7TH NATIONAL CONFERENCE ON ENVIRONMENT AND HEALTH

(Organized by the LivingScience Foundation, Ile-Ife CAC/IT/91834)

Venue: Redeemer's University, Ede, Osun State, Nigeria
+ Online via Zoom

Date: Wednesday, October 19 - Thursday, October 20, 2022

Theme: Environmental-Health Risk Assessment and Sustainable Development in Nigeria.



COMMUNIQUE

I. Preamble

The seventh National Conference on Environment and Health was held on Wednesday 19th and Thursday 20th October, 2022 at the Sapetro Hall, Faculty of Engineering, Redeemer's University, Ede, Osun State. There was also provision for online participation through Zoom. The Conference was convened by the LivingScience Foundation Ile-Ife, in conjunction with a number of strategic partners, including the Redeemer's University, Ede, the Osun Health Insurance Agency, Osogbo, the National Environmental Standards and Regulations Enforcement Agency (NESREA), South West Zone, the Environmental Health Officers Association of Nigeria (EHOAN), Osun State Chapter, SEEMS Ikeja, Kapporeth Initiatives Abuja, and the EnvironLab, Obafemi Awolowo University, Ile-Ife.

The Conference featured two Keynote Speakers, six invited Lead Speakers, and several other Speaker-Delegates who contributed to the Conference theme: Environmental-Health Risk Assessment and Sustainable Development in Nigeria. There were 86 registered participants in physical attendance while a few others joined virtually through Zoom. About 48 Institutions/Departments were represented at the Conference. The event was covered by some 8 local and national media houses.

The keynote speakers were: Prof Omowunmi Sadik (NNOM), Distinguished Professor and Chair, Department of Chemistry and Environmental Science, New Jersey Institutes of Technology, Newark, USA; and Prof Aliyu Jauro, DG/CEO at the National Environmental Standards and Enforcement Agency (NESREA), Abuja. Prof Sadik presented her lecture via Zoom, while Prof Jauro's paper was presented by Pastor Elijah Udofia, SW Zonal Director of NESREA. Special goodwill messages were delivered by Pastor Odun Orioke (MD), member of the Board of Trustees of the LivingScience Foundation, who chaired the Opening Ceremony; and also by the Osun State Commissioner for Health, Dr Rafiu Isamotu Olasunkanmi.

The technical business was conducted in four sessions over the two days with Mr Ismail A. Ajani (Retired Director, NESREA; Ikorodu), Prof Ife Adewunmi (RUN, Ede), San (Dr) Tope Akinwumi (EHOAN, South West, Osogbo), and Prof Michael C. Asuzu (UNIMED, Ondo) serving as Chairpersons for the various sessions. In line with the theme, presentations were made assessing the state of the Nigerian Environment (Air, Water, Soil, Wastes and effluents) for chemical, biological/ecological, and radioactive hazards and associated risks for identified subpopulation groups. Furthermore, the various health and social consequences of poor management of environment were highlighted. Some of the presentations specifically showcased the activities of key government agencies and associations such as the NESREA, OHIA, and EHOAN.

Prizes were given to winners of the annual Secondary Schools Innovation Challenge, and the AF Oluwole Prize, was awarded to Dr Patrick Ijewere of the Carrib Health Group,

Ikoyi, Lagos State. The industrial action at public Universities affected participation in the annual Essay Competition for Undergraduates, which was skipped this year.

The conference keyed-in with the global Lead Poisoning Prevention Week (Oct 23 - 29) and featured a nine-minute video released by the WHO for the week during the closing session. (https://www.who.int/campaigns/international-lead-poisoning-prevention-week/2022#)

II. Observations and Recommendations

The Conference commiserated with victims of the unprecedented flooding that ravaged several states of the Federation. (At least one Conference delegate had to abort his journey to the Conference due to the floods). Conference urges government, in addition to providing urgently needed relief services, to find lasting solution to this perennial incident. Conference noted that the situation could have been considerably milder if the Nigerian government had heeded the decades-old recommendation to build the Dasin Hausa Dam to mitigate actions carried out upstream the Benue River by Cameroonian authorities.

The following Observations and consequent Recommendations were made at the Conference in line with the Theme.

1. ENVIRONMENT AND HUMAN HEALTH ARE INEXTRICABLY LINKED AND THEY IMPACT ONE ANOTHER. IT IS A NEXUS WORTH DEVOTING SPECIAL ATTENTION TO IN NIGERIA WITH THE DEVELOPMENT OF SCIENTIFICALLY-DERIVED ENVIRONMENT-HEALTH INDICATORS. THIS CAN START WITH OSUN STATE, USING CANCERS AS CASE STUDY.

i. The World Health Organization (WHO) associates 24% of global disease burden with environmental pollution; and affirms that these could be preventable with appropriate timely actions.

ii. Using Cancers as an urgent and expedient example in particular, it has been established that as much as 80% of cancers can actually be prevented outright if appropriate environment and lifestyle-related issues are diligently addressed. The WHO in the 2020 World Cancer Report averred that prevention is the "only consideration that will credibly decrease [cancer] burden" while the WHO-endorsed Asturias Declaration specifically declared that "*Primary prevention - prevention of the exposures that cause cancer - is the single most effective means of prevention.*"

iii. For many Low and Medium Income countries (LMIC) such as Nigeria, primary prevention is about the only hope for the vast majority of the population in the raging battle against cancers, since, even when detected "early," effective treatments are either not available or affordable.

iv For the "primary prevention" option to be practicable however, there is need to develop environment-health indicators that connect certain categories of cancer patients with their exposures to various combinations of carcinogens and socio-demographic parameters. This will potentially enable accurate assessment of cancer risks to individuals or some vulnerable subpopulation groups in certain communities as well as permit the impacts of specific interventions to be assessed with scientific precision.

v. With a population of over five million ethnically homogeneous residents, Osun State has a large enough database to implement such a Project. The framework thus established can thereafter be expanded to other regions of Nigeria, and possibly to other chronic diseases.

RECOMMENDATION

The Convener of the Conference, the LivingScience Foundation, is encouraged to seek collaboration with the other key stakeholders (the NESREA, OHIA, and EHOAN) to initiate a Project compiling geographical locations and strengths of environmental stressors which could be investigated for association with geographic distribution of health events (or cancers, specifically) available in the health information records in Osun State. This will facilitate the setup of a framework leading to identification of environmental-health indicators which could enable evidence-based optimal management of the environment for the achievement of sustainable development goals.

2. ENVIRONMENT-HEALTH RISK ASSESSMENT SHOULD BE IMPLEMENTED LOCALLY, EMBRACING LOCAL VALUES, EVEN WHILE FOLLOWING GLOBAL BEST PRACTICES AND BEING SENSITIVE TO GLOBAL CONCERNS

i. The Environment, Human health, and Sustainable development are inextricably linked. Agenda 21(1) of the United Nations Programme of Action on Sustainable Development comprises a framework of action for sustainable development that focuses on economic, environmental, socio-demographic, and health factors. It is recognized that action at the local level (possibly city level) is especially important in achieving a healthy and sustainable development.

ii. To integrate environmental health into sustainable development, various options are available. A sound Framework for Environmental Health Risk Management would comprise of 6 steps, viz Defining the problem and putting it into context; Analysing the risks associated with the problem in context; Examining Options for addressing the

risks; Making decisions about which options to implement; Taking actions to implement the decisions by working out those options chosen, and Reviewing the chosen option to verify if it yields the best results, or it needs further fine-tuning.

iii. All these steps, including the overall Risk Perception, need to be implemented with local sensibilities factored in. While we must keep the "global" interests in view, our actions must be geared to finding those peculiar options that concurrently solve local problems.

iv. Currently, several contradictory policies are in force in Nigeria chiefly because the underlying Environmental Health Risk Assessments were carried out abroad and the associated Policies handed over to the different government agencies who fail to interact and compare notes. As a glaring example, childhood vaccines laced with mercury are promoted and recommended for our use in the health sector (see Observation 3 below), while stringent regulations in the generation and release of mercury are concurrently pushed in the environment sector!

RECOMMENDATION

The NESREA in collaboration with the Federal Ministry of Health is encouraged to initiate an official scalable Framework for Environmental Health Risk Management in Nigeria. This can be presented for national discussion, possibly in the context of a National Stakeholder's Forum, or National Regulatory Dialogue.

3. IT'S TIME THIMEROSAL-CONTAINING VACCINES WERE PROSCRIBED HERE IN NIGERIA, AS THEY ARE ELSEWHERE

i. It was observed that while the use of thimerosal (49.6% ethyl mercury) as preservative in traditional vaccines had been proscribed in the USA for over 2 decades, and in Europe for more than 30 years, this practice is still ongoing in Nigeria. This is based on recommendations stemming from Risk Assessment exercises carried out by foreign/global agencies. Vaccines so affected include Hepatitis B and Tetanus-Diphteria multidose vaccines. Mercury in all forms is known to be neurotoxic.

ii. By switching to single-dose forms of the same vaccine, as is done in the developed countries, the need for the use of thimerosal (as preservative) will be eliminated.

RECOMMENDATION

Thimerosal-Containing Vaccines packed in multi-dose vials should be phased out immediately. Government should facilitate this by providing the modest increase in budget that would enable their replacement with single-dose ampoules that do not require preservative, as is the case in the developed nations of the world.

4. NIGERIA'S LEAD POISONING PROBLEM IS PROBABLY THE WORST GLOBALLY. THIS MUST BE TACKLED HEADLONG TO ENHANCE PUBLIC HEALTH AND QUALITY OF LIFE IN THE COUNTRY

i. Most developed countries including the United States and the European Union have banned the use of lead in consumer products, paints, and fuels, yet the consequences of decades of lead extraction, use and distribution linger to date • Cities like Flint, Michigan and Newark, New Jersey in the United States have had recent lead poisoning outbreaks as a result of lead-based pipes. While the lead problems faced by developed countries are substantial, lead toxicity in developing countries is a more serious pandemic. The reality of acute lead poisoning in Nigeria was amply demonstrated by the cases, a decade ago, at Zamfara and Niger States, which grabbed global attention. Conference observed that low-level chronic lead poisoning is ongoing even now, with evidences of adverse impacts abounding, for example on neurodevelopment of primary school pupils.

ii. That the impact of the prevalent chronic lead poisoning in Nigeria, being subtle, could be wrongly attributed to other causes, thus not only perpetuating a serious economic burden on the State, but also considerably reducing the quality of living for citizens.

iii. Considering the extensive use of lead in Nigeria over the decades, and its resident lifetime of about 30 years in trabecular bones, it is evident that huge amount of lead is currently held in storage in a large proportion of women of childbearing age in Nigeria. It is known that this lead is released together with calcium at the peculiar periods of high calcium requirement, such as pregnancy and lactation. Thus deleterious levels of lead could be transferred to babies in the womb through the placenta or through breastmilk during lactation. One established way out is the administration of oral calcium supplement to the subjects in question, in the critical periods of high calcium requirement; so that the calcium storage in the bone is not depleted, thus preventing the associated release of endogenous lead.

RECOMMENDATIONS

i. Public education should be stepped up, on the sources, exposure pathways, and adverse health effects of lead in the environment. Capacity of Medical and Health workers (Doctors, Nurses, Laboratory Scientists, and allied Professionals) should be enhanced to make prompt and accurate diagnosis and treatment of lead poisoning.

ii. The use of calcium supplements for women at appropriate critical periods during pregnancy, as well as during lactation to stem the release and transfer of endogenous lead to vulnerable babies should be promoted in the country. The LivingScience Foundation is encouraged to collaborate with the Osun State Ministry of Health/Osun Health Insurance Agency in this matter, and showcase the benefits to the entire nation.

5. EXTANT LAWS SHOULD BE APPLIED TO CURB ONGOING ENVIRONMENT-HEALTH CATASTROPHE IN IFE-IJESA GOLD MINING AXIS, IN OSUN STATE

i. While mining activities contribute significantly to the positive socio-economic development of many countries, it can also cause considerable adverse impact on the biophysical environment as well as the social and health conditions of the people.

ii. Therefore in compliance with the United Nations Conference on the Environment and Development (UNCED, Agenda 21), which stipulates environmentally sustainable industrialization, it is important, that mining activities be undertaken in such a manner that the adverse social health and environmental impacts are minimized if complete avoidance is practically not feasible.

iii. It is appreciated that appropriate laws are in place to regulate organized mining operations in the country. If only these laws could be conscientiously enforced, the current display of impunity in the gold mining sector in Osun State could be drastically stemmed. For instance, Environmental Impact Assessments (EIA) are required, and these should include a townhall review and minimum 21 working days public display. Also stipulated is the deposit of a bond refundable only after proper closure of the mines at the end of the operations.

iv. Achieving sustainable development is a collective responsibility that should involve all levels of government, non-governmental organizations, business, stakeholders and society at large.

RECOMMENDATION: Government of Osun State should make a public statement on the subject and invite the public's cooperation to redress the ugly situation.

6 HUMAN CAPITAL DEVELOPMENT AND INNOVATION IN SCIENCE, TECHNOLOGY (STI), INCLUDING WASTE-FREE GREEN ECONOMY IS INDISPENSABLE IN NIGERIA'S QUEST FOR SUSTAINABLE DEVELOPMENT

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i. Being currently the largest economy in Africa, Nigeria will also be the third most populous country in the world by 2050, standing behind India and China. Sustainable exposure assessment and risk analysis innovations are needed to address the complex environmental risks and health challenges that are bound to attend these developments.

ii. A new perspective is needed, that sees the development of human resources as a key to the growth of a nation.

iii. It is important that the critical role of STI in economic development be acknowledged and appropriate steps be taken to redress the current many lapses. Such lapses include Insufficient funding, Weak links between education, research and commercialization sectors; Lack of Infrastructure to support innovation; and

Inadequate expertise. Furthermore new cooperation mechanisms must be devised to replace existing ones which are obviously not designed to promote African ownership, accountability and sustainability.

iv. Waste-to-wealth innovation systems such as developed by Planet 3R and other Nigerian innovators, converting waste plastic and nylon into eco-friendly products could significantly contribute to fostering the entrepreneurship system for youth empowerment, ending poverty, protecting the planet, and improving the lives and prospects of everyone, everywhere – major Sustainable Development Goals in the UN Charter.

RECOMMENDATION

Government MDAs should imbibe a significant shift in their view of our large population as a problem (requiring feeding, housing, and employment); and rather embrace it as a major God-given natural resource. Government should furthermore scale up investment in areas that are strongly dependent on Green science and technologies needed to benefit environmental and human health.

7. RECOGNITION OF MODERN ENVIRONMENT HAZARDS SHOULD BE INCORPORATED IN MEDICAL–HEALTH EDUCATION IN NIGERIA

i. Traditionally, environmental health concerns have been addressed in three fields, viz: the domestic and commercial premises services domiciled in the LGA health services; occupational and industrial health services domiciled in the ministries of labour, and international and port environmental health services domiciled in the national ministries of health.

ii. New hazards are however rapidly emerging in human developmental areas that don't squarely fit into these traditional fields. These include modern agriculture (with its recourse to massive use of agrochemicals, production of GMOs, and practices that could accelerate desertification and loss of biodiversity, *etc.*); the ubiquitous use of plastics and associated microplastic hazards; modern telecommunications (involving copious exposure to non-ionizing microwave radiation, now proven to be hazardous even in the non-thermal mode); and emergence of nucleic acid-based vaccines deployed in response to global pandemics.

iii. The training curricula for Healthcare practitioners (Medical doctors, nurses, pharmacists, Laboratory technologists) need to be accordingly revised and updated if they would be able to apply local innovations to effectively address these emerging issues without needing to mindlessly ape practices designed for other climes.

RECOMMENDATION: The relevant training and regulatory agencies are enjoined to note the above Observations, and arrange for the periodic revision of their curricula as appropriate.

8. SOCIAL HEALTH INSURANCE IS CRITICAL IN THE QUEST TO SUSTAINABLY BALANCE THE ECONOMIC, SOCIAL, AND ENVIRONMENT-HEALTH DIMENSIONS

i. Health Insurance is crucial to achieving a sustainable balancing of economics, socials, and environment-health dimensions.

ii. It is highly commendable that the State Health Insurance Agencies in Nigeria insisted on providing functional services, even if it meant a trade-off with massive enrolment figure, contrary to counsels initially offered by global agencies. Also commendable are the efforts by these Agencies to devise creative means of incorporating vulnerable but indigent population groups into the social health insurance schemes.

iii. Overall, primordial and primary prevention of diseases will enhance the success of this laudable scheme and pave way for attainment of Sustainable Development in our nation.

RECOMMENDATION: The Osun Health Insurance Agency is commended for her unwavering support for the National Conference on Environment and Health over the years. Other similar Agencies in other States are enjoined to also subscribe to this laudable effort to promote primordial and primary prevention of diseases in Nigeria; and consequently set the country firmly on the path towards Sustainable Development.

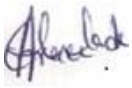
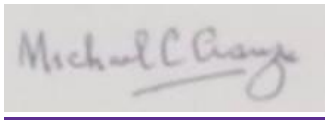
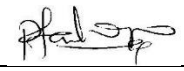
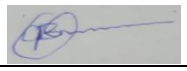
III. Conclusion

The Conference appreciates the invaluable contributions from various Speakers, in particular the eminent Speakers specifically invited and tasked to address certain sub-themes. It commends the LivingScience Foundation for the vision of forging inter-sectoral collaborations to tackle the most relevant environment-health challenges in the country using home-grown initiatives. The Conference acknowledges the considerable sacrifices this entails, especially in a period of prevailing socio-economic turmoil and thanks the Organization and her various Partners for their efforts. The LivingScience Foundation is urged to continue to drive the initiative until the desired results are obtained and established.

Ile-Ife, October 27, 2022

IV. Signatures

Signed by key sectoral stakeholders at the Conference

Ismail Adeleke AJANI (M.Sc) Retired Director NESREA Southwest Zone Ibadan Oyo state	
Grace O. AKINLADE (Ph.D) Coordinator, EnvironLab, Department of Physics and Engineering Physics, Obafemi Awolowo University, Ile-Ife	
Sanitarian Temitope AKINWUNMI, *fwapceh* (Ph.D) President, Environmental Health Officers Association of Nigeria (EHOAN), South West Nigeria.	
Mallam Wada ALIYU FHRI, FMIC, (M.Sc) Member, Health Records Officers' Registration Board of Nigeria; National Secretary, Association of Health Records and Information Management Practitioners of Nigeria (AHRIMPN)	
Michael C. ASUZU Retired Professor of Disciplinary Public Health and Community Medicine, College of Medicine of the University of Ibadan. President, Society of Public Health Practitioners of Nigeria	
Ropo DAIRO. (PgD, Ph.D) Department of Electrical Engineering, Redeemer's University, Ede.	
Adeniyi OGINNI (MBChB, MPH, Ph.D, Cert MM4H) Executive Secretary, Osun Health Insurance Agency, Osogbo	
Oyenike OGUNTUNDE (Ph.D) Department of Computer Science, and Sub-Dean Faculty of Natural Sciences, Redeemer's University, Ede.	
Joshua O. OJO (Ph.D) Professor of Health Physics and Environment, Obafemi Awolowo University, Ile-Ife and President, LivingScience Foundation, Ile-Ife	
Bode Oluwusi (Rev) Chairman, Board of Advisers, LivingScience Foundation, Ile-Ife	
Omolaja OSONIYI (Ph.D) Reader, Department of Biochemistry and Molecular Biology, Obafemi Awolowo University, Ile-Ife.	
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Please download the Book of Abstracts and other resources from the Conference Website: http://conferences.lsfnigeria.org

V.APPENDIX - SOME INSTITUTIONS REPRESENTED AT THE 7TH NCEH

1. Department of Chemistry & Environmental Science New Jersey Institutes of Technology University Heights, Newark, NJ 07102, USA.
2. Department of Chemistry, Obafemi Awolowo University, Ile-Ife
3. Department of Physical Sciences, Ondo State University of Science and Technology, Okitipupa, Ondo State Nigeria
4. Department of Physics, University of Medical Sciences, Ondo, Nigeria
5. College of Basic Medical sciences, Federal University Dutse Jigawa State
6. College of Medicine and Health Sciences, Federal University Dutse, Jigawa State, Nigeria
7. Department of Biochemistry and Molecular Biology, Obafemi Awolowo University, Ile-Ife.
8. Department of Biochemistry, University of Uyo, Nigeria
9. Department of Biological Sciences, Wesley University, Ondo, Nigeria
10. Department of Chemistry, Federal University Oye-Ekiti, Ekiti State, Nigeria
11. Department of Chemistry, University of Ibadan, Ibadan, Nigeria
12. Department of Community Medicine, University of Medical Sciences,.Ondo-city. Ondo State. Nigeria.
13. Department of Environmental Health, Obafemi Awolowo University Teaching Hospitals Complex, Ile Ife.
14. Department of Geology, Obafemi Awolowo University, Ile-Ife, Nigeria
15. Department of Health Information Management, College of Health Science and Technology
16. Department of Health Information Management, National Hospital Abuja Nigeria
17. Department of Marine Environment and Pollution Control, Nigeria Maritime University, Okerenkoko.
18. Department of Mathematical and Physical Sciences, Samuel Adegboyega University, Ogwa, Edo State.
19. Department of Microbiology, Obafemi Awolowo University, Ile-Ife, Nigeria
20. Department of Physical Sciences, Joseph Ayo Babalola University, Ikeji-Arakeji. Osun State, Nigeria
21. Department of Physical Sciences, Redeemer's University, Ede, Osun State, Nigeria
22. Department of Physics and Engineering Physics, Obafemi Awolowo University, Ile-Ife
23. Department of Physics, Adeyemi College of Education, Ondo
24. Department of Physics, Alvan Ikoku Federal College of Education Owerri, Nigeria
25. Department of Physics, Federal University of Technology Owerri, Nigeria
26. Department of Physics, Federal University Oye-Ekiti, Ekiti State, Nigeria (Health and Environmental Physics Research Laboratory)
27. Department of Physics, Mountain Top University, Ibafo, Ogun State
28. Department of Physics, Osun State College of Education, Ilesa
29. Department of Physics, University of Benin, Benin City, Edo State.
30. Department of Physics, University of Medical Sciences, Ondo City, Ondo State, Nigeria.
31. Department Of Public Health, Osun State University, Osogbo

32. Department of Science Laboratory Technology, Osun State College of Technology, Esa – Oke, Nigeria
33. Dept. of Computer Science Education, Federal College of Education (Technical), Asaba
34. Dept. of Computer Science, Olusegun Agagu University of Science and Technology, Okitipupa
35. Environmental Health Officer Association of Nigeria, Osun state chapter (EHOAN)
36. Federal University Dutse, Jigawa State, Nigeria J.D Amin Library,
37. Funtee Engineering & Environmental Services Ltd Ibadan.
38. Health Information Management Department, National Hospital Abuja- Nigeria
39. Institute of Education, Obafemi Awolowo University, Ile-Ife
40. Jigawa State Contributory Healthcare Management Agency (JICHMA)
41. National Environmental Standards and Regulations Enforcement Agency (NESREA) 18, Obafemi Awolowo Motorway (New Ikirun Road), Osogbo, Osun state
42. Ondo State Ministry of Education, Science and Technology, Akure, Nigeria.
43. Osun Health Insurance Agency, Osun State Ministry of Health, Osogbo
44. Osun State College of Education, Ilesa
45. Planet 3R Ibadan
46. Southwest Environmental Health Association of Nigeria (SWEHAN)
47. State Hospitals Management Board, Osogbo
48. Vaal University of Technology, Vanderbijl park 1900, South Africa

Total Number of Registered (On-site) Participants = 86

Participants from 3 countries (Nigeria, USA, and South Africa)