



## PUBLIC LECTURE ON CLIMATE CHANGE VULNERABILITY OF FEDERAL CAPITAL TERRITORY OF NIGERIA



Dr. Steve Momoh addressing delegates and RMDCC staff



Delegates of NSCE and staff of RMDCC listen to address

### PRELUDE

After an eventful last quarter which marked the end of the Society's Calendar year for 2018/2019, FCT/Nasarawa Chapter settled down quickly to begin the activities mapped out for the 2019/2020 Calendar year. All our monthly meetings were held in this first quarter of the Calendar year. There were courtesy visits jointly carried with the National representatives to the Raw Material Research Development Council (RMRDC) and Nigerian National Petroleum Corporation (NNPC). Technical Presentations on very interesting and novel topics were presented in every monthly meeting. Our star programme for the quarter was the Quiz Competition between the students of the Departments of Chemical Engineering, University of Abuja and Federal Polytechnic Nasarawa.

Overall, the Chapter is making giant strides and breaking new grounds. Some of these activities carried out are documented in this Quarter 1 E-Newsletter of the Chapter. We wish to thank our Fellows and members of the Chapter for their steadfastness in rendering great helps to the Chapter. Have a happy reading. *Engr. Dr. Steve Momoh, Editor.* [Steve.momoh@yahoo.com]

## METROLOGY APPLICATIONS IN CHEMICAL ENGINEERING



Engr. Chigaga, Dr. Momoh and others listening



Engr. Emere Abu presenting

A Technical lecture titled "IMPORTANCE OF METROLOGY APPLICATIONS IN CHEMICAL ENGINEERING" was presented in our July Meeting by Engr. Emere Abu who works with the Federal Ministry of Industry, Trade and Investment. The topic generated a lot of interest because the word *Metrology* is easily confused with the word *Meteorology* while Metrology is the scientific study of the atmosphere that focuses on weather processes and forecasting. Metrology is the study of measurement. Not many engineers and chemists can spare the difference. Measurement is part of our daily life, a process of determining quantity of something (size, set, length, etc.) by presentation. Engr. Emere gave a definition of what metrology stands for, application in

various facet of life and in particular in engineering. According to her, Metrology is mainly concerned with

- (i) establishing the units of measurements, reproducing these units in the form of standards and ensuring the uniformity of measurements.
- (ii) developing methods of measurement, analyzing the accuracy of methods of measurement, establishing uncertainty of measurement, researching into the causes of measurement errors, and minimizing these.

The study of measurement is a basic requirement in any field of science and technology, most importantly in engineering and manufacturing.

A quantitative analysis of design based on sound metrology principles will help engineers and scientists to design better products and systems. For example, predictions need to be made on how well the design will perform to its specifications before full-scale production begins. This can be performed using analytical models, computer simulation, designed experiments, destructive and non-destructive tests, scale models and stress tests among the many other methods of evaluation. Indeed, the role of metrology in the various phases of a product's lifecycle is very important. Chemical engineers should have a proper understanding of metrology concepts, basic statistics, reliability, statistics and measurement uncertainty, specific areas in chemical engineering applications like Manufacturing, Chemical Analysis, Process Control, Product Development etc. Go on to read with a brief overview of the use of metrology in Nanotechnology.

### COURTESY VISIT TO RMRDC

The Chapter Executive visited the Policy Group of the Nigerian Society of Chemical Engineers led by the Past President of the Society, Engr. Dr. Adeniyi Fidiye, PhD, FAW, together with a courtesy visit to Raw Material Research and Development Council (RMRDC) on July 4, 2019. The DG, Dr. Babatunmbi (Bibi) Management Staff and the Chemical Engineers working in the Council were on hand to receive the delegation. Issues for discussion included: (1) National Foundation for Process Equipment Development (Nafped); (2) Emerging Students Research & Design Projects; (3) Technology for (i) Cogent & D. Sauer (Cassava Flour, Drying, Fractions, D. Sauer Cement etc.); (4) Academia/Industry; Government/Professional Bodies Interface Mechanism; (5) Opportunities for Technical Training; (6) Capacity Building/Management; (7) Support for Participation in NSCE Activities; (8) Review of Chemical Engineering Cadre/Enhanced Entry Point among others. All these issues received positive response from the DG and Management of the Council and it was resolved that a Memorandum of Understanding (MoU) should be drafted to strengthen the relationship.



Engr. Steve Momoh

Dr. Babatunmbi (Bibi) Management Staff

## COURTESY CALL TO THE ENERGY COMMISSION OF NIGERIA



Group photo with DG, ECN at the centre

In order to reach out to Chemical Engineers working with Energy Commission of Nigeria (ECN) so that they become active in our Chapter's activities and NSChE at large, the Chapter paid Courtesy visit to the Commission on the 3<sup>rd</sup> July 2019. The delegation that was led by the Chapter Chairman Engr. O. O. Onugu was warmly received by the Director General Prof. E. J. Bala with members of his Management and some Chemical Engineering Staff. In his address, Engr. O. Onugu thanked the DG and recommended a proper and long term Energy Plan for the Commission in order to address the energy crisis of the country. He prayed the DG to kindly

- Ensure that all the Chemical Engineers in the Commission who hitherto were placed on Scientist Cadre be upgraded to the Engineering Cadre as per the recent circular from the Head of the Civil Service of the Federation in 17<sup>th</sup> September 2018.
- Encourage involvement of Chemical Engineers in their professional organization, the Nigerian Society of Chemical Engineers and the Chapter activities.
- Make provision for Students placement under SIWES.
- Encourage continuous human capacity development of Chemical Engineers in line with dynamics of global emerging issues.
- Support staff exchange between the Commission and our professional colleagues in the academia.

the Commission, Engr. O. O. Onugu suggested the following areas: Consultancy Services, Research and Development, Training and Manpower Development in Energy Sector, Joint Studies for Policy Formulation and Development of calibrated plan for minimum commercially competitive carbon footprint to ensure Nigeria does not pay prices she cannot afford to the Paris Club compliant, Commercialization of Research Results leading to small Enterprise Development, Techno Economic Survey among others.

The DG in his response said he was pleased with the Chapter's visit and will continue to encourage his staff to belong and be active in their professional bodies. He said that within limits of funds and other government regulations, the Commission will be willing to partner with the Society (NSChE) in areas that will be of mutual benefits to both the Commission and the Society. On SIWES, he said the Commission has been very friendly with students and will continue to make provision for them in that regard to jump start the relationship the Chapter fixed its August meeting at the Commission.



Engr. Onugu (3<sup>rd</sup> from left) with members of the delegation

## GIANT STRIDES AT THE ENERGY COMMISSION OF NIGERIA



Engr. Onugu, Oyefeso & others listening to Engr. Limah of ECN presentation



Our Chapter held its August meeting at Energy Commission of Nigeria ICT Hall. This was a follow up of a courtesy visit the Chapter made to the Commission in June 2019. At the meeting, Engr. Basheed Mohammed Limah, one of the senior staff of the Commission who is a Chemical Engineer made a Technical Presentation on the mandate and achievement of the Commission to date. Starting with the Vision and Mission of the Commission which are *"To ensure adequate, reliable, cost-effective and sustainable energy supply for the nation's economic and socio-political development"* and *"To promote sustainable energy development in Nigeria as elucidated in the legal enactments"* respectively, Engr. Limah, enumerated the achievement of the Commission to include the following:

- Development of the National Energy Policy (NEP), Renewable Energy Master Plan (REMP) and overall National Energy Master Plan (NEMAP)
- Successful studies carried out on Energy Demand and Supply Projections for Nigeria
- Acquisition of the first Nuclear Reactor in Nigeria and installation of 30kW Tank in-Pool Miniature Neutron Source Research Reactor for CERF in Zaria
- Acquisition of the R & D Tandem Accelerator for CERD, its use and establishment of the four new energy research centres in Umuahia, Umuahia, Umuahia and ATBU, Bauchi
- Promoted and Popularisation of Renewable Energy and Energy Efficiency Technologies and best practices in Nigeria
- Liaison on behalf of Nigeria with International Energy Organizations, such as the WFP, IEA, IAEA, AFREC, UNDP, UNIDO, etc.
- Training of over 700 Youth Corpsers on Renewable Energy Technologies for self-employment and economic empowerment and carrying out capacity building for some civil servants from different States in studies of energy demand and supply projections for their States among others.

Appreciable R&D results which are yet to be commercialized, reluctance of local investors

in terms of collaboration of NSChE with

to establish manufacturing plants to locally produce power plant components, uncoordinated energy utilization plan in national economy inadequate funding of R&D Demonstration and Diffusion activities were some of the challenges mentioned facing the Commission. He concluded by soliciting for synergy between the Commission and NSCE in the following areas:

- NSCE should collaborate with the Commission for the realization of its mission and vision statements
- NSCE should leverage on its professional staff to pursue the sustainable agriculture led clean energy powered industrialization
- NSCE should exert its expertise to attract

increased political will towards the implementation of ECN set target for energy development clusters

The meeting promised to examine the prayer requests to NSCE Secretariat for further deliberation so as to cement relationship between ECN and NSCE. At the end of the meeting, ECN Calicut Chapter was formally established.

## APPOINTMENT, PROMOTION, ELEVATION AND RECOGNITION

The Chapter Chairman, Engr. O. O. Orugbo FRCOE was on the 2<sup>nd</sup> July 2019 appointed Associate Examiner-Chemical by COREN and to be in the interview Panel for intending Engineering personnel seeking registration with COREN from 8<sup>th</sup> to 12<sup>th</sup> July 2019. The interview was held at NASEN Abuja.

Our member, Engr. Salisu Ahmed has been elevated to the prestigious Fellow cadre of the Nigerian Society of Engineers NSE in August 2019. Another member, Engr. Motara Adenike Rafe, MNSCE, MNSOE on the 31<sup>st</sup> August, 2019 was awarded the Chairman's Merit Award by the Abuja Branch of the Nigerian Society of Engineers. The award was in recognition of her contribution to the development of the (Abuja) Branch of NSE and Engineers in general. She was the only female member among the recipients.

In the academia, of Federal Polytechnic Nasarawa, Engr. Muhammad Mustafa Usman has been promoted to substantive HOD Chemical Engineering Technology. Dr. A. B. Makama to Director Programs and Accreditation and Dr. Nasiru Audu to Deputy Director 1, Research and Innovation At the University of Abuja. Dr. A. M. Ebuli has been promoted to Deputy Dean of the Faculty of Engineering while Dr. Salami has become the new HOD Chemical Engineering. Dr. Ebuli was the former HOD Chemical Engineering. The Chapter congratulates all these members and wishes them well in their new offices.

## COURTESY CALL TO THE NEW GMD OF NNPC



Engr. Orugbo in warm handshake with GMD NNPC

The Executive and members of the Chapter joined the delegation led by the National President to pay a Courtesy visit to the new Group Managing Director (GMD) of the Nigerian National Petroleum Corporation (NNPC), Mr. Mike Koto Kpan in August 2019 at NNPC Tower, The National President (NP), Engr. Drochae Anyika FRCOE, FRCI, FRCI in his address, congratulated the new GMD on his well deserved elevation to the exalted position and commended the Corporation for the impact it is making in the country's economy and the practice of Chemical Engineering in the country. Critical among the requests of the Society to the new NNPC Executive team were, the Corporation's support for the Society into training and manpower development programs, registration of all Chemical Engineers working in NNPC with the Society and their active participation in the Society's activities and finally,



GMD NNPC flanked on the right by DNP and NP on the left

(NP) and Deputy National President who all retired as Group Executive Director in NNPC and others, most of whom were well known to him. He thanked the NP for affirming confidence in the new NNPC Executive team and promised to keep the flag flying while doing things a bit differently so that his team, cardholders mandate. He said that despite of the daunting challenges, his team is determined to ensure that these challenges are tackled and surmounted such that by 2023 the country will become a net exporter of petroleum products. He promised to collaborate with the Society in training young Chemical Engineers, build capacity and also collaborate in any other way to grow the skill of his workforce not only for the Corporation but for the country at large. Finally, he promised that the Corporation will support the NSCE in holding Annual Conference in Kaduna and other programs of the Society that are presented to the Corporation as much as possible.



NSCE Delegates with GMD & Top Management NNPC

NNPC Group becoming a pioneer company member of the Nigerian Process Safety Institute (NPSI) that is spear-headed by the NSCE to impart safety knowledge and awareness culture practitioners in the Process industry.

The GMD in his response welcomed warmly the delegation which he described as **powerful** because of the presence of Engr. Taribua, Past President of the Society and former GMD of NNPC, Engr. Anthony Ogburne, the National President



NSCE ES 2nd from left introducing delegates



Engr. Salisu Ahmed receiving an award

## QUIZ COMPETITION



Team of Dept. of Chemical Engineering Fed. Poly Nasarawa

One of the star programmes for this quarter is the quiz competition organized by the Chapter between Chemical Engineering Students from the University of Abuja and the Federal Polytechnic, Nasarawa on Saturday, 21 September 2019 at the premises of the University of Abuja. Each school was represented by five (5) students from the department of Chemical Engineering and the Quiz had two parts: Part A was made up of Chemistry questions basically and each school was to choose ten questions from 25 available questions while Part B was mainly preliminary Thermodynamics questions where each school had options to select 5 questions from a total of 10 questions. The format for this programme was very impressive as many students and some lecturers from each school attended. The Dean of the Faculty of Engineering, UniAbuja was ably represented by the Deputy Dean of the Faculty of Engineering, Dr. Mohammed Easta, a Chemical Engineer while both HOD of Chemical Engineering, UniAbuja and Federal Polytechnic Nasarawa led their students to the competition.

Before the Quiz began, the Chapter Chairman, Engr. Oluwakemi O. Oluwole, FNSEChE in his address commended the two schools for their attendance and composition of their team. He advised the competitors to be calm and do effective consultations among their team members before answering questions they have chosen so as to bring up their best at the end. The student teams for the competition were represented as follows:

UniAbuja: Estem, Gideon Okamide, Ajayi Oluwatobi A., Ifeanyi Akwawo, Abdulmalik Adubabari, Adakole Catherine  
Federal Polytechnic Nasarawa: Ukwuanyi Comfort Nd., Muhammed Farouk Odele, Muhammed Abdulmalik Eneke, Emmanuel Chukwura, Amadi-kunle Adeniyi

The quiz was hotly contested. At the end of Part A, UniAbuja scored 11 points while Fed. Poly Nasarawa scored 8 points. In Part B, UniAbuja scored 8 points, bringing their total score to 24 while Fed. Poly Nasarawa scored 11 points, bringing their total to 19 points. Department of Chemical Engineering, UniAbuja was therefore declared the overall winner on points. Certificate of Participation was presented by Engr. Saliu Ahmed FNSE and Engr. Mrs. Osatunwa Adesika, FNSE and DG Federation of Construction Industries, to Fed. Poly Nasarawa and UniAbuja respectively. The main prizes for the winner and runner-up will be decided later and presented to the winners at the Chapter's Dinner in December 2019.

We wish to appreciate the Deans of Engineering and the HODs of the two institutions for taking the pain to prepare the students and to release them for the quiz. Thank you very much.

## APPLICATION OF NANOTECHNOLOGY

The Chapter's September meeting held in Abuja on the 21 September 2019 featured Quiz competition and Technical Lecture titled "Application of Nanotechnology to Waste Water Treatment" by Dr. Ibrahim Muhammad of Department of Mechanical Engineering, University of Abuja. While introducing the presenter, Dr. Ebulu, who is now the Deputy Dean of the Faculty of Engineering underscored the benefits the Engineering Faculty has been deriving from carrying out researches by collaboration of all the engineering departments and that was the reason it was easy for him to get the presenter from Mechanical Engineering to present a Technical Lecture to a society of Chemical Engineers. Besides, Nanotechnology can find application in a wide range of engineering disciplines.

The presenter, Dr. Ibrahim, first reviewed the basic information on freshwater, the availability, the uses, the various methods used in the treatment of waste water, and then zeroed on the application of Nanotechnology for waste water treatment after explaining what Nanotechnology is and its applications in various human endeavors. It was very enriching and being a me audience, everyone had something to take home from the presentation.



Dr. Ebulu introduced the presenter

Dr. Ibrahim making his presentation



Listening audience

## POLICY ON NANOTECHNOLOGY

The Nigerian Society of Chemical Engineers (NSChE) received a letter from the Federal Ministry of Science and Technology requesting the Society to make input in the review of draft policy on Nanotechnology to enable the government come up with an enriched and comprehensive policy on the technology. The Society considered it an honor to participate in such exercise and therefore constituted a committee comprising our Chapter Executive members and Engr. Tony Ogbuigwe, NSChE, FNSE, FAEng as the Chairman. The committee has submitted its work to the Secretariat and we believe our inputs will contribute immensely towards enriching the policy.