

**A KEYNOTE ADDRESS DELIVERED BY ENGR. EARNEST NDUKWE, EXECUTIVE VICE CHAIRMAN, NIGERIAN COMMUNICATIONS COMMISSION AT THE WORKSHOP ON ELECTROMAGNETIC COMPATIBILITY PROBLEMS IN INDUSTRIAL AND COMMERCIAL INSTALLATIONS/EQUIPMENT HELD AT UNIVERSITY OF LAGOS ON JUNE 27, 2005**

The issue of electromagnetic compatibility as it relates to wireless communications is at the heart of NCC and that is why we gladly consented to collaborate with University of Lagos on this important workshop. In recent times, there has been growing concern about the adverse effects on the general public from exposure to radiofrequency energy while using wireless communication devices. Concerns have also been expressed about siting of RF base stations close to residential buildings.

It is important to note however, that without base stations the mobile phones cannot communicate. We cannot do without wireless communication devices unless we want to revert to the Stone Age without the benefit of ICT. I believe that the best solution will be for a good cooperation and collaboration among all stakeholders to work out acceptable best practices and standards that will be adhered to. The relevancy and need for urgency to fast track the development of these standards becomes even more important given the explosion in the telecommunication industry in Nigeria.

The NCC has commissioned consultants to conduct an inventory of all base stations in the country.

NCC is also looking into the issue of collocation of base stations as a way of limiting the number of base stations sites nationwide. We are ready to work with the Standards Organization of Nigeria (SON) and the University in researching into EMC particularly as it concerns its impact on the environment and health.

We had the privilege of participating in a similar workshop recently where Telecom experts, scientists, researchers and regulators from Europe, Asia, Middle east, USA and Africa were in attendance. The workshop was on Mobile health and Environment. I will, therefore like to share here, some of the observations and deliberations at that workshop.

**HEALTH ISSUES REGARDING EXPOSURE TO ELECTROMAGNETIC RADIATION FROM BASE STATIONS AND MOBILE HANDSETS.**

As evidenced by all the papers presented there are a myriad of health related concerns associated with EMF emissions from Mobile telecommunications. There has been growing concern throughout the developed world that exposure to radiation from base stations and mobile handsets could lead to increased risk of illnesses such as cancer and may adversely affect cognitive functions like concentration and may cause memory loss, headaches, dizziness and epilepsy among others.

Reports of various studies were presented. The studies were however, not scientifically conclusive as both sample size as well as research duration were considered insufficient to draw reassuring conclusions about the health hazards associated EMF

emissions (from Mobile base stations and handsets). One of such studies for instance was the research by some German physicians that was based on the records of routinely registered patients in five medical practices. The result revealed that the proportion of newly diagnose cancer cases was higher in patients living within 400m radius of base stations when compared with the entire set living outside the radius. This experiment further revealed that, the risk of having malignant cancer tripled in five years and more after the installation of a base station for those living within 400m than those living outside a 400m radius. There was a also a research conducted using cattle living near a base station. During this experiment it was observed that the milk production level of the selected cattle dropped by nearly 30% at the instance the base station was operational and when they were moved away from the base station the milk production went back to its original level. There is therefore a slight co-relation between the usage of mobile phones and health. However, there is insufficient statistical evidence to validate these claims. This therefore strengthens the proposition for more time to evaluate impact of RF emission on humans.

Almost all the presenters agreed that although there is insufficient evidence to conclude that there are adverse health effects from exposures to radiofrequency fields emissions from mobile phones and base stations, it was equally not possible to say that the exposure to RF radiation, even at levels below national guidelines, is totally without adverse health effects. It was agreed that gaps in knowledge are sufficient to justify further research and replications to give adequate provisions for latency factors in disease manifestation.

This conclusion stems out of the fact that the use of Mobile phones have only been wide spread for a relatively short period and that there could be possible effects from exposure to RF fields over long periods. Hence there is need for further research collaborations and replications. We must be aware that populations are not genetically homogenous; some are more vulnerable to electromagnetic effects than others.

### **PSYCHOLOGICAL EFFECTS OF THE UNCERTAINTY ASSOCIATED WITH THE EFFECTS OF ELECTROMAGNETIC EXPOSURE TO BASE STATIONS AND MOBILE SETS.**

Although reports of the various research findings presented could not show conclusive empirical evidence of negative effects on health and cognitive functions resulting from radiation from base stations and mobile sets, there is evidence in psychological and medical literatures that the fear and uncertainty surrounding the potential health effect of radiation from base stations does cause significant health problems. The well being of some people are thought to be adversely affected by their concerns for the health impact of their exposure. This issue requires effective management through information dissemination and due attention to queries raised by concerned residents living near base stations.

There are also recommendations for the use of precautionary measures in the use of mobile phones pending the availability of more robust and well researched information on the effect of electromagnetic radiations on humans. Examples of such measures include the discouraging the use of phones by infants and very young persons,

encouraging limited holding time on phone etc. However, precautionary measures are advised not to be arbitrary as they are capable of increasing public concern in addition to undermining science, which has established safe limits.

### **ENVIRONMENTAL ISSUES ASSOCIATED WITH MOBILE TELECOMMUNICATIONS.**

The conference also discussed some of the environmental issues resulting from deployment of radio base stations and disposal of mobile handsets that are no longer required. Some of these identified environmental concerns are as follows:

1. Visual degradation resulting from proliferation of masts. The conference discussed some initiatives to mitigate this problem through the use of environmentally friendly masts in the form of camouflaged trees. This initiative was however, to result in yet other issues because of bulkiness of the camouflaged trees compared to the natural trees in the concern environment.
2. Property devaluation, which depresses property, values of residences and apartments in the neighborhood of base stations due to a composite of health and environmental degradation concerns.
3. Menace of phones no longer in use: it has been established that most consumers in developed countries replace their mobile phones, on the average of every (18) eighteen months. In the UK alone, the number of such phones is put at fifteen million. This, if not properly managed, has the potential of environmental pollution. To address the potential environmental issues that may arise, companies are adopting PHONE RECYCLING schemes with varying incentives promised to phone returnees. The phones returned under these schemes are refurbished, repackaged and shipped to developing countries where there are growing markets for mobile phones. The incentive to the developing economies is lower cost as the phones have features that meet the need of these economies while remaining relatively cheap. The WEEE programmes of phone recycling are currently being implemented by EU countries where mobile phone return programmes are operational in about 14 countries.

This indicates the need for developing countries to develop strategies that would ensure that substandard phones are not dumped on them. The strategies may be to mark the packages as recycled. This however, does not entirely address the concerns. It therefore behoves on each developing country to put strategies in place to ensure that such recycled phones are duly tested and labeled appropriately, not just at the package level but at the casing level.

Another issue of concern to developing countries was the disposal strategy at the end of the life of phones recycled through them.

### **STRATEGIES TO COMBAT INAPPROPRIATE SITE SELECTION**

From the UK example, there are both the commitment given by the association of Mobile Phone Operators (10 Commitments) and the office of Deputy Prime Minister's

Code of Best practice, both of which provide for consultation with local communities before the sitting of a base station. It is recommended that Nigeria should develop strong policies urgently and strongly enforce any new rules that are approved.

### **SITE SHARING**

Site sharing by operators around the country is also recommended in order to reduce the number of Masts and base Stations and public concerns based on health issues. This is now being enforced in most countries. However, this also comes with its peculiar challenges including increase in EMF levels resulting from aggregate transmitters in shared sites; need to install very tall masts as short masts have insufficient space to support sharing. Very tall camouflage trees that can accommodate sharing are abnormally massive thereby introducing additional environmental degradation.

### **OTHER IMPACTS OF PUBLIC CONCERNS OVER MOBILE TELECOMMUNICATIONS.**

Public out cry against erection of masts in developed countries have resulted to major constraint in Networks expansion and Optimization. The conference identified varying degrees of resistance to the deployment of new base stations and even the renewal of leases for existing stations. Put in perspective it was reported that it takes considerable length of time to get approvals for the erection of new masts. In places like France, Italy and Spain for instance, it is almost impossible to erect a new base station. In UK obtaining planning permission could take between 7months and 4 years. This development has been noted to put a lot of pressure on the operators during site acquisition for network expansion and optimization.

### **CONCLUSION**

I thank the Vice Chancellor and the organizers of this event for this initiative and will certainly collaborate with the University of Lagos in the development of capacity for EMC testing in Nigeria.