



Engineering News

A Renewed Effort at Restoring the Ajaokuta Steel Complex

Amidst a myriad of troubling decisions which were taken by successive governments on iron, steel and its profitable extraction, experts still believe a turnaround is possible and viable. Even in its perilous state, Nigeria's iron and steel endowments are still on the front burners of experts' diagnoses and they believe in Nigeria's ability to turn things around. The Nigerian Academy of Engineering (NAEng) in a technical and policy review document and report recently advised the Federal Government on options open to the country to realise the delayed gains of its iron steel development dreams by way of rehabilitating the Ajaokuta Steel Development Company.

The very laudable goals of the Ajaokuta Steel Complex project and the huge benefits accruable to the nation from the existence of a viable Iron & Steel Industry have been well elucidated. Coupled with the investment of up to \$8bn already put into the project, it is evidently imperative that all efforts should be deployed to ensure completion and operation of the complex in the shortest possible time. The NAEng considers that this should indeed be deemed a national priority and handled as such. The critical issue in this regard is a decision on the best institutional arrangement and configuration to be adopted, to ensure successful completion and optimum benefit to the nation. In this regard the policy options that may be considered to include: Full Government (Public) Ownership, Full Privatization, Partial Privatization (Public/Private Joint Venture) and Concessioning

To recap, one of the major objectives of the successive Federal Governments in Nigeria since independence in 1960, has been the optimal utilisation of the local resources and endowments in manufacturing and production operations. In this regard, the strategic role of steel and its importance in many industrial activities including transportation, construction, agriculture, consumer durables and industrial machinery have been recognised.

Nigeria's economic growth is contingent upon the growth of the steel industry. Consumption of steel is taken to be an indicator of economic development. To industrialize, there

is the need to have a sound industrial base. Considering the Coking Coal challenge, the main issues for sustainable iron and steel production at Ajaokuta and in Nigeria are those of TECHNOLOGY CHOICE, MANAGEMENT OF TECHNOLOGY and the ECONOMICS of operation.

The review and advise document also points to a disconnect among the functions of the Government, academia and the industry. It says the gaps between

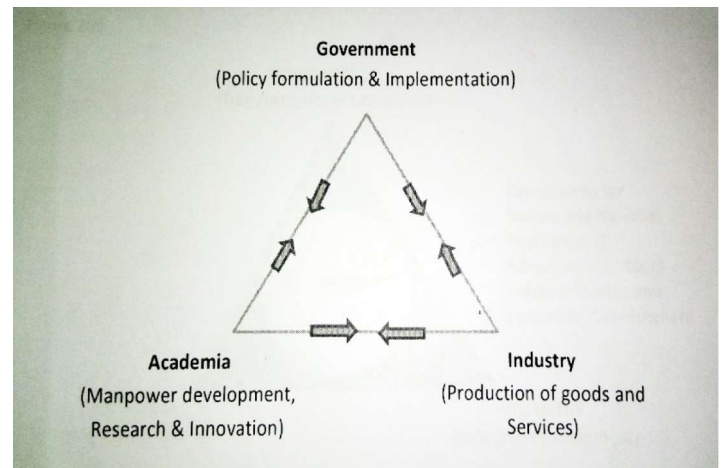
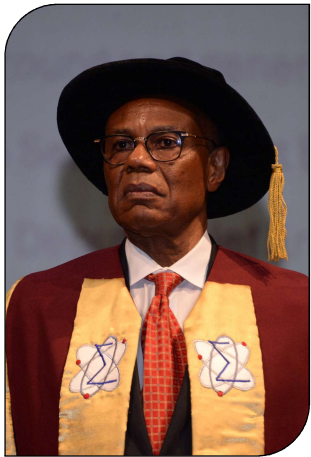


Figure 1: The Imperative of Government-Academia-Industry Value driven Synergy

Government and academia, academia and industry, industry and Government must be bridged for sustainable national technological and economic development. There is the need to engender Government- Academia-Industry value-driven synergy as shown in Figure 1. The Government should involve, in the real sense, the academia and the industry in policy formulation, implementation and appraisal. Why should Nigeria sign Bilateral Agreements on professional and technical matters without involving the experts/professionals in the academia and industry? The Government should chart a direction for the academia and support them in the areas of manpower and human capital development, research and innovation. The Government and the Academia should synergize to ensure sustainable production of goods and services in the Nigerian iron and steel industry.

Did you know that?



Did you know that Engr. Alexander O. Ogedegbe, FNSChE, FNSE, FELLOW of the Academy since 2008, is the current President of the Academy?

A multi-skilled professional, he started his professional career with e.I. Dupont Denemours company film plant in Clinton Iowa, USA. He worked full time in the engineering design and project management functions of the NNPC refinery projects at Warri, Kaduna and the new Port Harcourt from 1975 to 1989. His most distinctive achievement during this period was as an engineer, who successfully managed the 150,000 barrels per day grassroots new Port Harcourt refinery project division.

He is currently the Chairman, Board of Directors ILF Consulting Engineers Nigeria Ltd and Chairman, Gasmasterlling Global Operations Nig. Ltd.



A Julius Berger Expatriate explaining work progress at a construction site to the Fellows of the Nigerian Academy of Engineering

NWEng Fellows on Technical Visit

NAEng Gets Executive Secretary

The Nigerian Academy of Engineering announced the appointment of an Executive Secretary in March 2020. He is Engr. Titi Omo-Ettu, a Fellow of the Academy. Engr. Omo-Ettu volunteered to serve the Academy as Executive Secretary on part time in deference to the vision of the Strategic Plan report which envisages that the Secretariat be preferably headed by a Chief Executive Officer who himself is a Fellow of the Academy.

Engr. Omo-Ettu is a telecommunications Consultant with a sound record of participation in the development of the nation's telecommunications industry. He was inducted a Fellow of the Academy in 2012 and has since 2016 been a Member of Council of the Academy.



Typical Online Zoom Meeting of the Academy

News around Academy Events

Academy Annual Events 2020

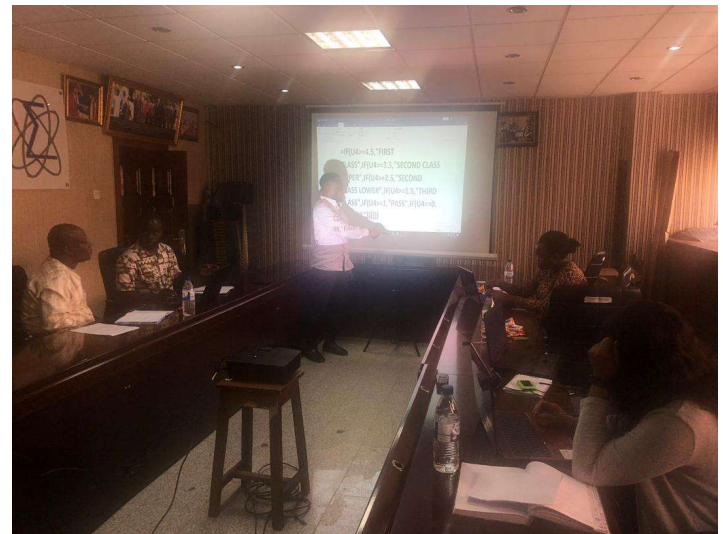
Although the COVID-19 pandemic inflicted a severe injury on the planned activities of the Academy in the second and third quarters of the year 2020, things started bouncing back as soon as the pandemic receded. The Academy is looking towards an investiture of its President, Engr. Alexander Ogedegbe, induction of new Fellows, Life Achievement awards for three fellows and the annual Academy Lecture billed to be delivered by a revered Past President of the Academy, Engr. Dr. Edet J. Amana PhD, DIC, FNSE, FAEng, OON who will present the lecture titled "The Nigerian Infrastructure Conundrum: The Missing Links". The events will come up on November 25 at the Main auditorium of the University of Lagos. Details of the distinguished engineers who will be honoured include: Engr Alex Ogedegbe as President of the Academy

Life Achievement Awardees are Prof Emeritus T.O.K. Audu (Chemical) Fellow 2004, Engr Dr. Oyenuga Eribake (Mechanical) Fellow 2019, and Engr Prof. Steven Odi-Owei (Mechanical) Fellow 2006.

Training of Secretariat Staff

An all-round empowerment training was recently undertaken by all professional staff of the Academy's Secretariat in order to equip them to use e-resources and tools in implementing the decisions of the Council. The purpose-built training whose subjects covered Internet Application Tools; use of MS Excel; Software Tools for Office Management and Google Tools was handled by Messrs. Uche Nnadi and Seun Olodeoku.

Beneficiaries of the training include the Administrative Secretary Abdulraheem M. Sadiq, the Administrative Assistant, Anwirin J. Billo and Oluwatosin O. Ogunleye (Account Officer). Others are the Webmaster, Ayodeji A. Olusola and Charles Umoh, Office Assistant.

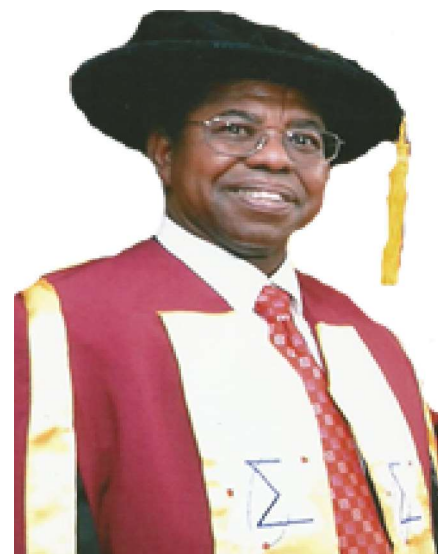


Prof. Deji Badiru received Lifetime Achievement Award

On the 30th October, 2020, a Fellow of the Nigerian Academy of Engineering, Engr. Prof. Adedeji B. Badiru was awarded 2nd Annual Taylor & Francis Lifetime Achievement Award 2020. The award was in recognition of his tremendous contribution to the field of industrial and systems engineering through extensive publications. Engr. Badiru is a creative author. He has to his credit 130 articles published in referred journals, 200 papers published in peer reviewed conference proceedings, 35 textbooks and more than 30 book chapter contributions. He had earlier received more than fifty academic and management award from reputable institutions.

In his reaction to the award, he said "I am honoured and delighted to be recognized with this rare award by Taylor & Francis Group. The satisfaction I get from this award is not on the basis of what I have published myself, but the multiplier effect of mentoring new authors into the world of scholarly publishing".

Prof. Adedeji Badiru is currently the Dean of the Air Force Institute of Technology's Graduate School of Engineering and Management in United States.



Committee Activities

New Committees of the Academy

In a move to harmonise the Nigerian Academy of Engineering Committee structure with its Strategic Plan report, the Executive Committee of the Academy announced that 18 Committees of Council had emerged to assist the Academy in fulfilling its vision to be a Leading Think-Tank in the Advancement of Science, Engineering and Technology.

The Committees are Agriculture, Diaspora Group, Editorial, Emerging Engineering (environment, aerospace, nanotechnology, robotics, etc.), Engineering Business Promotion (includes NAEng/ARCO joint committee), Engineering Education, Finance, Governance, ICT, Infrastructure Operations & Maintenance (utilities, strategic assets, public works), Membership, Oil & gas, Power (including energy), Quality & Standards, Technical, Technology village, Vocational & Technical education, and Transportation (road, rail, air & water).

The strategic plan objectives of the Academy are expressly to Influence Government, Support Individual Engineers, Promote Engineering Businesses, Promote Quality of Engineering Outputs and Collaborate with Other Academies and Institutions as well as Effective Leadership, Membership Commitment, Effective Secretariat and Sustainable Finance.

The Executive Committee chaired by the President of the Academy recently held a meeting with Chairmen of Committees of Council and agreements were reached on several issues relating to interactions among Committees and between the Committees and the Executive Committee. The Executive Committee accepts that every fellow of the Academy now plays a role in its think tank mandate. In other words, a fellow of the Academy serves in at least one Committee of Council and is also free to choose which other committees he/she wishes to serve in addition. At the end of the meeting, the following set of agreements was published.

Decisions Reached at A Joint Meeting of Executive Committee Members and Chairmen of Committees of Council on September 3, 2020.

- a) All 7 core engineering committees (Agriculture, Emerging Engineering, ICT, Infrastructure

Operations & Maintenance, Oil & Gas, Power, and Transportation) are to submit to the Secretariat their strategic objectives and initiatives for 2020 – 2022 by November 12, 2020. Each Committee will make a formal presentation of their submission at the Fellows Forum on **Thursday, November 19, 2020 at 2.00pm – 6.00pm**

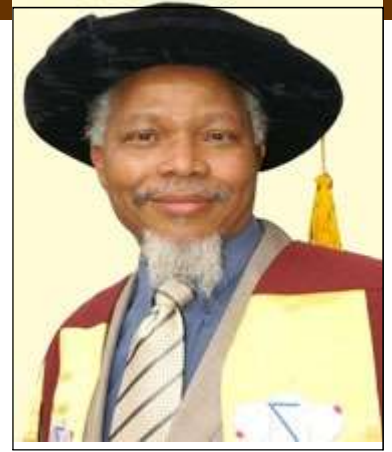
- b) All Committees are to submit Quarterly Reports of their activities and recommendations to Council by end of March, end of June, and end of September, to the Secretariat starting in 2021.
- c) Frequency of meetings shall be at least one per month to enable each Committee to meet its mandate and responsibilities to Council.
- d) Specific Exco Members were already assigned to Committees for liaison purposes.
- e) Committees can invite Fellows to join them and Fellows can opt to join Committees of their choice in addition to existing appointments by merely notifying the Secretariat for record purpose.
- f) Committee meetings, using the Secretariat's zoom facilities, are confined to Tuesdays, Wednesdays and Thursdays.
- g) Zoom Meeting Etiquettes were to be drafted and circulated. **(This has been done)**
- h) Committees can nominate Secretaries from among their members. Minutes, in such circumstance, will be sent to the secretariat for record and action of Exco and Council.
- i) WhatsApp Group Chats would be established for all Committees to enhance communication among Committee members. **(The WhatsApp Group Chatrooms have already been established for all Committees).**
- j) The Editorial Committee will publish pieces of advice and insights from the 10 think tank Committees of the Academy regularly.
- k) Secretariat will provide a round-the-clock support for Committee works.
- l) Secretariat will provide support for research work by Committees.

NAEng Committees set to get a Charter

Council of the Academy decided recently to institute a charter for the operation of Committees. The objective of the charter is to set working guidelines for Committees of Council to assist the Academy in fulfilling its vision **“to be a leading think – tank in the advancement of science, engineering and technology.”** It will come into life as soon as Council gives final approval to it.

The Engineering Profession in a Pandemic

by Engr Bayo Adeola, FAEng



Introduction to The Covid-19 Pandemic

An Epidemic is the rapid spread of a contagious disease over an area or a region. When the area is very large such as a subcontinent, a continent or indeed the whole world, it is called a Pandemic. Recent epidemics in the world include HIV-AIDS, Ebola and SARS. These were generally contained within regions and were not upgraded to pandemics. The viruses causing these diseases are said to have transferred from animals to humans who, not having any resistance to the infection, developed symptoms sometimes leading to severe illnesses and death. From one person who is infected, it spreads to others, and as we now have, to the whole world.

The current pandemic, COVID-19, is transmitted through contact with droplets from an infected person from sneezing, coughing, singing or talking. The virus, when left on surfaces, can last for days and therefore be transmitted through touching such surfaces. The symptoms are high temperature, dry cough, tiredness and difficulties in breathing. The peculiarity of COVID-19 is that 80% of those infected either do not show any symptoms or have mild ones; another 15% show serious symptoms and require medical care. Only 5% of those infected have severe symptoms requiring oxygen and hospitalization. Prevention is only by avoiding contact with the droplets of infected persons through wearing of face masks and physical distancing to prevent contact with the droplets directly, and frequent hand washing to remove inadvertent contamination from touching surfaces.

The place of Engineering in all these

On the surface, it is easy to assume that only the healthcare workers are frontline professionals in a pandemic. However, it does not take much effort to recognise several others including supermarkets and their delivery companies, security operatives, news media, banks, telecoms, electricity and water providers.

Engineers provide frontline services in operations and maintenance all the time. This is often taken for granted and not appreciated by the general populace. All healthcare facilities can only function when there are engineers to operate and maintain their equipment. Essential utilities including electricity, water and telecoms have to be continuously provided under all conditions.

In summary,

COVID-19 taught the engineer several lessons:

- A 1000-bed hospital was built in ten days in China. Why do building construction projects of the same scale take three years or more?
- A lot of design work continued on-line in the period. Do we really need as much physical meetings as we presently conduct?
- Significant quantum of on-line learning took place through webinars. Can we take more advantage of this mode of learning?

COVID-19 also threw a few challenges at the engineer:

- Solving the problem of physical distancing in public transport and classrooms; Can new design models to respond to this evolve?
- Design response to touching public surfaces – contactless controls for lifts, doors, etc.?
- HVAC Design response to confined spaces – Non-recirculating air exchange?
- Video-driven operational guides for engineering equipment
- Solving the challenges of Contact Tracing through apps development
- Design of remote supervision of projects with cameras

The full length of this essay is available at <https://nae.org.ng/news.asp>

Words of a distinguished Fellow

"The Academy exists as the constant moral and ethical voice that should constantly remind governments and leaders to implement our laws and regulations in a polite manner in my humble opinion. We as members should constantly strive not to fall into the trap of what an Economist recently referenced as "Bounded Ethicality" by getting inured to numerous breaches to Engineering practice standards and start to flow with the flock. With most profound respect"-Engr. O. A. Anyaoku.



BIRTHDAYS

Emeritus Prof A. A. Susu, NNOM. @ 80

Emeritus Prof Alfred Akpoveta Susu turned 80 years old on October 28, 2020

Prof Susu attended Baptist Academy and Emergency Science School, Lagos before proceeding to the University of Idaho and Stanford University where he obtained B. Sc., M. S. and Ph. D. in Chemical Engineering in 1966, 1967 and 1971 respectively. In 1966, he was first in the Chemical Engineering Graduating Class and also won the Second Prize Student Paper Contest of the Regional Conference of the American Institute of Chemical Engineers. Prof. Susu was Research Assistant in the Chemical Engineering Department of Stanford University between September 1967 and December 1970 before joining the Chemical Engineering Department of the University of Notre Dame as Assistant Professor in January 1970. From June 1973 to July 1974, he was at the University of Ife from where he moved to the University of Lagos in August 1974.



At the University of Lagos, Prof. Susu served as Head of Department and Dean of the Faculty of Engineering. He supervised several doctoral students and has rendered a lot of consultancy services to both government agencies and the private sector. He has also served as editor of several journals including the ANSTI African Journal of Science and Technology.

Distinguished Nigerians

5 Nigerians are elected members of the USA *National Academy of Medicine*.

1. Prof Funmi Olopade (Medical Oncologist)
2. Prof Charles Rotimi (Geneticist)
3. Prof Kunle Odunsi (Gynecological Oncologist).
4. Prof Adetokunbo Lucas (International Health).
5. Prof Wale Tomori (Virologist).

2 Nigerians are elected members of USA National Academy of Engineering.

1. Prof Babatunde Ogunnaike (Chemical Engineering).
2. Prof Ilesanmi Adesida (Electrical Engineering).



Prof Babatunde Ogunnaike, a member of USA National Academy of Engineering, is one of the composers of the current Nigeria National Anthem (Arise O'Compatriot).

Arise O'Compatriot (adopted 1978)

Lyrics:

John A. Ilechukwu,
Eme Etim Akpan,
B. A. Ogunnaike,
Sota Omoigui &
P. O. Aderibigbe.

Music:

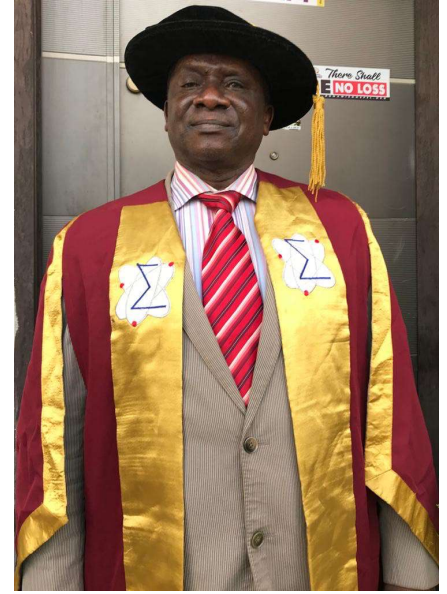
Nigerian Police Band under the directorship of B. E. Odiase.

(copied from a post in NAE WhatsApp Chatroom)

Engr. Prof. Danladi Slim Matawal

Born on 30th October, 1955 in Bokkos, Plateau State. Prof. Danladi Slim Matawal attended Nigeria Army Primary School in Bokkos, 1963-1968, obtained WASCE Division One from Government College, Keffi in 1969-1973. He proceeded to Ahmadu Bello University, Zaria where he graduated with First Class Honour in Civil Engineering (1974-1978). Prof. Matawal later studied as a Commonwealth scholar at the Imperial College, University of London, and obtained M.Sc in Civil Engineering & DIC, Soil Mechanics in 1980-1981, and PhD in Civil Engineering from the University of Lagos in 1992 respectively.

Prof. Matawal worked as a Senior Engineer with Etteh Aro & Partners Consultant Engineers in 1978-1983. He joined the Plateau State Polytechnic as a Director of Works in 1983-1987. Joined Abubakar Tafawa Balewa University, Bauchi as a Lecturer II in the Department of Civil Engineering where he was appointed a Professor in 1999. He was Director of Centre for Distance Learning between 2000 and 2004; Head/Coordinator, Department of Civil Engineering, Dean of Engineering & Engineering Technology 2004- 2008, Dean of Postgraduate School between 2008-2011. In 2011 -2018, Prof Matawal was appointed as Director General/CEO, Nigerian Building Road & Research Institute (NBRI). He has held national and International Services across the globe and his major academic contributions are in the areas of works on Numerical Instability problems in structural mechanics, Pozzolana Cement with applications to produce Sandcrete blocks; designing water purification systems for a household of six (6) using Oleifera Moringa Powder, designed and fabricated the Reinforced Earth Compactor and Rammer, and currently emphasizing on Mitigation of Incessant Building Collapses in which he has pioneered 10 interventions and technical reports in 2011 and 2012. He received the Raw Material Research & Development Agency Award in 2006. He has written many books and published several articles in referred journals.



Engr. Sikiru Adewale Aliyu



This distinguished Fellow of the Nigerian Academy of Engineering, 'Siky' to his friends, graduated B.Sc. (Hons) Chemical engineering from University of Newcastle Upon-Tyne in 1983. He has traversed the midstream and downstream of Nigeria oil and gas industry prior to his election into the Academy. He was in Warri refinery, moved to NLNG, back to NNPC and then went on to head Brass LNG as General Manager.

He was Managing Director of National Engineering & Technical Company (NETCO) from March 2016 until May 2018. During his tenure, NETCO substantially increased revenues from N9.3b in 2015 to N22.5b in 2017 and grew operating profit from a loss of N68m in 2015 to N2.07b in 2017, paid a total of N1.36b dividends to NNPC and migrated NETCO to the latest ISO-9001-2015 and ISO-14001-2015. He repositioned NETCO as a leading and go-to Engineering Company in Nigeria and charted the path of sustainable growth for the Company.

He is a Chartered Engineer and a Fellow of Nigerian Society of Engineers, The Institution of Chemical Engineers (U.K) and Nigerian Society of Chemical Engineers. He is an alumnus of Senior Executive Programs at INSEAD Business School and Harvard. He authored a Chemical Engineering textbook in 1989 and was a member of Council of NSChE from 1991-1996.

He now works as an independent Energy Consultant and Technical Director and member of Board of Gas & Energy Resources Consulting Ltd. Siky is married to his heartthrob Oluremi, an accomplished Internist and Occupational Physician and they are blessed with three girls and two boys.

Engr. Dr. (Mrs.) Fabiyi I. Amakiri

Engr. Dr. (Mrs.) Fabiyi I. Amakiri was born on 27th July 1950. She obtained her B. Sc. Degree in Chemical Engineering from the University of Ife, a Masters of Science degree in the same field from the University of Technology, Longhborongh, England before proceeding to the University of Manchester Institute of Science and Technology where she obtained a Ph. D. degree also in Chemical Engineering in 1984.

In 1974, Dr. (Mrs.) Amakiri was employed as a Process Engineer at Nigerian Petroleum Refining Company. She rose to become Senior Process Engineer and later in 1986, became the Chief Chemical Engineer in charge of Technical Services. In 1988, she was appointed Deputy Manager, Computer Central and Data Services, and was later made Manager, Production, Planning and Quality Control. General Manager in 1998 and was seconded to the National Fertilizer Company of Nigeria (NAFCON) in 1999 as Managing Director. She returned to NNPC in 2001 as Group General Manager, Research and Development (R&D) Division. She was the Managing Director of NETCO, the engineering outfit of the NNPC.

Dr. (Mrs.) Amakiri, belong to several professional bodies such as the Computer Association of Nigeria and the Institute of Petroleum Engineers. She has received various awards and recognitions including Twenty First Century award for Achievement by the International Biographical Center of Cambridge, England.



Participation of NAEg in CAETS Conference, (NAEK2020)

Four Executive Committee members; Engr Alex. O. Ogedegbe (President), Prof Fola Lasisi (IPP), R/Admiral(rtd.) Eme Ijioma (Hon. Treasurer) and Engr Titi Omo-Ettu (Ex. Secretary), participated in various sessions of International Council of Academies of Engineering and Technological Sciences's (CAET's) virtual Conference, which was held from October 12 to October 15, 2020.

All four participated in the Annual General Meeting of CAETS of October 15, 2020.

Its 2020 Conference was held in SEOUL, Korea, which was hosted by the National Academy of Engineering Korea (NAEK), with a theme "Engineering a Better World Smart Society"

In his comments, President Alex Ogedegbe commended the National Academy of Engineering, Korea for hosting an excellent conference albeit a wholly virtual one.

Engr Prof Fola Lasissi, Immediate Past President, who also participated in the Education Committee meeting of CAETS, had been a member of the Committee since Uruguay CAETS conference in 2018. He said the desire of his Committee to hold a conference on the NEW NORMAL IMPACTS on ENGINEERING EDUCATION in March 2021 was presented to Council and it was approved. For Prof Lasisi, the major takeaway from the virtual conference was the realisation that we can accomplish a lot without physical assembly is

the new normal which, fortunately, we have already adopted here in the Nigerian Academy of Engineering.

Hon. Treasurer, Engr R/Adm Eme Ijioma, on the other hand, reported that what was very striking to him was that the Strategic Plan which CAETS was about to develop was approved by the AGM. This was coming as the Nigerian Academy was already about two years into implementation of its own strategic plan and that meant there was a lot to share with the global body in that regard.

Engr. Emer Ijioma also observed that the collaboration between the Academy of Engineering and Academy of Medical Sciences of South Korea and those of other countries on finding solutions to combating and treating COVID-19 was very remarkable and a very important lesson to all Academies of the world.

"I attended the meeting with the objective of familiarizing with how CAETS operates and what bits of information, processes I might pick up to flesh up some of the plans we have on the table for immediate and far future in NAE" was the comment of the Executive Secretary of the Academy, Engr. Titi Omo-Ettu, who was among the participants. He equally participated in a few technical sessions on communications, education, and energy. "There were a few things that constitute value", he said, and "they would influence our plans for the Academy in addressing the challenges of our mandate".

OBITUARIES

Three distinguished fellows were lost to the cold hands of death in the second and third quarters of 2020. Engr. Ibrahim Khaleel Inuwa, FNSE, FAEng, OFR slept on May 11, 2020 after a brief illness. Engr. Dr. Maikanti Kachalla Baru, also passed on May 29, 2020, while Engr. Dr. Kisito Oseirhudute Okpere departed on August 14, 2020.

May their souls rest in the Lord.

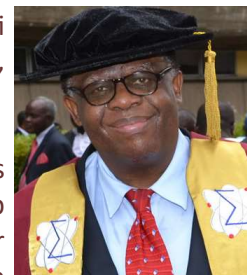


Engr. Ibrahim Khaleel INUWA FAEng, FNSE, OFR
Engr. Ibrahim Khaleel INUWA was Technical Secretary of the Nigerian Academy of Engineering. He was Past President, Nigerian Society of



Engr Dr. Maikanti Kachalla Baru, FAEng., FNSE.

M.K. Baru was immediate Group Managing Director of NNPC. He will be remembered for



Engr. Dr. Kisito Oseirhudute Okpere FAEng; FNSE

Engr. Dr. Kisito Oseirhudute Okpere was a distinguished

Engineers, NSE, Past President, Council for the Regulation of Engineering in Nigeria, COREN. Technical Secretary, Nigerian Academy of Engineering, NAEg and Vice President, Nigerian Institute of Management, NIM. He died on May 11, 2020 at 71

his grassroot-focused services and an excellent disposition to the affairs of the Nigerian Academy of Engineering. He died on May 29, 2020 at 61

an ex-Shell and Fellow of the Nigerian Academy of Engineering. The Engineer died on August 14, 2020 at the age of 73 years.

Protect Your WhatsApp Account

If you are in any of the NAEg WhatsApp Groups, please protect your account. Go to **SETTINGS** on your WhatsApp, Click on **ACCOUNT**, Click on **TWO-STEP VERIFICATION**, Enter PIN, Input your **EMAIL ADDRESS** And **SAVE**.



ZIGMA Production Crew

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