



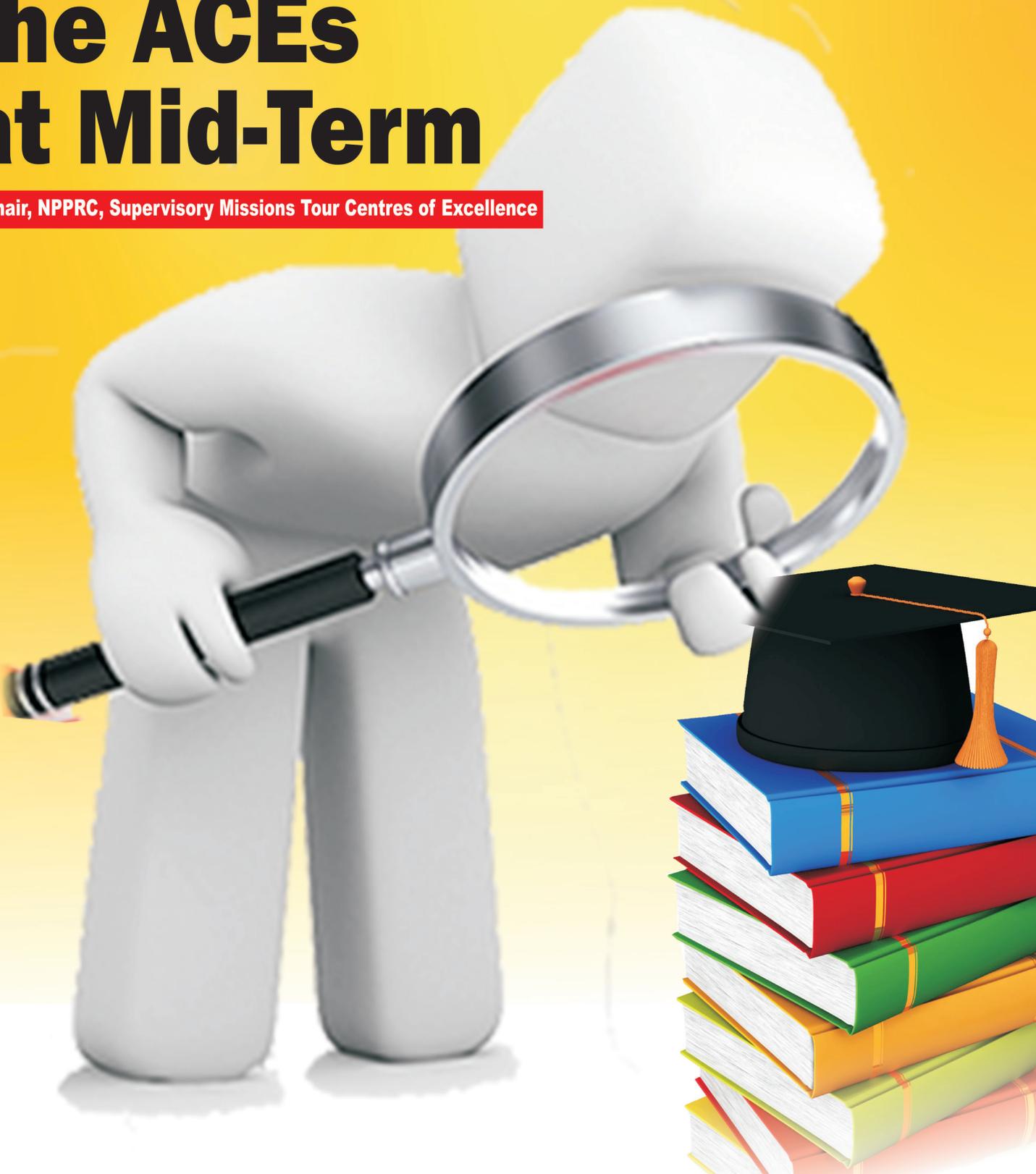
Excellence

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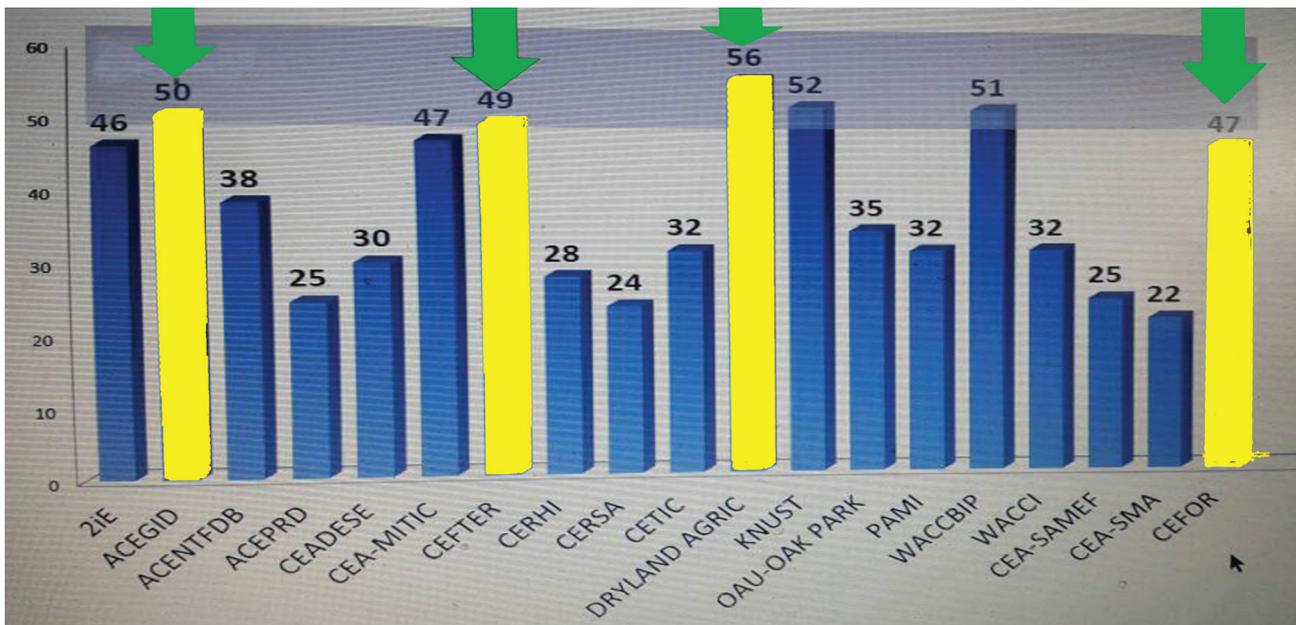
Assessing the ACEs at Mid-Term

● Chair, NPPRC, Supervisory Missions Tour Centres of Excellence



Host Universities, the Centres and their Acronyms

- Ahmadu Bello University (ABU), Zaria, Centre of Excellence in Neglected Tropical Diseases and Forensic Biotechnology (**ACENTDFB**)
- African University of Science & Technology (AUST), Abuja, Pan African Materials Institute (**PAMI**)
- Bayero University, Kano (BUK) Africa Centre for Dry-land Agriculture (**CDA**)
- Benue State University (BSU), Makurdi, Africa Centre of Excellence for Food Technology and Research (**CEFTER**)
- Federal University of Agriculture, Abeokuta (FUNAAB), Centre for Agricultural Development and Sustainable Environment (**CEADESE**)
- Obafemi Awolowo University (OAU), Ile-Ife, ICT-Driven Knowledge Park (**OAK-Park**)
- Redeemer’s University (RUN), Ede, Osun State, Africa Centre of Excellence for Genomics of Infectious Diseases (**ACEGID**)
- University of Benin (UNIBEN), Centre of Excellence in Reproductive Health Innovation (**CERHI**)
- University of Jos (UNIJOS), Africa Centre of Excellence in Phytomedicine Research & Development (**ACEPRD**)
- University of Port-Harcourt (UNIPORT), Africa Centre of Excellence for Oil Field Chemicals (**CEFOR**)



World Bank’s Measure of Results Achieved by the ACEs

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Nuggets of Excellence

- Of the first set of 19 ACEs in West and Central Africa, a recent measure of their results by the World Bank showed that four out of the 10 ACEs in Nigeria, were among the top six. CDA came first with 56 points, ACEGID was fourth with 50 points, CEFTER, fifth with 49 points and CEFOR, 6th with 47 points.
- Programmes run on schedule in the Africa Centres of Excellence (ACEs). In three years, 29 out of the first batch of 55 PhD students admitted into the Centre for Oilfield Chemicals Research (CEFOR) at the University of Port Harcourt have defended their theses. A total of 137 PhD and 208 M.Sc students have been admitted from 2014 to date, with 97 Research Publications recorded.
- Against all odds, Universities in Nigeria can attract foreign students. Obafemi Awolowo University's ICT-Driven Knowledge Park (OAK-Park) has offered admission to 38 foreign students, 25 of whom have resumed normal academic activities.

From the Publisher

Hope Renewed

The Africa Centres of Excellence in Nigeria are making progress. They definitely are. Naturally, some are moving faster than others, practically all of them need to deploy more of the available resources in their projects, to achieve more results and there is still a lot of work to be done. But, having recently concluded my visits to all the 10 Centres in the country, to monitor their progress and get first-hand information about them, I can confidently say that they have renewed my hope in the capacity and capability of the Nigerian University System (NUS) to impact, positively, the country, the West African sub-region and the African continent, as a whole.

Every one of the ACEs is at the centre of relevant research, some of which have put the country on the world map. The world is being controlled by two revolutions: One is the genomics/genetic revolution and the other, the digital revolution. It is gratifying to see that two of our Centres (the Africa Centres of Excellence in Genomics of Infectious Diseases, at the Redeemer's University, Ede and ICT-Driven Knowledge Park, at the Obafemi Awolowo University, Ile-Ife) are on their way to becoming strong players in these fields.

The Pharmaceutical industry has captured the world's imagination with Phytomedicine and the Africa Centre of Excellence in Phytomedicine Research



and Development, at the University of Jos is set to take its place in that field as well. Closely related to this, in health, are the Centres on Neglected Tropical Diseases and Forensic Biotechnology, at the Ahmadu Bello University, Zaria and that in Reproductive Health Innovation, at the University of Benin.

In agriculture, post-harvest losses, dry land farming and environmental sustainability have remained important topics of international discuss. Again, three of the ACEs (Centres for Food Technology and Research at the Benue State University, Makurdi; Dryland Agriculture at Bayero University, Kano as well as Agricultural Development and Sustainable Environment at the Federal

University of Agriculture, Abeokuta) have made breakthroughs in research in their specific areas.

Not the least, are the remaining two Centres of Excellence in Science, Technology, Engineering and Mathematics (STEM) at the University of Port Harcourt and the African University of Science and Technology, Abuja. Their Centre for Oil Field Chemicals Research and the Pan African Materials Institute, respectively, are at the cutting edge of research in their areas of competence.

Five of the ACEs also received the combined teams of officials of the World Bank (WB), Association of African Universities (AAU) and the NUC on supervision missions to monitor their progress and how they are meeting the Key Performance Indices of the Project. The Centres visited were those in Jos, Benin, Zaria, Abeokuta and Ile-Ife.

The National Universities Commission is very proud of the ACEs. With the visits, the Commission is now better informed about the workings of the Centres and sufficiently motivated to continue to support and collaborate with them, in every way possible, to attain their objectives.

These and more are served you in this edition.

Professor Abubakar Rasheed
Publisher

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Phytomedicine Research Conserves Bio-diversity – Prof Rasheed at UniJos



Prof. Abubakar Rasheed, middle, with the Vice Chancellor, University of Jos, Prof. Seddi Maimako; second left, and members of his team, inspecting the Data Centre, University of Jos

The Africa Centre of Excellence in Phytomedicine Research and Development (ACEPRD) at the University of Jos is conserving Nigeria's bio-diversity, for which it should be commended, Executive Secretary of the National Universities Commission (NUC), Professor Abubakar Rasheed, has said.

In his remarks during a high-level visit to the Centre, recently, the Chairman, National Project Performance Review Committee (NPPRC), described the ACEPRD Project as a very important one with many benefits. He said that NUC was proud of the University's leadership in this area of

Medicine, noting that Phytomedicine research was very crucial in today's world where the pharmaceutical industry had captured the world's imagination, through various herbal remedies.

While acknowledging the benefits of linking the academia with industry and traditional medical practitioners, the Executive Secretary, who also represents the Federal Government on the ACE Project Steering Committee (PSC), expressed delight that the academia had decided not to be spectators in the growing area of research in Phytomedicine. He therefore urged the Centre to build continuity into its research activities, by seeking innovative ways of insulating itself

against any form of shut down, in the event of what he called "one of the biggest enemies of internationalisation": staff industrial actions. He also enjoined the Centre to judiciously utilise the financial support from the World Bank in order to fast track project delivery.

On project sustainability beyond the Bank's support, Professor Rasheed commended the University Management for its support to the Centre, so far, and advised it to, as a matter of policy, create a funding line for the Centre in its annual budget and also encourage the Centre's drive to generate additional revenue. He further stressed the need to reach out to more national and international students.



L-R: Centre Leader, ACEPRD, Prof. John Aguiyi; NUC Director, Executive Secretary's Office, Mr. Chris Maiyaki and National Coordinator, ACE, Nigeria, Dr. Joshua Atah

The Executive Secretary went on to present the World Bank/ Association of African Universities (AAU)'s latest report on the Centre, pointing out the areas that needed to be addressed for the success of the Project.

While receiving the Executive Secretary, earlier, the Vice Chancellor, Professor Seddi Sebastian Maimako, remarked that the University considered it a privilege to have the Centre, describing it as a true Centre of Excellence, with highly committed staff. He thanked the World Bank, NUC, the Executive Secretary and all partners for their roles in the establishment and growth of the Centre. According to him ACEPRD's motto is: Continued Improvement. Every observation made by the Executive Secretary's team would, therefore, be taken seriously and looked into.

National Coordinator of the ACE Project at NUC, Dr. Joshua Atah, explained that the primary purpose of the visit was to interact with the Leader, other officials and students of the Centre, to get first-hand information about their operations, achievements and challenges, if any, and seek ways of supporting the Centre to address them.

He suggested the establishment of a repository of some herbal plants of the Centre and advised the project team to work hard towards externally generating revenue and commercialising the centre's products ACEPRD's.

A presentation of the Centre's report was made by the Deputy Centre Leader, Prof. Taiwo Alemika. The NUC team also interacted with faculty and students, some of who said that they were honoured to be enrolled at the Centre. The interaction was followed by an in-

spection of the laboratories.

Among other achievements, the University of Jos Faculty of Pharmaceutical Sciences, which gave birth to ACEPRD, had, in the last 10 years, been at the forefront of research in anti-snake venom vaccine, antifertility drugs, mushroom and *Artemisia Annu* cultivation, the latter being the key plant in Artemisinin-based Combination Therapy (ACT), which is recommended for the treatment of *Plasmodium falciparum* malaria.

Others in the Executive Secretary's entourage were the Director, Executive Secretary's Office, Mr. Chris J. Maiyaki and ACE Communications Officer, Mrs. Adebukola Olatunji. Also on hand to receive the NUC team were other Principal Officers of the University, the Centre Leader, Professor John Aguiyi and other staff of the Centre.

'CEFTER, Good Example of Leadership Support'



Prof. Rasheed, flanked by the Centre Leader of CEFTER, Prof. Daniel Adedzwa, left, and his Deputy, Dr. Barnabas Ikoye

The Africa Centre of Excellence for Food Technology and Research (CEFTER), Benue State University (BSU),

Makurdi, has been described as a good example of support from the top management of an institution. Executive Secretary of the National Universities Commission (NUC),

Professor Abubakar Rasheed, who made the observation when he visited the Centre, recently, said the Commission fully acknowledged the dedication and support of the

Vice-Chancellor, Professor Msugh Moses Kembe and the University Management to CEFTER.

Professor Rasheed congratulated both the University and the Centre “for doing so well, so far, in this Project”, urging them to continue to do their best for the Centre. One of the three ACEs with focus on Agriculture, CEFTER was rated among the top five of the first set of 19 ACEs in West and Central Africa, in terms of results achieved so far, by the World Bank. Professor Rasheed remarked that the Centre is relevant and on a very good trajectory. The Project, he added, was well-conceived, considering Benue State’s status as “The Food Basket of the Nation”, and it’s potential to make a lot of impact on its immediate community, the country and sub-region.

According to him, the issue of post-harvest losses was fast becoming a topic of international discuss. The Centre must, therefore, rise to the challenge by not only producing new knowledge, but repackaging the old as well. He reminded his hosts that CEFTER was the first major attempt at understanding the problem of post-harvest losses and even though the problem may not be solved within the next one year, for example, there was enough reason to be hopeful.

While commending the founding fathers of the University, for building one of the most developed, yet emerging state universities in the country, the Executive Secretary, however, charged the Centre to avoid being “too BSU and too Food Technology.” Rather, he said, “You can do better. Open up this Centre. Raise its profile. It is regional and has the potentials to be truly international. The resources are there and the goodwill is there. The success of the Centre is a collective success for all of you.”

Earlier in his welcome remarks, Professor Kembe thanked the Executive Secretary for the visit and



Executive Secretary, NUC, Prof. Abubakar Rasheed with the Vice-Chancellor, Benue State University, Prof. Msugh Kembe



Prof. Kembe, in a chat with Prof. Rasheed and Director, Executive Secretary's Office, Mr. Chris Maiyaki

NUC for its support for the Project. He disclosed that he had been part of CEFTER right from its conception and would continue to give it his utmost support. He gave a brief progress report which covered the accreditation of the Centre's programmes such as, MSc./PhD. Food Science and Technology, MSc. Bio Statistics, MSc/PhD. Post-Harvest Physiology of Crops, MSc./PhD. Food Chemistry and MSc. Post-Harvest Management. Others were; MSc./PhD. Food Processing Technology, MSc./PhD. Physical Chemistry, MSc. Post-Harvest Engineering and Technology, MSc./PhD. Rural Sociology and Agricultural Extension. The Vice Chancellor also reported

the admission of a total of 273 students, 214 of whom are enrolled in M. Sc programmes and 59 in PhD programmes. Giving a breakdown of enrolled students, Prof. Kembe stated that the Master's class had 204 national and 10 regional students. Of the 204 national students, 71, are females, while 4 of the 10 regional students are females, drawn from the West & Central African Sub-region. For the males 133 are national, while six are regional students.

A more detailed progress report was presented during the interaction with staff and students of the Centre, by the Deputy Centre Leader/Project Manager, Dr. Barnabas Ikyo. Among others, he disclosed

that 207 of the Centre's 273 students were benefitting from one form of financial or support or the other. They were either on fully-funded scholarship, part-tuition or part-accommodation support. The Centre Leader, Professor Daniel Adedzwa, other Faculty members and officials of the Centre as well as its partner institutions and students, attended the interaction along with Principal Officers of the University.

On the Executive Secretary's entourage were the Director, Executive Secretary's Office, Mr. Chris J. Maiyaki, ACE Project Coordinator, Dr. Joshua Atah and Communications Officer, Mrs. Adebukola Olatunji.

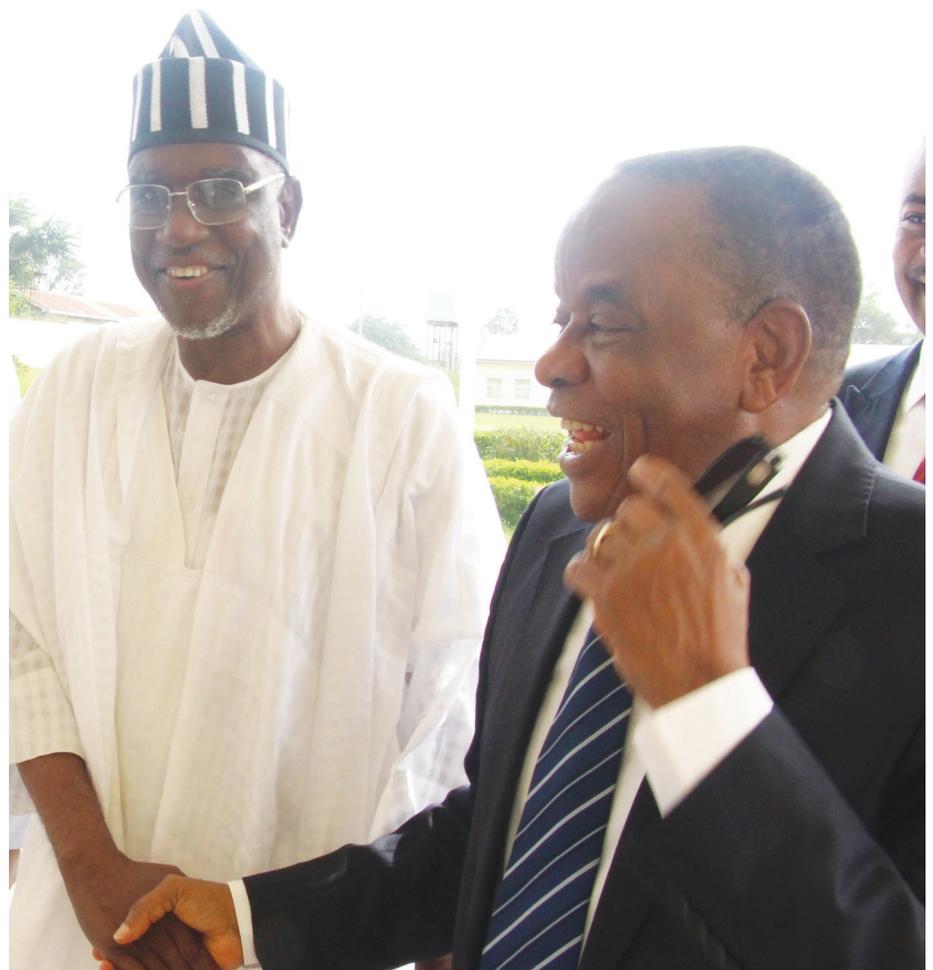
Embrace 'Open' Concept of Today's Varsity, AUST Told

The African University of Science and Technology (AUST), Abuja has been advised to embrace the 'Open' concept of today's university, by lifting its restriction of admission to only students on scholarships and admitting those who can pay its fees.

Executive Secretary of the National Universities Commission (NUC), Prof. Abubakar Rasheed, gave the advice during a high-level visit to the University's Pan African Materials Institute (PAMI), one of the 10 World Bank-supported Africa Centres of Excellence (ACE) in the country, recently. He remarked that even though AUST, with a student population of less than 200, is the smallest university, in size, in Nigeria; it is one of the most important, in terms of its offerings.

Professor Rasheed recalled that AUST, which clocked 10 this year, was the first university in the country to award only Masters and PhDs, strictly in the broad area of Science, Technology, Engineering and Mathematics (STEM). The award-winning proposal, which earned it the ACE, he said, also attested to the quality of its Faculty and the education it offers. He congratulated the University on its achievements saying, "We need this University. Nigeria, the sub-region, Africa and the world needs this University. We look forward to working closely with you to ensure that you help Nigeria and Africa to train and retrain the next generation of academics in STEM."

Vice-President (Academic) of



Prof. Rasheed, being received by the Vice-President (Academic), African University of Science and Technology (AUST), Abuja, Prof. Charles Chidume

the University, Professor Charles Chidume, who received the NUC team on behalf of the President, Professor Kingston Nyamapfene, thanked the Executive Secretary for his willingness to solve the University's problems and NUC for putting it back on track. He also thanked the ACE Project Coordinator, Dr. Joshua Atah, for guiding the University in the execution of the Project. He concurred that no university in the world

admits only students on scholarships and promised to "tell my President and he would, in turn, tell the AUST Board that NUC is worried about the University, that we need to expand, in order to attract fee-paying, local and foreign students."

Co-Centre Leader and Visiting Faculty in the Department of Materials Science and Engineering, Dr. Shola Odusanya, made a presentation on



Prof. Rasheed, fourth right, flanked by Prof. Chidume, right; and Director, Academic Planning, Prof. Peter Onwualu, with other members of the NUC and AUST teams, during his visit to the University

PAMI, which was launched on November 3, 2015, with focus on the use of system-based interdisciplinary approach to bring together a Pan African and international team of scientists, engineers, industrialists, policy makers and development stakeholders who would engage in training and research activities in solar energy, health, water purification and affordable housing and infrastructure.

He outlined the Centre's strategy for research and innovation to include, integrating education with research and innovation from models/experts to the real world; addressing African problems and opportunities by providing solutions to materials-related problems as they come; developing of new series of interdisciplinary courses, business plans as well as partner with industries that thrive in Africa, starting with West Africa.

Among the many milestones, so far recorded by PAMI are the supply and installation of fibre-optics last mile

and provision of internet services for AUST. (leading to increment in bandwidth from 1MB/s to 15MB/s; establishment of Focused Research Groups (FRGs), commencement of the process for Abet accreditation in April, 2016 and NUC accreditation in 2017.

Other achievements include Pan African School of Materials (PASMAT 2017)'s training of 862 people with 40 contact hours, in collaboration with PAMI, in areas of Biomaterials, Energy Materials and Water purification materials, PASET (RSIF) funding for PhDs in Mining Minerals and Materials, MS4SSA's introduction of flipped classroom for the introduction of Maths and Science education in schools and universities as well as the commercialisation of equipment and services.

The NUC team was thereafter conducted round the University's facilities, including the AfDB Laboratory, where they interacted with the students.

He commended the University on the facilities in the Laboratory, urging it to put them to optimal maximum use.

Professor Rasheed was accompanied on the visit by the Directors, Executive Secretary's Office, Mr. Chris J. Maiyaki and Corporate Communications, Ibrahim Usman Yakasai; ACE National Coordinator, Dr. Joshua Atah and Communications Officer, Mrs. Adebukola Olatunji.

Others in the AUST team were, the Director, Academic Planning, Professor Peter Onwualu; PAMI Director, Finance/Bursar, Mr. Ben Okonkwo; NMI Director for Works, Mr. Jide Babatunde; Director, Multi-lateral Projects/Compliance, Joshua Onwuzuruigbo; Acting Head, Theoretical and Applied Physics, Dr. Bello Abdulhakeem; Head, Library Services, Mrs. Buchi Ekpolomo; Head, Media Services, Mr. Obioha Atulomah and Academic Registrar, Inegbenose Osoba; among others.



Executive Secretary, NUC, Prof. Abubakar Rasheed and Vice-Chancellor, University of Benin (UNIBEN), Prof. Faraday Orumwense (middle) with Principal Officers of the University and officials of NUC and CERHI

Teams Make Case for CERHI's Funding, Integration

The University of Benin (UNIBEN) has been called upon to consider its Centre of Excellence in Reproductive Health Innovation (CERHI) as a line item in its yearly budget and integrate the newly-recruited Programme Manager, Communications Officer and others into its payroll, to ensure sustainability of the Project.

The above were some of the recommendations made by two teams that visited the Centre, recently.

First was the Supervision team from the World Bank, Association of African Universities (AAU) and the National Universities Commission (NUC); and the other, led by the Executive Secretary, NUC, Professor Abubakar Rasheed, in his capacity as the Chairman of the ACE National Project Performance Review Committee (NPPRC) and representative of the Federal Government on the Project Steering Committee (PSC).

In the World Bank team on its fourth supervision mission to the Centre were, Ms. Himdat Bayusuf (World Bank); Prof. Jonathan Mba (AAU); Prof. Michelle Niescierenko (Health Expert); Prof. Hadiza Galadanci (Health Expert); Mrs. Adebukola Olatunji (Communications Officer,); and Mr. Peter Tobrise (Project Management Officer) ACE, NUC.

Leader of the delegation, Ms. Bayusuf, told the Vice-Chancellor and the university community that the purpose of the visit was to find out the status of the Implementation Plan, following the last supervision mission to the Centre, as well as verify the extent of the improvement made, based on the recommendations of the last visit. She also informed the University that the Project was at the mid-term review, where funds, would be reallocated, based on the performance of the Centres.

Responding, the Vice-Chancellor,

Professor Faraday. Orumwense assured the team that tremendous progress had been made by the Centre, reassuring it of the university's continued support for the success of the ACE Project, now and beyond the Project's life span.

Explaining how the Centre addressed previous concerns raised by the World Bank and progress made on the Disbursement Linked Indicators (DLIs) as well as present challenges, the Centre Leader, Prof. Friday Okonofua, said CERHI had appointed a Programme Manager to manage its day-to-day activities and focus on achieving the project's DLIs. He said roles and responsibilities had also been assigned to team members and that various working committees of the Centre now met regularly while staff were exposed to relevant trainings.

The Centre holds regular consultations, to address the concerns of its

foreign students. There is free library and ICT access for all CERHI students in the new project building, and the pg hostel, while the students' hostel was in the final phase of renovation.

On standard procedure for international students and remediation programme, Professor Okonofua stated that standards operating procedures guidelines had been developed and were being reviewed before sharing with students, faculty and on the CERHI website.

He also stated that the criteria for students' selection had been developed, printed and shared with their Gambian counterparts and 38 other African countries.

In terms of support for students, the Centre Leader said that CERHI provided funding support for all first year students in various internship locations and also made payment for publication fees for published/submitted journal articles, support for attendance in short courses, as well as membership of research thematic

groups, which provides funding for students' research and joint authorship of research articles.

Professor Okonofua also reported that all staff were made aware of opportunities for sponsorship to conferences, training workshops and paper publication and, as a result, 13 academic staff and 17 administrative staff had benefitted from such sponsorships, over the past six months, while eight thematic research groups were established for staff' research.

Coordinators in partner institutions are now regular at EPMC meetings, while CERHI continues to seek new partnerships. Four new curricula, each, for Masters and PhD in Reproductive Health related topics were developed at the start of the programme and are all currently running. He further reported that the Centre was working with embassies of African countries to improve its visibility and create awareness of its various programmes;

Highlighting the challenges confronting the Centre, Professor Okonofua

listed delays in procurement, due to the cumbersome nature of the national procurement policy; delay in release of funds for international transactions, difficulty in recruiting regional students and getting industry partners, especially in the reproductive health sector.

Following the interactions with the Centre Leader, faculty and students, some recommendations were made, one of which was to ensure that the Laboratories are world class and conform to World Bank standards.

The teams noted CERHI's efforts on international accreditation and advised it to expedite action on the process. It was also advised to tailor its work and implementation towards the World Bank verification exercise and avoid duplication of efforts.

Following interactions with the students, the teams were pleased about the improved teaching and mentoring, as reported by the students, including the regional ones, who said they would recommend the Centre to their family and friends.



World Bank Supervision Mission with officials of CERHI and NUC

FUNAAB, CEADESE Now Back on Track – Ag.VC

After a turbulent year of staff and student unrests, the Federal University of Agriculture, Abeokuta (FUNAAB) and its Africa Centre of Excellence in Agricultural Development and Sustainable Environment (CEADESE) are now back on track and determined to make up for lost time, says the Acting Vice Chancellor, Professor Ololade Enikuomehin.

Professor Enikuomehin gave the assurance when he received the Executive Secretary, National Universities Commission (NUC), Professor Abubakar Rasheed, in his office, recently. The visit was in continuation of Professor Rasheed's tour of all 10 Africa Centres of Excellence (ACEs) in the country. The Acting Vice Chancellor acknowledged the Executive Secretary's role in restoring peace to the University saying, "this time last year, it was impossible to sit down in FUNAAB to do anything. Let me seize this opportunity to formally thank you for the constructive, positive and helpful role you played in

getting the University back on track."

Professor Rasheed said it was very sad and traumatic to see FUNAAB go through the crisis that threatened its existence, when conspiracy theorists took over. "Thank God that the University is back. Hope is rekindled and restored, thanks to the experienced and matured Pro Chancellor, who gave stability at the highest level", he said.

The Executive Secretary had a word of advice for the University: "Problems do not disappear suddenly. You have to wage peace as you wage war and work hard at it. It is a big loss to Nigeria if this University is not allowed to attain its full potentials." NUC, he said, would continue to support the University, even as he called on all to support the in-coming Vice Chancellor and continue to say the truth.

On CEADESE, Prof Rasheed discussed the observations made by previous Supervision teams, urging the Centre to ensure that research and publications

are focused on the theme of the Project and that the communication gaps between the Faculty and students are closed.

In his team were the NUC Director of Corporate Communications, Ibrahim Usman Yakasai; ACE National Project Coordinator, Dr. Joshua Atah and Communications Officer, Mrs. Adebukola Olatunji.

The Centre Leader, Professor Okanlawon Onagbesan had, earlier expressed regret at the red tapism, bureaucracy and wide gap between CEADESE, and the University, which had taken their toll on the smooth running of the Centre.

In a related development, the students had also, earlier expressed concern over the unavailability of research facilities such as Green House and Biotechnological Laboratory, as well as the late release of funds and poor advocacy for the Centre.

This was the feedback from the inter-



NUC Team with the staff of CEADESE



Subject-matter Experts, Dr. Carl Larsen, right, with Prof. Raphael Wahome, interacting with students of CEADESE

action with them by a team from the World Bank, Association of African Universities (AAU) and the National Universities Commission (NUC) during its two-day supervision mission to the Centre, to among other things, gain first-hand information on the progress recorded by CEADESE in meeting the Key Performance Indicators (KPIs) for the ACE project since the last supervision mission.

The students however commended the dedication of the lecturers, particularly the quality attention that they get from them as well as exposure to international internship placements and conferences.

The WB/AAU/NUC team comprised Professor Jonathan Mba (AAU); Professor Raphael Wahome (Agriculture expert); Dr. Carl Larsen (Agriculture expert); Professor Abubakar Dominic Akpa (agriculture expert); Mrs. Adebukola Olatunji (NUC); and Mr. Peter To-brise (NUC).

Welcoming the team members, the acting Vice-Chancellor, Professor Enikuomehin assured them of the university's resolve to support the Centre, irrespective of the delays experienced in the past and also ensure prompt delivery of results.

Professor Onagbesan highlighted some of the achievements of the Centre to include the enrolment of regional students; establishing collaborations with partners and the constant interactions with other agriculture ACEs in Nigerian and in the region. He also put on record the prompt attention given the Centre and its activities by the Acting Vice Chancellor

The Monitoring and Evaluation (M&E) Officer, Professor Olukayode Akinyemi in his report, informed the delegation that 105 students had benefited from students' internship since the inception of the ACE Project in 2015, with 42 internship locations spread across Nigeria and four other African countries.

More than 200 publications and articles have been published in world renowned journals, while there have been increased partnership locally, regionally and internationally.

Akinyemi added that 12 masters student had defended their projects, while 11 Masters and one PhD students were about to defend their projects and theses respectively. He stated that 71 staff benefited from capacity enhancement programme and more than 47 million

naira had been generated externally.

Both the Executive Secretary and World Bank visits featured tours of the Centre's facilities and an interaction with some of its national and regional students, to gain some insight into the impact of the ACE Project on their programmes, as well as challenges encountered.

Responding to the students' comments, Professor Jonathan Mba of AAU informed them that some of the issues they raised would eventually be resolved and encouraged them to take advantage of the benefits of the ACE project and focus on making breakthroughs in their respective areas of specialisations.

The delegation commended the CEADESE team, saying that the Centre has made remarkable progress since the last supervision mission and was gradually, yet steadily surmounting its challenges.

The team, however, expressed concern over the slow pace of the construction of a Green House and the Biotechnology Laboratory, considering that the Project had just about two years left. It, therefore, stressed the need for the Centre to speed up its activities.

ACEGID Maintains Rating as One of Best Performing

From characterising fevers of unknown origins, to producing and equipping African Pathogen hunters, the Africa Centre of Excellence for Genomics of Infectious Diseases (ACEGID) at the Redeemer's University of Nigeria (RUN), Ede, is doing very well as one of the best performing in the country. Executive Secretary, National Universities Commission (NUC), Professor Abubakar Rasheed, who made this submission at the University, in continuation of his tour of the 10 ACEs in Nigeria, commended and congratulated RUN

for the Centre's achievements.

Everywhere Professor Rasheed went, he reminded the Universities that the ACEs were not allocated to them, but earned through very rigorous competitive bidding amongst several top universities across Africa. They should therefore be proud of their achievements and give their total support to the growth and sustenance of the Centres.

Professor Rasheed noted that today's world was being controlled by two revolutions: The genomics/genetic

revolution and the digital revolution. These, he said, were "the most important revolutions redefining the world and the way we do business." It was, therefore, gratifying, he said, to see ACEGID play a major part in this. He recalled how RUN's name came to the limelight, due to the important role of rapid diagnosing that the Centre played during the 2014 Ebola outbreak and generating sequence data within 10 days, compared to the usual 6-12 months. He, however, tasked the Centre to do more to utilise the funds at its disposal and improve upon its corporate communications.



Executive Secretary of NUC and his entourage on a tour of ACEGID's Laboratories



Prof. Rasheed receiving a souvenir from the ACEGID Deputy Centre Leader, Dr. Onikepe Folarin. With them is the Centre Leader, Prof. Christian Happi

The Centre Leader, Prof. Christian Happi, made a presentation on ACEGID's journey, so far, drawing attention to how genomics was being translated into tools that could impact the world, particularly in disease diagnosis, management and control. He explained that the data generated during the Ebola crisis were submitted to the public database for the international community's further research that could lead to drugs and vaccine, for control.

Among others, ACEGID was the only African university that participated in the 1000 Human Genome Project, responsible for developing global reference for human genetic variation and the team was part of the 1000 genomes project consortium. The Centre successfully trained students in

Foundation and Advanced Genomics, during the annual summer Genomics training programme at Harvard University, which exposed the trainees to state-of-the-technology in Genomics and researchers. The training, fourth in the series, was for young African Scientists from Nigeria, Cameroon, Senegal, Ghana, Sierra Leone and Liberia, who are, in turn, training other colleagues in their countries. Trained students and researchers go on to shoot training videos, which are made available, for free, on the ACEGID website, serving as informal means of education for enthusiastic individuals to learn different topics, such as cloning technology, polymerase chain reaction, sequencing, donning and doffing process etc., In addition, the Centre also engages in outreach programmes, where high school students and their teachers are educated and

trained on the importance of Genomics at the basic level, in order to stimulate their interest in the field. He thanked the University Management for its support for the Centre's work. For example, ensuring uninterrupted power supply for the Centre's rigorous laboratory work.

Professor Rasheed commended Professor Happi for "an excellent and inspiring presentation that answered every question that we might have." Going back to Abuja more motivated and informed about the Centre's work, the Executive Secretary said, Professor Happi would be invited to the nation's capital soon, to make the same presentation to Heads of Departments of Biochemistry, Biotechnology, Biological Sciences, Microbiology and Molecular Biology, among others.

World Bank Seeks NUC's Partnership in Quality Education Delivery...

As part of efforts to contribute to the provision of quality of education in Africa, a delegation from the World Bank, led by its Senior Director for Education Global Practice, Dr. Jaime Saavedra Chanduvi, paid a courtesy call on the Executive Secretary of the National Universities Commission (NUC), Professor Abubakar Rasheed, Tuesday, 4 July, 2017, to discuss the progress, challenges and opportunities of education in Nigeria.

According to Dr. Chanduvi, the meeting was targeted at, not only exploring means of better lending support to the nation's education system but also, initiating the process of unravelling challenges to formal education in Northern Nigeria as well as bridging the gap between extremism and education. He attributed the proliferation of extremism in Northern Nigeria to inadequate education and acknowledged the critical role of religion and culture in the acceptance or otherwise of education in the region. Dr. Chanduvi explained that the team hoped to explore possibilities of higher education intervening in curbing the menace of terrorism and extremism in Nigeria.

Other issues raised by the World Bank

team included access to university education, budget for Nigerian universities, their ranking and the prospects of the Africa Centres of Excellence (ACE) project.

Welcoming the delegation, the Executive Secretary commended the Bank's efforts at supporting education in Africa, particularly through the on-going ACE project. He lamented the prevalence of terrorism and religious extremism in Northern Nigeria and explained that a major cause of extremism was exclusivity. To curb extremism, he said, it was necessary to put in place a mechanism for inclusiveness, where every citizen felt relevant, and confident of his potentials.

To ensure better acceptability of formal education in the region, Professor Rasheed noted the need to devise creative means of motivating families to embrace the concept. As a preliminary step, he suggested that the Bank explore the option of encouraging parents to enroll their children in public schools, where they would be taught by Mullahs, to ensure an integrated approach to education. These integrated schools would be located close to the targeted audience, to ease access and also encourage the enrolment of female children.

The Executive Secretary proposed that traditional rulers be enlisted as advocacy agents who would ensure that children in their communities attend school. He recommended offering certified training to members of these communities who had, hitherto, only studied and memorised the Qur'an, to enable them to effectively teach in the integrated schools. To incentivise these teachers, they could also be paid salaries and issued certificates, which can be used to obtain employment.

Lamenting the dearth of reliable data, which made it almost impossible to get viable information or data on Mullahs in the country, Professor Rasheed emphasised the need for targeted research into the nature and structure of the Almajiri system as well as existing infrastructure in the system. He noted the need to profile not only the street children but also, their instructors, popularly known as "Malams", who are usually nomadic in nature. Professor Rasheed mooted the idea that the study, which would be conducted by a team of Islamic Religious Studies researchers from the Nigerian University System (NUS), would also produce a compendium of these instructors, detailing who and where they are as well as their current occupation.



The World Bank team, with officials of some Nigerian ACEs and NUC ACE Secretariat

...Visits AUST's Pan-African Materials Institute

The visit to the National Universities Commission (NUC) was followed by another to the African University of Science and Technology's Pan-African Materials Institute (PAMI), to interact with the Centre Leaders of the 10 Africa Centres of Excellence (ACEs) in Nigeria.

Welcoming the delegation, which also included members of the ACE Secretariat, the President of AUST, Professor Kingston Nyamapfene, expressed appreciation to the PAMI team as well as the Vice-Chancellor and representatives of the other ACEs, for their commitment to the success of the Project.

In his remarks, Project Coordinator, ACE Nigeria, Dr. Joshua Atah, gave a brief background of the Project, stating its objectives and how the 10 Centres in Nigeria emerged. He also introduced each ACE and how their individual research projects were contributing to national development.

Briefing the gathering on the activities of the University of Port Harcourt's Centre for Oil Field Chemicals (CEFOR), Centre Leader, Professor Ogonna Joel, highlighted the Centre's mandate of developing machinery and expertise for locally-sourced oilfield chemicals that would positively affect profit margin and create jobs, for national development. As one of the requirements to meet their Disbursement-Linked Indicators (DLIs), CEFOR was collaborating with a number of industries and this had afforded students of the Centre the opportunity to carry out research on real life issues.

Professor Joel stated that the Centre currently had a total of 429 students, comprising 25 PhD students, 270 Masters and short course. It had, so far, graduated 7 PhD and 209 Master's students. It also had six regional students enrolled for Masters and 28 for short courses. Professor Joel highlighted some of the Centre's challenges to include attracting regional students as a result of funding constraints as well as the perceived insecurity in the country.

Centre Leader of Benue State University's Centre for Food Technology and



PAMI students at work in their laboratory

Research (CEFTER), Professor Daniel Adedzwa, expressed satisfaction with the effectiveness of the results-based financing model adopted for the ACE project. He stated that CEFTER had a total enrolment of 300 postgraduate, including PhD and Masters, and would be graduating the first set of students by the end of 2017. So far, students of the Centre have been able to develop 71 locally-processed food products and are working with the Benue State Government to promote the processing of food for export.

Though CEFTER had initially experienced teething problems, associated with the slow release of funds, the issue had been addressed, Professor Adedzwa said. He expressed optimism that the Federal Ministry of Education's proposed adoption of the results-based financing nature in Nigerian universities would lead to transparency in funds utilization in the nation's institutions and enable funding partners to develop more interest in donating to the development of education in higher institutions.

A highlight of the visit was the interaction with some students of PAMI, who expressed delight and gratitude for the opportunities availed them by the ACE Project.

In his response, Dr. Chanduvi expressed

appreciation and pleasure at the progress recorded by the Project in Nigeria. He stated that the World Bank had set out to support universities in improving the quality of teaching and research as well as providing opportunities to students to develop their skills in the area of science and technology. He urged the ACEs to intensify efforts at linking the universities with industries, as end users of the research process, to ensure that research efforts achieved the desired objective of developing best technologies for various sectors.

Dr. Chanduvi encouraged the students to ensure that skills and knowledge acquired through the ACE project were channeled toward the development of, not only their immediate environment but, Africa, as a whole. He conveyed the World Bank's commitment to steering the Centres towards achieving the desired Project objectives.

Other ACEs present at the interaction were Ahmadu Bello University (ABU), Zaria's Africa Centre of Excellence in Neglected Tropical Diseases and Forensic Biotechnology (ACENTDFB), University of Jos's ACE in Phytomedicine Research and Development (ACEPRD) and Federal University of Agriculture, Abeokuta's Centre for Agriculture Development and Sustainable Environment (CEADESE).

'Peace and Stability, a Pre-requisite for Success'

The Executive Secretary of the National Universities Commission (NUC), Professor Abubakar Rasheed, has averred that peace and stability are major pre-requisites for the success of the ACE Project and, indeed, any great university. He made this assertion during a high-level visit to the Obafemi Awolowo University, Ile Ife's ICT-Driven Knowledge Park, (OAK-Park).

While commending the restoration of peace and tranquillity to the University, the Executive Secretary reiterated the fact that peace, like war, must be waged and nurtured. He noted that the biggest success of the University, in the last eight months, was the appointment of Dr. Yemi Ogunbiyi as Chairman of Council. He stated that OAK-Park is unique and one of a kind, among the ACEs and should, therefore, be supported. The Executive Secretary charged the University to take ownership of the Centre, to ensure its sustainability, beyond the lifespan of

the Project.

Welcoming the team, the Vice-Chancellor, Professor Eyitope Ogunbodede, thanked the Executive Secretary for his support for the University and the Centre. He assured him of the University's continued commitment to the growth and success of OAK-Park.

Highlighting its major achievements at an interactive session that was attended by Dr. Ogunbiyi, the Vice Chancellor and other Principal Officers, Deputy Centre Leader, OAK-Park, Professor Sola Aderounmu, said that considerable progress had been made in student enrolment, particularly with regard to foreign students. The Centre, so far, had a total student enrolment of 198. Of this number, 43 are PhD students, while 155 are registered for MSc programmes. OAK-Park, he said, boasts of 38 regional students (35 male and three female) and has 160 national students, 112 of whom are male and 48, female. For the next academic session, the Centre already had applications

from 48 regional students, 38 of whom had been offered admission.

The Centre has also recorded some progress with students' internships, with about 40 of its enrollees having completed or at various stages of their internships in relevant organisations. To date, OAK-Park has graduated three PhD and 43 Master's students and has also offered short courses to a total of 238 regional and 208 national participants.

Another major achievement, the Centre Leader said, was the establishment of three start-up companies, one of which was led by a student in the Department of Economics.

The NUC delegation also had the Director, Executive Secretary's Office, Mr. Chris J. Maiyaki; Director, Corporate Communications, Mr. Ibrahim Yakasai, ACE National Coordinator, Dr. Joshua Atah and ACE Project Communications Officer, Mrs. Adebukola Olatunji.



Vice-Chancellor, OAU, Prof. Eyitope Ogunbodede (sitting second left); World Bank STEM experts Gen. Michel Xavier (left) and Prof. Mammadou Diallo (right) with members of the OAK Park and NUC teams

Chair, NPPRC, Supervisory Missions Tour Centres of Excellence



Executive Secretary, NUC, Prof. Abubakar Rasheed (right) and the Vice-Chancellor, University of Port Harcourt, Prof. Ndowa E.S. Lale



Pro-Chancellor, OAU, Dr. Yemi Ogunbiyi and Prof. Rasheed



L-R: Profs. Ogunbodede and Rasheed, with Dr. Ogunbiyi, inspecting the facilities at OAK-Park



L-R: Prof. Lale, his predecessor, Prof. Joseph Ajenka and Prof. Rasheed, during the latter's visit to UNIPORT's Africa Centre of Excellence for Oilfield Chemicals Research (CEFOR)



L-R (front row): Dr. Joshua Atah, Ms. Aisha Garba, Prof. Ogunbodede, Prof. Rasheed, Dr. Ogunbiyi and Mrs. Adebukola Olatunji. L-R (back row): DVC, Admin, Prof. Chris Ajila; Director, Corporate Communications, NUC, Ibrahim Usman Yakasai; DVC, Academic, Prof. Simeon Bamire; Registrar, Director, OAK-Park, Mr. D.O. Awoyemi; Prof. Adesola Aderounmu and Librarian, Dr. Femi Oguntuase



Interactive Session with faculty of CEFOR



The NUC team with some staff of PAMI



Vice-Chancellor, UNIBEN, Prof. Faraday Orumwense with the Executive Secretary, NUC, Prof. Abubakar Rasheed



The NUC team with Principal Officers and faculty of FUNAAB, during Prof. Rasheed's visit to CEADSE



L-R: Prof. Jonathan Mba, AAU; Dr. Atah, World Bank Health Expert, Prof. Michelle Niescierenko; Country-based Health Expert, Prof. Hadiza Galadanci; Centre Leader, CERHI, Prof. Friday Okonofua and others at the Supervision Mission's meeting with the Vice-Chancellor, UNIBEN



L-R: Ms. Aisha Garba, Mr. Ibrahim Yakasai, Mrs. Adebukola Olatunji and staff of CEADSE



Students of CERHI at an interaction with the Supervision Mission



NUC team with students of CEADSE



Prof. Rasheed (right) with the Vice-Chancellor Benue State University, Prof. Msugh Kembe



Vice-Chancellor, UNIBEN, Prof. Faraday Orumwense with World Bank Education Specialist, Ms. Himdat Bayusuf

FOCUS ON THE CENTRES

World Bank Team Tasks ACEPRD on Collaboration, Visibility

A team from the World Bank, Association of African Universities (AAU) and the National Universities Commission (NUC) has advised the Africa Centre of Excellence in Phytomedicine Research and Development (ACEPRD), at the University of Jos, to engage more with collaborators from other ACEs on research, workshops, capacity building and on web visibility of the Centre, to showcase its activities.

The team also tasked the leadership of the Centre to make teaching more pedagogical, publish articles in relevant journals and engage business consultants in the manufacture of the Centre's products.

The team comprised Dr. Michelle Niescierenko (Health Expert, World Bank), Professor Hadiza Galadanci (Health Expert, ACE Secretariat, NUC), Professor Jonathan Mba (Association of African Universities), Dr. Joshua Atah (ACE Project Coordinator) as well as Obiechefu Ukwuagu and Patricia Eromosele, Project

Management Office with the nuc ACE Secretariat.

The visit, which was a follow up to the third supervision mission that took place in May, 2017, was to assess the progress of work at the Centre, monitor project implementation to ensure that identified challenges had either been addressed or were being addressed as well as to give expert feedback to ensure the continued success of the ACE Project.

Commending ACEPRD for its achievements over the past two years, Professor Niescierenko encouraged the project management team to double its efforts at enrolling foreign students, ensuring effective student internships and facilitating grant writing workshops for staff and students, among others. Professor Galadanci commended the Centre's initiative in producing a student's handbook, which she said would improve mentorship.

Earlier, the Centre Leader, Professor John Aguiyi, highlighted



The World Bank/AAU Team with Centre Leader ACEPRD, Prof. John Aguiyi (right)



The World Bank team with one of the researchers at ACEPRD

the progress made in the areas of students' admission for the Master's and doctoral programmes; accreditation of the Centre's programmes; new collaborations; products and on-going researches.

The team, which also paid a courtesy call on the Vice-Chancellor, Professor Seddi Maimako, represented by the Deputy Vice-Chancellor, Prof. Nelson Ocheke, recalled that the last supervision mission in May, 2017 had noted significant

weaknesses, especially in the areas of the University's support to the Centre, weak Management/Governance structure and lack of student support processes. It commended ACEPRD for the success achieved since the last visit, stressing the World Bank and NUC's concerns about the sustainability of the Centre, beyond the World Bank intervention.

Responding, Professor Ocheke pledged, on behalf of the University

Management, to give the Centre all the support it needed to succeed. He informed the team that the University had made some budgetary allocations to the Centre and would likely increase such support in the future.

The team thereafter inspected the Centre's newly-equipped Laboratories and interacted with its students and staff as well as staff of other departments involved in the Centre's work.



Staff and students of ACEPRD, during the interaction with the World Bank delegation

World Bank, NUC Visit OAK-Park



L-R: Prof. Rasheed, Dr. Yemi Ogunbiyi and Ms. Aisha Garba

In fulfilling the objective of ensuring that the Centres of Excellence can be sustained beyond its intervention, the World Bank, in collaboration with the Association of African Universities (AAU) and the National Universities Commission (NUC), recently conducted another supervision exercise to the Obafemi Awolowo University ICT-Driven Knowledge Park (OAK-Park), Ile-Ife. The objective of this

monitoring exercise was to assess the progress of OAK-Park since the last mission in May, 2017.

In his welcome remarks, the Vice-Chancellor of the University, Professor Eyitope Ogunbodede, stated that the Centre was making good progress, especially since the project had begun to impact significantly on the University. He expressed pleasure at the visit of the team, noting that the

exercise would create an avenue for suggestions for the sustainability of the project in the University.

Commending the Centre's improvements since the last supervision visit, the leader of the delegation, Professor Mamadou Diallo, recommended that the Centre expand partnerships and recruiting strategies, to attract more regional students as well as improve on communicating its successes in order to attract more stakeholders.

In his presentation, the Co-Centre Leader, OAK-Park, Professor Adesola Aderounmu, highlighted the expectations, achievements, key sustenance strategies and challenges of the Centre. He also emphasised the Centre's private sector relations development plan, lessons learnt and strategies for revenue generation.

Others in the World Bank delegation were the World Bank STEM Expert, Gen. Xavier Michel (Rtd); country-based STEM Expert, Professor G. O. S.Ekhaguere, as well as Michael Ejegwa and Onyinye Akauba, both Project Management Officers with the NUC ACE Secretariat.



Gen. Michel with of students of OAK-Park

World Bank Team Visits Centre for Neglected Tropical Diseases

A delegation from the World Bank, Association of African Universities (AAU) and the National Universities Commission (NUC), on 4 October, 2017, commenced a two-day supervision mission to the Ahmadu Bello University (ABU), Zaria's Africa Centre of Excellence in Neglected Tropical Diseases and Forensic Biotechnology (ACENTDFB). The aim of the visit was to, among other things, gain first-hand information on the progress recorded by ACENTDFB, in meeting the Key Performance Indicators (KPIs) for the ACE project, since the last supervision mission.

Welcoming the team on behalf of the Vice-Chancellor, the Deputy Centre Leader, Professor Yakubu K. E. Ibrahim, highlighted some of the achievements of the Centre to include exceeding its target for the enrolment of regional students, establishing collaborations with strategic partners and networking with other ACEs in the field

of Health. Another major achievement was the resolution of the Centre's governance challenges, with the appointment of a Project Coordinator, who is at par with the Centre Leader and reports directly to him on the ACE project.

The visit also featured a tour of the Centre's facilities and an interaction with some of its national and regional students, to gain some insight into the impact of the ACE project on their programmes as well as challenges encountered.

Students of the Centre expressed satisfaction with the quality of education to which the ACE project exposed them. They commended the dedication of the lecturers, particularly those from the Department of Biotechnology.

The students however lamented the inadequacy of funds for the collection of samples as well as the absence of an animal house/college. Another major challenge was the recent six-week in-

dustrial action by the university-based unions, which had hampered academic activities in the entire university.

Responding to the students' comments, World Bank Education Specialist, Ms. Himdat Bayusuf, informed them of the bottlenecks encountered by the Centre in activating the Project's accounts, which were domiciled with the Central Bank of Nigeria (CBN). She encouraged them to take advantage of the benefits of the ACE project and focus on making breakthroughs in Malaria and neglected tropical diseases, cognisant of their impact on the nation.

Ms. Bayusuf assured the students of the commitment of the Nigerian government to the improvement of the health sector as well as higher education. She encouraged them to continue to explore viable channels of communication with their lecturers, to ensure a hitch-free stay in the school.

The delegation commended the co-



World Bank delegates with officials of ACENTDFB during the Supervision Mission



R-L: Country-based Health Expert, Prof. Hadiza Galadanci, World Bank Education Specialist, Ms. Himdat Bayusuf, World Bank Health Expert, Prof. Michelle Niescierenko and ACE Project Coordinator, AAU, Prof. Jonathan Mba

hesiveness of the ACENTDFB team. It noted that the Centre had made remarkable progress since the last supervision mission, and was, gradually, yet steadily, surmounting its challenges.

The delegation, however, expressed concerns with the slow pace of the bidding process in the procurement of new equipment, considering that the Project was nearing expiration. It noted the need for faculty of the Department to be actively involved in the

ACE Project. The team also advised the Centre to devise more aggressive means of creating awareness about the ACE project, not only within the University community, but also, among relevant stakeholders.

Others in the ACENTDFB team were the Project Coordinator, Professor Junaid Kabir; the former Deputy Centre Leader, Professor Mairo Inuwa; the Safeguards Officer, Professor Sani Ibrahim; Principal Investigator (Rabies), Professor Jacob Kwagga;

Assistant Monitoring and Evaluation Officer, Dr. Idowu Aimola and the Coordinator, Trypanosomiasis Unit, Dr. Gloria Chechet.

The WB/AAU/NUC team also had Professor Jonathan Mba (AAU), Professor Hadiza Galadanci (Country-Based Health Expert), Professor Michelle Niescierenko (World Bank Health Expert), as well as, both of Peter Tobrise (Project Management Office) and Yvonne Orekyeh (Communications Officer), both of the NUC.



R-L: Staff of ACENTDFB: Mr. Silas Yashim, Prof. Yakubu K. Ibrahim, Prof. Mairo Inuwa, Prof. Junaid Kabiru, Prof. Peter Kwagga, Prof. Sani Ibrahim and Prof. Maman Mohammed

Kano State Govt Commits to Funding Agric Research at CDA Training Workshops

Kano State Government has expressed its readiness and commitment to work with Bayero University, Kano (BUK) and other stakeholders to fund agricultural researches and promote the application of innovative technologies and utilisation of research outcomes, for the benefit of the teeming agricultural population of Kano State, in particular, and the nation, at large.

The State Commissioner for Agriculture, Dr. Nasir Yusuf Gawuna, gave the assurance while addressing participants at the opening ceremony of three International Training Workshops at the Centre for Dryland Agriculture (CDA), Bayero University,

Kano (BUK).

Dr. Gawuna said that promotion of agricultural development was the topmost priority of the Kano State Government. He noted that the Federal Government had accorded the sector the needed attention in view of its significant contribution to the Nigerian economy.

“We are ready to partner with the Centre for Dryland Agriculture and other stakeholders to fund agricultural research to address the daunting challenges of unemployment, poverty and food insecurity,” the Commissioner assured. He noted that the State Government had invested so much to improve the sector, especially in view of the current eco-

nomics challenges facing the country.

“Kano State Government is ever willing to fund researches and promote the application of innovations in all aspects of agriculture in order to facilitate the enhancement of overall productivity and address the challenges of food insecurity”, the Commissioner said. He commended CDA for its foresight in conducting researches and organising international seminars and workshops aimed at addressing the challenges of food insecurity.

Declaring the Workshops open, the Vice Chancellor, BUK, Professor Muhammad Yahuza Bello, submitted that the problems of rising population, food insecurity, poverty and



Deputy Vice Chancellor, Admin, Professor Adamu Idris Tanko (left) with the Commissioner of Agriculture, Kano State, Dr. Nasir Yusuf Gawuna and other participants

insecurity in West and Central African countries are surmountable if the diverse stakeholders, especially in the field of agriculture, would work hand-in-hand to address the challenges of low productivity and non-sustainable use of resources.

The Vice Chancellor, who was represented by the Deputy Vice Chancellor, Administration, Professor Adamu Idris Tanko, challenged the participants to make effective use of the trainings to impact positively on human development. He observed that, with high calibre human resources and investments in research, training and outreach, Nigeria and other countries of West and Central Africa could attain food security and sustainable economic development. He charged the CDA to continue working with other stakeholders to attain this goal.

Earlier in his opening remarks, the Director of CDA, Prof Jibrin M. Jibrin, who was represented by the Deputy Director, Training, Professor S. G. Mohammed, said the resource persons, drawn from diverse backgrounds and countries, including India, Kenya and Ghana, were seasoned professionals in their fields and expected to transfer skills that were most needed by the participants for quality research, innovations, outreach and publications. The Workshops, which concurrently commenced on Monday 10 July, 2017, he said, were organised to achieve the goal of the CDA in developing high capacity human resources for agricultural development in the dryland countries of West and Central Africa.

The first of the workshops was the '2nd International Advanced Training Programme on Organic and Green Agriculture', organised in partnership with the Faculty of Agriculture, BUK and the Organic Agricultural Project in Tertiary Institutions in Nigeria (OAPTIN). The second was the 'Application of Remote Sensing and Geographical Information System in Agriculture', in partnership with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), while the third was the 'Capacity Building Training on Statistics and Data Analysis; organised by the CDA.

The participants were drawn from institutions of higher learning (Universities and Colleges of Agriculture), research institutes, ministries at federal and state levels, private sector investors, farmers and a range of other stakeholders within the field of agriculture and natural resource management and other related fields.

Remote Sensing, GIS Trainees Produce Land Use/Land Cover Map

No fewer than 35 participants, from the academia, agricultural research institutes and Ministry of Agriculture, at a hands-on training workshop on Application of Remote Sensing and Geographical Information System (GIS) in Crop Mapping, have produced land use/land cover map of Kano State, using time series MODIS satellite images as an output.

The training, jointly organised by the Centre for Dryland Agriculture (CDA) and the International Crop Research Institute for Semi-Arid Tropics (ICRISAT), in Kano, recently, was intended to create awareness among multidisciplinary team of stakeholders in the use of remote sensing in Agriculture, especially mapping crops through phenological cycle. It stressed the value of collecting spatial information to give a spatial dimension to research, and decision making. Spatial modeling using multiple sources of spatial information, especially the inclusion of socio-economic factors for identification of crops, delineation of cropped-land, and yield estimation were taught.

This skill, the organisers said, was necessary for the country to move away from the traditional yield

survey that only depends on farmers' ability to recall and would be valuable in guiding decision makers relating to agricultural landscape management in Kano State in particular, and Nigeria at large.

One of the participants, Miss Andree Mentho Nenkam, a Cameroonian and Scientific Officer at the National Statistical Institute of Mali, expressed satisfaction with the quality, content and mode of delivery at the workshop, saying that it would impact positively on her research. She was optimistic that she could now competently download data, classify and use satellite data in the field of agriculture.

Dan Abdou Soge Muhammadou from Dan Dicko Dan Koulodo University, Maradi, Niger Republic, also stated the skills that he had acquired in crops identification and mapping were invaluable and would be used in guiding farmers to optimise their yield per hectare.

One of the international resource persons, Muhammad Irshad Ahmad, commended the diversity of the fields of the participants, which enabled the multi-disciplinary approach adopted during the training and also provided a platform for the cross-fertilisation of ideas and experiences.

CDA Builds Capacity in Statistics, Data Analysis

To advance the analytical skills of academics and Postgraduate students, the Centre for Dryland Agriculture (CDA) has organised a two-week international training workshop on Statistics and Data Analysis, facilitated by a renowned statistician, Professor Sagary Nokoe, from the Catholic University of East Africa.

The Training Workshop, with the theme, Enhancing the Capacity of Staff in Effective Data Analysis and Interpretation, was attended by researchers, academic staff and postgraduate students drawn from various departments of Bayero University and other partner institutions. It was aimed at building their capacity for the high quality analy-

sis of research data and interpretation techniques, drawing examples and experiences from agricultural development projects implemented by diverse institutions, such as the sub-regional organisations in Africa like CORAF/WECARD, as well as international agricultural research centres of the CGIAR system, including IITA, ILRI and ICIPE and FARA.

The CDA Workshop, according to Prof Nokoe, would enhance the capacity of researchers, staff, supervisors, partners and postgraduate students to extract more relevant data and analyse them efficiently in their respective activities.

For agricultural activities, Prof Nokoe was optimistic that the skills

gained from the workshop would facilitate the collection of high quality scientific data, on one hand, and enable the application of appropriate statistical analytical methods that would make the research findings publishable in reputable indexed international journals, on the other. Thus, the technical content of the training workshop focused on sampling methodology and the analysis of frequencies and qualitative data analysis generated from series, factorial trials, the analysis of mixtures and quantal response (such as probit and logit analysis for symmetric binary, non-symmetric binary). Others were: the analysis of mixed models, analysis and interpretation of regression, correlation and path coefficient, as well as the practical applications using R software.



Workshop participants listening to a presentation



Participants at the PASMAT IV Workshop

PAMI Hosts MS4SSA, PASMAT IV Workshops

No fewer than 250 participants drawn from states across Nigeria, as well as Cameroun, Liberia, Ghana, Cote d'Ivoire, Sierra Leone, Senegal, The Gambia and the United States of America, recently converged on the Pan African Materials Institute (PAMI), at the African University of Science and Technology (AUST), Abuja, for the Maths and Science for sub-Saharan Africa (MS4SSA) and the Pan African School for Materials (PASMAT IV) workshops.

A collaboration between AUST's PAMI, the Mathematics Institute and the Women in Science and Engineering (WISE) initiative, MS4SSA and PASMAT IV were held at the University's AfDB Laboratory between 10-15 July and 17-21 July, 2017 respectively. The MS4SSA workshop followed an induction programme recently held in Worcester, Massachusetts (USA), to lay the ground for the coordination of the sub-Saharan initiative.

MS4SSA is critical to the success of the World Bank's support for Africa's development through PAMI and in the Partnership for Applied Sciences, Engineering, and Technology (PASET), two initiatives that focus on producing a critical mass of PhDs to tackle the pervasive and severe shortage of qualified faculty in Africa's universities.

Professors Oye Ibidapo-Obe, AUST Board Member; Wole Soboyejo and Paula Quinn of the Worcester Polytechnic Institute, Worcester, MA, presented papers on approaches to curriculum development, while Professor Robert Goodman of the New Jersey Centre for Teaching and Learning talked about teaching and learning: The USA Experience.

There were discussions on approaches to assessments, Science, Engineering, Robotics education, social constructivist classroom environment as well as Introduction to Materials Science and project-based learning modules, jointly presented by Quinn, Soboyejo and Goodman.

PASMAT IV, on the other hand, was the



Prof. Muhammed Dauda

bi-annual outreach programme of PAMI, with the theme, 'Materials for African Development'. This activity traditionally engages in cumulative training on key concepts of Materials Science and Engineering, primarily aimed at improving regional capacity to process and utilise Africa's abundant mineral material and human resources for development.

The project brought together an interdisciplinary and trans-disciplinary group of professionals, including Physicists, Chemists, Engineers, Biologists and medical practitioners. Resource persons included, Professors Mohammed Dauda from the National Agency for Science and Engineering Infrastructure (NASENI), Abuja; Professor Soboyejo from WPI, Professor Holmer Savastano, Dr. Said Ameen and Dr. Omololu Akin-Ojo, Centre Leader, PAMI, who applied systems-based interdisciplinary approaches to tackle identified African problems of power supply, materials for drug delivery, infrastructure, materials, among others.

Hands-on activities included novel drug-delivery systems fabrication, nano-particle syntheses, organic solar cell fabrication and deployment, novel water purification systems fabrication and testing, as well as robotics, which were put together by the PAMI Focused Research Groups (FRGs). The proceedings of the workshops are soon to be published in an international peer-review journal.

Experiences of CEADESE Students on Internship

In a bid to bridge the gap between the academia, industry and relevant stakeholders, students of the Federal University of Agriculture, Abeokuta's Africa Centre of Excellence in Agricultural Development and Sustainable Environment (CEADESE) have, within the last few months, embarked on internships to partner institutions, to gain practical and on-field experience as well as to identify research gaps, which will form the basis upon which their research work is based.

CEADESE's internship programme,

which is a vital Disbursement-Linked Indicator (DLI) of the ACE project, is structured in two phases, with the first dedicated to interactions, problem identification and proposal development, while the second involves implementation of research objectives.

Below are bits and pieces from the experiences of some of the students:

OLANIYI Mariam Bolanle, a student of the Livestock Science and Sustainable Environment programme, was an intern at Agro Cattle Nigeria, Ikoro-

du, Lagos. Established in 2015, with the sole aim of fattening cattle, Agro Cattle Nigeria has, since, diversified into the production of other small ruminants, with about 50 goats, 600 cattle and over 200 sheep. The farm's focus has extended to accommodate other components, such as beef fattening, and goat production.

As part of her programme, Ms. Olaniyi carried out activities such as daily feeding of the cattle with concentrates and, later in the day, administration of various grasses. She was also charged with the responsibility



Microbial Air Sampling and Air Quality Monitoring at Olusosun dumpsite, Ojota, Lagos



Faculty and students of CEADSE

of monitoring the health of the animals and administering treatment to infected animals. Other tasks included feed formulation as well as stock-taking, to ascertain the number of animals on the farm at every given time. Data collected included sex, age, and physiological state of each animal.

The internship period afforded Ms. Olaniyi the opportunity to gain hands-on experience in the daily and routine management of ruminant animals and has, thus, prepared her for the task of finding a solution to common problems encountered on the field.

OYINLOYE Yewande Mary, a student of the Agricultural Economics and Environmental Policy, underwent her internship programme at the Nigerian Institute of Social and Economic Research (NISER), a Federal Government parastatal established, primarily, for research into Nigeria's eco-

nomical and social problems. NISER undertakes extensive research into problems of economic development and planning, agricultural and industrial development, foreign trade, public finance, education, health and social welfare. It also constitutes various research departments.

Ms. Oyinloye worked in the Economic Policy Research Department (EPRD), which conducts a wide range of practical socio-economic research, with a view to providing inputs and guidelines for long term policy formulation and investment decisions. The Department conducts studies on the impact of existing policies and programmes of government and recommends shifts/adjustments, where necessary, and coordinates trainings, conferences and workshops relevant to the Department.

In the course of the programme, Ms. Oyinloye worked under the supervision of Dr. Timothy Oni, a senior

researcher with NISER. She was also opportune to attend the February, 2017 edition of the NISER Research Seminar Series (NRSS), which featured a presentation, titled "Actors and Institutions in Agricultural Public Expenditure Allocation and National Food Security: Evidence from Subnational Jurisdiction in Nigeria", delivered by Dr. Tewodaj Mogues, a Senior Research Fellow at the International Food Policy and Research Institute (IFPRI), Washington DC.

Experiences garnered in EPRD prompted the student's research study, titled "Effect of Production Efficiency on Integrated and Non-Integrated Fish Farmers' Poverty Status in Ogun State."

Another experience is that of Ogunl-eye Toluwalase Janet, a student of Environmental Systems and Climate Change, whose internship was carried out at Environmental Laboratories Limited, an affiliate of MOYEZ

Analab Resource. Incorporated in 2008, with the mission to provide clients with high quality services and defensible reports that would assist customers define their needs to meet or exceed their expectations with informed decisions based on reliable empirical data, Environmental Laboratories Limited, which is headed by Dr. Femi Oyediran, has state-of-the-art laboratories (chemical, microbiology and elemental) and field equipment, which provide analytical and consultation services to support clients' requirements under national, state and professional human resources to carry out environmental studies and analysis.

During her five-week stint with the organisation, Ms. Ogunleye was attached to the laboratory and environmental/field units. She also participated in two training sessions on Good Laboratory Practices (GAP) and Water Analysis.

Using the Standard Operating Procedure (SOP) prepared by professional analysts in the organisation, for different parameters, Ms. Ogunleye had the privilege of participating in the analysis of waste water samples, treated effluent samples, sewage water samples, borehole water samples as well as stream and spring water samples.

On two different occasions, she also participated in the field work carried out at Olusosun dumpsite, Ojota, Lagos, which involved microbial air sampling and air quality monitoring, at certain points and outside the dumpsite area. The major aim of this was to evaluate the occupational health hazards of workers at the dumpsite.

The student acknowledged that the experience gathered at the laboratory had exposed her to a practical knowledge of one of the programme's first semester courses (Waste Water Management and Pollution Control). The experience informed her decision to work on the assessment of poultry air pollution, cognisant of its environmental effects (climate change, acidification, odour, etc.) and health im-

pact on the birds, workers within the facility and other residents around the poultry.

Meet Ayoola Grace Temitope, a student of Food Processing and Value Addition. Grace's internship was done at Obasanjo Farms Nigeria Limited. The Farm was established in the year 1978, with a mission to be a responsible, responsive, competitive, quality-driven production and marketing company, satisfying all stakeholders. It specialises, mainly, in the provision of agro-based products and services, such as table eggs, chicken (broilers, growers, layers, day-old chicks, etc), hatchery services.

The Farm is also involved in chicken processing and is equipped with a cold room which has the capacity to process up to 2,500 chickens, per hour. The processing unit is divided into five sections, namely hanging and slaughtering, evisceration, offal packaging, sorting and grading.

During her intership with the Obasanjo Farms, Grace worked in the processing unit, which afforded her an opportunity to acquire practical skills related to her course. It also exposed her to the various methods, procedures and equipment for the processing of frozen birds as well as value-addition to poultry products.

FOLARIN Itunuola A., a PhD student in AgSE, undertook her internship programme at the National Centre for Genetic Resources and Biotechnology (NACGRAB), the body responsible for registering new breeds of plants and animals in Nigeria. Established in 1987 by the Federal Ministry of Science and Technology (FMS&T), to conduct research, gather data and disseminate technological information on matters relating to genetic resources conservation, utilisation and biotechnology applications, NACGRAB is backed by Decree 33 of 1987, to regulate the seed, livestock and fisheries industries. The Centre is committed to the conservation of the rich genetic resources of the nation, with a view to enhancing agricultural, economic

and social development.

NACGRAB has various units, among which are Animal Genetic Resources (AGR) and Biotechnology, where Ms. Folarin worked. Other units include Plant Genetic Resources, Tissue Culture, Seed Bank and the Gene Bank Units.

At the AGR unit, Ms. Folarin gathered experience from working in the Centre's livestock research farm, participating in on-farm activities and regular consultations with the Assistant Unit Head.

At the Biotechnology Unit, she was attached to the molecular biology laboratory, where molecular tools and procedures are used to unravel the basis of life. The structure of specific molecules of biological importance, such as proteins, enzymes, and the nucleic acids DNA and RNA are studied in relation to their functional roles in cells and organisms. Finally, an industry-based Supervisor was assigned to the student's research.

AYOOLA Abiodun Adeyinka, a student of the M. AgSc. Livestock Science and Sustainable Environment programme, underwent his internship at NORGEM/NOVUS INTERNATIONAL. Novus was established in 1991, as an animal nutrition-based company, to provide a holistic approach to solutions, service and sustainability for poultry, swine, aquaculture and cattle.

During his stay in the company, the student attended and visited places such as the land grant university, farms, industries, government parastatals, conferences and Novus offices.

At the end of the internship, Mr. Ayoola observed that environmental sustainability was lacking in developing countries, like Nigeria, where farmers often think of profit-making, while neglecting the possible impact on the people and the environment. The student also recommends CEADSE's programmes to people, cognisant of its standards.

Africa Centre of Excellence (ACE)	Discipline	Key Academic Partners	Existing Industry/Private Sector Partners	Education/Research/Focus Area
<p>ACE in Materials Science African University of Science and Technology (AUST), Abuja, Nigeria</p>	STEM	<p>National and international partners including:</p> <ul style="list-style-type: none"> • Kwame Nkrumah University of Science and Technology (KNUST), Kumasi Ghana. • University of Sao Paulo, Brazil. • Rutgers University, Piscataway, NJ, United States. • Nnamdi Azikiwe University, Awka, Nigeria. • Stanford University, USA. 	<ul style="list-style-type: none"> • The Sheda Science and Technology Complex (SHESTCO), Abuja, Nigeria • National Agency for Science and Engineering Infrastructure (NASeni), Abuja, Nigeria 	<p>The Pan African Materials Institute (PAMI) uses a systems-based interdisciplinary approach to undertake training and research activities in the areas of materials for solar energy, health, water purification and affordable housing/infrastructure. PAMI also supports the training of a critical mass of PhD students, as well as professionals from industry, government, business and development stakeholders who can contribute effectively to the development of West and Central Africa. The Centre also uses a materials approach to develop effective solutions to African needs in: solar energy; disease detection and treatment; water purification and affordable housing/infrastructure. These it is achieving by engaging teams of mathematicians, computer scientists and physicists.</p>
<p>ACE for Oil Field Chemicals University of Port Harcourt, Nigeria</p>	STEM	<ul style="list-style-type: none"> • IFP School, France • University of Mines and Technology Tarkwa, Ghana • University of Witwatersrand, South Africa. • University of Abomey-Calavi, Benin • University of Lome, Togo. 	<ul style="list-style-type: none"> • Total E&P Nig. Ltd (TEPNG) • Shell Petroleum Dev. Company (SPDC) • Schlumberger, Nigeria • Petroleum Technology Development Fund (PTDF), Abuja • FUGRO Nig. Ltd. 	<p>Oil drilling, well completion and production enhancement require the use of several chemicals known as oilfield chemicals. Billions of dollars are spent, annually, in importing oil field chemicals for oil and gas activities in Africa, but the raw materials for these chemicals are readily available, locally. The University of Port Harcourt's strategic plan to establish a Centre of excellence in Oil Field Chemicals Research and Development is in line with "The Nigerian Content Act aspiration", which came into effect in 2010. The Board has commenced operations to realise the aspiration of the Federal Government of Nigeria to increase indigenous participation in the oil and gas industry, build local capacity, create linkages to other sectors of the national economy and boost industry contributions to the growth of our National Gross Domestic Product.</p>
<p>ACE in Science, Technology and Knowledge, Obafemi-Awolowo University, Ile-Ife, Nigeria</p>	STEM	<ul style="list-style-type: none"> • University of Calabar. • 2iE Institute, Ouagadougou, Burkina Faso. • University of Liberia, Monrovia (ULM). • Kwame Nkrumah University of Science and Technology (KNUST) Kumasi, Ghana. • Stanford Research Institute, USA 	<ul style="list-style-type: none"> • CHAMS Nigeria PLC • MATEK Ventures PLC • Huawei, China • City Business Computers, Nig. Ltd. • Kenol Nigeria Limited • KT Innoedu of Korea 	<p>The Centre of Excellence will facilitate the convergence of technological advances in various disciplines, namely ICT, food and beverages processing, pharmaceuticals and agriculture and enhance the development, transfer and commercialisation of technology and research outputs. It will also promote the launch pad for start-up companies, borne out of university research activities and advancement, by partnering with companies, who will have the competitive advantage of close proximity and direct access to the intellectual infrastructure and output of the university.</p>

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ACE for Genomics of Infectious Diseases Redeemer's University, Ede, Nigeria	Health	<ul style="list-style-type: none"> • Université Cheikh Anta Diop, Senegal. • University of Sierra Leone. • Noguchi Institute, University of Ghana. • University of Cameroon. • Harvard University, USA • Tulane University, New Orleans, Global health Institute, Duke University, North Carolina, USA. 	<ul style="list-style-type: none"> • Kenema Government Hospital, Kenema, Sierra Leone; • Broad Institute, Cambridge, MA, USA 	<p>The ACEGID is equipped with a state-of-the-art laboratory for teaching and genome sequencing of microbial infections and serve as an international hub for academic and research excellence in microbial and human genomics.</p> <p>The Centre played an integral role during the recent Ebola crisis in Nigeria, as the go to place for testing the Ebola virus as well as supporting the response in Sierra Leone</p>
ACE on Neglected Tropical Diseases and Forensic Biotechnology Ahmadu Bello University, Zaria, Nigeria	Health	<ul style="list-style-type: none"> • University of Ngaoundere, Cameroon. • University of Nagasaki, Japan. • Kuvim Medical Centre of Hebrew University, Israel. 	<ul style="list-style-type: none"> • Center for Disease Control and Prevention, Atlanta, USA. • Nigerian Institute for Medical Research, (MIMR), Lagos 	<p>In line with the London Declaration and the WHO Roadmap on Neglected Tropical Diseases, (NTDs), this ACE seeks to address the four major challenges of discovery, diagnosis, treatment, prevention and eradication of NTDs. The focus will build on the well-documented research achievements within the consortium, on the diseases trypanosomiasis, filariasis and rabies. Furthermore, the know-how would be deployed in training manpower in other fields such as forensic biotechnology.</p>
ACE in Phytomedicine Research and Development University of Jos, Nigeria	Health	<ul style="list-style-type: none"> • 18 national and international partners including: • KwameNkrumah University of Science and Technology (KNUST), Kumasi, Ghana • Université de Ouagadougou, Burkina Faso • University of Lome, Togo. • GDP Ayurvedic University, New Brunswick, NJ, USA. 	<ul style="list-style-type: none"> • Neimeth International Pharmaceuticals, Nigeria • Juhel Nigeria Ltd, Enugu, Nigeria • Europharm Nig. Ltd. Jos, Nigeria 	<p>The establishment of this Centre of Excellence within the Faculty of Pharmaceutical Sciences will project the University of Jos as a regional leader in the study, promotion, research capacity building and expertise development in Phytomedicine. This will promote scholarship in the knowledge and application of ethnomedicine. The Centre will also promote collaboration and entrepreneurship, which will raise the level of awareness of ethnomedicine research and ethical issues.</p>
ACE in Reproductive Health and Innovation University of Benin, Nigeria	Health	<ul style="list-style-type: none"> • University of Benin Teaching Hospital (UBTH) • University of Ibadan and its Teaching Hospital • Ahmadu Bello University and its Teaching Hospital 	<ul style="list-style-type: none"> • Nigerian Institute for Medical Research and Training (NIMR) • Noguchi Memorial Institute for Medical Research 	<p>The ACE will strengthen and integrate reproductive health into the undergraduate curricular of the University's basic medical science courses (anatomy, physiology, biochemistry, laboratory sciences) as well as in related clinical sciences departments (obstetrics and gynecology, paediatrics, institute of child health, community medicine, and internal medicine). The undergraduate training curricula in the social</p>

Africa Centre of Excellence (ACE)	Discipline	Key Academic Partners	Existing Industry/Private Sector Partners	Education/Research/Focus Area
		<ul style="list-style-type: none"> • University of Ghana • University of Mali • Harvard School of Public Health • Aberdeen University 		<p>sciences and Law will also be strengthened with reproductive health courses that include population studies, demography, medical sociology, health economics and reproductive health law.</p>
<p>ACE in Dry-land Agriculture Bayero University, Kano, Nigeria</p>	Agriculture	<ul style="list-style-type: none"> • 11 regional and national partners including: • International Institute of Tropical Agriculture (IITA), Nigeria • University of Nairobi, Kenya • Galilee International Management Institute, Israel • Kano State University of Science & Technology, Nigeria • Faculty of Agriculture, University of Alexandria, Egypt 	<ul style="list-style-type: none"> • Sasakawa Africa Association/Sasakawa Global 2000, Nigeria • Drylands Research, UK • Dandago Agricultural Machinery Company, Nigeria • Maina Seeds, Nigeria • Jubaili Agrotec Limited, Nigeria • State Agricultural Development Projects, Nigeria 	<p>In Africa, about 43% of land is estimated to fall within the drylands, where approximately 325 million people reside. In order to respond to the needs of the West and Central African (WCA) dryland region, through relevant high level human capacity development and demand-driven research, Bayero University, Kano (BUK) established the Centre for Dryland Agriculture (CDA) in 2012, with the support of the MacArthur Foundation. The existing framework of the CDA is now being consolidated into true regional Centre of Excellence in Dryland Agriculture, through the World Bank Africa Centre of Excellence project. Through the activities of the CDA, Bayero University aims to strongly link education and research with the development needs of the region, thus contributing to food security, improved livelihood, and reduction in poverty and conflicts. The main objective of the CDA is to specialise as a regional Centre of Excellence in Dryland Agriculture, delivering quality training and applied research in response to the needs of the WCA dryland region.</p>
<p>ACE for Food Technology and Research Benue State University, Makurdi, Nigeria</p>	Agriculture	<ul style="list-style-type: none"> • University of Agriculture, Makurdi, Nigeria. • Tshwane University of Technology, Pretoria, South Africa. • Wiberforce University, Ohio, USA. • Wright State University, Ohio, USA 	<ul style="list-style-type: none"> • Benue State Agricultural & Rural Development Authority 	<p>Post-Harvest losses constitute the major factor contributing to insecurity in Sub-Saharan Africa but are often overlooked. It is estimated that Africa loses food, valued at US \$4.0 billion, yearly, due to post-harvest losses. This serious shortfall leads to stunted development, malnutrition, diseases and death of millions of children. Post-harvest technologies currently in use are either too expensive or unsuitable for local environments. Chemicals, which are widely used, have often proven hazardous. Nigerian and indeed African teachers and researchers need to be equipped with adequate facilities to be able to utilise multidisciplinary approaches to embark on high capacity building through teaching, conduction of cutting edge research and promotion of active outreach programmes to address post-harvest food losses. Through the support of the World Bank, the Benue State University has established the Africa Centre of Excellence for Food Technology and Research (CEFT-ER) to address these challenges. The</p>

Africa Centre of Excellence (ACE)	Discipline	Key Academic Partners	Existing Industry/Private Sector Partners	Education/Research/Focus Area
				<p>success of CEFTER will depend on the strong and long standing partnerships between academic, research and extension institutions in Nigeria and the sub-region.</p> <p>The mandate of CEFTER is to promote teaching, research and extension in post-harvest sciences, enhance agricultural productivity and industrial output for the socio-economic advancement of Nigeria and Africa.</p>
<p>ACE for Agricultural Development and Sustainable Environment Federal University of Agriculture, Abeokuta, Nigeria</p>	<p>Agriculture</p>	<p>National and international partners including:</p> <ul style="list-style-type: none"> • University of Abomey-Calavi, Benin Republic. • University of Lome, Togo. • Njala University, Sierra Leone. • University of the Gambia, Banjul • Galilee International Management Institute, Nahala, Israel. • Purdue University, Indiana, USA. • University of Maryland, USA. 	<ul style="list-style-type: none"> • Obasanjo Holdings, Nigeria • Vegefresh Company Limited, Nigeria • Lisabi Mills, Nigeria • Agrifica (Pty) Ltd/Elpasso Farms, South Africa • Flour Mills PLC, Nigeria 	<p>The Centre is focused on teaching, learning and research excellence in agricultural productivity in the face of climate change challenges. The action plans to achieve these objectives are divided into two broad activities: capacity building and research projects. The capacity building programme involves introducing new post-graduate curricula leading to Master and Doctoral Degrees in Agricultural Development and Sustainable Environment (MAGSE/PhD) in response to specific productivity challenges, short-term skill acquisition for industry stakeholders, specialised workshops and internships. The action plan for research programme consists of partnering with 18 regional and 13 international Centres on more than 100 post-graduate research projects in six West African countries that will be conducted with up-to-date research facilities. In addition, the Centre will embark on thematic agricultural research projects of international interests targeted at mitigating climate and environmental challenges in the sub-region. The research project activity is divided into 5 disciplines: agricultural policy development, agricultural mechanisation, crop improvement and seed enterprise development, livestock production, food processing research and hydrology. The curriculum for the ACE was arrived at based on initial needs assessment from interactions among the main partnering institutions in Nigeria and the other Fivefive regional countries.</p>



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