



PATHWAY TO CAPACITY BUILDING FOR BIORISK MANAGEMENT IN NIGERIA

By

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Introduction and Objectives: There is a growing need for worker safety, security of valuable biological materials (VBM) and sound environmental health of communities. This therefore entails safe and secure handling of VBM. In a developing country like Nigeria with >160 million people and extensive research and diagnostic laboratories and Healthcare centers, growing a culture of laboratory biosafety and biosecurity (Biorisk) is *sine qua non*. In turn this requires capacity building for implementation of biorisk management principles. This work traces the pathway followed for BRM implementation in Nigeria from the formation, scope and operation mode of NiBSA to the gains of partnership in shaping the organization and enhancing BRM Nigeria.

The Nigeria Biosafety Association (NiBSA). Reed (2010) identified insufficient number of national and regional associations as one of the challenges confronting the global biosafety community.

The need for countries operating research, diagnostic and training facilities on animal and human infectious diseases to develop capacity for the application of biorisk principles and practices has been established (Heckert *et al.*, 2011). Regional and Local associations are instrumental to these needs, and NiBSA has fitted into the roles since its inception in August 2010 when it started as an online forum and was formally inaugurated at the maiden meeting held November 24, 2010 in Abuja, Nigeria, the conveners of the inaugural meeting having been galvanized into action by the leadership of African Biosafety Association (AfBSA).



Plare 1: NiBSA members at inauguration in 2010

Methodology: The following five steps taken and methods employed by NiBSA defines the pathway to building capacity for BRM in Nigeria:

- Establishment – The NiBSA was first established by two means namely a member virtual forum via internet announcement and then a formal meeting later called. With members present a protem executive council comprised of the President, Vice President, Secretary, Assistant Secretary, Public Relations Officer with Treasurer and Internal Auditor coming up later for the running of the affairs of the association.
- Linkages: The association networked with regional association, AfBSA as well as technical and funding partners including Canada GPP and Sandia Corporation.
- Training: As a pivot of the need to set up NiBSA, training was carried out on the need to understand Biorisk Management Principles and apply them by laboratory workers. The training workshops were also used as avenues for membership drive as both members and non-members who were interested received training. Foreign and local trainer development workshops were also conducted for members of the Association. Academics from selected universities were also trained on the design and the implementation of curriculum on Biorisk Management. Participants
- Web Presence: For the popularization of the association and both principles and practices of Biorisk Management, a website was created – www.nigeriabiosafetyasso.com.
- Conference: Members attend conferences, and the association is planning to have the first conference in 2018.

Results: The results show that there has been improvement in awareness in biorisk management principles within Nigeria and among laboratory practitioners in research and healthcare provision. Following its establishment, the association has been waxing strong with members paying up annual dues and new members enrolling. The membership has grown from the about 15 that attended the inaugural meeting to 250. Membership registration take place at the trainings or through the website of the association. The Linkages have opened up relationship with the Canada GPP, and Sandia. NiBSA is also an affiliate member of the AfBSA and International Federation for Biosafety Associations(IFBA).



Plate 2: Internet Home Page of NiBSA

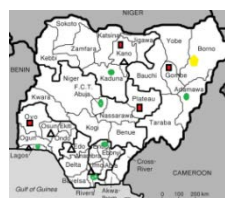



Figure 1: Locations of Biorisk Management Trainings in Nigeria

Key:

-  Foundation Biorisk Management
-  Advanced Biorisk Management
-  Advanced Biorks Management Pending
-  University Engagement Curriculum Integration

Within seven years of NiBSA's existence and two years of BRM workshops including a University Engagement Program, biosafety and biorisk management have been incorporated into the undergraduate curricula of universities in Nigeria. Lagos State University, Lagos, Obafemi Awolowo University, Ile-Ife and Aminu Kano University, Kano have incorporated these items into their curricula. LASU hopes to start postgraduate programs in Biosafety in the coming academic session.

Discussion: This report of how BRM has spread in Nigeria with the role of NiBSA exemplifies the need to establish and support (technically and financially) local associations for the good health of locals and curtail the spread of diseases while ensuring laboratory worker safety. The results are in agreement with the position of Heckert *et al.* (2011) and Parkins *et al.* (2017).

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References:

- Heckert, R. A., JJ. C. Reed, F. K. Gmuender, M. Ellis, and W. Tonui (2011). International Biosafety and Biosecurity Challenges: Suggestions for Developing Sustainable capacity in Low Resource Countries. *Applied Biosafety* 16 (4) 225 – 230.
- Perkins, D., K. Danskin and Rowe, E. (2017). Fostering a culture of biosafety, Biosecurity and Responsible Conduct in the Life Science. *Science Diplomacy* . Online: <http://www.sciencediplomacy.org/article/2017/biosafety>. Accessed 7th October 2018.
- Read, J. C. (2010). Bridging the gap: The International Federation of Biosafety Associations. *Applied Biosafety* 15 (1): 3 – 4.