



The Nigerian Society of Engineers



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Discussion with Engr. R.S.O.Samuel. (FNSE, FNSChE) on Achieving Sustainability on Infrastructure

E-Newsletter: Our reading audience will benefit from your experience and background in the engineering profession. Can you therefore tell us briefly about your self?

Engr. Samuel: I obtained my degree in chemical engineering in the USSR in 1975. I started my career as a pupil engineer with the Nigerian steel development authority. They sent us to India for one and half years in a batch of thirty-two engineers. We all came back to Nigeria but unfortunately because of the slow pace of the project more than half of the engineers left after a few months we came back from India. I was one of the ones who left just about a year after we came back from India to join NNPC as a project engineer. Later, I was sent to Petrochemicals Phase I project after nine months training abroad. Petrochemical phase I was concerned with the optimization of the refinery's products. I was involved with the one in Kaduna before that was completed, I was appointed Project leader to instruct and operate the Benzene plant. Since Benzene was being imported, we decided that from reformate, we can produce benzene. I spent a few months in Paris with our consultant. Eventually they went for engineering and procurement in Japan. Since there was no consultant, as the project leader I was there with other engineers for six months. I was given the GMD's merit award for completing the project without input of the consultant and this was the first project handled solely by Nigerians then. After the plant was commissioned by the then president, Gen. Babangida, I was made the officer-in-charge of the petrochemicals section of the Kaduna Refinery and Petrochemical Company (KRPC). I was transferred to Eleme petrochemicals in 1995. In Eleme petrochemical I headed the Polymer plant which is the cash cow of the company. It was the biggest in the world then about two thousand metric tons polymer per annum. We encountered a serious reactor problem which was later solved by the licensor group. This was between 1996 and 1997. Because of the government interference in the daily affairs of the company, we could not run both the refinery and the petrochemicals effectively. Our Managing Directors and chief executive were not given the free hand that was why Eleme Petrochemicals could not be operating effectively and for the past ten years no maintenance work has been done on the plant. It is obvious that most of my engineering career was on petrochemicals because I studied petrochemical syntheses in USSR.

E-Newsletter: That was an interesting exposure and experience. Now coming to our achieving sustainability, from what you have mentioned, is there any scientific framework from your experience that could analyze or be applied to these sustainability principles?

Engr. Samuel: Yes, for those who studied engineering we should know that one of the principles of engineering is that one cannot run a machine indefinitely without taking care of it. Taking our cars for instance, if you want it to last long, you have to check it from time to time. Replace worn out parts carry out repairs where necessary. This is also applicable to any engineering function, whether it is operating power station or any manufacturing outfit. Experience has shown that in Nigeria the governments run organizations and parastatals without adequate and functional policy on maintenance. A good example is the NAFCON presently Notore, since commissioning, there has been teething problems which have not been properly addressed. In other parts of the world advances in science and technology, the application of diverse government regulations and policies and recent green business practices are all needed to advance sustainability. Now let's come back to Eleme-Petrochemicals that is where have experience. I said earlier on that for ten years mandatory turn around maintenance of the plant was not done. The turnaround maintenance is a minimum of one-and-a-half years. Every one-and-a-half years to two years, you must shut down the plant. Before shutting down, you must have done all necessary and adequate recognition of areas where you have problems. Identify materials for replacement and repairs like the heat exchangers, propellers, bearings etc. then you plan for the adequate man power, that's the construction. NNPC as a government run organization is used to contracting one company to take over the entire maintenance work. At the end, the contractor sub-lets it to a smaller contractor; this is not the best approach. I will recommend the example Indorama used for either government or private run, for big or small organization. What Indorama did recently was to pick NNPC existing contractors for the various units within NNPC while the overall supervision of the maintenance was done by one contracting firm. There was a strict supervision. To cut the long story short, they did very good turnaround maintenance of this place. Our power stations, are being blamed on the unavailability of water, gas but it is as a result of lack of immediate intervention, maintenance. One of the things I learnt while I was in Soviet Union is that government has no business in running manufacturing industries or commercial enterprises because they are insufficient. Nigeria case is worse because it is compounded by corruption and inefficiency. Look at NNPC today, with all the best crop of professionals in engineering, economics, administration name it, yet we cannot be compared with other oil companies in the world because of poor co-ordination. No sustainability.

E-Newsletter: With the recent advances in sciences and engineering, there are many developments in terms of design to re-improve our environment

socially and economically. What do you suggest in this direction, engineering wise?

Engr. Samuel: If you are talking about engineering, we should discard all our archaic methods of doing things. Let's take maintenance of pump for instance: in pump alignment, people are used to this old method of using dial-gage which is completely out of fashion. Laser guided alignment instrument which make use of either electricity or battery is faster and adequate. When it comes to process improvement, you must have a good technical services department that troubleshoots and provides solution whenever there is trouble. All Technical departments should be abreast with latest software. One of the latest technologies this company is using now which I will advice Nigerian companies to also use is: they signed an agreement with one company in India and their distributor control system has been modified to conform to the modern trend. We don't use this logic control system anymore; we make use of real-time computer control system. So all DCS in the power plant, polypropylene plant, and off-site within a short time will be running on this system. Now this data can easily be retrieved from these control systems and through the internet transmit it to these companies. All the engineers sit down there and you feed them with real-time data and within few hours they'll get back to you with solutions, where you have made mistakes and what to do improve your system. And this have over the period of six months saved the company over one million dollars in process monitoring and improvement. When they had problem with DPR and exportation of virgin-C5 (heptanes) a by-product, the Technology provided by Kellogg don't include cracking virgin-C5 because of these two problems they went back to Kellogg to enquire if it is possible with existing philosophy/systems, small modification to start cracking virgin-C5, Kellogg said yes they have the license for that, so they bought it, form a project team and in less than six months, they bought the equipment, installed it and commissioned it. Now they have two systems that can crack virgin-C5.

E-Newsletter: Let us look at the government perspective on this sustainability. Do you think that the government and private sector can work together to achieve this or should it be completely off the government hands?



Engr. R. S. O. Samuel FNSE

...contd in page 2

Discussion with Engr. R.S.O.Samuel. (FNSE, FNSChE) ...contd. from pg 1

Engr. Samuel: Well I have said it before that government does not have any business running enterprises like refineries, chemical plants, in fact manufacturing companies. What government can do is to make policies and give directives to companies in the areas of environment, economics and support them with laws governing safety operations. Then the companies themselves have to embrace culture of maintenance. Right now the solution or the advice NSE can give government is to hands off all government funded companies. Not completely, they can create a private/public participation partnership. That is what government should be working towards. Also the existing government manufacturing companies should go that direction. Government should be a sided partner to make sure that the private companies do not conform to their greed because this also can come and those people who are running it privately may get away with it. Areas where they run into difficulties government can then come to their aid as a partner.

tainability into engineering education. It is obvious that our engineering graduate can barely stand the test of time. The quality is no longer the same. To be able to sustain the quality of our engineering graduate, what do you advice, is there any need to modify the courses, materials and tools given out to students?

Engr. Samuel: The problem of the quality of our education has nothing to do with changing the design course. What is lacking in Nigeria, why our education dropped is because government is running everything and government is inefficient. Government is not funding the education of its people adequately. A country that jokes with the education of its people is in trouble. That means that the future is not bright. That is why we continue having problems in this country. Even the enterprises that are working still prefer graduate from overseas than our own graduates. The majority of universities in Nigeria are being run either by Federal government or state government. There is always a conflict between lecturers and government because there is no trust between these two people. Currently ASUU is on strike. You cannot compare

our education system with that of other countries. When you are paying lecturers poorly, when you are treating them like nothing, when seventeen billion Naira is too much for you to fund the increment in lecturers' salaries, what do you expect their output to look like? Secondly, the tools by which we train these students are not there. The ones that are available are worn out. It was not maintained because there was no funding. Go to all the laboratories, it's nothing to write home about. Go to research laboratories the equipment is not there. The ones there are totally obsolete. Nigerians prefer to go outside the country to do their degree or post graduate studies because of the environment. The tools are there and that is why every Nigerian student who are just average, when they get there they are superstars. The latest technology which is the information technology is at their finger tips. Here in Nigeria the internet speed is so slow that is why things are not working but over there, in a twinkle of an eye you can download any information. That is why they are ahead of us.

E-newsletter: Let us apply it to power issue. What do you think can be done to solve even the security situation?

Engr. Samuel: What Nigeria needs today is for PHCN to be privatized. Let the power supply be entirely private and let government regulate. With that they can now concentrate on our infrastructural problems and solve it. Government will be able to divert that money to health, roads, education etc. The railway has been run down and we are now faced with heavy duty trucks carrying loads and damaging the roads. Government must address this issue and the best way I think they can go about it is by solving this Niger Delta problem. If all these damaging and sabotage of pipeline stop, then investors will come back to build gas pipe line to supply all these power plants. Once we have adequate power all these money we are spending to import generator and fueling it, polluting the environment will reduce and people running away from this country will run back. Once there is power and the environment is not hostile to entrepreneurship, then we can sustain our lives and be sustainable.

E-Newsletter: We want to thank you very much for given us this audience despite the short notice. We do hope that our reading audience will learn from it and government would be able to apply these ideas to get our country improved.

E-Newsletter: The last area where I want us to look into is incorporating this sus-

Engr. & Mrs. Ogariawo Dedicates Baby

The Branch Chairman and the First Lady of the Port Harcourt Branch of NSE Engr. & Mrs. Bateim Ogariawo on the 5th of July 2009 at the African Church Diobu, Port Harcourt dedicated their baby (Baby Cloe.) The solemn dedication service at the African Church later shifted to a pomp and pageantry celebration at the NSE Secretariat at Bernard Carr Street Port Harcourt. The Ogariawos demonstrated their gratitude to God with a great celebration and lavish entertainment of guests. The prominent dignitaries at the occasion include Engrs. Prof. Hart FNSE, B. J. & Mrs. Benibo FNSE, Chf. M. D. Derefaka FNSE, G. C. & Mrs. Egbunefu FNSE, and other prominent dignitaries.



NSE PH VISITS DANELEC FZE IN CALABAR

The Nigerian Society of Engineers Port Harcourt Branch on the 31st July 2009 took time off to visit the Free Zone of the transformer manufacturing factory of Danelec fze in Calabar. The team was conducted round the factory by the factory technologist, Mr. Steve. K. Adeniran who offered good explanations on the manufacturing process up to the testing and commissioning points and the great prospect ahead of the company. Though the factory has manufactured over 45 transformers of different grades as a test run they promised to commence full scale manufacturing and commissioning soon.



NSE PH members & Danelec FZE staff

NSE PH BRANCH THIRD QUARTER LECTURE

The topic of the lecture is: 'The Bio-Engineering Art of Reclaiming hydrocarbon contaminated soils'. The lecture was delivered by Engr. Dr. Josiah M. Ayotamuno of the Faculty of Engineering, Rivers State University of Science & Technology, Port Harcourt during the third quarter general meeting of the branch which was held on 30th July 2009 at the branch secretariat. The highlights of the lecture included: *The Niger Delta and crude oil spill problems; the nature of hydrocarbon contaminated soils; bioengineered contaminated soil reclamation techniques; analogy with waste water treatment processes; bioengineering processes & reclamation of hydrocarbon contaminated fields of the Niger Delta.* Fellows, Members and students attended the lecture and there was interactive session. Copies of the lecture can be obtained from the branch secretariat.



Engr. Chf. Dr. Ephraim & family buries mum in Calabar on Friday, July 31st 2009. NSE PH present at the burial ceremony.



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OBITUARY



Engr. P. J. L. Igboye

Engr. Papamie John Lionel Igboye who was the Technical Secretary of NSE Port Harcourt Branch between 2006 and 2007 passed on to glory on the 11th of July 2009. He will be buried on Friday, the 7th of August 2009 at his home town in Okrika, Rivers State.

NOTICE! NOTICE!! NOTICE!!!

All members of NSE PH should pay their **annual branch dues of N4000** and **compulsory levy of N5000** towards the Engineer Resource Center to **UBA ACC. NO: 0802080000194 (Port Harcourt main Branch)**. Also pay **National Annual Subscription of N5,500.00** directly to **AFRIBANK ACC No. 142022215613** & forward all tellers to the secretariat for reconciliation. All payments should be made at the Bank