



(SHORT COMMUNICATION)



Needs for a sustainable education and training of radiation science and radiation protection in Kano state of Nigeria

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Abstract

Most of African countries have only few number of trained personnel's that have the knowledge of Radiation Science and Radiation Safety. Nigeria is of this countries that have only few Radiation Scientists and Kano state in particular. Based on the IAEA basic safety standards and the 96/29 Euratom directives that stress on the need of educating societies on the hazardous nature of Radiation. The Humanity Care and Cancer Foundation in collaboration with some national institutions based in Kano state has also been giving awareness and educational training to children together with the general public on issues related to radiation science and its safety. We have observed that the public demand is very high on the need for educating the societies in Kano state of Nigeria on Radiation science and protection. In this research paper, we have identified the educational needs on Radiation science and protection in Kano state of Nigeria. However, we have also enumerated the available educational and training infrastructures, the human resources, as well as the importance of stake holders and their roles if a sustainable education and training program were to be developed in Nigeria and Kano State in particular.

Keywords: Radiation; Cancer

1 Introduction

The international atomic energy agency (IAEA) has in its aims; a strategic plan on radiation protection which is among its plan on developing countries such as Nigeria to be part of its sustainable education and training programmes as a member states" (Mrabit and Sadagopan, 2004). However, IAEA also proposed to work with national training centres and to collaborate with institutions on educating and training the society. Also the national atomic energy commission (NAEC) in collaboration with some academic institutions and national authorities, has been conducting educational awareness and training and the users of radioactive sources as well as the general public. However, there have been international guidelines from authoritative sources such as (ICRP, 1990; IAEA, 1996; EC, 1996) that requires all working places that radiation sources are used to appoint a radiation scientists. Also all employers are instructed to provide the necessary education and training for the users of radiation devices and sources. In Kano state of Nigeria the use of radiation sources are only few in some certain areas, such as in diagnostic radiology, radiotherapy, industrial radiography, nuclear gauging, gamma irradiation, research and education, surveillance and checks at banks, etc. There are also few manufacturing industries in Kano that the workers and the society are exposed to some certain sources of radiation, which is often due radioactive contaminations.

In this our research paper, we have identified the needs for the sustainable education and training of radiation science and radiation protection. We have also discussed some important roles of stakeholders and international organisations in order to achieve the sustainable education and training programmes on Radiation science and Radiation protection.

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2 The need for sustainable education and training

Currently, In Kano state of Nigeria, there is no any nuclear power plant or nuclear reactor. Notwithstanding, Kano state have many manufacturing industries and hospitals that use radiation applications and radiation sources mainly for medical, industrial and educational purposes. We have in our research surveyed this places and presented them in the table below.

Places that uses Radiation	Types Radiation Used
Hospitals	X-rays Machines and gamma ray sources
Manufacturing Industries	X-ray generators and gamma ray sources
Agricultural Institutes	Sealed radiation sources
Schools	Sealed and Unsealed sources

From the table above it obviously clear that the trend in the use of radiation in the Kano state of Nigeria will be increasing as time goes on. We have also find out that there are inadequate of trained radiation users and experts. However, as the scope of radiation protection is expanding internationally, damages that are often caused due to radiations has nowadays have effects to the non-human components such as animals and plants. Generally, there is the need to increase the knowledge of radiation safety and security requirements in Kano. Obviously, we have enumerated the following sectors that the needs for education and training in radiation protection and radiation science are mandatory in Kano state in order to meet the international standards:

- (i) Schools, colleges, research institutes, variety of industries, airlines, etc. that use radiation sources,
- (ii) Ministry of roads and Ministry of works,
- (iii) Mining industries and Manufacturing industries.

3 Types of sustainable education and training required in kano

There are basically two types of sustainable education and training which are required in Kano state. We are able to enumerate this types of sustainable sustainable education and training as follows:

3.1 Public awareness

Creating awareness on radiation in order to eradicate radio-phobia from the public and workers is very important. However, According to the available guidelines and Directives (IAEA, 2000) employers whose workers have can one way or the other be exposed to radiation should provide awareness to their workers, and the should regularly educate them on radiation protection. This type of awareness will help in providing knowledge and skills for users of radiation sources and radioactive materials, as well as provide information and creating awareness among the general public. This educational awareness can be delivered informally through meetings, public lectures, In-house training or awareness, etc.

3.2 Educational training

The need for educational training is to provide knowledge and skills as well as qualification for whoever uses radiation sources and radioactive materials. This type of education training usually varies from simple (general) information courses to complex concepts. This type of educational training are usually delivered formally under regular academic settings available in Universities and other vocational institutions or informally through workshops, etc. Regulation and certification are essential. This educational training is available as an optional part of the teaching curriculum in some of the Universities and Colleges of education in Kano state and other National and Private Health Colleges. The educational training courses thought in this educational training Centres were extracted from the IAEA standard syllabus for education in radiation protection and radiation science.

3.2.1 Stakeholders in Nigeria

The need for a sustainable education and training in radiation science and radiation protection in Kano state of Nigeria is highly needed. But from the experience we have developed doing our research shows that there is need of

stakeholders in Nigeria to assist in educating the society on effects of radiation exposure. The stakeholders in Nigeria and International Organization include the following:

- Nigerian Nuclear Regulatory Authority (NNRA)
- Nigeria Atomic Energy Commission (NAEC)
- International Atomic Energy Agency (IAEA)

4 Conclusion

Present review shows the educational needs on radiation science and protection in Kano state of Nigeria. This review also enumerated the available educational and training infrastructures, the human resources, as well as the importance of stake holders and their roles if a sustainable education and training program were to be developed in Nigeria and Kano State in particular.

Compliance with ethical standards

Disclosure of conflict of interest

All authors declare that they have no conflict of interest.

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