

**THE ANALYSIS OF THE INTENSITY OF ENVIRONMENTAL PROBLEMS IN
ENUGU STATE, NIGERIA**

¹Ettum, P.O; ¹Okoh, T.C*; ¹Ibe, J.C; ²Ikubaiyeje, K.P and ³Obunna, U. O.

¹Department of Agricultural Economics, University of Nigeria, Nsukka.

²Department of Agricultural Extension, Ahmadu Bello University, Kabba campus, Kogi State.

³Agro Processing, Productivity Enhancement and Livelihood Improvement Support project, Enugu, Enugu State.

<https://doi.org/10.35410/IJAEB.2022.5698>

ABSTRACT

Environmental degradation is one of the apical challenges to human existence in all over the world. It determines access to portable water and other facilities. In most cases, there are delayed and uncoordinated environmental management practices which make the environment vulnerable and also impose threat to human co-existence. It is against this notion that the present study is designed to focus on the analysis of the intensity of environmental problems in Enugu state. The specific objectives were to; describe the socio-economic characteristics of the respondents, identify the different types of environmental problems by ranking in the study area, and proffer suggestions/remedies towards proper and efficient environmental management. Data were generated by field survey involving the administration of structured questionnaire. Random sampling was used in selection 389 respondents. Data were analyzed by descriptive statistics. The study revealed that majority of the respondents were male, married, and between the age 42 and 65 years, civil servants, and literate. The result also identified and ranked environmental problems in the state according to their degree of intensity. Viz are: air pollution, high density of combustion motor vehicles, erosion/flood, indiscriminate dumping of refuse, noise pollution, water pollution, and deforestation. The study therefore recommends that the existing legal provisions should be reviewed, strengthened and strictly implemented to control the attitudinal behavior and modern style of living towards the environment.

Keywords: Environmental degradation, Environmental Problems and Environmental Management.

1. INTRODUCTION

Environmental problem is an instability or unwelcome development in the natural environment. It arises from both natural forces and human intervention with the environment that alters the quality or quantity of environmental factors. And this causes the environment to become hostile to man and other species (Mckinnon et al., 2016). Both human involvement with the environment and natural forces poses unprecedented stress and impact on the quality of our environment. There is an upsurge of environmental hazard in Nigeria's inherent environment due to human activities such as agriculture, bush burning, deforestation and indiscriminate dumping of refuse and natural forces such as floods, hurricanes, landslides, droughts and earthquake. The man-made environmental problems ensue because of human seemingly endless desire to discover modern ways of living on the planet (Martin et al., 2016; World Economic Forum, 2017). Man relies entirely on the environment for his survival, good health and general well-being (Alison et al., 2016). Therefore, on the course of exploring and exploiting environmental

resources for the interest and service of man, several disasters arise. Adaku 2020 is of the opinion that these increase in environmental disaster emanate from a sharp rise in human population, increase in resource usage, pollution, improvement in technology, the emergence of free-market economies, as well as poor attitude of mankind concerning the environment. Nevertheless, research has shown that environmental resilience is connected with urban growth and housing scheme (Folke et al., 2016). In Nigerian today, cities are experiencing daily increase in environmental degradation as a result of poor attitude of people in urban area on the environment as well as inadequate environmental management practices (Rupani et al., 2020; Nicolaos et al., 2019). Urban areas being centers of art, culture, education, entertainment, technological innovations, providers of special services and “economic engines (Kuddus et al., 2020; Farrei, 2018; Burak et al., 2017) are results of urbanization. Many empirical studies such as (Hyellai et al., 2021; Erin et al., 2021) have discovered various environmental problems in Nigeria states in which Enugu state is not left out.

The major environmental challenges prevailing in Nigeria environment include land degradation, deforestation, biodiversity loss, erosion and land, water and air pollution among others. The environmental problems are inter-related and inter-connected. For instance, there are interrelationships between biodiversity loss, desertification, erosion, loss of soil fertility; disease outbreaks and climate change which tend to grow exponentially (Vardoulakis et al., 2016; Assa et al., 2021; Sofia 2020; Pollar et al., 2018; Momoh et al., 2021 and Mishra et al., 2021). The degeneration of a single factor of the environmental entity will have positive or negative feedback effects on the others. For example, man continuous infusion of carbon dioxide into the atmosphere has given rise to global warming with its resultant wide inconsistency in climate in the form of severe weather events that are generating floods (example, the 2012 cases of flood disasters experienced in more than half of the 36 States of Nigeria) and massive erosion of land. Also, deforestation leads to fall in wildlife population (biological environment) as well as increase in atmospheric temperature (physical environment). The country's large population of about 170 million and its rapid growth rate of 2.8 per cent are contributing to its environmental degradation. By the 1990s, a World Bank report estimated that Nigeria was losing about US\$5.1 billion per annum to environmental degradation, in the face of poor mitigation measures and initiatives. As a result of environmental degradation, Nigeria has lost about 84 per cent of its total forest cover and around 90 per cent of its moist forests, the remainder of which exist in small reserves. By 1995, woodland accounted for only about 29 per cent of the country's total land area of 923,768 km² (356,669 mi²) (World Bank, 2020). In 2016, the country's Environmental Performance Index (EPI) was 58.27, ranking it as number 133 out of 190 countries surveyed in the world. The poor EPI figure puts the country behind many other African countries like Egypt (66.45), South Africa (70.52), Namibia (70.84) and Kenya (62.49). The environment and its endowment are finite resources and its ability to provide for growing population and absorb waste and destructive effluent is also finite. However, Nigeria has a long way to go and requires more capable hands on desk in order to pursue and achieve the sustainable development goals (SDGs) that are related to the conservation and sustainable use of its natural resources. Therefore, this paper aims to analyze the intensity of environmental problems by ranking in the study area. It tends to provide answers to the following questions: what are the socio economic characteristics of the population? What are the different major types of environmental problems

and the intensity of these problems in the study area and what suggestion can be provided towards proper and efficient environmental management?`

Policies and Decrees Geared Towards Mitigation of Environmental Problems In Nigeria

Various laws and policies have over the years been enacted in Nigeria to tackle the reoccurring environmental problems and thus protect the environment for rapid economic growth. Such laws includes: oil and navigable water decree of 1968; the mineral act of 1969, 1973, and 1984; Chad Basin Development of 197; and the association gas injection act of 1969, these acts and decrees were enacted to solve specific and identified environmental problems. They were limited in scope and spatially restricted. However, decree No 58 of 1988 as amended by decree 59 of 1992, culminated in the establishment of Federal Environmental Protection Agency FEPA (Now Ministry of Environment) to have mandate over all issues as it relates to Nigerian environment, resource exploitation and management and so on (Babanyara, et al; 2010). The ministry's performance and achievement has been adjudged to be very minimal amidst various challenges facing the ministry ranging from poor funding to governments inconsistent in policy making to neglect of indigenous knowledge to inappropriate use of technology to poor awareness and many more. Therefore problems of urbanization, desertification, pollution and massive deforestation have remained (Babanyara, et al: 2010).

2. MATERIAL AND METHODS

The study area is Enugu urban. Enugu is a State in South East Nigeria. The State lies between latitude $5^{\circ}56'N$ and $7^{\circ}51'N$ of the equator and longitude $6^{\circ}53'E$ and $7^{\circ}55'E$ of the Greenwich meridian (Anyadike, 2002). The State has land area of about $8,022.95\text{km}^2$ with seventeen (17) local governments areas (Enugu State Agricultural Development Program) (Francis O., et al, 2020) and population of about 3,257,298 persons (NPC, 2006). The State shares borders with Abia State and Imo State to the South, Ebonyi State to the east, Benue State to the north, Kogi State to the northwest and Anambra State to the west (Enugu State Official Gazzete, 2017). The capital city has a population of 722,664 persons by 2006 census. According to National Population Commission (2006) Enugu, the capital of Enugu state is made up of three local government areas namely: Enugu south, Enugu north and Enugu east with a total population of 198,032, 242,050 and 277,119 respectively. The state is predominantly rural and agrarian with about 68% of its working population engaged in farming, trading (18.8%) and services (12.9%) (Williams 2008).

The study made use of multi-stage, purposive and random techniques in selecting respondents for the study. The first stage involves random selection of two layouts from each local government area. In the second stage, two (2) streets were purposively selected from each layout making it a total of twelve (12) streets. From each of the streets, thirty two (32) respondents were sampled. Eleven management staff was also sampled from both State Ministry of Environment and Mineral Resources and ESWAMA, making the total number of respondents to be three hundred and eighty nine (389).

Data for the study was collected through primary sources using a structured questionnaire. The questionnaires were administered to the senior/management staff of the institutions and adult heads of the households in the selected areas to enable the researcher achieve the objectives of the study. The objective of the study was achieved using descriptive statistics such as frequency

counts, and likert-scale rating. Four point likert-scales were used to achieve the objective 2 while objective 1 was achieved using frequency distribution table. The four-point likert-scale of strongly agree (SA: 4 point), Agree (A: 3 point), Disagree (D: 2 point) and strongly disagree (SD: 1 point) were used. The mean score for each respondent's option was obtained based on the four-point likert scale rating. $4+3+2+1 = 10/4 = 2.50$. Using the interval scale of 0.05 the upper limit cut-off point is $2.50 + 0.05 = 2.55$. The lower limit was $-2.50 - 0.05 = 2.45$. Based on this, any mean scores below or equal to 2.45, (i.e $MS = < 2.45$) will be ranked "strongly disagree". Those between 2.50 and 2.55 will be considered agree and finally, any mean score greater than 2.55 will be considered strongly agree.

3.RESULTS AND DISCUSSIONS

Socio-economic Characteristics of Respondents

The socio-economic characteristics of respondents may influence their knowledge concerning the environment in which they live in. Some of the socio-economic attributes that were examined include description of respondents in terms of gender, marital status, age, occupation, educational level and religion.

Table 1 Distribution of respondents according to Socio-economic characteristics of respondents

Variables	Frequency	Percentage
Gender		
Male	244	62.7
Female	145	37.3
Age range (in years)		
20 and below	20	5
21-41	137	35.2
42-65	232	59.6
66 and above	0	0
Marital statuses		
Single	73	18.8
Married	316	81.2
Occupation		

Trader	131	33.7
Farmer	23	5.9
Worker(white collar job)	192	49.4
	40	10.3
Student	3	0.8
Educational level		
Primary	38	10.1
Secondary	124	31.9
High institution	180	46.3
Postgraduate	38	9.7
Non-formal education	9	2.4
Religion		
Christianity	353	90.7
Muslim	15	4.0
Traditional	21	5.6
Total	389	100

The table shows that 62.7% of the respondents were male and 37.3% were female. It shows that the majority of the respondents were male. Also the table indicates that 81.2% of the respondents were married and 18.8% were single. From this, it can be deduced that majority of the respondents were married.

The table indicates that 20 respondents were under the age of 20 years, 137 respondents were within the age bracket of 21- 41 years and 232 respondents were within the age bracket of 42-65 years. From table above it is obvious that the dominant age group of the respondents were mature individuals capable of taking verifiable decisions. It also shows that majority of the respondents were within their vibrant and productive age of life, and have constant encounter with the environment. This in tandem with the findings of Yi Du et al.(2018) which posits that majority (69.6%) of the respondents were in their middle and productive age of 35-60 years

The table depicts that 192 respondents were workers while 131 respondents were traders. 23 respondents were farmers while 40 respondents were students and 8% others that were engaged in other things not mentioned. This finding is in tandem with the work of Kayode et al (2021) who also discovered that majority (41.4%) of the respondents were civil servants. This could be as a result of the metropolitan status of the area studied. This shows that majority of the respondents are apparently workers. The table shows that 180 respondents were graduates while 38 respondents were postgraduate. 124 respondents had O' level certificate while 38 respondents had their First School Leaving Certificate and 9 respondents had no formal education. This shows that majority of the respondents have formal education and were enlightened to a reasonable level. This agrees with the findings and report of Okafor (2011) titled "problems and prospects of waste management in Enugu state but disagrees with the work of Kayode et al (2021) and Yi Du et al (2018) who discovers high level of illiteracy among the respondents they hypothesized. It reveals that 353 respondents were Christians, 15 of them were Muslim and 21 of them were traditional worshippers. Therefore, the above table suggest that majority of the respondents were Christians.

Distribution of respondents (general public) according to their response to environmental problems

Table 2 depicts that air pollution, noise pollution, indiscriminate dumping, high density of motor vehicle, deforestation, over-crowding, biodiversity loss, and Land/soil pollution were considered as major problems in the state with high mean scores of 3.3289, 3.0955, 2.9841, 2.8939, 2.8753, 2.7560, 2.6658, and 2.6383 respectively.

Table 2 Distribution of respondents (general public) according to their response to environmental problems

Environmental problems	N	Mean	Standard Deviation
Air pollution	378	3.3289	.72789
Noise pollution	378	3.0955	.81958
Indiscriminate dumping of refuse	378	2.9841	.92527
High density of motor vehicle	378	2.8939	.88690
Deforestation	378	2.8753	.84290
Over crowding	378	2.7560	.84983
Biodiversity loss	378	2.6658	1.80711
Land/soil pollution	378	2.6383	.89563
Water pollution	378	2.2573	.90513

Poor urban housing	378	2.2228	.92150
Erosion/flood	378	2.1729	.95186
Valid N	378		

Distribution of respondents (institutions) according to their response to environmental problems

Table 3 shows that air pollution, indiscriminate dumping of refuse, noise pollution, water pollution, land/soil pollution, biodiversity loss, deforestation, erosion/flood and high density of combustion vehicle are problems of the environment in the state with high mean score of 3.4545, 3.0909, 3.0000, 2.9091, 2.7273, 2.6364, 2.8182, 3.1818 and 3.2727 respectively. It also shows that over-crowding is also a significant factor with mean score of 2.5455. Tables 2 and 3 show at a glance in a descending order, the intensity of the environmental problems in the state. It also show a favorable approval by both the institutions and the general public that the factors discussed above are the problems of the environment in the study area with more emphasis on air pollution, noise pollution, indiscriminate dumping of refuse, high density of motor vehicle and erosion. This result has been amplified by the finding of Babanyara et al (2010) who highlighted that atmospheric pollution, sanitation, flooding/erosion, desertification and funding are the major environmental problems in Bauchi State, Nigeria.

Table 3 Distribution of respondents (institutions) according to their response to environmental problems

Environmental problems	N	Mean	Standard Deviation
i. Air pollution	11	3.4545	.68755
ii. High density of motor vehicle	11	3.2727	.64667
	11	3.1818	.98165
iii. Erosion/flood	11	3.0909	.94388
iv. Indiscriminate dumping of refuse	11	3.0000	.81958
v. Noise pollution	11	2.9091	.90513
	11	2.8182	.84290
vi. Water pollution	11	2.7273	.89463
vii. Deforestation	11	2.6364	.80711
	11	2.5455	.82020
viii. Land/soil pollution	11	2.4545	.93420
ix. Biodiversity loss			
x. Over crowding			
xi. Poor urban housing			
Valid N	11		

5. CONCLUSION AND RECOMMENDATION

This empirical study was aimed to find out and analyze the state of the environment and also discover the most prevalent environmental problems in the study area.

The study reveals that majority of the respondents were between the ages of 42-65 years. They were mostly male, married, workers, and had acquired formal education to a reasonable level. This suggests that, the respondents were in their active working age, literate and responsible adults which can give information and take decisions out of experience. The study also revealed widespread environmental problems in the study area. Going by the intensity of the problems, they are ranked as follows: air pollution, noise pollution, indiscriminate dumping of refuse, high density of combustion motor vehicle, deforestation, overcrowding, biodiversity loss, land/soil pollution, water pollution, poor urban housing and erosion/flood were the key major factors of environmental problem in the state. There is also a link between this finding and the report of Emodi (2017) that stated the environmental problems in the state. Therefore, legal framework should be strengthened by heavy sanction in case of noncompliance to the environmental policies. It is also necessary that, the principle of sustainable development be recognized and more emphasis placed on environmental impact Assessment (EIA).

REFERENCES

- Adaku, J.E (2020). The impact of flooding on Nigerias's sustainable development goals. *Journal of Ecosystem Health and Suitability*, 6(1), 21-34. DOI:10.1080/20964129.2020.1791735.
- Alison, P.G; Chris, T. B; Madhur, A; Burton, H.S, and Simon A. L (2016). Human-environment interactions in population and ecosystem. *Proceedings of the national academy of sciences of the united states of America (PNAS)*. PNAS December 20, 2016 113 (51) 14502-14506. <https://doi.org/10.1073/pnas.1618138113>.
- Anyadik, R.N (2002). Climate and Vegetation in G.E.Offormata (eds). *A Survey of the Igbo nation*, Onitsha; Africa First Publisher Limited.
- Assa, B.(2021). The deforestation income relationship: Evidence of deforestation convergence across developing countries. *Journal of Environmental and Development Economics*, 26(2), 131-150. Doi:10.1017/51355770X2000039X.
- Burak, G., Shuaib, L., Hilalry, M., Susan, P, & Karen C.S (2017). Urbanization in Africa: challenges and opportunities for conservation. *Environmental research letters* 13(1) <https://iopscience.iop.org/article/10.1088/1748-9326/aa94fe>.
- Babayara, Y.Y., Usman, H.A and Saleh, U.F (2010). An overview of urban poverty and Enugu environmental problems in Nigeria. *Journal of Human ecology*, 31(2): 135-143.
- State Agricultural Development Programme ENADEP (2008). A publication of Enugu State Government of Nigeria.
- Enugu State Government official Gazette (2017). An official Gazette published on web by the Enugu State Government. No.76
- Erin, L. M., Szymon, M. D., Shinichi, N., & Malgorzata, L (2021). *Environmental evidence 2021* 10:31 systematic map protocol published on: 6 November 2021.
- Farrell, K (2018). "An inquiry into the Nature and causes of Nigerian's Rapid urban Transition. *Urban forum* 5(29), 277-298. <https://doi.org/10.1007/512132-018-9335-6>.
- Francis O. O; Chinwe G.A; Francis I. O (2020). Role of local town planning authorities in building collapse in Nigeria: evidence from Enugu metropolis. *Journal heliyon* 6(7) 43-61
- Hyella T.P & Narh D.T (2021). Environmental health situation in Nigeria: current status and Future needs. *Journal Heliyon*, 7(6), e6330. <https://doi.org/10.1016/j.heliyon.2001.e06330>

- [Kayode, S.J., Muhammad, M.S., & Bello, M.U \(2021\). Effect of socio-economic characteristics of households on housing conditions in Bauchi metropolis, Bauchi State, Nigeria. *Tracktoria Nauki- path of science* 7\(7\), 1-13. Doi: 102278/pos.72-6.](#)
- Martin, J.L., Maris, V., & Simberloff, D.S. (2016). The need to respect nature and its limits challenges society and conservation science. *Proceedings of National Academy of Sciences*, 113,6105-6112. Doi:10.1073/Pnas.1525003113.
- Mc Kinnon, M.C., Cheng, S.H., Dupre, S (2016). The effects of nature conservation on human well-being: A systematic map of empirical evidence from developing countries. *Environmental Evidence* 5(8). <https://doi.org/10.1186/513750-016-0058-7>.
- Abdul M. K., Elizabeth, T & Emma M.B (2020). *Urbanization: a problem for the rich and poor* Public Health Reviews, 41(1). <https://doi.org/10.1186/540985-019-0116-0>
- Mishra, J. Mishra, P. & Arora, N.K(2021). Linkages between environmental issues and zoonotic diseases: with reference to COVID-19 Pandemic *Environmental Sustainability* 4 (1),455-467. <https://doi.org/10.1007/542398-021-00165-X>.
- Momoh, E.O., Olatunde F.O., Akharia, O.O., Igiekhume M.J., & Oseni, N. (2021). “Evaluation of Socio – Economic impacts of Deforestation in Edo State, Nigeria,” *Journal of forests, Conscientia Beam*, 8 (1), 37- 44. Doi:10.18488/Journal.101.2.21.81.37.44
- Nikolaos, V & Mark A.B (2019). *The contrasting roles of Science and Technology in Environmental challenges*. *Critical Reviews in Environmental Science and Technology*, 49(12), 1079-1106. Doi: 10.1080/10643389.2019.1565519.
- Pollard, J.A., Spencer, T., & Brooks S.M (2018). The interactive relationship between coastal erosion and flood risk. *Sage Journals*, 1(1), 1-11. <https://doi.org/10.1177/0309133318794498>.
- Rupani, P.F., Nilashi, M., Abumalih, R.A., Asadi, S., Samad, S & Wang,S (2020). Coronavirus pandemic (CONVID-19) and its natural environmental impacts. *International Journal of Environmental Science and Technology (Tehran)*. 2020 sep 1. 1–12. Doi: 10.1007/s13762-020-02910-x
- Sofia, G., & Nikolopoulos, E.L.(2020). Floods and rivers: a circular causality perspective. *Journal of Scientific reports*, 10(1), 51-75. <https://doi.org/10.1038/541598-020-61533-X>
- Vardoulakis, S., Dear, K., & Wilkinson, P.(2016). Challenges and opportunities for urban environmental health and sustainability. *Environmental health*, 15(S1). <https://doi.org/10.1186/s12940-016-0096-1>.
- World Bank (2020). . Benin Country forest note. world bank.” The world bank group, 1818H street No.Washington, DC20433, USA; Fax:202-522-2625; accessed on December 21, 2021 at <https://openknowledge.worldbank.org/handle/10986/34437>.
- World Economic Forum (2017). The global risks report 2017, 12th edition. Retrieved from <http://www.weforum.org/docs/GRR17-Report-web.pdf>.
- Yi, D., Wang, X., Brombal, D., & Morrigi, A.(2018). Changes in environmental awareness and its connection to local environmental management in water conservation zones: The case of Beijing, China. *Journal of Sustainability Multidisciplinary digital publishing Institute (MDPI)*. <https://www.mdpi.com/2071-1050/10/6/2087/pdf>