Environmental and Social Stressors and Annoyances in Urban Milieux: Valuing Perceptions and Impacts on the Quality of Life and Wellbeing of Residents in a Traditional Third World City

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ABSTRACT

Numerous environmental and social stressors negatively affect the general well-being and quality of life of people living in urban areas in many developing nations. The intricate relationships between poor urban infrastructure, socioeconomic pressures, and environmental degradation are best illustrated by sprawling traditional cities such as Benin City, Nigeria. This study investigates the ways in which these variables interact to affect residents' subjective wellbeing and health outcomes. An initial list of 100 descriptive situations reflecting actual city life which was developed in a preliminary study was tested in this investigation with residents from 6 neighbourhood cohorts in an abbreviated version. Employing Mean Analyses, Principal Components Analyses and T-Tests, the study revealed that carbon monoxide emissions, flooding, epileptic power supply, noise pollution from religious centres of worship, the smells in public transport vehicles, and the dearth of motorcycles in the city were some of the key sources of residents' annoyance. The study further revealed that the quality of life of Benin City residents has been seriously compromised and impaired by perceived environmental annoyances, resulting in undesirable health outcomes. It is recommended that urban planners employ the indicators of environmental stress as bases for planning and policy on public space and land use management to mitigate their impacts. The well-being and quality of life of city dwellers must be accorded appropriate consideration in community planning.

Key Words: Environmental stressors, Perceptions; Quality of life; Adaptation; Health and Well-being

INTRODUCTION

> *"Environmental annoyance is a psychological phenomenon …*
>
> *of mind and mood."*
>
> ----- P.M. Stallen (1999).

Human behaviour is a function of the person, the environment, and the interaction between the two. It follows that if the person's environment is not much acceptable the person starts behaving undesirably as a reaction to stressful environmental conditions. Environmental annoyances aptly refer to those nuisances that impact on

people overtime, and may be comprehensively defined as those activities or physical attributes from design, layout, housing quality and arrangement, as well as the range of human behaviours and attitudes that provoke negatively the reactions, responses, and feelings of people living in a space, particularly urban centres. This presupposes that although environmental annoyances could be found in rural settings, they have more to do with the nature of urban life and complexes, and are likely to affect the degree of congruence of the environment, expectations of the people, their goals and value systems. Research in environmental psychology has increasingly turned towards measuring perceived environmental quality, of which one research objective is to study the congruence between the quality of environments and peoples' expectations, goals and value systems (Priemus, 1986; Robin, Matheau-Police & Couty, 2007:55).

Annoyance is originated by adverse environmental conditions interfering with normal human functioning and is considered as a threat for today as well as for the future. In the city environment there exists a higher order of aversive situations like pollution, noise, overcrowding, extreme temperature, and the like which propel the person to behave in an indifferent way. Environmental stressors are typically aversive, primarily uncontrollable, and of variable duration and periodicity and require low to moderate adjustments; these stressors have chronic effects on individuals and are generally beyond their own control (Evans & Cohen, 1987:572; Rishi & Khuntia, 2012:1; Robin *et al*, 2007:56). Daily hassles are ones which include typical events of the traffic or the jam or the ordinary life that may cause frustration, tension, or irritation. The stress provided by the urban environment is often reflected in the form of physical turmoil, psychological illness, and reduced social interaction (Rishi & Khuntia, 2012:1; Evans & Cohen, 1987:574). Evidence abounds that there are physical, social, and functional dimensions in the perception of environmental annoyances in urban settings (See for example, Robin *et al*, 2007). An indicative search of the literature on the effect of different environmental stressors on people confirms that they can impact peoples' behaviour, mood, cognitive function, physical health, and/or psychological well-being (Rishi & Khuntia, 2012:1, 2); hence the need for their containment, reduction or management. In the literature, there exist several studies carried out on certain key environmental annoyance descriptors such as noise, odour, light, air pollution, vibration, commuting and cataclysmic events. It seems that noise annoyance has however been over flogged in the literature owing to the fact that it is the most common to residents of major cities (See for example, Dickens *et al*, 2014; Pedersen, 2015; Jakovljevic *et al*, 2008; Rishi & Khuntia, 2012; Nishikizawa *et al*, 2013).

Early studies of the effects of multiple stressors focused, with some exceptions, on one physical stressor combined with *stressful conditions* such as stressful life events and job stress. Recent studies have also focused on the perception of residents on the effects of multiple stressors from different sources, such as that carried out by Robin *et al* (2007). The construction and validation of an original scale was pursued to measure perceived environmental annoyances in urban settings. The scale included all the potentially aversive situations encountered in the daily lives of city-dwellers. The answers of 926 French respondents to the initial 68-item scale were first analysed. Then using Principal Component Analysis (PCA), the number of items was reduced to 51 from which the factorial structure was extracted. Seven principal dimensions emerged: feelings of insecurity, inconveniences associated with using public transport, environmental annoyances and concerns for global ecology, lack of control over time related to using cars, incivilities associated with the sharing of public spaces between different users, lack of efficiency resulting from the density of the population, and an insecure and run-down living environment. They also examined these dimensions of perceived environmental annoyances in urban settings according to the sex, age, occupational category and geographical location of respondents.

Also, a cross-sectional study of acoustical factors influencing noise by Jakovljevic *et al* (2008) on an adult population of a Belgrade municipality showed significant association between nighttime road-traffic noise and high noise annoyance of urban residents. They thereafter suggested the use of nighttime noise level as exposure indicator for noise annoyance assessment. They add that nighttime noise countermeasures might also have a greater public health impact compared to daytime, including a possible influence on the incidence of noise annoyance in urban population. Depending on noise sensitivity, exposure to ambient noise can have a disruptive effect. Some people may experience tension, stress, anxiety, depression, and low self-esteem as a result of it. It is sometimes recognised as a negative emotion linked to stress and the experience of stress. Inappropriate coping strategies are brought up by this (e.g., alcohol and tobacco use). A prior study found that listening to traffic

noise may raise stress hormone levels and cause oxidative stress, which in turn causes inflammation in cells (Nutthajit et al., 2024).

More recently, a study carried out by Rishi and Khuntia (2012) assessed the effect of urban environmental stress on the subjective well-being of the people in Bhopal City of India. The objectives were to assess the perceived urban environmental stressors and to explore the coping strategies adopted by the people to combat the outcomes of urban environmental stress. Perceived Urban Environmental Stressors' Scale (UES) and Urban Hassle Index were administered by the researchers. The findings indicated that though people described their city as pleasant, a high level of stress was still perceived and its major reasons were found to be noise, waste accumulation, polluted air with smoke, and unhealthy environment in slums. The outcome of the research suggests that the city planners should give equal priority to the natural resources and environment by various pollution management interventions and proper city planning. The researchers add that it is crucial for the wellbeing of the human beings to lower down the effect of stressors, so that the life in the city can be livable and of good quality. The paper provides guidelines for other metropolitan cities too for developing Environmental Competence and for generating mass awareness about the Urban Environmental Stress and its possible management options to help people develop Environmental Resilience and functional coping.

A study by Nishikizawa *et al* (2013) focused on the perceptions and feelings of annoyance experienced by residents living near coastal wind turbines. Questionnaires were distributed to municipal governments that had coastal wind farms in their jurisdictional areas in order to clarify how frequently complaints pertaining to wind turbines arose. Moreover, interview surveys were administered to over 100 people who lived within 300 m of the turbines. The results showed the following: (1) There are 39 coastal wind farms that have over 5,000 kWh installation capacity in Japan. (2) The perception of shadow flicker was more frequent than that of the operational noise, whereas the level of annoyance due to shadow flicker was slightly less than that due to noise. (3) Residents' perception of the noise depends on their distance from the shoreline as well as from turbines because the back ground noise due to waves can eclipse the noise of turbines. (4) According to a geographical distribution, residents living near plural turbines were likely to perceive noise and thereby get annoyed. Further studies are needed though, particularly in areas with different topography such as west coast where shadow flickers would less affect residents. Also, to clarify mechanisms of the relation between cause and effect relating to annoyance, individual and contextual parameters should be considered in future detailed studies.

A study by Egbenta et al (2021) investigated how environmental noise impacts residential property values in Enugu, Nigeria. They found elevated traffic and industrial noise—frequently exceeding Nigerian regulatory limits—was significantly associated with lower housing prices and heightened community annoyance. The study emphasizes how common acoustic stressors in growing urban settings have a direct impact on household economic outcomes and mental health. More evidence is available of the synergetic effects of combined exposure to noise and air pollution. Responses to *several physical stressors from different sources* have, consequently, not been extensively studied (Pedersen, 2015). A large study in a general population found several sources of annoyance (e.g., traffic noise, street and nightlife noise, and wood burning odour) and for some of these a dose-response relationship, though without further links to well-being or quality of life. There is, as such, a need for additional studies concerning the effects of combinations of environmental stressors.

This research on perception of environmental annoyances falls within the realms of environmental perception and urban/humanistic planning which explore environmental issues and challenges as perceived by people. The perception of urban annoyances varies according to the spatio-temporal characteristics of a geographical location. It is in light of this that this research examined how residents of the traditional African city of Benin perceive environmental annoyance in their fast-urbanizing environment. The principal objective of this study was to examine how Benin City residents perceive environmental annoyance or stress in their respective neighbourhoods, with a view to recommending practical measures of reduction, containment or management of the menace. Specifically, the study aimed to ascertain how Benin City residents perceive environmental stress or annoyance, decipher which environmental stressors rank topmost in the annoyance scale of respondents, ascertain the impact of environmental annoyances on the health, well-being and quality of life of the people, ascertain the coping strategies of residents, and recommend necessary action to policy makers and urban planners

and managers.

CITY PROFILE

Benin City is an emerging metropolitan city and capital of Edo State in Southern Nigeria. This metropolitan city comprises three local government areas, viz. Oredo, Egor and Ikpoba-Okha Local Government Areas (Fig. 1). The city also shares a small part of Ovia North- East Local Government Area. It is a city approximately 40 kilometres (25 mi) north of the Benin River (The Columbia Encyclopedia, 2005). Strategically placed as a gateway to the four corners of the country, the city is linked by road to the West (Lagos), East (Onitsha), North (Abuja), and South (Warri).

Location and Geography

The metropolitan city of Benin is located in the South-South Geo-political Zone of Nigeria. Geographically, the city lies between Latitudes 6°12′ N and 7º13′ N of the Equator, and between Longitudes 5º 35′ E and 5º 45′ E. Benin stands on a slightly elevated piece of flat land about 85m above sea level, with the eastern edge steeply tilted towards Ikpoba River that drains the eastern portion of the city, while the western edge slopes gently towards Ogba River that drains the western portion of the city. The lowlands are part of the vast coastal plains which form the southern fringe of Nigeria, and are generally below 150m in height. The natural vegetation is the rainforest, though there is the presence of savanna in areas of urban expansion and bush fire amongst other factors. The average annual rainfall can be as much as 2000 to 2500mm. The average daily temperature is about 27° C. There is seasonal variation, with a wet season from July to September and a dry one from December to February (Ben-Amos, 1996, 2015).

Population and Demography

During the last five decades, Benin City has witnessed a tremendous growth in population and areal extent.   The first population census of Benin City, made during the period of British colonial rule in Nigeria took place in 1931 and thus put the number of people living in the city that year at 11,000. By 1952, the population of the region was 53,753. In 1963, a Nigerian census indicated that the city had a population of 100,694. The urban population was similarly estimated at 201,000 in 1972, and by 1976 at 314,219, indicating a growth rate of 8.5% for that period, on the basis of which the city's 1980 population was estimated at 425,000 (Ben- Amos, 1996, 2015). By 1991 Census, the population of Benin City rose to 801,622. The 2006 Census, which is the most recent, recorded the population of the metropolitan city as 1,147,188 (National Population Commission, 2006). Migration to Benin City continues to increase its population, which doubles in size every decade, as young people from the rural areas, as well as from different ethnic groups and parts of Nigeria, come in search of greener pastures.

Economy

Rubber processing and the preparation of tropical hardwoods are major industries in the state of which Benin City is the capital (Ben-Amos, 1996, 2015). Benin City's unique position as the state capital, coupled with the discovery of oil and a tremendous increase in its production in the late 1960s and early 1970s, drew financial resources and industries to the city. However, today the urban economy is dominated by government in the formal sector and trade in the informal one.   Because Benin City is the capital of Edo State, the government and its agencies are the main employers for the wage-earning portion of the population. At least half of the urban workforce is in clerical and, especially, sales-and-service professions. Men are typically involved in tailoring, carpentry, or electrical and mechanical repairs and women tend to be hairdressers, dressmakers and petty traders. Women dominate in the street and local markets in the city. Youth unemployment has become a growing problem as the influx of migrants from the villages and other parts of Nigeria steadily increases (Ben-Amos, 1996, 2015). Benin City is well suited for this study because it retains the characteristic hustle and bustle of city life from which, more often than not, emanate key environmental stressors or annoyances.
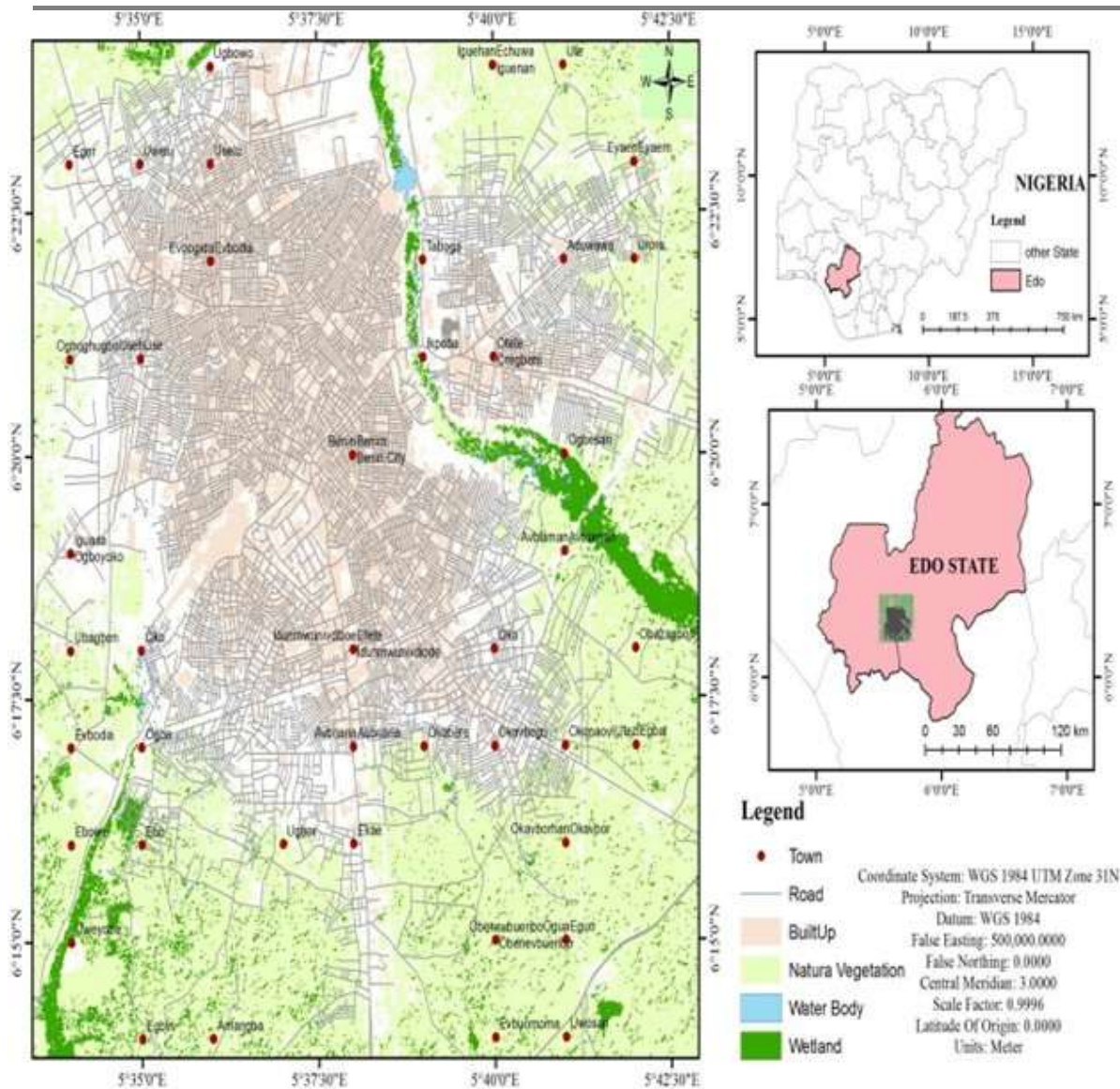
Figure 1: Benin City (Inset: Edo State, Inset: Nigeria).

THEORETICAL ORIENTATION

This study employed the 'adaptation and coping' model as its theoretical framework. This model of environmental stress emphasizes psychological aspects of human adaptive capabilities. Human beings have a broad and flexible repertoire of coping resources that allows them to maintain equilibrium or near equilibrium in the face of a broad array of environmental conditions. People are able to withstand, at least for short periods of time, substantial environmental demands (Evans & Cohen, 1987:579). Adaptation theory posits that human standards of judgment to dimensions of physical stimuli change in proportion to both current and previous, chronic experiences with that dimension. Specifically, adaptation-level theory predicts that either immediate or previous exposure to a high intensity of some dimension will cause a habituation process wherein current judgments of the intensity of that dimension will be lowered relative to judgments by others without exposure to that dimension. In applying this perspective to air pollution, some studies have shown that individuals who have resided in areas of the United States with poor visual air quality habituate to poorer visibility (Wohlwill, 1974 *in* Evans & Cohen, 1987:579-580).

Looking at this issue at a more individual level, Cohen (1980 *in* Evans & Cohen, 1987:580) has suggested that a cumulative cost of adapting to stress may be cognitive fatigue. Negative aftereffects in frustration tolerance or cognitive performance following exposure to crowding, noise, or air pollution are examples of the cumulative effects of effort expended to cope with environmental stressors. Cumulative fatigue may also reduce the capacity to cope with subsequent environmental demands. Another result of coping with stressors may be

overgeneralization, where a strategy that has been adopted to cope with a stressor becomes a characteristic operating mode for the individual even when the stressor is no longer present.

This research, in view of the foregoing, aimed at ascertaining the coping strategies of Benin City residents to adverse environmental stressors. The study also aimed at ascertaining whether adaptation forms an integral part of the coping mechanisms of respondents. The findings of this study were thereafter related to the adaptation and coping model. The research question on the coping strategies of Benin City residents for environmental annoyances was hinged on this framework.

MATERIALS AND METHODS

The Research Design

This study is based on a questionnaire survey. The study population comprised residents of Benin City in the respective neighbourhoods. The Stratified Random Sampling Technique was employed to select neighbourhoods for inclusion in the study. The stratified units are the quarters or neighbourhoods into which the population was divided; then, six neighbourhoods were selected for administration of the research instrument. Also, Accidental Technique was used to locate sample members on an impersonal chance, since it is an uphill task to write all the names of the individuals on a separate piece of paper for random technique to apply. This research adopted a sample size of 320.

The Research Instrument

This research used a questionnaire as the instrument of data collection. The Summated Rating (Likert) Scale was also adopted for use in this study, forming an integral part of the questionnaire. The questionnaire was divided into three sections. Section One sought the socio- demographic information of respondents in terms of age, sex, occupational category, income level, and neighbourhood. In Section Two, the perception of respondents on environmental annoyances was solicited. Respondents were asked to indicate for each of the everyday situations whether they were disturbed or annoyed by them, using the Summated Likert Scale (1-5). Section Three sought to ascertain the quality of life of respondents in view of environmental annoyances, as well as their coping strategies.   At the end of administration, a total 304 questionnaires were returned valid.

The Scale

The scale consists of an exhaustive list of specifically urban situations that city-dwellers would potentially find aversive. Each situation was evaluated according to its extent of annoyance on a 1–5 scale (1 = not sure; 2 = doesn't disturb me at all; 3 = disturbs me a bit; 4 = disturbs me; 5 = disturbs me a lot). The scale is based upon the assumption that each statement/item on the scale has equal attitudinal value, importance or weight in terms of reflecting attitudes towards everyday annoyances.

Research Protocol

The abbreviated scale, including a number of socio-demographic and geographical variables was reproduced in the validated research instrument for the actual survey.   Respondents were asked to fill out the questionnaire meticulously. To be eligible they had to be at least 18 years old and to live or work within the confines of the six selected neighbourhoods in Benin City. Respondents were asked to respond to all the items in each box in the questionnaire and to send their results anonymously to the researcher.

Analytical Tools

The study employed both descriptive and inferential statistical tools. Frequency Analyses in the form of simple percentages, tables, and charts, as well as Mean Analyses (Attitude Scale) were used as descriptive analytical tools; while Principal Components Analysis was used as an inferential statistical tool to reduce the complex matrix of responses to far fewer dimensions of differentiation. Principal Components Analysis enabled the identification of principal annoyances in the study.

Ethical Considerations

As noted by Stallen (1999), environmental annoyance is [indeed] a psychological phenomenon of … mind and mood. Hence, it is something that affects peoples' deepest emotions. Consequent upon this, it was expected that some of the study population could decline from sharing information about how certain environmental stressors affect them personally, and the researcher acknowledged that each one has a right to their own views and feelings. In fact, Article 18 in the United Nations Universal Declaration of Human Rights states: "Everyone has the right to freedom of thought …" (United Nations, 1948:4). In addition, the research instrument drew the respondents' attention to the fact that this is simply a research of an academic nature with positive environmental policy implications.

RESULTS

Preliminary Survey Details

This present study follows a pre-survey which sought to elicit, construct, and validate a new instrument for evaluating people's perceptions of environmental annoyances in urban settings, based on situations occurring on a daily basis that might be perceived as potentially stressful for city-dwellers. In the preliminary survey, respondents were asked: "as you go about your daily life, what situations can you recall that stress you the most?" The data collected provided information on potential sources of stress (for example, noise, traffic jams, carbon monoxide emissions, absence of motorcycles, etc.). The answers enabled the generation of an initial list of 100 descriptive situations reflecting actual city life, based on the information respondents had provided, excluding any terms that involved interpretation. The relevance of the scale to Benin City was then tested in this second study with over 300 urban residents in six selected neighbourhoods in an abbreviated version of 40 representative items.

### Actual Survey Sample Characteristics

The sample consisted of 320 respondents. A priori 4 questionnaires were excluded because they failed to correspond to the research criteria of geographical location. Also elimination was on the basis of subjects who failed to answer manifold questions, or whose answers were uncodable. Also, some respondents failed to return the questionnaire. The final sample, therefore, comprised 304 respondents. The break-down by sex, age, occupational- category, income level and geographical location of these subjects appears in Table 1.

Table 1	Characteristics of the Research Sample (N = 304)	
	Sample	%
Sex		
Male	113	36.7
Female	191	62.3
Age (Years)		
18-25	123	39.9
26-45	98	31.8
46-65	46	14.9
66-92	2	0.6

Occupational Category		
Civil Servants	123	39.9
Businesspeople/Traders	44	14.3
Students	135	43.8
Income Level		
High Income	32	10.4
Middle Income	130	42.2
Low Income	111	36
Neighbourhood		
GRA	40	13
Ibiwe	14	4.5
Igbesamwan	8	2.6
New Benin	75	24.4
Okhoro	28	9.1
Ugbowo	130	42.2

**N/B:** N = total number of valid respondents; % = percentages of scores.

These sample characteristics are also graphically portrayed using pie and line charts and bar graphs in Figures 4.1, 4.2, 4.3, 4.4., and 4.5.
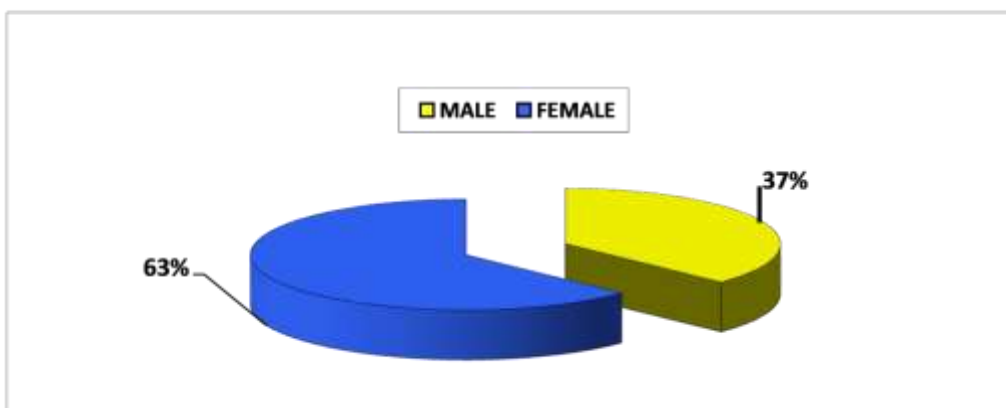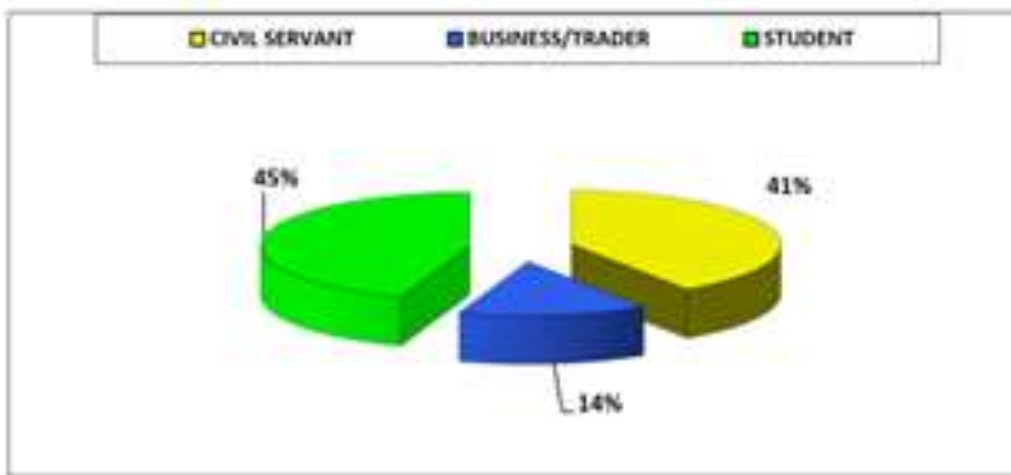

Fig. 2: Sex Distribution of Respondents

More women (63%) than men (37%) sent in questionnaires (See Figure 4.1); and the survey included all the age-ranges, with a larger proportion in the 18-25 and 26-45 age-ranges, as depicted in Figure 4.2. The 65-92 age-range was the least represented in the survey.
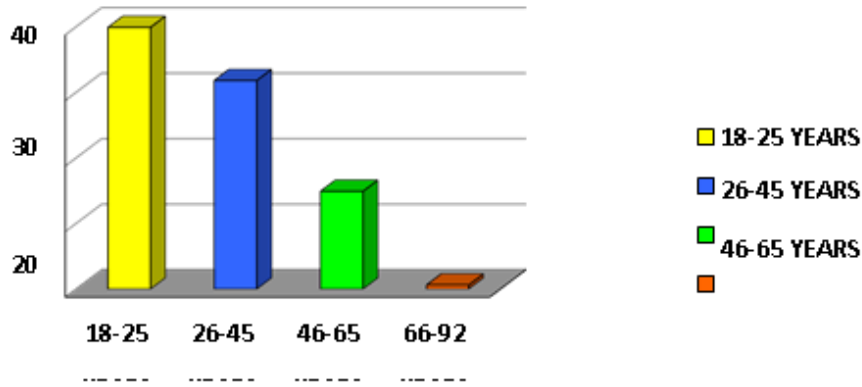
Fig. 3: Respondents' Distribution by Age

Fig. 4: Respondents' Occupations

All occupational categories were represented, with a higher proportion of students (45%) and civil servants (41%). This is well portrayed by Figure 4. In terms of income level, middle-income earners (47%) and closely followed by low income earners (41%) were more. High income earners constituted 12% of the respondents. These statistics are depicted by Figure 5.
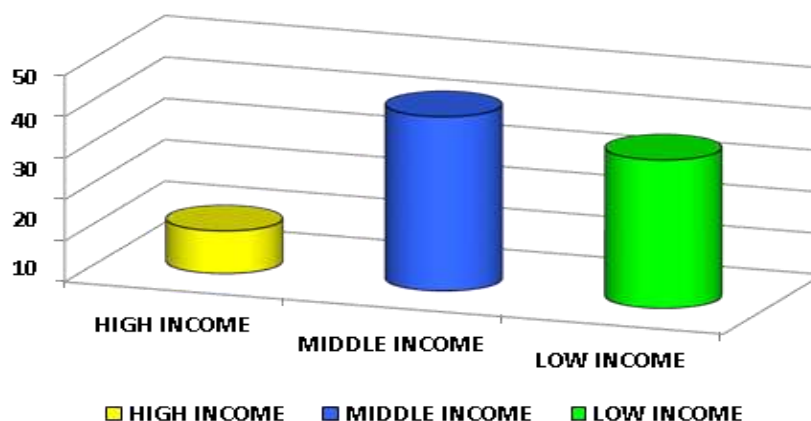
Fig. 5: Distribution by Income Level
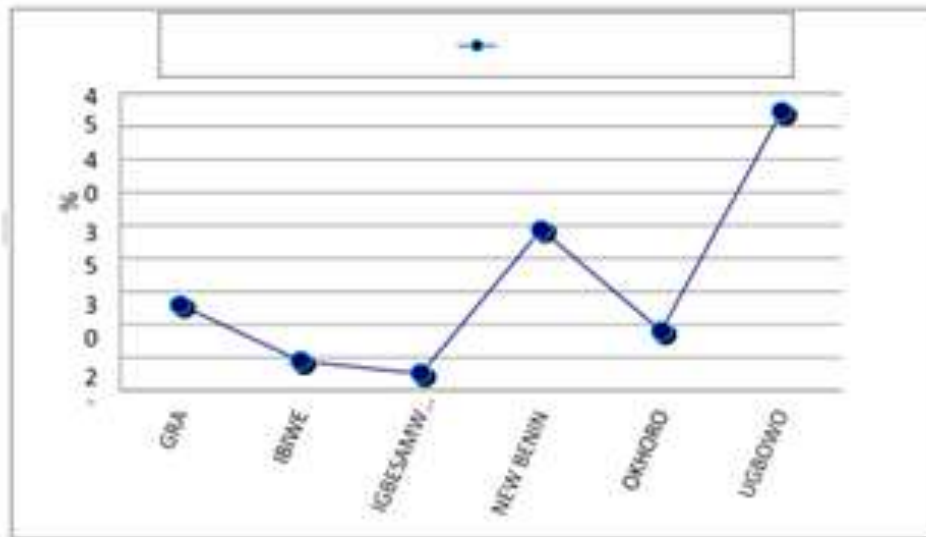
Fig. 6: Distribution by Neighbourhoods

As indicated by the line chart (see Figure 6), respondents were more towards the suburban areas (e.g. Ugbowo) of Benin City than in the core-urban areas (e.g. Igbesamwan). Respondents from the GRA constituted 13% of the total distribution, and 4.5% represented the residents of Ibiwe in the core area of the city. Also in the core zone of Benin City, respondents from Igbesamwan comprised 2.6% of the distribution. Away from the core zone and towards the suburbs, New Benin residents accounted for 24.4% of the distribution by neighbourhoods. The research instrument was answered by a valid 9.1% of respondents from Okhoro, whereas a larger proportion of respondents from Ugbowo constituted 42.2% of the total sample distribution.

The Dimensional Structure of the Scale

A series of principal components analyses (PCAs) were conducted on answers to the scale's 40 items, using varimax rotation. The purpose of the PCAs was to decipher which group of aversive situations annoyed residents of Benin City the most. The object of the PCAs was also to ascertain the percentage of variance accounted for by each of the annoyance descriptors or stressful situations. As the PCAs were run, eliminations could be made on items that were redundant and did not account for much of the variance, especially in terms of increased explained variance. However, the exclusion of such redundant items did not reduce or affect the internal consistency of the dimensions of annoyance. The definitive scale consisted of 40 items from which the principal annoyances were extracted. The 40 items were sufficiently homogenous enough to assess the extent of perceived environmental annoyances by the respondents, taking into consideration the overall score of the variance explained.

The first PCA (as indicated by Table 2 and the Scree Plot of Figure 7) showed that while respondents were annoyed by all of the annoyances, some annoyances were more significant in explaining the variance. Situations 1-13 were very significant. This is indicated by the steep gradient of the line in the scree plot from 1-13, and the contrasting flattening of the plot from dimensions 14-40. However, three additional annoyances were sufficient for inclusion in the consideration of significance. This indicated that annoyances 1-16 were more significant and hence considered as the most stressful situations by the respondents in general. The 16 annoyances which were more significant in the first PCA are carbon monoxide from vehicles ($\sigma = 1.14$), offensive body odour/bad breath ($\sigma = 0.49$), flooding ($\sigma = 0.49$), dead bodies of rats, cats lizards on the streets ($\sigma = 0.39$), rough driving ($\sigma = 0.53$), people who shout while having phone calls ($\sigma = 0.47$), people who wear low-waist trousers ($\sigma = 0.62$), flashlight from vehicles ($\sigma = 0.55$), marriage partners who are unfaithful ($\sigma = 0.34$), the smells in public transport vehicles ($\sigma = 0.41$), numerous churches in the city ($\sigma = 0.67$), noise from loudspeakers in churches ($\sigma = 0.56$), water scarcity ($\sigma = 0.62$), lack of green spaces near where you live ($\sigma = 0.57$), garbage on the streets and in gutters ($\sigma = 0.45$), and absence of motorcycles ($\sigma = 0.76$). These annoyances were categorized as significant, while annoyances 17-40 were eliminated or dispensed with in view of their being less significant.

**Table 2   Item Coordinates for the Principal Dimensions**

Item N.	Dimension	Communalities
Dimension 1:	Physical Comfort Annoyances and Environmental Concerns	
3	Water scarcity	0.71
5	Epileptic power supply	0.66
9	Carbon monoxide from vehicles	0.62
15	Extreme heat	0.59
20	Dead bodies of rats, cats, lizards on the streets	0.59
23	Flooding	0.59
2	Dust	0.57
11	Garbage on the streets and in gutters	0.57
21	Lack of green spaces near where you live	0.57
Dimension 2: Inconveniences with Public Transport		
32	Absence of motorcycles	0.65
19	Waiting too long in the sun for public transport	0.61
1	Traffic jams	0.55
37	The smells in public transport vehicles	0.55
Dimension 3:	Incivilities in Sharing Public Spaces	
7	People who wear low-waist trousers	0.8
38	Being unable to withdraw money from an ATM	0.73
6	People who are arrogant and proud	0.72
16	Numerous churches in the city	0.72
36	A preacher with a loudspeaker on your street at 5:00 am	0.72
39	People who smoke in public places	0.68
12	Double parking by drivers	0.67
22	Drivers who don't obey traffic lights	0.67

13	Rough driving	0.66
30	Sitting close to a sweaty person	0.66
18	Chewed gums under seats in public places	0.63
8	People who talk too much	0.62
14	Trading on walkways	0.62
29	Lack of public toilets in the city	0.59
34	Absence of old peoples" homes	0.59
10	Noise from loudspeakers in churches	0.57
24	Offensive body odour/bad breath	0.57
27	Flashlights from vehicles	0.54
35	People who shout while having phone calls	0.49
33	The queues at filling stations	0.47
Dimension 4: Rundown Living Environment		
31	Absence of street lights at night	0.63
17	Abandoned and uncompleted buildings	0.6
28	Large houses directly next to each other	0.55
Dimension 5: Other Social Personal Feelings Annoyances		
40	Wanting to travel out of the country by all means	0.58
26	Marriage partners who are unfaithful	0.56
25	Hunger	0.54

The overall annoyances and their principal factors or dimensions are depicted in Table 2 against the percentage of variance they each accounted for. In the application of PCA, a correlation matrix was used since the variables were different in scale and equal in importance. The results of principal components analysis of the data are presented and subsequently derived components were rotated according to varimax rotation in order to make interpretation easier. The communalities in Table 2 show the overall importance of each parameter in the total variability explained by PCA. The higher the extraction value, the higher the importance. All initial communalities were 1.000 from which the extracted values were drawn. In general, interest is in keeping only those principal components whose eigenvalues are greater than 1. Components with an eigenvalue of less than 1 account for less variance and so are of little use. In the first case, the 13 components with eigenvalues > 1 accounted for 62% of the total variance explained by PCA. This was significant for the analysis of principal environmental annoyances.

The item coordinates for the principal dimensions are here presented in Table 2. The scree plot of Figure 7 graphs the eigenvalue against the component number. From the 13th component on, the line is almost flat, meaning that each successive component is accounting for smaller and smaller amounts of the total variance. In general, component loadings (correlation coefficients) larger than 0.6 were taken into consideration in the interpretation. In other words, the most significant variables in the components represented by high loadings have been taken into consideration in evaluating the components. In addition to the significance of high loading values, there exists a difference between the components; the components with larger variances are more desirable since they give more information about the data.
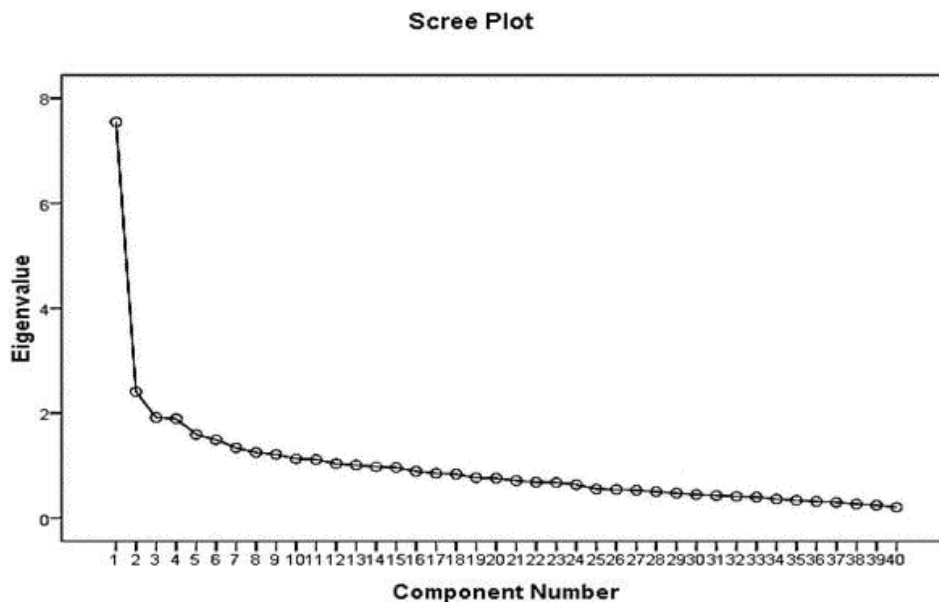
Figure 7: Component Loadings against their Eigenvalues

Description of Dimensions

Dimension 1: *Physical Comfort Annoyances and Environmental Concerns* (9 items). This dimension essentially combines items pertaining to physical comfort issues and environmental constraints and hazards such as dust and flooding, transport-related pollution, ecological issues such as the lack of green spaces, energy issues and issues of environmental discomfort such as extreme heat and animal carcasses on the streets. They impinge heavily on the convenience of everyday life.

Dimension 2: *Inconveniences with Public Transport* (4 items). This dimension combines a number of items referring to the nuisances and inconveniences encountered within the physical environment of public transportation (discomfort, smells, absence of motorcycles, traffic jams). It also includes situations which generate users‟ feelings of powerlessness in the context of the inability to control the amount of time their travel arrangements take (waiting long in the sun for public transport).

Dimension 3: *Incivilities in Sharing Public Spaces* (20 items). This factor contains items evoking the perception of the lack of rules of conduct regulating behaviours between different groups of users who cross each other's paths in public spaces: drivers, pedestrians; but it also concerns people who are more vulnerable because of their specific needs such as the elderly. Some items also pertain to annoyances from the activities of religious organizations such as churches. These deviations from behavioural norms also reflect aggressivity and insalubrity, and lack of respect for others. Some of these incivilities relate to similar studies by Robin *et al* (2007) in Paris, France.

Dimension 4: *Rundown Living Environment* (3 items). This dimension includes the tangible signs of social disorder in the individual's residential environment such as abandoned and uncompleted buildings, absence of street lights at night, and large houses directly next to each other.

Dimension 5: *Other Social Personal Feelings Annoyances* (3 items). The categorization of these items to a dimension was challenging but representative of the emotive personal life experiences of people. For example, the items include hunger-generated annoyance, annoyance over marital infidelities, and annoyance over people wanting to travel out of the country by all means out of frustrations, all reflecting personal deep feelings and experiences of the people. Annoyance over marital infidelities, though, did have much significance like the others.

With the presence of 16 principal sub-dimensions or annoyances, a second PCA (See Table 3) was run to ascertain the internal consistency of the sub-dimensions, the percentage of variance they explain, and their relationship with the socio-demographic characteristics of respondents, viz. sex, age, occupational category, income level, and neighbourhood. Table 3 reveals the 16 situations that annoyed residents of Benin City the most. They are presented as follow with the percentage of variance they each accounted for in the analysis. Annoyance due to carbon monoxide accounted for 23.3% of the variance explained, while annoyance from offensive body odour/bad breath was 9.5% of the total variance explained. Flooding as a major source of annoyance, accounted for 7.4% of the variance and annoyance emanating from animal carcasses followed in the explanation of the variance with 7.0%. Whereas annoyance due to rough driving explained 6.5% of the variance, the same was accounted for by annoyance emanating from how people shout while having phone calls with about 6.0%. Annoyance due to the attitude of some youths who wear low-waist trousers accounted for 5.9% of the variance explained, and a little below that, annoyance from vehicular flashlights represented 5.0% of the variance.

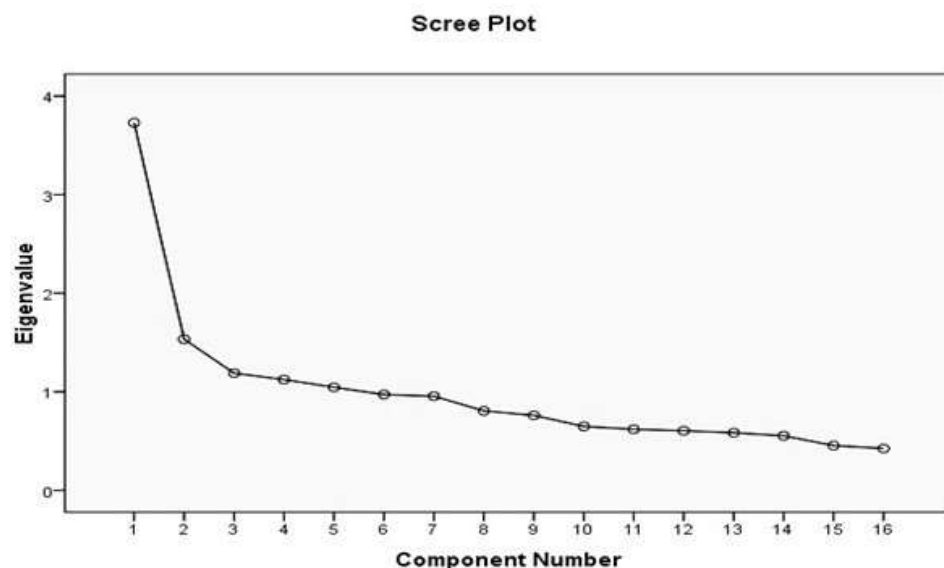**Table 3   Factor Analysis Using the Reduced Principal Components**

PRINCIPAL ANNOYANCES	MEAN	STANDARD DEVIATION	INITIAL	EXTRACTION
9. Carbon monoxide from vehicles	4.05	1.14	1	0.613
24. Offensive body odour/bad breath	4.03	1.19	1	0.493
23. Flooding	4.04	1.145	1	0.499
20. Dead bodies of rats, cats …	3.54	1.322	1	0.399
13. Rough driving	4.1	1.111	1	0.537
35. People who shout ...	3.64	1.183	1	0.471
7. People who wear low waist trousers	3.45	1.336	1	0.626
27. Flashlight from vehicles	3.34	1.21	1	0.554
26. Marriage partners who are unfai...	3.57	1.429	1	0.346
37. The smells in public transport …	3.91	1.103	1	0.416
16. Numerous churches in the city	2.74	1.298	1	0.677
10. Noise from loudspeakers in ch …	3.4	1.319	1	0.567
3. Water scarcity	3.73	1.257	1	0.623
21. Lack of green spaces near …	3.08	1.355	1	0.572

11. Garbage on the streets and in …	4.28	2.222	1	0.458
32. Absence of motorcycles	3.06	1.282	1	0.769

N/B: For a complete view of the 16 principal annoyances above, please refer to Key in Figure 8.

The analysis further revealed that while annoyance from common marital infidelities accounted for 4.7% of the variance, the sub-dimension on the smells in public transport vehicles made for 4.0%. Annoyance emanating from the proliferation of churches in the city and the incident noise nuisance from the use of loudspeakers accounted for 3.8% and 3.7% of the variance respectively. Water scarcity annoyance and ecological annoyance arising from the lack of green spaces in respondents' neighbourhoods explained 3.6% and 3.4% of the variance respectively. The sub-dimension on garbage on the streets and in the gutters accounted for 2.8% of variance, whereas the absence of motorcycles in Benin City accounted for 2.6% of the total variance explained. In the final analysis, Carbon monoxide from vehicles accounted for the greater part of the variance, and consequently, annoyed residents of Benin City the most, thus revealing it as a major environmental issue and everyday nuisance experienced by the people.

The Scree Plot of Figure 8 depicts the 16 principal annoyances against their eigenvalues and shows the precedence of carbon monoxide over all other annoyances.

Key

1: Carbon monoxide from vehicles

2: Offensive body odour/bad breath

3: Flooding

4: Dead bodies of rats, cats, lizards on the streets

5: Rough driving

6: People who shout while having phone calls who wear low-waist trousers from vehicles

9: Marriage partners who are unfaithful

10: The smells in public transport vehicles

11: Numerous churches in the city

12: Noise from loudspeakers in churches

13: Water scarcity

14: Lack of green spaces near where I live **7:** People
15: Garbage on the streets and in the gutters **8:** Flashlight
16: Absence of motorcycles

Fig. 8: The 16 Principal Components and their Eigenvalues

Socio-demographical Variables and Perceived Environmental Annoyances

The results of the dimensions according to the sex, age, occupational category, income level, and neighbourhood were examined by calculating the annoyance scores for each dimension (the sum of all the answers to the items, divided by the number of items). The Student‟s T-Test was performed for the sex, age, occupation, income level, and neighbourhood variables on the overall score of the scale and its sub-scores. These indices are presented respectively.

Sex and Perceived Environmental Annoyances

Table 4   Sex and Principal Annoyances

Principal Annoyances	Men (*N*=113)	Women (*N* =191)	*P*-Value
Means (standard deviations)			
1. Carbon monoxide from vehicles	3.86 (0.11)	4.15 (0.08)	0.045
2. Offensive body odour/bad breath	3.81 (0.11)	4.17 (0.08)	0.011
3. Flooding	3.95 (0.10)	4.11 (0.08)	0.216
4. Dead bodies of rats, cats …	3.57 (0.12)	3.61 (0.09)	0.798
5. Rough driving	3.98 (0.10)	4.16 (0.07)	0.168
6. People who shout ...	3.39 (3.73)	0.11 (0.08)	0.015
7. People who wear low waist trousers	3.47 (0.28)	3.62 (0.09)	0.540
8. Flashlight from vehicles	3.17 (0.11)	3.40 (0.08)	0.122
9. Marriage partners who are unfai...	3.08 (0.13)	3.81 (0.09)	0.000
10. The smells in public transport …	3.73 (0.10)	3.98 (0.08)	0.067
11. Numerous churches in the city	2.85 (0.12)	2.65 (0.09)	0.197
12. Noise from loudspeakers in ch …	3.33 (0.12)	3.40 (0.09)	0.667
13. Water scarcity	3.66 (0.11)	3.81 (0.09)	0.306
14. Lack of green spaces near …	3.11 (0.13)	3.02 (0.10)	0.582
15. Garbage on the streets and in …	3.99 (0.11)	4.41 (0.17)	0.092
16. Absence of motorcycles	3.07(0.11)	3.02 (0.09)	0.752

N/B: $P<0.05$ = significantly different, $p<0.01$ = highly significantly different, $p<0.001$ = very highly significantly different.

The relationships between the sexes of respondents and the scale's principal annoyances are presented in Table 4. The overall *t*-test score for women was higher than that of men, indicating that the former perceived more environmental annoyances than the latter. This greater sensitivity to environmental annoyances was found for

all 16 principal annoyances with the exception of annoyances 6, 11, 14, and 16. These annoyances have to do with people who shout while on calls, the proliferation of churches in the city, concerns over the lack of green spaces, and the absence of motorcycles respectively. Women appear to be more sensitive to environmental issues and nuisances.

Age and Perceived Environmental Annoyances

A number of significant differences as indicated in Table 5 emerged in terms of age groups. The 26-45 and 66-92 year-olds were more sensitive to carbon monoxide from vehicles than the other age groups. These age groups were more sensitive to all other annoyances having to do with global environmental concerns with the exception of that related to the lack of green spaces which was higher with the 46-65 year-olds. Incivilities in sharing public spaces were dominant with the 18-25 year-olds. The 18-25 and 26-45 year-olds had more problems with public transportation than the rest of the sample.

Table 5   Age and Principal Annoyances

Principal Annoyances	18-25	26-45	46-65	66-92	*P*-Value
Means (standard deviations)					
1. Carbon monoxide ...	3.92 (0.10)	4.11 (0.11)	4.09 (0.20)	4.50 (0.50)	0.580
2. Offensive body odour	4.19 (0.09)	4.08 (0.12)	3.72 (0.19)	4.50 (0.50)	0.137
3. Flooding.	3.87 (0.10)	4.16 (0.12)	4.13 (0.16)	5.00 (0.00)	0.155
4. Dead bodies of rats …	3.53 (0.12)	3.74 (0.13)	3.49 (0.20)	4.00 (0.00)	0.616
5. Rough driving.	4.12 (0.09)	4.03(0.12)	4.02 (0.18)	5.00 (0.00)	0.631
6. People who shout...	3.53 (0.11)	3.57(0.13)	3.74 (0.14)	3.50 (1.50)	0.788
7. People who wear….	3.66 (0.25)	3.39(0.13)	3.51 (0.20)	4.00 (1.00)	0.817
8. Flashlight from ….	3.20 (0.11)	3.36(0.12)	3.20 (0.17)	4.00 (0.00)	0.625
9. Marriage partners...	3.44 (0.13)	3.40(0.15)	3.56 (0.21)	4.50 (0.50)	0.704
10. The smells in ….	3.89 (0.10)	3.93(0.11)	3.57 (0.18)	3.50 (1.50)	0.320
11. Numerous churches...	2.76 (0.12)	2.82(0.14)	2.68 (0.18)	3.00 (1.00)	0.942
12. Noise from loud ….	3.42 (0.12)	3.37(0.13)	3.42 (0.20)	3.50 (1.50)	0.992
13. Water scarcity.	3.74 (0.10B)	3.9(0.12B)	3.3(0.21B)	5.00(0.0A)	0.034
14. Lack of green ….	3.07 (0.12)	2.95 (0.14)	3.09 (0.19)	3.50 (0.50)	0.861
15. Garbage on the...	4.18 (0.10)	4.39 (0.33)	4.09 (0.16)	4.50 (0.50)	0.855
16. Absence of ….	3.16(0.12)	3.11 (0.12)	2.64 (0.18)	3.50 (0.50)	0.125

N/B: Similar letters indicate means that are not significantly different (*p*>0.05), *p*<0.05 = significantly different,

$p<0.01$ = highly significantly different, $p<0.001$ = very highly significantly different.

Occupation and Perceived Environmental Annoyances

Table 6   Occupation and Principal Annoyances

Principal Annoyances	Civil Servants	Businesspeople	Students	P-Value
Means (standard deviations)				
1. Carbon monoxide	4.09 (0.10)	4.05 (0.20)	4.01(0.09)	0.848
2. Offensive body odour ..	3.86 (0.11)	4.07 (0.19)	4.14(0.09)	0.176
3. Flooding	4.16 (0.10)	4.12 (0.19)	3.95 (0.09)	0.311
4. Dead bodies of rats, …	3.55 (0.11)	3.65 (0.21)	3.62(0.11)	0.882
5. Rough driving	4.15 (0.09)	3.88 (0.21)	4.15 (0.08)	0.332
6. People who shout...	3.66 (0.10)	3.60 (0.20)	3.55(0.10)	0.777
7. People who wear low …	3.51 (0.11)	3.67 (0.20)	3.59(0.23)	0.904
8. Flashlight from vehicles	3.37 (0.11)	3.16 (0.19)	3.31 (0.10)	0.641
9. Marriage partners ...	3.66 (0.12)	3.39 (0.23)	3.46(0.12)	0.410
10. The smells in public …	3.74 (0.10)	3.93 (0.16)	3.94(0.09)	0.357
11. Numerous churches ..	2.66 (0.11)	2.45 (0.16)	2.87(0.12)	0.157
12. Noise from loudspeakers	3.38 (0.11)	3.57 (0.22)	3.34(0.11)	0.621
13. Water scarcity	3.74 (0.12)	4.00 (0.19)	3.71(0.10)	0.403
14. Lack of green spaces …	3.02 (0.12)	2.84 (0.21)	3.14 (0.11)	0.439
15. Garbage on the streets...	4.35 (0.27)	3.93 (0.19)	4.26(0.08)	0.527
16. Absence of motorcycles	2.81 (0.10)	3.00 (0.23)	3.21 (0.11)	0.043

N/B: Similar letters indicate means that are not significantly different ($p>0.05$), $p<0.05$ = significantly different,

$p<0.01$ = highly significantly different, $p<0.001$ = very highly significantly different.

The highest scores for global environmental annoyances such as carbon monoxide, flooding, and garbage on the streets were associated with civil servants. This group was also more concerned about other social annoyances such as marital infidelity. Conversely, students were more sensitive to annoyances from using public transport such as the smells in public transport vehicles and the dire absence of motorcycles in the city. The sample was also skewed towards them.   Businesspeople were more concerned with incivilities in the shared use of public spaces such as people who wear low-waist trousers and the noise from loudspeakers in churches. This breakdown is depicted in Table 6.

Income Level and Perceived Environmental Annoyances

Generally, low income earners had greater sensitivity to all range of annoyances (See Table 7). They perhaps commute more and are more directly exposed to them. Low income and middle income earners were more sensitive to problems with using public transport such as the smells in public transport vehicles and the absence of motorcycles. However, all income levels did share equal concern for physical comfort issues pertaining to the lack of green spaces and water scarcity; although sensitivity to carbon monoxide from vehicles was higher with high income earners.

Table 7 Income Level and Principal Annoyances

Principal Annoyances	High Income	Middle Income	Low Income	P-Value.	Means (std dvtn)
1. Carbon monoxide ..	4.16 (0.23)	4.02 (0.10)	4.00 (0.11)	0.799	
2. Offensive body …	3.74 (0.25)	4.00 (0.10)	4.08 (0.11)	0.372	
3. Flooding	3.81 (0.21)	4.10 (0.10)	4.06 (0.10)	0.436	
4. Dead bodies of rats …	3.65 (0.23)	3.35 (0.12)	3.80 (0.11)	0.033	
5. Rough driving	4.09 (0.21b)	3.92 (0.10b)	4.35 (0.09a)	0.012	
6. People who shout...	3.32 (0.24)	3.70 (0.11)	3.55 (0.10)	0.234	
7. People who wear …	2.97 (0.24b)	3.43 (0.11b)	3.90 (0.28a)	0.058	
8. Flashlight from vehicles	3.34 (0.24)	3.15 (0.11)	3.40 (0.10)	0.27	
9. Marriage partners ...	3.16 (0.25)	3.55 (0.12)	3.49 (0.13)	0.372	
10. The smells in public …	3.47 (0.24)	3.89 (0.09)	3.86 (0.10)	0.181	
11. Numerous churches ..	2.47 (0.23)	2.82 (0.11)	2.80 (0.13)	0.391	
12. Noise from loud …	3.26 (0.27)	3.35 (0.11)	3.56 (0.12)	0.376	
13. Water scarcity	3.84 (0.23)	3.70 (0.11)	3.92(.10)	0.397	
14. Lack of green …	3.00 (0.27)	3.04 (0.11)	3.05 (.13)	0.986	
15. Garbage on the …	3.94 (0.24)	4.31 (0.25)	4.31 (.09)	0.666	
16. Absence of …	2.91 (0.23)	3.05 (0.11)	3.08 (.11)	0.79	

N/B: Similar letters indicate means that are not significantly different ($p>0.05$), $p<0.05$ = significantly different, $p<0.01$ = highly significantly different, $p<0.001$ = very highly significantly different.

Neighbourhood and Perceived Environmental Annoyances

As indicated in Table 8, with the exception of the GRA, all other neighbourhoods (both in the core areas and towards the suburbs) shared same sensitivity towards carbon monoxide from vehicles. Flooding annoyed residents of the GRA more than those from the other neighbourhoods. The respective neighbourhoods did not show much concern towards the absence of motorcycles within the stretch of the city. Noise from loudspeakers

in churches annoyed residents of New Benin and Ibiwe more than the other neighbourhoods. The neighbourhoods shared similar sensitivity towards incivilities in the shared use of public spaces. All the neighbourhoods excluding the GRA were annoyed by the incivility in rough driving.

Table 8   Neighbourhood and Principal Annoyances

No.	Annoyances	GRA	Ibiwe	Igbesamwan	New Benin	Okhoro	Ugbowo	P-value
1	Carbon monoxide	3.84 (0.20)	4.07 (0.35)	4.12 (0.58)	4.27 (0.11)	4.25 (0.23)	3.92 (0.10)	0.286
2	Offensive odors	3.97 (0.21b)	3.43 (0.40b)	4.88 (0.12a)	3.79 (0.14b)	4.08 (0.22b)	4.20 (0.09b)	0.019
3	Flood	4.58 (0.13b)	4.00 (0.29a)	4.25 (0.31a)	4.00 (0.13a)	4.15 (0.21a)	3.91 (0.10a)	0.041
4	Dead bodies	3.65 (0.19)	3.43 (0.42)	3.43 (0.64)	3.72 (0.15)	3.58 (0.26)	3.56 (0.11)	0.951
5	Rough roads	3.88 (0.19)	4.43 (0.22)	4.62 (0.18)	4.25 (0.12)	4.22 (0.22)	4.00 (0.09)	0.18
6	People urinating outside	3.70 (0.16)	3.93 (0.28)	3.38 (0.42)	3.76 (0.13)	3.50 (0.24)	3.51 (0.10)	0.553
7	People defecating outside	3.32 (0.21)	3.57 (0.42)	4.12 (0.35)	3.75 (0.14)	3.67 (0.27)	3.50 (0.24)	0.865
8	Flashlight harassment	3.33 (0.19)	3.07 (0.24)	2.88 (0.47)	3.60 (0.13)	3.23 (0.26)	3.23 (0.11)	0.295
9	Marriage disruptions	3.62 (0.20)	2.93 (0.39)	3.62 (0.42)	3.79 (0.16)	3.65 (0.27)	3.39 (0.13)	0.256
10	The smell of gutters	3.85 (0.16)	3.71 (0.39)	3.75 (0.49)	3.89 (0.12)	3.88 (0.25)	3.91 (0.09)	0.99
11	Numerous beggars	2.74 (0.21)	3.21 (0.40)	2.75 (0.52)	2.78 (0.14)	2.58 (0.21)	2.71 (0.11)	0.798
12	Noise	3.18 (0.21b)	4.29 (0.30a)	3.50 (0.65a)	3.56 (0.16a)	3.43 (0.24a)	3.22 (0.10b)	0.056
13	Water shortage	3.33 (0.22)	3.79 (0.40)	3.88 (0.39)	3.88 (0.14)	4.07 (0.24)	3.70 (0.10)	0.207
14	Lack of toilet facilities	3.26 (0.24)	2.79 (0.39)	2.75 (0.55)	3.15 (0.15)	2.69 (0.22)	3.02 (0.12)	0.553
15	Garbage on the road	3.98 (0.19)	4.57 (0.22)	4.00 (0.43)	4.26 (0.11)	3.93 (0.23)	4.40 (0.25)	0.799
16	Absence of drainage	2.97 (0.23)	3.29 (0.35)	2.62 (0.49)	3.04 (0.14)	2.85 (0.27)	3.03 (0.10)	0.863

N/B: Similar letters indicate means that are not significantly different ($p>0.05$), $p<0.05$ = significantly different, $p<0.01$ = highly significantly different, $p<0.001$ = very highly significantly different.
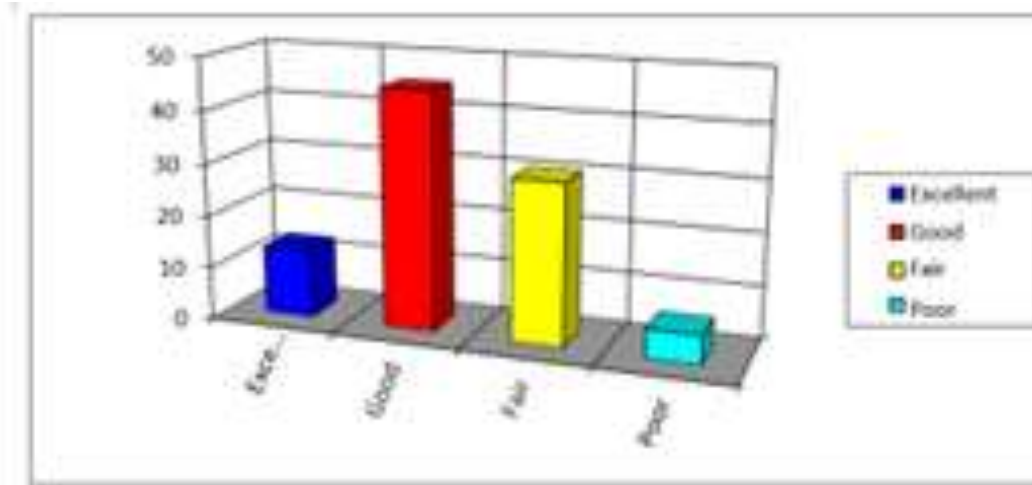
Quality of Life and Coping Strategies

When asked to rate their quality of life in the face of stressful situations, a good proportion of 45% agreed that their life quality was good, 13% answered to excellence in their quality of life, whereas quite interestingly, 30% confirmed that in the face of environmental nuisances their quality of life was regrettably fair, that is far from being good or excellent. And 5% subsisted to their life quality being poor, whereas another 5% were not even sure of their quality of life. They appear overly defensive of their quality of life in spite of inherent environmental

crises facing them. This seems to suggest that the quality of life of Benin City residents in view of environmental annoyances has been seriously impaired. This report is graphically portrayed in Figure 9.

With respect to coping strategies of residents, as depicted in Figure 4.9, 35% subsisted to avoiding the stressful or annoying situations, whereas 24% answered that they merely adapt to the situations, considering them as part of normal everyday life, while 34% insisted that the best strategy is to react to the annoying situations.

Fig. 9: Quality of Life of Benin City Residents
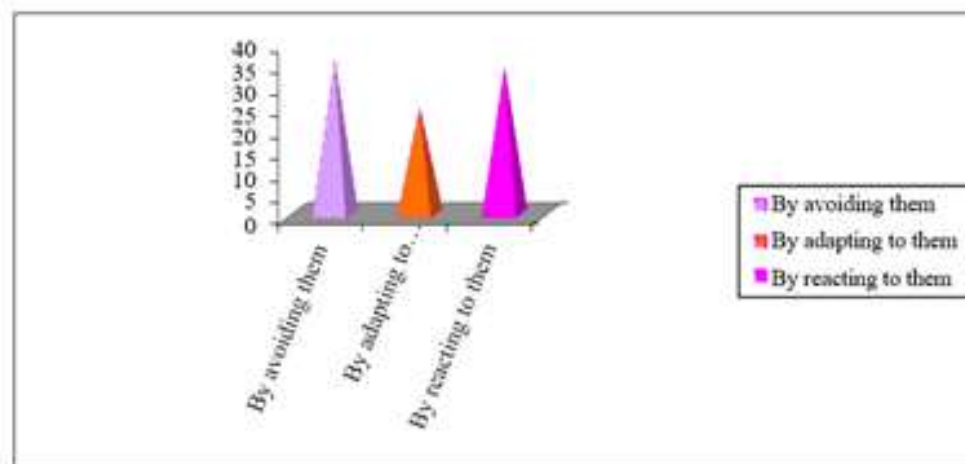
Fig. 10: Coping Strategies of Benin City Residents

DISCUSSION AND RESEARCH SYNTHESIS

The current research confirms the existence of physical, social and functional dimensions of environmental annoyances, as can be found in the literature (See for example, Robin *et al*, 2007). In terms of physical setting annoyances, the study revealed that Benin City residents were most annoyed by carbon monoxide from vehicles. This is in consonance with current global concerns on the place of Green House Gases in climate change and global warming. Authorities and the public alike are increasingly becoming aware of the detrimental effects of carbon monoxide to public health and environmental quality.

Much was revealed by the dimension on incivilities associated with the shared use of public spaces. These social annoyances were associated with incivilities encountered from interpersonal or social conduct in public spaces, such as the indecent behaviours of shouting while making phone calls, sagging, and rough driving. This also includes items occurring in the dimension having to do with other social annoyances. These annoyances related to hunger, marital infidelities, and people wanting to travel out of the country by all means were not as significant as many respondents did not approach them objectively, particularly with respect to the latter.

In terms of functionality, public transport annoyances were significant. These annoyances are associated with the dearth of motorcycles in the city, having to wait in the sun for public transport, traffic jams, and the smells in public transport vehicles. Some of these situations may actually be reflective of the inadequacy of services provided to satisfy people's daily needs as seen in the frequency of public transportation, lack of parking lots, indecent parking, and the opening-hours of public services (Robin *et al*, 2007:10).

The relationships between the principal annoyances and socio- demographic variables show the precedence of women over men in the perception of urban annoyances in Benin City. This greater sensitivity of women to the nuisances of urban life has been confirmed by other studies (See for example, Rishi & Khuntia, 2012; Robin *et al*, 2007). This appears consistent with feminist-inclined research, that women have a particular way of responding to the intricacies of the urban environment. With reference to age differences in environmental perception, the older age groups were more concerned about global environmental disturbances, particularly the 26-45 year-olds. Whereas, the 18-25 year-olds were most annoyed by incivilities in the shared use of public spaces and problems with using public transport. This finding is however contrary to what was found among Parisians by Robin *et al* (2007), where the 66-92 year-olds perceived greater annoyances pertaining to incivilities in public spaces and other social annoyances. This study also contradicts Robin *et al* (2007) in that, whereas in the former the 66-92 year-olds were most annoyed by global environmental conditions (e.g. carbon monoxide and flooding), in the latter, this age group was more concerned with social annoyances and had low concern for global environmental annoyances.

In terms of findings in the area of occupation, the highest scores for global environmental annoyances such as carbon monoxide, flooding, and garbage on the streets were associated with civil servants. This group was also more concerned about other social annoyances such as marital infidelity. Quite differently, students were more sensitive to annoyances from using public transport such as the smells in public transport vehicles and the dearth of motorcycles in the city. Business-people were more concerned with incivilities in the shared use of public spaces such as people who wear low-waist trousers and the noise from loudspeakers in churches. As for differences in perception based on income level, low income earners had greater sensitivity to all range of annoyances. Nonetheless, all income levels did share equal concern for global environmental annoyances pertaining to the lack of green spaces and water scarcity, although sensitivity to carbon monoxide from vehicles was higher with high income earners. And low income and middle income earners were more sensitive to problems with using public transport such as the smells in public transport vehicles and the absence of motorcycles. Finally, as for neighbourhood variances in environmental perception, the neighbourhoods shared similar sensitivity towards incivilities in the shared use of public spaces. All the neighbourhoods excluding the GRA were annoyed by the incivility in rough driving. The same applies to global environmental annoyances. However, the GRA residents were the most annoyed by flooding, while this neighbourhood had less sensitivity to noise from loudspeakers in religious houses for which New Benin residents were most annoyed.

As for coping strategies, 35% of respondents subsisted on the need to *avoid* the stressful or annoying situations, whereas 24% answered that they merely *adapt* to the situations, considering them as part of normal everyday life. Conversely, 34% insisted that the best strategy is to *react* to the annoying situations. At this point, the adaptation and coping model and thefindings of this research on the coping strategies of residents are at variance.The adaptation andcoping model posits that human beings have a broad and flexible repertoire of coping resourcesthat allows them to maintain equilibrium or near equilibrium in the face of a broad array ofenvironmental conditions.People are able towithstand, at least for short periods of time,substantial environmental demands (Evans & Cohen, 1987:579).The majority of respondents,however, did not apprehend the need for adaptation.They appeared to be possibilistic in theirapproach to adverse environmental conditions.

This research reveals serious impacts of perceived environmental stressors on the health, well-being and quality of life of residents of Third World cities, with the example of Benin City, Nigeria. High vehicle emissions, generator use, and open waste burning are the main causes of air pollution in places like Benin City. Significant levels of harmful gases and particulate matter have been linked to an increase in respiratory and cardiovascular diseases, according to Ede and Edokpa (2015). Another widespread environmental annoyance is noise pollution. Chronic noise exposure in Nigerian cities is linked to children's learning challenges, sleep disturbances, and hypertension, as observed by Aboh et al. (2013). According to World Health Organisation (WHO) and European Environment Agency (EEA) reports, noise is one of the most pervasive environmental

pollutants and poses a serious risk to public health, impacting both mental and physical well-being (Hahad et al., 2025). Long-term exposure to urban noise damages the nervous, cardiovascular, gastrointestinal, and auditory systems in addition to producing psychological irritation (Mucci et al., 2020). Inadequate waste management and sanitation also fuel the spread of illness and psychological suffering. Particularly in densely populated areas, Olanrewaju and Ibitoye (2015) associate poor waste infrastructure with increased rates of mental stress and diarrhoea. Particularly in informal settlements, overcrowding leads to poor housing quality, a lack of privacy, and interpersonal conflict. According to Adelekan (2010), these conditions are linked to increased levels of anxiety and depression. Social stress is made worse by urban crime and insecurity. People frequently live in fear, which restricts their ability to move around and engage in community activities (Oludayo et al., 2018). Opportunities for mental and physical recovery are reduced when there are no green or recreational areas. Lack of access to green space is linked to higher rates of stress and chronic illnesses, according to Akpabio (2017).

A study by Poddar et al. (2025) found that five major urban factors—housing problems, transportation and traffic problems, neighbourhood characteristics, cost of living, and stress related to work—consistently had a negative impact on mental health. Furthermore, different participant groups experienced differing degrees of distress due to a variety of factors, including social cohesion, solid waste management, air and noise pollution, water quality and availability, safety concerns, and the accessibility and affordability of recreational facilities. The study underscores how intricately social and physical environmental factors interact to affect city dwellers' mental health. The results highlight the significance of implementing an inclusive, multisectoral approach to urban planning that prioritizes mental health.

In Benin City, like in other Third World urban settings, social and environmental stressors reinforce one another. For example, the negative health effects of pollution and inadequate sanitation are intensified in crowded and unsafe settings. A general decrease in life satisfaction, an increase in mental health conditions, and non-communicable diseases (NCDs) are all caused by these cumulative stressors. People who live in cities, especially those in low-income neighbourhoods, are always on edge and uncomfortable, which has an impact on their mental health. According to Sulemana et al. (2016), prolonged exposure to these stressors causes adaptive behaviours like social disengagement and decreased civic engagement that lower quality of life.

LIMITATIONS AND FUTURE DIRECTIONS

The findings of this research are within Benin City but represent a pioneering study in a developing nation. The study establishes a framework for budding studies along this line to develop and provide better scope for comparison with other countries and environments. Being a successive pioneering study in Nigeria on the fledgling discourse on environmental stressors and annoyances, much can and needs to be done in the area of how multiple stressors impact the quality of life and subjective well-being of residents of large cities. Also, this study was limited to a medium-sized sample of about 300 respondents. In this direction, subsequent studies can adopt larger sample sizes to get a clearer picture of the perception of environmental annoyances and the quality of life and coping strategies of residents of large cities and even smaller cities. Future studies may also develop or use other statistical techniques and approaches, and possibly explore environmental stressors in rural to peri-urban settings in a developing world context.

CONCLUSIONS & POLICY RECOMMENDATIONS

This research on the perception of environmental annoyances, quality of life and coping strategies of Benin City residents embraces the realms of environmental perception and urban/humanistic geography which serve to explore environmental issues and challenges as perceived by people. Environmental annoyances and urban deterioration are the frequent results of shortcomings in the planning and urban management process, institutional frameworks and governance, and the inadequate allocation of financial resources in addressing environmental concerns. Much research is required about urban environmental hassles and annoyances, particularly those linked to informal sector activities and their possible management options in cities which will help city-dwellers develop environmental resilience and functional adaptive mechanisms.

It is recommended that, to improve urban air quality, the government enforce stricter emissions standards and

mandatory annual vehicle inspections to control automobile smoke. Government should further expand and green urban transportation corridors with tree-lined buffers that help absorb pollutants. Also incentivizing the use of electric vehicles and non-motorized transport (e.g., bicycles, pedestrian-friendly walkways) is a step in the right direction. On flood risk management, the government should rehabilitate and expand urban drainage systems and flood channels. Through the Ministry of Physical Planning, Housing, Urban and Regional Development, government should strictly enforce building codes and zoning laws that restrict development on flood-prone areas. The use of permeable surfaces, wetlands restoration, and green infrastructure can help manage stormwater naturally. This study revealed serious discomfort on the part of Benin City residents arising from social incivilities. Recommended measures include designing inclusive parks and open spaces that promote social interaction, reduce idle loitering, and discourage criminal behavior. Government should create more recreational and employment opportunities for urban youth to divert energies from antisocial behaviour and the desire to travel abroad at all cost out of frustration.

There is the serious need for urban renewal programs in parts of Benin City. The Urban Renewal Department in the Ministry of Physical Planning should identify blighted neighbourhoods and direct government attention to such areas through slum upgrading, housing improvement loans, and infrastructure renewal. Waste collection systems should be improved, with improved sanitation facilities, and enforcement of cleanliness in public and residential spaces. Residents should be included in neighbourhood improvement planning to build ownership and sustainability. On the dearth of motorcycle transportation in the city, government may consider reinstating and regulating motorcycle transport (okadas) under a licensure and route-based permit system to restore access without chaos, and possibly make a motorcycles a feeder system in multimodal urban mobility plans. On the grounds of safety and standards, policy makers should mandate helmet use, training, and branded uniforms for operators to reduce accidents and crime.

On mitigation of Urban noise pollution, government should enforce land-use zoning to separate noisy commercial/industrial areas from residential zones. The GRA in Benin City, for example, originally zoned as residential, has been seriously compromised with sprawling commercial activities including night clubs, hotels and lounges. Designating noise-sensitive zones (around hospitals, schools, religious centers) with stricter noise control rules will help reduce noise pollution across the city. Mixed-use developments should only be permitted with sound-conscious urban layouts and building designs. These the Government of Edo State can achieve by developing and enforcing urban noise control by-laws with specific decibel limits for different zones and times of day. There should also be restriction of high-noise activities (e.g., generators, outdoor loudspeakers particularly in churches, nightclubs) during sensitive hours. Government should encourage adoption of quieter technologies such as inverter generators, sound-proof equipment. Use of sound-buffering materials in buildings near major roads or noisy areas should be enforced as part of design considerations. Buildings should be designed with noise insulation, such as double-glazed windows and noise-absorbing walls. Adopting these strategies will not only reduce urban environmental hassles but also significantly and positively impact health and well-being of Benin City dwellers.

Authors' Note:

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