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Urbanization Processes: Environmental and Health Effects in Ibadan Metropolis

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Abstract
This study examined impact of environmental health in Ibadan metropolis, Nigeria. Data for the study were obtained through questionnaire administered on residents in selected core areas of the metropolis. Systematic random sampling was used in selecting the respondents. Findings revealed that the proportion of households occupying one room was 48.1% while only 33.4% have in-house water connection. Significant proportion of the ten top diseases reported in the city is communicable and infectious diseases. The first four of these diseases (diarrhea, malaria, pneumonia and tuberculosis) are those that have been linked directly with contaminated water, poor sewage and solid wastes disposal as well as poor housing conditions. Furthermore, the situations of ill-health in Ibadan have implicated urbanization as a dominant factor. The study therefore concluded that the environmental health problems in Ibadan are largely explained by ineffective urban planning and management functions.
Keywords: *Urbanization, Health, Environment, Planning.*

Introduction

The present demographic trends indicate that twenty-five years after the turn of this century, the world population will have risen from 6.0 to over 8.0 billion. An intriguing aspect of this growth is that close to half of this will live in the cities of developing countries. It has been estimated that cities currently account for two-thirds of the population growth in the developing world. A comparison of the present situation in the world regions shows that although Africa ranks among the least urbanized, this continent records the highest rate of urban growth (UNPFA, 1992). Typifying the situation in Africa, Nigeria exhibits rapid urban growth pattern over the years. However, unlike many other African countries, Nigeria's history of urbanization predated the colonial era. At the same time, colonial administration and postcolonial activities appear to have strengthened the urban phenomenon in this country. A concomitant of the rapid urban growth rate in the developing world in general and Nigeria in particular, is the fast deteriorating environmental conditions in the cities.

This has given rise to increasing concern, more so as there are growing evidences of a direct relationship between the human environment and health (Bradlet et al, 1992). Such urban environmental factors as sources and quality of water supply, sewage disposal methods, housing conditions, food storage and hygiene, impact explicitly in the health of the urban populace. Apart from the prevalence of communicable diseases in the developing countries urban environment, non-communicable disease which hitherto were directly associated with industrialized countries, are becoming prevalent. This is as a result of changing modes of production as well as exposure to western cultural practices and lifestyle (Akhta, 1987). The challenges posed to policy-makers, planners and academics are therefore immense. However, a favorable and effective response to these challenges calls for a thorough understanding of the urban environment and health interface on locality specific basis. This necessarily requires global experience shading through case studies. The intention in this paper therefore is to present the environmental health situation in Ibadan City as well as discuss the existing urban planning responses to the prevailing issues. Towards achieving this goal, the next section is concerned with a broad review of the association between urban environmental and health. The section that follows focuses on aspects of environment health in Ibadan.

The next section highlights those pathological indications that result from poor urban environmental situation in the city. These are followed up in the last substantive section by a discussion on urban planning responses to the Ibadan environmental health issues. (1989) linked a reduction in infant mortality with improved water and sanitation. Further, the result of a study is an indicant city shoed a reduction in the incidence of diarrhea from 4.15 to 1.73 per cent over a period of five years, following the introduction of a water supply level of 70 liters per capita per day (WHO, 1992). Studies attempting to establish the relationship between water supply and health have also implicated urban residents' behavior as a factor. For example, Molbak et al (1989) in their study in Monrovia found that 19 per cent of water samples taken at source were contaminated; whereas this

compares favorably with the 46 per cent level of contamination measured in stores water. In effect, 27 per cent of contamination in this study is explained by water storage and hygiene behavior. Human waste disposal constitutes another urban environmental element that explains urban health problems. Guerrant *et al* (1989) in their study compared diarrhea rates between children in households without pit latrines with those having pit toilets. They found that diarrhea risks were 2.2 times higher for children in the former than in the latter.

An earlier work that tried to establish the association between human waste disposal and health discovered that provision of sanitary facilities reduced cholera by 68 per cent in the urban communities' sampled (Azurin and Alvero, 1974). One other urban environmental element which has been linked with mortality and morbidity is housing. The highest incidence of tuberculosis, for instance, tends to be among populations living in areas with the poorest housing conditions and overcrowded inhabitants. In their study located in the indigenous parts of Ilorin (Nigeria) where housing conditions and human density were the most deplorable, Adedoyin and Watt (1989) found that measles, diarrhea, malaria and anemia were the common causes of death among the children. It has further been reported that urban slum conditions are closely associated with accidents. The outcome of a study by Reichenheim ar Harpham (1989) showed that accidents accounted for 19 per cent of all health problems among the children in a slum area of Rio de haneiro. Food in quantitative and qualitative terms constitutes yet another urban environmental element impacting on human health. Gazin's (1989) study of infants in Burkina Faso indicated a significant association between severe malnutrition and living in the environmentally degraded areas of the central areas of the town. Another such study in the Gambia indicated a strong association between improved living conditions and heavier and taller children (Pickering, 1985). Similarly, an earlier investigation of the living conditions of children in Delhi showed that Vitamin A, B and C deficiency and malnutrition were more prevent in preschool children from slums compared to those in better neighborhoods (Datta, 1977).

A further examination of the emerging literature on the links between the urban environmental elements and health shows that more intricate socio-economic and psychosocial factors are involved. Where good housing and desirable physical and social environment are lacking, psychosocial disorders can become a major causes of morbidity and mortality among young adults. A study, for instance, has indicated a higher prevalence of mental illness in low-income, environmentally degraded urban areas (Stephens et al, 1991). In general, this brief review shows that urban environmental features are closely linked with health and disease outcomes. However as Bradley et al (1992) have rightly warned, there is need for some caution in the interpretation of the data indicating the linkages. For example, most of the associations thus far established may he traceable to other socio-economic factors the most important of which are income and education. Nonetheless, what these socio-economic variables imply is that the urban environment should not he viewed only in terms of the physical form (physical environment), but also in terms of its social dimension (social environment).

Environmental Health Profile of Ibadan

A characteristics feature of the city of Ibadan is its sheer size both in demographic terms and in area extent. The settlement which in the 1839s served as a mere war camp of about 60,000 people grew to a population of 393,000 in 1931 and 459,000 in 1952. According to the 1963 national population census report, the city had grown to a size of 627,000 people. Various estimates have since put the city's population size in the 1990s at around 3,000,000 even though the 2006 population census put it at 1.3m. (It is generally believed that the number of houses in Ibadan is higher than this). Consequent upon its being a regional capital, Ibadan benefited from the development programmed that gave the city a priority in the allocation of resources with regard to administrative, economic and social infrastructure. This actually served to accelerate the rate of movement of people from the rural hinterland into the city, thus compounding the already high rate of natural growth of the population. One immediate consequence of the city's rapid rate of population growth is the sprawling effect it has on its spatial expansion. The city which built-up area covered only 40km2 in 1981 had 130km2 in 1982 had in year 2005 extended to 460km2. A significant feature of this growth is that it is largely unguided. Essentially, the growth proceeded at a faster rate than the capacity of municipal authorities and other public agencies o provide urban infrastructure and services. This urban phenomenon and the accompanying spatial sprawl, thus provide the required background against which to understand the nature and magnitude of Ibadan environmental health problems.

In table 1, the picture that emerges is that of an array of unwholesome public health indicators. Perhaps the first visible indicator in the city is a sea of residential housing units the bulk of which are characterized by poor building materials, structural defects, leaking roofs and generally dilapidating conditions. The proportion of households occupying one room (48.1%) is a clear indication of crowded housing situation especially when account is taken of the fact that the average household size in the country is 6.8 persons. Essentially, The traditional core areas of the city in the central and eastern parts and which are generally unplanned are the most deplorable in this respect. The table shows further that only a proportion of 33.4 per cent of the city residents have in-house water connection. Moreover, this does not necessarily guarantee supply as the taps may remain dry for several days in the month. As a result of inadequate supply of piped water and limited coverage of the

city, residents are prompted to resort to other sources including shallow wells, unprotected springs, brooks and streams. Studies conducted in the city have associated these sources with high degree of contamination which predispose residents to communicable and infectious diseases (Sridhar and Banmeke, 1985; Olaseha and Namaja, 1986). With respect to disposal of liquid wastes, it can be observed that Ibadan has no network system, although a few isolated pockets like the University of Ibadan and the teaching hospital and IITA are served with modern sewage treatment plants. Most residents depend on household based septic tanks and soak away pits (25.5%), pit latrines, and pail system (4.9%) for treatment and disposal of human wastes. Other proportions of residents defecate in open spaces along urban streams, and on refuse dump sites (Edamakum 1991).

Table 1: Public Health Indicators in Ibadan

% of households occupying one room	48.1
% with in-house water connection	33.4
% with flush toilet	25.2
% with pail system latrine	4.9
% with open and unchanneled drains	75.1
% using unauthorized dumping ground	37.5

Source: Braimoh, 2005.

Other unhealthy environmental conditions as Table 14.1 shows include lack of proper storm water drain and indiscriminate dumping of solid wastes. Investigations in this respect have shown further that the rate of waste collection in the city has lagged far behind the rate of generation (Egunjobi, 1986; PAI Associates, 1983). The city is most of the time liters with heaps of wastes which serve as breeding places for mosquitoes, house-files, cockroaches, and several other vermin's. This description of environmental health conditions in Ibadan will be incomplete without making mention of air pollution which in recent times has assumed a wide dimension. Atmospheric air is being polluted by the smoke, dust and smell emanating from heaps of refuses dumped and burnt indiscriminately. Air is also polluted by thick fumes from trucks and subserviced vehicles, electricity generating plants, vulcanizing machines, corn mills and smoke from kitchens. These pollution sources have been implicated for the prevalence of air-borne respiratory and infectious disorders.

Pathological Indications

The prevalent diseases in Ibadan provide a true reflection of the city's poor environmental health conditions. According to the information provided in Table 2, significant proportion of the ten top diseases reported in the city is communicable and infectious diseases. The first four of these diseases (diarrhea, malaria, pneumonia and tuberculosis) are those that have been linked directly with contaminated water, poor sewage and solid wastes disposal as well as poor housing conditions. An important aspect of this observation is the intra-city variations that occur in the distribution of the diseases.

The 4 areas of Ibadan that exhibit the highest of these pathological conditions are the indigenous core areas and the new slums' around the city's peripheries (Iyun, 1984). These disease clusters are areas where housing conditions are the poorest, the level of education the lowest, and the level of poverty the highest. Additionally, the children were identified as the most vulnerable group. More than 60 per cent of the reported cases of diseases in the risk-cell areas of Ibadan were made up of children (Iyun, 1983). The children most affected by disease came from low-income families, their parents being mainly craftsmen, brick-makers and motor mechanics. Perhaps the most vivid illustration of the link between human environmental conditions and pathology in the city is the cholera epidemic o the early 1970s. According to the result of studies by Adesina (1987), the spatial diffusion of cholera epidemic in Ibadan exhibited two peaks, the main peak was at the centre of the traditional core area of Ibadan; this was a squalid neighborhood. The secondary peak was at the eastern part of the old core, also with closely packed jumbled dwelling units. The infection generally diffused outward radials from the primary nuclei in the central area to the city suburbs with the density of outbreaks declining outward in all directions. It is significant to note the highest number of deaths arising from the cholera epidemic also occurred in the blighted traditional core areas of the city. An interesting feature of the prevalent diseases in Ibadan is that they are not limited to communicable and infectious diseases alone. None- communicable diseases are becoming prevalent as well. The result of a survey showed a total of 2,150 reported cardiac cases between 1989 and 1990 in Ibadan. The cardiac health problems were found to be more common among those aged 45 years and above (Akinkugbe, 1992).

Table 2: Ten Top Diseases from Sampled Hospital Records in Ibadan

Order	Disease cases	No of overall case	Percentage (%)
1.	Diarrhoeal disease	1,530	11.68
2.	Malaria	1,130	8.63
3.	Pneumonia	713	5.44
4.	Tuberculosis	686	5.24
5.	Chickenpox	606	4.63
6.	Eye disease	459	3.50
7.	Measles	421	3.21
8.	Malnutrition	330	2.52
9.	Anaemia	318	2.43
10.	Hypertension	314	2.40
	Total	**6,507**	**49.68**

Source: Iyun, 2004.

Apart from cardiac health problems, clinic based data indicated a rising trend in the reported cases of mental ill-health in the city (Iyun, 1989). The bulk of the patients were found to be those between 16 and 35 years and are located mainly in the low-income, deteriorated housing core of the city. Drug use and Abuse constitutes another major health problem. In Ibadan, the psychoactive drugs commonly abused are alcohol, tranquilizers, cannabis, pethidine, cocaine and heroin (Ohaeri and Odejide, 1992). Although the incidence of drug abuse has been reported among various age groups, both sexes and different socio-economic background, adolescents and other young persons are the groups mostly involved.

As the incidence of drug abuse in Ibadan continues to increase, so do the complications associated with it continue to manifest. The observed complications in patients admitted for drug related problems into the health facilities in Ibadan in a ranking order include: drug induced psychosis, suicide and attempted suicide, chemical dependency, intoxication, road traffic accidents, alcohol withdrawal syndrome and psychiatric illness. Other closely related health problem which the city has had a contend with are violence and crime. A study that examined these problems revealed that theft; assaults, malicious damage and unlawful possession appear to be the most commonly committed offences (Adelu, 1987). One of the most obvious health implications of crime is physical injury. More often than not, victims of criminal attacks do sustain injuries associated with the use of weapons such as guns, matches and different types of cudgels. Such injuries my range from minor bruises to very serious ones requiring surgery and sometimes resulting into death. Apart from possible injuries and death, there is the more continuous state of fear arising from insecurity this in itself is a psychological state of ill-health on the part of city residents.

Urban Planning Responses

The situations of ill-health in Ibadan as presented in the foregoing of paragraphs have implicated urbanization as a dominant factor. The predominance of communicable disease, for instance, is mainly explained, by squalid urban environment. The emerging non communicable diseases are linked with changing lifestyles in addition to polluted environment; while the lots of psychosocial problems are attributed to such factors as stress, overcrowded living conditions, unemployment poverty and homelessness. The issue being raised and discussed in this section is the nature and extent of urban planning responses to the challenges thrown by environmental health problems in Ibadan city. In pre-colonial times, indigenous planning recognized a city centre which accommodated the traditional open market from where non-vehicular roads radiate outward in all directions. In between the roads are grouped houses in non-discernible patters to form neighborhoods. Each neighborhood was headed by a chief while all chiefs, irrespective of their ranks, were responsible to the king. This was a time vehicular movement was not an issues as they were no vehicles. The traditional modes of intra and interurban transportation were head portage and the use of animals of burden. Human density was generally low. An overwhelming majority of the people were farmers. The sides of streams traversing the city were carefully cultivated and grown with banana, plantain, pawpaw, pepper sugarcane and vegetables. In effect, Ibadan was originally not subjected to western town planning principles and practices. But pollution problems were hardly known. The city at the time developed organically. The coming of colonial administration saw the introduction of vehicles which necessitated a modification of the urban road system, this was essentially to make the neighborhoods accessible and not necessarily to make every housing unit accessible. Today, Ibadan presents the image of a city with two faces in terms of structure, socio-economic 6 Characteristics and environmental quality. There is the traditional core area which covers quite a substantial central and eastern part of the city. This is where the indigenes programmed settlers live. It contains the most environmentally degraded and inaccessible parts. Then, there is the new area which can be sub-divided into two-the new planned residential parts, and the new unplanned residential parts. Example of the former are Bodija, Government Reservations, Bashorun Estate,

Oluyole Estate and the University of Ibadan. These are the few parts of the city that are subjected to the town principles in some serious way. They exhibit relatively high environmental quality characteristics. In these parts are found wealthy, highly educated and essentially non-indigenous residents. The latter, on the other hand, are the areas that have been described as 'new slums' such areas include Agbowo, Odinjo, Agugu, Olorunsogo and Academy. Here the urban environmental health quality and people's socio-economic characteristics are similar to those in the traditional core area. Part of the planning approaches to combat the generally low environmental health quality of the city is the provision of shelters. The federal government, the Oyo state property and development corporation and the municipal authorities are the key actors these agencies have established housing estates in various parts of the city. Although the housing estates appear to have solved to a certain extent the quantitative housing problems, the general criticism of the schemes is that most beneficiaries are the middle and high income groups. The urban poor who constitute a majority are on account of affordability unable to have access to the public housing units. Thus, the qualitative housing problems which are predicated by lack of maintenance, inadequate urban utilities and overcrowding conditions still loom large in the city. In order to tackle the qualitative housing problems the World Bank in collaboration with the Oyo State Government and the municipal authorities did initiate an Ibadan urban renewal project. Three neighborhoods of the city have been selected as pilot areas with the objective of improving access, increasing the supply of water and electricity, installing drainage channels as well as structural conditions of residential housing units. However, the three project sites put together are like a drop of water in the ocean when the magnitude of urban renewal needs is considered. The latest experiment in urban planning and development with regard to Ibadan is the United Nations Centre for Human Settlement (Habitat) induced project. The Ibadan sustainable city programmed (SCP) is aimed at a long –lasting improvement of the city's environmental heath elements with the participation of various associations and local governments in the municipality. A small number of water projects based on spring sources have been completed in Ibadan while plans are in progress for replication in Oyo and Ogbomoso. A complete to the SCP is the Ibadan Health City Project (IHCP) which aims at developing local capabilities in identifying prevailing urban environmental health problems and providing solutions on a sustainable basis. Thus far, a document (Ibadan City Health Profile and Health Plan) is already in place as a blue print in evolving environmentally healthy communities. The healthy city project which is located within the context of heSCP underscores the importance of the health sector in the realization of a sustainable city development. Health is related to everything else as everything is associated with it. In general, it can be observed that physical planning activities in our case study city have over time been quite limited. The effect of this is that Ibadan has cover the years been growing in all directions without direction (Egunjobi, 2009) . The frustration of professional planners in this city, can be imagined in the absence of a standard zoning arrangement, the framework of which a city development plan would have provided. Moreover, new buildings continuously spring up in the suburbs engulfing the villages and eating away the farmlands without control. The case being made is that political will on the part of successive government has largely been responsible for these conditions. However, the light at the end of the tunnel has just appeared in 2011 with the incoming administration in Oyo state. Evidence of this include the establishment of a Ministry of physical planning and urban development, and the setting up of a special task force as headed by an urban and regional planner to advise government on strategies to control flood disasters on a sustainable basis in the city. These are laudable development. Nonetheless, implementable physical development plans covering the state and the settlements within the state clearly stand as the long-term solution to the problem of urban environmental degradation and the low quality of life associated with it.

Conclusion

A consideration of the urbanization process in developing countries as typified by the situation in Ibadan indicates that a continuing urbanization in those countries has become inevitable. One important point often missed or insufficiently appreciated in discussions like this is that urbanization is not necessarily an undesirable phenomenon. It becomes undesirable when it is allowed to proceed unplanned and unguided. The environmental health problems in Ibadan are largely explained by ineffective urban planning and management functions. As an illustration, Ibadan is yet to have a development plan (often referred to as 'master plan') to assist urban policy makers, planners and managers in guiding the physical growth and socio-economic development of the city. Yet the close association between planning activities and quality of urban environment even with particular reference to Ibadan has in more studies than one been highlighted (Egunjobi, 1992). In general, it can be said that Ibadan is still a long way off to the achievement of a sustainable environmental health objective. This is the pessimistic assessment of the situation. However there is the optimistic note: given a strong political will, full cooperation among urban development agencies and effective community involvement, a coordinated physical planning approach holds a lot of hope for the realization of an appreciable level of environmental quality including quality of life in the city.

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