POLIT JOURNAL
SCIENTIFIC JOURNAL OF POLITICS

Media and Air Pollution Management, Policy and Legislation in Nigeria

Eric Msughter Aondover[1], Omotola Ogunbol[2], Omolara Oluwabusayo Akin-Odukoya[3], Ololade Olatunji Lateef[4], Muhammad Ridwan[5]
[1,2,3,4]Department of Mass Communication, Caleb University, Imota, Lagos, Nigeria
[5]Universitas Islam Negeri Sumatera Utara, Indonesia

Abstract:

Air pollution is an acute problem in developing countries, especially their cities. In Nigeria the sources include vehicle exhaust aggravated by the rising car population, industrial emission, especially from petrochemical industries and cement manufacture, use of gasoline generation as a result of unstable power supply, use of fuel wood for domestic use and energy for small industries. This paper reviews air pollution and control measures in Nigeria. Data for the study was generated through secondary sources. The study discovered that it has been difficult to achieve cooperation for air pollution control in developing countries like Nigeria whose main concern is to provide for the basic needs as food, shelter and employment for her populace. The control measures have not been very effective and fully enforced. This paper therefore proposed preventive measures and sustainable solutions, such as vehicle inspection, enforcement of legislations, effective refuse collection and evacuation and steady supply of electricity to stop use of gasoline generators among others to ensure safe environment for the population to live.

Keywords:

Air pollution, control measures, urban centers, Nigeria

I. Introduction

Air is one of the most important constituents of man's environment. An average human being requires about 12kg of air each day, which is nearly 12 to 15 times greater than the amount of food consumed. Clean and pure air is very essential for human health and survival. Any change in the natural and normal composition of air that may adversely affects the living system, particularly the human life invariably causes air pollution. Air pollution is generally defined as the presence in the outdoor atmosphere of one or more contaminants such as fumes, dust, gases, mist, odour, smoke, smog or vapours in considerable quantities and duration of which is injurious to human, animal and plant life or which unreasonably interferes with the comfortable enjoyment of life and property. Thus, air pollution is generally disequilibrium condition of air caused due to the introduction of foreign elements from natural and manmade sources to the air so that it becomes injurious to biological communities (Msughter et al., 2023).

The World Health Organization (2012) defines air pollution as limited to situations in which the outer ambient atmosphere contains materials in concentrations which are harmful to man and his environment. A substance in the air that can cause harm to humans and the environment is known as an air pollutant and air pollutants are expressed as a ppm or ug/m3 which is subjected to change to variations of temperature and pressure. Air pollution is a problem that is directly related to the number of people living in an area and the kinds of activities they engaged in (Msughter et al., 2023). In a place where the population is low and their energy usage is also low, the impact of people in creating pollution is minimal. However, where the population is high, the area urbanized and industrialized with high energy usage large quantities of pollutants are released into the environment. It is clearly obvious that the greater

the concentration of people in one area, the greater the amount of pollution and the greater the sophistication of a society the more intricate and poignant its pollution (Msughter et al., 2021).

It is based on the above fact that this paper examines air pollution and control measures in urban centres of Nigeria (Msughter et al., 2023). Nigeria is located on the west coast of Africa between the Bight of Benin to the fringes of the Sahara Desert (between Benin Republic and Cameroun). Nigeria is the most populous country in Africa accounting for approximately one-sixth of Africa's people. Based on the 2006 National Population Census Nigeria has a population of 140,431,790 people and the population is exploding with current estimates of over 170 million and a growth rate of more than 2% per annum. Approximately 50% of Nigerians lived in urban centers and eight cities namely Lagos, Kano, Ibadan, Kaduna, Port Harcourt, Benin City, Maiduguri and Zaria have a population of over 1 million People.

1.1 Problem Statement

Scholars like Longhurst, et al., (2011) established in the literature that since 1988 the Nigerian Government has introduced environmental legislation aimed at reducing the atmospheric impact of various sources of pollution. Emphasis has often been placed on mitigating pollution from the oil and gas industry. However, various studies indicate significant ambient air pollution from other sources due to vehicular traffic growth in urban areas, increased reliance on petrol and diesel fuelled generators for electricity supply in homes and other public facilities, uncontrolled open incineration of waste and major thermal power stations within the city limits (Aondover et al., 2022). Therefore, in order to bridge the gap in the literature, this study examined air pollution management, policy and legislation within the context of Nigeria.

1.2 Purpose and Objectives of the Study

The aim of this study is to examine air pollution management, policy and legislation in Nigeria. In order to achieve the objectives of study, the following basic tools of inquiry are set:

1. What are the sources of air pollution in Nigeria?
2. What are the air pollution control measures in Nigeria?
3. What are the challenges of air pollution management in Nigeria?
4. What are the tenable solutions to air pollution problems in Nigeria?

II. Review of Literature

2.1 Thematic Literature Review

Environmental sustainability is a topical issue around the globe and specifically promoting air quality standard is a major thrust of that discourse. Air pollution has been severally defined. It has been define as the introduction of contaminants into a natural environment that causes instability, disorder, harm or discomfort to the ecosystem that is physical system or living organisms (Akande, et al., 2013). In other words, it is the prevalent of harmful substance in the atmosphere which is detriment to health and wellbeing of people, animal and the environment. According to the United State Environmental Protection Agency (1994) it is also the contamination of air by discharge of harmful substances, which can cause health problems including burning eyes and nose, itchy irritated throat and breathing problems (Ndoke and Jimoh, 2005; Msughter & Abba, 2021). World Health Organization (2012) defines Air pollution as contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Thus, air pollution constitutes a form of pollution that makes air or atmosphere detrimental to public health and wellbeing.

2.2 The Typologies of Air Pollution in Nigeria

Classification of air pollutant is a difficult project in developing countries compared to developed countries as there are no documents from environmental agency that oversea pollution issues to attempt a classification and codification of pollutant. However, types of pollutant are done according to several parameters among which include chemical composition, primary or secondary pollutant, natural or man-made pollutant, space or scale of their effect (that is whether their effect is local, national or global), physical state of the pollutant (that is Gaseous, Liquid (aqueous) or Solid) (Ukemenam et al., 2018; Hile et al., 2023). Globally, it has been observed that the highest number of pollutant comes from transport sector of the economy and particularly from vehicular emission coming from used cars.

It has been estimated that if the rate of ownership of individual automobiles continues to increase, 30 years from now, 9 out of every 10 citizens will own a car which then means that pollution by automobiles will triple (Okere et al., 2013). Air pollutants associated with traffic-related emissions, such as nitrogen oxides (NOx), carbon monoxide (CO) and particulates (PM10) have been recognized to have significant impact on human health with evidence suggesting causal associations between elevated PM10 and mortality (Ojo & Awokola, 2012).

2.3 Sources and Scope of Environmental Damage

Polluting sources are many, ranging from automobiles to waste disposal sites. Depending on the environmental media (air, water or land), sources of pollution are generally grouped into (i) their mobility (stationary or mobile source) and (ii) their identifiability (point or non-point source). Some types of pollution have detrimental effects that are limited to a single community. Others pose a risk over a large geographic region. Generally, the scope is divided into three. (i) Local pollution, which refers to environmental damage that does not extend far from the polluting source, an example is urban smog and solid waste pollution. Poor waste management practices can allow contaminants such as lead and mercury to leach into soil and water supplies; (ii) regional pollution is environmental pollution that poses a risk, well beyond the polluting source. An example is acidic deposition. This is commonly known as acid rain. It is called regional pollution because the harmful emissions can travel hundreds of miles from their source. Another example is oil spill; (iii) examples of global pollution are global warming (greenhouse effect).

Real GDP has experienced tremendous growth in Nigeria especially since the beginning of the present democratic regime. Although total carbon monoxide emission has been fluctuating, an upward trend was observed. This has resulted in a correlation coefficient of 0.75 between 1960 and 2010. Available data shows that the 7.87 per cent average growth rate experienced between 2000 and 2014 led to doubling of RGDP from N25,647 billion in 2002 to N55,469 billion in 2010. This, no doubt could be classified as a growth miracle. Another interesting observation is the decline in CO2 emission from 104,697 kt in 2005 to 78,910 Kt in 2010. This confirms Kuznets hypothesis. However, this tremendous growth performance has not had the desired effect on unemployment and poverty. If specific and innovative measures are not taken to address these issues, the resulting effect could affect the sustained growth already achieved.

2.4 Effect of Air Pollution in Nigeria

The effect of air pollution is widespread affecting man, animal, vegetation and the environment. The implication of air pollution on the health of man is numerous. The World Health Organization states that 2.4 million people die each year from causes directly attributable to air pollution, with 1.5 million of these deaths attributable to indoor air pollution (Magaji &

Hassan, 2015). Studies reveal that air pollution increase the incidence of cancer, birth defects, brain and nerve damage, and long-term injury to the lungs and even death (Ndoke & Jimoh, 2005). Air pollution causes chronic respiratory diseases, especially asthma, chronic bronchitis and lung emphysema (Otti & Ogbuagu, 2014). Other effect of air pollution includes low birth weight and nutritional deficiency in children; interstitial lung disease, chronic obstructive lung disease, tuberculosis, cardiovascular disease and cataract among others in adults (Ukemenam, 2014).

In a study of the effect of air pollution on the people of Rivers State, using data collected from state ministry of health, the study reveal that a total number of 30,435 disease cases were reported during 2003 to 2008, out of which 61 patients died. The diseases found to be prevalent in the study area as a result of air pollution were pertussis, pulmonary tuberculosis, cerebrospinal meningitis (CSM), pneumonia, measles, chronic bronchitis, and upper respiratory tract infection (URT) (Nwachukwu, et al., 2014). Another study by WHO's International Agency for Research on Cancer (IARC) observe that air pollution is carcinogenic to humans, with the particulate matter component of air pollution most closely associated with increased cancer incidence, especially cancer of the lung (Sharma, et al., 2013; Idris & Msughter, 2022).

III. Research Methods

The study is predominantly based on information derived from secondary sources such as relevant texts, journals, magazines, newspapers, official publications, historical documents and the Internet, which served as tangible sources of insight into air pollution management. However, the inquiry is strictly limited to recorded information about air pollution management, policy and legislation in Nigeria that can be found in scholarly journals, books, internet and libraries. The method here is use to evaluate such findings with other existing findings on the subject matter. Consequently, the study adopts content analysis as its method of analysis. The method here is to sift the findings in the works available for this research, check the consistency of the opinions of either the authors or the actors; evaluate such findings or opinions with other existing findings in the literature. Through these methods, the study draws the inferences on the data generated in the course of the study.

IV. Result and Discussion

4.1 Sources of Air Pollution in Nigeria

Based on the available literature, there are various sources of air pollution in the urban centers of Nigeria. The major sources are highlighted below:

Vehicle exhaust: the release of vehicle exhaust into the air is one of the major sources of air pollution in Nigeria especially in the urban centers where many people owned motor vehicles and move with them on urban roads. There is rapid urbanization in the major cities of Nigeria which is accompanied by rising car population and hence increases in the release of vehicle exhaust which causes air pollution. This is particularly the case during period of heavy vehicular traffic that results into traffic congestion. Studies by Nwachukwu et al., (2012) and Sharma et al., (2013) showed that vehicle exhaust or smoke has caused air pollution, which destroys the air quality in cities such as Lagos, Ibadan, Kano, Kaduna, and even Abuja the Federal Capital.

Use of gasoline generator: there is inadequate electric power supply to households, businesses and industries. The result is that many households, businesses and even industries operate small, medium and large capacity fossil fuel electric power generators for electric power supply whose exhaust is a source of air pollution that releases poisonous carbon monoxide. A

recent study conducted in 2010 showed that small household generators in Nigeria operate an average of six (6) hours daily, while average distance of generator away from buildings was 5.6m. These alongside poor ventilation have negatively influenced the quality of indoor air in the households causing air pollution**.**

Use of fuel wood: A large percentage of the people in the urban centers uses fuel wood for cooking and heating. Also small scale industries such as bakeries and businesses such as restauraunts use fuel wood during their production processes. The result is that the burning of the wood has become a major source of indoor air pollution in the urban centers both at home and elsewhere. More people are using fuel wood due to the absence of cheap and readily available sources of cooking and heating in the country.

Industrial Emissions: The distribution of industries in Nigeria is not uniform as they are concentrated in the urban centers. Major industrial centers in the country include Lagos, Port Harcourt, Ibadan, Kano and Kaduna. The industries range from oil and gas, chemicals, cement, textiles, iron and steel, plastics, etc (Yar'Adua et al., 2023). Even though these industries are located in industrial estates, uncontrolled urban growth has resulted in the expansion of residential buildings very close to the industries. These industries release large quantities of gaseous wastes into the air which are sources air pollution.

Domestic and industrial wastes: The improper disposal and ineffective management of municipal solid waste and industrial waste creates major environmental and aesthetic problems in most of Nigeria's urban areas. Due to over-population and the creation of slums, most municipal areas generate more waste that can be disposed which led to the accumulation of waste heaps that over time decomposes which becomes source of air pollution. In addition waste burning method of disposal as practiced by most residents of the urban centers results in air pollution due to release of gases such as carbon monoxide, sulphur dioxide, oxides of nitrogen, halogenated carbons and other particulate matter.

4.2 Air pollution Control Measures in Nigeria

There are several measures for air pollution control in Nigeria which include:

*Environmental Legislation***:** In December 1988, the Federal Environmental Protection Agency (FEPA) was established by Decree 58 of 1988 of the FEPA decrees and was amended by decree 59 of 1992[10]. The agency was given responsibility for control over Nigeria's environment, its resources, exploitation and management and the development of processes and policies to achieve this. The agency has published sectoral regulations aimed at air pollution control among others. These regulations are:

a. National Guidelines and standards for environmental pollution control in Nigeria.
b. National Environmental Protection (pollution abatement in industries and facilities generating wastes) Regulation 1991.
c. The Management of Solid and Hazardous Wastes Regulations 1991 which gave a comprehensive list of dangerous and hazardous wastes.

The agency has been able to control pollution to some extent particularly in Abuja, the Federal Capital. The agency is now known by the name of National Environmental Standards and Regulation Enforcement Agency (NESREA).

States Environmental Protection Agencies: These are agencies concerned with general environmental protection in the 36 states of Nigeria. One of the departments in the state agencies is waste management and environmental pollution control department as in the case of

Katsina state, northern Nigeria. The department work to control pollution in the states, they receive complains of air pollution from the people and act accordingly to stop or reduce the pollution with some measure of success (Yar'Adua et al., 2023). In some states of Nigeria, particularly in the east, the agencies were now having powers to enforce legislations on the environment, arrest offenders and even put the offenders on trial in mobile courts in their premises. They are also engaged in public enlightenment programmes on radio and television to enlighten the people on the effects of air pollution.

Environmental Education: There are series of programmes on the print and electronic media in the states of the federation aimed at controlling the levels of air pollution particularly in the urban centers which are mostly affected. The ministries of environment and the states environmental protection agencies carry out various programmes like Radio and television discussion programmes, production of posters, pamphlets and leaflets to educate the people about air pollution, its effects and need for control for healthy living. Despite these efforts air pollution problems still persist in the urban centres. This has indeed called for continuous environmental education as it provide the public with information on the causes of pollution, the effects of pollution and what they can do to prevent or mitigate the effects of pollution.

4.3 Challenges of air Pollution Management in Nigeria

The Nigerian government identifies emissions of CO2 and other green house gases (GHGs) that contribute to climate change as an environmental problem [27]. However, the report did not include air quality as part of the environmental concerns for the Nigerian government. This could explain the unavailability of consistent emissions inventory for the country. Although there has been some independent research into air quality assessment in parts of Nigeria [5], more needs to be done by the Nigerian regulatory bodies to systematically enforce regulations aimed at improving air quality in Nigeria. The Federal Environmental Protection Agency (FEPA) was established under the Amended decree No. 59 of 1992 in the Laws of the Federation of Nigeria to undertake the following among other things.

Prepare a comprehensive national policy for the protection of the environment and conservation of natural resources, including procedures for environmental impact assessment for all development projects; prepare, in accordance with the National Policy on the Environment, periodic master plans for the development of environmental sciences and technology and advise the Federal Military Government on the financial requirements for the implementation of such plans; promote co-operation in environmental science and conservation technology with similar bodies in other countries and with international bodies connected with the protection of the environment and the conservation of natural resources; co-operate with Federal and State Ministries, Local Governments, statutory bodies and research agencies on matters and facilities relating to the protection of the environment and the conservation of natural resources.

Consequently, FEPA established the National Air Quality Standards (NAQS) in Nigeria in 1991. Some of the practices employed by FEPA and the Nigerian Federal Ministry of Environment (FMEnv) are the imposition of emission taxes, and the enforcement of emission abatement control mechanisms by industries. For example, the Federal Government of Nigeria recently increased gas flaring tax on oil companies in the Niger Delta. The new tax regime is $3.50 (about £1.75) on every 1,000 standard cubic feet of gas flared, representing an estimated 4,000% increase from the previous charge of about $0.08 (about £0.04), which had been in effect since the early 1960s [30]. In 1996, FEPA closed down an iron and steel company in Lagos for failing to implement measures to reduce emissions from its furnace [31]. However, enforcement has been one of the key issues confronting air pollution control in Nigeria. Many

industries contributing to air pollution, such as the oil refineries and National Fertiliser Company (NAFCON) are being run by the government, although in recent times, efforts are being made to privatise them, with the Government still holding some percentage of the shares. These companies often escape sanctions from government regulatory agencies and as a result, there is limited consideration of pollution control measures in these industries (Vitalis et al., 2025).

4.4 Management and Evaluation

An important element of the framework is the implementation of legislative requirements to achieve stated air quality objectives. Since the 1980s, the Nigerian Government has introduced reactive legislation and developed institutions aimed at reducing the environmental impact of industrial activities (Oreoluwa et al., 2024). Apart from not being robust enough, subsequent policies emanating from such laws were often impaired by limited technical capacity to implement efficient enforcement and compliance regimes. For example, there is no specific policy framework for managing or mitigating emissions from light-duty and heavy-duty vehicles and trucks, which are thought to be amongst the most significant contributors to air quality in Nigeria.

It is therefore evident that efficient air quality management in Nigeria will rely on suites of proportionate and cost-effective evaluation and management programmes to be undertaken at the local and national level as much as setting standards and regulations. The management framework will need to take account of economic efficiency, practicability, technical feasibility and timescales for achieving legislated air quality objectives. The state government, along with national agencies such as NESREA, will play an important role in setting out and implementing such management procedures. These may include regular reviews and assessments of air quality to identify whether the objectives have been, or will be, achieved at specific geographic locations where public health is, or will be, at risk, by the applicable date. Where applicable, the government should take proactive responsibility for enforcing and implementing appropriate air quality measures that will lead to the achievement of the objectives. This will include source emissions control from both stationary (industries and domestic) and mobile sources (such as transport).

4.5 Sustainable solutions to air Pollution Problems in Nigeria

The control measures for air pollution in the urban centres of Nigeria have not substantially reduced air pollution. It was particularly noted that most commuters and urban dwellers are constantly exposed to the hazards of air pollution on daily basis (Obasi & Msughter, 2023). It is based on this that the paper put forward preventive measures/sustainable solutions as listed below:

a. Vehicle inspection is an important preventive measure that will ensure drivers not only service their cars periodically but also old vehicles that emit to much smoke are taken off the roads and only vehicles in good condition ply the roads.
b. Improvement in electric power supply will drastically reduce the use of gasoline generators that are found at home, business premises, offices and industries. Nigeria has numerous sources of generating energy from renewable sources that could effectively harness to supply regular electricity to the people thereby reducing the use of gasoline generators.
c. The use of fuel wood can be reduced by providing readily available alternative means of cooking and heating both for homes and small scale industrial use. Biogas is an alternative energy source that can be promoted and subsidized to the people to reduce the use of fuel wood that is a source of indoor and outdoor air pollution.
d. Effective refuse collection in the urban centers will ensure that waste materials do not accumulate in the locality to be burnt or incinerated. The regular waste collection and disposal

will also ensure that there is no time for the waste to decompose and generate bad odour which pollutes the air.

e. Manufacturing industries operating in the urban centers should be compelled to adhere strictly to the various pollution control legislations that are enacted in the country. In line with this NESREA should ensure that the industries fully comply with the pollution control regulations.
f. Enforcement of air pollution legislations across the country will ensure that people, organizations and groups that carryout activities that are sources of air pollution are reduced. It is important to enforce pollution control legislations as the laws are there for many years but not fully enforced.
g. There is the need to continuously enlighten and educate the public about the causes and effects of air pollution so that they realize the dangers and health hazards of living in polluted environment. Environmental organizations in Nigeria need to form themselves into pressure groups to not only raise awareness about environmental issues but also pressurize the government to take action against those who pollute the environment.

4.6 Theoretical Framework: An Ecological Perspective of Change and Development

The perspective is associated with the works of Wilkinson and Boulding (1973). The theory is concerned with issues of change and development in contemporary societies, especially as they relate to environmental changes and/or ecologically related trends of population growth and the need to devise and sort out techniques of tackling development problems (Mojaye & Aondover, 2022). The theory states that, as the population of a society increases in size, individual members of the society exert more pressure on scarce available resources such as land and other natural endowments for survival. They directly or indirectly carryout socio-economic activities that pollute the environment/society and further cause harm (degradation) to the environment/society (Aondover et al., 2022). The socio-economic activities, according to these theorists include subsistence agricultural activities of people in agrarian societies of Africa, Latin America etc and the commercial and industrial activities of people in Urban-industrialized societies of the western-Europe and North America.

The perspective further argued that development is needed when a society out grow its resource base and productive system. The perspective therefore posits that as the established economic system of a given environment/society is proved inadequate and productive system becomes more problematic, societies are therefore driven to change their methods. For instance, as the population of a society outgrows the available resources, especially in agrarian societies, people are forced to migrate to urban centres/cities in search of job opportunities (Maikaba & Msughter, 2019). Some sell their labour, whereas some engage in several other commercial and agricultural investments such as livestock; some still carry out some technical and entrepreneurial businesses – all for survival. The urban and city dwellers establish and carryout industrial activities that equally pollute the society (Idris & Msughter, 2022). Wilkinson and Boulding conclude that these activities directly and/or indirectly pollute the environment with its attendant consequences on biodiversity.

V. Conclusion

Establishing an air quality management framework in Nigeria requires the introduction of specific environmental policy reform and legislative changes based on scientific understanding and analysis of the public health risks of air pollution. This paper identifies four important elements that should be considered in order to achieve this. The first element is the development of an empirical evidence base for ambient air pollution through monitoring and analysis of the

nature and effect of air pollution problems in Nigeria. The second is the establishment of numerical air quality standards and limit values for individual pollutants with the potential to compromise public health. Third, there is a need for robust legislation and regulations which will guarantee these standards as well as conferring powers and duties on specific governmental institutions such as NESREA and state government agencies with regards to air quality. Last and more importantly, is the introduction of suites of proportionate and cost-effective evaluation and management programmes to be undertaken at the local and national level for achieving the air quality objectives.

Significant gains, in terms of quality of life and public health can be achieved if a Nigerian air quality framework is put in place. There are also economic benefits in developing the capacity of Nigerian environmental professional and academic communities to undertake air quality assessment and modelling services. The EIA of development projects such as road schemes, commercial and residential developments, industrial developments, airports and mineral extraction, especially in the oil and gas operations will be enhanced by such skills and expertise leading to better environmental outcomes and improved air quality.

References

Akande, O. A., Nakimbugwe, D., & Mukisa, I. M. (2017). Optimization of extrusion conditions for the production of instant grain amaranth-based porridge flour. *Food science & nutrition*, *5*(6), 1205-1214.

Aliyu, M. A., Msughter, A. E., & Nneka, A. Q. (2023). Comparative Study of National Development Plans in Nigeria and India: Media Dimension. *SIASAT*, *8*(4), 202-212.

Aondover, E. M., Maradun, L. U., & Yar'Adua, S. M. (2022). Mediatization of the net and internetization of the print media in Northern Nigeria. *Unisia*, *40*(2), 335-356.

Aondover, P. O., Aondover, E. M., & Babele, A. M. (2022). Two nations, same technology, different outcomes: Analysis of technology application in Africa and America. *Journal of Educational Research and Review*, *1*(1), 001-008.

Frankovich, J., Longhurst, C. A., & Sutherland, S. M. (2011). Evidence-based medicine in the EMR era. *N Engl J Med*, *365*(19), 1758-1759.

Hile, M. M., Msughter, A. E., & Aliyu, M. A. (2023). Secularism and Ethical Issues in Media Practice as a Bane for National Development. *SIASAT*, *8*(3), 166-177.

Idris, M. K., & Msughter, A. E. (2022). Sources of Information on National Issues among Border Communities in Yobe State, Nigeria. *ASEAN Journal of Community Engagement*, *6*(1), 22-47.

Idris, M. K., & Msughter, A. E. (2022). Sources of Information on National Issues among Border Communities in Yobe State, Nigeria. *ASEAN Journal of Community Engagement*, *6*(1), 22-47.

Maikaba, B., & Msughter, A. E. (2019). Digital Media and Cultural Globalisation: The Fate of African Value System. *Humanities and Social Sciences*, *12*(1), 214-220.

Mojaye, E. M., & Aondover, E. M. (2022). Theoretical perspectives in world information systems: A propositional appraisal of new media-communication imperatives. *Journal of Communication and Media Research*, *14*(1), 100-106.

Msughter, A. E., & Abba, A. A. (2017). *Understanding Safety and Protection in Nigeria's Journalism*. Ahmadu Bello University Press.

Msughter, A. E., Garba, S., & Rabiu, A. B. (2023). Framing Theory Perspective of Identity and Narratives of Conflict in Nigerian Media.

Msughter, A. E., Liman, A. M., & Ahmed, M. O. (2021). Integrating Indigenous Language to Promote Unity in Diversity among Broadcast Media in Nigeria.

Msughter, A. E., Ogbonna, S., Fagbohun, A, M., et al (2023) Customers Reactions on Service Delivery by Major Telecommunications Operators in Nigerian Newspapers. *Curr Trends Mass Comm*, *2*(2), 98-105.

Msughter, A. E., Perpetua, A. O., & Itiafa, A. L. (2023). Artificial Intelligence and the Media: Revisiting Digital Dichotomy Theory. In *Information Systems Management*. IntechOpen.

Ndoke, P. N., & Jimoh, O. (2005). Impact of traffic emission on air quality in a developing city of Nigeria.

Nwachukwu, E. C., Nulit, R., & Go, R. (2014). Nutritional and biochemical properties of Malaysian okra variety. *Advancement in Medicinal Plant Research*, *2*(1), 16-19.

Nwachukwu, I. N., Ezeh, C. I., & Emerole, C. O. (2012). Effect of climate change on cocoa productivity in Nigeria. *African Crop Science Journal*, *20*, 487-491.

Obasi, M. C., & Msughter, A. E. (2023). Assessment of media coverage of environmental hazards in mining communities in Ebonyi State, Nigeria. *Environmental Challenges*, *13*, 100758.

Ojo, O. O. S., & Awokola, O. S. (2012). Investigation of air pollution from automobiles at intersections on some selected major roads in Ogbomoso, South Western, Nigeria. *IOSR Journal of Mechanical and Civil Engineering*, *1*(4), 31-35.

Okere, C. E., Onwuka, D. O., Onwuka, S. U., & Arimanwa, J. I. (2013). Simplex-based concrete mix design. *IOSR Journal of Mechanical and Civil Engineering*, *5*(2), 46-55.

Oreoluwa, P. A., Vitalis, P. O., Nneka, A. Q., Collins-Dike, J., & Ridwan, M. (2024). Online Harassment of Female Journalist in Lagos State. *Polit Journal Scientific Journal of Politics*, *4*(3), 162-174.

Otti, V. I., & Ogbuagu, F. U. (2014). Environmental Health Effects of Exposure to Air Pollution in Industrialized Areas. *Civil and Environmental Research*, *6*(5).

Sharma, S. B., Sayyed, R. Z., Trivedi, M. H., & Gobi, T. A. (2013). Phosphate solubilizing microbes: sustainable approach for managing phosphorus deficiency in agricultural soils. *SpringerPlus*, *2*, 1-14.

Ukemenam, A. I., Opadeji, B., Garbobiya, T. S., & Ujunwa, A. (2018). Macroeconomic effects of exogenous oil price shock in Nigeria: persistent or transitory. *International Journal of Economics and Finance*, *10*(11), 1-28.

Vitalis, P. O., Aondover, E. M., Ogunbola, O., Onyejelem, T. E., & Ridwan, M. (2025). Accessing Digital Divide and Implications in Nigeria: The Media Dimension. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, *8*(1), 1-12.

Yar'Adua, S. M., Msughter, A. E., & Aliyu, M. A. (2023). Original Paper Modernization, Marxist, Dependency and Alternative Theories of Development Communication: A Critical Review.

Yar'Adua, S. M., Msughter, A. E., & Garba, S. (2023). Media and National Development in Democratic Societies. *Polit Journal Scientific Journal of Politics*, *3*(3), 105-115.