

Built Environment Decay and Urban Health in Nigeria

J.E. Ahianba, K.O. Dimuna and G.R.A. Okogun*

Department of Architecture, Ambrose Alli University, P.M.B. 14, Ekpoma - Edo State, Nigeria

**Department of Medical Laboratory Science, Ambrose Alli University, P.M.B. 14,
Ekpoma - Edo State, Nigeria*

KEYWORDS Built. Environment. Decay. Health. Nigeria

ABSTRACT This paper examines the decay of Nigerian urban built environment and its impacts on the Health of city dwellers. The paper identifies the problems that have aided the decay to: Inadequate basic infrastructural amenities, substandard housing, overcrowding, poor ventilation in homes and work places, sanitation and non-compliance with building bye-laws and regulations. The paper asserts that the deterioration has serious adverse effects on the health of city residents. Strategies for improving the built environment for healthy and sustainable living are suggested. The paper concluded that it is imperative to check and prevent further decay for harmonious living and sustainable development.

INTRODUCTION

The built environment in many developing countries particularly Nigeria is fast decaying. The factors responsible for this can be attributed to rapid urbanization, rural-urban migration, and decades of steady economic downturn, decay of urban infrastructure and negligent urban house keeping (World Bank, 2005).

Osuide and Dimuna in (2005) noted that the urbanization process in many developing countries particularly Nigeria, has not been accompanied with a corresponding supply of adequate houses, basic amenities and infrastructures. These have created demand on housing stocks leading to high rents, overcrowding and development of slums and squatter settlements. These have serious impact on the built environment and serious consequences on health of city residents.

Another problem of the Nigerian urban built environment is non-compliance with building bye-laws and regulations. The major areas of default are in the area of zoning, setbacks, building along utility lines and non-adherence to provision of adequate ventilation. The negligence has resulted to environmental degradation; which invariably is a menace to human health, brings traffic injury and death and undermines the civic pride.

The relationship between the physical (built) environment and human health has been on World Health Organization's (WHO's) agenda since its inception. In its original constitution of 1946, WHO's core functions included the promotion

of improved housing, sanitation, recreation, economic and working conditions and other aspects of environmental hygiene.

Over the decades, the environment and health nexus has remained much the same. But many man-made factors have risen in prominence and impact, including air, water and soil pollution, and the influence of industrially produced chemicals in consumer items (WHO, 2005).

In the context of architecture and city design, the physical environment is generally known as the built environment. The built environment simply refers to the buildings and spaces between them.

The physical environment is considered as the most important components of the environment because it is that with which the organism, individual, community or population is in direct contact and whose effects are mostly directly visible and tangible. The major elements of the physical environments as identified by Essagha (2003) include the home, its structural stability, amenity, architecture, and location characteristics, relative to the homes.

This paper will examine the reasons for deterioration of our urban built environment and its effects on the health of city residents. It will also proffer solutions that could improve the built environment for sustainable human settlement.

NIGERIAN URBAN ENVIRONMENT AND HEALTH EFFECTS

To effectively improve the built environment and the health of city residents we must first

analyse the problems, understand the characteristics and then tackle them.

- (I) Inadequate Basic Infrastructural Amenities
- (II) Substandard Housing
- (III) Overcrowding
- (IV) Poor Ventilation in Homes and Work Places
- (V) Sanitation
- (VI) Non-Compliance with Building Bye-Laws and Regulations

(I) Inadequate Basic Infrastructural Amenities

Some of our urban centres lack essential basic amenities such as pipe borne water, electricity, and road network. Where they are provided, these facilities are insufficient or do not function due to neglect by relevant authorities and therefore could not meet the requirements of the users.

Because most of the urban centres were not planned but are products of 'grown' development; the roads are narrow. The same narrow roads are congested by vehicles, motorbikes and wheel barrows, especially in those areas that have been transformed to business districts.

Waste Disposal is also a major problem in our urban centres, especially in most slum areas and squatter settlements. There are no planned disposal sites for refuse with a resultant indiscriminate refuse disposal on any available space. The consequence is that some areas are filthy and dirty and emit offensive odour. This makes the inhabitants vulnerable to disease attack.

Drainage facilities are absent in most areas. These make such areas liable to flooding during heavy rainfall. In most cases the inhabitants are rendered homeless, while some residents cannot access their houses with vehicles.

(II) Substandard Housing

A dwelling place is where people in general fulfil their basic domestic and personal functions of family life. As clearly stated by Odomodu (1987), shelter which connotes housing, has a

fundamental purpose of protecting man, his activities and his possessions from humans, animals and other enemies and from the supernatural powers that plague man. Osuide (2004), posits that: "Having a safe place to live in, is one of the fundamental elements of human dignity, physical and mental health, overall quality of life and this enhances human development".

A good dwelling no doubt enhances the entire well-being and aspirations of its occupants. Studies have shown that one's environment has a great impact and effect on his or her personality. Sarinen (1966) asserts that:

"It must be borne in mind that the family and its home are the corner-stone of society, and that man's physical and mental development depend largely upon the character of the environment in which he is natured as a child, where he spent his manhood, and where he does his work".

Substandard housing in Nigeria urban centres is a major problem of our cities. The problems of most of our urban cities like Lagos, Ibadan, Kano, Enugu, and Benin City, etc. resulted from the fact that they were never planned by experts. They sprang and developed from villages and trade posts still retaining their old, obsolete and semi-permanent structures. It is a common sight in these city centres to find old and direpair buildings normally of mud or sand crete block walls generally rendered in cement with corrugated iron sheets, wooden widows and doors, but lacking in basic amenities. Quite a number of the residential houses including the more permanent structures lack electricity, pipe-borne water, water closet, proper ventilation and adequate waste and drainage disposal; as reflected in tables 1- 3.

(III) Overcrowding

Another noticeable characteristic of our urban centres is overcrowding; arising from over population and insufficient accommodation. The occupancy rate in some urban centres is as high as six per room. There are instances where as

Table 1: Distribution of households by type of toilet facilities (%).

Type of Toilet	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Pit	63.60	61.36	61.60	56.97	56.57	54.56
Pail	1.90	0.96	1.00	1.40	1.07	0.58
Water Closet	3.50	8.58	8.50	10.30	13.41	13.71
Others	31.60	29.10	28.90	31.33	28.97	31.16
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Federal Office of Statistics (2001)

Table 2: Distribution of household by type of electricity supply(%).

Type of Electricity	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Public Only	33.53	39.47	40.54	41.69	42.90	41.36
Public/Private	0.01	0.77	0.30	0.32	0.19	0.17
Private Only	0.17	0.25	0.56	0.60	0.27	0.76
None	66.29	59.51	57.83	57.38	56.64	57.71
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Federal Office of Statistics, (2001)

Table 3: Distribution of dwelling units by types of water supply (%).

Type of Water	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Pipe borne Water	24.70	24.23	26.70	24.74	27.51	24.38
Borehole Water	7.00	9.61	10.40	15.41	32.24	11.83
Well Water	37.00	27.25	30.70	27.62	10.74	28.27
Stream/Pond	31.30	38.91	32.10	32.23	-	33.82
Tanker/Truck/Van	-	-	29.49	28.38	27.68	1.70
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Federal Office of Statistics, (2001)

many as ten persons are crammed up in tiny makeshift rooms less than 10 square meters, not by choice but by overbearing circumstances.

Overcrowding is a problem that has social and health effects. Asbell (1975), observed that:

“Crowding is a specific happening, clinically observable and definable. In simplified terms, crowding occurs when organisms are brought together in such a manner and numbers as to produce physical reactions of stress. Important among these reactions is steeped-up activity of the adrenal glands. When these reactions to stress are widespread and sustained, they are followed by physical weakening, sometimes rage and violence of extreme passivity, a rise in sexual aberrations and a breakdown of orderly group behaviour. What may follow is a tidal wave of deaths, ending when the population is no longer crowded”.

Chombant (1979), carried out another study linking human dwelling space with stress. The study considered the number of square metres per person in the home. They found that, when each person had less than 8 to 10 square metres, instances of physical illness and behaviour were double than those in less crowded homes. This human crowding was clearly linked with illness and violence.

Overcrowding is a major problem of our built environment especially in slums and squalid environment. We however do not recognize any danger in crowding as long as we can produce enough food for physical growth”. Yet overpopulation can destroy the quality of human life through many mechanism such as traffic jams,

water shortages, and environmental pollution, spreading urban and suburban blight; deterioration in professional and social services; destruction of beaches, parks and other recreational facilities, restrictions on personal freedom owing to the increased need for central control; the narrowing of horizons as classes and ethnic become more segregated, with attendant deepening of racial tension (Dubos, 1967).

(IV) Poor Ventilation in Buildings

The United Nation Development Decades (1960-1970) report (1975), noted with regret that most people in developing countries of Asia, Latin America and Africa live in dwellings, which could be considered dangerous to health and an affront to human dignity. This is mostly reflected in houses that lack proper ventilation and lighting. In some Nigerian homes, factories and offices, ventilation is not included while planning for such buildings but this is the most vital aspect of construction that makes for comfortable living.

Izomoh and Olomu (2005) noted that most residential buildings have been planned, designed and constructed with little or no consideration for the following:

- (I) Thermal comfort through the process of cross-ventilation
- (II) Reduction of the entry of rain and moisture into the buildings
- (III) Outdoor living possibility within the compounds in the urban area.

The process in (II) above encourages high humidity level that favours the breeding of

various kinds of fungi that contaminate food items. Furthermore, the breathing in the air in such buildings does cause cold, catarrh and breathing problems among the old people and asthmatic patients.

The importance of ventilation in homes, factories, eateries, halls, hotels and other large spaces cannot be overemphasized.

As a result of poor ventilation in most buildings, people sleep outside with their mats for fresh air especially during the dry season when the weather is hot. The reason for this is because their houses are either not cross-ventilated or blocked by another house or fence due to none or improper planning of the environment. Sometimes, the windows are attached as an after-thought, especially in buildings where town-planning rules have been violated due to change of use.

In factories, ventilation is important because of human beings working there and the machines being used for production as some machines have a stipulated temperature for its effective operation.

Poor ventilation in building has adverse effects on (I) Health and (II) Reduced productivity.

(i) Health Issues: The life span of any one exposed to excessive heat for too long is shortened. It also has adverse effect on the skin, internal organs and physical well-being, which may include their fertility. Other health hazards that have been associated with poorly ventilated spaces include Asthma, Tuberculosis, Dizziness, Stress and Restlessness. Cancer and other ailments can result in poorly ventilated factories that harbour hazardous materials and chemicals.

(ii) Reduced Productivity: As a result of the hot working environment, staff under such unfavourable condition of excessive heat will not put in their best. There will be constant breakdown of machine, leading to interruption in production, which in turn reduces rate of production. There is also loss of man-hour as workers may work for 45 minutes and go out for fresh air in another 10 minutes due to excessive heat.

(V) Sanitation

Globally, some 1.1 billion people lack access to safe water and 2.6 billion lack access to safe sanitation. One of the well-known environmental health consequences of this situation is that there are about 4 billion cases of diarrhoea per year,

which cause 1.8 billion deaths, mostly among children less than five years of age (Trace, 2005).

Close to one-fifth of the burden of disease in developing countries can be attributed to environmental risks. Much of these falls on our children, as about two-fifths of infant mortality is associated with environmental factors. Looking closely at the major environmental risks, about 1.7 million premature deaths are attributable to unsafe water, poor sanitation and poor hygiene. As many as one third of these occur in Africa. Urban air pollution is estimated to result in about 800,000 premature deaths annually, and many developing countries are rapidly urbanizing.

Sanitation is very much a forgotten problem globally. Spending by the United Nations in year 2000 was estimated at only 1 billion dollars, less than 10 percent of 13 billion dollars spent on water, even though twice as many people lack basic sanitation (Trace, 2005). In many countries of Africa, the scale of the problem is increasing. Adequate and effective sanitation in Nigeria and in other developing countries is a sine-quo-non for good health and sustainable human development.

Sub-Saharan Africa faces many challenges to sustainable development, including some of the highest population growth rates in the world, growing formal and informal urbanization, wide spread poverty, a pandemic HIV/AIDS crisis, and a high degree of political fragmentation. The region has 10 percent of the global population, but had 24 percent of the global burden of disease in year 2000 (WHO, 2000).

According to a World Bank Study as reported by Doumani (2005) 360 – 400 million people are living in malaria-prone areas. More than 200 million episodes of clinical diseases resulted in 1 million deaths from malaria in 2000.

These frightening figures call for concerted efforts on the part of various levels of governments in Africa, particularly Nigeria to be more committed to sanitation matters.

The World Bank has since engaged in a booster programme for malaria control in Africa. One of such initiative is the Rolling Back Malaria Programme (RMB).

The World Bank's Global Strategy and Booster Programme posited in 2005, that if at least 60 percent of children under five years slept under insecticide treated bed nets there could be as much as a 20 percent reduction in mortality and morbidity. Most African countries are far from

reaching this level of coverage, due partly to production and distribution – related bottlenecks, as well as significant financing gaps.

Poor sanitation provides breeding ground for dangerous disease carrying insects. The possibility of epidemic such as diarrhoea, Lassa fever, cannot be ruled out in most of this unhygienic environment.

Health is wealth, therefore it beholds on the various levels of governments in Nigeria and other African countries to embark on well-coordinated sanitation measures. This would help reduce the diseases infested illness and ensure sustainable growth.

(VI) Non-Compliance with Building Bye-Laws and Regulations

The consequence of non-compliance with building bye-laws and regulations are already manifesting and are being felt in our urban centres. The deterioration of the built environment has serious health effects to city dwellers, including traffic injury and death and it undermines the civic pride. The decay can get worse if unchecked. The dangers of non-compliance with relevant building laws are highlighted below:

Setback: The danger in violation of setback standards is that in case of fire outbreak, it is difficult for fire vehicles and men to gain easy access to the building. This could result to deaths and loss of valued properties.

Another related problem is the issue of density. The acceptable site coverage is 50% for residential buildings in high density areas, and 33% for low density areas, but these are not complied with, especially in high density areas, where ‘greedy’ developers built as much as 70% of the site. The consequences are overcrowding and inadequate parking spaces.

Zoning: The original rationale behind public regulation of land use was to promote public health, safety, moral protection and welfare. Specifically, zoning prevented overcrowding, maintained property values and encouraged stable and homogenous neighbourhoods, controlling traffic pattern and regulation of competing business. Zoning ensures security for children, fire and traffic safety, and decreases noise, healthier environment within residential zone. But as noted by Osuide and Dimuna (2005), most Nigerian cities, petrol filling stations, churches, factories share common boundaries

with residential buildings. Most residential buildings are used to store up fuel during shortages as a result of price hike.

On the 19th of April 2003, high explosives stored in shops in the Idumagbo area of Lagos Island exploded; and led to loss of lives and properties worth millions of naira.

STRATEGIES FOR IMPROVING THE BUILT ENVIRONMENT FOR HEALTHY LIVING

We have addressed the problems of the Nigerian urban built environment. We have also reviewed and examined their health effects and implications to healthy living. From the foregoing, it has been established that our urban environments are decaying, and citizens on their own cannot do much. Therefore, governments at various levels must step in and “help” the citizens. Also, international agencies must assist in the spirit of the Millennium Development Goals and sustainable development.

These tools should be used effectively to ensure a healthier urban development for sustainable human development. To achieve this objective we must do the following:

- ❖ Ensure the creation of aesthetics value and beautification in our urban environment. Architecture of the environment can satisfy some of the psychological needs of the people in a community. Visual pleasures relax a troublesome heart and aids longevity. The psychological impact of a pleasant surrounding is of considerable help in fostering a spirit of community belonging, civic pride, integration and enjoyment. Good landscaping is a powerful tool to achieve a pleasant environment. Landscaping contributes to visual satisfaction, which has a profound effect on the psychological nature of man. Therefore, developments should attempt to provide for aesthetics and beautification especially through the creation of open spaces of a design quality to accompany such development. Beautiful environment and community can be created only through a deliberate search for beauty, backed by a lively appreciation of the visual world by the people.
- ❖ Ensure that all our urban and rural settlements develop in an orderly fashion to achieve goals and objectives of good planning. Therefore,

the three tiers of government should take urgent steps to stem the degradation of our urban through lack of adequate planning.

- ❖ Ensure that we stimulate an effective urban and rural development programme, by the provision of basic amenities, services and infrastructural facilities, small-scale industries. These would encourage development in the rural areas and consequently, serve as growth poles and springboards for the redistribution of population and traffic patterns for sustainable balanced development.
- ❖ Ensure the continuation of efforts of International Agencies by being supportive of their programmes aimed at improving our environment and health.

Presently in Nigeria, the World Bank has been involved in some urban renewal projects to ensure better environment; through UNDP assisted projects. These UNDP-Assisted projects have helped to deliver better quality and cost-effective basic services to urban residents especially the poor. Most of these projects were a response to rapid and unplanned urban growth, often on environmentally vulnerable land with poor infrastructure. In areas lacking access to primary drainage, the projects have contributed to significantly reducing the effects of periodic flooding on public health and are being sustained.

It is necessary that these efforts should be supported by the various tiers of government – federal, states and local governments for sustainable healthy development. It is imperative that the international agencies should be directly involved in their own initiated projects to achieve better results. This is vital, because funds previously donated by these international agencies were diverted; while the donors' intentions were ignored and neglected. A typical example is the ADP sponsored Urban Water Projects, which has been abandoned in some states in Nigeria and ignored and neglected to date by successive administrations.

- ❖ Ensure that our people are educated and enlightened on sanitation and environmental matters.

The provision of facilities required for achieving good disposal systems are measures that favour preventive health care. The mass distribution of refuse bins by Niger Delta Development Commission (NDDC) is a welcome development. Also, the availability of incinerators, septic tanks and soak away pits and the use of

water closets as contained in the Environmental Sanitation Programme instituted by the Federal Government in 1984 are good measures taken which is helping tremendously to reduce the size of breeding grounds for dangerous bacteria that are disease carriers. The Waste to Wealth (Recycling) programme of the Lagos State Governments is very commendable. Other state governments and especially Local Government Authorities in the country must join in eradicating from our markets heaps of refuse which litter the environment and pose great health hazards to citizens.

- ❖ Ensure that standards for housing, which prescribes minimum conditions under which a building, or part of it, may be lawfully occupied as a dwelling are adhered to.

Therefore, the need to respect laws regulating zoning, set backs and adequate ventilation is very vital. Cross-ventilation which is one of the design considerations for buildings helps to reduce the high interior temperature, achieve thermal comfort in buildings, achieve a state of dryness in the rooms, reduce the rate at which certain fungi and bacteria that are dangerous to health develop within the buildings

CONCLUSION

The above measures are imperative, for us to have a harmonious, attractive and aesthetic pleasing environment devoid of health hazards. It is our belief that if these recommendations are implemented that our cities will grow in an environmentally harmonious way. Further unplanned growth and decay would be checked and prevented. These measures would save untimely death and improve the life expectancy of the average Nigerian.

REFERENCES

- Asbell, B.: The danger signals of crowding. *Think Magazine*, July-August 1975, Armonk Inc., New York, pp.30-33 (1975).
- Chombant, P. and Chombant, M. in Asbell, B.: The danger signals of crowding. *Think Magazine*, Armonk inc. New York, p. 30-33, July-August (1975).
- Dimuna, K.O.: The slum: Its growth, nature, effects and solutions. *Occasional Journals*, **1(1)**: 3 (2005).
- Doumani, F.M.: *Environmental Health in Sub-Saharan Africa: Effective Interruptions*. (Draft). World Bank, Washington D.C. (2005).
- Dubos, R.J.: Man adapting: His limitations and potentialities. P. 21, In: *Environment for Man*, The

- Next Fifty Years*. William R. EcWald Jr. (Ed.). Indiana University Press, Bloomington, Illinois (1967).
- Essagha, A.: *Urban Planning Concepts Standards and Symbols*. Amfitop Book Nig. Ltd., Lagos, Pp.17-19 (1997).
- Federal Office of Statistics: *Annual Report 2000*. FOS, Abuja (2001).
- Izomoh, S.O. and Olomu, J.I.: The effects of poor architectural design and poor application of appropriate technology on the health of the occupants of residential buildings (Nigerian Situation). *The Built Environment Journal of International Institute for Building Research (IIBR)*, **1(1)**: 3 (2005).
- Johnson, Ian: Environmentally and socially sustainable development, environment matters. *The World Bank Annual Review*, **3(1)**: 87 (2005).
- Leitner, K.: *Sustainable Development and Health*. World Health Organization (WHO) Annual Review Geneva, P.8 (2005).
- Odomodu, R.C.: Shelter and Housing. An Approach to Better Living. *Journal of Nigerian Institute of Architects*, **3(2)**: 92 (1987).
- Osuide, S.O.: Strategies for Affordable Housing Stocks Delivery in Nigeria. *18th Inaugural Lecture of Ambrose Alli University, Floreat System Benin-City*, Pp. 2- 20 (2004).
- Osuide, S.O. and Dimuna, K.O.: None compliance with building bye-laws and regulations in nigeria – the dangers ahead. *The Built Environment Journal of International Institute for Building Research (IIBR)*, **1(1)**: .62-68 (2005).
- Osuide, S.O. and Dimuna, K.O.: Effects of Population Growth on Urbanization and the Environment in Nigeria. Pp. 27-33. In: *Proceeding of year 2000 National Seminar on Population, Growth, Architecture and the Environment*. S. O. Osuide (Ed.). Rasjel Publishers, Ekpoma (2005).
- Sarinen, E.: *The City: Its Growth, It's Decay. It's Future*. Reinhold New York Publishing Corporation, New York, p. 21 (1966).
- Trace Simon: *Sannitation: No Silver Bullets but reasons for Hope*. Environment Matters Annual Review. World Bank Washinton D.C P12 (2005).
- UNDP: *The United Nations Development Decades (1960-1970) Report*. Technical report series 275, pp. 1-11, (1975).
- UNICEF WEBSITE: "Health and Education": <www.unicef.org/web/index health and education. htm/> accessed 27/3/2006.
- World Bank: *Global Strategy and Booster Programme*. Annual Review, P. 32 (2005).
- World Health Organization: *Annual Review of Environment and Health in Africa*. July 2004 - June 2005 WHO Geneva. Pp. 22-32 (2005).