Energy Café Talk:
Natural Resources Extraction and Energy Access in Nigeria: Challenges, Adverse Impacts and Considerations for Sustainable Management

May 30, 2023

Temitope O. Sogbanmu, PhD

Environmental Toxicologist | Senior Lecturer | Founder/Lead, EUEPiN Project

Norbert Elias Fellow, ZiF, Bielefeld University, Germany | Fellow, ACU Commonwealth Climate Futures, 2023-2024

Affiliation: Ecotoxicology & Conservation Unit, Department of Zoology, Faculty of Science, University of Lagos, Nigeria

Email: tsogbanmu@unilag.edu.ng | **Website:** www.tosogbanmu.wordpress.com | **Twitter**: @SogbanmuTO | **LinkedIn**: @Temitope Sogbanmu, PhD

Outline

Natural Resources in Nigeria

Energy Access in Nigeria

Challenges of Natural Resources Extraction for Energy Access in Nigeria

Adverse Impacts of Natural Resources Extraction for Energy Access in Nigeria

Considerations for Sustainable Management of Natural Resources for Energy Access in Nigeria

Notes for Reference

THE ROYAL SOCIETY

THE ROYAL SOCIETY

Sustainable Mining and Non-Communicable Diseases

March 15, 2022

Temitope O. Sogbanmu, PhD, MNYA

Environmental Toxicologist | Lecturer, Dept. of Zoology, UniLag

Vice President, Nigerian Young Academy | Affiliate, The African Academy of Sciences (AAS)

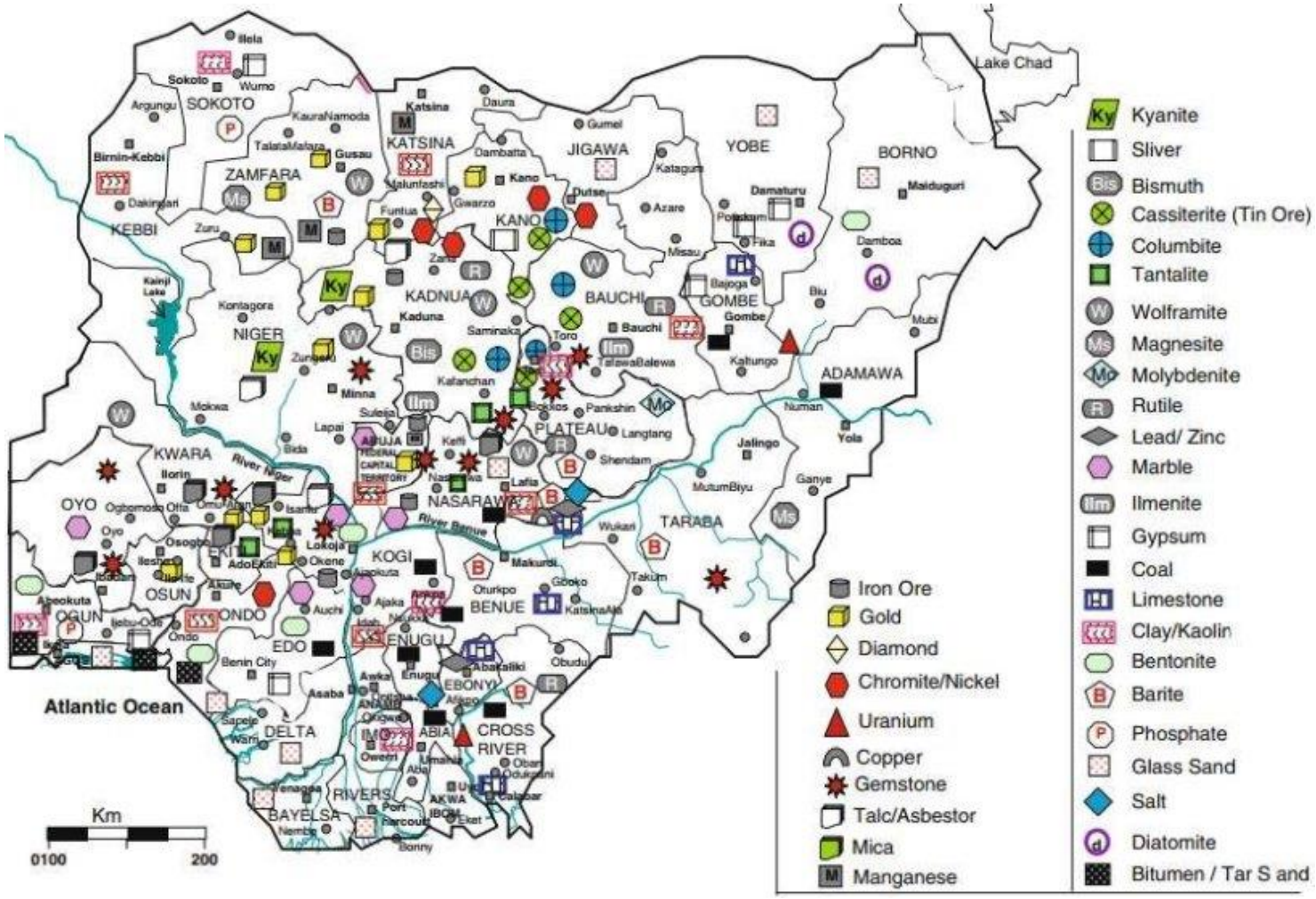
Affiliation: Ecotoxicology & Conservation Unit, Dept. of Zoology, Faculty of Science, University of Lagos, Nigeria

Email: tsogbanmu@unilag.edu.ng | **Website/Blog:** www.tosogbanmu.wordpress.com

Presented at the Royal Society Commonwealth Science Conference, Sub-Saharan Africa, March 14-16, 2022, Accra, Ghana

Reference/Source: https://www.researchgate.net/profile/Temitope-Sogbanmu/publication/359370748_Sustainable_Mining_and_Non-_Communicable_Diseases/links/6238639872d413197a394a44/Sustainable-Mining-and-Non-Communicable-Diseases.pdf

Natural Resources in Nigeria



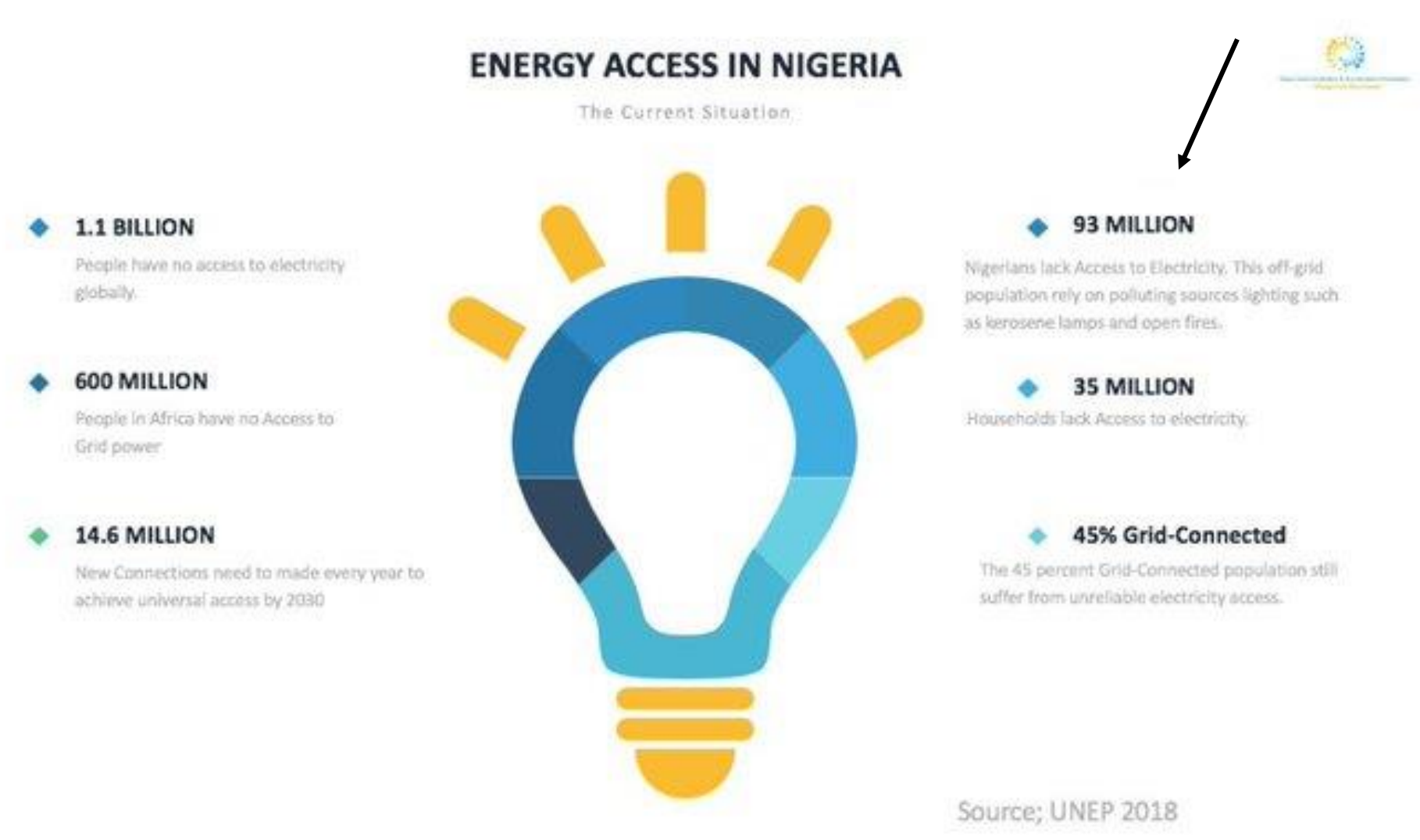
Map of Nigeria showing Locations of Natural Resources

Source https://aboutnigerians.com/amp/map-of-nigeria-showing-natural-resources/

The **most commonly mined commodities** are **gold, copper, iron, limestone, uranium, diamond, bauxite** and **petroleum/oil** (Ahmed et al., 2021).

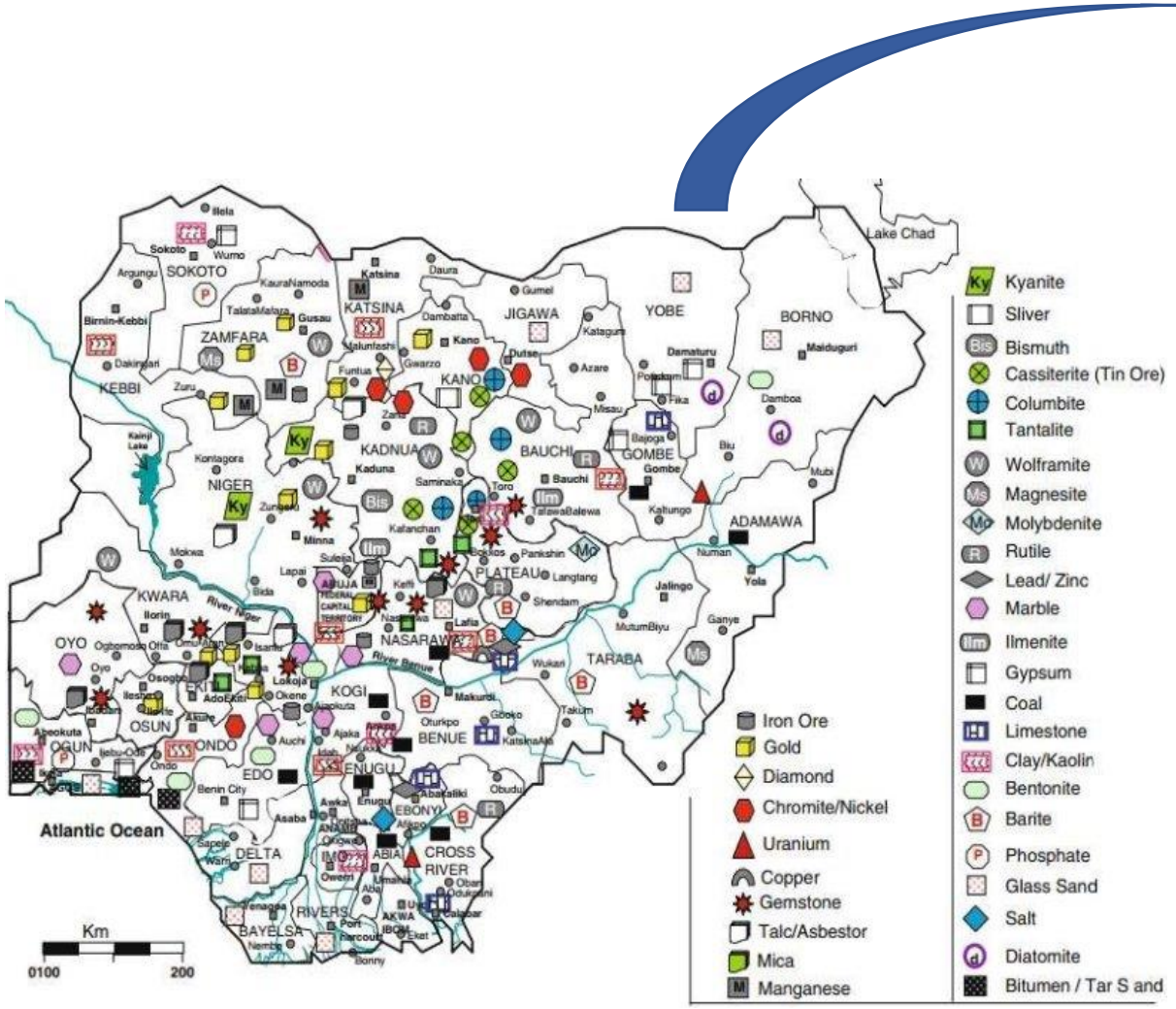
Natural resources extraction hotspots for energy in Nigeria is the **Niger-Delta region of Nigeria,**(Ahmed et al., 2021).

Energy Access in Nigeria



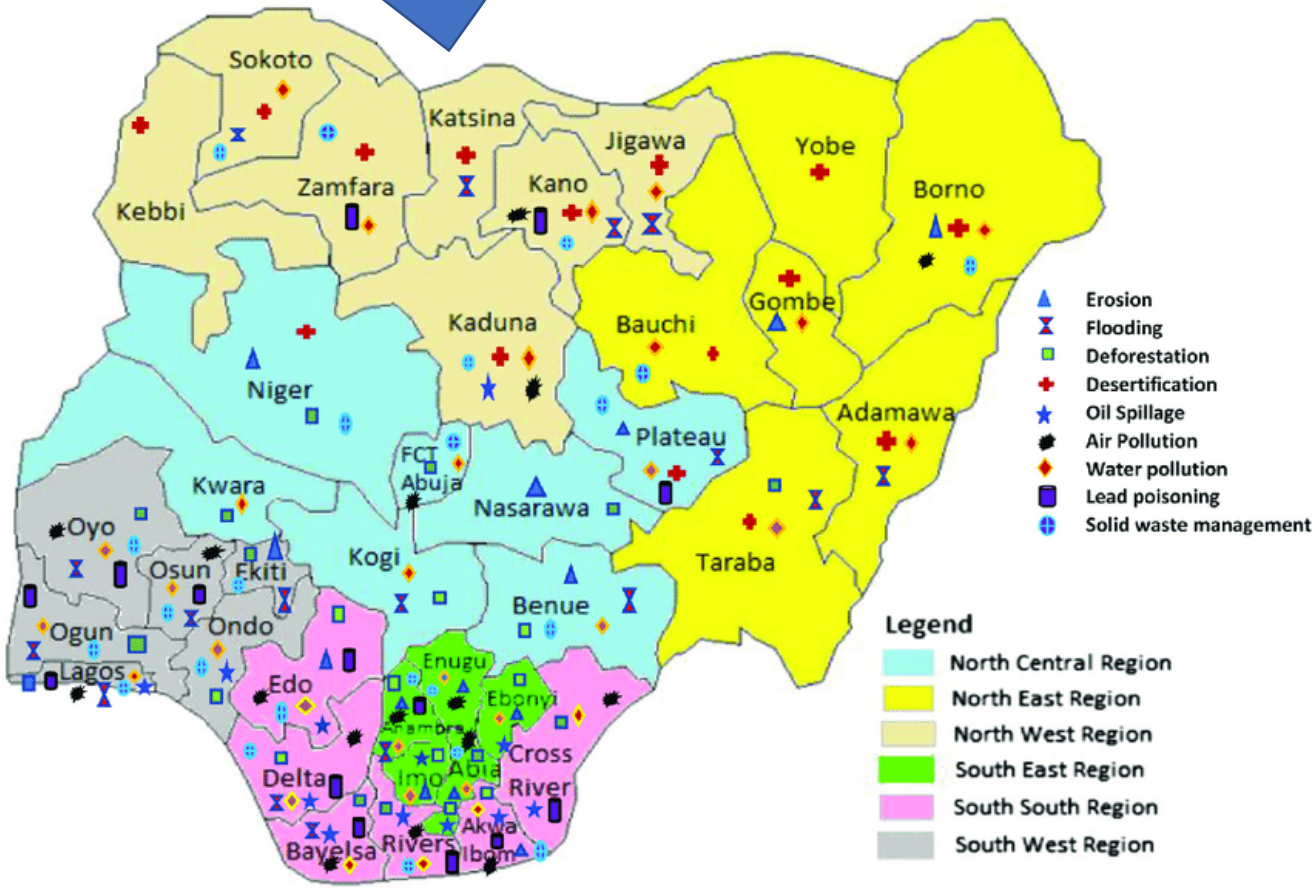
Source: https://twitter.com/Cleantechhubng/status/1154331193128693761/photo/1

Challenges of Natural Resources Extraction for Energy Access in Nigeria



Map of Nigeria showing Locations of Natural Resources

Source https://aboutnigerians.com/amp/map-of-nigeria-showing-natural-resources/

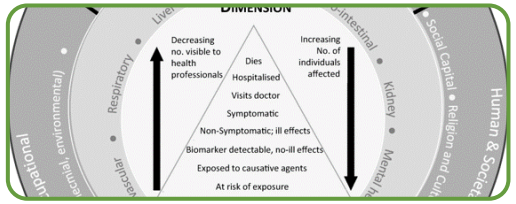


Map of Nigeria showing locations and environmental problems

Source: Pona et al. (2021)

Adverse Impacts of Natural Resources Extraction for Energy Access in Nigeria

Environmental exposures associated with mining (ex. occupational exposures to **excessive noise and body vibration** have been linked with **cardiovascular morbidity and mortality** (Davies et al., 2005)



Mining industry associated conditions like **work-related stress, isolated living, catered food services, night shift work**, among others are **important risk factors/determinants of disease** (Jenkins et al., 2013)

Miners in Nigeria grinding gold ore with significant exposures to lead and silica dust.
Source: http://www.okinternational.org/mining

Adverse Impacts of Natural Resources Extraction for Energy Access in Nigeria, Cont'd

How sawmill wastes impact surface water, sediment, macrobenthic invertebrates, and fish: a case study of the Lagos lagoon, Okobaba Area, South-western Nigeria

Olamide Elizabeth Faremi, Temitope Olawunmi Sogbanmu & Olanike Kudirat Adeyemo

Environmental Monitoring and Assessment **193**, Article number: 235 (2021) | Cite this article

Sawmill Activities Near the Lagos Lagoon, Nigeria: Polycyclic Aromatic Hydrocarbons and Embryotoxic Evaluations of Sediment Extracts Using *Clarias gariepinus*

Temitope O. Sogbanmu, Oluwatoyin T. Fatunsin, Folake O. Echebiri, Adebayo A. Otitoloju & Kehinde O Olayinka

Bulletin of Environmental Contamination and Toxicology **104**, 809–819 (2020) | Cite this article

Published: 17 January 2009

Estimation of "environmentally sensitive" dispersal ratios for chemical dispersants used in crude oil spill control

Adebayo A. Otitoloju & Temitope O. Popoola

The Environmentalist **29**, 371–380 (2009) | Cite this article

Housing and SDGs in Urban Africa pp 125–145 | Cite as

Home > Housing and SDGs in Urban Africa > Chapter

Adverse Impact of Human Activities on Aquatic Ecosystems: Investigating the Environmental Sustainability Perception of Stakeholders in Lagos and Ogun States, Nigeria

Temitope Olawunmi Sogbanmu, Opeyemi Anne Ogunkoya, Esther Iyanuoluwa Olaniran, Adedoyin Kehinde Lasisi & Thomas-Benjamin Seiler

Chapter | First Online: 09 March 2021

ELSEVIER

Environmental Pollution

Volume 255, Part 2, December 2019, 113295

Specific polycyclic aromatic hydrocarbons identified as ecological risk factors in the Lagos lagoon, Nigeria ☆

Temitope O. Sogbanmu [a], Adesola O. Osibona [b], Adebayo A. Otitoloju [a]

HUMAN AND ECOLOGICAL RISK ASSESSMENT
2020, VOL. 26, NO. 4, 1062–1075
https://doi.org/10.1080/10807039.2018.1554428

Taylor & Francis
Taylor & Francis Group

Check for updates

Drinking water quality and human health risk evaluations in rural and urban areas of Ibeju-Lekki and Epe local government areas, Lagos, Nigeria

Temitope O. Sogbanmu[a], Sherifat O. Aitsegame[a], Olubunmi A. Otubanjo[b], and John O. Odiyo[c]

Our Changing Environment and Development *edited by* Jacinta A. Opara
Metropolitan International University Press. ISBN 978-9970-9670-0-1(print);978-9970-9670-1-8(online)

Chapter 40

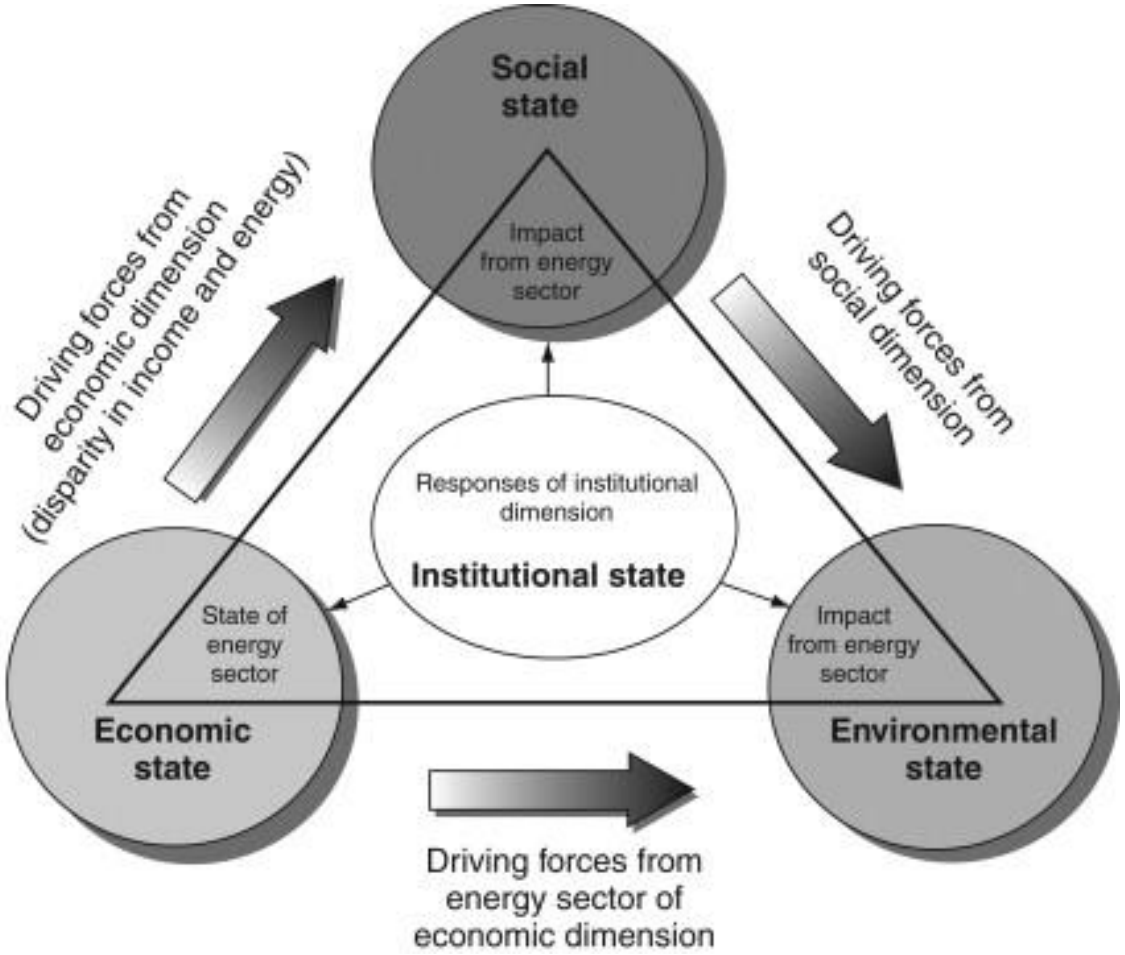
Air Pollution in Nigeria: A Review of the Causes, Effects, Control and Management

[1]T. O. Sogbanmu,[1]K. O. Sobowale, [1]O. C. Dopemu, [1]O. V. Togun, [1]O. T. Afolabi and [2]I. M. Magami
[1]University of Lagos
[2]Usmanu Danfodiyo University

Abstract
Air pollution is a major environmental problem and relates to anthropogenic climate change which is centred on the emissions of greenhouse gases (GHGs). The aim of this review is to evaluate the causes, effects of air pollution as well as scientific evidence on control devices, methods and stakeholders in air pollution management in Nigeria. The methods used involved literature search using databases such as Google Scholar and Scopus with keywords and phrases relating to the subject. Metropolitan cities such as Lagos, Kano, and Port Harcourt were identified as hotspots of air pollution in Nigeria. Air pollutants emission in Nigeria are majorly from biomass fuel burning from vehicles, landfill gases, domestic cooking stove and industries. Air pollutants such as particulate matter (PM) pose mild to severe respiratory illness particularly in vulnerable persons. Air pollution control devices or methods that have been developed in Nigeria include a chemical process absorption column for the removal of carbon dioxide from flue gas emissions of power generating sets, hybrid of incineration and anaerobic digestion with a 75.7-93.3% global warming potential reduction compared to landfilling with energy recovery and an Adaptive Neuro Fuzzy Inference System (ANFIS)-based wet scrubber PM emissions control system which is able to keep PM emissions below the WHO PM emission limit of 20 μg/m³. The stakeholders in the management of air pollution in Nigeria include government institutions such as the Federal Ministries of Environment, Health, Science and Technology. Others are research institutions, CSOs and organised private sector. Air pollution policy revisions, rigorous and robust stakeholders' engagement and policy implementation approaches are required to manage emission sources and mitigate the environmental and human health effects of air pollution. This is relevant to the theme of the 2019 United Nations World Environment Day on air pollution and UN Sustainable Development Goal 13 (climate action).

Keywords: Air pollution, 2019 World Environment Day, Nigeria, Stakeholders, United Nations SDG 13

Consideration for Sustainable Management of Natural Resources for Energy Access in Nigeria: Energy Transition Plan



Source: Davidsdottir, 2018

https://www.energymrc.ng/nigerias-new-energy-transition-plan-2022/

- Government institutions to tackle energy access issues that addresses the needs of the poor
- Explore sustainable technological options
- Address energy intensive consumption patterns, -Edomah (2021)

Consideration for Sustainable Management of Natural Resources for Energy Access in Nigeria. Con'td

Printing Press Effluents: Toxicological Evaluations in the African Sharptooth Catfish and Treatment Efficacy Using a Prototype Effluent Treatment Unit

[1]Sogbanmu, T. O., [2]Chukwumaife, O.I. and [3]Ogun, A.N.

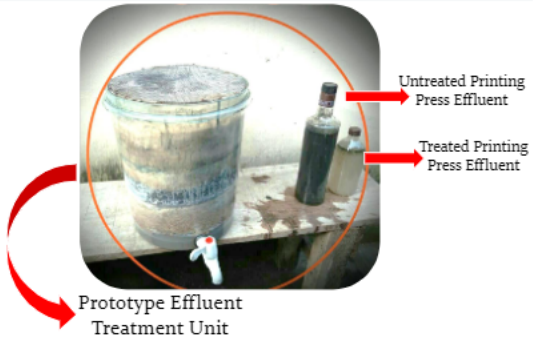
[1,2,3]Ecotoxicology and Conservation Unit, Department of Zoology, Faculty of Science, University of Lagos, Nigeria

Corresponding Author: tsogbanmu@unilag.edu.ng; www.tosogbanmu.wordpress.com

INTRODUCTION

- Printing presses are machines which applies ink and other solvents to a print medium to disseminate information.
- There is a preponderance of small to large scale printing presses in the Lagos metropolis with Somolu being the hub of printing.
- Disposal of untreated printing press effluent into waterways poses risk of groundwater contamination and potential adverse effects on aquatic organisms (Femi and Ogunlade, 2012).
- Thus, low cost and low technology pretreatment of these effluents are imperative to promote good health and wellbeing (**SDG 3**), clean water and sanitation (**SDG 6**), sustainable cities and communities (**SDG 11**) and safeguard life below water (**SDG 14**).
- *Clarias gariepinus* (the African sharptooth catfish) is a model freshwater fish utilised for toxicity studies (Sogbanmu et al., 2018)

MATERIALS AND METHODS



Alexander von Humboldt Stiftung/Foundation

Developing a Triple-Helix of University-Industry-Government Partnership and Linkages in Africa: A Necessary Tool for Translational Research in the 21st Century

November 8, 2022

Temitope O. Sogbanmu, PhD, MNYA

Environmental Toxicologist | Vice President, Nigerian Young Academy (NYA) | Affiliate, The African Academy of Sciences (The AAS) | Project Founder & Lead, Evidence Use in Environmental Policymaking in Nigeria (EUEPiN) | Team Lead, EESKT-TCEBCEM RG

Affiliations: Ecotoxicology and Conservation Unit, Department of Zoology, Faculty of Science, University of Lagos, Akoka, Lagos, Nigeria | Environmental Evidence Synthesis and Knowledge Translation Research Group, TETFund Centre of Excellence on Biodiversity and Ecosystem Management (EESKT-TCEBCEM), UNILAG

E: tsogbanmu@unilag.edu.ng | **W:** https://tosogbanmu.wordpress.com/ | https://euepin.unilag.edu.ng/ | https://eepon.unilag.edu.ng/

Plenary Lecture delivered at the University of Lagos Humboldt Kolleg, November 6-9, 2022

ELSEVIER

Ecotoxicology and Environmental Safety

Volume 212, 1 April 2021, 111982

Antibiotics, algal evaluations and subacute effects of abattoir wastewater on liver function enzymes, genetic and haematologic biomarkers in the freshwater fish, *Clarias gariepinus*

Daniel O. Oyeniran [a], Temitope O. Sogbanmu [a c], Taofikat A. Adesalu [b]

References

- Ahmed, A. I., Bryant, R. G., & Edwards, D. P. (2021). Where are mines located in sub Saharan Africa and how have they expanded overtime?. *Land Degradation & Development* **32**(1): 112-122.
- Davidsdottir, B. (2018). Sustainable Energy Development; the role of geothermal power.
- Pona, H. T., Xiaoli, D., Ayantobo, O. O., & Tetteh, N. D. (2021). Environmental health situation in Nigeria: current status and future needs. *Heliyon*, *7*(3), e06330.
- https://www.energymrc.ng/nigerias-new-energy-transition-plan-2022/
- http://www.okinternational.org/mining
- https://aboutnigerians.com/amp/map-of-nigeria-showing-natural-resources/
- https://twitter.com/Cleantechhubng/status/1154331193128693761/photo/1
- https://www.researchgate.net/profile/Temitope-Sogbanmu/publication/359370748_Sustainable_Mining_and_Non-_Communicable_Diseases/links/6238639872d413197a394a44/Sustainable-Mining-and-Non-Communicable-Diseases.pdf

Acknowledgement

ZiF Zentrum für interdisziplinäre Forschung
Center for Interdisciplinary Research

UNIVERSITÄT BIELEFELD

THE ROYAL SOCIETY

The Association of Commonwealth Universities

Source: https://commons.wikimedia.org/wiki/File:Thank-you-word-cloud.jpg