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Poverty, Sanitation and Public Health Nexus – Implications on Core Residential Neighbourhood of Akure, Nigeria

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The thrust of this paper is to investigate the inter-relationship among poverty, environmental sanitation and public health with a view to establish its implication on residential neighbourhoods of Akure urban centre. The study examines the city core area as a case study. It summarizes and interprets findings from empirical survey of some residential buildings randomly selected within the study area through the use of questionnaire survey, direct observation, photo prints, housing demographic and facility surveys, while health records were obtained from the few available health institutions in the area. Research variables investigated include socio-economic lifestyle of residents, source of water supply, condition of sanitary facilities, quality of housing, and various health hazards experienced. Findings affirm the area as a typical slum environment. It also shows that health of individuals cannot be considered in isolation without considering the socio-economic base, building and the environment in which they live. The paper, therefore, recommends socio-economic revitalization, public enlightenment, environmental and health education, enforcement of environmental sanitation laws and re-introduction of old sanitary inspectors as follow-up strategies to sustain any renewal effort been proposed in the area.

Keywords: Poverty, sanitation, public health, slum dwellers, residential core, Akure

Introduction

The rapid urbanization process in Akure has its own consequences such as overcrowded dwellings, high rate of pollution, inadequate household facilities, and carefree attitude of people toward poor environmental conditions which have been the precondition for deteriorating environment. Akure emerged as the capital of the Ondo State Government as well as headquarters of the Akure Local Government Authority in 1976. This development made the town assumed the status of a metropolitan city. Like most other traditional centres in Nigeria, it has continued to witness haphazard development without conscious effort for physical planning.

In spite of its many years of existence, the city has no physical development plan as different land-uses juxtapose each other in a reflection of its traditional setting before and during colonial administration. This has contributed in no small measure to rapid deteriorating environmental conditions in the city. Presently, the city is characterized by the proliferation of squalid and slum conditions of environmental sanitation, overcrowd dwellings, poor waste disposal management, pollutions, inadequate water and unreliable power supply (Owoeye, 2006; Olanrewaju and Akinbamijo, 2002). Thus, the sanitation coverage has not been able to keep pace with the urban population growth.

Most of the environmental sanitation institutions such as Federal Environmental Protection Agency (FEPA), the State Environmental Protection Agency (SEPA), Ministry of Health, Local Government Health Delivery Institutions, and Primary Health Centres are not adequately equipped with sufficient materials required to cope with the increasing challenges of maintaining an environment free of health hazards and problems occasioned by poor sanitation. It is averred there is a strong people-environment relationship. The quality of man's environment is an integral contributor to the overall quality of families and individuals life (Adedeji, 2005).

It is expected that when the environmental sanitation standards of a city improves, there will be upliftment in the living condition and health security for the inhabitants. Thus, there will be improvement in the quality and aesthetic of the environment at large thereby making it habitable (Owoeye, 2013).

This paper therefore attempts to examine the effects of poor socio-economic lifestyle and environmental sanitation on the health condition of slum dwellers in Nigeria with a particular reference to the city of Akure. In the study, various sanitary problems and hazards experienced in the area selected were investigated with their causes, while

possible solutions were suggested in form of policy recommendations.

Theoretical Background

This research adopts the concepts of Vicious Cycle of Poverty and Sustainable Development to illustrate relevant subject matters in the study. Owoeye (2006, 2012), like many other urban planners such as Abumere (1987), Osatuyi (2004) and Olarenwaju (2004), argued extensively on the contribution of poverty to urban decay. Poverty is conceptualized as a state of deprivation, whereby individual is incapacitated to meet his needs due to financial incapability occasioned by low or poor level of income. Using this concept to illustrate causes of slum formation in Akure urban centre, Owoeye (2006, 2012) and Olanrewaju (2004) observed that low income breeds high level of illiteracy, poor feeding and inadequate housing maintenance; poor housing maintenance leads to derelict of buildings and deplorable condition of environment; while poor condition of environment and neglect of buildings enhance the formation of slums. This is clearly illustrated in the figure below.

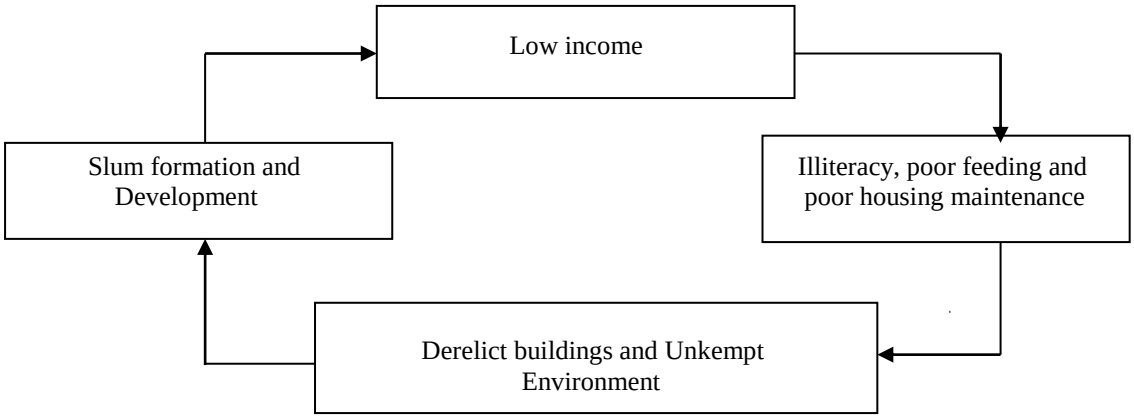

Figure 1: Circular Effects of Poverty on Slum Formation. Source: Owoeye (2012).

The concept of Sustainable Development, according to Osoko (2000), is an essential tool necessary for the world to deal effectively with current global problems of the environment and the development process. Most of the environmental problems resulting from poor sanitation being considered in this research are products of man activities in the quest for development and survival. Such activities centre on how to fulfill the basic aspiration for food, clothing, shelter, transportation and comfort.

The World Commission on Environment and Development (WCED, 1987) observed that development is not synonymous with destruction, and for the development to be meaningful, it must be sustainable. In its report, Sustainable Development is expressed as developments that meet the needs of the present time without compromising the ability of future generations to meet their own needs. The idea of sustainability is not only to protect the environment so as to maintain its initial status-quo but to see it as a complex, dynamic and fragile system that requires conscious and purposeful actions to meet our different requirements, both in the present and future, with the aim to make it better than what it was before (Okusipe, 1998).

While environment is expressed as the aggregate of the physical and biological entities outside of man that support the existence of human life, health is seen as a state of complete physical, mental and social well-being. The environment refers to both the natural and human created environment. Adetokunbo and Herbert (2003), opined environmental health comprises of those aspects of human health, including quality of life, which is determined by physical, chemical, biological, social and psychological factors of the environment. Environmental sanitation therefore is expressed as the control of all the factors in man's physical environment which may exercise deleterious effect on his physical development, health and survival (WHO, 1987; Laoye, 1994; Osoko, 2000; Owoeye and Sogbon, 2012). According to Adeniyi (1994), it is the use of different means to protect public health through regular removal of wastes, maintenance of clean surroundings, good food and appropriate personal hygiene. It also involves regular supply of safe water, prevention of pollutions, and provision of decent housing with appropriate facilities essential for human conveniences. WHO/UNEP (1986) argued that good quality environment profoundly improves the health, welfare and productivity of individuals

which become a viable stimulant that propel economic growth and development of any nation. With these, however one can conclude that individual's health and productivity cannot be considered in isolation without considering the environment in which they live. Thus, environmental health relates to the impact the environment can have on a population. Human health and survival largely depend on their ability to adjust to their environments, both physical and biological environments.

Over the past two decades, the attention of the world on environmental issues has focused on "Green Agenda" which involves issues like the ozone layer depletion, global warming, and the "Brown Agenda" such as inadequate water supply, sanitation, drainage, solid waste services, poor urban and industrial waste management as well as air pollution (Bartone, 1994; Owoeye, 2003; Omole & Owoeye, 2006). In Nigeria, efforts are made to improve the quality of our urban centres, especially through environmental control and sanitation, which have resulted in the formation of various political legislations and edicts. Concerned over the inadequate management of solid wastes which often led to the mounting of refuse, and degradation of the environment caused serious threat to human health. This prompted the formal launching of a National Environmental Programme by the General Buhari administration in 1985, tagged operation War Against Indiscipline (WAI).

The main focus of the programme was to maintain a clean and beautiful environment free of diseases and to instill a general environmental and moral discipline in the people through environmental control and sanitation. To achieve this objective then, the federal and state governments declared last Saturday of every month an "Environmental Sanitation day". Some states even went further to carry out the exercise bi-monthly (Adedeji & Folorunso, 2010; Ogunsote, Adedeji, & Prucnal-Ogunsote, 2011). However, such programmes need be sustained through regular review and enforcement if the nation must be environmentally secured Adedeji and Ogunsote (2012).

Research Setting, Materials and Methods

This research was carried out in Akure, the Ondo State capital. Focusing on health of slum dwellers, a specific area in the core of the city was chosen for the study, which involves Araromi, Oja Oshodi, Odokoyi, Isolo and Ijomu (see Figure 2). This area occupies a land expanse of about 3.6 sq. km with a population of about 33,303 inhabitants. The land-use is mainly residential with little commercial activities around the CBD as shown in Figures 2a and 2b below.

Figure 2a: Map of Ondo State in the National Settings. Source: Ondo State Ministry of Lands and Housing, Akure (2010).

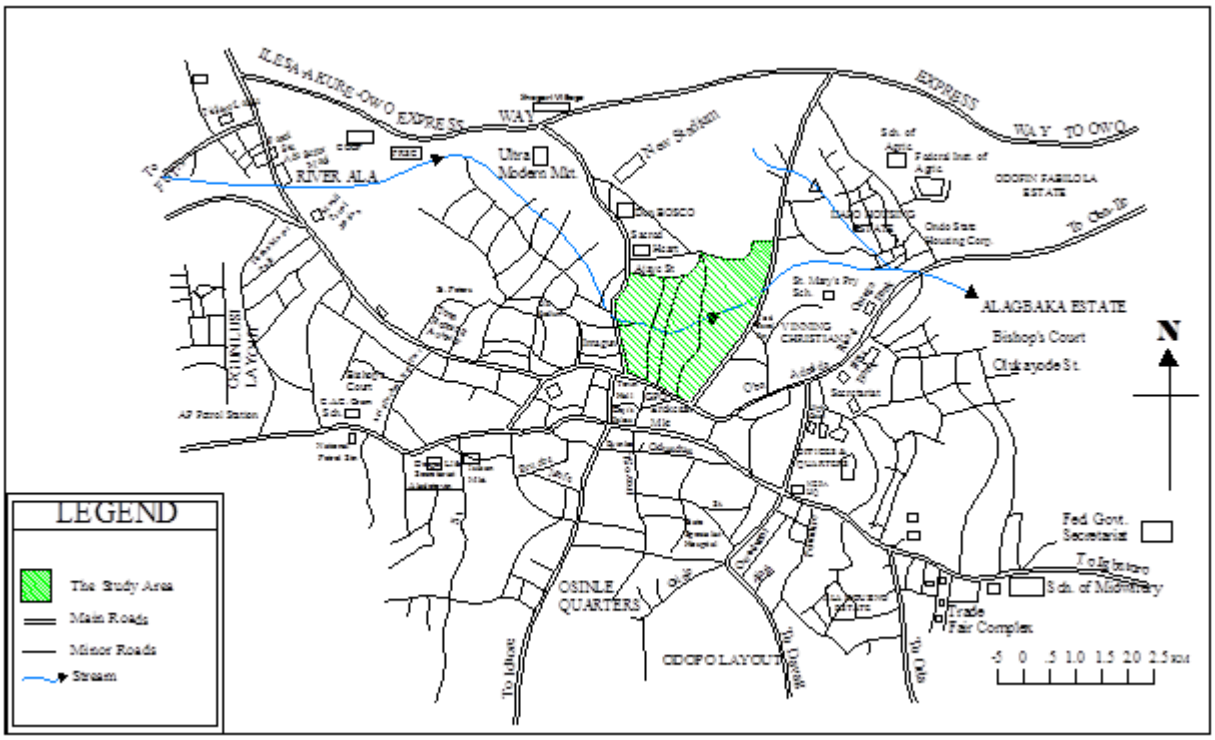

Figure 2b: Map of Akure showing the Study Area. Source: Author's Field Survey (2010).

The materials used for data collection include, mainly, the questionnaire administration, direct observation, housing demographic and facility survey. Secondary data, involving health records and administration of environmental management were sourced from various institutions, ministries and establishments. About 1306 buildings exist in the area, out of which 48 is non-residential, leaving 1258 as target population for the study. From this, a sample size of 20%, amounting to 250 was selected randomly for questionnaire administration. In selecting the respondents, every 5th house in the five streets involved was taken for interview, usually a household-head per building. Hypothesis tested is stated thus: 'There is no significant relationship between environmental sanitation and health condition of residents'.

Results and Discussion

Findings are discussed under two broad sections, showing the association of environmental sanitation and health of the residents of slum communities. These include the condition of environment in the area of study and health hazards identified with their causative factors. Meanwhile, only 230 of the 250 questionnaires administered were retrieved. These were used for the data analysis, representing 92% of the expected responses.

Socio-economic Characteristics of Respondents

The general level of education of respondents is very low. As shown in Table 1, over 50.0% of the respondents have no formal education while only 20.4% go beyond primary level. This affects their level of income as majority (about 50.0%) are either engaged in craft-works, apprentices or unemployed. About 20.0% have no fixed source of income while only 8.3% receive monthly income above #15,000. The implication of this is high rate of poverty level and deprivation, as large number of the populace may be rundown of good quality housing and adequate feeding. The cumulative effect of this is the poor standard of living on different households if nothing positive is done to improve the economic base of the residents.

Table 1: Socio-Economic Characteristics of Respondents.

Variables	Frequency	Percentage
Educational Level		
No Formal Education	129	56.1
Primary Education	54	23.5
Secondary Education	29	12.6
Tertiary Education	18	7.8
Total	230	100.0
Occupational Pattern		
Farming	31	13.5
Craftsmanship	44	19.1
Trading	71	30.9
Civil Service	19	8.3
Unemployment	55	23.9
Apprentices	10	4.3
Total	230	100.0
Income Distributions		
No Fixed Source of Income	44	19.1
Below # 5,000	74	32.2
# 5,000 – 10,000	50	21.7
# 10,001 – 15,000	43	18.7
Above # 15,000	19	8.3
Total	230	100.0

The average household size in the area falls between 5 and 6 people with average density of 14 people per building. Considering the reasons for this congestion, it was discovered that about 57.2% of the respondents living in the area live in their personal buildings with their families, 17.8% live in the area because of low income and low rentage of accommodation compared with other parts of the city, while 25.2% live in the area because of closeness to their place of work so as to reduce transport cost. This presumes high level of pressure that will be mounted on household facilities as well as the few available infrastructures within the neighbourhood. This has consequential effects on environmental sanitation in an urban setting.

Environmental and housing condition

The environmental variables investigated include water quality measured by its sources, condition of sanitary services measured by toilet types, drainage conditions, method of refuse disposal, and condition of bathroom and kitchen services and the totality of environment around dwellings. It also considers the condition of housing and the level of household facilities provided. As shown in Figure 3, about 85.7% sourced their water supply from hand-dug well, most of which are located in unkempt environment without covers and rings. Only 14.3% get theirs through the irregular pipe-borne water supply. This prevailing situation does not guarantee quality water supply in the area as the water obtained from these sources are not treated before used. Hence, the people stand a greater risk of contacting serious water borne diseases.

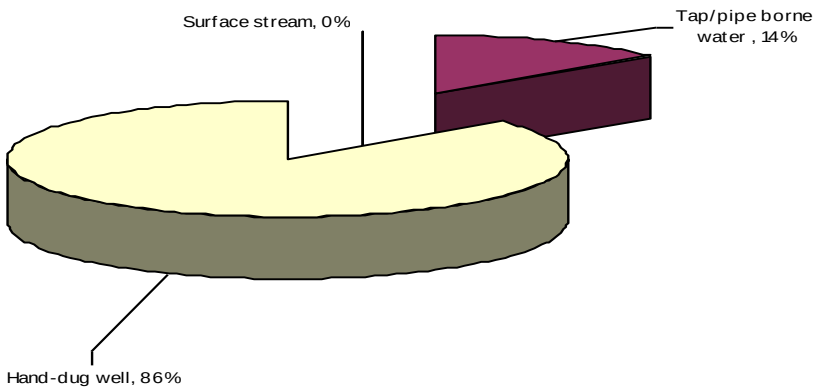

Figure 3: Source of Water Supply.

Further findings reveal that pit-latrine is rampant in the area which account for about 65.2%. Only 10.9% used modern-day water closet while a whole 23.9% do not have provision for the facility at all. Such residents make use of bucket latrine (4.8%), dunghills (11.3%), drainages (7.8%) or squatting in the neighbouring buildings. These conditions present an ugly look of the environment and expose the residents to impending danger of outbreak of communicable diseases. The state of refuse disposal is generally absurd which emanate from laissez-faire approach of the people towards indiscriminate dumping of refuse and delay in evacuation by the waste management authority. Over 30% dispose their refuse indiscriminately, out of which 11.7% burnt theirs within the residential environment thereby causing air pollution. Some, 21.3% and 1.7%, dispose theirs in open spaces and drainages respectively where nobody cares for them. Such constitute breeding grounds for rodents, flies, mosquitoes, snake and harbour for other dangerous animals as well as hindering the free flow of run-off (See Table 2, Plates 1 and 2).

Table 2: Methods of Sewage and Refuse Disposal.

Variables		Frequency	Percentage
Methods of Sewage Disposal	- Pit Latrine	150	65.2
	- Water Closet	25	10.9
	- Bucket (Pail) Latrine	11	4.8
	- Bush /Dunghill	26	11.3
	- Stream/Drainages	18	7.8
Total		230	100.0
Methods of Refuse Disposal	-Free Range @Road side / Drainages	04	1.7
	@Open Spaces	49	21.3
	-Controlled Tipping	150	65.3
	-Incinerating / Burning	27	11.7
Total		230	100.0

In addition, liquid wastes are poorly managed. Waste water from bathrooms, laundries and kitchens are not properly disposed, hence, they constitute foul smelling water for breeding of mosquitoes and dirty ponds for pigs and ducks.

Plate 1: Pit toilets built outdoor and Dilapidated Septic Tank in the Study Area.

Plate 2: Poor condition of Drainages in the Study Area.

The quality of housing in the study area, as shown in Table 3, is very low due to poor quality of building materials used for construction, the inadequate technology, and poor planning standard in handling the building components. According to Fadamiro (2002), the average life-span of traditional mud building is 50 years. It therefore implies that quite a large proportion of housing stock in the study area are aged as over 80.0% of the sampled buildings have spent 30 years and above. Only 10.5% of the buildings are recent construction, which are just below 20 years. In his efforts to establish a correlation between relative habitability of housing and age, he affirmed that buildings erected in more recent time are more habitable than those built much earlier. Thus, a large number of the housing stock in the area has low relative habitability which has consequent effect on the state of health, socio-economic well-being and emotional stability of the residents. Typical example of such building condition is shown Plates 3 and 4.

Table 3: Building Characteristics

Materials used for construction	Frequency	Percentage
(a) Walling – Mud/mud blocks	182	79.1
- Cement/sand-crete blocks	48	20.9
Total	230	100.0
(a) Roofing – Zinc/corrugated iron sheet	225	97.8
- Asbestos materials	05	2.2
Total	230	100.0
Structural Condition – Physically sound	35	15.2
- Need minor repair	80	34.8
- Need major repair	73	31.7
- Old and dilapidated	42	18.3
Total	230	100.0
Age of Building – Below 10 years	11	4.8
10 -19 years	13	5.7
20 –29 years	18	7.8
30 –39 years	55	23.9
40 years and above	133	57.8
Total	230	100.0

Plate 3: Collapsed Buildings and their unkempt environments in the city core.

Plate 4: State of building dilapidation in the city core.

Health Hazards and their Causative Factors

The most prevalent disease and the ecological problem identified in the area, as shown in Figure 4 is malaria fever, accounting for 29.6%. Others in their order of magnitudes include typhoid fever, flooding, diarrhea, cholera, dysentery and some communicable diseases prevalent in the tropics. Their identified causative factors include inadequate sanitary services (57.4%), poor water supply (14.8%), unkempt environment (14.8%), overcrowding (12.2%) and poor drainage system (0.9%). Other health issue investigated involved the availability of health institution within the neighbourhood. About 73.9% indicated non-availability of any within their reach. They are either located farther away from their dwellings or completely absent. Only 26.1% are sure of having at least a chemist store or a mini health clinic within their neighbourhood, thus, low level health care and environmental education.

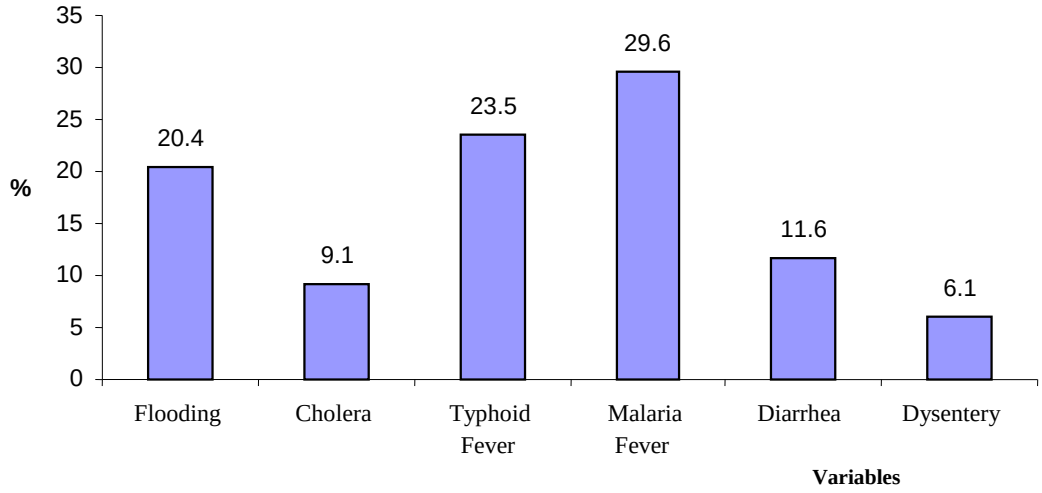

Figure 4: Environmental Related Problems and Diseases in the Study Area.

The correlation analysis computed to investigate the relationship between environmental variables and health conditions of residents show a negative but significant association. This confirms that slum dwellers suffer serious environmental hazards occasioned by such factors examined in the study. It also implies that as these factors increase in number and intensity, so the condition of health of individuals degenerate. Hence, the alternative hypothesis (Hi) is accepted at 0.05 alpha levels. The correlation matrix is shown in Table 4.

Table 4: Correlation Matrix.

		Environmental Variables	Health Variables
Environmental Variables	Pearson Correlation	1.000	-.158*
	Sig. (2-tailed)		.016
	N	230	230
Health Variables	Pearson Correlation	-.158*	1.000
	Sig. (2-tailed)	.016	
	N	230	230

Source: Computer Print Out (Correlation is significant at the 0.05 level (2-tailed).

Recommendations and Policy Guidelines

Based on the major findings in this research, it has become imperative to put up some recommendations that are necessary to improve the environmental and health conditions of the people. The first thing that needs urgent attention is in the area of public enlightenment and environmental and health education. Without grassroots environmental education and enlightenment, enforcement of environmental sanitation laws has very little prospect of success. There is therefore a need to educate the people about the danger of living in disheveled environment, particularly in sub-Saharan nations including Nigeria, where effective and enforceable environmental policies are difficult to implement. This appears to be a possible solution as a preventive measure against the prevailing environmental hazards in the country, as education promotes health. In this regard, the existing laws and regulations guiding environmental sanitation and health should be reviewed and enforced with stiffer actions in order to make it more effective. Meanwhile, the reintroduction of the old sanitary inspectors would be of help to sustain this idea. Also, more attention should be given to waste disposal management through adequate funding. Besides, poverty has been identified as major underlying cause of poor environmental and good health because the poor are incapable of paying for the required amenities for healthy living. As a result, the ongoing national policy on sustainable minimum wage should be extended to all and sundry. Governments should be alive to their responsibilities of making basic amenities that would enable families and individuals to have access and maintain good healthy environment.

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