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87 Africa Center of Excellence for Population Health and Policy (ACEPHAP)
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93 Africa Centre of Excellence on Technology Enhanced Learning (ACETEL)
97 Covenant Applied Informatics and Communication- Africa Centre of Excellence (CApIC-ACE)
101 Centre for Food Technology and Research (CEFTER)
104 Africa Centre of Excellence on New Pedagogies in Engineering Education (ACENPREE)
107 Africa Centre of Excellence for Neglected Tropical Diseases and Forensic Biotechnology (ACENTDFB)
110 Africa Centre of Excellence for Innovative and Transformative STEM Education (ACEITSE)
113 African Center of Excellence for Drug Research, Herbal Medicine Development and Regulatory Science (ACEDHARS)
116 Centre Of Excellence In Reproductive Health Innovation (CERHI)
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120 Obafemi Awolowo University ICT-Driven Knowledge Park (OAK-Park)
African Centre of Excellence in Mathematical Sciences, Computer Science and Applications (CEA-SMIA)

University and Host Country:
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Primary Thematic Disciplines of the Centre:
- Fundamental Mathematics, Applied Mathematics
  (Operational Research, Statistics-Probability)
- Informatics (Data Sciences, Signal Processing, Artificial Intelligence, IoT, etc.).
The centre offers a diversified training programme aimed at using mathematical and computer tools for development. We can mention the following:

a. Fundamental and Applied Mathematics / IMSP (Accredited in 2018 for five years)

b. Operational Research / IMSP (Several components of this offer will be used for the new Masters, such as the Master in Data Sciences)

c. Statistics and Probability / IMSP (same as for Operational Research; in addition there will be a common core with the FAST Actuarial offer)

d. Didactics of Science and Technology / IMSP (Emphasis will now be placed on the promotion of mathematics in primary and secondary education)

e. ICTs: Networks and Telecommunications; Information Systems / IMSP (HCÉRES recommendations are taken into account for the 2020 review. Mutualisation with similar IFRI training courses through joint courses)

f. Teaching profession / FAST

g. Software Engineering (similar to Computer Sciences, Software and Systems / IFRI)

h. Cyber security (similar to Computer Security /IFRI)

i. Management and information systems (similar to Information Systems and Computer Networks / IFRI)

j. Internet and Multimedia (IFRI)

k. Actuarial (FAST)

New offers will be launched. They are:

a. Master in Mathematical Engineering

b. Master’s degree in Information Systems Management (with SAP and Big Data certification)

c. Master’s degree in Data Science (associated with statistical/applied mathematics)

**KEY OBJECTIVES AND EXPECTED RESULTS**

This Centre is in line with the priorities of the Government of Benin, which aims to use ICTs as a catalyst for economic dynamics and modernization to accelerate economic growth and social inclusion. The medium-term challenge is to make Benin a platform of digital services for the whole of West Africa.

The setting up of this centre will meet the need to increase the quality and quantity of Master’s and PhD training courses in Mathematics and Applications (operational research, bio-statistics, economics and statistics), by making them more accessible to students in the sub-region, and will also provide better supervision of students in the sciences of massive data (Big Data), the Internet of Things (IoT) and digital sciences, based on the supercomputer acquired within the framework of CEA 1.

**KEY CAPABILITIES**

CEA-SMIA is hosted by the Institute of Mathematics and Physical Sciences (IMSP) of the University of Abomey-Calavi. The Institute has a campus of more than fifteen hectares with:

- Several classrooms and an auditorium with about 300 seats
- Three rooms equipped for videoconferencing (distance learning courses)
- An equipped library with several thousand books, but also a subscription to online magazines and newspapers.
- Two fifty-seater buses for student transport
- A supercomputer with an initial storage capacity of 250 TB and a computing capacity of approximately 30 Teraflops (possibility of performing 30,000 billion floating point operations per second).
MAIN ACHIEVEMENTS TO DATE

- Recruitment of Master’s and Doctoral students in the different fields,
- Organizations of international scientific meetings
- Implementation of new training offers
- Reorganization of the project implementation team

MAJOR REGIONAL AND GLOBAL PARTNERS

Among the very active institutional partnerships, it is important to note those existing with the Pierre and Marie Curie University and the University of Lille 1. Partnerships are concluded with the universities of Burundi, Cameroon, Mali and Niger, within the framework of the pooling of resources for training and the co-supervision of dissertations and theses. Several dissertations have been the subject of joint supervision between local researchers and their counterparts from foreign universities.

In support of these institutional partnerships, mention should be made of the strong support of exchanges from the Beninese diaspora in Europe, the USA and Canada, with their participation in the Centre’s scientific council.

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Primary Thematic Disciplines of the Centre:
- Water
- Sanitation
- Climate Change
BRIEF DESCRIPTION OF THE CENTRE

The Africa Center of Excellence for Water and Sanitation (C2EA) aims to provide Africa with a center of competence, expertise and innovation on water and sanitation.

This pole intends to take up the challenge of training highly qualified competent personnel (PCHQ) capable of solving the various operational problems which arise in the various countries of West and Central Africa while taking into account climatic specificities, geological and spatial of each country. The holistic approach to the issue of water and sanitation on the one hand, the taking into account of technological innovations in management and governance on the other hand, are chosen to respond effectively to this objective.

Concretely, the C2EA meets the needs of governments, companies, local communities in hydrologists, hydraulic engineers, hydrogeologists, water and sanitation specialists, sector and legal economists.

Thus, in initial training at both master’s and doctoral level or in short-term continuing education, efforts are concentrated on optimizing and strengthening the programs offered by the INE today and the creation of new complementary programs according to the needs, with a particular focus on hydrology / hydrogeology, hydraulics, hydro-informatics, electromechanical systems, governance and water management, risk and disaster management related to water and entrepreneurship.

KEY CAPABILITIES

- 12 classrooms with 1000 seats
- 03 research laboratories
- 03 university restaurants
- 1 multi-sports stadium (football, basketball and handball)

KEY OBJECTIVES AND EXPECTED RESULTS

The African Center of Excellence for Water and Sanitation (C2EA) aims to provide Africa with a center of competence, expertise and innovation in the field of water, sanitation and climate change.

The project specifically aims to:

- strengthen research carried out on crucial water, sanitation and climate change issues in order to provide innovative solutions and technologies for the mobilization and sustainable management of water resources, management and treatment water for domestic, industrial and agricultural needs;

- strengthen the quality of scientific and technological training in the fields of water, sanitation and climate change provided by the Center of Excellence and its partners to better meet the economic and social needs of the continent;

- increase the number of African students benefiting from high-level Masters and Doctorate training in the fields of water, sanitation and climate change, taking gender and geographic representation into account;

- facilitate access for professionals in the water and sanitation sector to higher quality training by offering qualifying and diploma training;

- promote entrepreneurship through incubation centers.
MAIN ACHIEVEMENTS TO DATE

- Preparation of the student booklet;
- Preparation of the Manual of administrative and financial procedures;
- Recruitment of new master students and organization of courses;
- Recruitment of doctoral students and start of research activities

MAIN REGIONAL AND GLOBAL PARTNERS

- Joint Research Center of the European Union
- Global Water Partnership, West Africa, Burkina-Faso
- Research Institute for Development (IRD), France
- Institute of Environmental Geosciences (IGE), France
- Institut National Polytechnique Houphouët-Boigny (INP-HB), Yamoussoukro, Cote d’Ivoire
- UNESCO-IHE, Delft, Netherlands

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College of Engineering in Energy, Transport Infrastructure and Environment (CoE-EIE)

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Primary Thematic Disciplines of the Centre:
• Energy, Transport Infrastructure and Environment
The “College of Engineering-EIE” (CoE-EIE) of the Ecole Polytechnique d’Abomey-Calavi (EPAC) aims to provide Africa with a centre of excellence for training, expertise and innovation in engineering in the industrial and biological sectors.

This project is perfectly in line with EPAC’s strategic development plan for the period 2019-2024 and has the following vision: “By 2024, EPAC is a centre of excellence equipped with state-of-the-art infrastructure and technologies, capable of meeting the needs for qualified human resources in technological innovation at the national, regional and international levels”. The CoE-EIE’s mission is to:

- strengthening teaching/learning capacity and excellence in training
- strengthening research, development and innovation capacity and excellence
- strengthening research, development and innovation capacity and excellence
- strengthening the academic/professional partnership
- strengthening governance and sustainable management

The CoE-EIE intends to take up the challenge of training competent personnel to solve development problems. Action research programmes focusing on current development challenges will focus on:

i. Renewable Energies and Energy Efficiency,
ii. Electricity and Electrotechnics,
iii. Waste-to-energy,
iv. Eco-materials and Environment,
v. Geotechnics and Transport Infrastructure.

Its objective is to meet the needs of governments, companies and local authorities by providing the labour market for engineers in the fields of energy, electrical engineering, transport infrastructure and the environment, using a strategy that:

- involves all stakeholders in the chain in defining training programmes and action-research themes aligned with the needs of industries and communities;
- uses advanced technologies in the development of research programs;
- promotes entrepreneurship, gender, sustainable development, cultural diversity and quality assurance in all CoE-EIE activities.

Thus, in the CoE-EIE training courses, both at master and doctoral levels, efforts will be concentrated on strengthening three programmes already offered at EPAC (Civil Engineering (including port engineering), Energy Engineering and Environmental Planning and Protection) and creating two new complementary programmes (Strategic Planning and Management of Electrical Energy and Waste Treatment and Recovery Processes).

The two new training offers were initiated because they are in line with the needs of the labour market. In addition, the treatment of problems related to the production, transport, distribution, planning and management of electrical energy on the one hand, and the treatment and recovery of waste on the other, are among the priorities of Benin's development plan (link on the Internet), which allows the operationalization of Axis 5 “Improving the performance of education” and Pillar 2 “Initiating the structural transformation of the economy” of the Government’s Programme of Action (PAG 2016-2021): “Benin Revealed” (link on the internet).
KEY CAPABILITIES

- 12 classrooms with 1000 seats
- 05 research laboratories
- 03 university restaurants
- 1 all-sports stadium (football, basketball and handball)

MAIN ACHIEVEMENTS TO DATE

- Elaboration of the students’ booklet;
- Preparation of the Administrative and Financial Procedures Manual;
- Recruitment of new master students and organization of courses;
- Recruitment of doctoral students and start of research activities;

MAJOR REGIONAL AND GLOBAL PARTNERS

- Institut National Polytechnique Houphouët-Boigny (INP-HB), Yamoussoukro, Cote d’Ivoire
- University of Liège, Arlon Campus
- Ecole Supérieure Polytechnique de Dakar (Senegal)
- University of Dschang in Cameroon / Civil Engineering - Building Materials
- University of Lomé (Togo)/Department of Physics
- UBFC / UFR STGI Belfort
- Société Béninoise d’Energie du Bénin (SBEE)
- Société des Ciments du Bénin (SCB)

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Center for Studies, Training and Research in Social Risk Management (CEFORGRIS)

University and Host Country:
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Primary Thematic Disciplines of the Centre:
- Management and Assessment of Risks and Social Impacts
- Environmental and Social Safeguard
- Research Methods in Social Sciences
- Health and safety at work
- Natural resources, societies and risk
- Educational engineering
- Expropriations, resettlement and rehabilitation
- Water-based environmental and social assessments and safeguards
- Environmental and social assessments and safeguards focused on the agricultural sectors
- Natural resources, societies and risk
- Community Health
- Social and Gender Risk Assessment
- Social risk assessment
CEA-CEFORGRIS was born out of the will of academic (Joseph Ki-Zerbo University and Ouaga II University) and sectoral (BUNEE and EXPERIENTS) partners, private and public, to pool their scientific and technical skills and coordinate their leadership in the fields of environmental and social safeguarding, the engineering of initial and continuing professional training, and the management of research and expertise, with the aim of providing the French-speaking region with a Center on environmental and social safeguards.

In its implementation process, CEA-CEFORGRIS is part of a continuous process of regionalization, extension of its training programs, continuous improvement of the quality of training and staff management in order to be able to ensure optimal supervision of students.

**KEY OBJECTIVES AND EXPECTED RESULTS**

**Vision of the Center:**
The vision of the Center for Studies, Training and Research in Social Risk Management (CEFORGRIS) is to make the higher education and research system a tool for sustainable development.

**Objectives of the Center:**
To train competent professionals and create expertise services in the field of social risk assessment and management.

**EXPECTED RESULTS**

- Strengthening the skills of the CEFORGRIS coordination team and teachers;
- Development of a doctoral program in social risk assessment and management;
- Offer of short courses on predefined themes
- Creation of an environment favorable to research and training;
- Support for applied research;
- Dissemination of the results of the Centre’s work;
- Development of academic and industrial partnerships and creation of a communication system;
- Development and supply of expertise services in social risk assessment and management.

**MAIN ACHIEVEMENTS TO DATE**

- Implementation of a Master program
- Student recruitment
- Validated preparation documents
- Appointment of members of the coordination team
- Management training for members of the coordination team
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Primary Thematic Disciplines of the Centre:
- Improving Pharmaceutical Management and Practice in Hospitals;
- Research and development of herbal medicines;
- Development of innovative pharmaceutical forms (amorphisation, nano-medicines) of active ingredients of sub-regional interest (e.g. antimalarial drugs).
CEA-CFOREM has been selected in the framework of the call for applications for African Centres of Excellence for Impact projects launched by the World Bank in 2018.

The Centre is at the interface of the training (UFR / Health Sciences (UFR/SDS)) and research (Doctoral School Sciences and Health (ED2S)) institutions of the Joseph Ki-ZERBO University. Its aim is to contribute to the improvement of the access of the populations of the West African sub-region to quality medicines through the training of human resources and scientific research in the fields of medicine sciences. A pool of Burkinabe, sub-regional and international trainers leads various high-level training programmes.

Depending on the course of study, these programmes lead to a Certificate, a Master’s Degree in Health and Medicinal Sciences or a University Doctorate (PhD), depending on the course of study. Several national and sub-regional students (Benin, Côte d'Ivoire, Mali, Niger, Togo, ...) are already involved in these programmes. To strengthen its performance and attractiveness, CEA-CFOREM is implementing a gender-sensitive scholarship policy, a programme to support sectoral partnerships and a development plan for its technical platform for training and research.

**EXPECTED RESULTS**

- Training opportunities in drug science in the sub-region are being strengthened;
- An attractive study and living environment for students and learners at the centre is available;
- An appropriate framework for pharmaceutical education and research is put in place;
- Good results in pharmaceutical research and development of regional interest are produced in the framework of the theses and PhDs of the Centre’s students;
- The results of scientific research are promoted through publications, patents and university spinoffs;
- High-level pharmaceutical expertise is provided to national and sub-regional sector partners.

**KEY CAPABILITIES**

- Training opportunities in drug science in the sub-region are being strengthened;
- An attractive study and living environment for students and learners at the centre is available;
- An appropriate framework for pharmaceutical education and research is put in place;
- Good results in pharmaceutical research and development of regional interest are produced in the framework of the theses and PhDs of the Centre’s students;
- The results of scientific research are promoted through publications, patents and university spinoffs;
- High-level pharmaceutical expertise is provided to national and sub-regional sector partners.

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**BRIEF DESCRIPTION OF THE CENTRE**

**CEA-CFOREM**

**KEY OBJECTIVES AND EXPECTED RESULTS**

- To provide Burkina Faso and other countries of the West African sub-region with a critical mass of high-level human resources, qualified and competent in the various fields of medicinal sciences, and meeting the needs of public and private sector partners;
- To improve the capacity and quality of academic research in drug sciences in West Africa.
MAINTACHIEVEMENTSTODATE

1. Elaboration of preparatory documents for the 2019-2024 project;
2. Adoption of the decree for the creation of the Master’s degree in health and medicine sciences by the Ministry of Higher Education;
3. Recruitment and training of Master, PhD and certificate students;
4. Student internships with sector and scientific partners;
5. Participation of the project team in congresses and trainings.

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African Centre of Excellence in Biotechnological Innovations for the Elimination of Vectorborne Diseases (ACE/ITECH-MTV)

University and Host Country:
Université Nazi BONI - Burkina Faso

Centre’s Website:
http://cea-itech.u-naziboni.bf/cea/

Centre Leader:
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Primary Thematic Disciplines of the Centre:
- Medical and Veterinary Entomology
- Ecosystems - Health - Societies
- Molecular Biology & Genetic Engineering
- Biosecurity - Biosafety - Quality Management
**BRIEF DESCRIPTION OF THE CENTRE**

The thematic area of ECA/ITECH-MTV is health, specifically on issues related to biotechnology and other control tools that contribute to the elimination of vector-borne diseases, including malaria.

A total of 7 main research themes are addressed, namely

- **Theme 1** Genetic approaches to vector control;
- **Theme 2** Insecticide resistance, resistance management;
- **Theme 3** Ecology and Reproductive Behaviour;
- **Theme 4** Host-pathogen interactions and strategies to block transmission;
- **Theme 5** Social Sciences in Health and MTV;
- **Theme 6** Neglected Tropical Diseases (NTDs);
- **Theme 7** Biosafety, Regulation of Modified Genetic Organisms, and Quality Assurance;

CEA/ITECH-MTV works in close collaboration with Health Sciences Research Institute (IRSS) and in partnership with a pool of more than seventeen (17) leading technical institutions (with associate members), each in its field at the national, regional and international level to achieve training and research objectives.

**KEY OBJECTIVES AND EXPECTED RESULTS**

The CEA/ITECH-MTV aims to train a critical mass of specialists in disease vectors through a high quality diploma course supported by a high-performance research programme:

- provide a large pool of human capital (100 Masters, 50 PhDs and hundreds of short courses) through high quality training thanks to access to a research and teaching platform of international standard;
- valorise the results of research and teaching by absorbing graduates into the reception structures concerned by the technology, the scientific publication of results, the implementation of the recommendations of the research results in the service of the sectoral ministries concerned and their branches such as the national programme for the fight against malaria, the direction of the disease;

- encourage the creation of enterprises by learners through the real involvement of the national agency for the valorisation of research and innovation results (ANVAR) and the chamber of commerce and industry representing the business world in the formatting of curricula, the monitoring of results and the setting up of special start-up funds for innovative ideas.

**KEY CAPABILITIES**

- Containment level 2 or ACL2 insectarium for breeding genetically modified mosquitoes;
- Biological testing laboratory whose work is undergoing WHO accreditation;
- Microbiology, parasitology, entomology, biology and virology, molecular biology laboratories;
- Fully equipped P3 laboratory;
- Insectarium of Bobo-Dioulasso - Coping with Trypanosomiasis and Tsetse fly eradication campaigns (IBD-CETT) or (e.g. PATTEC).

**MAIN ACHIEVEMENTS TO DATE**

- Refurbishment of the premises for the establishment of the CEA/ITECH-MTV headquarters;
- Short training course “TRAINING IN VECTOR BIONOMICS AND INNOVATIVE VECTOR CONTROL STRATEGIES FOR MALARIA ELIMINATION” from 19-30 August 2019;
- Recruitment of two cohorts of Masters and PhD students on behalf of CEA;
- Creation of a new specialty called “PhD in Biosafety - Biosecurity - Quality Management”.

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8. Prof. Frédéric TRIPET
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   Vector Ecology

9. Prof. Hilary RANSON
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   Insecticide resistance of vectors

10. Prof. Steven SINKINS
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     Microbiology of endosymbionts
African Center of Excellence on Climate Change, Biodiversity and Sustainable Agriculture (WASCAL/CEA-CCBAD)

University and Host Country:
Felix Houphouët-Boigny University of Abidjan - Côte d’Ivoire

Centre’s Website:
www.wascal-ci.org

Centre Leader:
Prof. KONE Daouda

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Primary Thematic Disciplines of the Centre:
• Climate Change in relation to Climate Systems
• Climate Change and Biodiversity and Ecosystem Services
• Climate Change and Sustainable Agriculture
BRIEF DESCRIPTION OF THE CENTRE

The African Center of Excellence on Climate Change, Biodiversity and Sustainable Agriculture (CEA-CCBAD) is based on the WASCAL Doctoral School of Côte d’Ivoire (West African Center of Scientific Service on Climate Change and Adapted Land Use) attached to the UFR Biosciences of the University Félix Houphouët-Boigny.

It is within the framework of its regional outreach strategy that the WASCAL Doctoral School of Côte d’Ivoire has been selected as an African Center of Excellence with a financial support of 5.3 million Euros from the World Bank over 5 years (2016-2020) to develop Excellence in Training and Scientific Research in the fields of Climate Change, Biodiversity and Sustainable Agriculture.

The CEA-CCBAD focuses on training graduates on issues related to ecosystems, biodiversity, food production, water, and productive and sustainable forestry in the context of climate change affecting the region. This includes graduate training and knowledge production related to: (i) the protection of water resources, the fight against soil erosion, the protection and better use of biodiversity, the adoption of resistance crop projects, the protection of forest production through, for example, pollinators. The center trains graduate on interdisciplinary subjects so that they are able to work with all the players in the sector.

KEY OBJECTIVES AND EXPECTED RESULTS

Objectives:
• Training in Masters and Doctorates with three themes: (i) Climate change related to climate systems, (ii) Climate change and biodiversity and ecosystem services, (iii) Climate change and sustainable agriculture.
• Effective scientific research to develop technologies and services to society in the areas of climate change, biodiversity and sustainable agriculture in Africa.

Expected Results:
• Doctoral and Master’s programs, 30% of which are foreign students and 30% are women.
• Program quality improvement and international accreditation
• Development of research with publications in listed international journals
• Development of collaboration with institutional and private partners to generate more revenues
• Improvement of the working environment through the construction of buildings and the acquisition of modern equipment for teaching and research
• Reinforcement of the innovation platform to facilitate access to knowledge to users in order to impact the results obtained.
• Reinforce bilingualism in the training offer of the center and its partners.
• Development of climate services and adaptation and mitigation scenarios
KEY CAPABILITIES

- Construction of three buildings A, B and C
  - Building A (5 laboratories, 1 amphitheater of 120 seats, 2 meeting rooms, 2 classrooms, 1 refectory, 1 room for the library, 2 workshops, 1 room for samples, 1 room for lab fridges, 1 study room, 1 multimedia room, 9 offices, 1 waiting rooms, a parking lot, toilets and the fence)
  - Building B (4 laboratories, 6 offices and washrooms).
  - Building C (2 laboratories, 2 classrooms, 4 offices and toilets).

- Rehabilitation of buildings and rehabilitation of the 48 rooms + laboratories
- Establishment of an online library
- 5 laboratories installed:
  - Language Laboratory
  - Cartography room
  - Climate Laboratory
  - Microscopic Laboratory
  - Cell Culture Laboratory

- Installation of a generator set

MAIN ACHIEVEMENTS TO DATE

- Training of 231 students of 17 nationalities (119 Master and 112 PhD)
- Training of 484 auditors, including 130 regional auditors in short training courses.
- Accreditation of the 4 training offers
  - For the "Wascal" doctorate: accreditation for 5 years without reserve, with some recommendations;
  - For the three other courses (the two masters degrees BVE and BBB and the PhD Biosciences)
- 194 articles were produced by national and foreign researchers

MAIN REGIONAL AND GLOBAL PARTNERS

1. University of Ouagadougou 2
2. The Louis OMER-DERCUGIS Foundation
3. International Centre for Theoretical Physics
4. Laboratory of Applied Ecology, Faculty of Agronomic Sciences of the University of Abomey-Calavia (LEA/FSA/UAC)
5. West African Science Service Center on Climate Change and Adaptive Land Use (WASCAL)
6. Korea Institute Of Science And Technology (KIST)
7. Mali (IER-University and Sugar Producers)
8. CIPE
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In charge of short term training courses
National School of Statistics and Applied Economics (ENSEA)

University and Host Country:
National School of Statistics and Applied Economics (ENSEA)
Cote d’Ivoire

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Primary Thematic Disciplines of the Centre:
• STATISTICS - APPLIED ECONOMY
• Data Science and Policy Evaluation
• Micro and Macroeconomic Modelling
The Ecole Nationale Supérieure de Statistique et d’Économie Appliquée (ENSEA) in Abidjan is the main statistical training institution in Africa. Created in 1961 with the support of the European Commission and the French Cooperation, its vocation is the training of African statisticians for both the private and public sectors.

ENSEA carries out three types of activities: initial training, continuing education and research (academic and/or applied). In addition to the latter, it also provides technical assistance at the request of public, private and para-public institutions in its fields of competence.

The quality of the training delivered by ENSEA enabled it to obtain the label of Regional Centre of Excellence of the UEMOA in 2005 and that of African Centre of Excellence of the World Bank in 2015.

Since its creation, ENSEA has trained more than 4,000 statisticians from about twenty African countries, including non-French-speaking countries such as South Africa, Liberia, Equatorial Guinea and Cape Verde.

It is part of the African Statistical Training Schools (ESA) Network, the African Group on Statistical Training and Human Resources (AGROST) and the Global Network of Institutions for Statistical Training (GIST).

### KEY OBJECTIVES AND EXPECTED RESULTS

The general objective, through the project, is to make ENSEA an attractive and internationally recognized centre of excellence in its two key areas. Five (5) major specific objectives are associated with it:

- **Improving the quality and international recognition of the training offer;** This includes reviewing the content of the pedagogical offer in both continuing and initial training, and having the institution and its training programmes accredited.

- **Developing the quality and visibility of research;** This must be reflected in the development of doctoral training and an increase in the scientific publications of researchers.

- **Adapting the technological environment to the needs of training, research and administration;** The aim is to modernise infrastructure and strengthen IT capacity.

- **Provide a quality environment for students;** This must be reflected in an improvement in its attractiveness, an increase in reception capacities and the implementation of initiatives to strengthen regionalisation and gender promotion.

- **Provide ENSEA with the necessary means to ensure its development;** This includes modernizing its financial and accounting services, improving its communication activities and installing and operationalizing credible governance bodies.

### BRIEF DESCRIPTION OF THE CENTRE

#### KEY CAPABILITIES

- A pleasant working environment with adequate infrastructures on a 3 ha site including a welcoming green space.
- 4 blocks of buildings housing classrooms, research rooms, offices and a 200-seat amphitheatre adapted to the size of the institution
- A University Restaurant, cafeteria, infirmary and studios for visiting professors
- 3 machine rooms for computer work and 1 language laboratory with 21 seats
- 2 cities for students and buses for group outings
MAIN ACHIEVEMENTS TO DATE

- **Pedagogical Renovation**: Creation of a 3-year cycle equivalent to a bachelor’s degree, called Statistical Analysts and revision of the Cycle des Ingénieurs Statisticiens Economistes;

- **International Accreditation**: International accreditation of the ISE sector obtained in October 2019 according to the Eur-Ace Label by the CTI;

- **Doctoral Training**: Opening of a doctoral training with about ten students in two classes;

- **Valorization of Research**: Two editions of the International Conference on Statistics and Applied Economics (CISEA) were held.

- **Management and Governance**: The functioning of three CEA bodies (Steering Committee, Technical Committee and Scientific Council) was ensured.

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African Centre of Excellence for the Valorisation of Waste into High Value Added Products (ValoPro)

University and Host Country:
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Primary Thematic Disciplines of the Centre:
• Waste recovery
**BRIEF DESCRIPTION OF THE CENTRE**

The Centre of Excellence for the Recovery of Waste into High Added Value Products (ValoPro) is a World Bank centre, funded by the French Development Agency (AFD) in 2019. It aims to develop a centre of expertise and innovation in waste recovery in Africa.

The international nature of the issue addressed has led us to form a consortium of academic partners from Africa in order to bring the benefits of the centre to these countries and benefit from our mutual experiences. The centre intends to take up the challenge of training highly qualified personnel (HQP) to effectively address issues of treatment and recovery of agricultural, agro-industrial, household, electronic, electrical and plastic waste. This training will be supported by a very high level research programme based on a constructive dialogue with the socio-professional sector. The governing bodies of the centre are

- Sector Advisory Council (SAC)
- International Scientific Advisory Board (2SAB)
- Steering Committee (CoPi)
- Financial Management Committee (FMC)
- Student Selection Committee (SSC)
- Internal Audit Committee (IAC)
- Procurement Commission (CPM)
- Steering Committee (SC)

**KEY OBJECTIVES AND EXPECTED RESULTS**

The five major objectives of the centre are:

1. Develop courses for the training of highly qualified personnel (HQP)
2. Carry out innovative research activities of the highest level
3. Building and equipping a world-class research laboratory
4. Develop a strategy for collaboration with the professional sector
5. Incubating young graduates

The expected results are:

1. **Plan for Learning Excellence**:
   - Master’s degree courses are created on the basis of a business survey.
   - Practical work and training equipment is acquired and installed.
   - The training courses are accredited by CAMES and HCERES.

2. **Plan for Research Excellence**
   - Researchers’ capacities are strengthened
   - A central laboratory is built and certified ISO 9001
   - State-of-the-art equipment is acquired and installed - The doctoral training is accredited by CAMES and HCERES.
   - Innovative waste transformation processes are developed and published

3. **Governance Excellence Plan**
   - Seminars are organized for staff
   - An ambitious communication and visibility plan is developed and implemented

**KEY CAPABILITIES**

- Well-equipped language laboratory
- Student Residence
- Technology Hall
- University Restaurant
- Sports Complex

**MAIN ACHIEVEMENTS TO DATE**

- 2 master programs created
- 20 students recruited in 2019 (5 doctoral students and 15 masters)
- 10 publications in 2019
- More than 257,000 Euros in revenue generated
- Manufacture of gels, hydro-alcoholic solutions and disinfectants in the context of the fight against VIDOC 19
MAIN REGIONAL AND GLOBAL PARTNERS

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African Centre Of Excellence For Logistics And Transport (CEALT)

**University and Host Country:**
University Of Djibouti - Republic Of Djibouti

**Centre’s Website:**
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**Centre Leader:**
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**Primary Thematic Disciplines of the Centre:**
- The Centre specializes in the fields of Logistics and Transport and STEM through its Co-E component.
BRIEF DESCRIPTION OF THE CENTRE

The CEALT centre consists of 2 components CELT (Logistics and Transport) and Co-E (College of Engineering).

It is equipped with an infrastructure that meets international standards and welcomes motivated Master and Doctorate students selected through competitions among the Bachelor’s degrees offered by the University of Djibouti.

KEY OBJECTIVES AND EXPECTED RESULTS

The CEALT centre aims to provide the Republic of Djibouti and the countries of the region with highly competent and innovative technicians, specialists, engineers and managers in the strategic sectors of African development, namely Logistics, Transport, Innovation and Entrepreneurship.

It also aims to provide engineering training in response to the real needs identified in the promising socio-economic sectors such as transport systems, electrical and energy engineering (EEE), civil engineering (GC), and data sciences (MDS).

The centre aims to raise the profile of research within the University of Djibouti through the production of high-level scientific research papers.

MAIN ACHIEVEMENTS TO DATE

- Recruitment of the first class of 9 PhD students from the University of Djibouti
- Reinforcement of the Master’s degree in Electrical and Electronic Engineering
- Reinforcement of the Master in Civil Engineering
- Reinforcement of the Master in Logistics and Transport
- Implementation of a Master’s degree in Data Sciences since the start of the 2019 academic year.

MAIN REGIONAL AND GLOBAL PARTNERS

1. Istanbul Technical University (ITU)
   Master GEE, GC+ Doctorat
2. University of Paris 1 La Sorbonne
   Master in Logistics and Transport
3. University of Clermont-Auvergne
   Master Data Sciences
4. University of Tangier in Morocco
   Master Data Sciences
5. Al Mohammadia University
   Master’s degree in transport engineering (Opening Soon)

KEY CAPABILITIES

- A site with international standards
- A Smartclass
- A Fablab
- Two Laboratories of Electrical and Electronic Engineering and Civil Engineering
- Equipped computer rooms
1. Dr. Sadat Saleh Said  
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   Parasitology-Entomology

2. Dr. Deka  
   Email  
   STEM

3. Mr. Abdou Idriss  
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Africa Centre of Excellence in Coastal Resilience (ACECoR)

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Primary Thematic Disciplines of the Centre:
- Coastal Geomorphology and Engineering
- Climate Change Adaptation and Mitigation
- Blue economy, Governance and Social Resilience
- Disaster Risk Management and Migration and
- Ecosystems and Biodiversity.
BRIEF DESCRIPTION OF THE CENTRE

The Centre for Coastal Management (CCM) which was established in December, 2013 in the School of Biological Sciences of the College of Agriculture and Natural Sciences (CANS) of the University of Cape Coast (UCC) responded to the call for application.

CCM was competitively selected to establish the Africa Centre of Excellence in Coastal Resilience (ACECoR). ACECoR is, therefore, the new image for CCM which has as its vision: To become a Centre of Excellence in coastal management contributing to global efforts to safeguard healthy coastal ecosystems for sustained provision of goods and services.

Recognizing that Coastal Degradation is a complex and multifaceted problem, the overall research strategy for the Africa Centre of Excellence in Coastal Resilience (ACECoR) will be a systems-based approach where smaller research projects that are multidisciplinary and interdisciplinary are being developed to eventually feed into a broad goal of addressing the challenge of Coastal Degradation. The main aim of the research plan of ACECoR is to provide data and information to support development of policies to address coastal degradation. In this regard, ACECoR seeks to train 120 graduates at the postgraduate (PhD and Masters) levels in addition to 260 professionals (in short courses) across Africa.

KEY OBJECTIVES AND EXPECTED RESULTS

The objective of ACECoR is to support the development of technical and scientific capacity of young African professionals to develop integrated solutions to address coastal degradation in the countries of intervention through short– to long-term professional and academic training programmes.

ACECoR seeks to carry out education, research and outreach programmes while focusing on regional participation and the inclusion of female, all geared towards the advancement of sustainable use and management of marine and coastal assets in the partner countries to be involved. This is expected to be achieved through collaboration with academia, research institutions and industry, locally as well as international partnerships.

The expected outcome are as follows:
1. Highly skilled postgraduate (PhD and MPhil) students, post-doctoral fellows and professionals trained
2. Applied research on cross cutting issues on marine and coastal degradation conducted
3. Access to data or information for management of coastal degradation enhanced
4. Effective integrated coastal zone management policies developed
5. Marine and coastal resources are managed in a sustainable manner

MAJOR ACCOMPLISHMENTS TO DATE

- Completion of Institutional Readiness (DLI 1.1, DLI 1.2)
- Admitted First Cohort of Students (30 MPhil; 15 PhD) and trained 56 individuals in Professorial Short Courses
- Refurbishment of a four classroom facility with offices for teaching and learning
- Acquisition of land/space and development of impressions for ACECoR multipurpose building
- Completion of Environmental and Social Impact Assessment

KEY CAPABILITIES

- Fisheries and Coastal Research Laboratory
- Field Equipment
- Workstations for students
- Libraries
- Accommodation for Students and Visiting Lecturers
**MAIN REGIONAL AND GLOBAL PARTNERS**

1. University of Rhode Island, USA
2. Fisheries Committee for the West Central Gulf of Guinea
3. University of Abomey, Calavi
4. University of Calabar, Nigeria
5. The Development Institute, Ghana
6. Friends of the Nation, Ghana
7. Hen Mpoano, Ghana
8. University of Liverpool, United Kingdom

**PRIMARY RESEARCH FACULTY MEMBERS**

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   Climate Change and Adaptation

3. Ms. Ivy Gyimah Akouko  
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   Blue Economy, Governance and Social Resilience
Regional Centre for Energy and Environmental Sustainability (RCEES)

University and Host Country:
University of Energy and Natural Resources (UENR), Ghana

Centre’s Website:
https://www.rcees.uenr.edu.gh/

Centre Director:
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Primary Thematic Disciplines of the Centre:
- Energy and Environmental Sustainability
**BRIEF DESCRIPTION OF THE CENTRE**

The Regional Centre for Energy and Environmental Sustainability (RCEES) is an African Centre of Excellence committed to providing quality teaching, learning, research to advance the development of future leaders in the disciplines of Energy and Environment.

The Centre provides accredited tailor-made postgraduate programmes in the fields of Energy and Environment with the aim to develop and train expertise geared towards universal energy access, energy efficiency and promoting renewable energy. We are committed to focusing on themes related to climate change adaptation, the environmental impact of energy production and use, environmental sustainability and other relevant areas.

For students and professionals who are passionate about providing solutions to the energy and environmental challenges of the 21st Century, RCEES offers cutting edge Master and Doctoral programmes, and short courses with an unparalleled student-centred learning experience for skills and competencies development. We provide our students with the relevant skills and training to ensure their competitiveness and immense contribution to society through innovative discoveries and applications. Our postgraduate research programs are the hallmark of the RCEES as a centre of excellence.

**KEY CAPABILITIES**

- A well-resourced Renewable Energy Laboratory
- Solar PV Installation Training Facilities
- Off-grid solar installation systems (Solar street lights and home systems) for demonstration and training purposes
- Earth Observation and Ground station services at the Earth Observation, Research and Innovation Centre (EORIC)

**KEY OBJECTIVES AND EXPECTED RESULTS**

The Vision of RCEES is: “to be the leading internationally accredited Centre of Excellence that provides Quality Research and Postgraduate Education in Energy and Environmental Sustainability.

Our mission is to provide Excellent and Quality Postgraduate Education, Discover, Preserve and Disseminate cutting-edge interdisciplinary Research. RCEES also aims, through Training and Capacity Building, Consulting, Professional Development, and securing Grants and Donor funding to enhance the lives of our students, industry and society.

The expected outcomes for the centre include

1. To put up a world class teaching infrastructure
2. To maintain and enhance world-class teaching, research and scholarship.
3. To ensure the financial sustainability of RCEES.
4. To attract, recruit, nurture and retain a diverse staff and faculty that support RCEES’ mandate.
5. To build and sustain strong partnerships with industry and other key stakeholders.

**MAJOR ACCOMPLISHMENTS TO DATE**

- Recruitment of our first cohort of students including 23 regional students (33%) and 24 females (38%)
- Procurement of consultants for Centre Building accomplished. Procurement process for Contractor for the centre building ongoing
- Official launching of the centre in December 2019
MAIN REGIONAL AND GLOBAL PARTNERS

1. ECOWAS Centre for Renewable Energy and Energy Efficiency
2. Advanced Energy and Material Systems Lab (AEMSLab) - University of Canterbury
3. Strategic Power Solutions
4. Bui Power Authority
5. Sunyani Technical University
6. Brew-Hammond Energy Centre
7. Accra Compost & Recycling Plant
8. Ghana Institution of Engineering

PRIMARY RESEARCH FACULTY MEMBERS

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KNUST Engineering Education Project (KEEP)

University and Host Country:
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Centre’s Website:
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Centre Leader:
Prof. Kwabena Biritwum Nyarko

Deputy Centre Leader:
Dr. Jerry John Kponyo

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Primary Thematic Disciplines of the Centre:
• Engineering with a focus on Energy and Digital Development
BRIEF DESCRIPTION OF THE CENTRE

The Centre seeks to address the shortage of high-level skills and applied research in the area of Energy and Digital Development in Ghana and the sub-region.

The vision of KEEP is to contribute to Ghana and the sub-region's industrial and digital revolution through excellence in engineering education, research and innovation.

The Centre is focused on strengthening postgraduate education at the College of Engineering, conducting, and disseminating applied research focused on addressing development challenges related to industrialization, digital development and energy.

The quality of education will be improved through the provision of infrastructure (classrooms and equipment) to enhance learning and research environment, structured internship with industry, collaboration with other universities, innovation and startups development. Applied research will be enhanced through strong partnership with industry - contract research, industry funded research that addresses priority applied research questions that meets the need of industry.

KEY OBJECTIVES AND EXPECTED RESULTS

The key objectives are:
- Increase access to high quality postgraduate engineering education and research
- Conduct high quality applied research that meets the needs of the end users.
- Strengthen existing collaborations and establish new ones with Industry and academic partners for enhanced research and training
- Drive innovation in engineering through the establishment of an innovation challenge fund to support startups.
- Increase female enrollment in postgraduate education in engineering.

The expected outcomes include:
- Train at least 75 PhDs and 100 Masters students
- Improved applied research in engineering programmes
- Increased research uptake in priority sectors (energy and digital development)
- Increased number of highly skilled workforce to drive economic transformation
- 10 startups emerging from the College of Engineering innovation challenge

KEY CAPACITIES

- State-of-the-art laboratories for Energy (Petroleum Engineering, Chemical Engineering, Renewable Energy)
  - Laboratory analysis for the oil and gas sector
  - Energy audit
- Texas Instrument Cadence Laboratory for Microelectronic Circuits Research
- High Voltage and Power Systems Simulation Laboratory
- College Innovation & Incubation Centre
- Brew Hammond Energy Centre to support Energy Research

MAJOR ACCOMPLISHMENTS TO DATE

- The Centre has enrolled 37 PhDs and 81 MSc students
- Establishment of a functional Sectoral Advisory Board made up of key industry players in Energy and Digital Development.
- Establishment of four functional thematic research groups to drive research in Energy and Digital Development.
- Establishment of the Responsible AI Network (RAIN) Africa in collaboration with Technical University of Munich to support collaborative AI research in Africa.
- Successful development of a prototype ventilator to support the fight against COVID-19.
### PRIMARY RESEARCH FACULTY MEMBERS

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   Intelligent agents, Algorithm Design and Optimization, Network security and Energy Efficiency

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10. **Dr. (Mrs.) Eunice Akyereko Adjei**  
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    Sustainable Energy Technology

### MAIN REGIONAL AND GLOBAL PARTNERS

1. Gambian Technical Training Institute
2. Norwegian University of Science & Technology
3. Technical University of Munich
4. Stellenbosch University
5. University of Johannesburg
6. IIT Madras
7. Manipal University, India
West Africa Centre for Crop Improvement (WACCI)

University and Host Country:
University of Ghana, Ghana

Centre’s Website:
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Primary Thematic Disciplines of the Centre:
• Agricultural Innovation and Entrepreneurship
The West Africa Centre for Crop Improvement (WACCI) was established as a partnership between the University of Ghana (UG) and Cornell University, USA, in June 2007 to train Plant Breeders at the PhD level at UG, Legon.

This partnership was driven by the earnest desire to train African plant breeders on the staple crops of Africa.

Recognising the dire need for seed scientists and technologists in National Agriculture Research Systems, WACCI introduced an innovative MPhil programme in Seed Science and Technology in 2015 under the World Bank Africa Centres of Excellence (ACE I) project.

Under a new project, the ACE for Development Impact, WACCI is partnering with the Departments of Crop Science, Agricultural Economics and Agribusiness and Agricultural Extension of the School of Agriculture, UG to run postgraduate programmes in Agronomy, Pathology, Genetics and Plant Breeding, Entomology, Post-harvest Technology, Horticulture, Agribusiness and Entrepreneurship and Agricultural Extension.

These collaborations meet the Centre’s aspirations to become an African Centre of Excellence for Agricultural Innovation and Entrepreneurship. The Centre is committed to quality assurance and guided by the core values of excellence, integrity, commitment to people, culture of mentoring, accountability and shared governance.

**BRIEF DESCRIPTION OF THE CENTRE**

**KEY OBJECTIVES AND EXPECTED RESULTS**

Key Objectives are to:
- strengthen WACCI’s PhD Programme in plant breeding and other related postgraduate programmes run at the Department of Crop Science, Department of Economics and Agribusiness and Department of Agricultural Extension by defining the educational pathway, from Masters to PhD level, with implications for more robust post-graduate programmes at UG;
- improve the productivity and quality of selected crops in collaboration with strategic partners;
- engage farmers, extension agents and advisors to build the capacity to improve productivity in farmers’ fields;
- equip young graduates with the knowledge and skills needed to birth innovations and grow research outputs into Agri-businesses/startups within targeted crop value chains

Expected Outcomes are:
- trained crop improvement scientists and agri-entrepreneurs that will stimulate growth in the agricultural sector and contribute significantly towards food and nutrition security and socio-economic development
- value chains of soybean, maize, tomato and cassava impacted through the development of new products for increased nutrition and start-up companies for emerging markets
- enhanced research and development impact in SSA towards food and nutrition security
- increased production of improved higher yielding varieties of staples
- increased household incomes through the adoption of improved varieties of nutrient dense crops
- informed media persons and policy makers to impact development
KEY CAPACITIES

• A model farm with a 5-acre irrigable area using drip-irrigation all-year round for phenotyping under field conditions and applied research

• Lecture rooms fitted with projectors and screens for instruction as well as with white boards for teaching

• A well-equipped seed science laboratory for seed quality and seed health testing

• A tissue culture laboratory with state-of the art facilities for cell and tissue culture and plant transformation

• A 27-seater modern bioinformatics lab networked to a high-performance computer for gene mining and data analysis

• 150-capacity Conference room, 25-seater Board Room with video conference facility and an Enterprise hub to serve as an Innovation Centre

MAJOR ACCOMPLISHMENTS TO DATE

• enrolled 137 PhD Plant Breeding students and 55 MPhil Seed Science and Technology students from 19 African countries

• graduated 81 PhD and 14 MPhil students, making WACCI the preeminent institution at the PhD plant breeding level globally

• over 160 research articles published in peer-reviewed journals and over 60 improved varieties of staple crops released in 5 countries

• established the Kofi Annan Enterprise Hub for Agricultural Innovation and Entrepreneurship for training of the youth in agro-entrepreneurship

• 3 yielding (9 - 11 t/ha) hybrid maize varieties released by the WACCI; Varieties are being scaled up for commercialization

MAIN REGIONAL AND GLOBAL PARTNERS

1. Seed Co., Zimbabwe
2. International Institute for Tropical Agriculture, Ibadan, Nigeria
3. International Crops Research Institute for the Semi-Arid Tropics, Mali & India
4. Africa Rice, Abidjan, Cote d’Ivoire
5. Cornell University, Ithaca, USA
6. University of Illinois, Urbana Champaign, USA
7. Syngenta Foundation for Sustainable Agriculture (SFSA), Basel, Switzerland
8. Corteva Agriscience, USA
PRIMARY RESEARCH FACULTY MEMBERS

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Plant Molecular Genetics & Plant Breeding
Regional Water and Environmental Sanitation Centre Kumasi (RWESCK)

University and Host Country:
Kwame Nkrumah University of Science and Technology, Kumasi

Centre’s Website:
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Primary Thematic Disciplines of the Centre:
- Water and Environmental Sanitation Engineering, Technology, Resilience Systems and Management.
**BRIEF DESCRIPTION OF THE CENTRE**

The Regional Water and Environmental Sanitation Centre Kumasi (RWESCK) is an innovative research and development (IR&D) centre with the vision to be a recognized hub for advancing research knowledge, developing innovative technologies, providing high-quality training in water, sanitation and hygiene (WASH) for sustainable development of West Africa.

Our core mandate is to develop products, systems and innovative technologies related to WASH as well as strengthen the human resource capacity in Ghana and the sub-region in WASH.

Our areas of expertise include modelling, designs and management of systems for water resources, climate resilience, water treatment, water distribution, waste management and environmental sanitation.

RWESCK’s cutting edge innovative research and product development include climate resilience models, water resource prediction models, water instrumentation, adsorptive filter materials, membrane technology, coagulating materials, macrophytes/biomaterial remediation, food waste-to-animal feed products, organic compost fertilizer products, and sludge digestion treatment.

The membrane, nanomaterials and adsorptive filter materials (coated sand media, synthetic zeolites, coated activated carbon, etc.) are being developed for the removal of contaminants from industrial and municipal wastewaters as well as removal of heavy metals, iron, manganese, fluoride, arsenic, chloride, chromium, etc. from drinking water.

**KEY OBJECTIVES AND EXPECTED RESULTS**

The strategic objectives are:

- Provide high-quality postgraduate education (Ph.D. and Masters) and professional training

- Conduct cutting-edge and innovative research into products development in key thematic areas in Water and Environmental Sanitation.

- Nurture early-career researchers to hone their skills in impact-oriented innovative research and publication in high impact journals.

**Expected Outcome:**

- Train over 56 PhD and 100 Master students

- Train over 180 National and 100 Regional participants in professional short course skills training

- Establish Women in Water and Sanitation Association and mentorship programme

- Hold the 2nd Regional Water and Environment Conference

- Strengthen regional partnerships through faculty exchange programme, visiting professors and guest lecturers, and Joint training-of-trainers, and Research Supervision,

- Strengthen Business Incubation, start-up support, marketing and patenting of innovative research outputs such as organic fertilizer, biofeed, and package water treatment plant, biomaterials rotary drum dryer,

- Industry-RWESCK joint technology development and industry-outreach Learning Alliance (NLLAP), advocacy on development challenges and research findings,
KEY CAPACITIES

• High caliber Centre fellows from national and international faculty with competence in water and environmental Sanitation.

• Setting up state-of-the-art water and environment laboratory and water resources/weather station with full analytical capability,

• Ultramodern teaching aids and learning environment, Library and Research Commons

• Strong Industry-Centre joint technology development effort and outreach Learning Alliance

• Strong institutional support and autonomy to attract funding and investment for technology development and business start-ups in organic fertilizer, poultry feed, membrane filters, nanomaterials, adsorptive filter materials and package water treatment plant and biomaterials rotary drum dryer

MAJOR ACCOMPLISHMENTS TO DATE

• The Centre has obtained international accreditation from AQAS, Germany, for all its programmes; 3 Ph.D. and 4 MSc/MPhil programmes.

• The Centre has built an ultramodern facility and equipped its laboratory with state-of-the-art equipment to enhance research, teaching and learning environment,

• The Centre has enrolled 76 Doctoral students (62 national, 14 regional), 206 Masters Students (167 national, 39 regional),

• Over the last five years, 715 professionals have received training in various WASH courses.

• The Centre is developing poultry feed from waste, absorption and nanomaterials for water and wastewater package treatments, and prediction models for climate resilience and water resources.

PRIMARY REGIONAL AND GLOBAL PARTNERS

1. UNESCO IHE, Delft, The Netherlands,
2. Trier University of Applied Sciences, Germany
3. Hohai University, China
4. University of Benin, Nigeria
5. National Water Resources Institute, Nigeria
6. University Cheik Anta Diop, Senegal
7. Fourah Bay College, Sierra Leone
8. Felix Hophouet Boigny University, Cote D’Ivoire
### PRIMARY RESEARCH FACULTY MEMBERS

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West African Centre for Water, Irrigation and Sustainable Agriculture (WACWISA)

University and Host Country: University for Development Studies (UDS), Tamale, Ghana

Centre’s Website: www.wacwisa.edu.gh

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Primary Thematic Disciplines of the Centre:
• Integrated Water Resources Management
• Irrigation and Drainage Engineering
• Sustainable Agricultural and Food Systems
• Climate Change
• Food and Nutrition Security
The West African Centre for Water, Irrigation and Sustainable Agriculture (WACWISA) was established in 2019 by the University for Development Studies (UDS) as a semi-autonomous Centre of Excellence to undertake cutting-edge research and training in irrigation, drainage, water resources management, sustainable agriculture, climate change and food and nutrition security.

With a tagline “Building Capacities for Sustainable Solutions”, WACWISA undertakes capacity building through certificated short courses in its thematic areas and at Masters and PhD level. Training and research is enhanced through established partnerships with research institutions and industry partners within Ghana, Africa and globally. Its training system emphasizes quality and capacity building for students and places premium on practical skills and solutions to industry problems.

WACWISA is funded by Government of Ghana and the World Bank, under the African Centers of Excellence Impact (ACE Impact) initiative and it also collaborates with other funding agencies to explore new and emerging avenues to advance the frontiers of knowledge.

**KEY CAPABILITIES**

- Secretariat and students learning centre
- Established Field Training sites with Nasia farms, Fulla Farms, IWAD, ICOUR within its operational area
- Experienced faculty staff with variety of relevant specialties

**KEY OBJECTIVES AND EXPECTED RESULTS**

The West African Centre for Water, Irrigation and Sustainable Agriculture (WACWISA) has a Vision: “to be a leading world-class academic and research Centre specialized in irrigation, water resources, sustainable agriculture and climate change” and, a Mission of “developing skills and knowledge of young men and women to provide practical and sustainable solutions to challenges of water resources, irrigation, agricultural development and climate change in Africa”.

Specifically, WACWISA builds capacities of trainees and graduate students through short courses, Masters, PhD and post-doctoral level programs, as well as undertakes applied and advanced research and develops sustainable localized technologies in water resources, irrigation, climate change, sustainable agriculture and food and nutrition.

**Expected Outcomes include:**

1. Build capacity of students at Masters and PhD level focusing on Irrigation and Drainage Engineering, Integrated Water Resources Management, Climate Change, Sustainable Agriculture and Food and Nutrition Systems.

2. Offer short courses (i.e. certificate and diploma) and programs to mid-career professionals.

3. Undertake applied and advanced research to contribute new and emerging knowledge and technologies to its focus area, with emphasis on improving farming systems in Sub Saharan Africa.

4. Develop localized and sustainable solutions aimed at resolving agricultural production challenges.
### KEY CAPACITIES

- Developed curriculum for three Masters and PhD programmes to date
- Enrolled twenty (20) regional and local students into Masters and PhD programmes from 8 African countries including six (6) females.
- Successfully organised the Second International Conference on Irrigation and Agricultural Development (IRAD 2020) with participants from nine (9) countries across the globe.
- Established Sectoral Advisory Board (SAB) with partners from Industry

### REGIONAL PARTNERS

1. International Institute for Water and Environmental Engineering (2iE)
2. Abdou Moumouni University of Niamey, Niger
3. Bayero University, Kano, Nigeria
4. Bells University of Technology, Ota, Nigeria
5. Institut d’Economie Rurale (IER) Sikasso in Mali
6. University of Rwanda (UR), Rwanda.

### GLOBAL PARTNERS

1. International Water Management Institute, Columbia
2. Societe du Canal de Provence (SCP), France
3. Wageningen University and Research, The Netherlands
4. Vrije University, Amsterdam, The Netherlands
5. United Nations University - Institute for the Advanced Study of Sustainability (UNU-IAS), Japan
6. University of British Columbia, Canada

### PRIMARY REGIONAL AND GLOBAL PARTNERS

1. Water Resources Commission (WRC)
2. Water Research Institute (WRI)
3. International Water Management Institute (IWMI)
4. Kwame Nkrumah University of Science and Technology (KNUST)
5. University of Cape Coast (UCC)
6. Ghana Meteorological Agency (GMet)
7. Conservation Alliance International (CAI)
8. Kukobila Nasia Farms Limited
9. Fallu Farms Ghana Limited (FFGL)
10. Arima Farms Ghana Limited (AFGL)
11. HydroFarm Ghana Ltd
12. Ghana Irrigation Development Authority (GIDA)
13. Savannah Agricultural Research Institute (SARI)
14. Integrated Water and Agricultural Development (IWAD)
PRIMARY RESEARCH FACULTY MEMBERS

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African Center of Excellence for the Prevention and Control of Communicable Diseases (CEA-PCMT)

University and Host Country:
Gamal Abdel Nasser University of Conakry - Guinea

Centre’s Website:
www.cea-pcmt.org

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Deputy Center Leader:
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Primary Thematic Disciplines of the Centre:
• Master training in Public Health and Microbiology
• PhD training in public health
• Short-term training
• Communicable disease research
The General Objective is:
Meet the demand of the labor market in terms of development of international skills and the need for knowledge in the following areas:

- Strengthen the centre’s capacity to deliver regional excellence training (masters, doctorate) in co-construction with the actors involved (public, private development), responding to the challenges indicated above;
- To conduct applied applied research of excellence, in partnership with the national and international institutions involved in the ACE in order to position the center as a regional reference in the prevention and control of communicable diseases in West Africa;

KEY OBJECTIVES AND EXPECTED RESULTS

The African Center of Excellence for the Prevention and Control of Communicable Diseases (CEA-PCMT) of the Faculty of Health Sciences and Techniques (FSTS) of the Gamal Abdel Nasser University of Conakry (UGANC) was created in 2019 as part of the Impact of African Centers of Excellence (ACE) project funded by the World Bank.

CEA-PCMT aims to sustainably improve the prevention and control of communicable diseases in sub-Saharan Africa. Its objective is to establish at UGANC a regional program of excellence in training and research on communicable diseases.

To achieve excellence in training, CEA-PCMT will offer short courses, masters and doctoral programs geared towards innovation and involving public and private development actors at national, regional and international levels. The attractive and innovative training program envisaged will include:

**Short Courses:**
- University degree in community health (as part of the family medicine diploma)
- University degree in global health and emerging diseases (in collaboration with the Center for Training and Research in Infectiology (CERFIG) and the University of Toulouse, France)
- University degree in quality assurance (in collaboration with the Ministry of Health and the University of Heidelberg, Germany)
- Online university degree in primary health care (in collaboration with the CNFRSR of Maferinyah and the Institute of Tropical Medicine in Antwerp, Belgium)
- Online university degree in research methodology (in collaboration with the CNFRSR of Maferinyah and the Institute of Tropical Medicine in Antwerp, Belgium)

**Master programs**
- Master in Public Health (with three specialties)
- Epidemiology and Bio statistics
- Disease Control
- Community Health

**Master in Microbiology – Immunology**

**Doctoral program (PhD)**
Doctor of Philosophy (PhD) in Public Health

To achieve excellence in research, CEA-PCMT aims to conduct applied research in partnership with collaborating national and international institutions in order to position itself as a regional reference center in the prevention and control of communicable diseases in Africa from West. The research program will be carried out in three main areas:
1. Implementation science research
2. Communicable disease surveillance
3. Monitoring of antimicrobial resistance to drugs and products used in the fight against communicable diseases.
• Build lasting partnerships with potential users of the centre's products, training and research institutions at national, regional and international levels. This strategy aims to improve the quality of teaching and research through technology transfer, mobilization of funding, innovation and sustainability of excellence at the level of the proposed Center.

Specifically:

• Strengthen the centre's capacity to deliver regional excellence training (masters, doctorate) in co-construction with the actors involved (public, private development), responding to the challenges identified;

• To conduct applied research of excellence, in partnership with the national and international institutions involved in the CEA in order to position the center as a regional reference in the prevention and control of communicable diseases in West Africa;

• Build lasting partnerships with potential users of the centre's products, training and research institutions at national, regional and international levels.

THE EXPECTED RESULTS ARE

1. The Masters training offer in Public Health is improved;
2. PhD training in public health is available
3. An attractive study and living environment for students and learners at the center is available;
4. An appropriate framework for training and research on communicable diseases is established;
5. Good research results of regional interest are produced within the framework of the dissertations of Master and PhD students;
6. The results of scientific research are valued through publications, congresses, scientific days and international conferences;
7. High-level expertise on communicable diseases is provided to national and sub-regional sector partners.

KEY CAPABILITIES

• A master class room with a capacity of 30 places to renovate

MAIN ACHIEVEMENTS TO DATE

• Preparation of project preparation documents for 2019 - 2024;
• 2. Finalization of the institutional preparation of the center

MAIN REGIONAL AND GLOBAL PARTNERS

1. Prof. Paul MILLIGAN, London School of Hygiene and Tropical Medicine
2. Prof. Éric Delaporte, University of Montpellier
3. François COUTURIER, Faculty of Medicine and Health Sciences, University of Sherbrooke
4. Prof. Jean Louis Ndiaye, University of Thiès, Senegal
5. Prof. Seni Kouanda, Research Institute in Health Sciences & African Institute of Public Health, Ouagadougou, Burkina Faso
6. Gordon A. Awandare, University of Ghana, Legon
7. Prof. Wim Van Damme, Institute of Tropical Medicine in Antwerp
8. Prof. Seydou Doumbia, University of Sciences, Techniques and Technologies of Bamako (USTTB), Mali
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    Parasitology
Centre of Excellence in Environment and Mining (CEA-EMIG)

University and Host Country:
School of Mines, Industry and Geology (EMIG)

Centre’s Website:
www.cea-emig.ne

Centre Leader:
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Primary Thematic Disciplines of the Centre:
The primary thematic disciplines are: mining, geology and environment with as priority themes of the training programme: environmental management tools, impact studies, management of water, air, waste, soil, noise, odour, vibrations, site restoration and rehabilitation, safety manner.
**BRIEF DESCRIPTION OF THE CENTRE**

The CEA_EM-EMIG Centre is dedicated to specialised training at Bachelor and Master’s level in Mining Environment, Mining Safety and Mine Site Rehabilitation. It is a major challenge that the centre intends to take up in order to overcome the lack of qualified personnel in the UEMOA area and beyond, in this speciality.

In addition to this specialised training, the centre provides for short courses, applied research work and doctoral training from the third year onwards.

These actions are in line with the orientations of national and regional policies which provide for capacity building of actors in the field within the framework of the African Mining Vision (AMV).

All of its training and action research actions will be implemented with the collaboration of the targeted renowned educational partners, space mining companies and key government departments, which will play a decisive role in achieving the objectives set by the project.

The centre will benefit from all the educational and research infrastructures of EMIG and from the full support of its teaching Technologists and Researchers who already have a long experience.

The industrial and institutional partners will support EMIG in welcoming, accommodating, supervising and caring for the trainees. They will also play a decisive role in the revision of curricula, applied research activities and the professional integration of young graduates.

**KEY OBJECTIVES AND EXPECTED RESULTS**

The African Centre of Excellence for Mining Environment has set as its main objective the training of specialists in prospecting, exploitation, mineral processing, mining safety and rehabilitation of mining sites.

Aspects such as continuing education, short courses and applied research will also be taken into account.

The reinforcement of the equipment of the centre and its partners in relation to the training programmes, of the capacities of teachers and laboratory technicians in order to increase the quality of the supervision, will be implemented.

**The main expected results are as follows:**

- The implementation of specialized bachelor’s and master’s degrees;
- An improvement in the quality of initial training programmes;
- The implementation of short training modules;
- An increase in the number of students enrolled and graduating from bachelor and master programs;
- The provision of specialist managers from the short-term training course;
- Further development of the school-business partnership;
- The effectiveness of the training of trainers;
- The acquisition of workshop and laboratory equipment;
- Improved service delivery;
- The development of applied research.

**KEY CAPABILITIES**

The EMIG which houses the Emerging Centre CEA_EM-EMIG. It is a building complex of 25,000 m2 of buildings on a 20-hectare plot of land located on the right bank of the Niger River in Niamey, comprising: a “teaching” zone housing industrial halls, laboratories, amphitheatres, classrooms, administration; a “living” zone with a housing estate, a restaurant, recreational and sports facilities, and an infirmary.
MAIN ACHIEVEMENTS TO DATE

1. Setting up the project team and the various advisory committees;
2. Writing the PMO;
3. Team and Committee Appointment Decisions;
4. First meeting of the Sectoral Advisory Committee;
5. Setting up the website;
6. Drafting of manuals (purchasing, administrative and financial procedures manual, student guide, sexual harassment policy, CGES document);
7. Scholarship Policy;

MAJOR REGIONAL AND GLOBAL PARTNERS

The partner educational institutions are:
1. Abdou Moumouni University of Niamey (Niger);
2. Saint Jerome’s Polytechnic Catholic Institute of Douala (Cameroon);
3. University of EXETER (England);
4. University of Lomé (Togo);
5. Institut National Polytechnique Félix HOUPHOUET BOIGNY;
6. National School of Mineral Industries of Rabat (Morocco);

PRIMARY RESEARCH FACULTY MEMBERS
Regional Center of Excellence on Pastoral Productions: Meat, Milk, Hides and Skins (CERPP)

University and Host Country: Abdou Moumouni University of Niamey, Niger

Centre’s Website: www.cerppniger.org

Centre Leader: Prof. MARICHATOU Hamani

E-mail Address: marichahamni@gmail.com

Primary Thematic Disciplines of the Centre:
- Training and research in pastoral productions, valorisation of pastoral products (meat, milk, hides and skins).
BRIEF DESCRIPTION OF THE CENTRE

This project of the Regional Centre of Excellence on Pastoral Productions: Milk, Meat, Hides and Skins (CERPP), is hosted by the Faculty of Agronomy of the Abdou Moumouni University of Niamey (Niger).

It offers diploma courses at Master and Doctorate levels as well as continuing education and retraining for apprentices and industrial technicians provided by partner training structures targeting non-university levels. The courses provided in this centre produce multi-skilled graduates capable of proposing solutions to actors and decision-makers.

The main problems related to pastoral production are environmental (food resources), genetic (intrinsic performance of our breeds), economic (production costs, outlets) and technological (processing). Thus, research on increasing production at the producer level will be approached from three angles (food, genetic characterization and reproduction, animal and public health) in which several research projects will be conducted. Regarding valorisation, work will focus on endogenous knowledge and modern technologies relating to practices and technical itineraries of collection, conservation, transformation, conditioning and packaging. Finally, the Centre will work on an in-depth analysis of the socio-economic environment in which these products evolve.

KEY OBJECTIVES AND EXPECTED RESULTS

The general objective of the centre is to strengthen the quality and relevance of higher education and research in the field of pastoral productions and their valorisation in the Sahel countries. Specifically, it aims to;

1. provide the Sahelian states with human resources and techniques and technologies capable of improving livestock productivity and revitalizing the meat, milk, hides and skins industrial sector;

2. strengthen research and technology transfer for the development of livestock and pastoral production industries; and;

3. make the Faculty of Agronomy of UAM a regional and international pole of attraction. The expected results include: the provision of qualified human resources in sufficient quantity; the development and extension of appropriate techniques and technologies for increasing pastoral production and improving the processing and conservation of pastoral products by industry and handicrafts; improving the knowledge of producers, processors and industrialists in terms of technoeconomic management and improving the marketing of pastoral products and their added value in national economies.

KEY CAPACITIES

- Administration Office Room
- Functional master class room
- Three functional laboratories (reproduction/genetics laboratory, animal feed laboratory, hygiene research laboratory, food and nutritional sciences)
- Fodder production site (2.5 ha)
- Experimental Animal Park

MAJOR ACCOMPLISHMENTS TO DATE

- All preparation documents submitted.
- Appointment of members of the coordination team
- Training in Project Management Certificate (CAPM) for two members of the project team.
1. University of Abomey Calavi (Benin)
   - Ecole Inter-Etats de Sciences et médecine vétérinaire (EISMV) of Dakar (Senegal)
   - International Centre for Research and Development on Livestock in Sub-humid Zones (CIRDES) [Bobo-Dioulasso, Burkina Faso].
   - Institut National de l’Environnement et de la Recherche Agronomique (INERA) [Burkina Faso].
   - Songhai Centre (Benin)

1. International Partners
   - Sup Agro France (Montpellier-Rennes)
   - CISAO (Italy)

PRIMARY RESEARCH FACULTY MEMBERS

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Centre of Excellence in Innovative Teaching / Learning of Mathematics and Sciences for Sub-Saharan Africa (CEA / IEA-MS4SSA)

University and Host Country:
Abdou Moumouni University
(Through the École Normale Supérieure), Niamey (Niger)

Centre's Website:
www.cea-ms4ssa.org

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Primary Thematic Disciplines of the Centre:
STEM Education - Teacher training in Mathematics and Sciences (PC and SVT) and research in teaching of these disciplines.
BRIEF DESCRIPTION OF THE CENTRE

It is recognized that education is the basis for the development of any individual, human community or nation. Studies on the teaching of mathematics and science in Sub-Saharan Africa point to a poor performance of pupils and their under-enrollment in scientific series, as well as an insufficiency of quality teaching / learning conditions.

The expected impact on the development challenge will be the improvement of the education level of young people aged 15 and over, the reduction of gender disparities in these disciplines and contribute to the elevation of the teaching status of these last as a major priority.

In this perspective, the École Normale Supérieure (ENS), through this Center, will focus on excellent scientific, professional and technical training. The Center will offer diploma courses at the Bachelor, Master and Doctorate levels as well as continuing education and retraining for education professionals. The lessons given in will train independent teachers, capable of implementing contextualized and quality teaching-learning. The Center will also conduct applied research in mathematics, physical sciences, SVT and the teaching of these disciplines. For the smooth running of its activities, the Center will establish academic, sectoral and industrial partnerships with different institutions.

KEY OBJECTIVES AND EXPECTED RESULTS

General objective: To contribute to the improvement of the quality of teaching / learning of mathematics and sciences (Physical Sciences and Life and Earth Sciences) in Niger and in the sub-region.

Specific Objectives:

- Train independent teachers, at the license, master and doctorate level, capable of implementing quality contextualized teaching-learning in mathematics and science in order to stimulate the performance of our countries in science, technology, engineering and mathematics (stem);

- Provide the center with accredited and innovative training programs of good teaching / learning practices in mathematics and science based on new pedagogical approaches (pmi / psi);

- Develop teaching materials and textbooks adapted to the needs of our countries;

- Develop applied research in didactics of mathematics, physical and chemical sciences and in life and earth sciences;

- Provide the center with adequate teaching and research infrastructure;

- Establish collaboration with other regional and international centers in order to share and disseminate good teaching / learning practices;

- Increase the visibility of the ens, make it more competitive regionally and internationally in terms of teacher professional training.

The expected results are:

- Independent teachers, at the license, master and doctorate level in mathematics and science, capable of implementing quality contextualized teaching-learning, in order to stimulate the performance of our countries in science, technology, engineering and mathematics (stem) are trained ;

- Exchanges of professors (teachers-researchers) and students are carried out;

- Accredited training programs and adequate teaching and research infrastructure are in place;
• Teaching materials and textbooks adapted to the needs of our countries are developed;
• Joint research projects are implemented;
• Research results are valued;
• The institutional capacities of national and regional partners are strengthened;
• Multiple and lasting collaborations are established between the different partners.

KEY CAPABILITIES

• Offices for administration and teachers as well as classrooms for Bachelor and Master and Doctorate students;
• Educational laboratories (SVT, Physics and Chemistry and didactics) and research laboratories in these disciplines;
• A library of more than 18,000 books and 180 reading places and 16 documentary research computers.
• A social campus of the university housing the students (university pavilions; restaurants; sports complex; medico-social service, ...);
• A distance learning platform (moodle) used for our sub-regional training offers.

MAIN ACHIEVEMENTS TO DATE

• Elaboration and submission of all institutional preparation documents (basic and total);
• 250 students enrolled in License and Master training during the 1st year of the Center;
• 200 students have completed work placements of at least three months in the workplace during the 1st year;
• Several publications produced including two (02) accepted by the Regional Facilitation Unit (AAU);
• An increasingly strong partnership with the socio-economic and external environment.

REGIONAL PARTNERS

1. Ouagadougou Institute of Sciences (Burkina Faso);
2. Higher Institute of Educational Sciences of Guinea (ISSEG of Guinea);
3. École Normale Supérieure (ENS) of Atakpamé (Togo);
4. École Normale Supérieure (ENS) of Natitingou (Benin).
5. The different ACE regional impact on the same theme or with collaboration interests.

INTERNATIONAL PARTNERS

1. The Worcester Polytechnic Institute (Boston – USA);
2. The New Jersey Center of Teaching and Learning (New Jersey – USA);
3. The Research Institute for Development (IRD- France).
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</table>
Africa Center Of Excellence In Oilfield Chemicals Research (ACE-CEFOR)

University and Host Country:
University of Port Harcourt, Nigeria

Centre’s Website:
www.aceceforuniport.edu.ng

Centre Leader:
Professor Ogbonna F. Joel

E-mail Address:
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Primary Thematic Disciplines of the Centre:
•  STEM
**BRIEF DESCRIPTION OF THE CENTRE**

The Africa Center of Excellence in Oilfield Chemicals Research (ACE-CEFOR), University of Port Harcourt, aims to develop the Nigerian Oil and Gas industry (in particular) and those of other African countries (in general) where oil and gas have been discovered.

ACE-CEFOR operates on the basis of Triple Helix model of government-academia-industry partnership and thus creates a research network of higher institutions for knowledge and technology transfer. The postgraduate courses and research are designed, organized and taught on modular basis with teaching responsibility shared amongst experienced and active resource persons from the collaborating universities and industry partners.

The industry partners are involved in our curricula review and provide places for, at least, one month internship placement for our postgraduate students and faculties. Therefore, our strong university-industry relationships with the resultant cross-fertilization of ideas have continued to be a veritable source of solutions to development challenges especially as they relate to the oil and gas sector.

**MEJOR ACCOMPLISHMENTS TO DATE**

- Graduated 106 (made up of original 48 + 58 in 2020) PhD students, 509 MSc students and trained 884 short course participants.
- The Center has published over 280 high quality technical papers.
- ACE-CEFOR received national accreditation in 2017 from the National Universities Commission (NUC) for 12 of its post graduate programmes.
- The ACE-CEFOR ultra-modern building was completed and commissioned in 2018.
- ACE-CEFOR secured international accreditation for three of its programmes in 2019.

**KEY OBJECTIVES AND EXPECTED RESULTS**

- Promote home grown and regional research networks that will develop human capital in Africa.
- Strengthen human capacity and serve as training hub for Oil and Gas industry workforce in Africa.
- Fill gaps in labor market demands for skills within these specialized areas.
- Increase capabilities of faculties and students in Africa through quality postgraduate education, knowledge transfer and internship programmes.
- Run short courses in Petroleum Engineering and related disciplines.

**REGIONAL AND GLOBAL PARTNERS**

1. RUFORUM, Makerere University, Kampala, Uganda
2. University of Mines & Technology (UMaT), Tarkwa, Ghana
3. International Center of Insect Physiology & Ecology, Nairobi, Kenya
4. Halliburton Energy Services
5. Witwatersrand University, Johannesburg, South Africa
6. IFP School, Paris, France
7. Total E&P
8. Shell Petroleum Development Company
9. Kenyatta University, Kenya

**KEY CAPACITIES**

- Modular Refinery laboratory housing a pilot plant
- Drilling Engineering Laboratory, Production Engineering Laboratory and various laboratory equipment at the Central University Laboratory.
- Language Laboratory comprising 31 state of the art internet enabled computer equipment.
- E-library with 60 internet-enabled computer equipment.
- Video conferencing facilities and full internet facilities.
- Learning Management System for on-line.

**FACT SHEET**

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Africa Centre of Excellence in Future Energies and Electrochemical Systems (ACE-FUELS)

University and Host Country:
Federal University of Technology Owerri, Nigeria.

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Deputy Centre Leader:
Prof. (Mrs) Chinyere A. Madu

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Primary Thematic Disciplines of the Centre:
- STEM
3. Promote local content in research and innovations by initiating necessary value-driven industry-academia collaborations.

4. Partner with local content industry initiatives within the region to help develop competencies by providing bespoke work-based learning events, activities and tools in line with global best practices.

5. To set up standard laboratories, with facilities for multi-disciplinary research projects based on electrochemical and energy related technologies.

KEY CAPACITIES

- Equipped office spaces
- Laboratories (Science and Language)
- Library
- E-classrooms
- Hostel accommodation

MAJOR ACCOMPLISHMENTS TO DATE

Approval of curricula for 4 novel MSc and PhD programmes Future Energies, Electrochemical Energy, Corrosion Technology and Nano Technology.

- Successful recruitment of MSc and PhD students from partner Departments for 2018/2019 academic session.
- Approval of ACE-FUELS Implementation Plan.
- Active participation of some members in workshops and seminars organized by World Bank and AAU
- Deployment of Oylex Learning Management System and faculty training
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8. **Prof. Fuhui Wang**  
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   Renewable Energy Technology

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   Solar-thermal systems technology

3. **Prof. O. T. Ebiringa**  
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   Project finance and entrepreneurship

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   Biofuels

5. **Dr. (Mrs) T. E. Ogbulie**  
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   Biomass energy; microbial biotechnology

6. **Engr. Dr. N.P. Ohia**  
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   Well engineering/operations

7. **Engr. Dr. Innocent O. Arukalam**  
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   Functional anticorrosion coatings

8. **Engr. Dr. (Mrs) N. C. Nwogu**  
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   Carbon capture and sequestration; membranes

9. **Dr. C. O. Akalezzi**  
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   Corrosion inhibitors and surface coating additives

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    Polymer Composites and blends; corrosion control
African Center of Excellence for Genomics of Infectious Diseases (ACEGID)

University and Host Country:
Redeemer’s University, Nigeria

Centre’s Website:
www.acegid.org

Centre Leader:
Prof. Christian Happi

Deputy Centre Leader:
Dr. Onikepe Folarin

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Primary Thematic Disciplines of the Centre:
• Health: Genomics of Diseases
Recent advances in genomic technologies for studying humans and microbes have the potential to transform the clinical care, understanding of infectious diseases, improve disease surveillance, and prevent outbreaks. In order to truly participate in this genomic revolution, African researchers must be equipped with knowledge of cutting-edge genomics tools, and multidisciplinary approaches to carry out fully independent and high impact research.

The African Center of Excellence for Genomics of Infectious Diseases (ACEGID) at Redeemer’s University in partnership with academic, clinical, and research institutions in Nigeria, Sierra-Leone and Senegal was established in 2014 in order to bridge this gap across the region. The partners in these three countries have a long-term track record of successful research, training, and capacity building in collaboration with each other and with US partners at Harvard University, the Broad Institute, Tulane University and the University of Cambridge.

The efforts of ACEGID researchers have already demonstrated the positive impact of high-quality translational genomics-based research in Africa, with the development of new tools and countermeasures for wide ranging public health challenges, including Ebola virus disease, Lassa fever virus and Monkeypox virus outbreaks in West Africa between 2014 and 2018 and now the SARS-CoV-2 virus testing and genome sequencing. By continuing building capacity for state-of-the-art genome sequencing and field-deployable genetic tools for microbial infections in Africa, we can support clinical care of the most devastating diseases and enable a surveillance network for some of the world’s greatest global health threats.

ACEGID has not only brought academic and research success for African science but is contributing in fundamental ways to regional health and economic development.

**BRIEF DESCRIPTION OF THE CENTRE**

**KEY OBJECTIVES AND EXPECTED RESULTS**

ACEGID has as a mandate to:

1. Develop African research capacity in genomics by building a critical mass of well-trained scientists;

2. Empower African researchers to optimally utilize genomics knowledge and tools towards control and elimination of infectious diseases;

3. Create and establish genomics curricula to support and promote cutting-edge genomics-based research for health advancement;

4. Create a vibrant academic and research environment that is free of outside influences, and that transcends national boundaries and ensures the conduct of relevant, responsive, ethical and high quality translational genomics-based research on health in Africa;

5. Engage communities in prevention efforts, public health sponsored activities, and education.

**KEY CAPACITIES**

- State-of-the-art Genome Center with human capacity
- Leading edge molecular biology and genomic sequencing platforms
- Biosafety Level 3 laboratory
- A well-established network of clinical testing and molecular laboratories across West Africa
- State-of-the-art Bioinformatics and Immunogenomics laboratories
MAJOR ACCOMPLISHMENTS TO DATE

Testing and Sequencing of SARS-CoV-2 virus genomes obtained from patients in Nigeria

• Established a robust 6 weeks genomics capacity building program at both foundation and advanced levels for African Scientists

• Used microbial metagenomics for early detection and facilitate successful containment of a new Yellow fever outbreak in Nigeria in 2018 (Ajogbasile et al 2020)

• Development of Rapid diagnostic test kit for Ebola virus disease and Lassa fever virus

• Facilitated quick testing and genome sequencing of Ebola Virus in Nigeria. This contributed to successful containment of the disease in Nigeria (Folarin et al 2016)

• Establishment of Masters and doctoral curriculum in Molecular Biology and Genomics with International accreditation by AQAS, Germany.

REGIONAL PARTNERS

1. Universite Cheick Anta Diop/Hopital Le Dantec, Dakar Senegal
2. University of Sierra Leone/Kenema Government Hospital, Sierra Leone
3. Nigeria Center for Disease control (NCDC)/Irrua Specialist Teaching Hospital, Edo State, Nigeria.

INTERNATIONAL PARTNERS

1. Harvard University, USA
2. Tulane University, USA
3. Broad Institute of Harvard and MIT, USA
4. University of Cambridge, UK
5. US Department of Defense

PRIMARY RESEARCH FACULTY MEMBERS

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   Pathology

8. Dr. Kayvon Modjarrad
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   Clinical Virology
Africa Centre of Excellence For Mycotoxin and Food Safety (ACEMFS)

University and Host Country:
Federal University of Technology, Minna, Nigeria

Centre’s Website:
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Centre Leader:
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Primary Thematic Disciplines of the Centre:
• Food Safety
• Toxicology
• Molecular Biology and Bioinformatics
The Africa Centre of Excellence for Mycotoxin and Food Safety (ACEMFS) came into existence in 2019 through Arica Centre of Excellence Award co-sponsored by AAU/World bank/AFD (supported by NUC) with a grant of Six Million Dollars.

Its main focus is to produce skilled manpower with quality education and training in the use of modern functional equipment and innovative research for assessing impacts of food borne pathogens and toxic chemical residues on the health and economy of West and Central Africa Sub-region and consequently set appropriate national and regional standards for effective prevention and control of food poison that can guide policy formulation across the African region.

ACEMFS runs postgraduate studies (M.Tech and PhD) in three (3) thematic areas: Food Safety; Toxicology; and Molecular Biology and Bioinformatics. They are designed as full time programmes for the purpose of encouraging cross-border collaboration to provide relevant human and material resources for the effective training of high-level independent minded, self-reliant and competent researchers that are capable of providing critical skills in effective food system.

ACEMFS’ aim will be accomplished together with 46 academic and sectoral partners, an International Scientific Advisory Board (ISAB), and the Sectoral Advisory Board (SAB).

**KEY OBJECTIVES AND EXPECTED RESULTS**

**Objectives:**

1. Provide high quality postgraduate education (MSc and PhD) and professional training in Food Safety, Toxicology and Molecular Biology and Bioinformatics.

2. Conduct cutting-edge and innovative researches towards developing intervention strategies and products against contamination and adverse health impacts of food borne pathogens, mycotoxins, heavy metals, veterinary drug and pesticides residues, Hydrocyanic acids and polychlorinated biphenyls in foods and feeds.

3. To form an innovative entrepreneurship ecosystem with industries and stakeholders in the regional food production sector towards producing safer foods for sustainable public health, food security and economic prosperity

**Outcomes:**

1. At least 150 postgraduates (100 MSc and 50 PhD) in the three thematic areas.

2. Well trained food safety officers (50 mid-term professional careers).

3. Well trained 500 farmers and food vendors on food safety challenges and mitigation strategies.

4. About 200 publications in Q1 journals.

5. Six patents for agricultural productivity and entrepreneurship for revenue generation
   a. Food contaminants early warning systems
   b. Fit-for-purpose good agricultural and food processing codes of practice
   c. Drought, pest and mycotoxin resistant cultivars
   d. Phytofungicides
   e. Bio-control methods for eliminating mycotoxin producing fungi at the farm,
   f. Nanobased mycotoxin feed binder and detoxifiers,
   g. Mycotoxin portable detection systems

6. Effective national and regional food control systems which will ensure safer food and consequently sustainable public health, food security and economic prosperity in Africa.
KEY CAPACITIES

- **Medical Imaging and Bioinformatics Laboratory**: PC NMR/FFFC NMR, relaxometer Smartracer, and Videoconferencing System with 30 Bioanalyser System and Bioinformatics Software.

- **Nanotechnology Laboratory**: Malven Zetasizer Nanos, Raman Spectrometer, BET Surface Area and Porosity Analyser, Carbon Vapour Deposition Equipment, Ultrasonic Shaker.

- **Drug and Vaccine Laboratory**: Fluorescence microscope, Automated DNA sequence machine, and Scanning Double beam UV/visible spectrophotometer.

- Three teaching rooms with capacity for maximum of 40 participants at a time.

- A well-furnished accommodation for more than 50 post graduate students.

MAJOR ACCOMPLISHMENTS TO DATE

- Inauguration of the Centre and first meeting of the International Scientific Advisory Board of the Centre at FUT Minna.

- Appointment of Sectoral Advisory Board consisting of ten (10) agencies and industries both local and international.

- Presentation on ACEMFS at the World Mycotoxin Forum at Belfast, Northern Island, and at the Flemish Trade Mission to Nigeria.

- Admission of postgraduate students (Masters and PhDs) of each; Food Safety, Toxicology, and Molecular Biology and Bioinformatics into the Centre.

- Co-Partner with WACCI to win West African Network of Infectious Diseases (WANIDA) against COVID-19 grant/centre from Agence Française de Développement

- Contract research on national mycotoxin survey from the Federal Ministry of Agriculture and Rural Development of Nigeria

PRIMARY REGIONAL AND GLOBAL PARTNERS

1. University of Kinshasa, Democratic Republic of Congo (DRC)
2. University of Johannesburg, South Africa
3. National Research Center, Cairo, Egypt
4. Anand Agricultural University, India
5. Florida Agricultural and Mechanical University, United States of America
6. Ghent University, Belgium and MYTOX – SOUTH (including sixteen African Universities)
7. World Food Preservation Center, United States of America
8. BIOMIN Holding GmbH, Austria
1. **Professor Hussaini Anthony**  
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   Makun (Centre Leader)  
   Biochemistry with specialization in food safety and mycotoxicology

2. **Dr. (Mrs.) Hadiza Lami Muhammad**  
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   Deputy Centre Leader, and Research Theme Leader, Mycotoxin  
   Biochemistry with specialization in heavy metals in foods, and food toxicology

3. **Professor Emmanuel Ogbadoyi**  
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   Research Co-ordinator  
   Biochemistry with specialization in Drug Discovery

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   Academic Co-ordinator  
   Food Science and Technology

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   Zoology with specialization in Medical Entomology

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   HOD Biochemistry, and Research Theme Leader, Molecular Biology and Bioinformatics  
   Biochemistry with specialization in molecular biology and bioinformatics

8. **Dr. John Adama**  
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   Veterinary Medicine with specialization in animal parasitology and milk microbiology

9. **Dr. Alexander Ikechukwu Ajai**  
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    Chemistry with specialization in analytical chemistry and nanotechnology

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12. **Dr. Daudu Oladipupo A . Y.**  
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Africa Center of Excellence for Population Health and Policy (ACEPHAP)

University and Host Country:
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Centre’s Website:
www.acephap.buk.edu.ng

Centre Director:
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Primary Thematic Disciplines of the Centre:
• Population Health
• Global Health
• Maternal and Child Health
• Nutrition
• Mental Health
• Infectious Diseases
BRIEF DESCRIPTION OF THE CENTRE

The Africa Center of Excellence for Population Health and Policy (ACEPHAP), is a World Bank supported Center, which aims to strengthen inter-disciplinary approaches and promote population health outcomes through training and research for evidence-informed policy development in West and Central Africa.

This approach utilizes non-traditional partnership among different sectors of the community, public health, industry, academia, health care and local government entities to achieve positive health outcomes through policy development and implementation. The Center shall adopt a strategy of translating research outputs to policy. This will be through recommendations to policy makers for implementation purposes as a process of promoting or ‘Turning Research into Practice (TRIP)’ for evidence-proven interventions. While there are several population health challenges in West and Central Africa, ACEPHAP shall address health concerns of Sustainable Development Goals 3 (SDGs 3): maternal health, child health, and infectious diseases (malaria, TB and HIV) with particular emphasis on increasing human resources for health and Turning Research into Practice (TRIP)’ for evidence-proven interventions.

KEY OBJECTIVES AND EXPECTED RESULTS

- To train postgraduate students to acquire knowledge, skills and competence towards achieving health-related SDGs
- To strengthen capacity and capability of translating research findings to policy and practice
- To promote and enable gender parity and participation in population health research and policy
- To increase the nursing human resources for health in West and Central Africa

KEY CAPACITIES

- Dedicated Center Building with Conference Hall facilities
- Biotechnology laboratory/ Tissue typing laboratory
- Community outreach site(rural)
- Grant management Office

MAJOR ACCOMPLISHMENTS TO DATE

- Admission of 14 Regional students
- Completion of implementation plan
- Getting grant of $626,000 from BMGF as part of the EMOTIVE trial in collaboration with WHO and Birmingham University UK
- Getting grant as part of the WANIDA consortium (ACE Partners)
PRIMARY REGIONAL AND GLOBAL PARTNERS

Federation of African Nutrition Societies
1. Universite Dan Dicko Dankouloodo Niger
2. University of Sheffield, UK
3. Tanta University Cairo
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Africa Centre of Excellence for Sustainable Power and Energy Development (ACESPED)

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Centre’s Website:
www.acespedunn.edu.ng

Centre Director:
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Primary Thematic Disciplines of the Centre:
• Electric Power Systems Engineering
• Renewable Energy and Energy Conservation
• Energy Forecasting and Assessment
• Sustainable Energy Materials
• Energy Policy and Management
**BRIEF DESCRIPTION OF THE CENTRE**

ACESPED is a multi-disciplinary environment geared towards developing sustainable power and energy solutions for the West African region in general and Nigeria in particular.

Areas of activities include, electric power and high voltage systems, electro-mechanical and electro-chemical energy systems, smart, mini and micro-grid energy systems, computer-aided design/simulation and other engineering computational methods, energy resources assessment and forecasting, energy policy and management, environmental and social impact assessment of energy systems, sustainable energy materials and structures for power and energy systems, control and instrumentation, renewable energy systems based on hydro-power, agricultural and municipal wastes, wind energy, geothermal energy, photovoltaic and thermal solar energy systems, energy conservation and application of smart energy systems for modern living, among other areas of interest for modern power/energy engineering practice.

**KEY OBJECTIVES AND EXPECTED RESULTS**

The Africa Centre of Excellence for Sustainable Power and Energy Development (ACESPED), based in the main campus of the University of Nigeria Nsukka was conceptualized to proffer sustainable solutions to some development power and energy challenges peculiar to the Sub-Saharan Africa region. These challenges include lack of access to reliable electric power supply, poor diffusion of renewable and alternative energy technologies, as well as shortage of high level skilled manpower to deploy and manage the power supply system.

The fundamental aims of ACE-SPED are, therefore to carry out impactful educational, research, development and training activities in five major thematic areas, namely (i) Electric power systems development; (ii) Renewable energy and energy conservation; (iii) Energy resources assessment and forecasting;(iv) Sustainable energy materials and (v) Energy Policy, Regulation and Management. Using a student-centred, interactive and engaging educational curriculum cum robust Research & Development themes with strong practice orientation, ACESPED plans to equip its Master’s and PhD degree graduates to deliver great impact on sustainable power and energy development in the Sub-Saharan Africa region in the medium to long terms.

The Centre aims to train skilled manpower to boost electricity generation and distribution in the region (using conventional and renewable energy resources) to support national grids as well as the West Africa Power Pool (WAPP) The centre will mount short courses for personnel of management cadre in energy and power sector.

**KEY CAPACITIES**

Highly trained and motivated manpower, including academic partners in the fields of Power and Energy research

- Functional High Voltage laboratory with basic equipment
- Functional laboratory of Industrial electronics and New Energy Devices
- Strong industrial partners within 150km radius for students’ internship (NCERD, Nsukka; EEDC, Enugu; SEDI, Enugu; PRODA, Enugu, Nigeria.
- Strong Institutional Support
MAJOR ACCOMPLISHMENTS TO DATE

• Preparation and approval of ACESPED Implementation Plan document
• Completion of Batch A 2019/2020 MEng screening examination and admission process
• Advertisement for Batch A 2019/2020 MEng and PhD admission process
• Installation of facilities for recording e-lectures and hosting of virtual meetings
• Drafting of MOU with other Energy and Power ACEs within the West-African region to form a regional network called West Africa Centres of Excellence for Energy Network (WACEENET)

PRIMARY REGIONAL AND GLOBAL PARTNERS

Enugu Electricity Distribution Company (EEDC), Enugu, Enugu State, Nigeria
1. Scientific Equipment Development Agency (SEDI), Enugu, Enugu State, Nigeria
2. Production Development Agency (PRODA), Enugu, Enugu State, Nigeria
3. Enugu Chamber of Commerce and Industry, Enugu, Enugu State, Nigeria
4. National Power Training Institute of Nigeria (NAPTIN), Abuja, Nigeria
5. National Centre for Energy Research and Development (NCERD), Nsukka
6. Mirai Denchi Inc, Kusatsu, Japan
7. Nigerian Chamber of Commerce and Industry in Japan (NCCIJ), Tokyo, Japan

PRIMARY RESEARCH FACULTY MEMBERS

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Renewable Energy Systems
Africa Centre of Excellence on Technology Enhanced Learning (ACETEL)

University and Host Country:
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Centre's Website:
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Primary Thematic Disciplines of the Centre:
• The development of digital experts, ICT tools and solutions and adoption of innovative technologies to ensure access to quality, secure and cost effective learning
BRIEF DESCRIPTION OF THE CENTRE

Africa Centre of Excellence on Technology Enhanced Learning (ACETEL) established in February, 2019 is a World Bank assisted project supported by the Association of African Universities (AAU), and National Universities Commission (NUC), Nigeria. Domiciled in the National Open University of Nigeria (NOUN), - the only single-mode Open and Distance Learning (ODL) institution in Nigeria and the West Africa sub-region.

The Centre focuses on the development of human capacity and research in digital solutions that will lead to the utilisation of technology for education and its deployment to other sectors. The Centre seeks to bridge the technology knowledge gap through postgraduate education to develop capacity in digital policies, tools and solutions that will drive the adoption and use of ICTs in safe, secure and innovative ways in the education landscape with application to other sectors. The Centre will contribute to the optimisation of the continent’s research and innovation potential thereby building the next generation of digital experts (researchers and professionals) that will drive economic growth and transformation in the West African sub-region and beyond.

KEY OBJECTIVES AND EXPECTED RESULTS

1. Being a world class resource centre for e-learning strategies and Virtual Learning Environment for research and development projects in fields such as virtual laboratories, software applications, simulation and animation to increase proficiency in teaching and learning of STEM courses with application to all sectors;

2. A pool of digital experts and skilled graduates in software research and development, animation and digital simulations and interactive learning that will build capacity in the region;

3. A safe and secure digital environment and tools for conduct of virtual activities in the university and provides support to other institutions in the West African sub-region;

4. The adoption of best practices in curricula development that integrate pedagogical and instructional design that is learner-centred and enhances learning, research and applied development in the University;

5. Postgraduate programmes, short courses and facilitate workshops, seminars and internships, that will build capacity for technology innovation and improve technology-enhanced learning;

6. Increased access and subscription to STEM programmes in the university and the region for improved performance and applied research;

7. Established digital policies that ensure smart societies, digital governance and sustainable digital policy.

8. Partnerships and linkages with collaborating institutions in public and private sectors that increase digital literacy and enhance quality of STEM education.
KEY CAPACITIES

ACETEL is committed to modelling global best practices in Open and Distance e-Learning (ODeL). The Centre utilises the affordances of digital technologies in the delivery of its programmes.

- Its programmes are offered online with highly interactive learning resources offered in a wide variety of multimedia formats.

- Students shall have access to physical and virtual libraries and laboratories.

- ACETEL has Faculty comprising seasoned academics from around the world and leading practitioners in the industries.

- ACETEL Faculty in collaboration with the public and private stakeholders designed and developed its programmes to provide relevant knowledge and competencies.

MAJOR ACCOMPLISHMENTS TO DATE

- Development of digitalized learner Centred interactive e-learning resources for postgraduate programmes in the following fields: Artificial Intelligence, Cyber Security and Management Information System

- Establishment of ACETEL- Cisco Networking Academy for skill based capacity building

- Virtual training workshop to 15 ICT University staff on the use of Adobe Captivate for digitalization of learning resources

- Capacity building for 20 ICT staff to become certified Cisco trainers

- Virtual capacity building for over 500 registered participants in the following IT skill based courses
  - Internate of Things (IOT)
  - IT Essentials
  - Get Connected

This is to address the gap of digital literacy in staff and postgraduate students.

PRIMARY REGIONAL AND GLOBAL PARTNERS

The Centre has a strong partnership base with the following National and International Institutions and Industries.

1. Open University UK
2. University of West England
3. Kwame Nkrumah University, Ghana
4. South African Institute for Distance Education (SAIDE)
5. CISCO Nigeria
6. Softcom Nigeria
7. Glo Nigeria Ltd
8. MTN Nigeria
PRIMARY RESEARCH FACULTY MEMBERS

1. Prof. Christine Ofulue
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Hardware Engineering
Covenant Applied Informatics and Communication - Africa Centre of Excellence (CApIC-ACE)

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Primary Thematic Disciplines of the Centre:
• The thematic disciplines of CApIC-ACE are Computer Science, Bioinformatics, Biochemistry and Electrical & Electronics Engineering.
**BRIEF DESCRIPTION OF THE CENTRE**

Covenant Applied Informatics and Communication Africa Centre of Excellence (CApIC-ACE) domiciled at Covenant University is one of the Centres selected to be funded by the World Bank for 2018 – 2022 ACE-IMPACT which was announced on November 13, 2018 at an elaborate meeting held at the National Universities Commission.

CApIC-ACE was established based on the need to build a critical mass of indigenous African scientists with the necessary bioinformatics, molecular biology, and information and communication engineering knowledge and skills to drive and sustain impactful researches in collaboration with academic, clinical and industrial institutions in Nigeria, West Africa, Africa, Germany, France, US and UK. Our collaborators have a track record of successful research, training and capacity building.

CApIC-ACE is built on the existing infrastructure and personnel as well as externally-funded research projects for malaria and FEDGEN (NIH H3ABioNet, NIH WASLITBRe and German Science Foundation (aka DFG) being run by CUBRe) and cancer (CaPTC) at Covenant University. The Federated Genomic (FEDGEN) cloud infrastructure (with in-memory computing and cloud AI capabilities) is being design to process and analyze indigenous genomic data to address African health issues, including health education, medication efficiency and early disease diagnosis.

**KEY OBJECTIVES AND EXPECTED RESULTS**

Below are the 5 Specific Aims the Centre intend to achieve;

**Research Project 1**  
(Malaria, Drug Development):  
- Develop the first genome scale metabolic model for P.f in the host (RBC stages) and its Flux balance analysis (FBA) which will be expanded to a genome-scale regulatory-

metabolic model capable of simulating host and pathogen responses to different genetic and environmental perturbations.

**Research Project 2**  
(Malaria, Drug Development)  
- Develop virtual and/or high throughput screening and inhibitor design and synthesis against selected antimalarial sites from 1 above.

**Research Project 3**  
(Malaria, Control Development)  
- Develop virtual screening and inhibitor design against selected insecticidal sites outputted from a DFG funded project and experimentally validate in the lab these inhibitors against malaria infected A. gamb. compare to A. gamb. with no malaria infection.

**Research Project 4**  
(Cancer: Prostrate & Breast)  
- Implement a genome wide association study (GWAS) to identify candidate genes that drive prostate and breast cancers that contribute to poor prognosis in Nigeria men and women. The identified genes will play a role in genetic biomarker risk determination and subsequent therapy.

**Research Project 5**  
FEDGEN  
- Expand on our existing High-Performance Computing (HPC) facility to implement a first version of an in-memory database computing platform to bring home genomic research to populations in Africa, customized to address specific issues of Health in Africa, namely health education, medication efficiency and enhancement of early disease diagnosis.
KEY CAPACITIES

Covenant University with student population of over 8,000 and academic and non-academic staff population of over 400 and 500 respectively;
- Biochemistry Department at Covenant University having 3 equipped with RT-PCR and conventional Polymerase chain reaction machines etc;
- A software Engineering laboratory at Covenant University with HPC to facilitate high speed computing for genomic data analysis;
- KNUST, Kumasi Ghana to serve as both training and research on modelling and computing site for Research Projects 1-4; and
- Lagos State University Teaching Hospital (LASUTH), Lagos Nigeria site to be used to facilitate sampling for Research Projects 1-4.

MAJOR ACCOMPLISHMENTS TO DATE

- Development of a functional website for the Centre.
- Advert and recruitment of 3 PhD and 6 Masters degree students with 2 of the Masters’ degree students from the Region.
- Development of major policies such as Finance, Audit, Procurement, Scholarship, Sexual Harassment etc. for effective running of the Centre.
- Training of key Centre officials e.g. 3 people attended Project Management Training, 2 attended Finance & Audit training and 2 went for Communication & Admin training.
- Setting up of the Centre office and ICT laboratory.

PRIMARY REGIONAL PARTNERS

1. KNUST
   - Dr. P. Salifu
   - Dr. P. Amoako-Yirenkyl
   - Dr. B. Duduyemi

2. USTTB
   - Prof. S. Doumbia
   - A/Prof. M. Wele

3. ULPGL
   - Prof. C. Takenga
   - Prof. B. Mushage

PRIMARY GLOBAL PARTNERS

1. Jena University Hospital, Germany
   - Prof. Ralner Koenig
   - Dr. Marcus Oswald
   - Dr. Thomas Beder

2. German Cancer Research Center (aka DKFZ), Heidelberg
   - Prof. Benedikt Brors
   - Dr. Nikolas Gunkel
   - Dr. Aubry Miller
   - Dr. Karel Kilka

3. Swiss Tropical Institute and Public Health Institute, Switzerland
   - Prof. Till Voss
   - Prof. Pascal Maeser
   - Dr. Mercel Kaiser

4. University of Florida, USA
   - Prof. Folakemi T. Odedina

5. University of Southern California, USA
   - Prof. John Carpten
1. **Professor Victor C. Osamor**  
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2. **Professor Abiodun Adebayo**  
   abiodun.adebayo@covenantuniversity.edu.ng  
   • Biochemical, Phytochemical, and Toxicity Studies of Some Medicinal Plants commonly found in our locality. Clinical Biochemistry of Viral and cancer-related Diseases

3. **Associate Professor, Solomon O. Rotimi**  
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   • Genomics, Molecular Biology, and Clinical Biochemistry

4. **Professor Olubanke O. Ogunlana**  
   banke.ogunlana@covenantuniversity.edu.ng  
   • Antimalarial, cytotoxicity and biochemical toxicological investigations of extracts of leaves and stems of Caesalpinia bonducella. (PhD work);  
   • Pharmacological and toxicological investigation of some Nigerian medicinal plants;  
   • Studies on the antioxidant potentials of some tropical green leafy vegetables;  
   • Genomic and Proteomic evaluations of some medicinal plants in Nigeria;  
   • Structural characterization of some antiplasmodial potential drug target.

5. **Associate Professor, Jelili O. Oyelade**  
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   • Computational Molecular Biology, Cell Biology and Immunology  
   • Associate Professor, Grace I. Olasehinde  
   grace.olasehinde@covenantuniversity.edu.ng  
   • Molecular epidemiology of malaria; Antimalarial drug resistance; Antiplasmodial, antibacterial and antifungal activities of indigenous herbas/extracts  
   • Development of ‘Point of Care’ Diagnostic methods for malaria and Schistosomiasis

6. **Professor, Olayinka O. Ajani**  
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   • Organic Synthesis and Medicinal Chemistry

7. **Dr. Joke A. Badejo**  
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   • Biometrics & Biomedical Image Analysis, Machine Learning, Data Analytics, Software Engineering

8. **Dr. Titilope M. Dokunmu**  
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   • Oncology, genomics of Infectious diseases, nutraceuticals

9. **Dr. Marion O. Adebisi**  
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   • Anti-malaria drugs resistance mechanism, insecticide resistance mechanism and in-silico analysis of organism's inter-pathways using the microarray and NGS data; Employing standard statistical and computational techniques in analyzing transcription profiling data or micro-array data of organisms, in-silico methods for NGS data; 3D protein structure and function prediction.

10. **Dr. Itunuoluwa M. Isewon**  
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    • Bioinformatics, Systems Biology, Artificial Intelligence
Centre for Food Technology and Research (CEFTER)

University and Host Country:
Benue State University, Makurdi, Nigeria

Centre’s Website:
Benue State University, Makurdi, Nigeria

Centre Director:
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Primary Thematic Disciplines of the Centre:
- Control of post-harvest losses.
**BRIEF DESCRIPTION OF THE CENTRE**

The Centre of Excellence for Food Technology and Research (CEFTER) was established in 2015 to address the challenge of post-harvest losses in West and Central Africa sub regions through quality higher education, research and outreach. This is in line with the mission of Benue State University’s Strategic Plan 2016-2025.

The educational, research and outreach goals of CEFTER are:

i. To develop a critical mass of well-trained future African agricultural scientists in the control of post-harvest losses

ii. To empower African researchers to identify technologies through applied research for reducing post-harvest losses

iii. To engage farmers, communities and industries in training and dissemination of technologies in post-harvest food losses across the sub-regions

iv. To build the capacity of support staff in laboratory techniques, attract donor funds and ensure project sustainability

**Programs currently available are 7 M.Sc. and 7 PhD programs namely:**

1. Post-harvest Management and Physiology of Crops
2. Food Chemistry
3. Analytical Chemistry
4. Organic/ Natural Products Chemistry
5. Food Science and Technology
6. Food Processing Technology
7. Rural Sociology and Agricultural Extension
8. Radiation And Medical Physics
9. Biostatistics
10. Post-Harvest Engineering and Technology

**KEY OBJECTIVES AND EXPECTED RESULTS**

There will be expansion of existing courses and establishing of new related courses both at post graduate and continued training level. This will boost the capacity of the University to impact towards the control of post-harvest food losses, by upgrading the human capital within the sector. The project will construct and equip a food processing and innovation complex where students and industries in the region will gain experience on processing.

There will be improved teaching and learning facilities to be able to attract national, regional and international faculty and students through high quality education coupled with cutting edge science. The expected results of technologies that the CEFTER would produce include, reduction in pathogenic microorganisms, extension of shelf life of food, prevention of food borne diseases, improved nutritional value of food. Most importantly these improved technologies might potentially have huge economic benefits to farmers if adopted, thereby enhancing regional food security and regional integration through trade. The project will produce graduates that are relevant to the needs of the society. We will through partners, set postharvest clinics in all countries in West and Central Africa Sub region.

**KEY CAPACITIES**

a) New CEFTER postgraduate school building housing 14 air-conditioned lecture rooms. All with modern teaching facilities and Smart boards

b) A 100-bed space fully furnished hostels in a serene environment with internet facilities

c) Upgraded laboratories both in the Centre and partner institutions for research

d) Ultramodern library with virtual facilities. We are subscribed to Ngren

e) Fabrication laboratories in our vocation and technology department
MAJOR ACCOMPLISHMENTS TO DATE

a) Won ACE impact grant of 5 million dollars

b) International accreditation of three (3) programs, and 9 others have National accreditation

c) Development of more than 100 food products from local staples with value addition and increased shelf life.

d) Established food processing factory; contracted by the Federal Government under the School feeding program to feed 1.2 million pupils monthly.

e) Partnership with the NRI, University of Greenwich UK to implement England’s expanding excellence project on food and nutrition security. Collaborating on joint grant of £7.8 Million.

REGIONAL AND GLOBAL PARTNERS

1. University of Agriculture Makurdi (UAM)
2. Nigerian stored Products Research Institute, Ilorin Nigeria (NSPRI)
4. Akperan Orshi College of Agriculture, Yandev (AOCAY) Nigeria
5. National Root Crops Research Institute, (NRCRI) Umudike Nigeria
6. The World Food Preservation Centre, Shepherdstown, West Virginia
7. The University of Greenwich
8. University of Copenhagen

PRIMARY RESEARCH FACULTY MEMBERS

1. Prof Simon Terver Ubwa
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9. Dr. Benedict Labe
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10. Dr. Ogo Agbor Ogo
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    Nutritional Biochemistry
Africa Centre of Excellence on New Pedagogies in Engineering Education (ACENPEE)

University and Host Country:
Ahmadu Bello University, Zaria - Nigeria

Centre's Website:
https://acenpee.abu.edu.ng

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Centre Deputy Director:
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Primary Thematic Disciplines of the Centre:
• STEM - Engineering Education
The Africa Centre of Excellence on New Pedagogies in Engineering Education (ACENPEE), Ahmadu Bello University, Zaria as an ACE Development Impact Centre, has the mandate to improve the quantity and quality of postgraduate education in Engineering Education in the African Sub-region. In particular, it will focus on the quantity of students by scaling up admission at the MSc and PhD levels in 4 Engineering departments, at Ahmadu Bello University, Zaria, Nigeria, with emphasis on regional students and particularly the enrolment of female students.

The Centre is anchoring its MSc and PhD programmes on existing post graduate programmes offered in the departments of Chemical, Mechanical, Civil and Water Resources and Environmental Engineering.

A programme leading to a Certificate in Engineering Education (CEE) will be mounted to sharpen the pedagogical knowledge and skills of students in curriculum and course design, learning theories in engineering, use of multi-media technology and practical micro-teaching.

The certificate programme will lay emphasis on the use of the Cooperative, Hands-on, Active, Problem-solving Learning (CHAPL) pedagogy. The value addition to the MSc and PhD degree programmes will be the Certificate in Engineering Education programme to be offered by all Centre students.

**Expected Outcomes**

a. An ability to apply knowledge of engineering;

b. An ability to design and conduct experiments, as well as to analyze and interpret data;

c. An ability to design a system, component, or process to meet desired needs;

d. An ability to function on multidisciplinary teams;

e. An ability to identify, formulate, and solve engineering problems;

f. A recognition of the need for, and an ability to engage in, lifelong learning;
Africa Centre of Excellence on New Pedagogies in Engineering Education (ACENPEE)

KEY CAPACITIES

- Centre building provided by the university designated ‘ACENPEE Building’
- Partitioning, Procurement and installation of essential office furnishing in Centre building
- Centre Leader trained and certified in Project Management
- Four members of the Centre trained and certified in Curriculum and Course Design at MIT
- Three members trained and certified in Engineering Education

MAJOR ACCOMPLISHMENTS TO DATE

- Constituted project management team
- Implementation plan approved by World Bank
- Functional Website
- Attended all regional workshops
- Advertisement for admission to postgraduate programs

PRIMARY REGIONAL AND GLOBAL PARTNERS

1. Professor Bernard Van Wie - Washington State University, Pullman, USA,
2. Professor Hazel Sive - Massachusetts Institute of Technology (MIT)
3. Professor Francis Dodoo - University of Ghana, Accra, Ghana,
4. Professor Anthony Andrews - Kwame Nkrumah University of Science and Technology, Kumasi, Ghana,
5. Professor Christopher C. Enweremadu - University of South Africa, Johannesburg,
6. Col. Hagos Barhane - Defence University College of Engineering, Bishoftu, Ethiopia,
7. Professor Chinedum Okwudire - University of Michigan, Michigan, USA.
8. Purdue University

PRIMARY RESEARCH FACULTY MEMBERS

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    Chemical Engineering and Engineering Education
Africa Centre of Excellence for Neglected Tropical Diseases and Forensic Biotechnology (ACENTDFB)

University and Host Country: 
Ahmadu Bello University, Zaria, Nigeria

Centre’s Website: 
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Centre Director: 
Prof Yakubu K.E. IBRAHIM

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Primary Thematic Disciplines of the Centre: 
- Molecular epidemiology and drug management of Neglected Tropical Diseases-thematic neglected diseases areas in include Lymphatic Filariasis, Trypanosomiasis, Rabies, Onchocerciasis, Schistosomiasis, and Dengue fever
- Biotechnology application in forensic issues such as paternity dispute, crime detection
BRIEF DESCRIPTION OF THE CENTRE

ACENTDFB was established in Nigeria in 2015 with an initial grant of $4m which was increased to $4.7m following mid-term assessment. Its main mandate is building capacity and resolving problems associated with neglected tropical diseases (NTDs). Its proposal for the ACE Impact was successful and is being granted a sum of $5m the next five years (2020 - 2024).

ACENTDFB runs MSc and PhD Biotechnology programmes in thematic areas of neglected tropical diseases and a Postgraduate Diploma (PGD) in Forensic Biotechnology. MSc Biomedical Forensics is scheduled to commence next academic session. ACENTDFB also conducts short term capacity trainings within Nigeria and the West African region.

ACENTDFB draws its academic faculty (comprising 15 Professors, 3 Readers, 4 Senior Lecturers and 4 Lecturers) from six units/departments of the University. The Centre’s activities is coordinated and management by a well structured committee system, headed by the Centre Leader, supported by the Deputy Centre Leader, four Principal Investigators, CBRT Director and Head of Biochemistry.

Other staff members are the Finance and procurement, ICT, Monitoring and Evaluation Officers, Safeguard, and Administration officers. In addition to Postgraduate and Teaching Coordinators. The Centre also has two advisory and supervising bodies, International Scientific Advisory and the Sectoral Advisory Board.

KEY OBJECTIVES AND EXPECTED RESULTS

- Molecular epidemiological mapping of NTDs in the West African Region
- Provision of skilled human resources for the diagnosis, management and prevention of neglected tropical diseases
- Development and production of vaccines and drugs for prevention and treatment of neglected tropical diseases
- Training of manpower in the general area of molecular biotechnology techniques and forensic science for solving related problems.
- Establishment of facility and channel for security agencies and the society in resolving security, legal, paternity and other related issues

KEY CAPACITIES

1. A teaching and training Lab with capacity for max 20 participants at a time

2. Two Analytical /diagnostic Labs (One which houses a Luminex Multiplex Analyzer, ELISA plate Reader, a Biochemical Analyzer, among others, and the other, a dedicated Covid-19 Sample Testing Lab)

3. A Postgraduate Research Lab with different types of PCR machines including a RT-qPCR, a BS (Bio safety) Class 2 Cabinet with other Laminar flow Cabinets, Gel documentation Systems,

4. Experimental Animal House for laboratory animals, small and large ruminants, with incinerator and dedicated generator

5. A team of researchers comprising 10 Professors, 5 senior lecturers, and Lab Manager
MAJOR ACCOMPLISHMENTS TO DATE

1. Equipping of Labs with state of the art research and teaching facilities
2. National and international accreditation of the postgraduate programmes (MSc. and PhD) of the Centre
3. Successful graduation of MSc and PhD students including regional students and publication of research findings in high impact journals
5. Provision of International Student Hostel and establishment of Experimental Animal Research house

REGIONAL AND GLOBAL PARTNERS

1. Institute for Biomolecular Interactions, University of Bremen, Germany
2. Institute for Tropical Medicine (NEKKEN), Nagasaki University, Japan
3. J-WEL Lab, Massachusetts Institute of Technology, Cambridge, Boston, USA
4. BvGH (Bio Venture for Global Health, Seattle, USA
5. University of Ngaundere, Cameroon
6. Kumasi centre for Collaborative Research, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
7. CIRDES, Bobo Dioulasso, Burkan Faso
8. Inqaba Biotec, West Africa

PRIMARY RESEARCH FACULTY MEMBERS

1. **Prof. Yakubu KE Ibrahim** - Centre Leader
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   Antimicrobial Resistance, Drug Development

2. **Prof. Mohammed Mamman**
   Deputy Centre Leader & PI Trypanosomiasis
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   Chemotherapy of trypanosomiasis, Antimicrobial resistance

3. **Prof Junaid Kabir** - Project Coordinator
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   Epidemiology and Drug Resistance

4. **Prof J.K.P. Kwaga** - PI Rabies/Dengue
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   Molecular epidemiology of infection diseases

5. **Prof H.M. Inuwa** - Director, CBRT
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   Plant genetics

6. **Prof Sani Ibrahim** - PI, Forensics
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   Immunogenetics and vaccinology

7. **Prof I.S. Ndams** - PI. Filariasis
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   Ecology and molecular epidemiology of vector-borne diseases

8. **Prof A. B. Sallau** - HOD Biochemistry
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   Process biotechnology and Enzymology

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   Molecular parasitology, immunology and vaccinology

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    Environmental and process biochemis
Africa Centre of Excellence for Innovative and Transformative STEM Education (ACEITSE)

University and Host Country:
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Centre’s Website:
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Primary Thematic Disciplines of the Centre:
• STEM Education
FACT SHEET

BRIEF DESCRIPTION OF THE CENTRE

The Lagos State University (LASU) won the bid for LASU to host the World Bank-funded Africa Centre of Excellence for Innovative and Transformative STEM Education (LASU-ACEITSE) in 2018. Within the enterprise of teacher education, science, technology, engineering and mathematics (STEM) teacher education has occupied a respectable niche.

This prominence derives from the critical role that science and technology play in development. The future of humanity, it is often claimed, is inextricably linked to science and technology. This elevates the status of STEM teachers since they are concerned with preparing future scientists who in turn, will drive the engine of science and technology for society’s growth and development. In this light, the ACEITSE is poised for improved quality of STEM education in West Africa through innovative and transformative teacher training and leadership.

The enduring logic is: fix the teacher factor in the education enterprise and not less than 30% of the potency of education in addressing developmental challenges would have been fixed. The Centre is unique for its Culturo-Techno-Contextual Approach (CTCA) model for training quality science, technology, engineering and mathematics (STEM) teachers for Nigeria and the African continent.

KEY OBJECTIVES AND EXPECTED RESULTS

1. To offer unique, qualitative and transformative training aimed at promoting excellence and innovation in STEM teaching, development of 21st century skills and leadership using the CTC Approach.

2. To serve as a train-the-trainers’ centre of excellence for skilled STEM master teachers who will later undertake training of other teachers and school leaders and policy makers.

3. To develop and apply models of innovative STEM teaching and learning based on cutting-edge research and practice.

4. To address science and technology-related national and regional development challenges through the provision of better-trained STEM teachers.

5. To undertake continuous monitoring of the critical mass of master teachers trained by the Centre in institutions where they are multiplying their innovative and transformative skills.

KEY CAPACITIES

- One Centre building donated by the University, called the ACEITSE building
- Accommodation facility for visiting professors and foreign students on campus
- Procurement and installation of essential office furniture and classroom equipment
- In lockdown, students receive lectures in a unique mix of live lectures, live workshops, discussion forums, quizzes and assignments.

MAJOR ACCOMPLISHMENTS TO DATE

- Advertisement/application for admission of students into the postgraduate programmes of the Centre - October 2019
- Upgrading/equipping of university donated building with state-of-the-art facilities for use of ACEITSE – Oct-Dec 2019
- Commencement of postgraduate students’ lectures at the Centre – January 2020
- Inauguration and hosting of inaugural meeting of the sectoral Advisory Board of the Centre - February 2020
- Movement of lecture into virtual classroom using a combination of Zoom and the Centre’s virtual classroom environment – April 6, 2020
**PRIMARy REGIoNAL AND GLoBAl PARTneRS**

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7. **Prof. Léonard Todjihoundé,**  
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**PRIMARy RESEARCH FACULTy MEMBers**

1. **Prof. Tunde Owolabi,**  
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CTC approach to Science teaching and teacher education/Indigenous knowledge system

2. **Prof. Shehu Akintola,**  
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STEM instrumentation with development with CTC flavor and environmental education

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CTC Approach to Science teaching

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STEM teachers’ knowledge
African Center of Excellence for Drug Research, Herbal Medicine Development and Regulatory Science (ACEDHARS)

University and Host Country:
University of Lagos, Nigeria

Centre’s Website:
www.acedhars.edu.ng

Centre Director:
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Primary Thematic Disciplines of the Centre:
- Drug and Herbal Medicine Development and standardization;
- Quality control and Post-market surveillance of drugs and herbal medicines
BRIEF DESCRIPTION OF THE CENTRE

ACEDHARS was established to train skilled manpower on quality assurance, standardization of dosages, reproducibility of herbal preparations and safety monitoring of drugs in West and Central African region.

The Center programs are focused not only on herbal medicines but also on orthodox drug assessments and regulations based on expertise of members in Biochemistry, Botany, Chemistry, Pharmaceutical Chemistry, Pharmacognosy, Pharmacology and Sociology. The Center offers interdisciplinary M.Sc. and Ph.D. programs in Herbal Drug Standardization, Drug Development, Toxicology, Regulatory Science and Pharmacovigilance.

The Center also runs short courses in Formulation and Standardization of Herbal Medicine, Impurity Profiling, Quality Control and Regulation of Herbal Products, Toxicological Evaluation, and Regulatory Sciences for personnel in production and regulatory service positions in the region.

There are three research groups in the Center - Herbal Medicine Exploration, Quality Control and Pharmacovigilance, conducting studies on;

(a) the exploration of medicinal plants in Africa for isolation of phytochemicals and development of subsequent standardized extracts and molecules to usable medicines for the treatment and management of non-communicable diseases;

(b) the development of analytical assays for quality control of herbal formulations with the production of a more robust African pharmacopeia and;

(c) development of pharmacovigilance database for African herbal products, respectively.

KEY OBJECTIVES AND EXPECTED RESULTS

- Fill the skill gap especially in the toxicology, quality control and pharmacovigilance units of regulatory agencies, drug research institutes, pharmaceutical industries, herbal product industries, healthcare facilities and traditional medicine centers in the region.

- Exploration of medicinal plants in Africa

- Development of standardized extracts and molecules into usable medicines for the treatment and management of diseases

- Development of analytical assays for quality control of herbal formulations with the production of a more robust African Pharmacopeia

- Development of Pharmacovigilance database for African herbal products

KEY CAPACITIES

- Analytical Laboratory
- Herbarium for plant identification and indexing
- Herbal processing laboratory and Clinic
- A resourceful Botanical garden

MAJOR ACCOMPLISHMENTS TO DATE

- Formulation and packaging of Herbal products for treatment of various ailments
- Publications in international journals
- Recruitment of students from West Africa
PRIMER REGIONAL AND GLOBAL PARTNERS

1. National Agency for Food and Drug Administration (NAFDAC), Nigeria
2. Pharmacy Board of Sierra Leone, Freetown, Sierra Leone
3. Liberia Medicines and Health Products Regulatory Authorities, Liberia
4. Neimeth International Pharmaceuticals Limited, Nigeria
5. University of Ghana, Ghana
6. Kwame Nkurumah University of Science and Technology, Ghana
7. Center for Biomedical and Biomaterials Research, University of Mauritius, Mauritius
8. University of Pretoria, Pretoria, South Africa

PRIMER RESEARCH FACULTY MEMBERS

1. Prof. Ibrahim A. Oreagba
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4. Prof. Grace E. Ukpo
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10. Dr. Temitope O. Onuminya
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    Molecular Systematics and Ethnobotany
Centre of Excellence in Reproductive Health Innovation (CERHI)

University and Host Country:
University of Benin, Edo State Nigeria

Centre’s Website:
www.cerhiuniben.edu.ng / www.cerhi.uniben.edu

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Centre Deputy Director:
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Professor Florence Adeyemo

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Primary Thematic Disciplines of the Centre:
• Reproductive Health
The Center of Excellence in Reproductive Health Innovation (CERHI) is a World Bank supported project at the University of Benin aimed at building capacity within the West African region for implementing strategic policies and programs in reproductive health.

One of CERHI’s specific objectives is to train Masters and PhD students in the fields of public health, reproductive health, nursing and health economics, with the major outcome to ensure that graduates are industry-ready to address the reproductive health challenges in the region.

**BRIEF DESCRIPTION OF THE CENTRE**

CERHI has an ultramodern Secretariat with the following facilities:
- Lecture theatres
- Tele conferencing hall
- Laboratory for high grade research
- Reproductive health library
- E-library facilities with EBSCO host journals, Science direct, E-journals, E-books and Journals
- Free WI-FI
- Uninterrupted power supply (150KVA Generator)
- 32 Sitter Coaster Bus
- International Students’ hostel
- A 4 Star Guest House

**KEY CAPACITIES**

i. The construction of the secretariat building at the University of Benin campus with fully equipped lecture halls and seminar rooms, library with 20,000 books and various e-learning materials (Ebscohost, Hinari, Science Direct, Springer, Willey, etc.), with a standby generator and internet hub providing 24-hours electricity and internet services;

ii. CERHI provided personnel and Polymerase Chain Reaction (PCR) machine to the University of Benin Teaching Hospital (UBTH) for COVID-19 testing

iii. National and International accreditation of all CERHI programs by the National Universities Commission (NUC), the Agency for Public Health Education Accreditation (APHEA) in Belgium and HCERES in France

iv. Grant received from the Global Affairs, Canada through Imano Portal Ltd as part of the Africa Textbook Partnership project

v. Instrumental Access Grant received from Seeding Labs in Boston, USA to provide laboratory equipment worth 150,000 US Dollars

vi. Intervention research to address the reproductive health of IDP in rural Nigeria

**MAJOR ACCOMPLISHMENTS TO DATE**

i. Training of students and technical experts/policymakers through short courses on relevant fertility, maternal mortality, HIV/AIDS and reproductive health policy topics in the region.

ii. Masters in reproductive health, public health, health economics and nursing

iii. Ph.Ds. in reproductive health, public health, health economics and nursing

iv. Regional laboratory capacity to support HIV/AIDS and other reproductive health related problems
1. Professor Alphonsus Isara  
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Occupational and environmental epidemiology

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Gender and Social standards

10. Dr. Lorretta Ntoimo  
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Health Data Analysis and statistics

1. University of Ghana, Legon, Ghana
2. University of Malawi
3. University of Entrepreneurship, Cotonou, Republic of Benin
4. University of Niger, Niger Republic
5. Harvard School of Public Health, Boston, USA
6. Queen's University, Belfast, Ireland
7. University of Alabama at Birmingham, USA
8. University of Louisville, USA
Centre for Dryland Agriculture (CDA)

University and Host Country:
Bayero University, Kano, Nigeria

Centre’s Website:
www.cda-buk.edu.ng

Centre Director:
Professor jibrin Mohammed Jibrin

E-mail Address:
jibrin@buk.edu.ng

Primary Thematic Disciplines of the Centre:
• Natural Resource Management and Climate Change, Dryland Crops and Cropping Systems, Livestock Production and Range Management, Livelihood and Natural Resource Economics
BRIEF DESCRIPTION OF THE CENTRE

The Centre for Dryland Agriculture (CDA) at Bayero University, Kano (BUK) focuses on producing skilled manpower that will contribute towards addressing the development challenges in the drylands of Africa through generation of knowledge and applied research focused on reducing poverty, improving agricultural productivity, enhancing food and nutrition security, improving natural resources and ecosystem services, mitigating the impacts of climate change, and reducing conflicts and human migration.

The vision of the CDA is “resilient and prosperous African drylands” and its mission is “to improve livelihood, resilience and sustainable use of natural resources in African drylands through training and demand-driven research”. Achieving these requires a critical mass of high quality and relevant skilled-labour that will produce the knowledge and technology-based outputs needed to spur economic growth and development in the region.

Towards this end, the CDA has put in place innovative teaching programmes focused on “learning-to-learn”, problem-solving and applied practical experience that make its graduates highly employable. Its programmes include MSc, PhD and Professional Short Courses in relevant areas of dryland agriculture and natural resource management. The Centre has a formidable network of partnership with several international, regional, and national academic institutions and industry stakeholders with common interests.

KEY CAPACITIES

- Well-equipped laboratories for research and services in molecular biology, tissue culture technologies, soil and plant analysis.
- State-of-the-art training and research farm to enable training of employees in the sector.
- Good learning environment with well-equipped smart-classrooms
- Competent faculty and staff

KEY OBJECTIVES AND EXPECTED RESULTS

The objects of the Centre are to:

- Promote trans-disciplinary research-for-development capable of positively impacting on community livelihood in African drylands
- Expand the horizon, boost the skills and capacity of postgraduate students in dryland studies
- Promote staff welfare and advance their capacity for effective teaching and ability to attract funding and publish in high impact journals
- Improve the capacity of the Centre to organize and execute projects with professionalism and efficiency
- Create visibility and awareness of the activities of the Centre
- Expand the frontiers of existing academic linkages to industry and foster strong town and gown relations
- Expand and diversify the sources of funding for the activities of the Centre

MAJOR ACCOMPLISHMENTS TO DATE

- The Centre has national accreditation for all its programmes and international accreditation from HCERES for two of its MSc programmes
- The provided conducive learning and research environments by building and equipping state-of-the-art laboratories, farms, greenhouses and smart classrooms
- In the last five years the Centre has attracted and enrolled MSc and PhD students from 12 countries spanning through West, Central and East Africa.
- In the last five years over 2,200 professionals have received short trainings from the Centre
- The Centre is an Africa Host Institution (AHU) of the Partnership for Innovation in Applied Science Engineering and Technology (PASET)
PRIMARY REGIONAL AND GLOBAL PARTNERS

1. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
2. Natural Resource Institute, University of Greenwich, UK
3. International Institute for Tropical Agriculture
4. International potato Center
5. University of Nairobi, Kenya
6. Dan Dicko Dankoulodo University, Maradi
7. Kano University of Science and Technology, Wudil, Nigeria
8. Sassakawa Africa Association

PRIMARY RESEARCH FACULTY MEMBERS

1. Professor Sanusi Gaya Mohammed
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3. Professor Amina Mustapha
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4. Professor Adamu Idris Tanko
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Obafemi Awolowo University ICT-Driven Knowledge Park (OAK-Park)

University and Host Country:
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Centre’s Website:
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Centre Director:
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Primary Thematic Disciplines of the Centre:
• Science, Technology, Engineering and Mathematic (STEM)
FACT SHEET

BRIEF DESCRIPTION OF THE CENTRE

The Center is established to tackle the twin problems of insufficient output from the engineering training institutions in meeting national and regional requirements, and that of poor quality and lack of practical experience and skills of the graduates produced, which often make them unemployable.

The Center will employ emerging engineering training and research model to strengthen the dimensions of OAK-Park to train high quality engineering manpower, who will recognize, understand, and readily exploit the immense potentials of emerging modern global technology movements, as a revolutionary milestone leveraging the creative and innovative capabilities of the African youth.

KEY OBJECTIVES AND EXPECTED RESULTS

Key Objectives:

i. Develop OAK-Park into an acknowledged Center of Excellence in transformational engineering design education for development;

ii. Focus on practice-anchored intelligent engineering education that will produce a critical mass of future teachers/instructors for the new vision, as well as a new corps of engineering leaders to drive the vision of “the Africa we want”;

iii. Apply and strengthen modern engineering design methodologies emerging from application contexts such as IoT, autonomous systems/machine intelligence, and Industry 4.0, to suit and accelerate the advanced skills development in the region;

iv. Expand learning and research opportunities for postgraduate studies in all the key sectors consistent with the SDGs, by deploying existing and new advances in ICT; and

v. Leverage the cognate intellectual infrastructure and the output of the university and collaborating partners to serve as the launch pad for start-up digital/engineering companies.

Expected Outcome

The results to be achieved are as follows:

a. Eight grants will be attracted to support postgraduate research.

b. 326 postgraduate students will be produced (National, Regional, Female).

c. Six research innovations to be patented.

d. 18 short courses/600 trainees to be produced.

e. 300 postgraduate students and faculty will participate in outreach programs.

f. Six spin-off companies will be established.

g. Co-hosting fifty technology driven companies.

h. Three Business incubator to be established/150 entrepreneurs will be trained.
• The Center now embarked on International Accreditation of Postgraduate programmes

• Establishment of a fabrication laboratory within the Centre

• The Center through one of the spin-off companies established under ACE 1 designed and implemented the following: Finger print machine. Software controlled Ventilator, Face masks, Drone, Microcontroller, etc.

• 60% of the regional students that graduated in 2019 now applied to resume for Ph.D. degree program

KEY CAPACITIES

- **Telepresence**: for virtual meeting experience and lecture delivery to large classes and to students in remote locations.

- **Cloud Computing**: for housing the standard mobile application and online teaching and learning resources developed.

- **Software Development Studio**: used by software developers and postgraduate students to develop mobile application and online teaching and learning resources

- **Cyber Security laboratory**: used by researchers in Data Communication and network security

- **Computer Engineering/Intelligent System Engineering Equipment**: used by researchers in Computer Engineering/Intelligent System Engineering

- **Fabrication Laboratory**: used by one of the registered spin-off company to produce various Internet of Things devices

MAJOR ACCOMPLISHMENTS TO DATE
PRIMARY REGIONAL AND GLOBAL PARTNERS

1. Ecole Superieure Multinationale des Telecommunications, Dakar, Senegal
2. Laboratoire de Recherche en Informatique et Telecoms, Abidjan, Cote d’ivoire
3. Massachusetts Institute of Technology, USA
4. McMaster University, Canada
5. Towson University, USA
6. University of Waterloo, Canada
7. Quanser Technologies, Toronto, Canada
8. George Mason University, USA.

PRIMARY RESEARCH FACULTY MEMBERS

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10. Professor O. A. Koya
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Africa Centre of Excellence in Public Health and Toxicological Research (ACE-PUTOR)

University and Host Country:
University of Port Harcourt

Centre’s Website:
www.aceputoruniport.edu.ng

Centre Director:
Daprim Ogaji

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daprim.ogaji@uniport.edu.ng

Primary Thematic Disciplines of the Centre:
- Public Health, Environmental Toxicology, Nutritional Biochemistry/Toxicology, Midwifery and Child Health Nursing
Environmental degradation, especially of the swamps, rivers and creeks from oil spills, pipeline vandalisation and illegal refining activities are the major fall outs of the oil and gas activities in the Niger Delta region. This affects the health and livelihood of the people who depend on the ecosystem services for survival, leading to increased poverty and hunger. The problem is compounded by the paucity of highly skilled and motivated health professionals who are equipped with current knowledge, skills and competencies required for conducting cutting-edge research in public health and toxicology that would help mitigate the public health issues arising from oil and gas exploration in the region.

ACE-PUTOR was established to address the dearth of requisite knowledge infrastructure to address the public health and toxicological challenges arising from environmental pollution. This will achieved through formation of broad-based partnership with relevant institutions/sectors, conduct of applied research, and the development of curricula for new training programmes leading to certificates, diplomas, masters and PhDs in environmental health, environmental toxicology, nutritional biochemistry/toxicology, and midwifery/child health nursing.

Highly motivated national and regional students would be attracted and trained in a world-class teaching and learning environment.

**KEY CAPACITIES**

- 8 offices for staff, a Board Room and student workstations
- Three large classrooms
- University Central instrument laboratory of the University
- University Language laboratory
- University Central library

**BRIEF DESCRIPTION OF THE CENTRE**

The objectives and expected outputs of the project over a period of 5 years include

- To develop curricula for at least 3 new PhD programmes in public health and toxicology
- To develop curricula for at least 4 new master’s programmes in public health and toxicology
- To train at least 42 PhD students in public health and toxicology
- To train at least 72 MSc students in public health and toxicology
- To train at least 150 participants in short courses in public health and toxicology
- To achieve national accreditation for at least 4 academic programmes
- To achieved GAP/Self-assessment for 3 training programmes
- To achieved international accreditation for 3 training programmes
- To produce at least 40 publications in indexed journals in public health and toxicology
- To complete new training structure (including lecture halls, offices, laboratories, library)
- To attract at least $1,000,000 additional funding from private and other sources
MAJOR ACCOMPLISHMENTS TO DATE

- Set up required structures for effective function and requirements for DLI
- Developed and commenced training for 6 new PhD Programmes and 4 new MSc Programmes using modern pedagogy
- Concluded first year of academic training in all new postgraduate programmes
- Established partnerships with 8 local, regional, and international organisations
- Official launch of the Centre in May 2019

PRIMARY REGIONAL AND GLOBAL PARTNERS

1. Ensign College of Public Health, Accra
2. University of Sierra Leone
3. African Centre of Excellence in Public Health and Herbal Medicine (ACEPHEM), University of Malawi
4. University of South Australia - School of Nursing and Midwifery

PRIMARY RESEARCH FACULTY MEMBERS

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10. Dr. Faith Diorgu
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    Midwifery/Child Health Nursing
African Centre of Excellence for Mother and Child Health (CEA-SAMEF)

University and Host Country:
Université Cheikh Anta Diop de Dakar (UCAD) - Senegal

Centre’s Website:
www.ceasamef.sn

Centre Director:
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ousmane2.ndiaye@ucad.edu.sn

Primary Thematic Disciplines of the Centre:
• The disciplines of interest to the centre are Maternal and Child Health, Nutrition and Public Health (Mother and Child).
BRIEF DESCRIPTION OF THE CENTRE

The strategic orientations of the centre is to ensure quality training of students and health workers in maternal, neonatal and child health including nutrition in order to contribute to the reduction of maternal mortality in the African region.

It works to strengthen African resources and pool them in order to optimize the implementation of strategies in the areas of training, research, prevention and care. With regard to research, the aim is to promote operational research that contributes to decisionmaking for our decision-makers.

Finally, it aims at having a strong impact on the quality of training at the level of the whole Cheikh Anta Diop University of Dakar as a model of Excellence.

KEY OBJECTIVES AND EXPECTED RESULTS

• To increase the attractiveness of the University of Dakar by setting up quality training courses accredited at national and international level;

• To ensure research of internationally recognized quality through the publication of accepted results in indexed, high-impact international journals;

• Generate additional resources to allow its autonomy beyond the project;

• To obtain a very strong integration of students after their training.

KEY CAPACITIES

• An anatomical model simulation laboratory

• Sufficient internship sites (6 level 3 hospital facilities and 2 health centres)

• Specific E-learning platform for CEA-SAMEF training courses

• Availability of Microsoft Team and Zoom for virtual meetings

• Physical and digital library

MAJOR ACCOMPLISHMENTS TO DATE

• Accreditation of 11 programs in ACE 1

• Income generation with UNICEF in Guinea Bissau and PATH (3-year research project in progress) / International income;

• Reception of the simulation laboratory;

• Recruitment of PhD students

• Completion of the student booklet and sexual harassment policies
### PRIMARY REGIONAL AND GLOBAL PARTNERS

1. University of Florence in Italy (Erasmus plus programme with Pediatrics)
2. Centre Hospitalier Universitaire Vaudois de Lausanne in Switzerland
3. UNICEF in Guinea Bissau (training of health workers); temporarily interrupted by COVID-19
4. International NGO PATH; ongoing research project
5. SANOFI Pharmaceutical Laboratories
6. NESTLE Laboratories
7. University of Conakry
8. University of Niamey

### PRIMARY RESEARCH FACULTY MEMBERS

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Pediatrician
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Public Health
African Centre of Excellence in Agriculture for Food and Nutritional Security (CEA- AGRISAN)

University and Host Country:
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Centre’s Website:
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Centre Deputy Director:
Professor Diégane DIOUF

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Primary Thematic Disciplines of the Centre:
• Agrobiosciences, Biotechnologies, Plant and Animal Production, Food Processing, Nutrition, Biodiversity and Conservation, Socio-Economics
The African Centre of Excellence in Agriculture for Food and Nutritional Security (AGRISAN), is a public consortium of scientific cooperation bringing together the main national actors in research and training in the field of agrobiosciences, namely four (04) universities (UCAD, UGB, UT, USSEIN) and CRES, an independent research institution, with regional and international partners.

CEA AGRISAN is placed under the supervision of UCAD. The Centre's positioning on the issue of agriculture, food and nutritional security is relevant, not only with regard to international bodies (SDOs) but above all because it corresponds to the concrete concerns of several populations at the regional level.

In a context of climate change and its impact on the resilience of anthropo-systems, food and nutrition security issues are increasingly important. CEA AGRISAN's objective is to help agriculture play a major role in economic growth, food security and poverty reduction in Senegal and the West African sub-region through innovative training and research in all segments of agricultural value chains.

**BRIEF DESCRIPTION OF THE CENTRE**

**KEY OBJECTIVES AND EXPECTED RESULTS**

They can be summarised as follows:

(i) to train competent human resources capable of meeting the challenges of efficient agriculture for food and nutritional security while supporting the sustainable development of Senegal and the countries of the region;

(ii) to strengthen the research and expertise capacities of the units to conduct applied and operational research in order to propose innovative methods;

(iii) strengthen the performance of national and regional academic partners in terms of training, research and expertise;

(iv) contribute to the creation of a critical mass of women with high-level skills;

(v) strengthen the institutional capacities of national and regional non-academic partners; and

(vi) promote sustainable cooperation between the partners involved in the project.

The expected results are manifold:

- competent human resources are trained, joint applied research programmes are implemented, research results are exploited, high-performance technical platforms are set up, institutional intervention capacities are strengthened, exchanges of teachers and students are carried out, multiple and lasting collaborations between the different partners are established, common training courses in the field of agriculture and food and nutritional security are defined.
KEY CAPACITIES

- UCAD Nutrition Laboratory, assessment of the risks of malnutrition and development of means to remedy it. Services (biological analyses, databases, food surveys, conduct of studies).

- UCAD’s Plant Biotechnology Laboratory, production of horticultural plants, where you will find the necessary equipment to carry out all the stages of in vitro plant culture.

- Joint Laboratory of Soil Microbiology, brings together researchers from IRD, ISRA and UCAD, to study the natural diversity of symbiotic microorganisms, their genetic and functional diversity, their conservation and their use to improve soil fertility and the productivity of cultivated and forest plants.

- Farm Schools (50 ha UCAD RURALE; 50 ha of ENSA Thiès and 30 ha of UGB Saint Louis) and Laboratory of Biological Sciences, Agronomy and Complex Systems Modelling (Gaston Berger University)

- Pedology laboratory (ENSA) for the physical and chemical characterisation of soils

- Laboratory of Chemical Engineering and Food Technology for the processing of ESP agro-food products, the formulation of new products and for risk analysis.

MAJOR ACCOMPLISHMENTS TO DATE

- Recruitment of 11 PhDs, including 4 regional and 4 women.

- Recruitment of 79 Masters, including 13 regional Masters and 28 women.

- Recruitment of more than 1,000 first-year Bachelor of Science students

- Publication of 37 scientific articles in indexed international journals
### PRIMARY REGIONAL AND GLOBAL PARTNERS

1. International Research Centre for Development (CIRAD-France)
2. Research Institute for Development (IRD-France)
3. Abomey-Calavi University (Benin)
4. University Ouaga I Pr Joseph Ki-Zerbo (Burkina Faso)
5. Boubacar Ba University (Niger)
6. University Houphouet Boigny (Ivory Coast)
7. Montpellier SupAgro (MSA, France)
8. VirginiaTech (USA)

### PRIMARY RESEARCH FACULTY MEMBERS

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Email</th>
<th>Department</th>
</tr>
</thead>
<tbody>
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<td>Microbiology</td>
</tr>
</tbody>
</table>
Centre of Excellence in Agriculture, Environment and Health (CEA- AGIR)

University and Host Country:
Cheikh Anta Diop University, Dakar, Senegal

Centre’s Website:
www.cea-agir.ucad.sn

Centre Director:
Professor Babacar Faye

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cea-agir@ucad.edu.sn

Primary Thematic Disciplines of the Centre:
• AGIR was built as an integrated center for observation, measurement, training and development in the environment, health and society. It is organized around a set of infrastructures, equipment and human resources which will be used in a nested fashion for training, research and development. Four themes have been identified:
  • Air quality and human health
  • Resources, Water Quality and Human Health
  • Transitions and new health challenges
  • Restoration of degraded environments for well-being and health
**BRIEF DESCRIPTION OF THE CENTRE**

CEA-AGIR focuses on Environment-Health-Society interactions. The development challenge that the center wishes to take up is entitled “Acting on the socio-environmental system to improve the health and well-being of populations” in West Africa.

By ACTING, we have to understand a set of actions going from the knowledge of the systems in which the center fits and their dynamics to a wide range of measures to manage them and support them in their evolution, set of measures that we can summarize under the terms of "understanding / adapting / enhancing / protecting / restoring".

AGIR means taking up the challenge of Ensuring human well-being in an environment with a balanced balance, Managing human resources, risks and impacts, Integrating the challenges of socio-economic transition ecological to the necessities of development, and finally Restoring socio-ecosystems and making them resilient.

**KEY OBJECTIVES AND EXPECTED RESULTS**

AGIR aims:

i) to offer the countries of the Sudano-Saharan sub-region the means to increase the level of excellence in the training of students and young professionals on the themes of the challenge,

ii) to stimulate interdisciplinary research and to strengthen the resources dedicated to it (equipment, doctoral and postdoctoral grants) thanks to the international training and research programs that the strengthening of our structure will allow us to win,

iii) to stimulate innovation thanks to the multiple forms of applications arising research that the laboratory conducts,

iv) to offer businesses, institutions and sectors linked to the challenge and its themes advice and services to help the countries of the sub-region and their populations to better experience the multiple transitions underway.

AGIR intends to meet these challenges through training, applied research and development, based on a strong partnership with academic structures and with the socio-economic sectors.

**KEY CAPACITIES**

CEA AGIR is a Consortium of 5 universities and 5 African and European research institutions.

- Partnership with the private sector of companies, local authorities and public entities whose activities are linked to the theme of the CEA.
- The promotion of self-employment by the creation of startups from training and research results in the themes of CEA
- Well-targeted short-term training for active professionals
- Foster innovation processes, the appropriation of know-how and the use of innovative technologies stemming from research on CEA themes with the aim of stimulating economic development

**MAJOR ACCOMPLISHMENTS TO DATE**

CEA AGIR Official Launch Meeting

- Recruitment of 116 master and PhD students in CEA fields in 2019
- Organization of the first summer course in Ecohealth from 05 to 09 August 2019
- Establishment of a distance learning platform as part of the response to Covid-19
- Creation of a website
PRIMAR Y REGIONAL AND GLOBAL PARTNERS

1. CNRST Burkina Faso
2. MRC the Gambia
3. USTTB Mali
4. Stockholm Resilience Center Danemark
5. CNRS France.

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Centre of Excellence in Mathematics and ICT (CEA-MITIC)

University and Host Country:
Gaston Berger University of Saint-Louis / Senegal

Centre’s Website:
http://www.ceamitic.sn/

Centre Director:
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Primary Thematic Disciplines of the Centre:
- Secure networks and systems with mobility (including the Internet of Things);
- Modeling of complex systems
- Mathematics and modeling
- Materials-components-systems
- Computer systems and knowledge (including artificial intelligence)
BRIEF DESCRIPTION OF THE CENTRE

CEA-MITIC is housed at Gaston Berger University in Saint-Louis, Senegal. Its mission is to contribute to the development of science, technology, engineering sciences and mathematics (STEM), the professionalization of training oriented towards the job market and the orientation of research towards the productive sectors in Senegal and Africa.

The center offers training in professionally oriented fields in the fields of IT, telecommunications, applied mathematics and renewable energy. At the doctoral level, there are three doctoral courses (mathematics and applications, Informatics, Physics and Engineering Sciences) who have produced more than a hundred doctoral students in fields covering artificial intelligence, Big Data, the Internet of Things and cyber security and mathematical modeling. In this context, CEA-MITIC is part of the PASET program following a competition open to African Centers of Excellence. PASET is an initiative of African countries supported by the World Bank to train 10,000 Doctors in STEM within 10 years and to stimulate innovation and the mobility of researchers. CEA-MITIC currently has 54 teacher-researchers in the affiliated establishment and more than 250 researchers in the consortium.

KEY OBJECTIVES AND EXPECTED RESULTS

Key Objectives:
- The development of human capital through initial training (Master and Doctorate levels) and continuous training (short-term qualifying training) in the fields of applied mathematics, computer science, electronics, telecommunications, renewable energies, of the digital economy and entrepreneurship
- Strengthening research capacities and expertise in research units in order to develop research activities that can produce knowledge and innovative solutions in connection with the productive sectors (agriculture, environment, health, digital economy) and enhance the results obtained;
- Boosting the synergy between higher education and research institutions and the socio-economic environment evolving in the fields of mathematics, computer science and ICT, at national and regional level

The Expected Results are:
- competent human resources in STEM fields are trained;
- joint research projects are implemented;
- research results are valued;
- efficient technical platforms are set up and shared;
- teacher and student exchanges are carried out;
- multiple and lasting collaborations are established between the different partners;
- the institutional intervention capacities of national and regional non-academic partners are strengthened.
KEY CAPACITIES

- A new CEA-MITIC building fully equipped and dedicated to teaching and research in the field of MITIC;
- Three laboratories equipped in the field of embedded systems, cyber security and telecoms; 4 physics laboratories equipped for practical work in general physics, electronics and telecommunications;
- University library which has more than 75,000 works with, in addition a subscription to international journals and online databases;
- An incubator for student projects and the promotion of research at partner level;
- A 240-hectare university campus, including a social campus housing around 12,000 students (university pavilions; restaurants; sports complex; medico-social service, etc.);

MAJOR ACCOMPLISHMENTS TO DATE

- Over 1000 students enrolled in Master and Doctorate level training during the first phase of ACE-1
- Propulsion of the Saint-Louis Numérique 2025 project whose objective is ultimately to develop Saint-Louis as an industrial center based on digital technology.
- A new functional building dedicated to teaching and research in the fields of MITIC with functional laboratories in the fields of MITIC;
- Two courses with international accreditation and national accreditation
- An increasingly strong partnership with the socio-economic community

<table>
<thead>
<tr>
<th>PRIMARY REGIONAL AND GLOBAL PARTNERS</th>
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</thead>
<tbody>
<tr>
<td>1. The University of Gambia (Gambia),</td>
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<tr>
<td>2. The University of Kara (Togo),</td>
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<td>3. AUST (Nigeria),</td>
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<td>4. The Faculty of Sciences and Techniques of Nouakchott,</td>
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<td>5. INSA Rennes,</td>
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<td>6. The University of Pau and Pays de l'Adour,</td>
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<tr>
<td>7. The University of Paris Dauphine,</td>
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<td>8. The National School of Computer Science for Industry and Enterprise (ENSIIE)</td>
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Centre of Excellence in Sustainable Cities in Africa (CERViDA - DOUNEDON)

University and Host Country:  
University of Lomé, TOGO

Centre’s Website:  
www.cervida-togo.org

Centre Director:  
Professor Coffi Cyprien Aholou

E-mail Address:  
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Primary Thematic Disciplines of the Centre:  
• Sustainable Urban Management (environment, sanitation, mobility, urban economics and marketing)
BRIEF DESCRIPTION OF THE CENTRE

Brief description of the centre
The centre is an initiative of the lecturer-researchers of the University of Lomé in an interdisciplinary approach, to contribute through training and research, to the sustainable urban development of African cities by taking into account the realities of the continent.

The aim is to train young executives in urban management, to strengthen the capacities of professionals in the urban sector through short-term training courses, to develop a university-industry partnership and, finally, to conduct research activities in the fields of urban ecology, sanitation, urban mobility and economy, and urban marketing, the results of which will be made available to managers of African cities to enable them to achieve Goal 11 of the MDGs.

KEY OBJECTIVES AND EXPECTED RESULTS

- Existence at the University of Lomé of training offers for new middle and senior managers in sustainable urban management (master’s and doctorate level).
- The results of research activities in the field of sustainable urban management are available and made available to professionals in the sector.
- Short-term training packages developed and available for capacity building of urban sector professionals.
- Offering expertise to local authorities for the preparation of available urban development plans.
- A framework for consultation between teacher-researchers and urban development professionals is created.

KEY CAPACITIES

- Support from the University authorities and the Togolese Government.
- The Centre has human resources and regional and international scientific cooperation at its disposal.
- The University has provided the Centre with premises to start its activities pending the construction of its own premises.
- The Centre enjoys broad support from professional circles in the urban sector (sectoral ministerial departments, local authorities, professional associations (architects, town planners, sanitation technicians, etc.).

MAJOR ACCOMPLISHMENTS TO DATE

- Creation and appointment of the Centre’s Leaders.
- Signing of the financing agreement between the Togolese Government and the World Bank on the one hand, and a performance contract between the University and Centre managers and the Togolese Government on the other hand.
- Establishment of support bodies for the implementation of the centre’s objectives (Sectoral Advisory Council (SAC) and International Scientific Council (ISC)).
- Development of an implementation plan (PMO) which is currently being finalized.
- Signing of cooperation agreements with academic institutions with the same objectives.
<table>
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<tr>
<th>PRIMARY RESEARCH FACULTY MEMBERS</th>
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<td>Urban Geography</td>
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<th>PRIMARY REGIONAL AND GLOBAL PARTNERS</th>
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Regional Centre of Excellence for Poultry Science (CERSA)

University and Host Country:
University of Lomé

Centre’s Website:
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Centre Director:
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Centre Deputy Director:
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Primary Thematic Disciplines of the Centre:
• The CERSA offers five (5) specialties of the Research Master Program:
  • Poultry production techniques;
  • Poultry Product Processing Processes;
  • Biosecurity and Bio-Security in the Poultry Sector;
  • Poultry biotechnology and genetics;
  • Marketing and socio-economics of the poultry industry.
**CREATION:**
The Regional Centre of Excellence on Avian Sciences (CERSA) is a higher education and research institution of the University of Lomé, created by Order n°111/MESR/CAB/SG of 29/12/2016.

**MISSIONS:**
As a leading poultry training and research centre of excellence in the country and in the subregion, CERSA/UL’s mission is to invest in research and development, training, support and advice to poultry farmers, valorization of poultry by-products and strengthening collaboration between partners.

**BRIEF DESCRIPTION OF THE CENTRE**

**KEY OBJECTIVES AND EXPECTED RESULTS**
The objectives of the CERSA revolve around three main points:

- Develop and improve the quality of poultry products and strengthen the development of the sector in Togo and the sub-region;
- To develop the training and research programme for masters and doctoral students in avian sciences;
- To develop a modular and/or short-term vocational training programme for professionals in poultry farming but also for young poultry entrepreneurs.

**KEY CAPACITIES**

- 1 conference room with 200 seats,
- 2 classrooms of 40 places each,
- 6 specific laboratories and 2 well-equipped multi-purpose laboratories, a library, about 20 offices and a meeting room.
- An experimental unit (henhouses, hatcheries, platform for the agronomic valorisation of poultry by-products, etc.).

**MAJOR ACCOMPLISHMENTS TO DATE**

- Rehabilitation of the Educational and Research Complex including, among other things, 2 multi-purpose laboratories and 6 well-equipped specific laboratories, classrooms and conference rooms
- Nearly 900 poultry technicians and professionals trained in Benin, Burkina Faso, Mali, Senegal and Togo.
- 142 students enrolled in Master’s programs and 50 students enrolled in Doctoral programs.
- Innovations such as the Chicken Biscuit, egg powder for infant flour, bone powder to be incorporated in poultry feed.
- Obtaining unconditional international accreditation for 5 years for the Master’s program.

**PRIMARY REGIONAL AND GLOBAL PARTNERS**

1. Catholic University of Leuven in Belgium;
2. University of Abeokuta in Nigeria;
3. Shandong Agricultural University in China;
4. Institut National de Recherche Agronomique (INRA) - Poultry Research Unit of Tours (France);
5. ORFFA;
6. NUSCIENCE;
7. HENDRIX-GENETICS;
8. DAAD - German Cooperation.
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Entomologist University of Lomé / TOGO
Regional Centre of Excellence for Electricity Control (CERME)

University and Host Country:
University of Lomé, TOGO

Centre’s Website:
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Centre Director:
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Centre Deputy Director:
Professor Kossi NAPO

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Primary Thematic Disciplines of the Centre:
Conventional and renewable electricity, more specifically:
• Production of electrical energy by:
  • Thermal power station; Hydraulic power plant; Solar power plant (photovoltaic and thermodynamics); Wind power plant; Bioenergy; Accumulators; Energy transmission and distribution; Electrical machines; Power electronics; High Voltage Technology; Automatism; Energy efficiency; Advanced Materials for Electricity; Electricity and environment; Etc.
The promotion of the power sector is among the priorities of African governments. In this regard, the Togolese State, on the one hand, adheres to the Sustainable Development Objectives (SDO) in general and SDO N°7 in particular, and on the other hand, adopts the law relating to Togo’s energy policy which provides for ensuring access to energy for all Togolese by 2030.

Electricity is seen as a growth sector and its access by all and its availability in quantity and quality is an indicator of the development of any country.

To this end, the CERME, which is the result of cooperation between the Ecole Nationale Supérieure d’Ingénieurs (ENSI) and the Faculty of Sciences (FDS) of the University of Lomé (Togo), aims concretely to promote scientific excellence (research and development), excellence in teaching and training of students in Master Professional Engineer, Master Research Engineer, Master Research and Doctorate, in the training of short duration and à la carte in most specialties in the field of conventional and renewable electricity.

Similarly, CERME will provide advisory support to actors in the electricity sector (producers and distributors of conventional and renewable electrical energy, industries or companies consuming electrical energy, industries or companies manufacturing electrical equipment, industries/sectors or companies promoting or installing renewable energy, etc.) in Togo and West and Central Africa.

### BRIEF DESCRIPTION OF THE CENTRE

The Regional Centre of Excellence for Electricity Control (CERME) is a facility that provides a range of services.

**Building Facilities:**
- Several administrative premises
- Several classrooms and an auditorium with about 300 seats
- Several laboratories of practical work and research
- Two rooms equipped for videoconferencing (distance learning courses)
- A library equipped with several thousand books and with online subscriptions to magazines, newspapers and digital books
- A thirty-two-seater bus for student transportation

### KEY OBJECTIVES AND EXPECTED RESULTS

To achieve its objectives, CERME envisages several activities relating to training, research, capacity building, and the valorisation and popularisation of research results in the field of electricity (conventional and renewable) will be carried out. Within the framework of excellence in education and training, a regional Master and Master Engineer program is declined in three (03) courses. Numerous research projects through the work of doctoral theses will be carried out. Short-term training programmes will also be developed.

The results obtained by CERME will impact on the development of Togo and the sub-region at the plan:
- the reduction of the poverty rate through decentralized rural electrification and the extension and improvement of the public electricity network;
- an increase in the success rate in education and access to health services thanks to the extension and improvement of the electricity network;
- industrial development (facilitation of access to electricity with a reduction in the cost to industry);
- the increase in the number of PhD specialists, Master Engineers and Technicians trained in the field of electricity for the maintenance of electrical equipment, energy efficiency, etc.;
- The creation of electrical products and services that can have an impact on development on the one hand and contribute to the sustainability of the centre on the other.
MAJOR ACCOMPLISHMENTS TO DATE

• Setting up the project implementation team;
• Development of the Implementation Plan;
• Development of the student handbook;
• Development of the Financial Management Manual;
• Development of the Procurement Manual;
• Development of the Sexual Harassment Policy document;
• Development of the Scholarship Policy document;
• Formulation of LTD milestones 4.3 and 7.5;
• Implementation of the new training offers
• Recruitment of new master students and organization of courses;
• Recruitment of doctoral students and start of research activities;

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