AFRICA HIGHER EDUCATION CENTRES OF EXCELLENCE FOR DEVELOPMENT IMPACT (ACE IMPACT). AGRIC ACES
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-labor 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 programs focused on “learning-to-learn”, problem-solving and applied practical experience that make its graduates highly employable. Its programs 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.

**OBJECTIVES**

- 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**

- The Centre has national accreditation for all its programs and international accreditation from HCERES for two of its MSc programs
- The provided conducive learning and research environments by building and equipping state-of-the-art laboratories, farms, greenhouses and smart classrooms
- Since 2015 the Centre has attracted and enrolled MSc and PhD students from 12 countries spanning through West, Central and East Africa.
- Since 2015 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)

**THEMATIC AREAS**

- Natural Resource Management and Climate Change
- Dryland Crops and Cropping Systems
- Livestock Production and Range Management
- Livelihood and Natural Resource Economics
### CENTER 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

### LIST OF PARTNER
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- Natural Resource Institute, University of Greenwich, UK
- International Institute for Tropical Agriculture
- International potato Center
- University of Nairobi, Kenya
- Dan Dicko Dankoulodo University, Maradi
- Kano University of Science and Technology, Wudil, Nigeria
- Sassakawa Africa Association

### PRIMARY FACULTY MEMBERS

<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Email Address</th>
<th>Department/Research Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFESSOR SANUSI GAYA MOHAMED</td>
<td><a href="mailto:Sanusigaya@buk.edu.ng">Sanusigaya@buk.edu.ng</a></td>
<td>Plant Breeding</td>
</tr>
<tr>
<td>PROFESSOR MUHAMMAD AUWAL HUSSAINI</td>
<td><a href="mailto:mahussaini.agr@buk.edu.ng">mahussaini.agr@buk.edu.ng</a></td>
<td>Systems Agronomy</td>
</tr>
<tr>
<td>PROFESSOR AMINA MUSTAPHA</td>
<td><a href="mailto:Amustapha.ext@buk.edu.ng">Amustapha.ext@buk.edu.ng</a></td>
<td>Agricultural Value Chains Analysis</td>
</tr>
<tr>
<td>PROFESSOR ADAMU IDRIS TANKO</td>
<td><a href="mailto:aitanko.geog@buk.edu.ng">aitanko.geog@buk.edu.ng</a></td>
<td>Development Geographies</td>
</tr>
<tr>
<td>DR ALIYU BARAU</td>
<td><a href="mailto:asbarau.urp@buk.edu.ng">asbarau.urp@buk.edu.ng</a></td>
<td>Spatial Planning and Climate Change</td>
</tr>
<tr>
<td>DR MUSTAPHA M BELLO</td>
<td></td>
<td>Water Management</td>
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<tr>
<th>Faculty Name</th>
<th>Email Address</th>
<th>Department/Research Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFESSOR ABBA AMINU</td>
<td><a href="mailto:abbasron@yahoo.com">abbasron@yahoo.com</a></td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>PROFESSOR MAHARAZU ALHAJI YUSUF</td>
<td><a href="mailto:mayusuf.geog@buk.edu.ng">mayusuf.geog@buk.edu.ng</a></td>
<td>Soil Geography</td>
</tr>
<tr>
<td>PROFESSOR IBRAHIM R. MOHAMMED</td>
<td><a href="mailto:irmuhammad2002@yahoo.com">irmuhammad2002@yahoo.com</a></td>
<td>Animal Science</td>
</tr>
</tbody>
</table>

**Host University and Country:** Bayero University, Kano, Nigeria  
**Center Website:** https://www.cda-buk.edu.ng  
**Center Director:** Professor Jibrin Mohammed Jibrin  
**Email Address:** jibrin@buk.edu.ng
CENTRE FOR FOOD TECHNOLOGY AND RESEARCH (CEFTER), NIGERIA

CENTER DESCRIPTION

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:

- To develop a critical mass of well-trained future African agricultural scientists in the control of post-harvest losses
- To empower African researchers to identify technologies through applied research for reducing pot-harvest losses
- To engage farmers, communities and industries in training and dissemination of technologies in post-harvest food losses across the sub-regions
- To build the capacity of support staff in laboratory techniques, attract donor funds and ensure project sustainability

Academic Programs Offered

- Post-harvest Management and Physiology of Crops
- Food Chemistry
- Analytical Chemistry
- Organic/ Natural Products Chemistry
- Food Science and Technology
- Food Processing Technology
- Rural Sociology and Agricultural Extension
- Radiation and Medical Physics
- Biostatistics (MSC Only)
- Post-Harvest Engineering and Technology (MSC)

Thematic Area(s)

Control of post-harvest losses

OBJECTIVES

- To expand existing courses and establishing of new related courses both at postgraduate and continued training level.
- To construct and equip a food processing and innovation complex where students and industries in the region will gain experience on processing
- To improve 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.

EXPECTED OUTCOME

- Reduction in pathogenic microorganisms, extension of shelf life of food, prevention of food borne diseases, improved nutritional value of food

MAJOR ACCOMPLISHMENTS

- Won ACE impact grant of 5 million dollars
- International accreditation of three (3) programs, and 9 others have National accreditation
- Development of more than 100 food products from local staples with value addition and increased shelf life.
- Established food processing factory; contracted by the Federal Government under the School feeding program to feed 1.2 million pupils monthly.
- 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
CENTER CAPACITIES
- New CEFTER postgraduate school building housing 14 air-conditioned lecture rooms. All with modern teaching facilities and Smart boards
- A 100-bed space fully furnished hostels in a serene environment with internet facilities
- Upgraded laboratories both in the Centre and partner institutions for research
- Ultramodern library with virtual facilities. We are subscribed to Ngren
- Fabrication laboratories in our vocation and technology department

LIST OF PARTNER
- University of Agriculture Makurdi (UAM)
- Nigerian stored Products Research Institute, Ilorin Nigeria (NSPRI)
- Benue State Agricultural and Rural Development Authority (BNARDA) Makurdi Nigeria.
- Akperan Orshi College of Agriculture, Yandev (AOCAY) Nigeria
- National Root Crops Research Institute, (NRCRI) Umudike Nigeria
- The World Food Preservation Centre, Shepherdstown, West Virginia
- The University of Greenwich
- University of Copenhagen

CENTER CAPACITIES

PRIMARY FACULTY MEMBERS

SENIOR FACULTY

PROF SIMON TERVER UBWA
subwa@bsum.edu.ng
- Food Chemistry

PROF GODWIN OCHE. OBOCHI
gobochi@yahoo.com
- Toxicology

PROF. EMMANUEL HEMEN AGBA
hemenagba@yahoo.com
- Radiation and Medical Physics

PROF. VANGE TERKIMBIR
tervange@gmail.com
- Biostatistics

PROF. EMMA OKO
oogo@bsum.edu.ng
- Nutritional Biochemistry

DR. BENJAMIN ASEK ANHWA
banhwange@bsum.edu.ng
- Analytical Chemistry

DR. PETER AGORYE ADIE
padie@bsum.edu.ng
- Analytical Chemistry

DR. BENEDICT LABE
blabe@bsum.edu.ng
- Mechanical Production Technology

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Host University: Benue State University, Makurdi. Nigeria Center Website: www.cefterbsu.edu.ng
Center Director: Dr. Barnabas Achakpa Ikyo Email Address: aikyo@bsum.edu.com
WEST AFRICA CENTRE FOR CROP IMPROVEMENT (WACCI), GHANA

CENTER DESCRIPTION
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. Recognizing the dire need for seed scientists and technologists in National Agriculture Research Systems, WACCI introduced an innovative MPhil program in Seed Science and Technology in 2015 under the World Bank Africa Centers 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 programs 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.

EXPECTED OUTCOMES
• 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 casava impacted through the development of new products for increased nutrition and start-up companies for emerging markets
• Enhanced research and development impact in SA 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

MAJOR ACCOMPLISHMENTS
• 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 WCCI 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

THEMATIC AREA(S)
Agricultural Innovation and Entrepreneurship

OBJECTIVES AND MAJOR ACCOMPLISHMENTS
The Centre’s objectives and major accomplishments till date have been outlined below:
### CENTER 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

### LIST OF PARTNER

- Seed Co., Zimbabwe
- International Institute for Tropical Agriculture, Ibdan, Nigeria
- International Crops Research Institute for the Semi-Arid Tropics, Mali & India
- Africa Rice, Abidjan, Cote d’Ivoire
- Cornell University, Ithaca, USA
- University of Illinois, Urbana Champaign, USA
- Syngenta Foundation for Sustainable Agriculture (SSA), Basel, Switzerland
- Corteva Agriscience, USA

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### PRIMARY FACULTY MEMBERS

#### SENIOR FACULTY

**PROF. KWADWO OFORI**  
kofori@wacci.ug.edu.gh  
- Plant Breeding

**PROF. IRENE EGYIR**  
ireeneegyir@yahoo.com  
- Agricultural Trade, Marketing & Agribusinesses

**PROF. TONGOONA PANGIRAYI**  
ptongoona@wacci.ug.edu.gh  
- Plant Breeding

**PROF. SAMUEL KWAME OFFEI**  
Prof. Samuel Kwame Offei  
naalamle@gmail.com  
- Plant Virology

**DR. SELOAME TATU NYAKU**  
stnyaku@ug.edu.gh  
- Plant Pathology and Nematology

**DR. GLORIA ESSILFIE**  
gessilfie@ug.edu.gh  
- Post-Harvest Technology and Food Safety

**DR. NAALAMLE AMISSAH**  
aalamle@gmail.com  
- Cell and Tissue Culture /Horticulture

**DR. AGYEMANG DANQUAH**  
adanquah@wacci.ug.edu.gh  
- Plant Molecular Genetics

**DR. JOHN ELEBLU**  
jeleblu@wacci.ug.edu.gh  
- Plant Molecular Genetics & Plant Breeding

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**Host University and Country:** Bayero University, Kano, Nigeria  
**Center Website:** https://www.cda-buk.edu.ng  
**Center Director:** Professor Jibrin Mohammed Jibrin  
**Email Address:** jibrin@buk.edu.ng
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.

Training and research in pastoral productions, valorization of pastoral products (meat, milk, hides and skins).

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

- 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
- Strengthen research and technology transfer for the development of livestock and pastoral production industries
- Make the Faculty of Agronomy of UAM a regional and international pole of attraction

Provision of qualified human resources in sufficient quantity
- 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.

- All preparation documents submitted.
- Appointment of members of the coordination team
- Training in Project Management Certificate (CAPM) for two members of the project team.
**CENTRE CAPACITIES**

- Administration Office Room
- Functional master classroom
- 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

**LIST OF PARTNER**

- 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], o Songhai Centre (Benin)
- Sup Agro France (Montpellier-Rennes)
- CISAO (Italy)

**PRIMARY FACULTY MEMBERS**

**SENIOR FACULTY**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Research Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABDOULAYE SOUMANA GOURO</td>
<td><a href="mailto:abdoulayegouro@yahoo.fr">abdoulayegouro@yahoo.fr</a></td>
<td>Animal Feed</td>
</tr>
<tr>
<td>MAXIME BANOIN</td>
<td><a href="mailto:banoinm@gmail.com">banoinm@gmail.com</a></td>
<td>Pastoralism</td>
</tr>
<tr>
<td>TANKARI DAN BADJO ABDOURAHAMANE</td>
<td><a href="mailto:tankari@yahoo.fr">tankari@yahoo.fr</a></td>
<td>Environmental pollution</td>
</tr>
<tr>
<td>BALLA ABDOURAHAMANE</td>
<td><a href="mailto:ballabdou1965@gmail.com">ballabdou1965@gmail.com</a></td>
<td>Food industry</td>
</tr>
<tr>
<td>ADAMOU AMOUKOU IBRAHIM</td>
<td><a href="mailto:ibramouk@yahoo.fr">ibramouk@yahoo.fr</a></td>
<td>Plant genetics</td>
</tr>
<tr>
<td>SOUMANA BOUBACAR</td>
<td><a href="mailto:san_boub@yahoo.fr">san_boub@yahoo.fr</a></td>
<td>Agro-economics</td>
</tr>
<tr>
<td>MOUMOUNI ISSA</td>
<td><a href="mailto:mougarbeye@yahoo.fr">mougarbeye@yahoo.fr</a></td>
<td>Physiology of production</td>
</tr>
<tr>
<td>AMBOUTA KARIMOU</td>
<td><a href="mailto:ambouta.karimou@yahoo.fr">ambouta.karimou@yahoo.fr</a></td>
<td>Soil Science</td>
</tr>
<tr>
<td>ALHASSOUNMI HADIZATOU</td>
<td><a href="mailto:pendo333@gmail.com">pendo333@gmail.com</a></td>
<td>Socio-economics</td>
</tr>
<tr>
<td>ADAM TOUDOU</td>
<td><a href="mailto:ztoudouadam@yahoo.fr">ztoudouadam@yahoo.fr</a></td>
<td>Phytopathology</td>
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</table>

**Name of University:** Université Abdou Moumouni de Niamey  
**Website:** http://www.cerppniger.org  
**Centre Director:** Prof. MARICHATOU Hamani  
**Email Address:** marichahamni@gmail.com
REGIONAL CENTRE OF EXCELLENCE IN POULTRY SCIENCES (CERSA), TOGO

CENTER DESCRIPTION

The Regional Centre of Excellence in Poultry 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. 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.

THEMATIC AREA(S)

- Poultry Product Processing Processes
- Biosecurity and Bio-Security in the Poultry Sector
- Poultry biotechnology and genetics
- Marketing and socio-economics of the poultry industry

OBJECTIVES

- 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.

MAJOR ACCOMPLISHMENTS

- 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.
**CENTRE 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.).

**LIST OF PARTNER**
- Catholic University of Leuven in Belgium
- University of Abeokuta in Nigeria
- Shandong Agricultural University in China
- Institut National de Recherche Agronomique (INRA) - Poultry Research Unit of Tours (France)
- ORFFA
- NUSCIENCE
- HENDRIX-GENETICS
- DAAD - German Cooperation.

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**PRIMARY FACULTY MEMBERS**

**SENIOR FACULTY**

**PROF. MESSANVI GBEASSOR**
gbeassor@tg.refer.org
- Animal Physiolog

**PROF. GERMAIN SAYO ELOLO OSSEYI**
elosseyi@yahoo.fr
- Food Technology and Process Engineering

**PROF. AMIVI TETE-BENISSAN**
Colette.gassou@gmail.com
- Molecular Biology

**PROF. YAOVI AMEYAPOH**
ameyapoh.blaise@gmail.com
- Microbiology - Biochemistry

**PROF. CHRISTOPHE CHRYSTOLUME**
cchrystolume@gmail.com
- Genetics and animal breeding

**PROF. AMEYAPOH PROF. CHRISTOPHE CHRYSOSTOME**
cchrysostome@gmail.com
- Genetics and animal breeding

**PROF. KAROU SIMPLICE**
simplicekarou@hotmail.com
- Biochemistry

**PROF. OKANLAWON ONAGBESAN**
onagbesanok@yahoo.com
- Animal Physiology

**DR KOFFI YOVO**
koffitozo@gmail.com
- Rural Socio-Economy

**DR KOMI AGBOKA**
kagboka@gmail.com
- Entomologist

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Name of University: Université de Lomé, Togo  
Site Web du Centre: www.cersa-togo.org  
Centre Director: Prof. Kokou TONA  
Email Address: jaktona@gmail.com
AFRICAN CENTER OF EXCELLENCE ON CLIMATE CHANGE, BIODIVERSITY AND SUSTAINABLE AGRICULTURE (WASCAL/CEA-CCBAD), COTE D’IVOIRE

CENTER DESCRIPTION

The African Center of Excellence on Climate Change, Biodiversity and Sustainable Agriculture (CEA-CCBAD) is based on the WASCAL Doctoral School of Cote 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-CBAD 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 graduates on interdisciplinary subjects so that they are able to work with all the players in the sector.

THEMATIC AREA(S)

(i) Climate Change in relation to Climate Systems, (ii) Climate Change and Biodiversity and Ecosystem Services, (iii) Climate Change and Sustainable Agriculture

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.
• Valorization of technologies (agribusiness and entrepreneurship) in order to create stable employment opportunities

Expected Outcome

• Doctoral and Master’s programs, 30% of which are foreign students and 30% are women.

Major Accomplishments

• 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
i. 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).

ii. Rehabilitation of buildings and rehabilitation of the 48 rooms + laboratories

iii. Establishment of an online library

iv. 5 laboratories installed:
- Language Laboratory
- Cartography room
- Université de Ouagadougou 2
- La Fondation Louis OMER-DERCUGIS
- International Centre for Theoretical Physics
- Laboratoire d'écologie Appliquée, Faculté des Siences Agronomiques de l’Université d’Abomey-Calavie (LEA/FSA/UAC)
- Centre Ouest-Africain de service scientifique sur l’changement climatique et l’utilisation adaptée des terres (WASCAL)
- KOREA INSTITUTE OF SCIENCE AND TECHNOLOGY (KIST)
- Mali (IER-Université et Sucrers)
- ICIP

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**CENTRAL CAPACITIES**

**LIST OF PARTNER**

- Université de Ouagadougou 2
- La Fondation Louis OMER-DERCUGIS
- International Centre for Theoretical Physics
- Laboratoire d’écologie Appliquée, Faculté des Siences Agronomiques de l’Université d’Abomey-Calavie (LEA/FSA/UAC)
- Centre Ouest-Africain de service scientifique sur l’changement climatique et l’utilisation adaptée des terres (WASCAL)
- KOREA INSTITUTE OF SCIENCE AND TECHNOLOGY (KIST)
- Mali (IER-Université et Sucrers)
- ICIP

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**PRIMARY FACULTY MEMBERS**

**SENIOR FACULTY**

- **Pr KOUAMELAN ESSETCHI**
  - kessetch2012@gmail.com
  - Academic Programs Coordinator

- **DR FATOGOMA SORHO**
  - fsorho@gmail.com
  - Research Coordinator

- **Pr BIDI ALAIN**
  - alphbidie@gmail.com
  - Industrial Liaison Manager

- **DR CHERIF MAMADOU**
  - cherifmamadou@hotmail.com
  - Head of Master and PhD training

- **DR. ABO KOUABENAN**
  - a.kouabenan@gmail.com
  - Agrobiodiversity- Ecosystem Services

- **PR YEOBOUE VÉRONIQUE**
  - yobouev@hotmail.com
  - Climate Services and Modelling

- **DR. CAMARA BRAHIMA**
  - camara_ib@yahoo.fr
  - Diagnostic Methods and Biopesticide

- **DR JONHSON FÉLICIA**
  - felijohnson@yahoo.fr
  - Partnership Manager

- **ALABI TAOIFIC**
  - atafci@gmail.com
  - Coordinator of Services and Innovations

- **DR N’GORAN M. EPSE OUALI**
  - ngoransw@yahoo.fr
  - In charge of short term training courses

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_Name of University:_ Université Félix Houphouët-Boigny d’Abidjan  _Website:_ www.wascal-ci.org  _Centre Director:_ Prof KONE Daouda  _Email Address:_ daoudakone2013@gmail.com
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.

Objectives

- 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
- To strengthen the research and expertise capacities of the units to conduct applied and operational research in order to propose innovative methods
- Strengthen the performance of national and regional academic partners in terms of training, research and expertise
- Contribute to the creation of a critical mass of women with high-level skills
- Strengthen the institutional capacities of national and regional non-academic partners
- Promote sustainable cooperation between the partners involved in the project.

Expected Outcome

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.

Major Accomplishments

- 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
**CENTER 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.

**LIST OF PARTNER**

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

**PRIMARY FACULTY MEMBERS**

**SENIOR FACULTY**

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<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Research Area</th>
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<tr>
<td>Mady Cisse</td>
<td><a href="mailto:mady.cisse@ucad.edu.sn">mady.cisse@ucad.edu.sn</a></td>
<td>Food technology</td>
</tr>
<tr>
<td>Papa Madialacké Diedhiou</td>
<td><a href="mailto:anifane@yahoo.fr">anifane@yahoo.fr</a></td>
<td>Phytopathology</td>
</tr>
<tr>
<td>Nicole Dossou</td>
<td><a href="mailto:nicole.dossou@ucad.edu.sn">nicole.dossou@ucad.edu.sn</a></td>
<td>Nutrition</td>
</tr>
<tr>
<td>Fatou Ndoye</td>
<td><a href="mailto:fatoundoye20@gmail.com">fatoundoye20@gmail.com</a></td>
<td>Soil microbiology</td>
</tr>
<tr>
<td>Abdoulaye Diagne</td>
<td><a href="mailto:cres@cres-sn.org">cres@cres-sn.org</a></td>
<td>Economics</td>
</tr>
<tr>
<td>Modou Dieng</td>
<td><a href="mailto:modouabsadieng@gmail.com">modouabsadieng@gmail.com</a></td>
<td>Food Technology</td>
</tr>
<tr>
<td>Mame Samba Mbaye</td>
<td><a href="mailto:Mame.mbaye@ucad.edu.sn">Mame.mbaye@ucad.edu.sn</a></td>
<td>Botany Biodiversity</td>
</tr>
<tr>
<td>Abdala Gamby Diedhiou</td>
<td><a href="mailto:abdala.diedhiou@ucad.edu.sn">abdala.diedhiou@ucad.edu.sn</a></td>
<td>Microbiology</td>
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**Website:** www.wascal-ci.org  
**Centre Director:** Prof KONE Daouda  
**Email Address:** daoudakone2013@gmail.com
For further enquiries,
Tel: +233-30-277-4495
Mobile: +233-0547728975