nigeria, Kenya and South Africa. The minister expounded on the importance of the meeting which focused the discussions around implementation policies rather than organizational policies. In his opinion, sustainable development, holistic, autonomous development focused on meeting the economic needs of each country, necessarily entailed massive development of a skilled workforce in the science and technology sectors that can handle the continent's construction needs. He opined that for Africa to effectively enter the knowledge economy, it had to prioritize training policies in science, technology, engineering and mathematics, and in advanced technology and innovation. Intangible sectors such as artificial intelligence, "Big Data" and databases comprised new strategic orientations for States willing to develop. The minister believed that African States should commit their educational and training institutions to the implementation of quality programmes for the development of human capital that was capable of backstopping and achieving development objectives.

Senegal had set in motion this process using STI as a lever towards the attainment of economic take-off. The national forum on the future of higher education and the guidelines on "reorientation of the higher education system towards science, technology and vocational training", based on the pertinent presidential directives, were so many steps in that direction. Professor Mary Teuw Niane pursued his point by mentioning pilot projects such as the *Cité du Savoir* and the Virtual University of Senegal which his department was in the process of bringing to fruition in order to give a new impetus to research and innovation. At the same time, the Minister mentioned collaboration between African States towards addressing the challenges of development. In the context of regional and African integration, States should establish regional and African research institutions in linkages between financial and human resources leading to a critical mass of researchers and innovators who will address shared problems to find solutions. The Minister ended his speech by thanking the Economic Commission for Africa for choosing Senegal and offering the opportunity for high-level dialogue on science, technology and innovation.

Day two

Day two began with a recap of the previous day's deliberations. Dr. Victor Konde of ECA reviewed the key points discussed on Day one. The next stage would be the panel discussions as scheduled.

Session 5: Generating and utilizing data to feed into education, science, technology and innovation, and integration and development in Africa

African States have for a long time underscored their determination to build a robust scientific, technological and industrial base by means of international and regional collaboration. This is codified in the Treaty of Abuja on the African Economic Community (AEC). The development of measurement mechanisms for STI performance in Africa in regard to research and development, and innovation at the corporate level and trade in value-added, including transformed products (goods and services), can underpin policy formulation. This session highlighted and discussed some of the key emerging issues, such as: “Is the scientific foundation of Africa properly working?” “What are the current trends in international cooperation?” “Who are the main importers of value-added products in Africa?” And, “What other indicators may be needed to accurately assess performance in Africa?”

Moderator

Professor Seydina Sène, representing the rector, University of Sine Saloum, Koalack

Panellists

Dr. Kasirim Nwuke, Chief, New Technologies and Innovation Section, ECA

Dr. Tichaona Mangwende, Research and Statistics Team leader, Centre for Research, Technology and Innovation, NEPAD

Dr. Victor Konde, Scientific Affairs Specialist, New Technologies and Innovation Section, ECA

Discussion points

The debate focused on the importance of data on policy formulation in Africa. The Maputo Declaration envisages a research and development system with clear directives that are suited to the African context. It is generally acknowledged that Africa must anchor its economic development policy on knowledge. The informal sector which is predominant in virtually all African economies has to be taken into account in measuring innovation.

Also discussed was the question of African integration: how the launching of the Continental Free Trade Area which is in the process of negotiation at the level of Africa’s decision-making bodies (Abuja Treaty) could promote trade. The Continental Free Trade Area will treat the entire African continent as a single market. Each economy will thus have a sizeable marketplace, which will stimulate competitive policy approaches. The targeted sectors are integration, higher education and STI. According to the panellists, monopoly is not favourable to competition, whereas a large market will induce firms to innovate. Online commerce (e-commerce) for example, might turn out to be an asset in this project, by enabling people in the Continental Free Trade Area space to access a range of products and services at competitive prices.

The potential drawbacks to the Continental Free Trade Area, and in particular, the question of intellectual property rights, was also discussed.

Contrary to the widespread notion, Africa is well endowed with large industries in various sectors. Firm size is a decisive factor for innovation. Being costly, innovation is the domain of large concerns that are capable of harnessing vast human resources and creating value-added. The issue of harmonized standards in all Continental Free Trade Area countries for enhanced integration of the regional market was also broached. The example of Kenya which cannot sell its pharmaceutical products in some African countries is a case in point. Research and training should be adapted to the needs of enterprises to make innovation effective. The fact that some countries outsource research and development is actually linked to this problem of incongruence of domestic research capabilities vis-à-vis the needs of local firms.

Recommendations

- States should train a critical mass on data;
- Training programmes and research projects should be tailored to the needs of local firms;
- Partnerships between universities and firms should be strengthened;
- The level of performance of patents and publications by Africans should be raised at the international level;
- States should adapt their external policies to local realities, taking into consideration the informal sector in the quest for innovation;
- The role of intellectual property should be harmonized and strengthened at the regional level.

Session 6: Information and communications technology as a factor in integration

Information and communications technologies (ICTs) are generally viewed as a sturdy modern means of tackling many of the urgent integration challenges. In terms of research and development, the use of ICTs (or electronic infrastructure broadly defined), has an impact on the approaches and methods of research. They can bring together scientists from all over the world. A similar effect is apparent in the higher education sphere. By broadening access, ICTs can, within the context of regional integration, contribute to cross-border scientific research and higher education delivery across the continent. This could have a positive impact on innovation. In this session, the panellists explored the relevant prospects and constraints and evaluated the possibilities for stimulating innovation in Africa with a bias on regional integration.

Moderator

Professor Olivier Sagna: Director of studies and cooperation, MESRI

Panellists

Professor Ahmed Hassan Fahal, Director, Agency for Scientific Research and Innovation

Professor Oumar Niang, Director, Higher Institute of Professional Training (ISEP), Diamniadio

Chérif Diallo, Director of telecommunications

Discussion points

Africa having missed out on the industrial revolution, must not miss out on ICTs. They are indispensable in all areas, such as telemedicine, e-learning, videoconferencing, database access or other growth sectors. It is imperative to update the technological dawn and achieve interconnection of African institutions. Africa stands to gain from new technologies such as artificial intelligence; Big Data or the Internet of things to substantiate the shortcomings of normal surveys. The issue of quality and data sovereignty was also discussed. The question of ICTs in education was the object of discussion, particularly de-materializing the registration process and online learning. Education and distance learning should be promoted along the lines of the linkages for African connectivity to the rest of the world and the resolution of African problems. However, the challenges related to electricity, health and digital fracture still present key challenges to the development of ICTs.

Recommendations

- There should be a focus on developing mathematical and engineering skills in order to take advantage of the new opportunities connected with ICTs;
- There is the need for systems of governance that can address the technological costs and requirements of ICTs;
- Maintenance and updates are indispensable in view of the rapid amortization rate;
- ICTs should be integrated in all areas and above all in the education systems;
- Capacity-building and training of a critical mass in digital applications;
- Launching of research centres;
- Formulating a policy on ICT integration in higher education.

Session 7: Higher education, science, technology and innovation and inequality

A key principle of the 2030 Agenda is to “leave no one behind”. However, the benefits of higher education and innovation are, in large measure inequitably distributed. The advantages of innovation accrue mostly to innovators (and probably their clients). New technologies demand new competencies, engender unemployment, stagnate wage levels, or even exert pressure on salaries. Moreover, higher education and STIs are characterized by high geographic concentration of income, wealth and know-how. Regional gaps in skills and incomes arise from inequality of spatial differences. Some people and regions are sidelined. This phenomenon may be amplified in the future. Indeed, data emanating from China, the United States of America and Europe show regional inequalities in technology and skills which reflect geographical differences. In Africa, these differences may be exacerbated by language, ethnic origin, religion and physical geography. This session looked into how African countries,

by using higher learning and STIs for the implementation of their integration and development programme, can manage or alleviate the risks of imbalances associated with new technologies innovation, and different education approaches.

Moderator

Professor Coumba Thiandoume, Director, for promotion of scientific culture, MESRI

Panellists

Mr. Abderrahim Ouabbou, Chief of Division, Higher Education and Teaching Method Development Unit, Morocco

Professor Manasse Mboyne, Secretary, National Council for Science and Technology (NCST), Rwanda

Ms. Mandy Ntshani, Deputy Director, Multilateral Cooperation for Africa, Department of Science and Technology, South Africa

Discussion points

This session addressed issues of inequality pertaining to salaries, bursaries, languages, ethnic origin and higher learning in the context of STI. These imbalances are being addressed to varying degrees by several African institutions of higher education. Attaining universal ICT penetration in public universities for example, is a case in point. The participation of local communities in some countries in granting financing and scholarships enables the inclusion of all segments of society in higher education. The broadening of the university syllabus and the use of ICT (e-learning) in academic programmes is a real advantage for communities not based in urban areas. Other programmes such as subsidies and distribution of laptops are designed to achieve equal opportunities. Governments are making every effort to redress the inequalities in university education. The main problems of discrimination which is in the granting of distance-learning opportunities to the well-to-do was also mentioned, including the award of certificates and gender equality. It was proposed as a response to this problem, to develop applications that can facilitate the orientation of new graduates and address the issue of inequality arising from economic factors.

Recommendations

- African States should encourage free access to higher education;
- Medical cover for students should be boosted in order to ensure the availability of quality health care to students;
- Scholarships for women should be provided in science and technology disciplines;
- Gender mainstreaming in STI.

Session 8: Regulations and incentives

Incentives and regulations determine the behaviour of actors. The increase in the supply of private and international higher education and the increasing role of multinationals involved in research and development in Africa, means that African States must review their legal and regulatory environment. These laws and regulations actually govern technology transfer and intellectual property. They can also, for instance, hamper research and development or innovative health interventions. This session examined the legal, regulatory and incentive-oriented frameworks at the disposal of African States for supporting innovation. The discussions also addressed issues of technology transfer, intellectual property rights, standards and study programmes.

Discussion points

This session was concerned with the regulatory frameworks and necessary actions to encourage African States to further deepen their adoption of STI and higher education. First and foremost, education on the need to demystify research was underscored, in order to facilitate research management. It was noted that many African States worked with foreign donors who dictated the terms on which research should be done. Preferably, a mechanism of “scientific diplomacy” between African States should be developed to provide funding and protection to products from Africa in the domain of research. The question of intellectual property has to be addressed to support innovation in Africa.

Recommendations

- African States should envisage the establishment of an African authority to manage intellectual property;
- Establishment of an accreditation agency for institutions of higher learning and research and an agency to actualize research findings.

Session 9: Conclusion and closing ceremony

Two interventions marked the closing ceremony.

Dr. Kasirim thanked all the participants for their commitment and enthusiasm which had enabled a fruitful Senior Experts Dialogue 2017 in terms of the resolutions and recommendations made. He also thanked DGRI and MESRI for hosting the Senior Experts Dialogue 2017 and hailed the commitment of all the participating States to Africa’s development agenda. After raising the issue of linguistic constraints that affected the transmission of knowledge in Africa, Dr. Kasirim urged an enhancement of the presence of women in higher education and science, technology and innovation. He recommended that the next Senior Experts Dialogue should have as its theme: “The role of women in STI”.

Professor Amadou Thierno GAYE, Director General of Research and Innovation, also congratulated the participants, panellists and moderators for their commitment to the success of the Senior Experts Dialogue 2017. The Senior Experts Dialogue 2017 had made it possible to discuss the future of higher education and STI in Africa. He thanked ECA, the organizers, interpreters and the Ministry of Higher Education, Science and Innovation for kindly presiding over the closing ceremony. He concurred with Dr. Kasirim on the importance of women’s role in STI.

Day three

Visits to organizations

There were visits to some organizations engaged in higher education and STI during the third day of the Senior Experts Dialogue 2017.

These were:

Incubateur PSE-J (Senegalese Programme for Youth Entrepreneurship): this programme supports young Senegalese in the implementation of their projects. It is an ambitious project that promotes entrepreneurship and innovation in development-oriented sectors.

Institut Africain de Management (IAM) (African Institute of Management) (AIM): this is a private university which seeks to develop Africa's integration through its teaching programmes. The university community comprises many African and other nationalities.

IRESEF: this is the Institute for Health Research, Epidemiological Surveillance and Training. The institute will provide backup to public-health policies and promote research aimed at combating epidemics such as malaria, cancer, tuberculosis, among others.

Cité du Savoir: This institution comprises a number of disciplines with different spaces such as Governance and Evaluation; Technical Infrastructure, Heritage and Vocational Space; Scientific Culture Space; and Conference and Services Space. It is a place devoted to the advancement of science and technology.

Its objectives are to:

- Harmonize higher education research and the business sectors;
- Encourage innovation, research and the establishment of innovative businesses;
- Strengthen managerial capabilities of higher education management staff;
- Promote scientific culture.

Amadou Mahtar Mbow University: This is a university under construction. The purpose of its establishment is to ease the congestion at the Cheikh Anta Diop University (UCAD).
