



# The Nigerian Society of Engineers

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## An interview with Engr. Dr. Mrs. Ibilola Amao on the Training of Personnel in the Oil and Gas Sector

*E-Newsletter: Madam you are welcome to the NSEPH E-newsletter forum. It is our pleasure to have you interviewed on this topic: "Training of Personnel in the Oil and Gas sector" in relation to the Theme of this year's COREN Engineering Assembly. Can you give a brief history about yourself, your educational back ground, experience in the profession and your contributions to the engineering profession?*



Engr. Dr. Mrs. Ibilola Amao

**Engr. Mrs. Ibilola Amao:** My name is Ebilola Anyanwu. I am a civil/structural engineer and I studied in Queens's college Ibadan and I did my Advanced Levels in the United Kingdom. I attended University of London and I graduated with a first class degree. I went further to do my PhD in Bradford University; I specialized in Oil and Gas. I got my PhD at the age of 23 and I have worked in the United Kingdom for three years. I lectured in the University of Lagos during my Youth Service Corps Scheme. I worked for ten years and ten month in NETCO which is a subsidiary of NNPC. Presently, I am working in a private firm. I enjoy working in the oil and gas industry but I am not happy because I don't think Nigeria is contributing as much as we should contribute because the CAPEX which is the Capital expenditure in the oil and gas industry is between 10 and 15 billion dollars per annum and only 15% of that money is being earned by Nigerians. So I want to see Nigerians empowered so that they can do more and earn more from the wealth (oil & gas) of this country. That is why I have passion for education and training.

*E-Newsletter: From your experience what training processes do you envisage that could enhance manpower development in the oil and gas sector?*

**Engr. Mrs. Ibilola Amao:** First and foremost I must say technology transfer takes a minimum of ten years and to actually gain the experience after you have acquired the knowledge, Capacity, competence and capability is where the skill acquisition comes to play. That is why we want to see NSE and COREN for example run pupilage programs which will be similar to their foreign counterparts' pupilage program like the Engineering Council UK and American Society of Consulting Engineers. Because getting an education in engineering is not engineering it is the foundation. You need on – the - job training, semi-formal and informal training, mentoring and coaching by your superiors on live projects in the design as well as on construction. I believe that because not much of the projects are being executed in this country, most Nigerian engineers have not got this opportunity to be exposed to various aspects of the projects. Take for example the first thirty, forty years of oil activities in Nigeria. The refinery design was done abroad; expatriates came down and assembled the structure before Nigerians participation. Had these refineries been designed in Nigeria, Port Harcourt, Warri and Kaduna it would have been easy for Nigerians to continue designing other refineries but today we don't have that refinery design, construction and maintenance experience. Even though we operate and maintain refinery for many years, we don't have the blue print within project teams that actually took the project from engineering design; conceptual engineering, to detailed engineering, follow-up engineering, construction engineering, site supervision, commission, operation and maintenance. So for us to even have refineries in Nigeria, we have to first of all design at least one prototype refinery from scratch, implement it and then the project personnel that build that refinery will have to replicate themselves so that they can build more refineries. So these are the benefits that we lost when our projects were being taken overseas. But with Nigerian content plan with the federal government and the petroleum industry, we are hoping domestication of project in Nigeria will give us many opportunities at home to revolve their skill and competency so that they can actually transform this nation and ensure that Nigerians have

wealth.

*E-Newsletter: Thank you very much. Let's look at the issue of local content. The bills on local content have not been passed. Do you suggest that we fold our hands and wait for the bill to be passed? What is the Oil and Gas industry doing to solve these problems?*

**Engr. Mrs. Ibilola Amao:** The Nigerian content division of NNPC and the Nigerian content consultative forum have branches: the operations and maintenance, maritime, engineering, fabrication, logistic so there are many divisions that meet periodically to encourage themselves with issues and challenges and what we need from government and private sector is to sort out these issues and challenges to move the course of the Nigerian engineers and Nigerian companies forward. Unfortunately because they are not part of the law makers, there are no sanctions, there are no penalties. So everything is based on whether the IOC, (International Oil Company) is receptive to the approach for which they are being asked to accommodate. So Nigerians have not been empowered through laws to actually take their own destiny in their hands even though there are some past enactments that are facts based directives to empower Nigerians. There are so many of them that are not harmonized in one document. They are different acts, so if you have a good lawyer, you can maneuver. What PIB is supposed to do is to harmonize all these laws, directives into one document that can be presented in the law court to ensure that Nigerians are empowered.

*E-Newsletter: In the area of fabrications and constructions, 75% of the welders are recruited from Lebanon and Phillippine in Oil and Gas sector. What is the place of local content in this direction?*

**Engr. Mrs. Ibilola Amao:** A road side welder is just slightly different from an Oil and Gas welder, a coded welder. Now what is happening is that NNPC Nigerian content department of petroleum, PETF have come together with the Nigerian institute of Welders to make sure that they train trainers. Either this week or last week some Nigerians went to some countries for training in welding in different categories. When these trainers come back, they can now develop the welders that the country needs. The problem is so bad that you cannot start training welders; you have to train trainers, because if you do, you are just wasting time. So you have to do a top down pull. So in the next six months we will have coded welders in this country. Nigerian Institute of Welders is creating awareness in this direction.

*E-Newsletter: The last issue I want us to look at is the issue of design reviews. I was involved in one of the designs, at the end of the design which was done in country and was sent to Italy for authentication and they brought people from outside for (HAZARD & OPERABILITY) HAZOP. What do you think should be done to reverse the trend especially in this area of HAZOP because I believe that Nigeria has engineers in all the divisions that can carry out HAZOP perfectly? Are there any inadequacies on the part of Nigerians in these areas especially in the areas of finance and insurance?*

**Engr. Mrs. Ibilola Amao:** I must tell you that HAZOP is a very special area of engineering that is connected to insurance. To have reviewers attest for somebody to put his/her money on your facilities will take billions of dollars, it takes a lot. I tell people that for you to be able to do a conceptual engineering design you should have successfully completed five to six detailed engineering projects of that nature. So you have that idea in your head, you can visualize it in your mind and you can translate into concepts and decide which is best. If you have not done multiple projects and successfully completed detailed engineering projects you are not qualified. So you won't know where to be looking for HAZOP practice to the satisfaction of reviewer who is going to insure 8.5 billion dollars project or 800,000 million dollar. Until we get to a point whereby our insurance system in Nigeria develop to a point whereby they can comfortably back the competency of Nigerian consultancies, I don't see a

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foreign insurance company like Lloyd telling you that Nigerian does not know enough and cannot guarantee them that the 8.5 billion dollars investment is not going to be one of their mistakes. So some Nigerians who are working, with companies abroad and are involved in HAZOP, can have all the tools at their finger tips and have all the documentation and Procedures in place for doing that. They have been successfully engaged in HAZOP practice because the company is certified and accredited to do that kind of job. It is not a one man issue, but a corporate commitment. There are very few HAZOP specialist companies internationally, so if you are not groomed, mentored and developed in that environment and you do not have the necessary experiences, even if I'm Lloyd, I will not want to put my money down, 800,000 million dollars, 8.5 million dollars is quite a lot of money. So we have to develop our insurance system and alongside develop our HAZOP practice which will be mirrored down alongside their foreign counterpart, I can tell you those companies have a minimum of twenty-five years track record. It is something we have to work towards, it's not a one day job.



Engr. Dr. Ujile & Engr. Dr. Mrs. Ibilola Amao

**E-Newsletter:** *On engineering training and education, you made mention of multiple successful projects, successfully executing a project over and over until you have it at your finger tips. Presently, the Federal government gives our project to foreigners. How then can we have multiple and successful project that would give Nigerian engineers the ability to develop into HAZOP practice?*

**Engr. Mrs. Ibilola Amao:** I think we are our own worst enemies. Because of the nature of our environment and poverty syndrome, most people would go for any type of project just to be on a project. Now the Nigerian engineers need to discipline themselves. They have to decide on if they want to be experts in a particular area. I know many engineers who have not completed a single project. While they are on

this project and someone offers a better payment for another project, they abandon the work on hands. So how many Nigerian companies have started project from the beginning, from mobilization stage or take-off stage to the project review stage? Hardly do you see any Nigerian because they don't have that kind of patience. You always see them jumping from one stage to another and they don't even see experience as more worth than money. So that's the problem we have to solve. Secondly some companies are not known for anything. They do this one this year, next year they are into something else, No correlation. If you are doing a study and you look at the correlation of projects a company has done you can't even categorize the companies because it has done a lot of different projects. It has done safety upgrade today, it has done minor modification tomorrow, it has done detailed engineering here of a totally different nature from what you did safety upgrade on, you even wonder, if the person actually knows what he wants. Not many companies can boast of successful completion of similar projects because they don't have a choice or opportunities to have those types of projects in the first place.

**E-Newsletter:** *Thank you very much madam for the opportunity you have given us.*

**SOLAR POWER** is the generation of electricity from sunlight. This can be direct as with photovoltaics (PV), or indirect as with concentrating solar power (CSP), where the sun's energy is focused to boil water which is then used to provide power. The solar power gained from photovoltaics can be used to eliminate the need for purchased electricity (usually electricity gained from burning fossil fuels) or, if energy gained from photovoltaics exceeds the home's requirements, the extra electricity can be sold back to the home's supplier of energy, typically for credit.<sup>[1]</sup> The largest solar power plants, like the 354 MW SEGS, are concentrating solar thermal plants, but recently multi-megawatt photovoltaic plants have been built. Completed in 2008, the 46 MW Moura photovoltaic power station in Portugal and the 40 MW Waldpolenz Solar Park in Germany are characteristic of the trend toward larger photovoltaic power stations. Much larger ones are proposed, such as the 100 MW Fort Peck Solar Farm, the 550 MW Topaz Solar Farm, and the 600 MW Rancho Cielo Solar Farm. Solar power is a predictably intermittent energy source, meaning that whilst solar power is not available at all times, we can predict with a very good degree of accuracy when it will and will not be available. Some technologies, such as solar thermal concentrators have an element of thermal storage, such as molten salts. These store spare solar energy in the form of heat which is made available overnight or during periods that solar power is not available to produce electricity.



11 MW Serpa solar power plant in Portugal



Nellis Solar Power Plant, the largest photovoltaic power plant in North America

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