

**AN ASSESSMENT OF THE IMPACTS OF ENVIRONMENTAL
DEGRADATION AND ITS SOCIO-ECONOMIC IMPLICATIONS IN
KADUNA METROPOLIS**

¹UMAR, A; ³ABUBAKAR, A. J; ²MIJAHE. B. & ²TAR, U.

**¹Department of Sociology, School of Social Sciences, Kaduna State
University, Kaduna, Nigeria**

**²Department of Political Science and Defense Studies, Faculty of Arts and
Social Sciences, Nigerian Defense Academy Kaduna, Kaduna State Nigeria**

**³Department of Geography, Faculty of Science, Kaduna State University, P.
M. B. 2339, Kaduna, Nigeria**

***Corresponding author's e-mail: abusuhayl77@gmail.com**

ABSTRACT

This paper examines environmental degradation and its consequential implications leading to myriad of socio-economic repercussions including; communal strife, conflicts, religious clashes and other social and economic vices leading to insecurity of lives and property within the metropolitan area. The study employed qualitative methods of data collection which includes interviews with relevant respondents to generate data from key informants. The data generated from the field through qualitative means were used to answer the established research questions. Findings from the study reveals that environmental degradation can damage the physical base of states to a sufficient extent, as to threaten their social institutions and society at large and this constitute an important government approach in the pursuit of peace and national development. It concludes that securing the integrity of our environment is fundamental to the pursuit of security and development especially in the context of the recent security challenges bedeviling the Nigerian state.

Keywords: Environment, degradation, socio-economic insecurity, sustainable development

1. INTRODUCTION

The surrounding or condition in which a person, animal or plant lives or operates can be regarded as the Environment. Inclusively, “the environment is

everything that makes up our surrounding and affects our ability to live on planet earth. The air we breathe, the water that covers most of the earth's surface, the plants and animals around us and much more" (La Shier & Stanish, 2019). Man has been modifying his natural environment in ways that have made it to answer more closely to human requirements, needs and designs. Thus, mankind has not been singular, for many non - human species of living being have done the same, though, unlike human beings, they have not acted on their environment consciously and deliberately. It is true that even in pre-industrial age, some once fertile region were turned in to unproductive deserts, via overgrazing, over-cultivation and deforestation. These violations which results in Environmental Degradation (ED) were portents of what man has since done to nature. Yet, these earlier human offences against nature were only partial and local. They were kept within limits partly involuntarily, owing to the limits of human technological power (Marriner et al., 2019; Short, 2019)

The impact of ED and consequences of environmental changes are increasingly associated with non-conventional notions of security. Considering the environment as a threat to individual, national and globe, this has created a new agenda in the discourse of security studies. The increasing scope of international security now readily includes environmental degradation, global warming, and climate change. These issues have extended human understanding of environmental change, conflict, and vulnerability and explored the roles of conservation and sustainable development in promoting peace, stability, and human security (La Shier & Stanish, 2019).

In many developing countries particularly Nigeria, the environment is fast degenerating. The factors responsible for this can be attributed to rapid urbanization, rural-urban migration, and decades of steady economic downturn, decay of urban infrastructure and poor housing quality (Ayobamiji & Kalmaz, 2020). The unwise use of the natural environment due to ignorance, poverty, overpopulation and urbanization amongst others has led to the degeneration of the environment. The changes occur as Nigerians attempt to adjust their seemingly endless wants and desires for food, shelter, recreation, infrastructural facilities, and so on (Mijah, 2014). These land use activities contribute to the overall development of the country but they equally produce negative impact on the environment. These negative impacts are referred to as ED which implies "abuse of the environment" due to improper resource management (Ayobamiji & Kalmaz, 2020).

Mijah (2014) argues that, although security is an absolute necessity for development, the state of national security depends largely on the level of development in society. For where progress is made in the level of development, perceptions of security increase and further national security, which in turn supports and protects the process of development. In other words, there is a close mutual and functional relationship between development, national security and the environment. In Nigeria, issues relating to the environment are actually unfriendly, unsustainable and engender conflicts rather than peace. Conflicts have been induced by environmental degradation which manifests as political, social, economic, ethnic, religious and territorial conflicts or conflicts over resource and resource control, etc. The trespass that involves environmental conflicts in Nigeria is more pronounced where the livelihood of over 80% of the human population are dependent on non-renewable and finite natural resources (Lord-Mallam & Mijah, undated). Therefore, the threatening capacity of environmental degradation can be compared to both military and economic threats in its ability not only to affect national security, but the very interests of individuals and their communities. This is because, environmental degradation, can damage the physical base of states to a sufficient extent, as to threaten their social institutions and society at large.

The objective of this study is to examine the complexity of social life in Kaduna metropolis which is characterized by patterns of behaviors that are hostile to the environment through frequent religious crisis in the past, increase in population, urban density and so on. The investigation focused on identifying how ED is a security threat by bringing out its impacts in Kaduna metropolis and establishing the relationship between ED and national security.

2. STUDY AREA

Kaduna State occupies part of the central portion of northern part of Nigeria, and shares common border with Zamfara, Katsina, Niger, Nassarawa, Kano, Bauchi and Plateau States. To the south-west, the state shares a border with the Federal capital Territory, Abuja (Figure 1). Kaduna State is located between latitude: 10°31'20.06"N, and Longitude: 7°26'17.81"E. Based on the census of 2006, Kaduna state's population was put at 6,113,503 and using 3.0% growth rate, the projected population of the state is about 8,864,579 people as at 2021. In addition, about 80 percent of the state population is engaged in peasant farming, producing both food and cash crops. Kaduna State is the fourth most populous state in the Federation and represents major focus and center of political and economic activities in the nation. It occupies a very strategic position in terms of its historical role in contemporary political development and economic activities.

Consequently, developments in Kaduna state invariably have national implications. The state has 23 local government areas. Major ethnic groups in the state include Hausa, Fulani, Gbagi, Bajju, Jaba, Kanninkon, Atyap and Ikulu. However, there is a significant presence of virtually most, if not all of the ethnic groups available in Nigeria, perhaps as a result of its strategic location and status, which probably explains why it is widely described as a “Melting pot”. See Fig. 1.

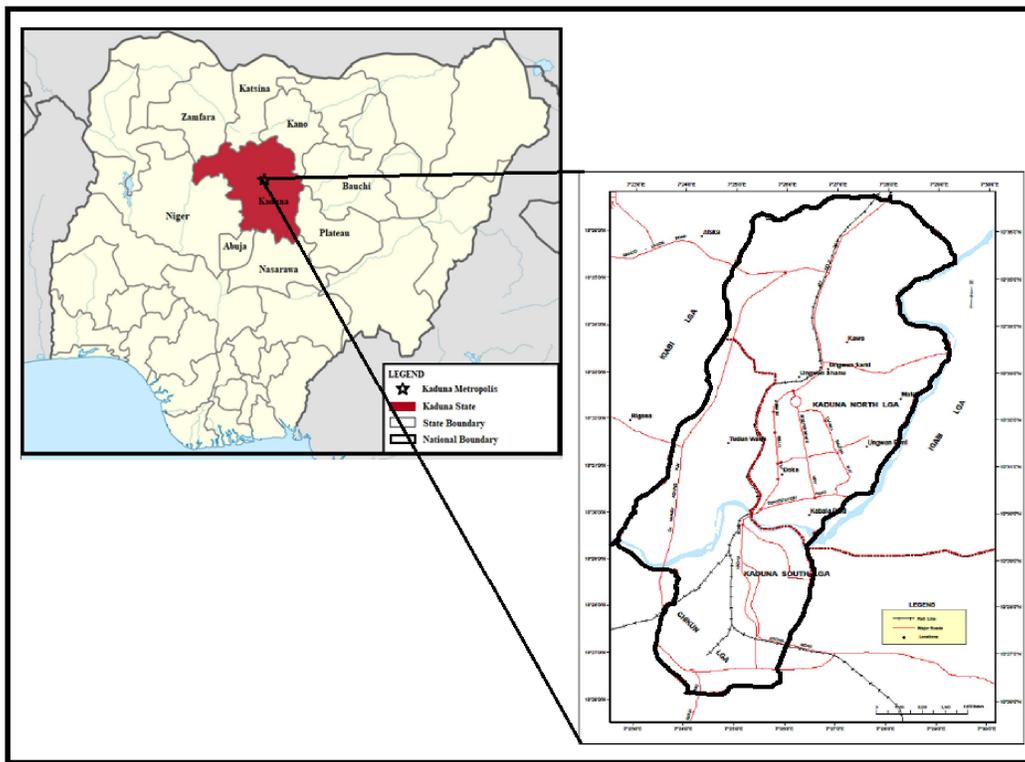


Figure 1. Map of Nigeria showing Kaduna State and metropolitan area (Source: Modified from Uwe Dederig, 2020).

3. MATERIALS AND METHODS

Data was collected through field observation, interview and Focus Group Discussion (FGD). Purposive sampling method was used during the field work and interviews were conducted with 24 respondents who are considered to have experience on issues related to Environmental Degradation within Kaduna Metropolis. Simple random sampling was however used to select the victims. This is because there is no guarantee that every member of the population will be

included in the sample size, the justification of choices of the technique is because of the nature of the research study because of the complexity of the environment in which the research was conducted, demographic distribution of the population, and ethnic considerations. Simple random sampling techniques were used. Each individual is chosen [randomly](#) and entirely by chance, such that each individual has the same [probability](#) of being chosen at any stage during the sampling process, and each subset of individuals has the same probability of being chosen for the sample as any other subset of individuals.

The required primary data were collected directly from a sample under study through the use of well-structured interviews. Therefore, the primary data sources for the study were generated from the farmers, victims of flood and other environmental degradation areas. Three Kaduna State Government Agencies (KASUPDA, KEPA and SEMA), lecturers of Kaduna State University and Kaduna Polytechnic complemented data sources (see Table 1, for list of interview respondents), provided respondents for the interview process.

The areas seriously affected and observed include flooded areas such as NNPC Refinery, Kakuri industrial layout, Kigo New Extension, Farmers practicing along flood plain, Unguwar Rimi Ramat Close, Kabala Costain and Barnawa.

4. RESULTS AND DISCUSSION

In this research, data from primary sources were analyzed using qualitative method of data analysis which include logical deduction and inferential methods. In qualitative method, data generated are presented in form of text and description or tabulation (Maxwell, 2021).

To ensure the authenticity of data, qualitative analysis and comparison of data obtained from various sources were logically argued and supported by authoritative claims of academics or scholars in order to establish their credibility and reliability. Thus, the data were presented in descriptive form to enrich the results and findings of the investigation.

4.1 Results of Interview with Academic Staff

Interviews were conducted with officials of development control at Kaduna State Urban Planning & Development Authority (KASUPDA) and officials of Kaduna Environmental Protection Agency (KEPA), State Emergency Management Agency (SEMA), and academics from Polytechnics and Kaduna State University. Others include Farmers, Residents and victims affected by flood

incidences within Kaduna metropolis. Prior to the main interview the questions were given to the officials and respondents to familiarize themselves and be prepared before the interview proper. Table 1 shows a list of the 24 respondents interviewed.

Table 1: List of Interviewed Respondents (24)

Key Informants	Work forces / offices	Venue / location	Date
Respondent 1	Lecturer at Geography Department	Kaduna State university	2016
Respondent 2	Lecturer at Geography department	Kaduna state University	2016
Respondent 3	Department of Geography	Kaduna state university	2016
Respondent 4	Kaduna Polytechnic	KPT School Env. Scn.	2015
Respondent 5	Kaduna polytechnic	KPT school of env scn	2015
Respondent 6	Kaduna Polytechnic	KPT school	2015
Respondent 7	KEPA	Kaduna	2015
Respondent 8	KEPA	Zaria	2015
Respondent 9	NUBA Poly official	Kaduna	2015
Respondent 10	KASUPDA official	Kaduna	2015
Respondent 11	SEMA official	Kaduna	2015

Respondent 12	Ass director of public health	Head of pollution control SEMA	2016
Respondent 13	Monitoring and enforcement	KEPA/Kaduna	2016
Respondent 14	Farmers		2015
Respondent 15	Farmers	Kaduna	2015
Respondent 16	Farmers	Kaduna	2015
Respondent 17	Farmers	Kaduna	2015
Respondent 18	Flood victims	Kaduna	2015
Respondent 19	Flood victims	Kaduna	2015
Respondent 20	Flood victims	Kaduna	2015
Respondent 21	Resident close river banks	Kaduna	2015
Respondent 22	Resident close river banks	Kaduna	2015
Respondent 23	Resident close river banks	Kaduna	2015
Respondent 24	Resident close river banks	Kaduna	2015

Sources: Fieldwork 2015-2016

4.2 Results of Interview with Government officials

As regards to whether or not there are rules restricting the use of the floodplain industrial areas to erect development, all the officials interviewed replied in the affirmative and further explained that in the case of KASUPDA it is the responsibility of the agency to oversee all activities of development in the metropolis and the state as a whole. In fact, developers are required to submit building plans and relevant documents for inspection of proposed sites before any development commences. The agency also ensures that proposed sites have no negative planning implications before granting approvals. KEPA officials

indicated that any project including residential buildings such as duplex, buildings or housing estates must first undergo EIA – (Environment Impact Assessment) by a professional team at KEPA, which will at the end produce a report indicating both the positive and negative implications of the proposed project, where the report shows substantial negative effects, KEPA, orders the abandoning of such project but the problem is that developers by pass the normal processes required. The officials further explained that, one of the objectives of KEPA is achieving sustainable development through minimizing the impacts of development on the ecosystems of the state including the floodplains and raising public awareness and promoting understanding of the essential linkages between the environment and development.

In an event of a breach of the rules, KASUPDA officials first issue stop notice, and then embark on punching holes or in extreme case the eventual demolition of encroached structures. They also ensure refusal of granting of certificate of occupancy for such areas that are liable to flooding on the floodplain and air polluted areas due to factories or Refinery. Officials at KEPA indicated that offenders are issued abatement notice, mobile court summons and in some cases arrests are made where tenants occupy unapproved areas. Fines and charges are also, made depending on the nature of the offence as contained in the KEPA Low No.7 of 2010. However, all the officials agreed that the effort so far used by government have not been very successful in addressing the situation and that new strategy in addition to existing ones should be introduced.

As regards to land ownership by farmers, the officials said that most land titles along the floodplain are customary or local government certificates with probably a few state certificates. They recommend that approval for using the floodplain should be preferably for orchard purposes and not for construction. In terms of how best the government should manage the floodplain to forestall disasters during floods; the officials suggested that the government should not issue planning approval from residential purpose in riparian areas. Drainages should be properly channeled and new ones created, and refuse dump sites should be developed to stop waste dumping and clogging of drainages which sometimes induces flooding. Trees should be planted to stabilize the natural conditions of the floodplain.

Interviews were also conducted with officials of KRPC as regards to whether or not there are rules restricting the use of lands around the refinery. Prior to the main interview the questions were given to the officials of familiarize themselves and to prepare before the interview proper. We found that (KRPC

officials) are of the opinion that yes, there are rules and regulations forbidding environmental degradation and believe that, over the years the measure so far taken by government have not been successful in medicating the problem.

4.3 Discussion of Results

The results of the investigations are discussed and examined in relation to the research questions and responses obtained in the course of interview.

Question 1: “Is Environmental Degradation A Security Threat?”

From the interview conducted, respondents 1, 2 and 3 of the Kaduna State University argued that Environmental degradation is a security threat which deals with environmental issues that threatens national security of the nation in any matter. However, not all environmental events can be said to be capable of threatening national security, such issues as climate change but others like deforestation and loss of biodiversity threatening the nation’s security. These impact on the environment, including biological diversity, climate change and desertification, encompasses global warming, land degradation, deforestation, and loss of vital resources such as land, agriculture and water, which are very essential for our well-being. These dimensions of the environment had become the sources of increasing threats to national security.

Majeed and Ozturk(2020) noted that environmental degradation is the reduction in value of the environment to meet its ecological and socioeconomic needs. It includes issues such as land degradation, deforestation, desertification, loss of biodiversity, land, water and air pollution, climate change, sea level rise and ozone depletion. Environmental degradation is leading to more severe natural disasters which have already cost the world over \$608 billion in the last decade, killed and displaced over 8 million people, mainly poor people in most developing countries.

According to Wang and Dong (2019), Environmental degradation would remain an important global issue for the 21st century because of its adverse impact on agronomic productivity, food security and quality of life. Wang & Dong (2019) further holds that the most pressing environmental problems in the least developed countries are prevalent in rural areas, where the bulk of the populations live and whose livelihood depends on agriculture and related activities. Thus there is no doubt that, damage to the environment is no respecter of frontiers, and damage done to one generation has the consequence of affecting the future generation. Based on this and many salient issues within the context of environmental degradation, Solarin and Al-Mulali (2018); stated that a major

environmental challenge of the 21st century is environmental degradation; it adversely affects the sustainable relationship between ecosystems and the livelihoods of people worldwide. These are no doubt pointers to the escalating debates on environmental degradation/combating measures dilemma and which serious work has to be done before degradation is laid to rest. The United Nations, UN (1997) environmental degradation is the deterioration of the natural environment through human activities and natural disasters. The term environmental degradation implies that environmental resources such as land, soils and vegetation are reduced to a lower rank taking into account the fulfillment of given demands (Solarin & Al-Mulali, 2018); Environmental degradation is not a new thing, it has been happening all over the world for centuries. The problem is that it is now occurring at a much faster rate, therefore not leaving enough time for the environment to recover and regenerate (Wang & Dong, 2019).

ED is a composite phenomenon that has no single, readily identifiable attribute. Asongu, Nwachukwu, and Pyke (2019) noted that African landscapes are anthropogenic and are subject to constant changes as a result of human interferences. The greatest strengths of African landscapes are their ability to support diverse vegetation resources (woody and herbaceous layers) and their resilience to natural calamities and climate change. It is however widely reported that this ecological zone because of certain natural, socio-economic and political constraints is the one of the most degraded parts of the World (Asongu et al., 2019).

Finally, respondent 1, 2 and 3 contend that degradation of the environment constitutes national and international security risks. That there was the need for a paradigm shift in the assessment of implications from environmental degradation and the need for conservation to ensure a robust and encompassing national security and need for redress.

Question 2: “What are The Impacts of Environmental Degradation in Kaduna Metropolis?”

Areas visited such as; Malali, Unguwar Rimi, Unguwar Dosa, while areas such as Tudun Wada, Asikolaye, Bakin Ruwa, Rigasa, Rido and Kakuri have cheaper cost compared to others. Thus it can be deduced that in highbrow areas, location advantage is what drives development despite the high cost of land. Low income areas along the flood plain and industrial areas are of low or moderate cost. Cost of land is what drives development despite the risk involved; people also believe that floods fumes are occasional occurrences (FGD, 2015).

Respondents contend that human population size is one of the most problematic environmental concerns because human interactions with the

environment are mediated through society, human environmental impact is thus a social question. The social dimension becomes especially clear when population issues are approached using terms such as ecology. The huge increases in size of the human population have resulted in a substantial degradation of environmental condition. This has occurred through the direct and indirect consequences of increased resource used to sustain individual human beings and their social and technological infrastructure.

Some respondents argued that the fast tracking development in Kaduna metropolis is surpassing conurbation into megacity operates within this scenario. This development is beginning to show evidence especially in the area of quantity and quality of different types of municipal waste generation. Butu *et al* (2013) states that between one third and one half of solid wastes generated within most cities in Kaduna metropolis are not collected. They usually end up as illegal dumps on streets, open spaces and waste land. Respondent 11 claims that indiscriminate disposal of wastes along Kaduna metropolis is the main factor influencing susceptibility of residents along Kaduna River to floods annually. Although Kaduna state government instituted various agencies for city planning and developmental control such institutions include Kaduna Environmental Protection Agency (KEPA) and Kaduna State Urban and Property Development Authority (KASUPDA) but they are bedeviled by sharp practices, professional inadequacy and technical inefficiency by all standards. For instance, the Kaduna Master Plan that was drawn in 1957 by Max Lock and Partners was expected to be reviewed at every 10 years interval, but this envisioned objective that ought to be monitored and guide physical development plans is a mirage as no review has been carried out since 1957.

In Kaduna metropolis the following types of wastes and trash are generated, the biodegradable, which include things like food and kitchen waste such as meat trimmings or vegetable peelings, yard or green waste and paper. These particular wastes are common in the residential areas (Respondent 12). The recyclable materials include paper and stationeries materials and non-biodegradable items such as glass, plastic bottles, chemical, pesticides, dye, refining, rubber goods industries, metal and aluminum cans, these categories are easily accessible and commonly seen along the Nnamdi Azikiwe Express way where related companies are located (Respondent 12) The inert waste materials are those that are not necessarily toxic to all species but can be harmful or toxic to humans. These involve construction and demolition. Others identified include composite waste that includes items that are composed of more than one material, typical examples are clothing and plastics such as children's toys are composite

waste, and household hazardous waste comprises medicines, paint, batteries, light bulbs, fertilizer and pesticide containers and e-waste like old computer, printers and cellular phones. These households hazardous waste cannot be recycled or disposed compared with other waste categories so the central Business District of Kaduna metropolis is where this is highly concentrated..

These categorization buttresses the findings of Igbaonugo (2004) that municipal wastes consists of household waste, construction and demolition debris, sanitation residue and waste from streets. This garbage is generated mainly from residential and commercial complexes. With rising urbanization and change in lifestyle and food habits, the amount of municipal solid waste had been increasing rapidly particularly in densely populated areas in Kaduna metropolis (Sabon Tasha, Television, Kakuri, Tudun Wada, Unguwar Rimi, Rigasa, Unguwar Muazu) and its composition changing.

The wastes generated in Kaduna Metropolis are deposited in the following ways: the first and most common practice within the slums, ghetto and sprawl neighborhoods of Unguwar residential areas is the open ranges, are used as refuse dump sites, these are carried out along major routes, footpath and piece of undeveloped land or abandoned residential structure, the second method, is collection sites are employed among those that live in Government Reserved Areas or Unguwar extension where necessary town plan layout are done but these collection sites have often located far away into the Ungwar areas. Third group are the combination of the first two groups that normally use the bank of River Kaduna as their dumping sites, while the fourth group area the two institutionally designated areas as dumping sites. These are areas that are specially created so waste can be put into the ground with little or no harm to the natural environment through pollution. They are located outskirts of the metropolis (Respondent 5 and 6). It is important to note that very insignificant number of residences at reserves and extension areas and other industries could afford the services of KEPA for the evacuation of wastes generated to these dumping sites (Respondent, 11)

Waste has hazardous effect on the environment including every living thing. It does not only pollute the land but also affect indirectly living beings. The sequence discussion affirmatively, shows that waste are not properly managed in Kaduna metropolis, especially waste from households, certain types of household waste are also hazardous which could be highly toxic to humans, animals and plant; are corrosive, highly inflammable, or explosive; and react when exposed to certain things. Thus, household wastes that can be categorized as hazardous waste include old batteries, shoe polish, paint tins, old medicines and medicine bottles. It

is common sight to find heaps of waste, with its attendant decay and foul smells, serving as reception in the nooks and crannies of Kaduna metropolis especially Unguwa that are densely populated (Respondent, 6) These present looms of serious health hazard and can lead to the spread of infectious diseases. The unattended waste lying around the Unguwa that attracts flies, rats and other creatures that in turn spread disease. This could lead to unhygienic conditions that pose varying challenges to human health (Respondent, 12)

Direct dumping of untreated waste in rivers, like what is ongoing in river Kaduna endangered the accumulation of toxic substances in the food chain, through the plants and animals that feed on it directly or indirectly. River Kaduna is one of the sources of domestic water supply to people living along its banks and animals during the dry season. Also, wastes dumped along the bank of River Kaduna are constitutes the main cause of annual susceptible flooding in residential areas of; Unguwar/Rimi, Kigo and Kakuri, apart from creating breeding ground for mosquitoes, that enhances the spread of malaria, the degradation of the aesthetic value of the river and death of aquatic organisms of immense of value to the economy of the metropolis (FGD, 2015)

Effective waste management is an important component of a strategy for improving environmental health, waste that is not properly managed, especially uncollected solid wastes from households and other communal activities are serious health hazard which could manifest through the spread of infectious diseases. For instance, organic domestic waste poses a serious threat, since they ferment, creating conditions favourable to the survival and growth of microbial pathogens and also increase risk of injury particularly children and other high risk group population living close to waste disposal sites in the Unguwar areas of the Metropolis. (Respondent, 12)

Other than this, co-disposal of industrial hazardous waste generated in the industrial annexes of the metropolis exposes the people to chemical and radioactive hazards in the residential areas of; Kakuri and Makera where Textile industries are found, Kudendan and Nasarawa areas for Flour mills and Bottling companies, Panteka in Tudun Wada area and Panteka along the road to National Eye Centre for heavy metal wastes, abandoned and accident vehicles, imported scraps, rusted iron, household equipment and materials are deposited, NNPC and Rido town (Respondent 18-21)

Following the above, solid waste in urban areas is an obvious result of human activities. Natural growth of population, reclassifications of habitation and

migration trends are common in urban populations. Urbanization is now becoming a global phenomenon, but its ramifications are more pronounced in developing countries (Respondent, 2). This urbanization, economic growth and improved living standards in cities led to an increase in quantity and complexity of generated waste. One obvious consequence of rapid urbanization of Kaduna metropolis is the growing generation of solid wastes in all its alcoves. The metropolis is presently confronted with unprecedented challenges of managing wastes, especially as it relates to problems of coping with their collections and disposal. "This can be achieved through mobilization and capacity building intervention programme of the people on the essence of monitoring, transportation of wastes, processing, and disposal and recycle mechanisms not theoretically but proactively and pragmatically. If these steps are followed effectively in a proper cycle, waste management challenge will be ameliorated in the" long-run" (Respondent 12).

According to Bashir (2015), with the establishment of the Kaduna Refining Petrol Chemical Company (KRPC) limited close to the village over thirty years ago it was expected that the problems of infrastructure and social services facing the area, would be addressed at least by the company in the context of its corporate social responsibilities, but nothing was done commensurate with the expectation of the people. The Kaduna Refinery occupies an area of 2.89 square kilo meters, and products from the refinery include fuels for use as Liquefied Petroleum Gas (LPG), Premium Motor Spirit (PMS) Automotive Gas Oil (AGO) or Diesel oil, Kerosene fuel oil, sulphur and those from lubricating oil complex are Base oils, Asphalt (Bitumen) and waxes. The refinery pours waste gases and chemicals, and releases emissions in the process. Noise and heat are the most apparent undesirable effects of flare operations. In the case of Rido town, waste substance resulting from flares by the KRPC, often settle on river, food items and plants. (Bashir 2015).

According to a resident of Rido town black particles discharged into the air from the refinery frequently settles in wells, roofs and streams, making the water unpleasant for drinking and causes health problems. Which can lead to reproductive health problem because of direct linked to the toxic waste from the refinery, such as complain of weak erection and infertility, while the women could have frequent abortions and lack of ovulation (Respondent, 13).

5. CONCLUSION/RECOMMENDATION

In conclusion, the results indicate that there are obvious threats to security of lives and property and the natural environmental arising from environmental

degradation in Kaduna metropolis in particular. This perception of environmental degradation generates conflicting forms of relations and behavior that also constitute further constraints on security of lives and property. We also found that reactions exist arising from these, engendered rise to practices and circumstances that are environmentally hostile. Thus, we argued further that the prevailing condition in the country erodes some of the crucial and basic ingredients of security at individual and societal levels thereby furthering perception of insecurity, precipitating conflicts and undermining security and degrading the natural environment. These are real threats to security and the natural environment in Nigeria and Kaduna metropolis, indeed security and environmental degradation are entwined such that one directly affects the other resulting in far reaching consequential impacts to economic, social, and environmental wellbeing and thus it has become essentially imperative for a holistic resolution of the issues.

Acknowledgement

The authors hereby acknowledge the Tertiary Education Trust Fund (Tetfund) for providing the scholarship funds for this research.

References

- Asongu, S. A., Nwachukwu, J. C., & Pyke, C. (2019). The comparative economics of ICT, environmental degradation and inclusive human development in Sub-Saharan Africa. *Social Indicators Research*, 143(3), 1271-1297.
- Ayobamiji, A. A., & Kalmaz, D. B. (2020). Reinvestigating the determinants of environmental degradation in Nigeria. *International Journal of Economic Policy in Emerging Economies*, 13(1), 52-71.
- La Shier, B., & Stanish, J. (2019). The national security impacts of climate change. *J. Nat'l Sec. L. & Pol'y*, 10, 27.
- Lord-Mallam, N. C., & Mijah, E. B. Issues and Challenges of Democracy, Development and Security in Nigeria's Context.
- Majeed, M. T., & Ozturk, I. (2020). Environmental degradation and population health outcomes: a global panel data analysis. *Environmental Science and Pollution Research*, 27(13), 15901-15911.

- Marriner, N., Kaniewski, D., Gambin, T., Gambin, B., Vanni re, B., Morhange, C., . . . Rius, D. (2019). Fire as a motor of rapid environmental degradation during the earliest peopling of Malta 7500 years ago. *Quaternary Science Reviews*, 212, 199-205.
- Maxwell, J. A. (2021). Why qualitative methods are necessary for generalization. *Qualitative Psychology*, 8(1), 111.
- Mijah, E. B. (2014). Globalization, cities and the challenges of governance: A preliminary study of Kaduna City, Nigeria. *JL Pol'y & Globalization*, 30, 61.
- Short, H. L. (2019). Saline Soils and the Agricultural Failure of a Prehistoric Population. *Journal of Environmental Quality*, 48(6), 1652-1663.
- Solarin, S. A., & Al-Mulali, U. (2018). Influence of foreign direct investment on indicators of environmental degradation. *Environmental Science and Pollution Research*, 25(25), 24845-24859.
- Wang, J., & Dong, K. (2019). What drives environmental degradation? Evidence from 14 Sub-Saharan African countries. *Science of the Total Environment*, 656, 165-173.