

# IMPACT OF URBANIZATION ON THE SUSTAINABILITY OF IKOT EKPENE URBAN ENVIRONMENT OF AKWA IBOM STATE

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## ABSTRACT

*This study was carried out to determine the impact of urbanization on the sustainability of Ikot Ekpene urban environment. It was a survey research. Three research questions were raised and answered, and two research hypotheses were formulated and tested using the results of data analysis obtained. The instrument used in collecting data for the study was a validated researcher-made questionnaire, tagged: Urbanization Impact Assessment Questionnaire (UIAQ), with a reliability index of 0.68. Two hundred and fifty respondents drawn randomly from Ikot Ekpene urban population was used as representative sample. The results of data analyses using weighted mean and chi-square ( $\chi^2$ ) statistics showed that the impact of urbanization on Ikot Ekpene Urban is just moderate and that government's intervention programmes aimed at ensuring sustainability of the environment is quite unsatisfactory. Based on the observations made it was concluded that there is no significant impact of urbanization on Ikot Ekpene urban for now. However, the results indicated low level of environmental literacy among the citizens. Hence it was recommended among others that the governments, at both the state and local government levels respectively, should improve upon their environmental awareness programmes, in view of the facilitative effect of environmental education on environmental literacy of the people.*

**Keywords:** Impact, Urbanization, Ikot Ekpene, Sustainability, Urban Environment

## 1.0 INTRODUCTION AND BACKGROUND TO THE STUDY

Urbanization is the transformation of a rural landscape into a cityscape described as a man's greatest impact on the environment is a global phenomenon (Anijah-Obi, 2001). It is estimated by the United Nations that by the year 2025, 61% of the developing countries will be urbanized (Anijah-Obi, 2001). The proportion of Nigerians living in cities rose from about 16 percent to more than 35 percent between 1960 and 1990; and it is projected that by 2050 more than three Nigerians out of four will be living in an urban area. In absolute terms, Nigeria's urban population increased almost three-fold between 1960 and 1980, from 7.3 million to 21.3 million, and almost quadrupled between 1980 and 2010 to reach nearly 79 million. The situation is even more acute today and in Akwa Ibom State of Nigeria, the story is not

different. With its creation in 1987 and subsequent elevation of the status of some semi urban areas to the status of local government areas, many rural people have moved and are still moving to the urban areas in search for better life. The result has been the rapid urbanization of these former semi urban cities.

Environmental experts agree that urbanization is associated with environmental problems which threaten the global environment and human existence on this planet earth. These include environmental pollution (Caldwell, 1991), depletion of fresh water supplies (Star 1991), loss of soil productivity (Okonkwo, 2000), loss of genetic diversity (Coldwell, 1991), tropical deforestation and improper disposal of contaminated and hazardous materials (Ukpong, 1994 Kolo-Olusanya, 2000).

In cities, fields, farmlands and forests are cleared and replaced by industrial establishments, government buildings, housing estates, modern markets, concrete and asphalt roads, modern markets, and shift buildings to provide work, offices and shelter to the increasing urban population; and there is a large concentration of people and vehicles. The deforestation resulting from human activities in urban settlements results in loss of productive lands, loss of soil fertility and of loss of genetic diversity. The improper disposals of industrial, institutional and domestic wastes, which characterize urban settlements result in serious environmental pollution of the atmosphere, land and water (Caldwell 1996, Ukpong, 1994; Kola-Olusanya 2000). In every urban settlement in Akwa Ibom State, street markets and refuse heaps close up major roads and results in fatal accidents; blocked gutters resulting in seasonal flooding of major streets; indiscriminate disposal of market and human wastes resulting in serious atmospheric pollution, and unplanned human settlements blocking waterways and decreasing the cities aesthetics are all common experience. The most worrisome of these problems are those that pose threats of extinction to humanity, plants and animals on the earth's surface and its space and water-bodies. In the words of Lester Brown, the President of the World Watch Institute, quoted in Awake (1996, p.4) "The overwhelming threat to our future is not military aggression but environmental degradation of our planet".

Since humans are at the centre of our environmental degradation, there is scarcely any serious environmental problem whose solution does not require comprehensive knowledge of the ways man perceives, values, organizes, and makes use of space and places (Inyang-Abia, 1995). This implies that it is the human mind that masterminds human behavior and that any change in man's values, perception, attitudes, goals and aspirations – means a new image of the world. It is this new image that

environmental literacy, which involves the use of learned ability to create situations that enhance the maintenance of essential ecological processes of life and life support system preserve bio-diversity, ensure sustainable utilization of species and ecosystem and sustainable development of our environment aims at.

The global concept of sustainability requires that allocation of resources meet the needs of the present generation and should not prejudice the interests of future generations, as articulated in the Brundtland Report (WCED, 1987) and Agenda 21 (UNCED, 1993). The concept is based on the dynamic interactions among the production, national and social systems. According to Kola-Olusanya (2000) environmental planners have tended to focus on the production system, assuming that the natural and the social systems should be able to adjust to changing production systems. However, this does not always happen since most production systems are linked to the improvement of social welfare and the natural system to the extent that the natural resources supply inputs to the production system hence, the issue of sustainability becomes more pressing.

## 2.0 OBJECTIVES OF THE STUDY

This research was designed to investigate the impact of urbanization of Ikot Ekpene and to examine the measures adopted by the government to ensure the sustainable development of Ikot Ekpene, a town popularly known as the Raffia-City of Nigeria. The specific objectives were:

1. To determine the impact of urbanization on Ikot Ekpene, the capital city of Ikot Ekpene Local Government Area of Akwa Ibom.
2. Examine what measures are adopted both by the State Government and the local community respectively to ensure the sustainability of the environment and;

3. Compare the responses of the respondents with respect to the impact, and the measures adopted by the government and the local community to ensure sustainable development of the environment.

Two research questions and two research null hypotheses were formulated also to guide the study.

1. What is the consensus of the respondents on the impact of urbanization on that Ekpene urban?
2. What is the level of satisfaction of the respondents with the measures adopted by the government at the state and local government levels to ensure environmental sustainability of Ikot Ekpene urban?

The following null hypotheses guided the study;

1. There is no significant difference in the responses on effect of urbanization in Ikot Ekpene urban environment.
2. There is no significant difference in the respondents' opinion on their level of satisfaction with governments programmes aimed at ensuring sustainability of Ikot Ekpene Urban.

### 3.0 LITERATURE REVIEW

#### The Concept of Urbanization and Sustainability

The term urbanization is used to describe a transformation of the rural landscape of hither to small towns on villages to a cityscape (Ojo, 1988). Urbanization involves movement of people from rural areas to cities in search for better jobs or better life. Since cities are the focus of social and economic activities, rural people move daily to the cities. Rural areas lack basic social amenities like hospitals, pipe borne water, good roads and electricity which are regular features of urban centers. Hence, rural dwellers prefer

urban areas (Anijah-Obi, 2001). Environmental sustainability is a global concept which requires that the allocation of resources to meet the needs of the present generation should not prejudice the interest of future generations (WCED,1987). It is articulated in the Brudtland report (WCED,1987) and Agenda 21 (UNCED,1983) There are two aspects of environmental sustainability and these are the productivity of the asset base and the set of opportunities open to future generations (Kola-Ogunsanya ,2000). Current economic activities may be considered sustainable if they do not reduce productive potentials, or the set of opportunities open to the future generations. The questions of how important biodiversity is to sustainable economic development and concerns about its role in maintaining productivity and the sets of opportunities open to future generations are closely related. The concept of sustainable development is based on the dynamic interaction among the production system, natural system and the social system.

Planners have, however, tended to focus on the production system as an easy and practical entry point, assuming that the natural and social systems will be able to adjust to chining production system (Kola Ogunsanya, 2000). Unfortunately, this does not always happiness most production systems are linked to the improvement of social welfare and the natural system only to the extent that those natural resources supply inputs to the production systems.

#### Impacts of Urbanization on Urban Environment

Anijah-Obi (2001) describes urbanization as man's greatest impact on the environment in recent times. Anijah-Obi maintains that urbanization has brought into focus some emerging environmental issues of far reaching implications on the living conditions of the urban dwellers. Some of these emergent environmental issues are: inadequate housing and jobs, loss of fields, farmlands and forest reserves to urban

development projects: loss of biodiversity, proliferation of makeshift houses in a bid to solve housing problems by migrants, flooding; over stretched basic amenities (such as portable water, electricity houses and toilet facilities) noise, air, land and water pollution; improper refuse disposal, breakdown of culture and morality and increase in crime rate.

Basically, urbanization is all about the number of people living in areas designated as towns and cities. The influx of people into urban areas without corresponding increase in facilities force many migrants to fashion shelters on vacant lands and make shift places deemed inhabitable, including overhead bridges, motor parks and market squares (Anijah Obi, 2001). These unfortunate people are trapped in unimaginable poverty conditions leading to health problems and other environmental problems. Most of them, who are unfortunate to secure rented apartments in existing, housing units, have had to grapple with the problem of overcrowdings! The total effect of this is overstretching of existing facilities. There is increase demand for water, energy, toilet facilities and refuse disposal facilities. According to Ukpong (1994), most of the urban dwellers rely on street vendors for clean water and use common latrines facilities. Industrial and domestic wastes are often discharged into urban water sources and streets with adverse effects on water quality and aesthetic quality of the surrounding area. Inadequate water supplies and sewage systems in urban centers contribute to some common diseases like diarrhea, malaria, typhoid and cholera.

#### ✓ Urbanization and Air pollution

The emission of green house gases such as carbon dioxide, methane, chlorofluorocarbons, ozone and nitrogen (II) oxide. From industrialization exhaust fumes of automobiles and improper refuse disposed in urban areas result in rise in environmental temperature with it adverse effects on the thermal comfort of the urban dwellers,

outbreak of respiratory diseases, depletion of ozone layer and its related skin diseases and other problems associated with air pollution.

#### ✓ Urbanization and Noise Pollution

According to Menkiti (1996), noise pollution is the contamination of desirable or pleasant sound by any undesirable sound that is a nuisance or is harmful to persons. Noise from automobiles, music stores, industrial and construction machines, working generating sets, horns of taxi cabs and other automobiles, night clubs, church public address systems welders and mechanic workshops, which characteristics urban lives, are some common noise pollution (Ekan and Eze, 1999) noise pollution is dangerous to man and can damage ones hearing capacity.

#### ✓ Deforestation and Loss of Biodiversity

Deforestation is described as the permanent removal of forest and growth (Allaby, 1988) and associated with deforestation is loss of biodiversity or variety of life forms found on planet earth in cities, fields farmlands and forest are cleared and replaced with asphalt roads; bricks, stones and concrete buildings and other modern artifacts and socio facts (Anijah-Obi, 2001). This permanent loss of forests and growths to urban development projects results in serious socio-economic implications, such as shortage of fuel wood; shortage of industrial timber; loss of biodiversity and genetic resources; destruction of wildlife habitats; decline of water shed functioning uncontrolled flooding and increased siltation. Other disturbing environmental consequence include: global warming, less rainfall and complete alteration of the earth's surface and the atmospheric chemistry (Anijah - Obi, 1996). Habitat destruction and poaching are recognized as major threats to the continued existence of many plants and animals special (Kola-Ogunsanya, 2000).

#### Strategies for Sustainable Environment

According to Inyang-Abia (1995) humans are at the centre of our environmental degradation, hence there is scarcely any serious environment problem whose solution does not require a comprehensive knowledge of the ways man perceives, values, organizes and uses spaces and places. Any change in man's values, perception, attitude, goals and aspirations, means a new image of the world. Consequently, environment education advocated as the key to achieving a more sustainable society. A UNESCO report quoted by Kola-Ogunanya (2000), environmental education at all levels for all people is crucial to sustainable environmental development. The more knowledge the public have about the environment the better and the more effective decision makers can be and will be. Furthermore environmental education is deemed as the corner stone of long term environmental strategies for solving present environmental problems and assuring environmentally sound, and sustained able developed.

The objectives of environmental education include helping individuals and social groups : acquire an awareness of and sensitivity to the total environment and its allied problems acquire basic understanding of the total environment, its associated problems and humanities critical responsible presence and role in it and acquire social values, ethic, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement (Anijah-Obi, 2001). A number of environmental literacy strategies have been suggested, which may be adapted to suit prevailing local situations.

These include; immediate incorporation of environmental education as a full-fledged academic offering at all levels of education; utilizing various arms of mass media towards and effective mobilization of the people with respect to educating them on the various aspects of their environment and how human actions and inactions have construed towards the present status of the

environmental degradation; training and development for a crop of intelligent , hardworking, enthusiastic and adequately motivated environmental extension officers charged with responsibility of reaching the various nooks and crannies of the nation for the purpose of teaching appropriate environmental concepts and stimulating environmental awareness; formation of environmental clubs in schools and colleges; mobilizing humanitarian groups and non-governmental organization (NGOs) to join campaigns aimed at wider social changes based on acceptance of the ethics of living sustainable; and using community penetrating strategies - the chiefs, elders , opinion leaders, folk media etc to achieve desired results (Anijah-Obi, 2001).

Ikot Ekpene city and the issue of urbanization Ikot Ekpene city, popularly known as the raffia city of Nigeria, is the present headquarter of Ikot Ekpene local government area in Akwa Ibom state is one of the 31 local government areas in Akwa Ibom State. It is bounded in the north by Obot Akara and Ikono Local Government Areas, in the east by Ikono Local Government areas and in the west by Obot Akara in the south by Essen Udim Local Government area. According to Akpabio and Ekong (2001), Ikot Ekpene is considered urban in nature; then implies that a greater part of the local government area enjoys basic modern amenities - tarred roads, pipe borne water and electricity. The urban status of Ikot Ekpene is traceable to its industrial and political history. Ikot Ekpene City, the headquarter of the former Annang Province was carved from Ikot Ekpene local government area, where Abak, Etim-Ekpo, Obot Akara, Ika, Oruk-Anam, Ukanafun and Essien Udim local government areas were created. In view of its past history and present status, it was expected that it has had a fair dose of urbanization problems. Hence this study set to determine the impact of urbanization on the sustainability of Ikot Ekpene city environment.

Experts agreed that urbanization is the transformation of a rural landscape of a hitherto small towns and villages to a cityscape and this is associated with environmental issues of far reaching implications on the living conditions of the urban dwellers and the natural environment (Ojo, 1988; Ukpog, 1994; Anijah-Obi-2001). The most disturbing of these issues being environmental degradation, which threatens the constrained existence of man and other life forms on this planet earth literature on the concept of urbanization and sustainability indicate that our present activities should not in any way prejudice the interest of future generations. Hence, environmental experts have suggested environmental education as the key to sustainable environment. Several literacy strategies have also been suggested among which are adequate use of mass media, incorporation of environmental studies as a full-fledged curricula. Offering at all levels of education, and use of community penetrating strategies to disseminate environmental information.

#### **Why we need a strategic approach to sustainable environmental development**

##### **✓ The need for structural changes**

Achieving sustainable environmental development will require deep structural changes and new ways of working in all areas of economic, social and political life. This will include promoting pro-poor economic growth and reforming fiscal policies which negatively affect the poor or promote environmental damage. In the longer term, countries will have to ensure that their net wealth (including natural, manmade and human capital) remains constant or increases. This will require ensuring that market prices reflect the full social and environmental costs of production and consumption. Issues of inequity and inequality of access to assets and resources need to be confronted. For example, it may be necessary to reform land tenure policies so as to increase access to

disadvantaged and marginalized groups. Equally, it may be important to strengthen social capital and formal safety nets to cope with both external and domestic shocks. Sustainable development has important political, institutional and capacity implications. At the national and local level, it requires cross-sectoral and participatory institutions and integrating mechanisms which can engage governments, civil society and the private sector in developing shared visions, planning and decision-making.

Governments, corporations and development co-operation agencies will also need to be more open and accountable for their actions. Innovation and investment in actions which promote sustainable development should be encouraged. More generally, economic planning and policy-making will have to become more participatory, prudent and transparent, as well as more long-term-oriented, so as to respect the interests of future generations.

##### **✓ Difficulties in introducing changes**

There are many technical and political difficulties in integrating social, economic and environmental objectives and in adequately addressing the intergenerational dimension of sustainable development of environments. In general there is little documented experience in most countries of developing such mechanisms and there are no tried and tested methodologies. Integrating and making trade-offs between sustainable development objectives also requires strong legislative and judicial systems. These are often very weak in developing countries, like Nigeria. As outlined earlier, different challenges need to be addressed at different levels. Some of the challenges to sustainable environmental development need to be addressed at the global level (e.g. climate change and ozone depletion); some need to be addressed at the national level (e.g. economic, fiscal and trade policy or legislative changes); and some can only be addressed at the local level. The impacts of decisions taken at different levels need to be taken into account in an integrated and coherent way. Their consequences and

implications across different sectors and for different interest groups must be considered explicitly.

#### 4.0 THE RESEARCH DESIGN

The research design for this study was an ex-post facto design. It was considered most appropriate since the research was after the facts already on ground. More so, both the independent and dependent variables were not manipulate-able. This study was conducted in Ikot Ekpene urban city of Ikot Ekpene Local Government in Akwa Ibom State, and is bounded in the north by Essien Udim and Obot Akara Local Government areas, in the east by Ikono local government area, in the east and south by Essien Udim local government area. Being an urban area, the inhabitants are mostly civil servants, factory workers and business entrepreneurs. This study comprised all the inhabitants of Ikot Ekpene urban. The sampled population size was the choice of this population was based on the fact that environmental management issues is a collective responsibility of all citizens. The sample of the study comprised 250 valid respondents drawn randomly from the study population of 275 inhabitants of Ikot Ekpene urban city.

The questionnaire was administered directly to the respondents by the researcher in their respective homes and places of work the completed questionnaire were also collected on the spot by the researcher. where the respondents were not literate the researcher assisted in completing the questionnaire through undecided based on

the questionnaire items. Scores generated from the survey were analyzed using mean percentage scores and chi-square statistics. The main instrument used for data collection was a questionnaire tagged; Urbanization Impact Assessment Questionnaire (UIAQ). The UIAQ was a 3 part instrument. Section A sought demographic information of the respondents, Section B sought for respondents opinion on the level of seriousness of given environmental problems associated with urbanization in Ikot Ekpene urban. Section C sought for respondents opinion on measures adopted by the government to ensure sustainable development of Ikot Ekpene urban. Sections B and C were a 5-point Likert-type scale; section B had 20 items; while section C have 15 items. The rating scale in section B was very serious (VS) not very for section C the rating was very satisfactory (VS) not very satisfactory while satisfactory (SI) not satisfactory (NS) and undecided (U).

The reliability coefficient of 0.68 the instrument for data collection was determined using test retest method and the data obtained was analyzed using rearms product moment correlation (PPMC). The scoring method adopted indicated Very Serious (VS), Not Very Serious (NVS), Serious (S), Not Serious (NS), and Undecided (U) responses in section B were scored 4,3,2,1 and 0 respectively. While in section C, Very Satisfactory (VS), Not Very Satisfactory (NVS), Satisfactory (S), Not Satisfactory (NS) and Undecided (U) responses were Scored 4,3,2,1 and 0 respectively as indicators.

**Research Question One: To what extent does urbanization impact on the sustainability of Ikot Ekpene urban environment?**

**Table 1: The level of Seriousness of Urbanization Problems in Ikot Ekpene Urban in rank order**

Rank order	Urbanization Problems	Valid Responses	Weighed Mean	Level of Seriousness
1	Proliferation of street markets	250	3.23	S
2	Noise pollution from record stores, automobiles and industrial establishments	250	3.14	S
3	Proliferation of unauthorized dumpsites	250	3.10	S
4	Blocking of gutters and watering with domestic and institutional wastes	250	3.10	S
5	Air pollution resulting from odours from dumpsites and gutters	250	3.08	S
6	Loss of farmlands and forest resources to urban development activities	250	3.03	S
7	Loss of genetic diversity due to deforestation	250	3.02	S
8	Increased cases of seasonal flooding of streets and homes	250	2.88	S
9	Poorly planned settlement	250	2.32	S
10	Over-crowdedness in available houses	250	2.77	S
11	Inadequate toilet facilities	250	2.69	S
12	Indiscriminate disposal of human and domestic wastes	250	2.63	S
13	Air pollution resulting from automobile exhaust gases automobiles and industrial gases	250	2.60	S
14	Loss of soil fertility due to deforestation and flooding	250	2.37	FS
15	Proliferation of shanty settlements	250	2.16	FS
16	Inadequate portable water supply	250	1.89	FS
17	Depletion of natural fresh water sources	250	1.86	FS
18	Increased cases of gully erosion and landslides	250	1.80	FS
19	Pollution of natural fresh water sources	250	1.65	FS
20	Increased cases of destruction of buildings by windstorm	250	1.52	FS

- $0 < \bar{x}_w \leq 1.5 = \text{not serious (NS)}$
- $1.5 < \bar{x}_w \leq 2.5 = \text{fairly serious (FS)}$
- $2.5 < \bar{x}_w \leq 3.5 = \text{serious (S)}$
- $3.5 < \bar{x}_w \leq 4.0 = \text{very serious (VS)}$

In table 1, the weighted means series show that, based on the rating scale, 13 out of the 20 listed urbanization problems were rated as serious, while 7 were rated as fairly serious. The most serious in the respondent opinion is proliferation of street markets ( $\bar{x}_w \leq 3.5$ ), proliferation this is followed

by noise pollution ( $\bar{x}_w \leq 3.14$ ), proliferation of unauthorized dumpsites and blocking of gutters with domestic and institution wastes ( $\bar{x}_w \leq 3.10$ ) respectively. Air pollution by odors from dumpsites ( $\bar{x}_w \leq 3.08$ ), loss of farmlands and forest reserves ( $\bar{x}_w \leq 3.03$ ), loss of generic

diversity ( $\bar{x}_w \leq 3.02$ ), seasoned flooding of streets and homes ( $\bar{x}_w \leq 2.88$ ), poorly planned settlement ( $\bar{x}_w \leq 2.87$ ) over crowdedness in available houses ( $\bar{x}_w \leq 2.77$ ), inadequate toilet facilities ( $\bar{x}_w \leq 2.69$ ) were ranked 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> respectively and air pollution by exhaust fumes and industrial wasted gases ( $\bar{x}_w \leq 2.10$ ) was ranked 13<sup>th</sup>.

Those considered fairly serious were loss of soil fertility due to deforestation and flooding ( $\bar{x}_w \leq 2.37$ ), proliferation of shanty settlements ( $\bar{x}_w \leq 2.16$ ), inadequate water supply ( $\bar{x}_w \leq 1.89$ ),

depletion of natural fresh water sources ( $\bar{x}_w \leq 1.86$ ), increased cases of gully erosion and landslides ( $\bar{x}_w \leq 1.80$ ), pollution of natural fresh water sources ( $\bar{x}_w \leq 1.65$ ), and increased cases of destruction of buildings by windstorms ( $\bar{x}_w \leq 1.52$ ), thus destruction of buildings windstorms was considered least urbanization problems affecting Ikot Ekpene urban. Generally the respondents considered the impacts of urbanization of Ikot Ekpene urban as being serious the consensus of the respondents on the impact of urbanization on Ikot Ekpene urban?

**Research Question Two: What are the measures adopted by the State and Ikot Ekpene Local Governments to ensure the sustainability of Ikot Ekpene urban environment?**

**Table 2: Satisfaction level of respondents on government's measures to ensure sustainability of Ikot Ekpene urban in rank order**

Rank order	Measures for Sustainability	Valid Responses	Weighted Mean	Level of Satisfaction
1	Provision of refuse bins at strategic points within the town	250	1.97	FS
2	Sponsoring environmental awareness jingles on radio and television	250	1.83	FS
3	Using posters and billboards to spread information on environmental awareness	250	1.75	FS
4	Organizing regular environmental awareness seminars and workshops for urban dwellers	250	1.68	FS
5	Enforcement of provision of refuse bins and homes, institutions and public transport vehicles	250	1.52	FS
6	Setting up affordable housing estates for urban dwellers	250	1.51	FS
7	Prompt clearing of refuse of refuse heaps	250	1.43	NS
8	Organizing regular tree planting exercises	250	1.40	NS
9	Prompt clearing of gutters	250	1.38	NS
10	Provision and proper maintenance of public and accessible to urban dwellers	250	1.33	NS
11	Encouraging environmental clubs in schools and colleges	250	1.27	NS
12	Making environmental laws and bye-laws available and accessible to urban dwellers	250	1.15	NS
13	Ensuring that urban development projects are duly approved by the town planning and urban development authorities	250	1.00	NS
14	Setting up environmental courts to try offenders of environmental laws and bye-laws	250	0.78	NS
15	Ensuring of proper disposal of industrial wastes	250	1.45	NS

Rating scale;

(NS)

- $0 < \bar{x}_w \leq 1.5$  = not satisfactory
- $1.5 < \bar{x}_w \leq 2.5$  = fairly satisfactory (FS)
- $2.5 < \bar{x}_w \leq 3.5$  = satisfactory (S)
- $3.5 < \bar{x}_w \leq 4.0$  = very satisfactory (VS)

In table 2, the results show that, based on the rating scale, the respondents were only fairly satisfied with six out of the 15 intervention programmes by the state and Ikot Ekpene local governments listed, these were; provision of refuse bins (mean score = 1.97), sponsoring environmental awareness jingles on radio and television (mean score = 1.83), spreading information on environmental awareness through posters and billboards (mean score = 1.75), organizing environmental awareness seminars (mean score = 1.65), enforcing provision of refuse bins in homes and public institutions (mean score = 1.52), and setting up affordable housing estates for urban dwellers (mean score = 1.51) they were dissatisfied with clearing of refuse heaps (mean score = 1.43), organizing tree planting exercises (mean score = 1.40), clearing of gutters (mean score = 1.38), provision and proper maintenance of

public conveniences (mean score = 1.38), encouraging environmental clubs in schools and colleges (mean score = 1.33), making environmental clubs in schools and colleges (mean score = 1.33), making environmental laws available and accessible to the citizenry (mean score = 1.27), ensuring that all urban development projects are duly approved (mean scores = 1.15) setting up environmental courts to ensure enforcement of environmental laws (mean score = 1.00), and ensuring proper disposal of industrial wastes (mean score = 0.78). The general rating of all governments intervention programmes aimed at ensuring sustainability of Ikot Ekpene urban environment was unsatisfactory (mean score = 1.45). This observation indicates socio-economic issues and environmental degradation with regards to the sustainability of Ikot Ekpene urban environment.

**Hypothesis One:** There is no significance difference in the responses on the effect of urbanization on Ikot Ekpene urban environment. The results of chi-square analysis of responses on impact of urbanization on table 3 were used in testing this hypothesis.

**Table 3: The summary of chi-square ( $\chi^2$ ) analysis of responses on the level of seriousness of urbanization problems in Ikot Ekpene urban.**

S/No	Urbanization problems	VS	S	FS	NS	U	Valid responses	Df. Critical $\chi^2$	Decision if $p < 0.05$ Level
1	Proliferation of street markets	138 (71.1)	46 (57.7)	52 (58.7)	14 (59.5)	0 (3.0)	250		
2	Noise pollution from record stores, automobiles and industrial establishments	80 (71.1)	126 (57.7)	33 (58.7)	11 (59.5)	0 (3.0)	250		
3	Proliferation of unauthorized dumpsites.	72 (71.1)	117 (57.7)	17 (58.7)	44 (59.5)	0 (3.0)	250		
4	Blocking of gutters and waterways with domestic	136 (71.1)	43 (57.7)	32 (58.7)	39 (59.5)	0 (3.0)	250		
5	Air pollution resulting from odours from dumpsites and gutters.	132 (71.1)	43 (57.7)	38 (58.7)	37 (59.5)	0 (3.0)	250		

6	Loss of farmlands and forest reserves to urban development activities	128 (71.1)	36 (57.7)	52 (58.7)	33 (59.5)	1 (3.0)	250		
7	Loss of genetic diversity due to deforestation.	125 (71.1)	55 (57.7)	19 (58.7)	51 (59.5)	0 (3.0)	250		
8	Increased cases of seasonal flooding of streets and homes	62 (71.1)	111 (57.7)	67 (58.7)	10 (59.5)	0 (3.0)	250		
9	Poorly planned settlement	100 (71.1)	38 (57.7)	80 (58.7)	32 (59.5)	0 (3.0)	250 (889.02)	76 219. 11	*
10	Over-crowdedness in available housing units	8 (71.1)	49 (57.7)	162 (58.7)	28 (59.5)	3 (3.0)	250		
11	inadequate toilet facilities	96 (71.1)	48 (57.7)	43 (58.7)	59 (59.5)	4 (3.0)	250		
12	Indiscriminate disposal of human and domestic wastes	29 (71.1)	130 (57.7)	63 (58.7)	25 (59.5)	3 (3.0)	250		
13	Air pollution resulting from automobile exhaust gases and industrial gases.	46 (71.1)	121 (57.7)	38 (58.7)	28 (59.5)	17 (3.0)	250		
14	Loss of soil fertility due to deforestation and flooding	52 (71.1)	66 (57.7)	69 (58.7)	48 (59.5)	15 (3.0)	250		
15	Proliferation of shanty settlements	16 (71.1)	52 (57.7)	140 (58.7)	40 (59.5)	2 (3.0)	250		
16	Inadequate portable water supply	32 (71.1)	38 (57.7)	28 (58.7)	152 (59.5)	0 (3.0)	250		
17	Depletion of natural fresh water sources	40 (71.1)	33 (57.7)	31 (58.7)	143 (59.5)	3 (3.0)	250		
18	Increased cases of gully erosion and landslides	15 (71.1)	22 (57.7)	133 (58.7)	80 (59.5)	0 (3.0)	250		
19	Pollution of natural fresh water sources	34 (71.1)	16 (57.7)	38 (58.7)	152 (59.5)	10 (3.0)	250		
20	Increased cases of destruction of buildings by windstorms	4 (71.1)	42 (57.7)	39 (58.7)	163 (59.5)	2 (3.0)	250		

**Number in parenthesis at expected frequency, number not in parenthesis observed frequency, VS = very serious; S = serious; FS = fairly serious; NS = not serious; U = undecided; \* = significant at  $P < 0.05$  alpha)**

In table 3, the calculated chi-square value is 889.02 while its corresponding critical value at 0.05 alpha and  $df = 76$  is 219.11. The calculated  $\chi^2$  value is, therefore greater than the critical value. Thus this indicates there was a significant difference in the response of with regards to

the effect of urbanization. Hence, the null hypothesis one was rejected. Thus implies that the respondents varied significantly in their rating of the level of seriousness of the listed environmental problems on Ikot Ekpene urban.

**Hypothesis Two: There is no significant difference in the opinion of the respondents on their level of satisfaction with governments aimed at ensuring sustainability of Ikot Ekpene urban.**

**Table 4: The summary of chi-square ( $\chi^2$ ) analysis of responses on the level of satisfaction of the respondents on governments measures to ensure sustainability of Ikot Ekpene urban environment.**

S/N	Measures for Sustainability	VS	S	FS	NS	U	Valid responses	$\chi^2$ calcd	Df	$\chi^2$ critical	Decision at P<.05 level
1	Provision of refuse bins at strategic points within the town	26 (11.93)	15 (21.00)	143 (54.60)	58 (136.0)	8 (26.47)	250				
2	Sponsoring environmental awareness jingles on radio and television	16 (11.93)	25 (21.00)	138 (54.60)	43 (136.0)	28 (26.47)	250				
3	Using posters and billboards to spread information on environmental awareness	11 (11.93)	38 (21.00)	88 (54.60)	103 (136.0)	10 (26.47)	250				
4	Organizing regular environmental awareness seminars and workshops	11 (11.93)	42 (21.00)	58 (54.60)	135 (136.0)	4 (26.47)	250				
5	Enforcement of provision of refuse bins at homes	10 (11.93)	28 (21.00)	48 (54.60)	161 (136.0)	3 (26.47)	250				
6	Setting up housing estates for urban dwellers	21 (11.93)	34 (21.00)	32 (54.60)	128 (136.0)	35 (26.47)	250				
7	Prompt clearing of refuse heaps	5 (11.93)	20 (21.00)	53 (54.60)	172 (136.0)	0 (26.47)	250				
8	Organizing regular tree exercise planting	6 (11.93)	17 (21.00)	48 (54.60)	179 (136.0)	0 (26.47)	250				
9	Prompt clearing of gutters	8 (11.93)	23 (21.00)	32 (54.60)	181 (136.0)	6 (26.47)	250				
10	Provision and proper maintenance of public conveniences at markets and other public institutions	17 (11.93)	29 (21.00)	40 (54.60)	101 (136.0)	63 (26.47)	250	956.30	56	103.58	*
11	Encouraging environmental clubs in schools and collages	13 (11.93)	14 (21.00)	35 (54.60)	168 (136.0)	20 (26.47)	250				
12	Making environmental laws and bye-laws available and accessible urban dwellers	24 (11.93)	16 (21.00)	16 (54.60)	142 (136.0)	52 (26.47)	250				
13	Ensuring that urban development projects are duly approved by the town planning and urban development authorities	8 (11.93)	9 (21.00)	35 (54.60)	158 (136.0)	40 (26.47)	250				
14	Setting up environmental courts to try offenders of environmental laws and bye-laws	2 (11.93)	3 (21.00)	35 (54.60)	162 (136.0)	48 (26.47)	250				
15	Ensuring proper disposal of industrial wastes	1 (11.93)	2 (21.00)	18 (54.60)	149 (136.0)	80 (26.47)	250				

Note: Number in parenthesis = expected frequency, number not in parenthesis = observed frequency; VS = very satisfactory; S = satisfactory; FS = fairly satisfactory; NS = not satisfactory; U = undecided;  
 $\chi^2$  cal. = calculated chi square;  $\chi^2$  critical = table  $\chi^2$  value at 0.05 alpha;  
df = degree of freedom; \* = significant at p < 0.05 alpha.

In table 4, the calculated  $\chi^2$  is 956.30 while its corresponding table value,  $\chi^2$  critical, at

0.05 alpha and df = 56 is 103.58. The  $\chi^2$  cal. is greater than the  $\chi^2$  crit. This shows that

there is a significant difference in the respondents level of satisfaction with the government's intervention programmes aimed at ensuring sustainability of Ikot Ekpene urban environment. Hence, the null hypothesis two was rejected.

## 5.0 DISCUSSION OF FINDINGS

### The level of seriousness of urbanization problems in Ikot Ekpene urban

With regards to the level of seriousness of urbanization problems in Ikot Ekpene urban, the results in table 1 showed that the mean rating by the respondents was serious ( $\bar{x}_w = 2.57$ ). Thirteen out of the twenty listed problems (65%) were rated as serious, seven (35%) were rated as being fairly serious and none was considered as either very serious or not serious. These observations indicate that for now the impact of urbanization in Ikot Ekpene urban is just moderate. However, the ranking of proliferation of street markets ( $\bar{x}_w = 3.23$ ), noise pollution ( $\bar{x}_w = 3.10$ ), proliferation of unauthorized dumpsites ( $\bar{x}_w = 3.10$ ), blocking of gutters and waterways with domestic and institutional wastes ( $\bar{x}_w = 3.10$ ), air pollution by dumpsite odours ( $\bar{x}_w = 3.08$ ), loss of farmlands and forest reserves to urban development ( $\bar{x}_w = 3.03$ ), loss of genetic diversity to deforestation ( $\bar{x}_w = 3.02$ ), seasonal flooding of streets and homes (2.88), poorly planned urban settlement ( $\bar{x}_w = 2.82$ ) and overcrowdings in available houses ( $\bar{x}_w = 2.77$ ), as the top 10 urbanization problems in the area portends evil for the sustainability of the environment. According to environmental scientist (Caldwell, 1991; Star, 1991; Okonkwo, 2000), these are the very problems that threaten the global environment and the very existence of humans on the planet.

Since humans are at the centre of our environment at degradation, the solution requires a comprehensive knowledge of their environmental impacts by man (Inyang-Abia, 1995). Unfortunately, the significant difference in the rating of the listed environment problems by the respondents

observed from the results on table 3, suggest a low level of environmental awareness by the generality of the public. This is of serious concern.

### The level of satisfaction of the respondents with government's intervention programmes

With reference to the measures adopted by the government and Ikot Ekpene local government to ensure sustainability of the environment, the result on table 2 indicate that, generally, the respondents are not satisfied ( $\bar{x}_w = 1.45$ ) organizing regular tree planting exercise ( $\bar{x}_w = 1.40$ ), prompt clearing of gutters ( $\bar{x}_w = 1.38$ ), provision and proper maintenance of public convenience (1.38), encouraging environmental clubs in schools and colleges (1.33), making environmental laws and bye-laws available and accessible to the public ( $\bar{x}_w = 1.15$ ), setting up environmental courts to enforce environmental laws and bye-laws ( $\bar{x}_w = 1.00$ ) and ensuring proper disposal of industrial wastes ( $\bar{x}_w = 0.78$ ).

## 6.0 SUMMARY

This research focused on the impact of urbanization on the sustainability of Ikot Ekpene urban environment in view of its current status as headquarter of Ikot Ekpene local government area in Akwa Ibom state. Three research questions were raised and answered and two research hypotheses were also formulated and tested using results of analysis of data obtained. The study was a survey research using 250 respondents drawn randomly from Ikot Ekpene urban population. A validated questionnaire tagged "Urbanization Impact Assessment Questionnaire" (UIAQ) with reliability index of 0.68 was used in collecting data for the study. The data obtained were analysed using weighed mean score and chi-square ( $\chi^2$ ) statistics. The results yielded the following findings;

1. The impact of urbanization on Ikot Ekpene urban environment, for now

has not reach an alarming proportion and thus considered moderate.

2. However, government's intervention programmes aimed at ensuring sustainability Ikot Ekpene urban environment is still very unsatisfactory.
3. There are significant differences in the rating of the level of seriousness of the urbanization problems and level of satisfaction with government's intervention programmes listed in sections B and C of the questionnaire, respectively, by the respondents.

## 7.0 CONCLUSIONS

Based on the findings of the study, it was concluded that, the impact of urbanization on the sustainability of Ikot Ekpene urban environment is moderate, having less vulnerability to climate change effects. The intervention programmes by the Akwa Ibom State government and the government of Ikot Ekpene Local government is unsatisfactory; and that there is generally a low level of environmental awareness among the inhabitants of Ikot Ekpene urban. There's need to establish a strategic framework for sustaining the environment and this in itself implies setting goals and identifying means of achieving them. It also implies adopting an approach which has an underlying vision, based on solid evidence, sets priorities, goals and direction and sets out the main tactics for achieving them. In relation to sustainable environment development, being strategic requires a comprehensive understanding of the concept and its implications, but not necessarily a comprehensive set of actions – at least at any one time. A strategic approach to sustainable development too, will imply new ways of thinking and working so as to institute a process which can accommodate monitoring, learning and improvement. In

the overall, this will ensure and enhance environmental sustainability.

## 8.0 RECOMMENDATIONS

Consequent upon the findings and conclusions reached, it is recommended that:

1. The government should intensify its environmental awareness and literacy programmes. This should be done through enrichment of curriculum content of environmental studies at all level of education improving upon its sponsorship of environmental awareness jingles on radio and television; and encouraging formation of environmental clubs in schools among others.
2. The Ikot Ekpene local government authority should ensure that environmental laws are made available and accessible to its citizens.
3. Environmental courts should be more alive to its responsibilities in order to ensure compliance to environmental laws.
4. Afforestation programmes should be intensified. This should be done by beefing up tree planting exercise and encouraging tree planting in and around residential houses.
5. Proper waste disposal and management system should be instituted in Ikot Ekpene urban and sustained to avoid environmental pollution and degradation.
6. The study should be replicated in other urban towns in the state to allow for meaningful generalization.

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